HOSPITAL-ACQUIRED INFECTIONS

New York State

2010

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Executive Summary

Healthcare-associated infections (HAIs) are a major public health problem. According to the Centers for Disease Control and Prevention (CDC), there were an estimated 1.7 million healthcare-associated infections and 99,000 deaths from those infections in 2002. [1] A recent CDC report estimated the annual medical costs of healthcare-associated infections in U.S. hospitals to be between $28 and $45 billion, adjusted to 2007 dollars.[2] In July of 2005, Public Health Law 2819 was enacted mandating that New York State hospitals report selected hospital-acquired infections (HAIs) to the New York State Department of Health (NYSDOH). 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 control activities in hospitals. In accordance with this law, the NYSDOH compiled 2010 data from 177 hospitals and the results are presented in this report: ***Hospital-Acquired Infections, New York State 2010.***

This is the fourth annual report to be issued since reporting began in 2007. The initial report was submitted to the Governor, Legislature, hospitals and the public on June 30, 2008 followed by the second and third annual reports submitted on June 30, 2009 and September 1, 2010. All New York State (NYS) HAI reports are available at the following web site:

http://www.health.ny.gov/statistics/facilities/hospital/hospital_acquired_infections/

The initial 2007 implementation phase, as defined by Public Health Law 2819 was to: develop a HAI reporting system; train hospitals to use the reporting system; develop standardized definitions, methods of surveillance and reporting; audit and validate the hospitals' infection data; support recommendations to improve the accuracy of data; and modify the system to ensure that hospital-specific infection rates, when released, would be fair, accurate, reliable and comparable. During the pilot year, hospital identifiers and hospital-identifiable data were encrypted by the NYSDOH in all public reports, as required by law.

Since 2008, all reports provide HAI rates identified by hospital and by region for the following surgical site infections (SSIs): colon, coronary artery bypass graft (CABG) and hip replacement, for central line-associated blood stream infections (CLABSIs) in adult, pediatric, and neonatal intensive care units (ICUs) and new for the 2010 report is the addition of HAI rates for gastrointestinal infections due to *Clostridium difficile* (*C. difficile*). In March of 2009, CDC's National Healthcare Safety Network (NHSN) introduced a new *C. difficile* reporting protocol. In July of 2009, as part of a pilot phase, New York was the first state to require hospitals to begin reporting *C. difficile* using the new NHSN protocol. The purpose of the six month pilot phase was to validate the new reporting protocol prior to reporting 2010 hospital rates. New York is the first state to publish validated *C. difficile* rates using the new NHSN *C. difficile* reporting protocol. In addition to the currently reported HAI indictors, hospitals will be required to report abdominal hysterectomy procedures and SSIs related to those procedures beginning January 1, 2012.

METHODS

NYSDOH utilizes the CDC's NHSN system for HAI reporting and was the first state to do so. Only hospitals that performed the selected surgical procedures, provided intensive care or cared for inpatients with *C. difficile* were required to report to the NYSDOH. In 2010, 177 acute care hospitals reported HAI data. Reporting indicators and risk adjustment methods were developed with the help of a Technical Advisory Workgroup (TAW) as required by Public Health Law §2819, section 5(b).

Between 2007 and 2009, the NYSDOH has conducted on-site audits annually in approximately 90 percent of all reporting hospitals. In 2010, on-site audits were conducted in 73% of all reporting hospitals. Surveys identifying infection prevention strategies were returned from 100 percent of reporting hospitals. Survey results and audit findings are under review and an analysis of the findings will be summarized under separate cover.

The CDC recently began using the "standardized infection ratio" (SIR) to report infections. The SIR compares infection rates in one population (such as NYS) with infection rates in a standard population (such as the entire United States), after adjusting for risk factors that might affect the chance of developing an infection. An SIR of 1.0 means the actual number of infections is equal to the number that is statistically expected; an SIR below 1.0 means there were fewer infections than expected; and an SIR above 1.0 means there were more infections than expected.

SUMMARY OF FINDINGS 2010

Analyses conducted of 2010 HAI data are presented below by type of infection, beginning with SSIs and followed by CLABSIs and *C. difficile*.

Surgical Site Infection Data

Between 2007 and 2010, the statewide SSI rate decreased by 15% (SIR = 0.85). The majority of the decrease was due to improvement in colon and CABG SSI rates. There was no significant change in hip SSI rates.

Among the three types of surgical procedures monitored in NYS in 2010, the unadjusted SSI rates were highest for colon surgery (4.9 percent), followed by CABG surgery (chest infections - 2.2 percent; donor site infections - 0.8 percent), and lastly, hip replacement surgery (1.1 percent).

By comparing the number of observed (actual) SSIs since 2008 (N= 4,847) with the number of expected SSIs based on rates in 2007, the NYSDOH was able to calculate the estimated cost savings resulting from decreasing infection rates. Using the 2007 consumer price index (CPI) for inpatient hospital services, the dollar savings was estimated to be between $7.9 million and $23.1 million for colon, CABG, and hip replacement procedures since reporting began in 2007. The methods used to derive these estimates were developed by CDC.[2]

Colon Surgical Site Infections

Results

- 173 hospitals performed 16,849 colon surgery procedures and reported 840 colon SSIs in 2010, for an SSI rate of 5.0 per 100 procedures. Between 2007 and 2010, the NYS colon SSI rate declined 16.1% from 5.9 infections per 100 procedures in 2007 to 5.0 infections per 100 procedures in 2010. The downward trend in SSI rates was statistically significant.

- Of the 173 hospitals performing colon surgery in 2010, seven hospitals (4.0%) had rates that were statistically higher than the state average and eight (5.0%) had rates that were statistically lower than the state average in 2009. Of the seven hospitals that had significantly high colon SSI rates in 2009, only two continued to be significantly higher than the state average in 2010.

- In 2010, 40 (23%) hospitals reported zero colon surgical site infections, but the majority of these facilities did not perform a sufficient number of procedures to include in the report or, if reported, there were not enough procedures to be statistically significant.

- The colon SIR of 0.97 for NYS is comparable to the national SIR, as it is very close to 1.0.

- Of the 890 SSIs reported, 91 percent were identified during the initial hospitalization or readmission to the same or another hospital. Of the 9 percent of SSIs detected in outpatient settings, the majority were identified as superficial infections.

- Of the 890 colon SSIs, methicillin-resistant *Staphylococcus aureus* (MRSA) was identified in 64 (7%) of infections and was involved in just 0.4 percent of all colon procedures.

Lessons Learned

- Since 2007, the NYS colon SSI rates continue to show a statistically significant downward trend.

- The majority of SSIs were recognized on initial admission or readmission to a hospital. The majority of SSIs identified in outpatient locations were reported as superficial.

- Detection of colon SSIs in outpatient settings is extremely variable, labor intensive, and could not be standardized across hospitals. As a result, the NYSDOH continues to exclude these infections in the hospital-specific comparisons.

- Data validation methods, such as audits, ensure accurate reporting and may affect reported SSI rates, especially when compared to other states that have recently implemented mandated reporting but do not have a data validation process.

- MRSA was not a common organism in colon SSIs, which is consistent with previous HAI public reports for NYS.

Coronary Artery Bypass Graft (CABG) Surgical Site Infections

Results

- Thirty-nine hospitals performed 12,414 CABG procedures and reported 277 CABG chest SSIs in 2010, for an SSI rate of 2.2 per 100 procedures.

- Between 2007 and 2010, the statewide CABG chest SSI rate significantly declined 17.3%, from 2.7 infections per 100 procedures in 2007, to 2.2 infections per 100 procedures in 2010.

- Of the 39 reporting hospitals, three (8%) hospitals had CABG chest SSI rates that were statistically higher than the state average, and four (10%) hospitals had rates that were statistically lower than the state average in 2010. Of the three hospitals with high SSI rates in 2010, one also had statistically higher rates than the state average in both 2008 and 2009, and one in only 2009. Compared with the state average in 2010, one hospital had a significantly lower CABG chest SSI rate in both 2008 and 2009, and only one hospital had a significantly lower rate in 2009.

- The CABG chest infection SIR is 1.16 for NYS, which is statistically higher than the national SIR.

- Of 277 CABG chest SSIs reported, 96% were identified during the initial hospitalization or readmission to the same or to another hospital, of which the depth of the SSI was equally distributed amongst, superficial, deep and organ space. Of the 4% of SSIs detected in outpatient settings, the majority were identified as superficial infections.

- MRSA was identified in 41 (15%) of the 277 CABG chest SSIs and was involved in just 0.3 percent of all CABG procedures. Other staphylococci and other bacteria are reported more frequently than MRSA in these infections.

- Of the 12,414 CABG procedures, 11,433 involved a separate donor site. Of the 11,433 procedures, 100 (0.9 per 100) procedures using NHSN risk adjustment, resulted in a donor vessel SSI.

- Between 2007 and 2010, the CABG donor site SSI rate for NYS significantly declined 22.5%, from 1.1 infections per 100 procedures in 2007, to 0.87 infections per 100 procedures in 2010.

- Hospital-specific CABG donor site SSI rates in two (5%) hospitals were significantly higher than the state average and two (5%) hospitals had a rate that was significantly lower than the state average in 2010. No hospital continued to have a CABG donor vessel SSI rate in 2008 or 2009 that remained higher or lower than the state average in 2010.

- Eleven (28%) hospitals reported zero CABG donor site infections in 2010. This is a 57% increase over 2009.

- There was no association between SSI rates and the number of procedures performed with a separate donor site.

- Of the 11,433 CABG procedures involving a separate donor site, MRSA was identified in 15 (15%) of infections and was involved in just 0.1% of all CABG donor vessel site procedures. Other bacteria are reported more frequently than MRSA in these infections.

- Of the 100 CABG donor vessel SSIs reported, 91% were identified during the initial hospitalization or on readmission to the same or another hospital. The majority of these were reported as superficial infections. Of the 9% of SSIs detected in outpatient settings, the majority were identified as superficial infections.

Lessons Learned

- Since reporting began in 2007 CABG, chest and donor site SSI rates have decreased significantly.

- The majority of CABG SSIs were recognized on initial admission or readmission to a hospital. The majority of SSIs identified in outpatient locations were reported as superficial.

- Detection of CABG SSIs in outpatient settings is extremely variable, labor intensive, and could not be standardized across hospitals. As a result, the NYSDOH continues to exclude these infections in the hospital-specific comparisons.

- The CABG chest SIR for NYS may appear higher than the national rate because NYS has had a strong data validation program since 2007, while states that have more recently implemented reporting mandates have not yet begun data validation. The data validation process is likely to increase reported HAI rates.

- MRSA was not one of the most common organisms involved in CABG SSIs.

Hip Surgical Site Infections

Results

- 167 hospitals performed 26,286 hip replacement or revision surgeries and reported 294 hip SSIs, for a rate of 1.1 per 100 procedures.

- Between 2008 and 2010, there was no significant change in NYS hip replacement or revision SSI rates.

- Of the 167 hospitals, seven (4%) hospitals had hip SSI rates that were significantly higher than the state average, and one hospital had a rate that was significantly lower than the state average in 2010. Of the seven hospitals with higher rates in 2009, none were

significantly higher in 2010. The only hospital with a lower hip SSI rate in 2008 and 2009 continued to be significantly lower in 2010.

- The hip replacement/revision infection SIR of 1.01 for NYS is comparable to the national SIR, as it is very close to 1.0.

- Sixty-nine (41%) hospitals reported zero hip SSIs in 2009.

- Of the 294 hip SSIs reported, 92% were identified during initial hospitalization or upon readmission to the same or another hospital, of which the depth of the SSI was equally distributed amongst the three categories (superficial, deep and organ) space. Of the 8 percent of SSIs detected in outpatient settings, the majority were identified as superficial infections.

- Of the 294 hip SSIs, MRSA was not the most common organism. MRSA was identified in 79 (27%) of the hip SSIs, which is a decrease when compared to 2009, and was involved in just 0.3 percent of all hip replacement/revision procedures.

Lessons Learned

- The majority of hip SSIs were recognized on readmission to a hospital. The majority of SSIs identified in outpatient locations were reported as superficial.

- Detection of hip SSIs after hospital discharge is extremely variable, is labor intensive, and could not be standardized across hospitals. As a result, the NYSDOH continues to exclude these infections in the hospital-specific comparisons.

- MRSA has decreased since 2009, but remains one of the most common organisms involved in hip SSIs. Nevertheless, MRSA was an extremely rare event occurring in only 0.3 percent of procedures.

- The hip replacement/revision SIR for NYS is comparable to the national SIR. NYS has had a strong data validation program since 2007, while states that have more recently implemented reporting mandates have not yet begun data validation. The data validation process is likely to increase reported HAI rates.

<u>Recommendations and Next Steps for Colon, CABG and Hip Replacement SSIs</u>

- The NYSDOH will continue to monitor hospitals for data reporting completeness, timeliness and accuracy. Technical assistance will be provided as needed.

- The NYSDOH will evaluate facilities with the highest and lowest infection rates, determine if there are surveillance and reporting differences, assess trends over time, and identify interventions to reduce infections and enhance patient safety.

- The NYSDOH will analyze the surveys conducted during 2010 and incorporate the results into the findings from the 2008 and 2009 survey review to identify strategies that are potentially effective in preventing colon, CABG, and hip replacement SSIs.

- The NYSDOH will consult with infection preventionists, hospital epidemiologists, and surgeons, to identify risk factors and prevention strategies to reduce colon, CABG, and hip replacement SSIs.

- The NYSDOH will provide hospitals information on useful strategies and interventions to reduce SSIs and work with hospitals to ensure adoption of policies and procedures that enhance patient safety.

- Hospitals must closely monitor infection rates, implement prevention and control interventions and measure effectiveness of the interventions using the HAI reporting data.

Central-Line Associated Blood Stream Infection (CLABSI) Data

In 2010, NYS monitored CLABSI rates in eight types of intensive care units (ICUs): cardiothoracic, coronary, medical, medical-surgical, neonatal (NICU), neurosurgical, pediatric, and surgical units.

By comparing the number of observed (actual) CLABSIs since 2008 (N=3,874) with the number expected based on rates in 2007, the NYSDOH was able to calculate the estimated cost savings. Using the 2007 consumer price index (CPI) for inpatient hospital services, the dollar savings was estimated to be between $7.3 million and $29.4 million in adult, pediatric, and neonatal ICUs since reporting began in 2007. The methods used to derive these estimates were developed by CDC.[2]

<u>CLABSIs in Adult, Pediatric, and Neonatal ICUs</u>

Results

- In 2010, 173 hospitals reported 1,007 CLABSIs from 394 ICUs including medical, surgical, medical/surgical, cardiac, cardiothoracic, neurosurgical, pediatric, and neonatal ICUs.

- Since 2007, there has been a 37% reduction in adult/pediatric and neonatal ICU CLABSI rates in NYS after adjusting for type of ICU and birth weight in NICUs. The significant decreases continued to occur in cardiothoracic, medical, pediatrics, Regional Perinatal Center (RPC) NICUs and surgical ICUs. In 2010, combined medical/surgical ICUs and Level III NICUs had a significantly decreased rate when compared to the state average. None of the ICUs had a significant increase in CLABSI rates between 2007 and 2010.

- Between 21% to 50% of adult and pediatric ICUs reported zero CLABSIs.

- In RPC NICUs the CLABSI rate continued to significantly decrease from 2007 (3.9 per 1000 line days) to 2010 (1.6 per 1000 line days).

- In Level III NICUs not designated as RPCs, the CLABSI rate decreased from 2009 (3.5 per 1000 line days to 2010 (2.9 per 1000 line days).

- The Level II/III NICU CLABSI rate in 2010 (4.8 per 1000 line days) increased when compared to 2009 (3.8 per 1000 line days).

- The CLABSI SIR was 1.21 for NYS, which is statistically higher than the national SIR. Specifically, the significant differences occurred within medical/surgical non-major teaching (1.4), neurosurgical (1.4), cardiothoracic (1.1), and neonatal Level II/III ICUs (1.5).

- Hospital CLABSI rates varied within ICU settings as follows:

  - Cardiothoracic ICU CLABSI rates were significantly higher in one hospital when compared to the state average.
  - Coronary ICU CLABSI rates were significantly higher in one hospital and significantly lower in one hospital when compared to the state average.
  - Medical ICU CLABSI rates were significantly higher in six hospitals and significantly lower in five hospitals when compared to the state average. One of the hospitals with a significantly lower rate in 2010 was also low in 2008 and 2009. Two hospitals with a significantly higher rate than the state average were also higher in both 2008 and 2009.
  - Medical-Surgical ICU CLABSI rates were significantly higher in five hospitals and lower in three hospitals when compared to the state average. One hospital with a higher rate in 2010 was also higher than the state average in 2008 and 2009. One hospital with a lower rate in 2010 was also lower than the state average in 2008 and 2009.
  - Neurosurgical ICU CLABSI rates were not significantly different in any hospital when compared to the state average.
  - Pediatric ICU CLABSI rates were not significantly different in any hospital when compared to the state average.
  - Surgical ICU CLABSI rates were significantly higher in 2 hospitals, and 2 hospitals were significantly lower when compared to the state average.
  - No hospitals had a significantly higher rate or lower rate than the state average in 2008, 2009 and 2010.
  - RPC CLABSI rates were significantly higher in 2 hospitals when compared to the state average.
  - Level III NICU CLABSI rates were significantly higher in one hospital and significantly lower in one hospital when compared to the state average.
  - Level II/III NICU CLABSI rates were not significantly different in any hospital when compared to the state average.
  - MRSA was not one of the common organisms associated with CLABSIs in adult, pediatric and neonatal ICU patients. MRSA was detected in 4% of adult and pediatric ICUs infections and in 3% of NICU infections.

Lessons Learned

- Since 2007, hospitals have made significant strides in reducing CLABSIs in all adult and pediatric ICUs as well as RPC and Level III NICUs.

- A report of zero CLABSIs in specific ICUs may not be statistically significant due to low numbers of patients and days with a central line.

- NYS conducts intensive audits to assure complete and accurate reporting of HAIs. At the present time, only ten other states conduct audits on CLABSI reporting. In CDC's first and second State-Specific Healthcare-Associated Infections Summary Data Report,[3,4,5] states with data validation programs tended to have higher CLABSI rates than states without data validation programs.

- Unless or until other states have the same extensive audit and validation processes, comparisons between state and national rates may be misleading.

- MRSA was not found to be a common organism associated with CLABSIs in adult, pediatric and neonatal ICUs. Targeting resources solely for prevention of MRSA-associated CLABSIs in ICUs is not warranted.

- The reduction of CLABSIs in all ICUs resulted in significant healthcare cost savings and enhanced patient safety.

<u>Recommendations and Next Steps for CLABSIs and Reporting</u>

- The NYSDOH will continue to monitor all hospitals for data reporting completeness, timeliness and accuracy. Technical assistance will be provided as needed.

- The NYSDOH will continue to evaluate hospitals with the highest and lowest rates of CLABSIs to ensure complete and accurate reporting, assess trends over time, and identify interventions to reduce infections and enhance patient safety.

- The NYSDOH will analyze the surveys conducted during 2010 and incorporate the results, along with the findings from the 2008 and 2009 surveys, into a summary to identify strategies that are potentially effective in reducing ICU CLABSIs.

- The NYSDOH will consult with infection preventionists, hospital epidemiologists, physicians, and neonatologists to identify evidence-based infection prevention strategies to reduce infections and enhance patient safety.

- The NYSDOH will provide hospitals with information on useful strategies and interventions to reduce SSIs and work with hospitals to ensure adoption of policies and procedures that enhance patient safety.

Clostridium difficile Infections in Acute Care Hospital Patients

In July 2009, as part of a pilot phase, NYS was the first state to require hospitals to report all inpatient adult and pediatric laboratory-confirmed *C. difficile* cases using the new NHSN protocol. The six-month pilot phase was designed to validate the new reporting protocol prior to reporting 2010 hospital rates. NYS is the first state to publish validated *C. difficile* rates using the new NHSN *C. difficile* reporting protocol. No national data on *C. difficile* rates are available to compare with NYS rates.

C. difficile cases are divided into different categories based on whether the patient became ill in the hospital or the community:

- Hospital-onset (HO) cases are those in which the patient developed the infection during the hospital stay.
- Community-onset-possibly-my-hospital (CO-PMH) cases are those in which the patient is admitted to the hospital with a new *C. difficile* infection and had been discharged from that same hospital within the past 4 weeks.
- Community-onset-not-my-hospital (CO-NMH) cases are those in which the patient is admitted to the hospital with a new *C. difficile* infection and had *not* been discharged from that same hospital in the last 4 weeks.

Results

- In 2010, NYS hospitals reported 5,928 CO-NMH *C. difficile* infections (that is, infections not acquired at that hospital) from 2,294,007 patient admissions for a rate of 0.26 per 100 admissions. There were 10,125 HO *C. difficile* infections reported from 12,381,645 patient days for a HO rate of 8.2 per 10,000 patient days.

- Hospital *C. difficile* HO rates ranged from 0 to 21 per 10,000 patient days.

- Evaluation of the July-December 2009 pilot phase *C. difficile* data based on laboratory confirmed events of HO, CO-PMH, and CO-NMH infections led to on-site audits in 93 (52%) hospitals. The audits revealed 7% of *C. difficile* infections were underreported and 2% overreported.

Lessons Learned

- The new 2009 NHSN protocol is a reliable method for reporting and establishing hospital and State *C. difficile* rates.

- Hospital underreporting and overreporting of *C. difficile* cases was almost always the result of a misunderstanding of reporting requirements or miscommunication between the laboratory and infection prevention staff.

- Public reporting of *C. difficile* rates is an important and necessary first step in understanding impact of *C. difficile* on patients, especially for developing prevention strategies and evaluating progress in reducing hospital and statewide HO rates.

- Different laboratory *C. difficile* testing practices may influence an individual hospital's rates.

- Determining the influence of CO-NMH infections on hospital rates is difficult because CO-NMH cases include patients admitted or readmitted to the hospital from other healthcare facilities (nursing homes, other hospitals, outpatient clinics), as well those with no prior healthcare facility exposure.

- The reported *C. difficile* rates should be used by hospitals as a baseline for tracking *C. difficile* rates within their own facility over time. They should not be used to make comparisons between hospitals because they are not risk-adjusted to account for differences in hospitals' patient populations and because of variation in hospitals' testing practices.

Recommendations and Next Steps for *C. difficile* and Reporting

- The NYSDOH will continue to monitor hospitals for data reporting completeness, timeliness and accuracy. Technical assistance to reduce *C. difficile* rates will be provided as needed.

- The NYSDOH will evaluate hospitals with the highest and lowest rates of HO *C. difficile* to ensure complete and accurate reporting, assess trends over time and identify interventions to reduce infections and enhance patient safety.

- The NYSDOH will consult with infection preventionists, hospital epidemiologists, and physicians to identify evidence-based infection prevention strategies to reduce infections and enhance patient safety.

- The NYSDOH will provide hospitals with information about useful strategies and interventions to reduce *C. difficile* infections and encourage adoption of policies and procedures that reduce risk and enhance patient safety.

Infection Prevention Resources

To measure the impact of mandatory HAI reporting on infection prevention personnel and programs, an infection prevention resource survey is conducted annually. In 2010, the average FTE infection preventionist in NYS was responsible for 133 acute care beds or an aggregate measure equivalent to 250 acute care beds. Staffing levels have been stable over the past three years.

OVERALL LESSONS LEARNED

- No hospital in NYS was found to have high HAI rates across all reporting categories. In other words, a hospital may have had a high SSI rate for one type of surgery, but the hospital did not have a high infection rate for other surgical procedures or CLABSIs.

- Targeting resources solely for prevention of MRSA-associated CLABSIs in ICUs is not warranted given that the relative proportion of CLABSIs attributed to MRSA is low.

- NYSDOH staff members were able to use the NHSN to identify hospitals with the highest infection rates, target areas in need of improvement, recommend prevention strategies and monitor progress over time.

- Hospitals had access to their own data and were able to compare their rates to national levels and monitor trends over time. In addition, groups involved in quality improvement and patient safety projects utilized the NHSN to monitor the effectiveness of infection prevention interventions.

- Strict adherence to the surveillance definitions is critical to provide consistency and comparability of data across hospitals. While additional clinical findings may be necessary to make treatment decisions, they may not be available or appropriate for mandatory reporting purposes because of variation between providers and institutions.

- Post-discharge surveillance methods continue to be highly variable, resource dependent, influenced by availability of hospital information systems, and an important factor affecting the number of reported infections. The majority of severe infections continue to be detected during the initial hospitalization or upon readmission. In order to fairly compare hospitals and avoid penalizing facilities with the best surveillance systems, the NYSDOH will continue to exclude SSIs detected solely by post-discharge surveillance but will continue to monitor the impact of this decision.

- Timely and complete data submission has improved but can be affected by infection control staffing turnover, vacant positions and the need for education and training to comply with the reporting mandate. Hospitals have improved in providing back-up personnel to ensure compliance with reporting requirements and patient safety.

- Hospitals need to integrate health information technology systems to support infection prevention and reporting efforts. Despite HAI program recommendations from 2008 that hospitals use electronic data entry of operating room procedure log information, only 30% of hospitals utilize this technology. The remaining 70% of hospitals continue to manually enter this data into the NHSN.

- NYS conducted intensive audits to assure complete and accurate reporting of all required HAIs. Only five other states conducted audits on CLABSI rates at the time CDC issued a state-based CLABSI rate report. All of the states conducting audits had higher rates of CLABSI when compared to national data[5]. Until other states have the same extensive audit processes, comparisons with national rates may be misleading.

- Using the 2007 CPI for inpatient services, reduction of HAIs since 2008 has resulted in an estimated cost savings of between $7.9 million to $23.1 million for SSIs and $7.3 million to $29.4 million for CLABSIs in NYS. These healthcare cost savings will impact and enhance patient safety efforts.

HAI REPORTING PROGRAM – NEXT STEPS

The NYSDOH will work to improve HAI reporting and infection prevention efforts including taking the following actions:

- Continue to focus on hospitals with the highest and lowest infection rates to identify risk factors for infection and opportunities for improvement.
- Integrate the hospital-specific infection rates into the NYSDOH's hospital profile web site, in a manner that is easy to understand.
- Continue to monitor the accuracy and timeliness of data being submitted, discuss findings, ensure corrective action is taken, and provide technical assistance as needed.
- Conduct onsite audits to evaluate surveillance methods, verify appropriate use of surveillance definitions, and assess completeness and accuracy of reporting.
- Continue to provide education, training, and ongoing support to hospital infection reporting staff.
- Continue to provide hospitals with information about risk factors, strategies and interventions and to encourage adoption of policies and procedures to reduce risk and enhance patient safety.
- Evaluate and monitor the effect of prevention practices on infection rates and seek opportunities to enhance patient safety.
- Evaluate the relationship between infection prevention personnel resources and surveillance activities, infection rates, and prevention projects.
- Collaborate with other NYSDOH staff to investigate outbreaks and evaluate emerging trends.
- Consult with infection preventionists, hospital epidemiologists, surgeons, neonatologists, and the Cardiac Advisory Committee to identify risk factors and prevention strategies to reduce infections.
- Monitor HAI prevention projects for compliance with program objectives, fiscal responsibility and potential applicability to other hospitals or healthcare settings.
- Continue to work with the TAW and seek guidance on the selection of reporting indicators, evaluation of system modifications, evaluation of potential risk factors, methods of risk adjustment and presentation of hospital-identified data.
- Continue to, refine and report hospital-specific HAI indicators to allow consumers to make informed choices.
- Evaluate the impact of audit and validation on reported HAI infection rates and state-based comparisons.

CONCLUSION

Since NYS hospitals have been reporting HAIs to the NYSDOH, it has become clear that the NHSN is a useful tool to monitor HAI rates and evaluate the effectiveness of prevention strategies. Hospitals have continuous access to their own data and can compare their rates to national levels and monitor trends over time. In addition, the NYSDOH has continuous access to

the data reported by the hospitals for consistent real-time surveillance, identification of trends, and provision of technical assistance as needed. The collected data are made available to the public annually, allowing the public to review hospitals' performance for these particular procedures and giving the public the information they need to help guide their personal medical decisions. The public reporting of HAIs, which began in 2007, has been a factor in significant reductions in SSIs and CLABSIs. These healthcare cost savings will impact and enhance patient safety efforts.

Background

A hospital-acquired infection (HAI) is an infection acquired as a result of treatment in a hospital. 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 CDC's National Healthcare Safety Network (NHSN). This online system allows hospitals, NYS, and CDC to concurrently monitor the same data. The NHSN has become the standard for reporting in the United States, with 22 states using the NHSN for mandatory reporting. 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, a panel of experts in the prevention and reporting of HAIs. In 2007, hospitals were required to report central line-associated blood stream infections (CLABSI) in intensive care units (ICU), and surgical site infections (SSI) following colon and coronary artery bypass graft (CABG) surgeries. In 2008, hip SSIs were added. In March of 2009, CDC's NHSN introduced a new *Clostridium difficile* (*C. difficile*) reporting protocol. In July of 2009 as part of a pilot phase, NY was the first state to require hospitals to begin reporting *C. difficile* using the new NHSN protocol. The six month pilot phase was designed to validate the new reporting protocol prior to reporting 2010 hospital rates. Hospital *C. difficile* rates are included for the first time in this 2010 report. NY is the first state to publish validated *C. difficile* rates using the new NHSN *C. difficile* reporting protocol. Hospitals will be required to report abdominal hysterectomy procedures and SSIs beginning January 1, 2012. Table 1 summarizes the progression of reporting.

Table 1: Hospital Acquired Infections Reported by New York State Hospitals, by Year

Type of Infection	2007	2008	2009	2010	2011	2012
ICU Central line-associated blood stream infections	✓	✓	✓	✓	✓	✓
Colon surgical site infections	✓	✓	✓	✓	✓	✓
Coronary artery bypass graft surgical site infections	✓	✓	✓	✓	✓	✓
Hip replacement surgical site infections		✓	✓	✓	✓	✓
Clostridium difficile infections				✓	✓	✓
Abdominal hysterectomy surgical site infections						✓

This report summarizes HAI rates in 177 acute care hospitals in NYS in 2010. Rates are provided by individual hospital, region, and state. This report, as well as reports from previous years, is available on our website, at:

http://www.health.ny.gov/statistics/facilities/hospital/hospital_acquired_infections/

Hospital-Acquired Surgical Site Infections

Surgical Site Infections (SSIs) are infections that occur after the operation in the part of the body where the surgery took place. Most SSIs only involve the skin surrounding the incision; others may be deeper and more serious. Infections related to the following types of surgery were reported by NYS hospitals:

- Colon - Colon surgery is a procedure performed on the lower part of the digestive tract, which is called the large intestine or colon. Colon SSIs, regardless of the extent/depth, are infections that occur within 30 days of the initial procedure.

- 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 is used to create an alternate path for blood to flow to the heart, bypassing a blocked artery. CABG SSIs that involve the skin surrounding the chest and donor site incisions are reported if they occur within 30 days of the initial procedure. Chest incision SSIs that extend to deeper tissues below superficial skin are reported if they occur within 1 year from the initial procedure.

- 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. SSIs that involve the skin surrounding the incision are reported if they occur within 30 days of the initial procedure. SSIs that extend to deeper tissues below the superficial skin are reported if they occur within 1 year from the initial procedure.

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

For each type of SSI, the following pages describe:

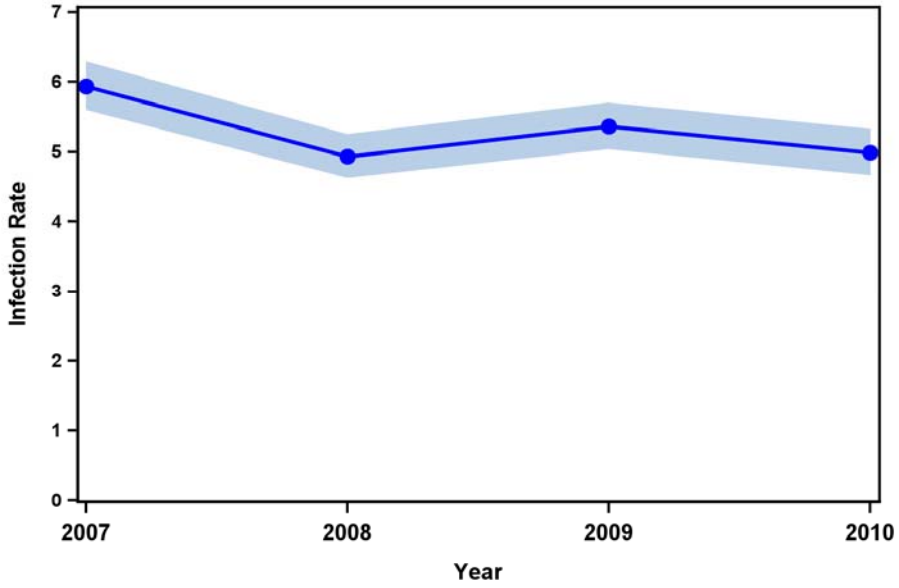
- statewide time trends;
- severity (depth) of infections;
- microorganisms involved; and
- each hospital's risk-adjusted infection rate compared to the state average.

Colon Surgical Site Infections

Time trends in Colon SSIs

In 2010, 173 hospitals reported colon surgical procedures. Between 2007 and 2010, the NYS colon surgical site infection rate declined 16.1%, from 5.9 infections per 100 procedures in 2007, to 5.0 infections per 100 procedures in 2010 (Figure 1). The downward trend was statistically significant.

Figure 1. Trend in Colon Surgical Site Infection Rates, New York State 2007-2010
(shading represents 95% confidence interval)



Year	# Hospitals	# Infections	# Procedures	Infection Rate and 95% Confidence Interval*
2007	183	1,067	17,965	5.94 (5.60, 6.29)
2008	179	894	18,135	4.93 (4.62, 5.25)
2009	174	935	17,436	5.36 (5.03, 5.71)
2010	173	840	16,849	4.99 (4.66, 5.32)

New York State Data reported as of June 30, 2011.
* Infection rate is the number of infections divided by the number of procedures, multiplied by 100. These rates are not risk-adjusted.

Depth of colon SSIs

Of the 840 colon SSIs reported in 2010, 422 (50%) were superficial, 143 (17%) were deep, and 275 (33%) were organ space (Table 2). The majority of the SSIs (63%) were detected during the initial hospitalization, 28% were identified upon readmission to the same hospital, 0.2% involved readmission to another hospital, and 9% were detected in outpatient locations. The majority of the infections detected in outpatient locations were superficial. Detection of SSIs in outpatient locations (using post discharge surveillance [PDS]) is labor intensive and is not standardized across hospitals; therefore, the NYSDOH did not include these 74 infections for hospital-specific comparisons. The detection and depth of colon SSIs is consistent with previous published NYS HAI public reports.

Table 2. Method of Detection of Colon Surgical Site Infection by Depth of Infection, New York State 2010

	When Detected				
Extent (Row%) (Column%)	**Initial Hospitalization**	**Readmitted to the Same Hospital**	**Readmitted to Another Hospital**	**Detected in Outpatient Settings**	**Total**
Superficial Incisional	271 (64.2%) (50.9%)	82 (19.4%) (35.3%)	0 (0.0%) (0.0%)	69 (16.4%) (93.2%)	422 (50.2%)
Deep Incisional	97 (67.8%) (18.2%)	42 (29.4%) (18.1%)	1 (0.7%) (50.0%)	3 (2.1%) (4.1%)	143 (17.0%)
Organ Space	164 (59.6%) (30.8%)	108 (39.3%) (46.6%)	1 (0.4%) (50.0%)	2 (0.7%) (2.7%)	275 (32.7%)
Total	532 (63.3%)	232 (27.6%)	2 (0.2%)	74 (8.8%)	840

New York State data reported as of June 30, 2011.

Microorganisms Associated with Colon SSIs

In NYS, the most common microorganisms associated with colon SSIs were Enterococci, *Escherichia sp.,* and *Staphylococcus aureus.* Methicillin-resistant *Staphylococcus aureus* (MRSA) accounted for 7 percent of colon SSIs (Table 3). The distribution of microorganisms associated with colon SSIs is consistent with previously published NYS HAI public reports.

Table 3. Microorganisms Identified in Colon Surgical Site Infections, New York State 2010

Microorganism	Number of Isolates	Percent of Infections
Enterococci	259	30.8
(VRE)	(60)	(7.1)
Escherichia coli	195	23.2
Staphylococcus aureus	87	10.4
(MRSA)	(60)	(7.1)
Pseudomonas spp.	70	8.3
Bacteroides	67	8.0
Coagulase negative staphylococci	61	7.3
Klebsiella spp.	51	6.1
Streptococci	46	5.5
Enterobacter spp.	35	4.2
Yeast	32	3.8
Proteus spp.	27	3.2
Citrobacter spp.	22	2.6
Morganella morganii	12	1.4
Clostridium spp.	11	1.3
Prevotella spp	6	0.7
Other	36	4.3

New York State data reported as of June 30, 2011
Out of 840 infections (includes post-discharge surveillance)
No microorganisms identified for 222 infections
VRE: vancomycin-resistant enterococcus
MRSA: methicillin-resistant *Staphylococcus aureus*
spp: multiple species

Risk-Adjustment for Colon SSIs

Certain patient and procedure-specific factors increased the risk of developing an SSI following colon surgery. Patient age, differences in general anesthesia, transfusion, and hospital surgical volume were not associated with the risk of SSIs. In 2010, after excluding SSIs reported as part of PDS methods that did not result in hospitalization, the following risk factors were associated with SSIs. These variables had the following impacts on hospital-specific rates and therefore were included in the risk-adjustment.

- Patients with an American Society of Anesthesiologists (ASA) score of 3, 4, or 5 were 1.3 times more likely to develop an SSI than patients with an ASA score of 1 or 2.
- Procedures with duration greater than approximately 3 hours were 1.5 times more likely to result in SSI than procedures of shorter duration.
- Procedures on contaminated or dirty intraoperative surgical sites were 1.2 times more likely to result in SSI than procedures on clean-contaminated site.

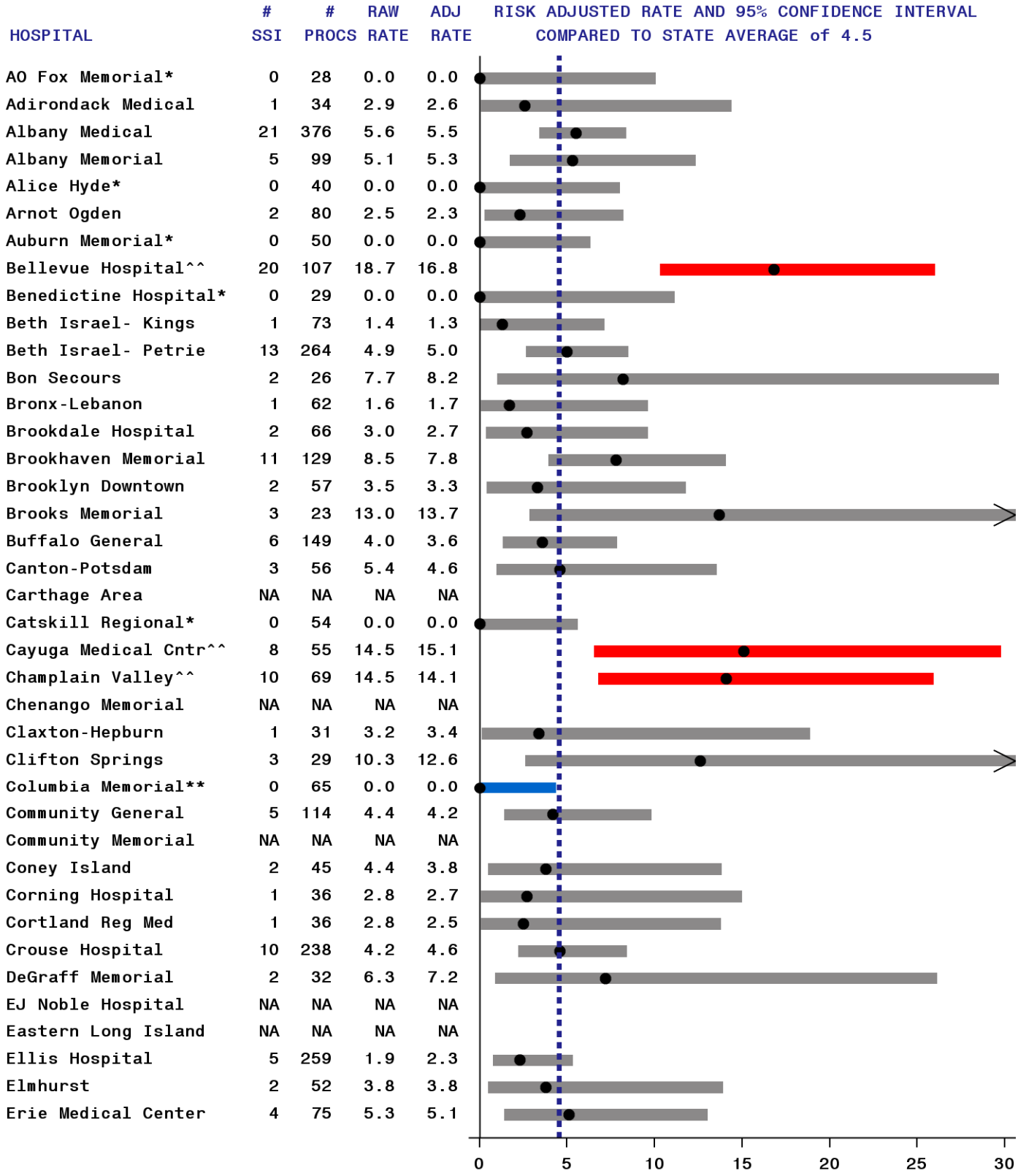
- Procedures performed entirely with a laparoscopic instrument were 0.7 times less likely to result in SSI than procedures that involved traditional surgical incisions.

Hospital-specific Colon SSI Rates

Risk-adjusted hospital-specific colon SSI rates were calculated after deleting the 74 infections that were detected using PDS and did not result in hospitalization. This changed the State colon SSI rate from 4.99% to 4.55%.

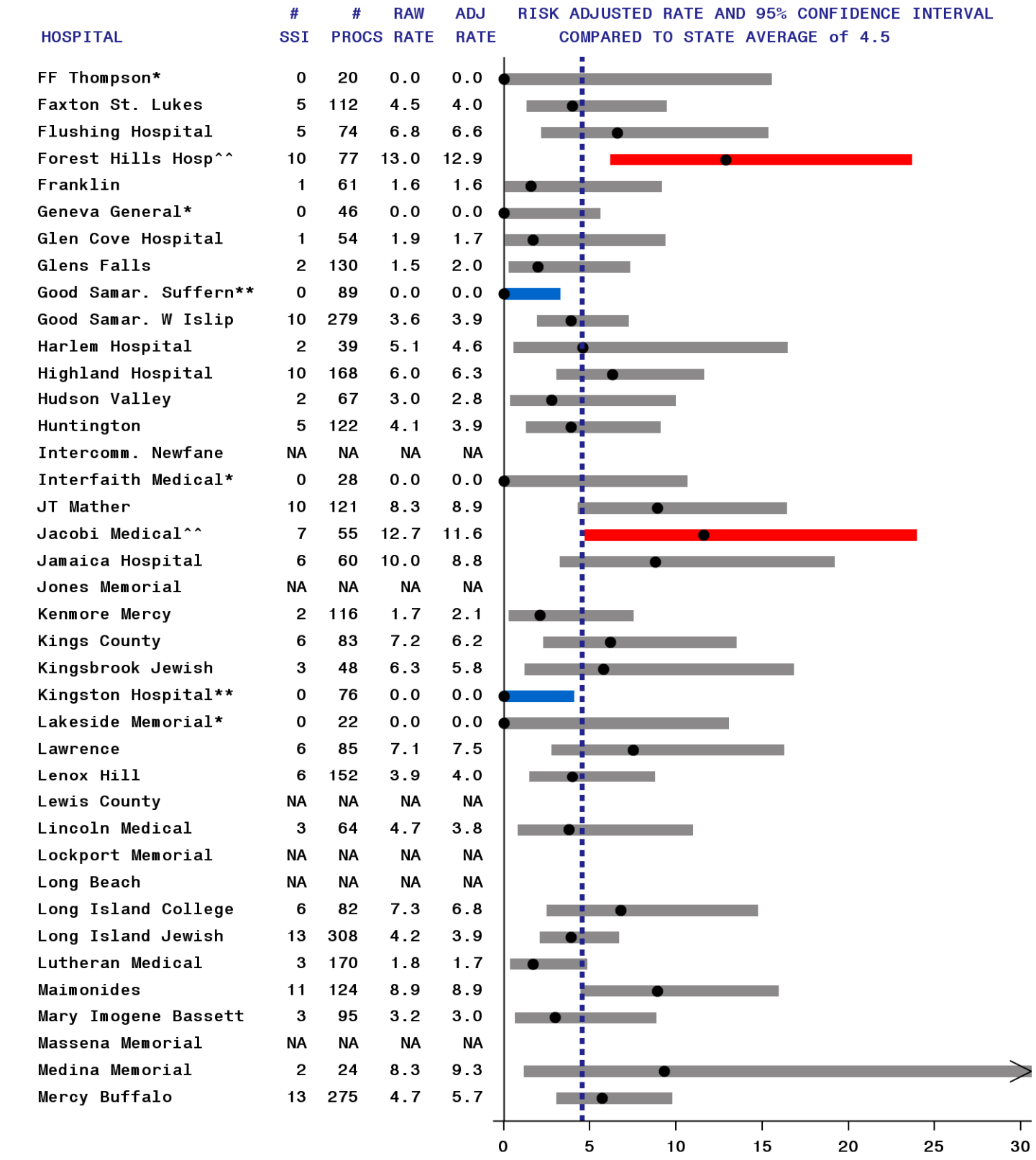
Of the 173 hospitals performing colon surgery in 2010, 20 performed fewer than 20 procedures and were not compared to the state average. Hospital-specific colon SSI rates are provided in Figure 2. Refer to Appendix 3, Figure 31 for more information about reading Figure 2. Seven hospitals (4%) had colon SSI rates that were statistically higher than the state average; two of these hospitals were also significantly higher in 2009. Eight hospitals (5%) had rates that were statistically lower than the state average; two of these hospitals were also significantly lower in 2009. Forty hospitals (23%) reported zero colon SSI in 2010, but the majority of these facilities did not perform a sufficient number of procedures to report, or if reported, to be statistically significant. This finding is similar to previously published NYS HAI public reports.

Figure 2. Colon Surgical Site Infection Rates, New York 2010 (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 June 30, 2011. Excludes non-readmitted cases identified using post discharge surveillance.
Adjusted using ASA score, duration, contamination of intraoperative site, and laparoscope.

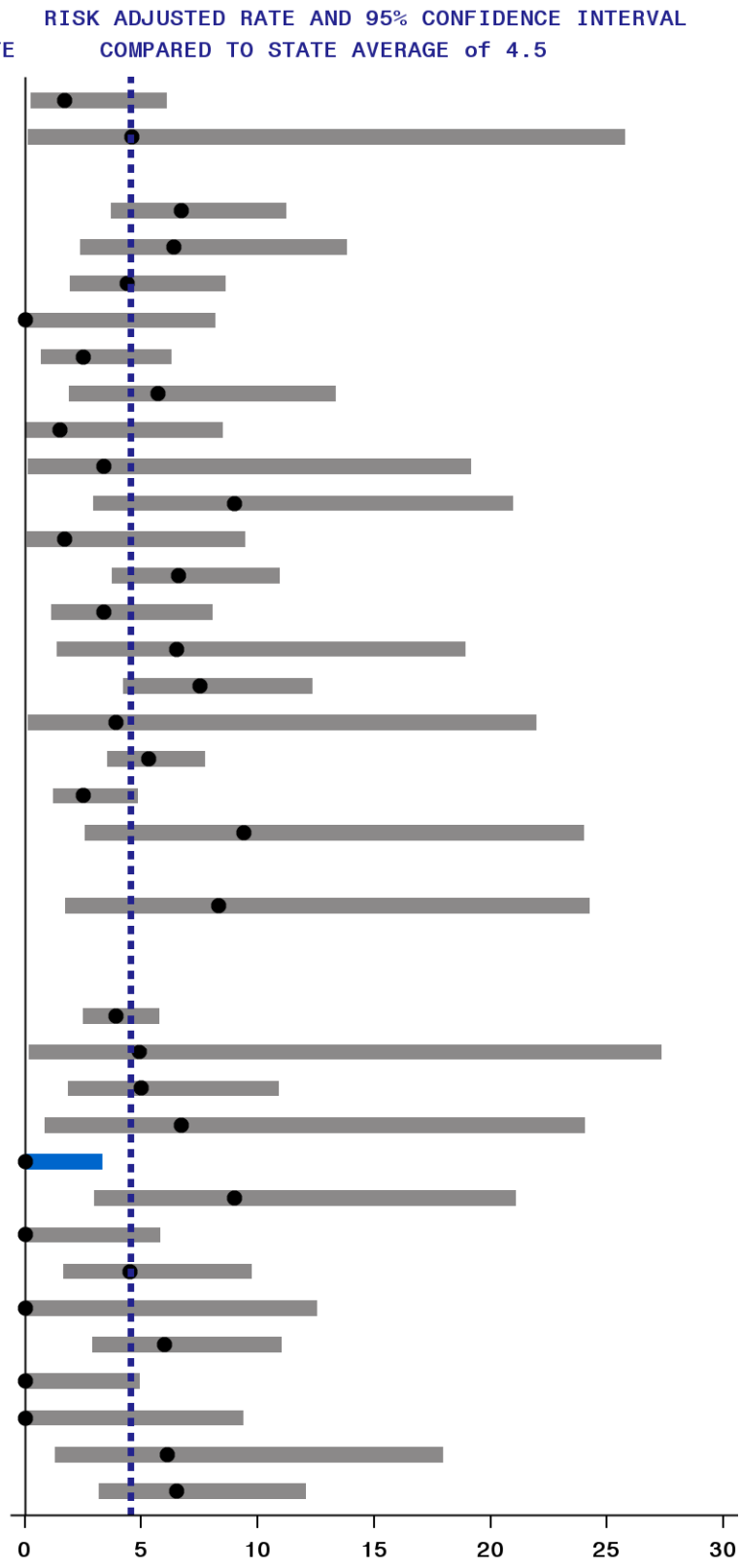
Figure 2. Colon Surgical Site Infection Rates, New York 2010 (page 2 of 5)



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 June 30, 2011. Excludes non-readmitted cases identified using post discharge surveillance.
Adjusted using ASA score, duration, contamination of intraoperative site, and laparoscope.

Figure 2. Colon Surgical Site Infection Rates, New York 2010 (page 3 of 5)

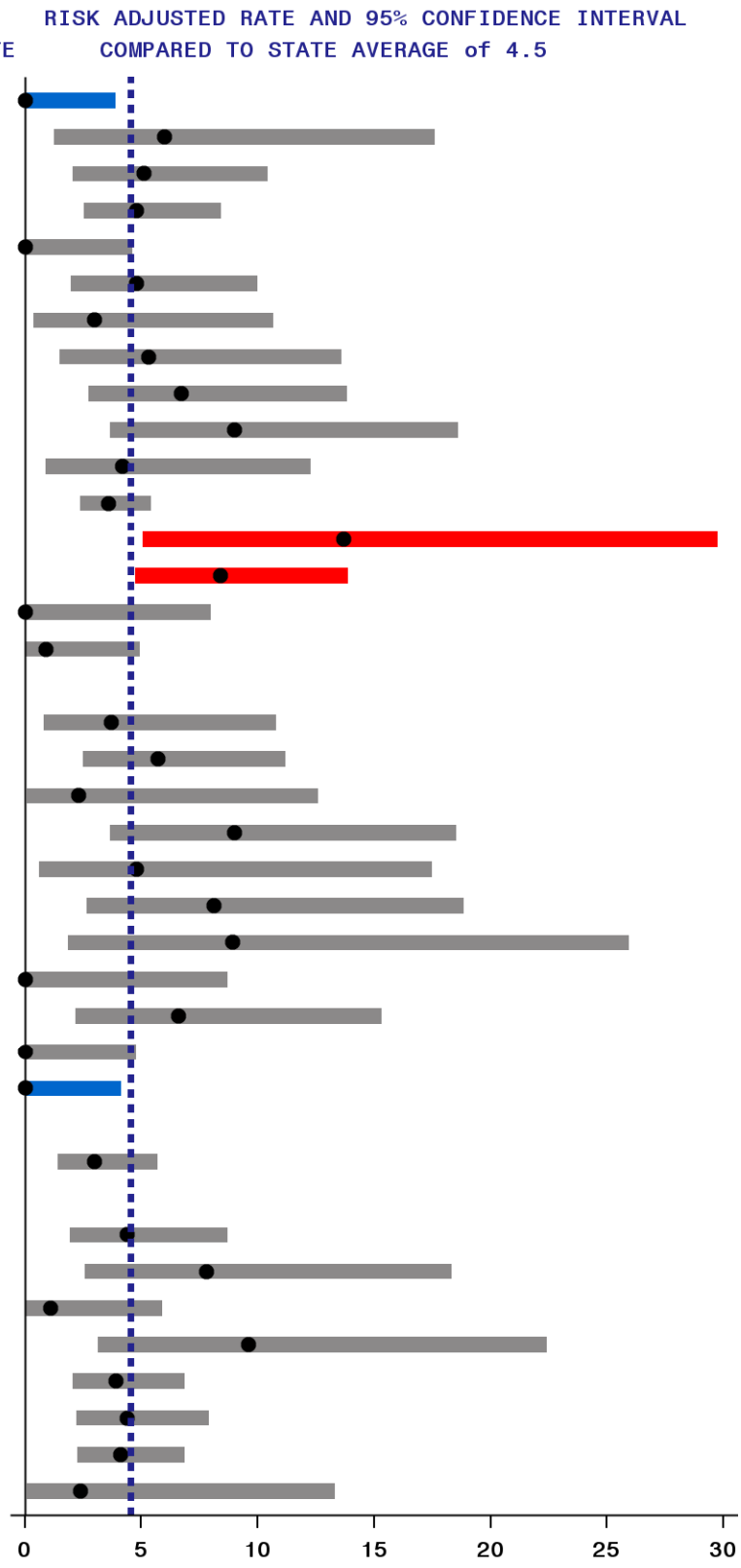
HOSPITAL	# SSI	# PROCS	RAW RATE	ADJ RATE
Mercy Medical	2	108	1.9	1.7
Metropolitan	1	21	4.8	4.6
Millard Fill. Gates	NA	NA	NA	NA
Millard Fill. Suburb	14	208	6.7	6.7
Montefiore-Einstein	6	93	6.5	6.4
Montefiore-Moses	8	168	4.8	4.4
Montifiore North*	0	35	0.0	0.0
Mount Sinai	4	171	2.3	2.5
Mount Sinai Queens	5	83	6.0	5.7
Mount St. Marys	1	63	1.6	1.5
Mount Vernon	1	26	3.8	3.4
NY Community Bklyn	5	50	10.0	9.0
NY Downtown	1	49	2.0	1.7
NY Med Ctr Queens	15	243	6.2	6.6
NY Methodist	5	149	3.4	3.4
NYP- Allen	3	46	6.5	6.5
NYP- Columbia	15	196	7.7	7.5
NYP- Morgan Stanley	1	24	4.2	3.9
NYP- Weill Cornell	27	555	4.9	5.3
NYU Medical Center	9	335	2.7	2.5
Nassau University	4	37	10.8	9.4
Nathan Littauer	NA	NA	NA	NA
Newark Wayne	3	37	8.1	8.3
Niagara Falls	NA	NA	NA	NA
North Central Bronx	NA	NA	NA	NA
North Shore	24	560	4.3	3.9
Northern Dutchess	1	24	4.2	4.9
Northern Westchester	6	140	4.3	5.0
Noyes Memorial	2	30	6.7	6.7
Nyack Hospital**	0	106	0.0	0.0
Olean General	5	55	9.1	9.0
Oneida Healthcare*	0	59	0.0	0.0
OrangeReg Goshen&Mid	6	138	4.3	4.5
Oswego Hospital*	0	24	0.0	0.0
Our Lady of Lourdes	10	164	6.1	6.0
Peconic Bay Medical*	0	61	0.0	0.0
Peninsula Hospital*	0	28	0.0	0.0
Phelps Memorial	3	55	5.5	6.1
Plainview Hospital	10	155	6.5	6.5



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 June 30, 2011. Excludes non-readmitted cases identified using post discharge surveillance.
Adjusted using ASA score, duration, contamination of intraoperative site, and laparoscope.

Figure 2. Colon Surgical Site Infection Rates, New York 2010 (page 4 of 5)

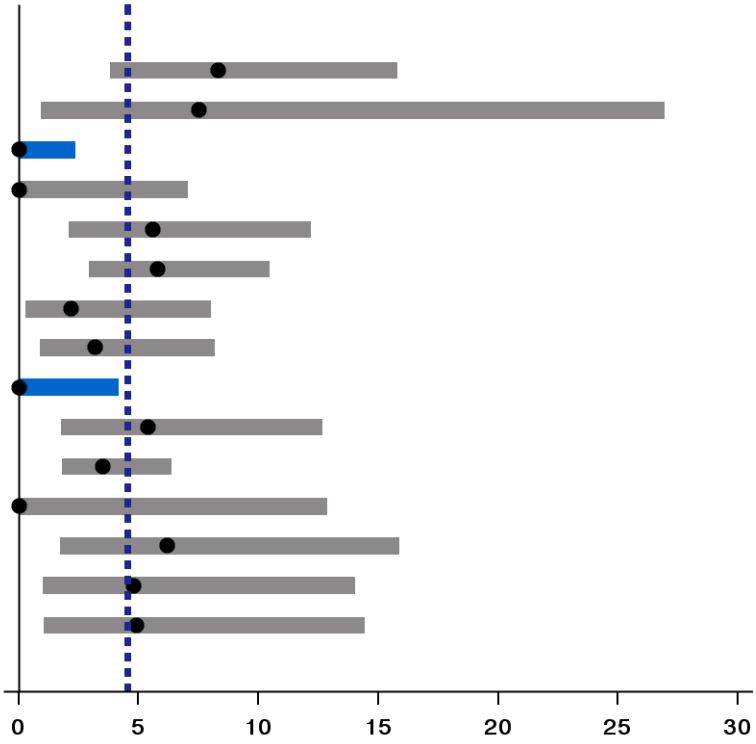
HOSPITAL	# SSI	# PROCS	RAW RATE	ADJ RATE
Putnam Hospital**	0	91	0.0	0.0
Queens Hospital	3	42	7.1	6.0
Richmond Univ	7	132	5.3	5.1
Rochester General	12	296	4.1	4.8
Rome Memorial*	0	66	0.0	0.0
Roswell Park	7	144	4.9	4.8
Samaritan- Troy	2	72	2.8	3.0
Samaritan- Watertown	4	76	5.3	5.3
Saratoga Hospital	7	120	5.8	6.7
Seton Health	7	84	8.3	9.0
Sisters of Charity	3	74	4.1	4.2
Sloan Kettering	24	606	4.0	3.6
Sound Shore Medical^^	6	45	13.3	13.7
South Nassau Comm.^^	15	158	9.5	8.4
Southampton*	0	37	0.0	0.0
Southside	1	122	0.8	0.9
St Anthony	NA	NA	NA	NA
St Barnabas	3	70	4.3	3.7
St Catherine Siena	8	146	5.5	5.7
St Charles Hospital	1	37	2.7	2.3
St Elizabeth Medical	7	83	8.4	9.0
St Francis- Pough.	2	39	5.1	4.8
St Francis- Roslyn	5	72	6.9	8.1
St James Mercy	3	32	9.4	8.9
St Johns Episcopal*	0	29	0.0	0.0
St Johns Riverside	5	78	6.4	6.6
St Joseph -Bethpage*	0	57	0.0	0.0
St Joseph Cheektow.**	0	68	0.0	0.0
St Josephs- Elmira	NA	NA	NA	NA
St Josephs- Syracuse	9	292	3.1	3.0
St Josephs- Yonkers	NA	NA	NA	NA
St Lukes- Roosevelt	8	175	4.6	4.4
St Lukes- St Lukes	5	59	8.5	7.8
St LukesNewburgh&Cor	1	100	1.0	1.1
St Marys Amsterdam	5	67	7.5	9.6
St Peters Hospital	12	368	3.3	3.9
Staten Island U N&S	11	249	4.4	4.4
Strong Memorial	14	324	4.3	4.1
Syosset Hospital	1	57	1.8	2.4



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 June 30, 2011. Excludes non-readmitted cases identified using post discharge surveillance.
Adjusted using ASA score, duration, contamination of intraoperative site, and laparoscope.

Figure 2. Colon Surgical Site Infection Rates, New York 2010 (page 5 of 5)

HOSPITAL	# SSI	# PROCS	RAW RATE	ADJ RATE
TLC Lake Shore	NA	NA	NA	NA
U Health Bing/Wilson	9	125	7.2	8.3
United Memorial	2	24	8.3	7.5
Unity Hosp Rochester**	0	144	0.0	0.0
Univ Hosp Brooklyn*	0	40	0.0	0.0
Univ Hosp SUNY Upst.	6	103	5.8	5.6
Univ Hosp StonyBrook	11	159	6.9	5.8
Vassar Brothers	2	92	2.2	2.2
Westchester Medical	4	108	3.7	3.2
Westchester Square**	0	79	0.0	0.0
White Plains	5	104	4.8	5.4
Winthrop University	11	319	3.4	3.5
Woman and Childrens*	0	22	0.0	0.0
Womans Christian	4	71	5.6	6.2
Woodhull Medical	3	53	5.7	4.8
Wyckoff Heights	3	59	5.1	4.9
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 June 30, 2011. Excludes non-readmitted cases identified using post discharge surveillance.
Adjusted using ASA score, duration, contamination of intraoperative site, and laparoscope.

Coronary Artery Bypass Graft Surgical Site Infection

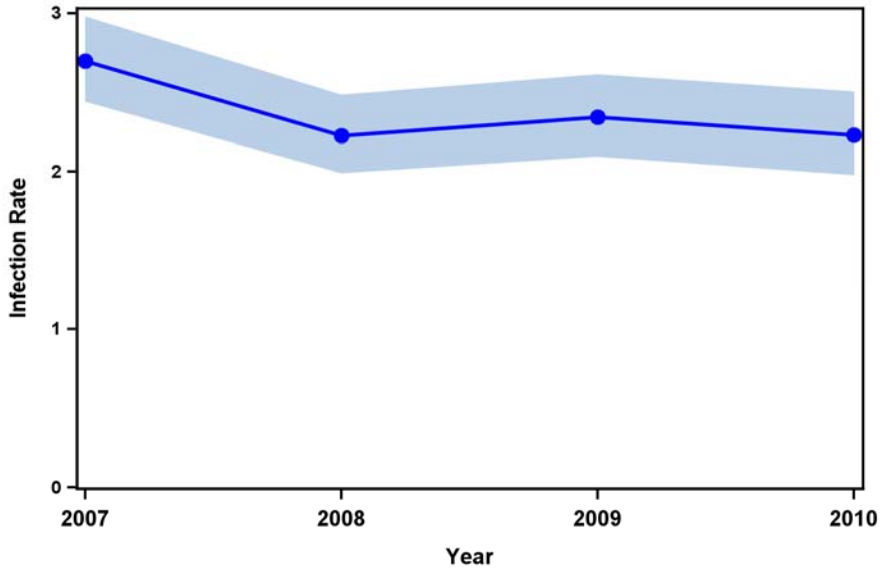
CABG surgery usually involves two surgical sites: a chest incision and a separate site to harvest donor vessels. Because infections can occur at either incision site the SSI rates are presented separately.

Chest infections

Time trends in CABG Chest SSIs

In 2010, 39 hospitals performed CABG procedures. Between 2007 and 2010, the NYS CABG chest incision SSI rate significantly declined 17.3%, from 2.7 infections per 100 procedures in 2007, to 2.2 infections per 100 procedures in 2010 (Figure 3).

Figure 3. Trend in Coronary Artery Bypass Graft Chest Site Infection Rates, New York State 2007-2010 (shading represents 95% confidence interval)



Year	# Hospitals	# Infections	# Procedures	Infection Rate and 95% Confidence Interval*
2007	40	385	14,266	2.70 (2.44, 2.98)
2008	40	311	13,967	2.23 (1.99, 2.49)
2009	40	315	13,438	2.34 (2.09, 2.61)
2010	39	277	12,414	2.23 (1.98, 2.51)

New York State Data reported as of July 18, 2011.

* Infection rate is the number of infections divided by the number of procedures, multiplied by 100. These rates are not risk-adjusted.

Depth of CABG Chest SSIs

Of the 277 CABG Chest SSI reported in 2010, 90 (32%) were superficial, 86 (31%) were deep, and 101 (36%) were organ space. The majority of the SSIs (67%) were detected during readmission to the same hospital, 27% were identified during the initial hospitalization, 2% involved readmission to another hospital, and 4% were detected in outpatient locations. The majority of the 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 (Table 4) in hospital-specific comparisons. The detection and depth of CABG chest SSIs are consistent with previously published NYS HAI public reports.

Table 4. Method of Detection of Coronary Artery Bypass Graft Chest Site Infection by Depth of Infection, New York State 2010

	When Detected				
Extent (Row%) (Column%)	**Initial Hospitalization**	**Readmitted to the Same Hospital**	**Readmitted to Another Hospital**	**Detected in Outpatient Settings**	**Total**
Superficial Incisional	24 (26.7%) (32.0%)	58 (64.4%) (31.2%	0 (0.0%) (0.0%)	8 (8.9%) (72.7%)	90 (32.5%)
Deep Incisional	15 (17.4%) (20.0%)	65 (75.6%) (34.95%)	3 (3.49%) (60.0%)	3 (3.5%) (27.3%)	86 (31.0%)
Organ Space	36 (35.6%) (48.0%)	63 (62.4%) (33.9%)	2 (2.0%) (40.0%)	0 (0.0%) (0.0%)	101 (36.5%)
Total	75 (27.1%)	186 (67.1%)	5 (1.8%)	11 (4.0%)	277

New York State data reported as of July 18, 2011.

Microorganisms Associated with CABG Chest SSIs

In NYS, the most common microorganisms associated with CABG Chest SSIs were *Staphylococcus aureus* and coagulase negative staphylococci. Methicillin-resistant *Staphylococcus aureus* (MRSA) accounted for 15 percent of CABG Chest SSIs (Table 5). The distribution of microorganisms associated with CABG chest SSIs is consistent with previously published NYS HAI public reports, with the exception of *Enterobacter spp*., which decreased from 9.4% to 4.3%. Of the 12,414 CABG surgeries performed, 41 patients (0.3%) developed a MRSA SSI.

Table 5. Microorganisms Identified in Coronary Artery Bypass Chest Site Infections, New York State 2010

Microorganism	Number of Isolates	Percent of Infections
Staphylococcus aureus	100	36.1
(MRSA)	(41)	(14.8)
Coagulase negative staphylococci	61	22.0
Pseudomonas spp.	23	8.3
Serratia spp.	22	7.9
Enterococci	21	7.6
(VRE)	(7)	(2.5)
Klebsiella spp.	17	6.1
Escherichia coli	16	5.8
Proteus spp.	15	5.4
Enterobacter spp.	12	4.3
Yeast	9	3.2
Morganella morganii	7	2.5
Acinetobacter spp.	5	1.8
Other	14	5.1

New York State data reported as of July 18, 2011
Out of 277 infections (includes post-discharge surveillance).
No microorganisms identified for 26 infections
VRE: vancomycin-resistant enterococcus
MRSA: methicillin-resistant *Staphylococcus aureus*
spp: multiple species

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 2010, after excluding SSIs reported through PDS methods that did not result in hospitalization, the following risk factors were associated with SSI. These variables had the following impacts on hospital-specific rates 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 4.1 times more likely to develop an SSI, and obese patients (with body mass index greater than or equal to 30) were 1.6 times more likely to develop an SSI than patients with BMI less than 30.
- Females were 1.8 times more likely to develop an SSI than males.

- Patients with renal failure were 2.4 times more likely to develop an SSI than patients without renal failure.
- Patients with chronic obstructive pulmonary disease (COPD) were 1.2 times more likely to develop and SSI than patients without COPD.
- Patients with peripheral artery disease (PAD) were 1.6 times more likely to develop an SSI than patients without PAD.
- Procedures with a total duration longer than approximately 5 hours were 1.5 times more likely to develop an SSI than shorter procedures.

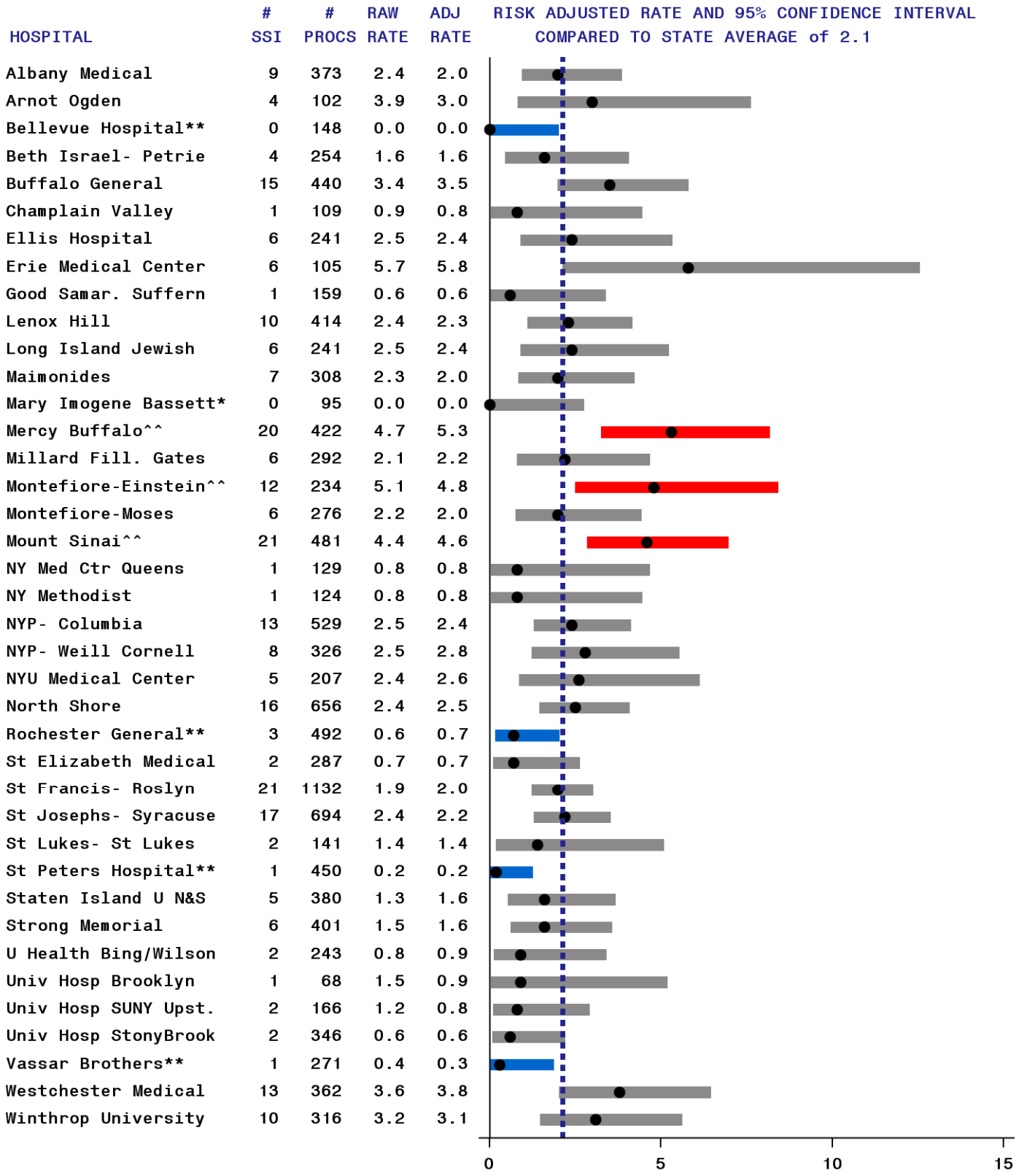
Patient age, congestive heart failure, myocardial infarction, cerebrovascular disease, Medicaid status, intraoperative surgical site contamination, emergency/trauma surgery, use of donor vessels, and hospital surgical volume were not associated with increased risk of infection. In addition, major teaching hospitals had higher chest SSI rates (2.5%) than non-major teaching hospitals (1.7%) but this factor was not included in the risk adjusted rate model.

Hospital-specific CABG Chest SSI Rates

Risk-adjusted hospital-specific CABG chest SSI rates were calculated after deleting the 11 infections that were detected using PDS and did not result in hospitalization. This changed the State CABG chest SSI rate from 2.23% to 2.14%.

Hospital-specific CABG chest SSI rates are provided in Figure 4. Refer to Appendix 3, Figure 31 for more information about reading Figure 4. In 2010 of the 39 reporting hospitals, three (8%) had CABG chest SSI rates that were statistically higher than the state average; one was significantly higher in 2008 and 2009 as well, and one was significantly higher in 2009 as well. Four hospitals (10%) had rates that were statistically lower than the state average; one was significantly lower in 2008 and 2009 as well, and one was significantly lower in 2009 as well. Two hospitals (5%) reported zero CABG chest SSIs in 2010.

Figure 4. Coronary Artery Bypass Graft Chest Site Infection Rates, New York 2010 (page 1 of 1)



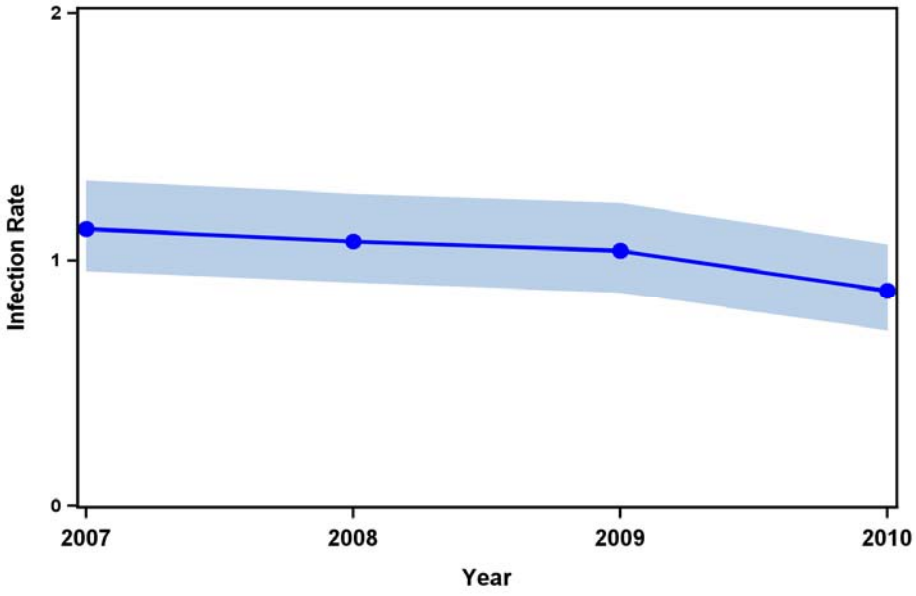
State average. ●Risk-adjusted infection rate. > Upper confidence limit exceeds graph area. ^^Significantly higher than state average. **Significantly lower than state average. Average. *Zero infections, not significant.
SSI: surgical site infections. Procs: procedures. Rates are per 100 procedures.
Data reported as of July 18, 2011. 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, COPD, peripheral artery disease, and duration.

CABG Donor-site infections

Time trends in CABG Donor SSIs

Between 2007 and 2010, the NYS CABG donor surgical site infection rate significantly declined 22.5%, from 1.1 infections per 100 procedures in 2007, to 0.8 infections per 100 procedures in 2010 (Figure 5).

Figure 5. Trend in Coronary Artery Bypass Graft Donor Site Infection Rates, New York State 2007-2010 (shading represents 95% confidence interval)



Year	# Hospitals	# Infections	# Procedures	Infection Rate and 95% Confidence Interval*
2007	40	149	13,203	1.13 (0.96, 1.32)
2008	40	139	12,905	1.08 (0.91, 1.27)
2009	40	129	12,416	1.04 (0.87, 1.23)
2010	39	100	11,433	0.87 (0.71, 1.06)

New York State Data reported as of July 18, 2011

* Infection rate is the number of infections divided by the number of procedures, multiplied by 100. These rates are not risk-adjusted.

Severity of CABG Donor SSIs

Of the 100 CABG Donor SSIs reported in 2010, 71 (71%) were superficial, while 29 (29%) were deep. The majority of the SSIs (68%) were detected during readmission to the same hospital,

22% were identified during the initial hospitalization, 1% involved readmission to another hospital, and 9% were detected in outpatient locations. All 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 9 infections (Table 6) in hospital-specific comparisons. The detection and the depth of CABG donor site SSIs is consistent with previously published NYS HAI public reports, with the exception of the decrease in SSIs identified in outpatient locations.

Table 6. Method of Detection for Coronary Artery Bypass Graft Donor Site Infection by Depth of Infection, New York State 2010

	When Detected				
Extent (Row%) (Column%)	**Initial Hospitalization**	**Readmitted to the Same Hospital**	**Readmitted to Another Hospital**	**Detected in Outpatient Settings**	**Total**
Superficial Incisional	15 (21.1%) (68.2%)	47 (66.2%) (69.1%)	0 (0.0%) (0.0%)	9 (12.7%) (100.0%)	71 (71.0%)
Deep Incisional	7 (24.1%) (31.8%)	21 (72.4%) (30.9%)	1 (3.4%) (100.0%)	0 (0.0%) (0.0%)	29 (29.0%)
Total	22 (22.0%)	68 (68.0%)	1 (1.0%)	9 (9.0%)	100

New York State data reported as of July 18, 2011.

Microorganisms Associated with CABG Donor SSIs

In NYS, the most common microorganisms associated with CABG Donor SSIs were *Staphylococcus aureus,* and *Escherichia coli* (Table 7). The distribution of microorganism associated with CABG donor site SSIs are consistent with previous NYS HAI public reports, with the exception that MRSA increased from 9.3% to 15%, while coagulase negative staphyloccocci decreased from 10% to 5%. Of the 11,433 CABG donor site surgeries performed, 15 patients (0.1%) developed a MRSA SSI.

Table 7. Microorganisms Identified in Coronary Artery Bypass Donor Site Infections, New York State 2010

Microorganism	Number of Isolates	Percent of Infections
Staphylococcus aureus	26	26.0
(MRSA)	(15)	(15.0)
Escherichia coli	19	19.0
Klebsiella spp.	13	13.0
Enterococci	11	11.0
(VRE)	(1)	(1.0)
Pseudomonas spp.	11	11.0
Enterobacter spp.	8	8.0
Citrobacter spp.	5	5.0
Coagulase negative staphylococci	5	5.0
Other	23	23.0

New York State data reported as of July 18, 2011
Out of 100 infections (includes post-discharge surveillance).
No microorganisms identified for 13 infections
VRE: vancomycin-resistant enterococcus
MRSA: methicillin-resistant *Staphylococcus aureus*
spp: multiple species

Risk Adjustment for CABG Donor SSIs

Certain patient and procedure-specific factors increased the risk of developing a donor-site SSI following CABG surgery. In 2010, 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:

- Very obese patients (with body mass index (BMI) greater than or equal to 40) were 2.5 times more likely to develop an SSI, and obese patients (with body mass index greater than or equal to 30) were 1.4 times more likely to develop an SSI than patients with BMI less than 30.
- Females were 1.4 times more likely to develop an SSI than males.
- Patients with congestive heart failure (CHF) were 1.2 times more likely to develop an SSI than patients without CHF.
- Patients with chronic obstructive pulmonary disease (COPD) were 2.0 times more likely to develop an SSI than patients without COPD.

- Patients with diabetes were 1. 7 times more likely to develop an SSI than patients without diabetes.
- Patients with peripheral artery disease (PAD) were 1.7 times more likely to develop an SSI than patients without PAD.
- Procedures with a total duration longer than approximately 5 hours were 2.0 times more likely to result in an SSI than shorter procedures.

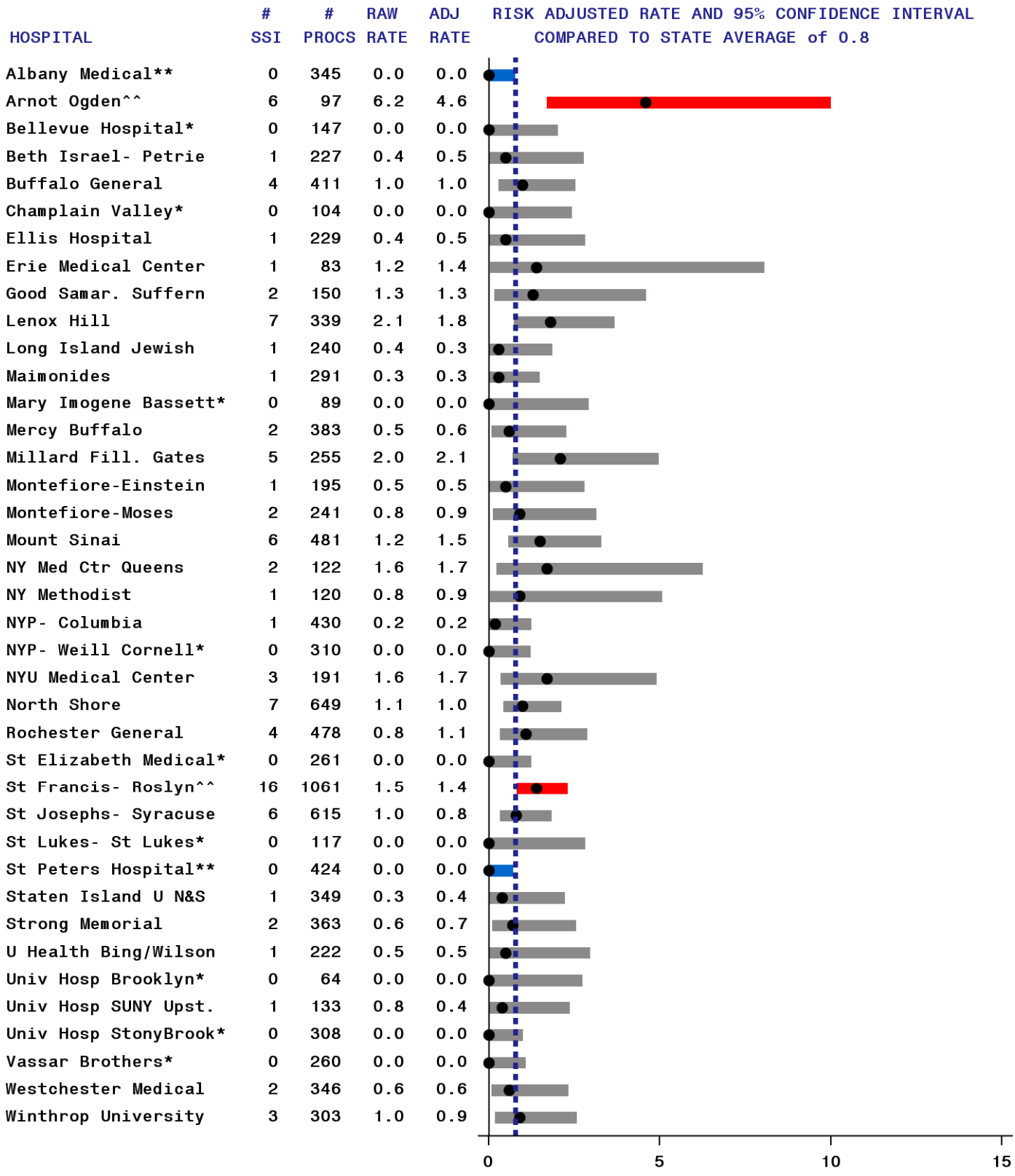
Patient age, renal failure, myocardial infarction, cerebrovascular disease, Medicaid status, intraoperative surgical site contamination, emergency/trauma surgery, use of donor vessels, hospital surgical volume, and status as a major-teaching hospitals were not associated with increased risk of infection.

Hospital-specific CABG Donor SSI rates

Risk-adjusted hospital-specific colon SSI rates were calculated after deleting the 9 infections that were detected using PDS and did not result in hospitalization. This changed the State CABG donor site SSI rate from 0.87% to 0.80%.

Hospital-specific CABG donor-site SSI rates are provided in Figure 6. Refer to Appendix 3, Figure 31 for more information about reading Figure 6. In 2010, of the 39 hospitals reporting, two (5%) had CABG donor-site SSI rates that were statistically higher than the state average, and two (5%) had rates that were statistically lower than the state average. Eleven hospitals (28%) reported zero CABG donor-site SSI in 2010. This is a 57% increase in the percent of hospitals reporting zero SSI when compared to the 2009 HAI public report.

Figure 6. Coronary Artery Bypass Graft Donor Site Infection Rates, New York 2010 (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 18, 2011. NHSN Code CBGB. Excludes non-readmitted cases identified using post discharge surveillance.

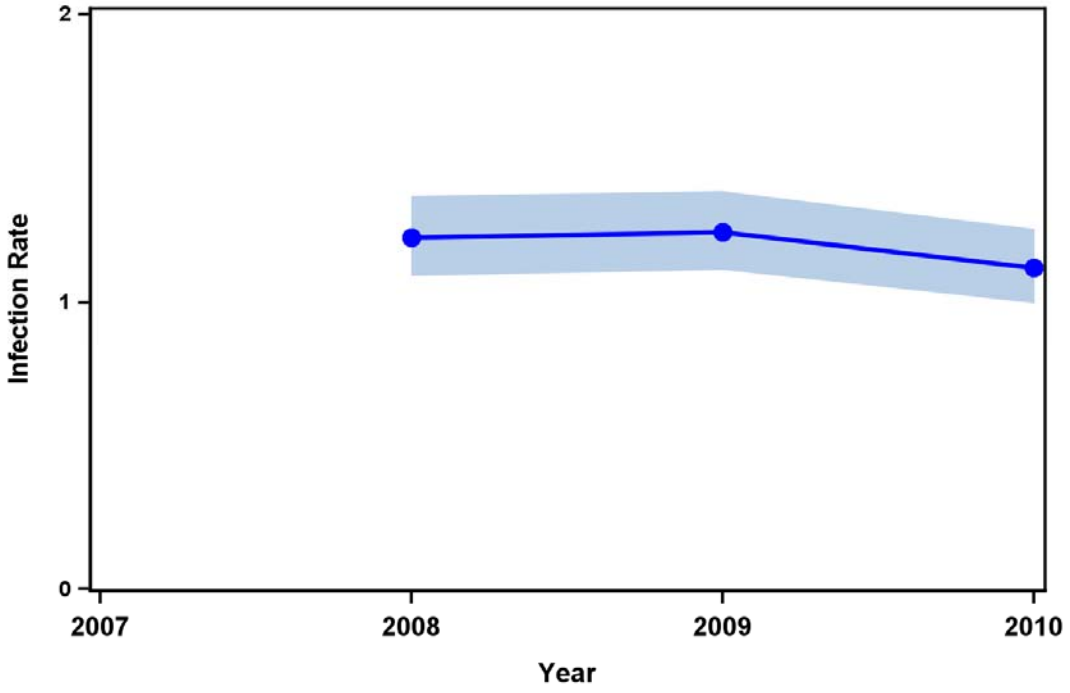
Adjusted using diabetes, body mass index, gender, congestive heart failure, COPD, peripheral artery disease, and duration.

Hip Replacement/Revision Surgical Site Infection

Time trends in Hip SSIs

In 2010, 167 hospitals reported both total and partial hip joint replacement/revision procedures. Between 2008 and 2010, there was no significant change in NYS hip replacement/revision surgical site infection rates, which is 1.1 per 100 procedures. (Figure 7)

Figure 7. Trend in Hip Surgical Site Infection Rates, New York State 2008-2010
(shading represents 95% confidence interval)



Year	# Hospitals	# Infections	# Procedures	Infection Rate and 95% Confidence Interval*
2008	172	298	24,357	1.22 (1.09, 1.37)
2009	169	321	25,847	1.24 (1.11, 1.38)
2010	167	294	26,286	1.12 (0.99, 1.25)

New York State Data reported as of June 30, 2011.
* Infection rate is the number of infections divided by the number of procedures, multiplied by 100. These rates are not risk-adjusted.

Since hip replacements/revisions involve implanted hardware, infections may not be evident for up to one year after the procedure. Therefore, the NYS average hip SSI rate of 1.20% as reported in the 2009 HAI report has now been updated to 1.24%.

Depth of Hip Replacement/Revision SSIs

Of the 294 hip SSI reported in 2010, 92 (31%) were superficial, 124 (42%) were deep, and 78 (27%) were organ space. The majority of the SSIs (82%) were detected upon readmission to the same hospital, 8% were identified during the initial hospitalization, 2% involved readmission to another hospital, and 8% were detected in outpatient settings. The majority of the 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, NYSDOH did not include these 23 infections (Table 8) in hospital-specific comparisons. The distribution of microorganisms associated with hip replacement SSIs is consistent with previously published NYS HAI public reports.

Table 8. Method of Detection of Hip Surgical Site Infection by Depth of Infection, New York State 2010

Extent (Row%) (Column%)	When Detected				
	Initial Hospitalization	Readmitted to the Same Hospital	Readmitted to Another Hospital	Detected in Outpatient Settings	Total
Superficial Incisional	8 (8.7%) (33.3%)	65 (70.7%) (27.0%)	0 (0.0%) (0.0%)	19 (20.7%) (82.6%)	92 (31.3%)
Deep Incisional	11 (8.9%) (45.8%)	104 (83.9%) (43.2%)	5 (4.0%) (83.3%)	4 (3.2%) (17.4%)	124 (42.2%)
Organ Space	5 (6.4%) (20.8%)	72 (92.3%) (29.9%)	1 (1.3%) (16.7%)	0 (0.0%) (0.0%)	78 (26.5%)
Total	24 (8.2%)	241 (82.0%)	6 (2.0%)	23 (7.8%)	294

New York State data reported as of June 30, 2011.

Microorganisms Associated with Hip SSIs

The most common microorganisms associated with hip SSIs were *Staphylococcus aureus,* coagulase negative staphylococci, and enterococci. The distribution of microorganisms associated with hip replacement SSIs are consistent with previous NYS HAI public reports, except MRSA decreased from 33% to 27%. Of the 26,286 hip surgeries performed, 79 patients (0.3%) developed an MRSA SSI (Table 9).

Table 9. Microorganisms Identified in Hip Replacement Surgical Site Infections, New York State 2010

Microorganism	Number of Isolates	Percent of Infections
Staphylococcus aureus	160	54.4
(MRSA)	(79)	(26.9)
Coagulase negative staphylococci	47	16.0
Enterococci	27	9.2
(VRE)	(6)	(2.0)
Pseudomonas spp.	18	6.1
Escherichia coli	15	5.1
Proteus spp.	14	4.8
Klebsiella spp.	10	3.4
Acinetobacter spp.	9	3.1
Streptococci	9	3.1
Enterobacter spp.	6	2.0
Other	19	6.5

New York State data reported as of June 30, 2011
Out of 294 infections (includes post-discharge surveillance).
No microorganisms identified for 24 infections
VRE: vancomycin-resistant enterococcus
MRSA: methicillin-resistant *Staphylococcus aureus*
spp: multiple species

Risk Adjustment for Hip Surgical Site Infections

Certain patient and procedure-specific factors increased the risk of developing an SSI following hip surgery. Patient age and hospital surgical volume were not associated with increased risk of infection. In 2010, 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 2.2 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 primary hip replacement procedures, partial revisions were 3.8 times more likely to result in an SSI, total revisions were 2.0 times more likely to result in an SSI, and partial primary were 1.2 times more likely to result in an SSI.
- Procedures with duration longer than 98-178 minutes (by type of hip procedure) were 1.7 times more likely to result in an SSI than procedures of shorter duration.
- Procedures that were the result of a broken hip bone/joint or other traumatic injury to the patient were 1.8 times more likely to result in an SSI than elective surgeries.

Hospital-specific Hip SSI Rates

Risk-adjusted hospital-specific colon SSI rates were calculated after deleting the 23 infections that were detected using PDS and did not result in hospitalization. This changed the State hip replacement/revision SSI rate from 1.12% to 1.03%.

Of the 167 hospitals reporting hip replacement/revision procedures in 2010, 17 performed fewer than 20 procedures and were not compared to the state average. Hospital-specific hip SSI rates are provided in Figure 8. Refer to Appendix 3, Figure 31 for more information about reading Figure 8. In 2010, seven hospitals (4%) had hip SSI rates that were statistically higher than the state average. One hospital had a rate that was significantly lower than the state average in all of the past three years. Sixty-nine hospitals (41%) reported zero hip SSIs in 2010, but the majority of these facilities did not perform a sufficient number of procedures to report or if reported, to be statistically significant. This finding is similar to previously published NYS HAI public reports.

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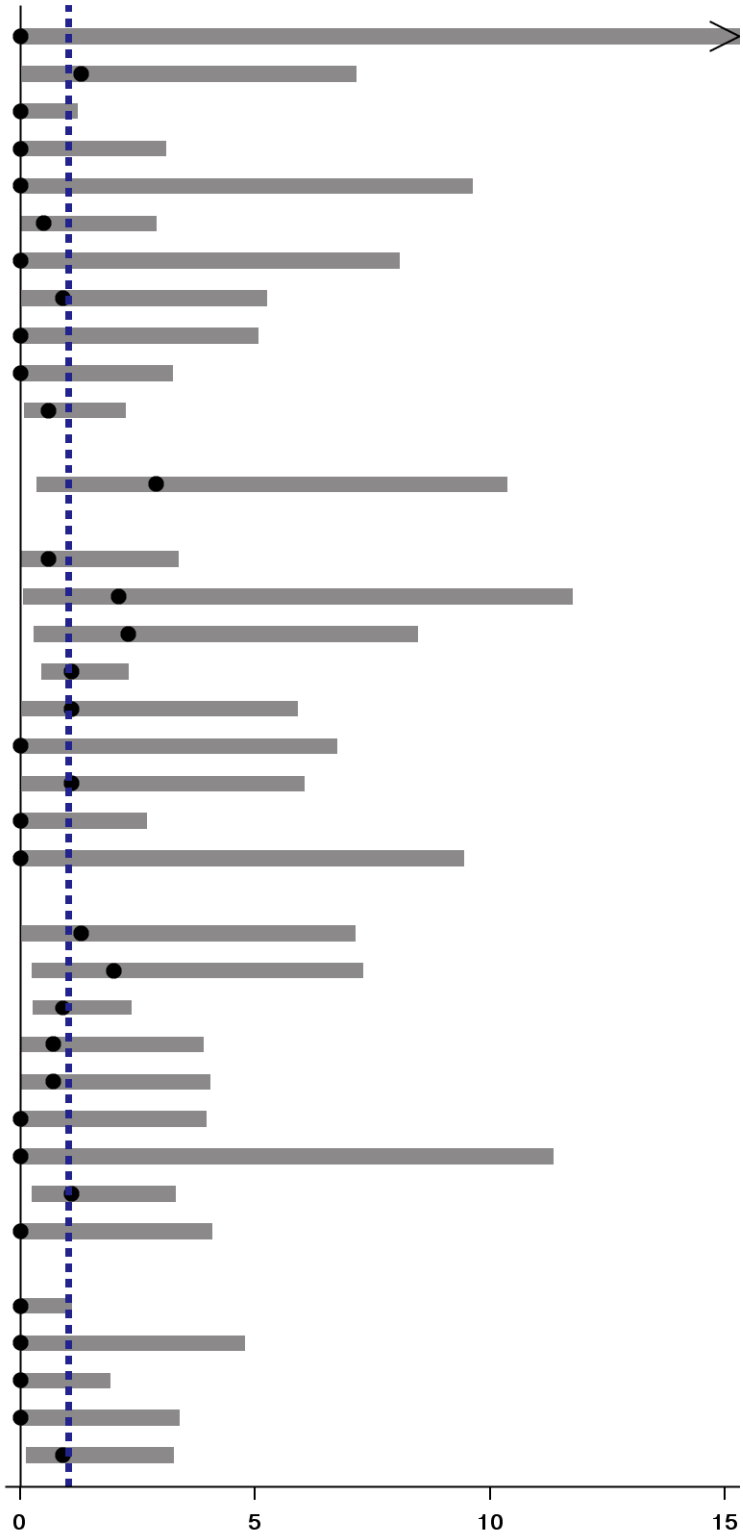
Figure 8. Hip Replacement Surgical Site Infection Rates, New York 2010 (page 1 of 5)

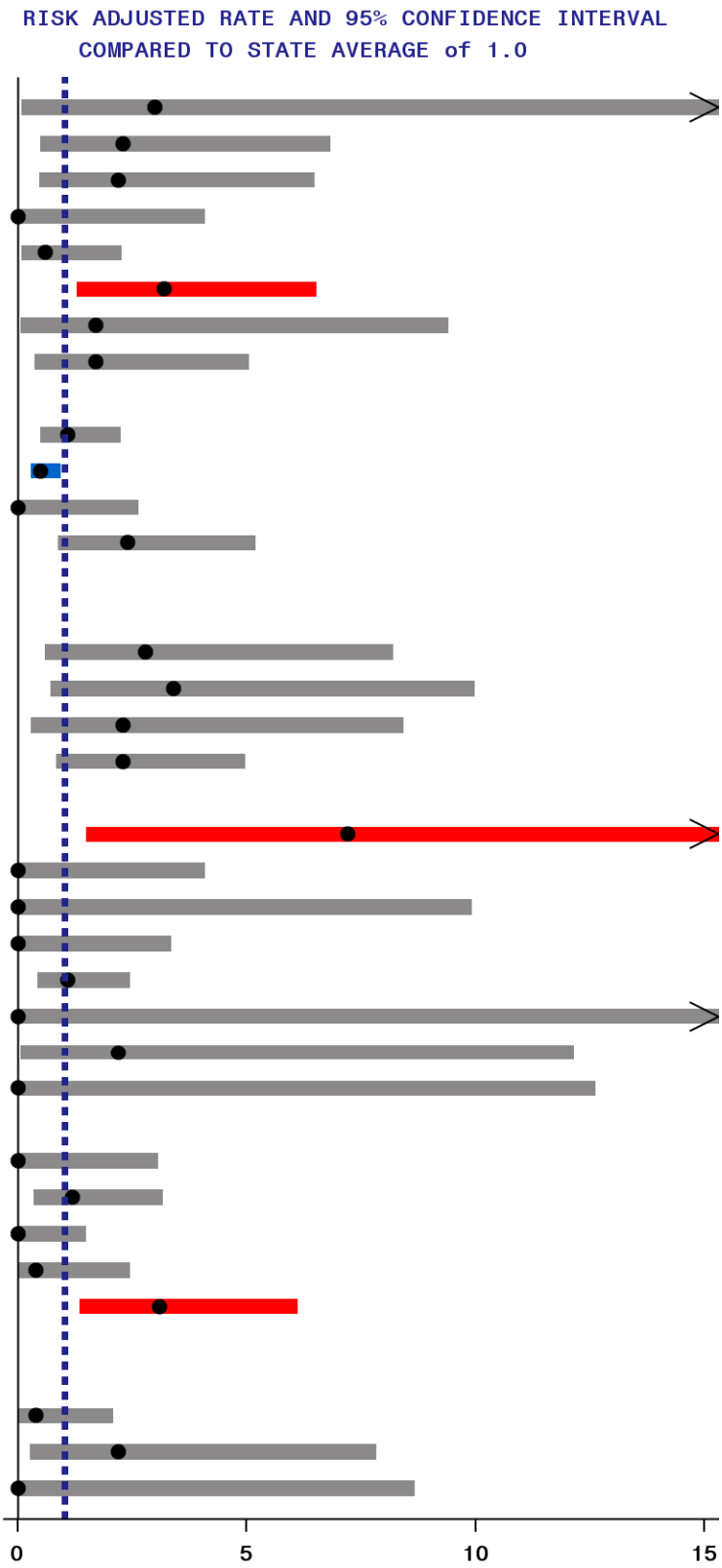
HOSPITAL	# SSI	# PROCS	RAW RATE	ADJ RATE
AO Fox Memorial*	0	21	0.0	0.0
Adirondack Medical	1	64	1.6	1.3
Albany Medical*	0	256	0.0	0.0
Albany Memorial*	0	89	0.0	0.0
Alice Hyde*	0	30	0.0	0.0
Arnot Ogden	1	182	0.5	0.5
Auburn Memorial*	0	33	0.0	0.0
Bellevue Hospital	1	84	1.2	0.9
Benedictine Hospital*	0	75	0.0	0.0
Beth Israel- Kings*	0	58	0.0	0.0
Beth Israel- Petrie	2	350	0.6	0.6
Bon Secours	NA	NA	NA	NA
Bronx-Lebanon	2	64	3.1	2.9
Brookdale Hospital	NA	NA	NA	NA
Brookhaven Memorial	1	118	0.8	0.6
Brooklyn Downtown	1	30	3.3	2.1
Brooks Memorial	2	96	2.1	2.3
Buffalo General	7	687	1.0	1.1
Canton-Potsdam	1	70	1.4	1.1
Catskill Regional*	0	35	0.0	0.0
Cayuga Medical Cntr	1	77	1.3	1.1
Champlain Valley*	0	102	0.0	0.0
Chenango Memorial*	0	36	0.0	0.0
Claxton-Hepburn	NA	NA	NA	NA
Clifton Springs	1	96	1.0	1.3
Columbia Memorial	2	70	2.9	2.0
Community General	4	554	0.7	0.9
Community Memorial	1	212	0.5	0.7
Coney Island	1	83	1.2	0.7
Corning Hospital*	0	43	0.0	0.0
Cortland Reg Med*	0	21	0.0	0.0
Crouse Hospital	3	275	1.1	1.1
DeGraff Memorial*	0	51	0.0	0.0
Eastern Long Island	NA	NA	NA	NA
Ellis Hospital*	0	217	0.0	0.0
Elmhurst*	0	35	0.0	0.0
Erie Medical Center*	0	133	0.0	0.0
FF Thompson*	0	130	0.0	0.0
Faxton St. Lukes	2	142	1.4	0.9



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 June 30, 2011. Excludes non-readmitted cases identified using post discharge surveillance.
Adjusted using ASA score, procedure type (initial/revision, total/partial), duration, and trauma.

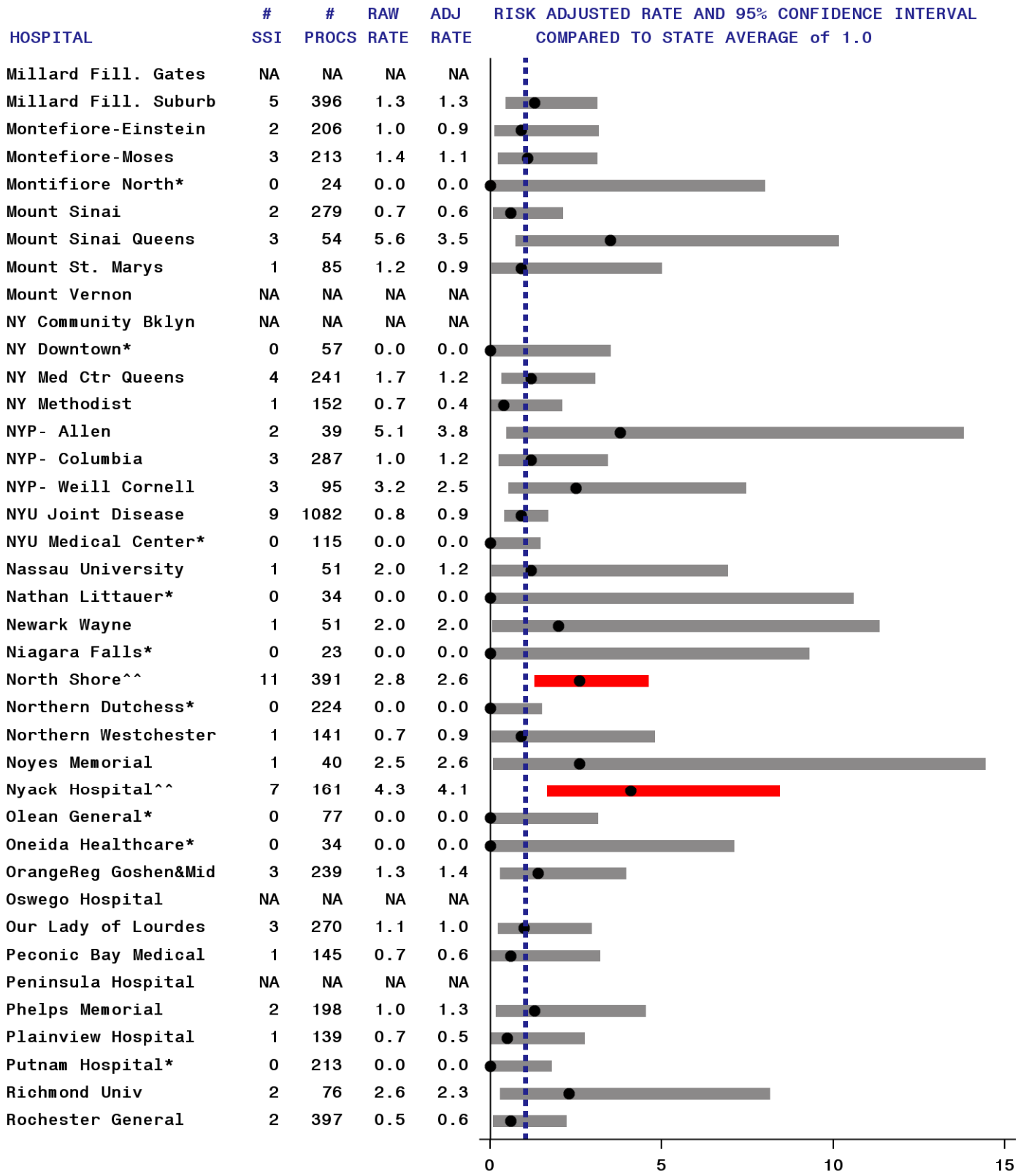
Figure 8. Hip Replacement Surgical Site Infection Rates, New York 2010 (page 2 of 5)

HOSPITAL	# SSI	# PROCS	RAW RATE	ADJ RATE
Flushing Hospital	1	27	3.7	3.0
Forest Hills Hosp	3	100	3.0	2.3
Franklin	3	122	2.5	2.2
Geneva General*	0	59	0.0	0.0
Glen Cove Hospital	2	416	0.5	0.6
Glens Falls^^	7	203	3.4	3.2
Good Samar. Suffern	1	61	1.6	1.7
Good Samar. W Islip	3	112	2.7	1.7
Harlem Hospital	NA	NA	NA	NA
Highland Hospital	8	717	1.1	1.1
Hosp for Spec Surg**	12	3828	0.3	0.5
Hudson Valley*	0	86	0.0	0.0
Huntington	6	228	2.6	2.4
Intercomm. Newfane	NA	NA	NA	NA
Interfaith Medical	NA	NA	NA	NA
JT Mather	3	85	3.5	2.8
Jacobi Medical	3	53	5.7	3.4
Jamaica Hospital	2	43	4.7	2.3
Kenmore Mercy	6	365	1.6	2.3
Kings County	NA	NA	NA	NA
Kingsbrook Jewish^^	3	22	13.6	7.2
Kingston Hospital*	0	58	0.0	0.0
Lakeside Memorial*	0	25	0.0	0.0
Lawrence*	0	88	0.0	0.0
Lenox Hill	6	566	1.1	1.1
Lewis County*	0	25	0.0	0.0
Lincoln Medical	1	25	4.0	2.2
Lockport Memorial*	0	23	0.0	0.0
Long Beach	NA	NA	NA	NA
Long Island College*	0	72	0.0	0.0
Long Island Jewish	4	298	1.3	1.2
Lutheran Medical*	0	155	0.0	0.0
Maimonides	1	151	0.7	0.4
Mary Imogene Bassett^^	8	186	4.3	3.1
Massena Memorial	NA	NA	NA	NA
Medina Memorial	NA	NA	NA	NA
Mercy Buffalo	1	194	0.5	0.4
Mercy Medical	2	121	1.7	2.2
Metropolitan*	0	29	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 June 30, 2011. Excludes non-readmitted cases identified using post discharge surveillance.
Adjusted using ASA score, procedure type (initial/revision, total/partial), duration, and trauma.

Figure 8. Hip Replacement Surgical Site Infection Rates, New York 2010 (page 3 of 5)



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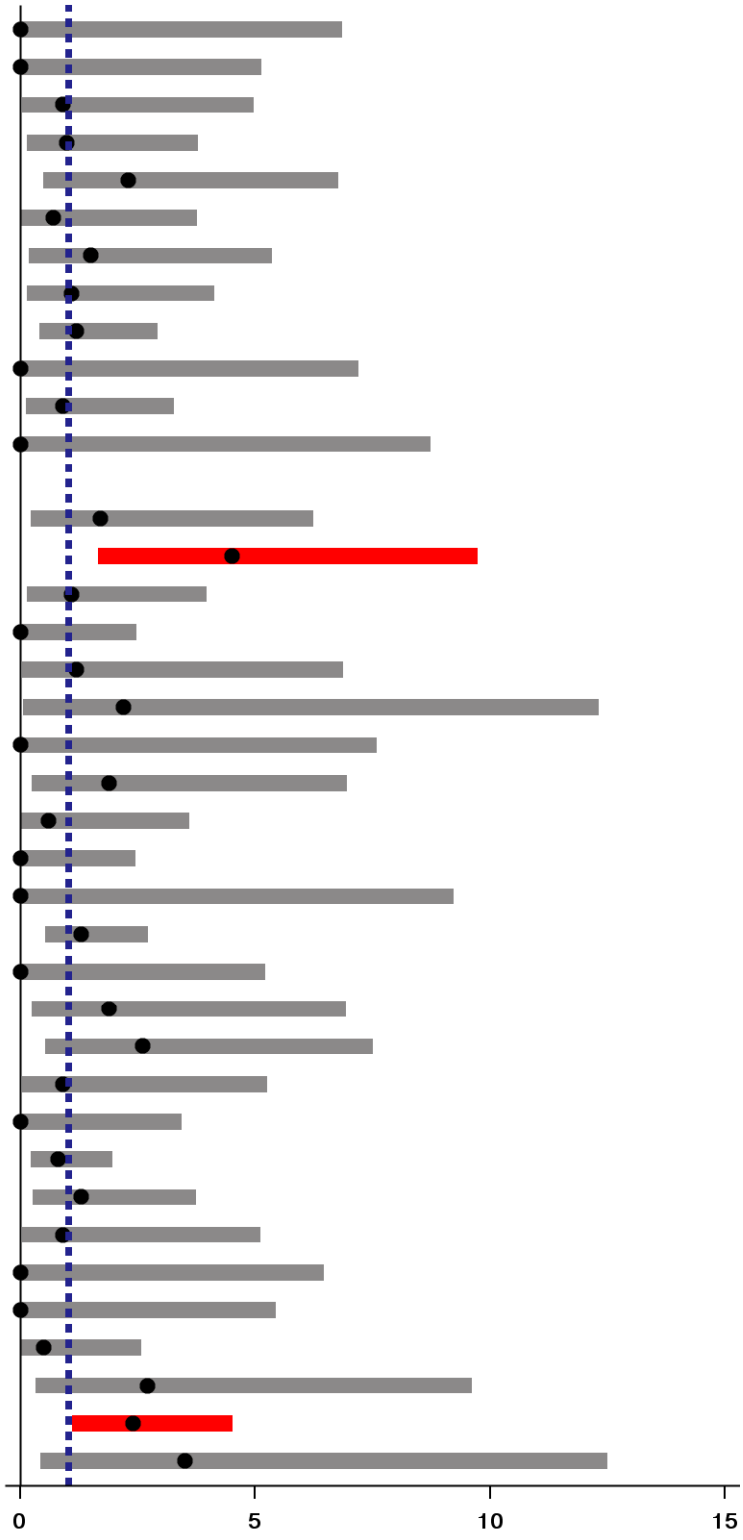
SSI: surgical site infections. Procs: procedures. Rates are per 100 procedures.
Data reported as of June 30, 2011. Excludes non-readmitted cases identified using post discharge surveillance.
Adjusted using ASA score, procedure type (initial/revision, total/partial), duration, and trauma.

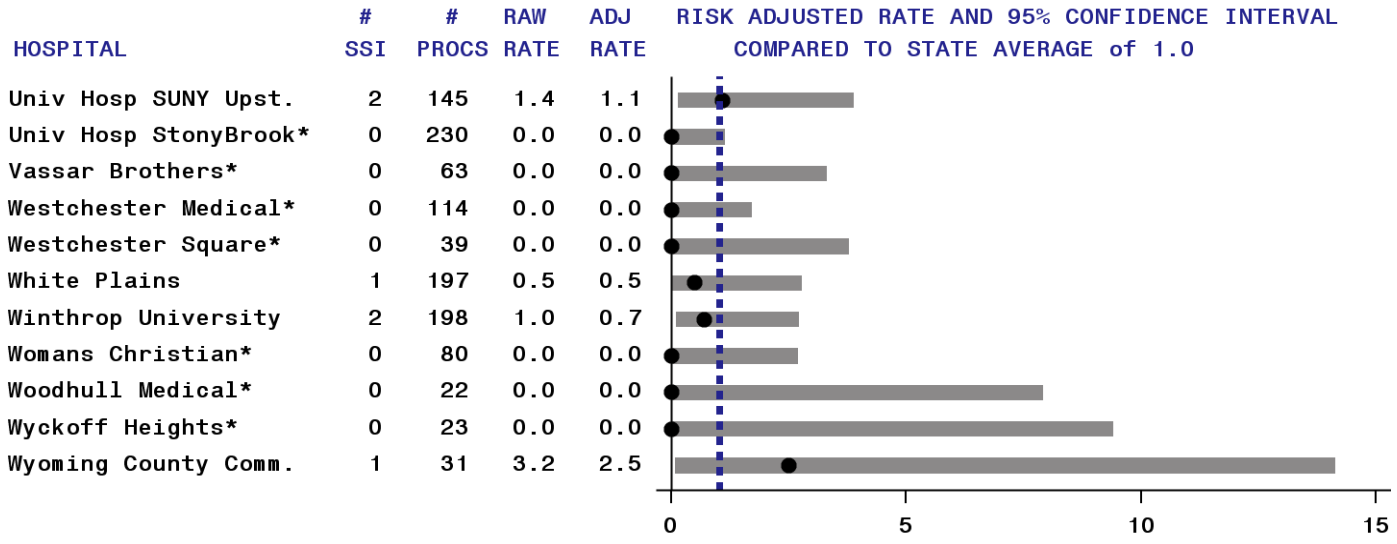
Figure 8. Hip Replacement Surgical Site Infection Rates, New York 2010 (page 4 of 5)

HOSPITAL	# SSI	# PROCS	RAW RATE	ADJ RATE
Rome Memorial*	0	30	0.0	0.0
Samaritan- Troy*	0	48	0.0	0.0
Samaritan- Watertown	1	135	0.7	0.9
Saratoga Hospital	2	198	1.0	1.0
Seton Health	3	111	2.7	2.3
Sisters of Charity	1	165	0.6	0.7
Sloan Kettering	2	80	2.5	1.5
Sound Shore Medical	2	151	1.3	1.1
South Nassau Comm.	5	313	1.6	1.2
Southampton*	0	28	0.0	0.0
Southside	2	187	1.1	0.9
St Anthony*	0	29	0.0	0.0
St Barnabas	NA	NA	NA	NA
St Catherine Siena	2	105	1.9	1.7
St Charles Hospital^^	6	199	3.0	4.5
St Elizabeth Medical	2	202	1.0	1.1
St Francis- Pough.*	0	145	0.0	0.0
St Francis- Roslyn	1	68	1.5	1.2
St James Mercy	1	24	4.2	2.2
St Johns Episcopal*	0	23	0.0	0.0
St Johns Riverside	2	75	2.7	1.9
St Joseph -Bethpage	1	138	0.7	0.6
St Joseph Cheektow.*	0	135	0.0	0.0
St Josephs- Elmira*	0	34	0.0	0.0
St Josephs- Syracuse	7	524	1.3	1.3
St Josephs- Yonkers*	0	39	0.0	0.0
St Lukes- Roosevelt	2	101	2.0	1.9
St Lukes- St Lukes	3	130	2.3	2.6
St LukesNewburgh&Cor	1	80	1.3	0.9
St Marys Amsterdam*	0	100	0.0	0.0
St Peters Hospital	4	756	0.5	0.8
Staten Island U N&S	3	181	1.7	1.3
Strong Memorial	1	55	1.8	0.9
Syosset Hospital*	0	23	0.0	0.0
TLC Lake Shore*	0	63	0.0	0.0
U Health Bing/Wilson	1	221	0.5	0.5
United Memorial	2	76	2.6	2.7
Unity Hosp Rochester^^	9	499	1.8	2.4
Univ Hosp Brooklyn	2	69	2.9	3.5



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 June 30, 2011. Excludes non-readmitted cases identified using post discharge surveillance.
Adjusted using ASA score, procedure type (initial/revision, total/partial), duration, and trauma.

Figure 8. Hip Replacement Surgical Site Infection Rates, New York 2010 (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 June 30, 2011. Excludes non-readmitted cases identified using post discharge surveillance.
Adjusted using ASA score, procedure type (initial/revision, total/partial), duration, and trauma.

Summary of Trend in SSI Rates

Colon, CABG, and hip replacement SSI data were combined into one indicator to summarize the overall improvement in SSI rates over time. Since the start of HAI surveillance in NYS, there has been a 15% reduction in SSIs (Table 10). This reduction occurred primarily between 2007 and 2008. As described in the earlier sections of this report, most of the reduction occurred for colon and CABG chest and donor site SSIs.

Table 10. Summary of Trend in all NYS SSI Data

	Summary of all SSI data			
Year	# observed infections	# expected infections based on NYS Baseline	Standardized Incidence Ratio (95% CI)	Interpretation
2007	1600	N/A	1.0	NYS Baseline
2008	1640	1896.1	0.86 (0.82, 0.91)	14% reduction since 2007
2009	1699	1842.3	0.92 (0.88, 0.97)	8% reduction since 2007
2010	1512	1775.8	0.85 (0.81, 0.90)	15% reduction since 2007

Includes colon and CABG (chest and donor site) SSI since 2007, and hip SSI since 2008.
Colon and hip data as of June 30, 2011, CABG data as of July 18, 2011.

Central Line-Associated Blood Stream Infections (CLABSI)

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 intravenous line because it goes farther into the body, terminating near the heart, and because it may be used for weeks or even months. In newborns, a CL is sometimes initially inserted into the umbilical cord or may also be inserted in another large vein. 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.

CLABSI are not monitored throughout the hospital, but rather, in selected 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 described by the types of patients in the unit. In 2010, 173 hospitals reported CLABSIs from one to several types of ICUs as follows:

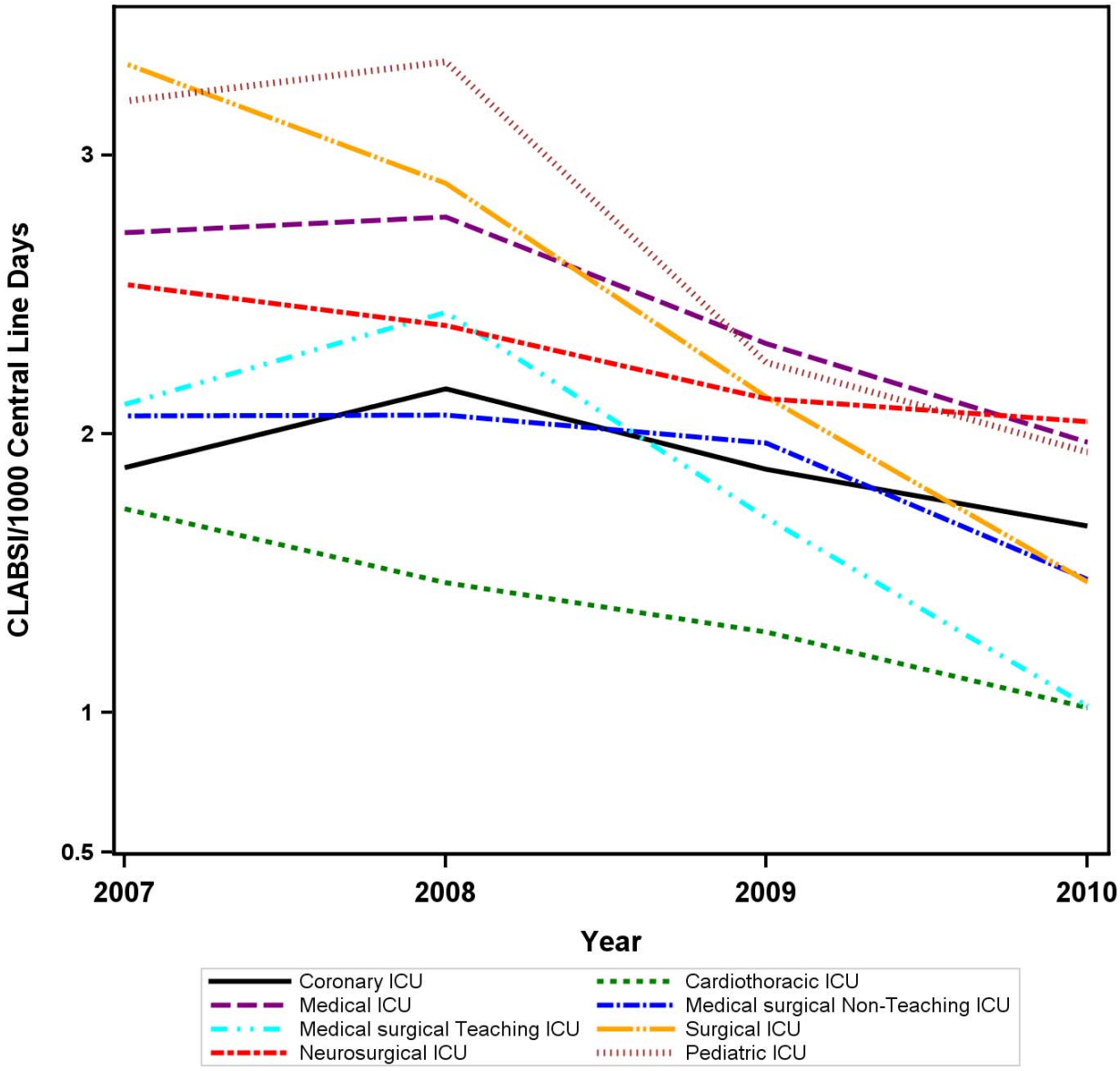
- Cardiothoracic Surgery (32 ICUs)
- Coronary (45)
- Medical (44)
- Medical/Surgical-surgical (133)
- Neurosurgical (14)
- Pediatric (33)
- Surgical (40)
- Neonatal (53)

CLABSI reporting is classified by specific to neonatal (newborns) ICU (NICU) type. Newborns may need different levels of intensive care and are placed in one of three designated NICU types; Regional Perinatal Center (RPC, 18 hospitals), Level III (23 hospitals) or combined Level II/III (12 hospitals). A hospital has only one type of designated NICU. Data are collected from all NICUs for both CLABSIs and UCABSIs (umbilical catheter-associated blood stream infection) and rates are reported by one of the three NICU types.

Time Trends for Intensive Care Unit CLABSIs

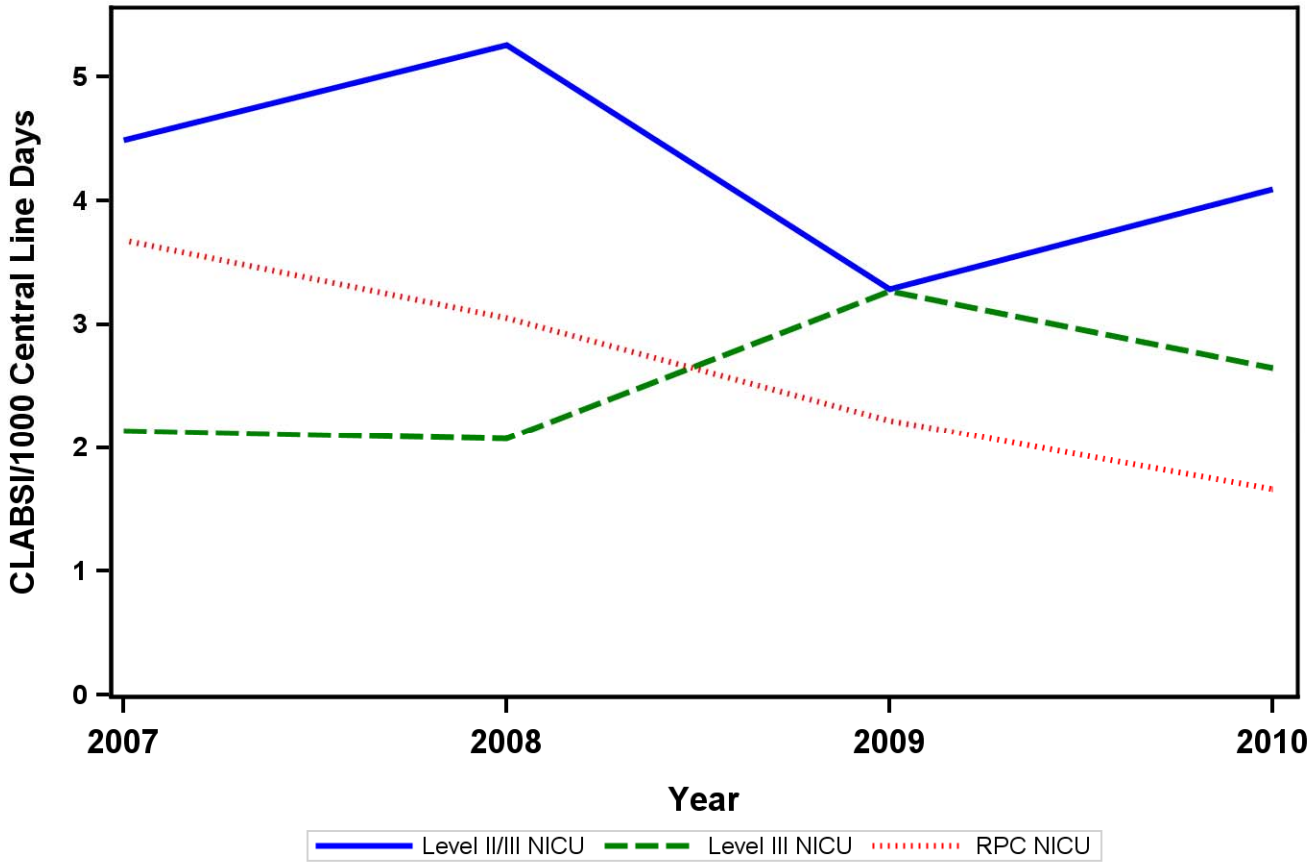
In 2010, 1,007 CLABSI were reported from medical, surgical, medical/surgical, coronary, cardiothoracic, neurosurgical, pediatric, and neonatal ICUs. Time trends in CLABSI rates are summarized in Figures 9 and 10 and Table 11. Significant decreases occurred in Cardiothoracic, Medical, Medical/surgical, Pediatric, Surgical and RPC NICUs.

Figure 9. Trend in Central Line-Associated Blood Stream Infection Rates in Adult and Pediatric Intensive Care Units, New York State 2007-2010



New York State data as of June 30, 2011. Rates are per 1,000 Central Line Days

Figure 10. Trend in Central Line-Associated Blood Stream Infection Rates in Neonatal Intensive Care Units, New York State 2007-2010



New York State data reported as of June 30, 2011. Rates are per 1000 central line days.

Table 11. Central Line Associated and Umbilical Catheter-Associated Blood Stream Infection Data Summary, New York State 2007-2010

	Coronary ICU				Cardiothoracic ICU				Neurosurgical ICU				Pediatric ICU			
Year	# of Hosp	# CLABSI	# CLDays	CLA BSI Rate	# of Hosp	# CLABSI	# CLDays	CLA BSI Rate	# of Hosp	# CLABSI	# CLDays	CLA BSI Rate	# of Hosp	# CLABSI	# CLDays	CLA BSI Rate
2007*	45	74	39,344	1.88	30	109	62,962	1.73	13	37	14,580	2.54	30	90	28,173	3.19
2008	47	110	50,858	2.16	32	108	73,679	1.46	15	42	17,577	2.39	30	99	29,698	3.33
2009	46	95	50,707	1.87	33	97	75,195	1.29	15	40	18,798	2.13	30	69	30,573	2.25
2010	45	84	50,308	1.67	32	76	74,555	1.01	14	38	18,577	2.05	30	57	29,436	1.93

	Medical ICU				Medical Surgical Teaching ICU				Medical Surgical Non-Teach. ICU				Surgical ICU			
Year	# of Hosp	# CLABSI	# CLDays	CLA BSI Rate	# of Hosp	# CLABSI	# CLDays	CLA BSI Rate	# of Hosp	# CLABSI	# CLDays	CLA BSI Rate	# of Hosp	# CLABSI	# CLDays	CLA BSI Rate
2007*	42	191	70,157	2.72	18	100	47,447	2.10	121	339	164,104	2.07	37	221	66,400	3.32
2008	43	244	87,785	2.78	17	117	48,030	2.43	117	360	174,136	2.07	37	219	75,544	2.89
2009	45	219	94,228	2.32	17	75	44,110	1.70	113	319	162,151	1.97	39	161	75,479	2.13
2010	44	185	93,836	1.97	16	38	37,074	1.02	110	229	154,839	1.48	39	116	78,958	1.46

	Level II & III NICU				Level III NICU				Regional Perinatal Centers (RPC)			
Year	# of Hosp	# CLABSI	# CLDays	CLA BSI Rate	# of Hosp	# CLABSI	# CLDays	CLA BSI Rate	# of Hosp	# CLABSI	# CLDays	CLABSI Rate
2007	13	19	3,826	4.97	21	17	7,558	2.25	18	169	44,989	3.76
2008	14	40	6,759	5.92	22	23	10,551	2.18	18	142	45,722	3.11
2009	14	25	6,583	3.80	22	41	11,505	3.56	18	111	49,205	2.26
2010	12	24	5,021	4.78	23	36	12,574	2.86	18	83	50,246	1.65

	Level II & III NICU				Level III NICU				Regional Perinatal Centers (RPC)			
Reporting Year	# of Hosp	# UCABSI	# UCDays	UCA BSI rate	# of Hosp	# UCABSI	# UCDays	UCA BSI rate	# of Hosp	# UCABSI	# UCDays	UCA BSI rate
2007	13	13	2,132	6.10	21	13	4,120	3.16	18	47	16,107	2.92
2008	14	10	3,627	2.76	22	10	6,341	1.58	18	33	14,948	2.21
2009	14	14	3,539	3.96	22	19	6,288	3.02	18	25	16,947	1.48
2010	12	4	2,401	1.67	23	11	7,316	1.50	18	26	15,368	1.69

New York State data as of June 30, 2011. Rates are per 1,000 Central Line or Umbilical Catheter Days.

*The number of central line days is lower in 2007 because hospitals with four or more adult and pediatric ICUs were only required to perform BSI surveillance for three consecutive months in each ICU; the majority of facilities chose to report the entire year. Beginning in 2008, BSI surveillance in all ICUs was required for the entire year.

Since reporting began in 2007, there has been a 37% reduction in CLABSI rates, after adjusting for ICU type (and birth weight in NICUs) (Table 12).

Table 12. Summary of Trend in all NYS CLABSI Data

	Summary of all ICU data listed above			
Year	# observed infections	# expected infections based on NYS Baseline	Standardized Incidence Ratio (95% CI)	Interpretation
2007	1439	N/A	1.0	NYS Baseline
2008	1557	1631.3	0.95 (0.91, 1.00)	5% reduction since 2007
2009	1310	1644.6	0.80 (0.75, 0.84)	20% reduction since 2007
2010	1007	1601.1	0.63 (0.59, 0.67)	37% reduction since 2007

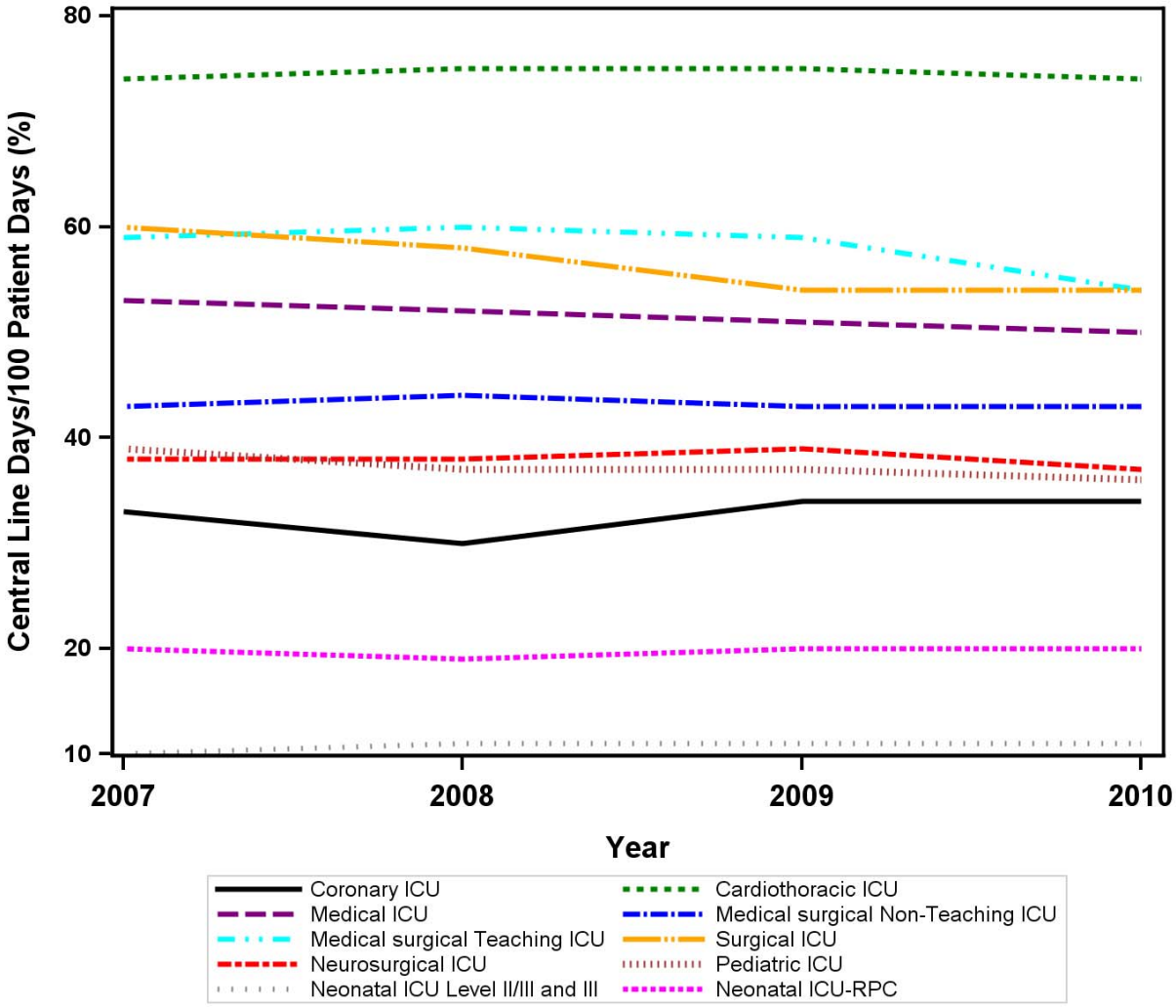
New York State data as of June 30, 2011.

Central line Device Utilization

The Device-Utilization (DU) ratio is the number of central line days divided by the number of patient days. This ratio is helpful in evaluating the frequency of central line usage in a specific patient care unit, usually the ICU, and monitoring increasing or decreasing CLABSI rates. DU ratios have several purposes but can be helpful in assessing whether CLABSI rates have been impacted as a result of implementing infection prevention patient care practices or as a result of increased or decreased usage of CLs. If the DU ratio is constant but the CLABSI rate has decreased, this can signify a positive impact from infection prevention initiatives implemented to reduce CLABSIs. The DU ratio has been remarkably constant in NYS hospitals between 2007 and 2010 (Figure 11), while the CLABSI rate in ten out of the 11 types of ICUs has continued to decline since 2007 (Table 11).

Figure 11. Central Line Utilization Rates in ICUs, New York State 2007-2010

New York State data as of June 30, 2011.



Microorganisms Associated with CLABSIs

The most common microorganisms identified in adult/pediatric ICU-related CLABSIs were Enterococci, coagulase negative staphylococci, yeast, and *Klebsiella spp.* (Table 13). MRSA accounted for only 4% of adult/pediatric CLABSIs (3% for NICUs.) The distribution of microorganisms associated with CLABSI is consistent with previously published NYS HAI public reports.

Table 13. Microorganisms Identified in Central Line-Associated Blood Stream Infections, Adult and Pediatric Intensive Care Units, New York State, 2010

Microorganism	Number of Isolates	Percent of Infections
Enterococci	195	23.7
(VRE)	(95)	(11.5)
Coagulase negative staphylococci	160	19.4
Yeast	110	13.4
Klebsiella spp.	90	10.9
Staphylococcus aureus	81	9.8
(MRSA)	(33)	(4.0)
Pseudomonas spp.	42	5.1
Acinetobacter spp.	41	5.0
Serratia spp.	28	3.4
Escherichia coli	27	3.3
Enterobacter spp.	25	3.0
Proteus spp.	11	1.3
Stenotrophomonas maltophilia	5	0.6
Other	30	3.6

New York State data reported as of June 30, 2011
Out of 823 infections.
VRE: vancomycin-resistant enterococcus
MRSA: methicillin-resistant *Staphylococcus aureus*
spp: multiple species

The most common microorganisms identified in NICU-related CLABSIs and UCABSIs were coagulase negative staphylococci, *Staphylococcus aureus*, Enterococci, and yeast (Table 14). The distribution of microorganisms associated with CLABSI is consistent with previously published NYS HAI public reports.

Table 14. Microorganisms Associated with Central Line-Associated and Umbilical Catheter-Associated Blood Stream Infections, Neonatal Intensive Care Units, New York State 2010

Microorganism	Number of Isolates	Percent of Infections
Coagulase negative staphylococci	64	34.8
Staphylococcus aureus	38	20.7
(MRSA)	(6)	(3.3)
Enterococci	27	7.6
(VRE)	(1)	(0.5)
Yeast	24	13.0
Klebsiella spp.	12	6.5
Serratia spp.	9	4.9
Escherichia coli	7	3.8
Enterobacter spp.	5	2.7
Other	18	9.8

New York State data reported as of June 30, 2011
Out of 184 infections
VRE: vancomycin-resistant enterococcus
MRSA: methicillin-resistant *Staphylococcus aureus*
spp: multiple species

Risk Factors for CLABSIs

Hospitals do not collect patient-specific risk factors for CLABSI in adult and pediatric ICUs; the 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 (Table 11). Medical surgical ICUs are further stratified into Major Teaching Hospitals, and non-Major Teaching hospitals. For BSIs in NICUs, the data are collected by birth weight group, since lower birth weight babies are more susceptible to CLABSI and UCABSIs than higher birth weight babies.

Hospital-Specific, ICU-Specific CLABSI rates

A custom field is included in the reporting system to allow NYS hospitals to document reported CLABSI that meet NHSN surveillance criteria but are more likely contaminants than CLABSIs. These blood stream events involve situations in which multiple blood cultures were obtained, only one blood specimen was positive for a single pathogen, and no treatment was given. There were 13 contaminants reported in 2010, representing 1.3% of all reported CLABSIs. These contaminants were excluded from NYS hospital-specific rates.

Within NYS, hospital-specific CLABSI rates were compared to the state average for the specific type of ICU. If CLABSI rates are statistically lower than the state average, the bar is blue and if statistically higher, the bar is red (Figures 12–25). Refer to Appendix 3, Figure 31 for more information about reading Figures 12-25. The following statistically significant differences were seen in 2010 (Table 15):

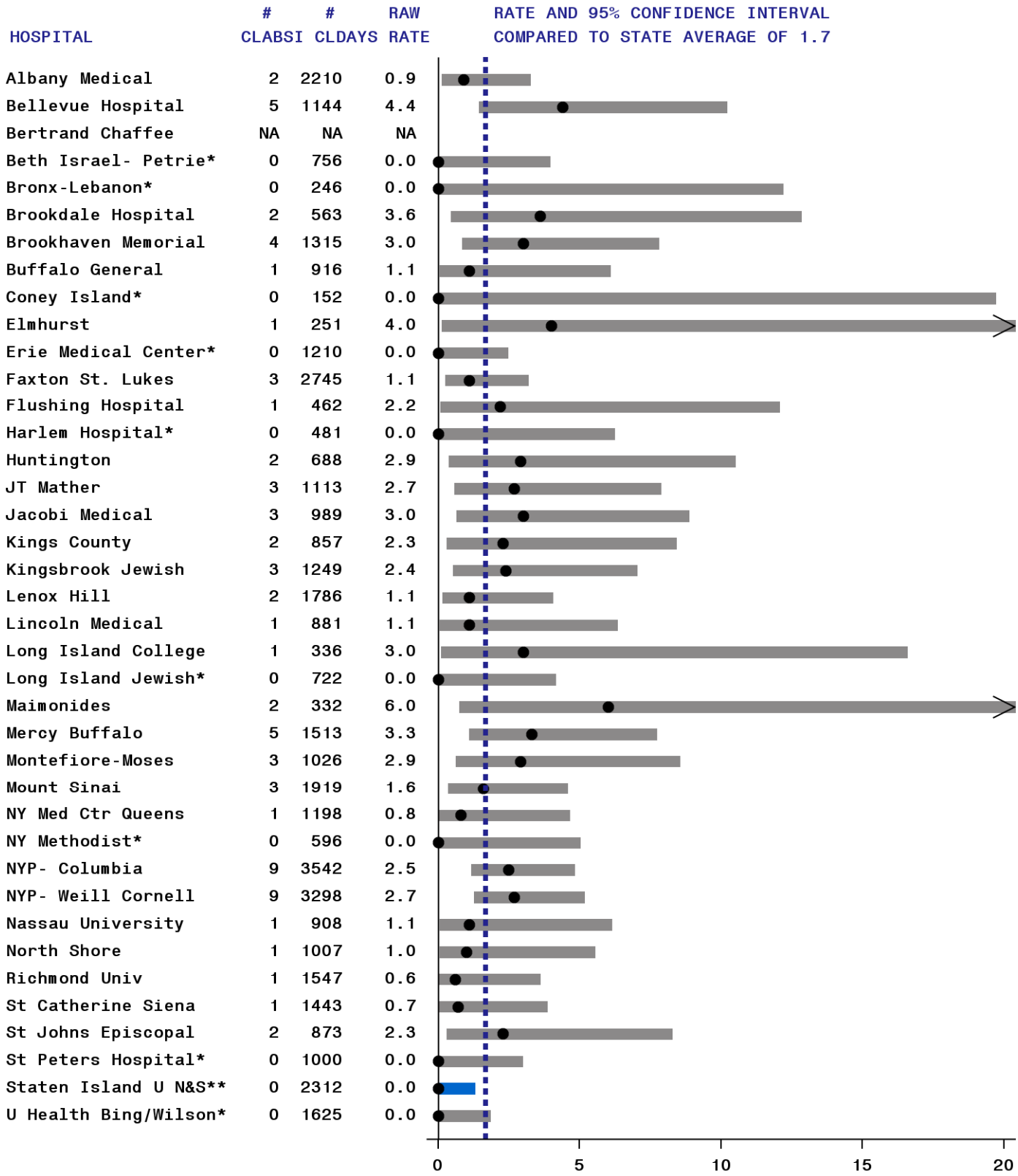
Table 15. Summary of Variation in Hospital-Specific CLABSI Rates by Type of ICU

Type of ICU (n) = number of hospitals	# (%) zero infections	# (%) significantly higher than state average	# (%) significantly lower than state average	comment
Cardiothoracic (32)	9 (28%)	1 (3%)	0 (0%)	
Coronary (45)	13 (29%)	1 (2%)	1 (2%)	
Medical (44)	10 (23%)	6 (14%)	5 (11%)	1 was low two years in a row, 2 were high two years in a row
Medical/Surgical (126)	51 (40%)	5 (4%)	3 (2%)	1 was high three years in a row, 1 was high two years in a row
Surgical (39)	8 (21%)	2 (5%)	2 (5%)	
Neurosurgical (14)	3 (21%)	0 (0%)	0 (0%)	
Pediatric (30)	15 (50%)	0 (0%)	0 (0%)	
Neonatal CLABSI (53)	11(21%)	3 (6%)	1 (2%)	
Neonatal UCABSI (52*)	31(60%)	2 (4%)	0 (0%)	1 was high two years in a row

* 1 NICU did not use umbilical catheters.

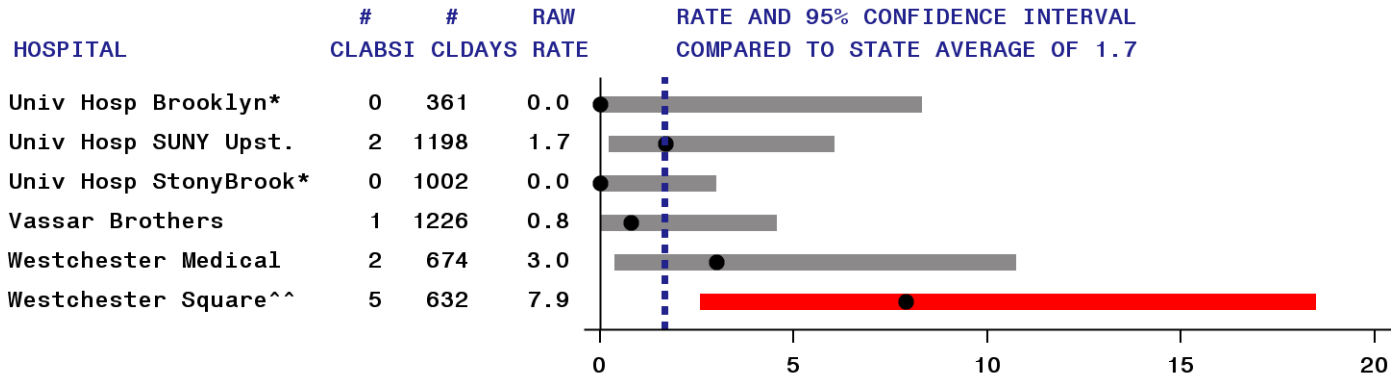
Between 2007 and 2010, the overall percentage of ICUs receiving 'high' flags decreased slightly, from 6% to 5%, while the percentage of ICUs receiving 'low' flags decreased from 6% to 3%. This indicates that while the overall BSI rate is decreasing (Table 12), it is decreasing consistently across hospitals, with fewer high and low performers.

Figure 12. Central Line-Associated Blood Stream Infection (CLABSI) Rates
Coronary Intensive Care Units, New York 2010 (page 1 of 2)



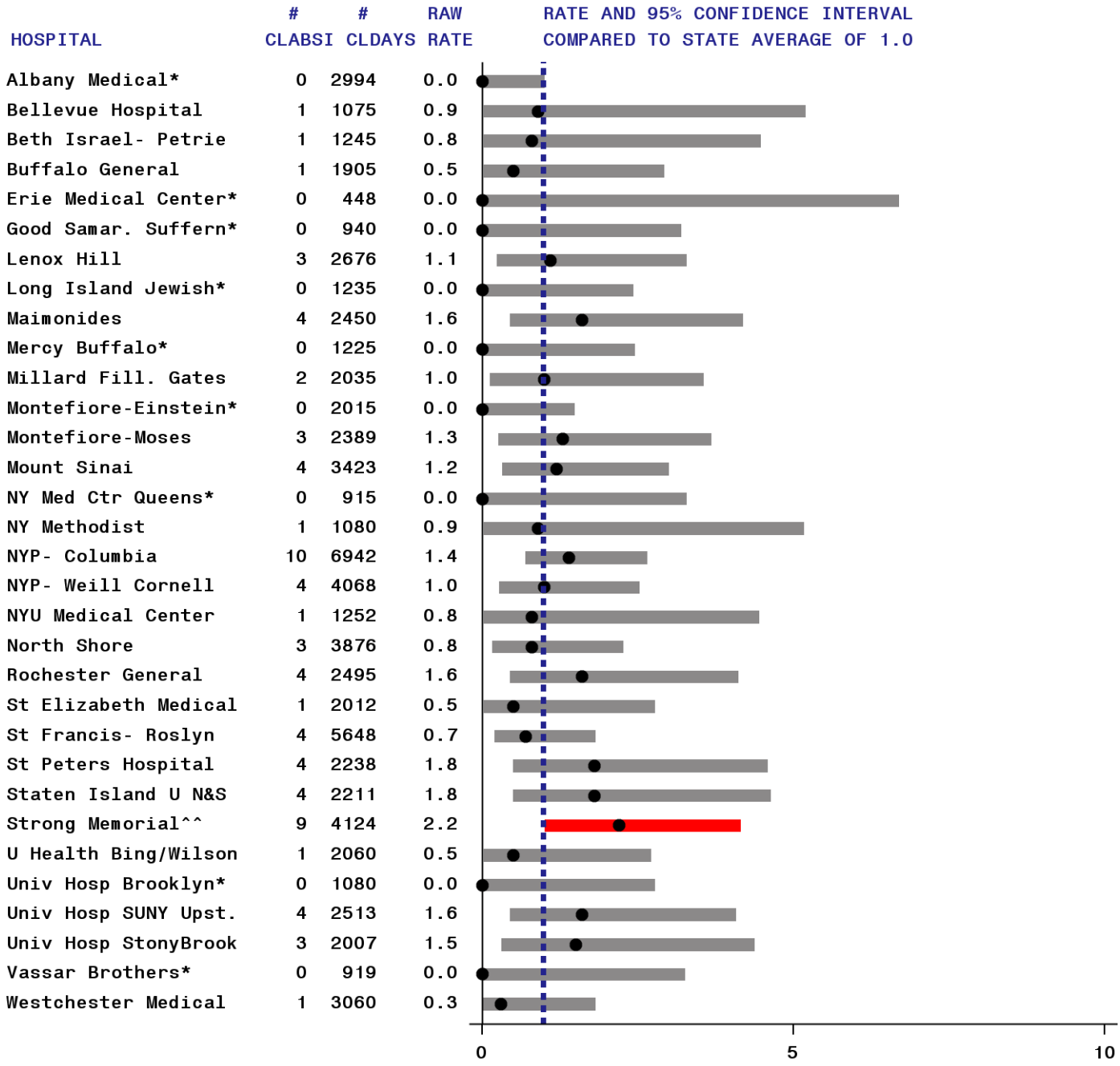
State average. ●Infection rate. > Upper confidence limit exceeds graph area. —^^Significantly higher than state average.
—**Significantly lower than state average. —Average. —*Zero infections, not significant. NA: Hospitals with < 50 central line days.
Data reported as of June 30, 2011. Rates are per 1000 central line days (CLDAYS).
Excludes untreated events with a single-pathogen contaminated specimen.

Figure 12. Central Line-Associated Blood Stream Infection (CLABSI) Rates
Coronary Intensive Care Units, New York 2010 (page 2 of 2)



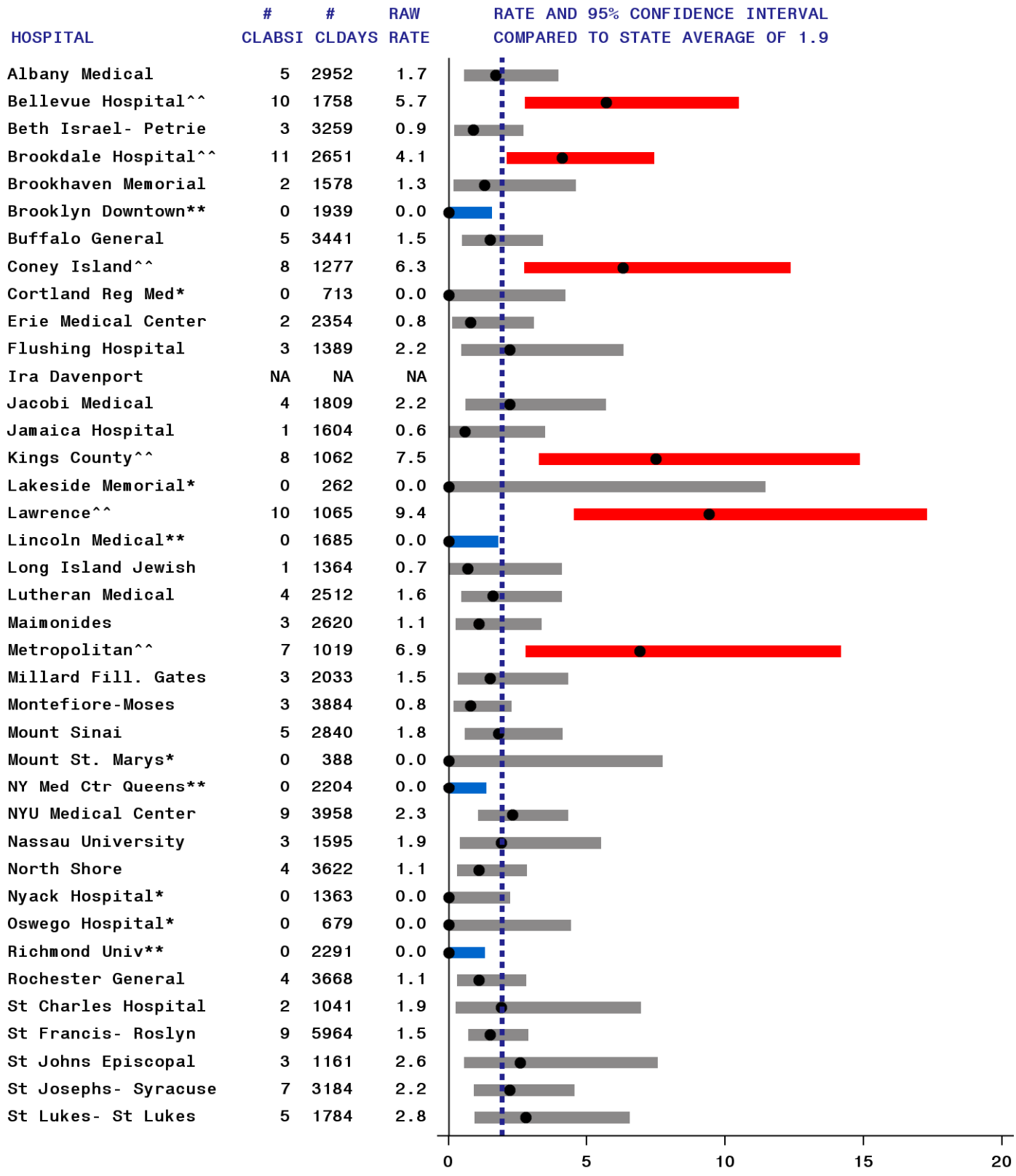
State Average. ●Infection rate. > Upper confidence limit exceeds graph area. —^^Significantly higher than state average. —**Significantly lower than state average. —Average. —*Zero infections, not significant. NA: Hospitals with < 50 central line days.
Data reported as of June 30, 2011. Rates are per 1000 central line days (CLDAYS).
Excludes untreated events with a single-pathogen contaminated specimen.

Figure 13. Central Line-Associated Blood Stream Infection (CLABSI) Rates Cardiothoracic Intensive Care Units, New York 2010 (page 1 of 1)



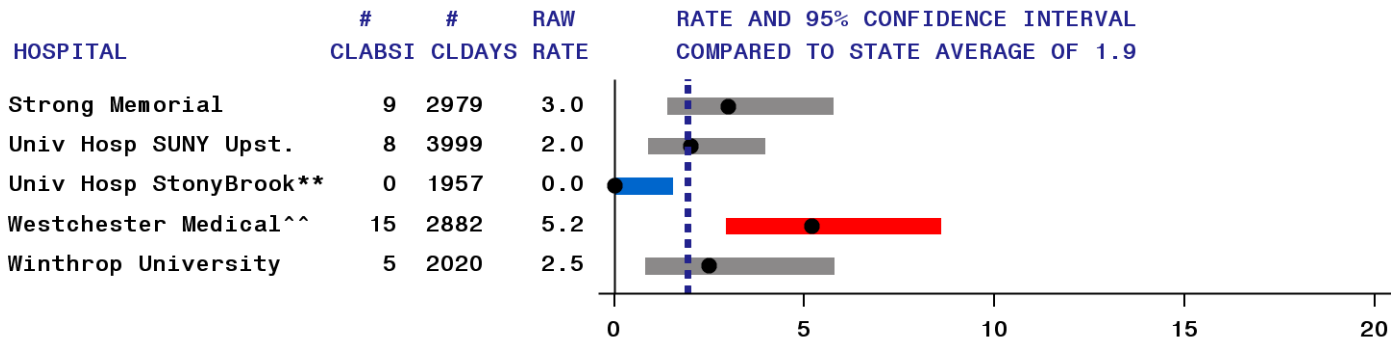
State Average. ●Infection rate. > Upper confidence limit exceeds graph area. —^^Significantly higher than state average. —**Significantly lower than state average. —Average. —*Zero infections, not significant. NA: Hospitals with < 50 central line days.
Data reported as of June 30, 2011. Rates are per 1000 central line days (CLDAYS).
Excludes untreated events with a single-pathogen contaminated specimen.

Figure 14. Central Line-Associated Blood Stream Infection (CLABSI) Rates
Medical Intensive Care Units, New York 2010 (page 1 of 2)



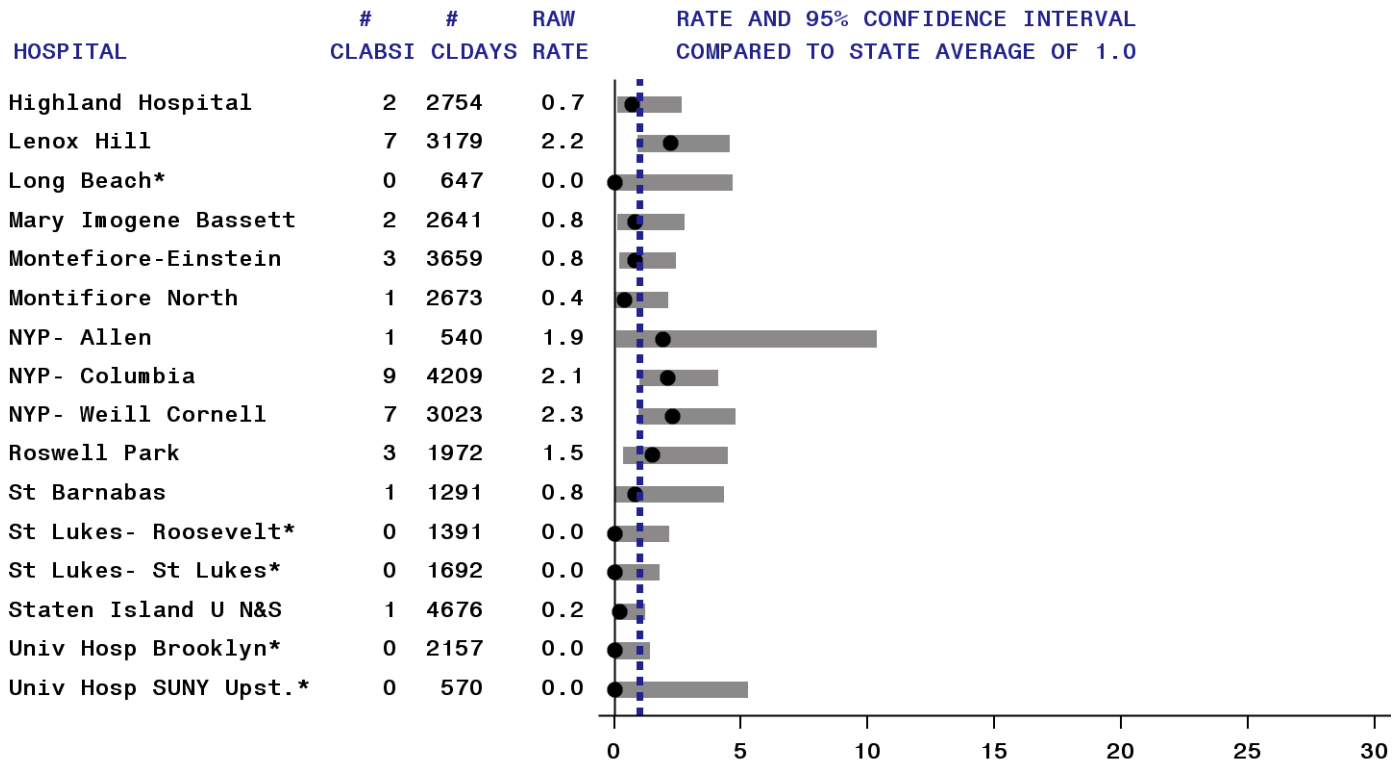
State Average. ●Infection rate. > Upper confidence limit exceeds graph area. ^^Significantly higher than state average.
**Significantly lower than state average. Average. *Zero infections, not significant. NA: Hospitals with < 50 central line days.
Data reported as of July 18, 2011. Rates are per 1000 central line days (CLDAYS).
Excludes untreated events with a single-pathogen contaminated specimen.

Figure 14. Central Line-Associated Blood Stream Infection (CLABSI) Rates
Medical Intensive Care Units, New York 2010 (page 2 of 2)



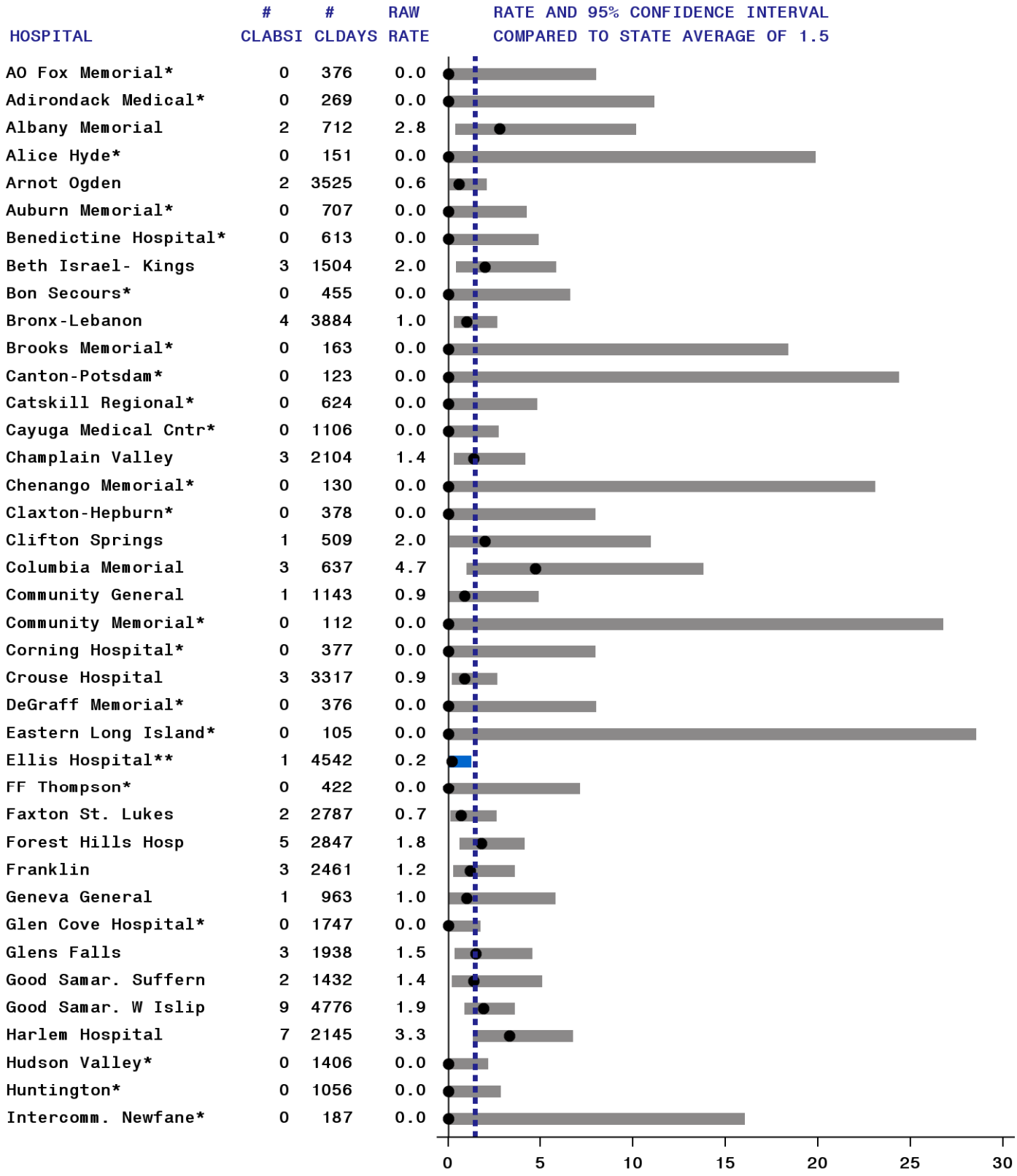
State Average. ●Infection rate. > Upper confidence limit exceeds graph area. —^^Significantly higher than state average. —**Significantly lower than state average. —Average. —*Zero infections, not significant. NA: Hospitals with < 50 central line days.
Data reported as of July 18, 2011. Rates are per 1000 central line days (CLDAYS).
Excludes untreated events with a single-pathogen contaminated specimen.

Figure 15. Central Line-Associated Blood Stream Infection (CLABSI) Rates
Medical-Surgical Intensive Care Units in Major Teaching Hospitals, New York 2010



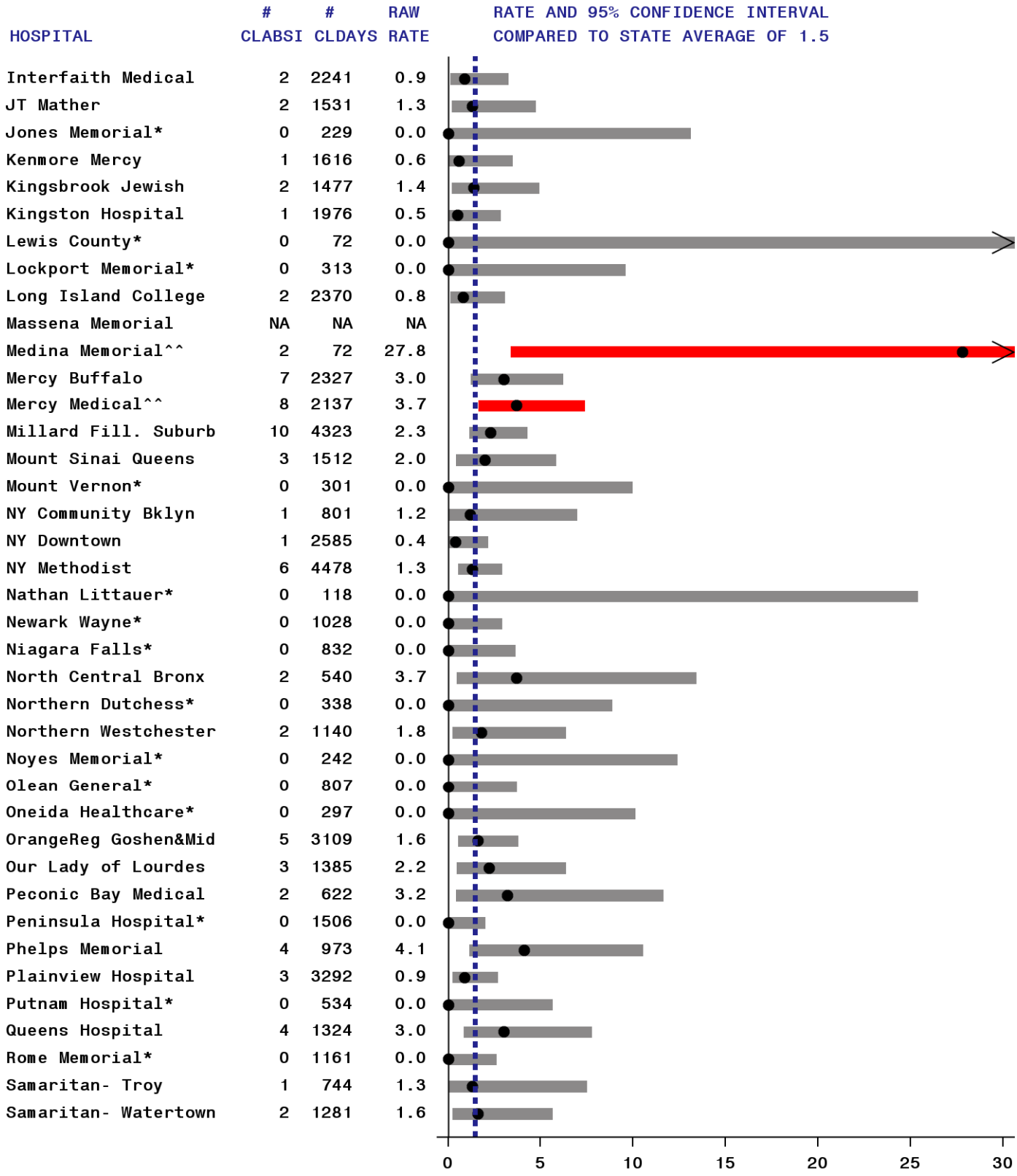
State Average. ●Infection rate. > Upper confidence limit exceeds graph area. —^^Significantly higher than state average.
—**Significantly lower than state average. —Average. —*Zero infections, not significant. NA: Hospitals with < 50 central line days.
Data reported as of June 30, 2011. Rates are per 1000 central line days (CLDAYS).
Excludes untreated events with a single-pathogen contaminated specimen.

Figure 16. Central Line-Associated Blood Stream Infection (CLABSI) Rates
Medical-Surgical Intensive Care Units in Non-Major Teaching Hospitals, New York 2010 (page 1 of 3)



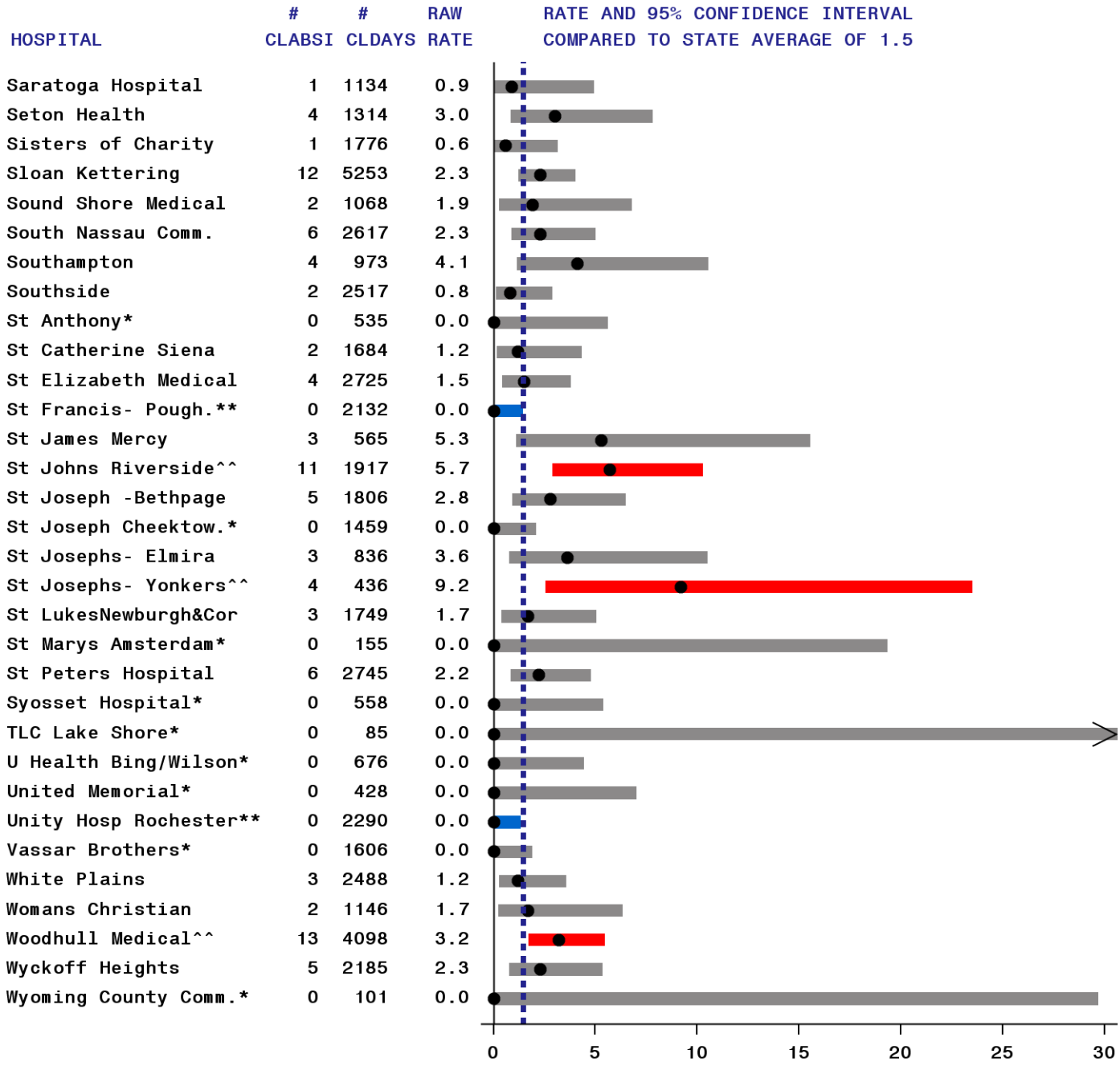
State Average. ●Infection rate. > Upper confidence limit exceeds graph area. ^^Significantly higher than state average.
**Significantly lower than state average. Average. *Zero infections, not significant. NA: Hospitals with < 50 central line days.
Data reported as of June 30, 2011. Rates are per 1000 central line days (CLDAYS).
Excludes untreated events with a single-pathogen contaminated specimen.

Figure 16. Central Line-Associated Blood Stream Infection (CLABSI) Rates
Medical-Surgical Intensive Care Units in Non-Major Teaching Hospitals, New York 2010 (page 2 of 3)



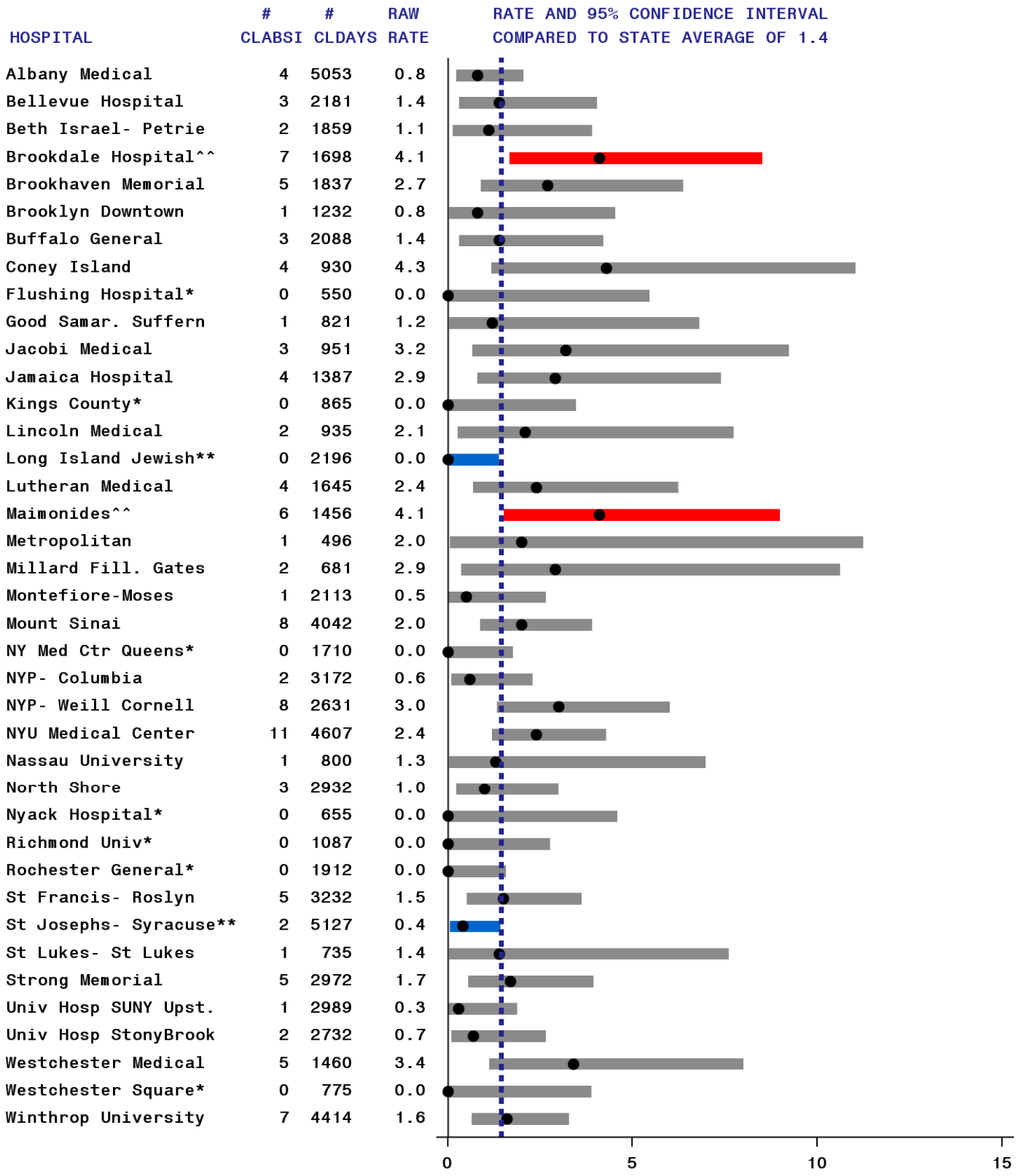
State Average. ●Infection rate. > Upper confidence limit exceeds graph area. ^^Significantly higher than state average.
**Significantly lower than state average. Average. *Zero infections, not significant. NA: Hospitals with < 50 central line days.
Data reported as of June 30, 2011. Rates are per 1000 central line days (CLDAYS).
Excludes untreated events with a single-pathogen contaminated specimen.

Figure 16. Central Line-Associated Blood Stream Infection (CLABSI) Rates
Medical-Surgical Intensive Care Units in Non-Major Teaching Hospitals, New York 2010 (page 3 of 3)



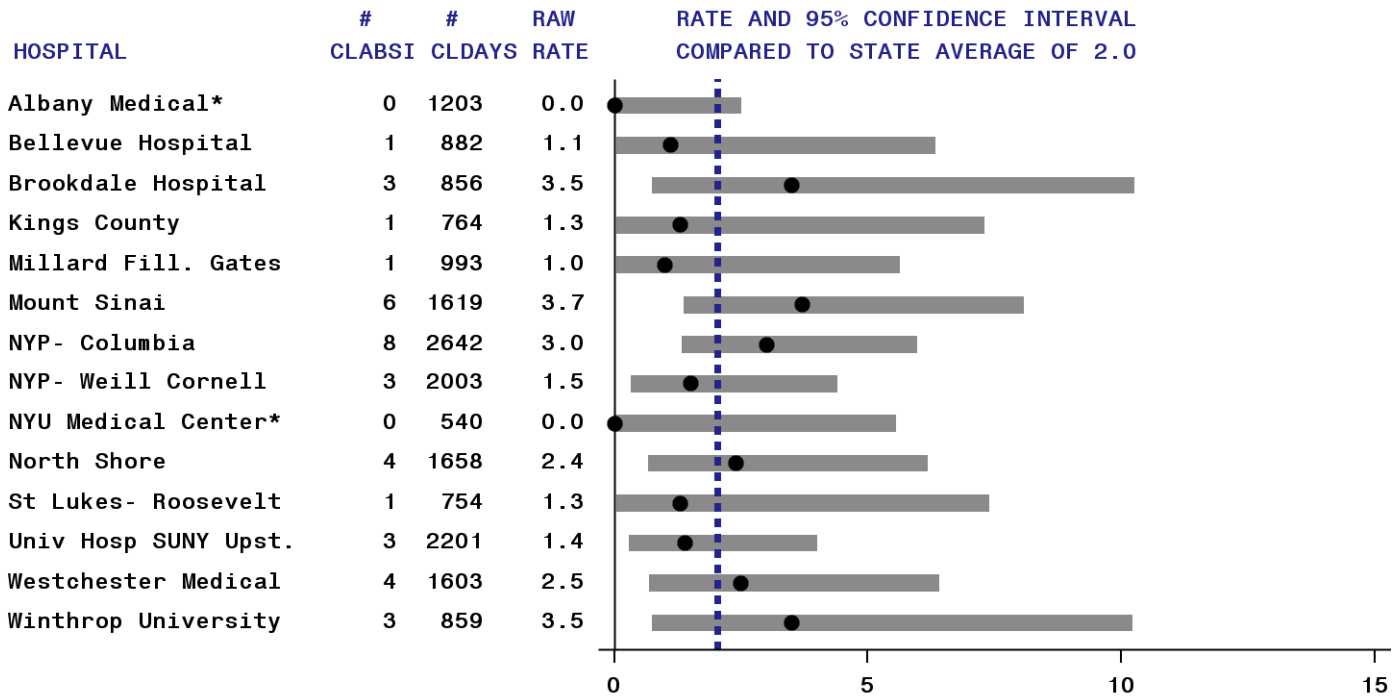
State Average. ●Infection rate. > Upper confidence limit exceeds graph area. ^^Significantly higher than state average.
**Significantly lower than state average. Average. *Zero infections, not significant. NA: Hospitals with < 50 central line days.
Data reported as of June 30, 2011. Rates are per 1000 central line days (CLDAYS).
Excludes untreated events with a single-pathogen contaminated specimen.

Figure 17. Central Line-Associated Blood Stream Infection (CLABSI) Rates
Surgical Intensive Care Units, New York 2010 (page 1 of 1)



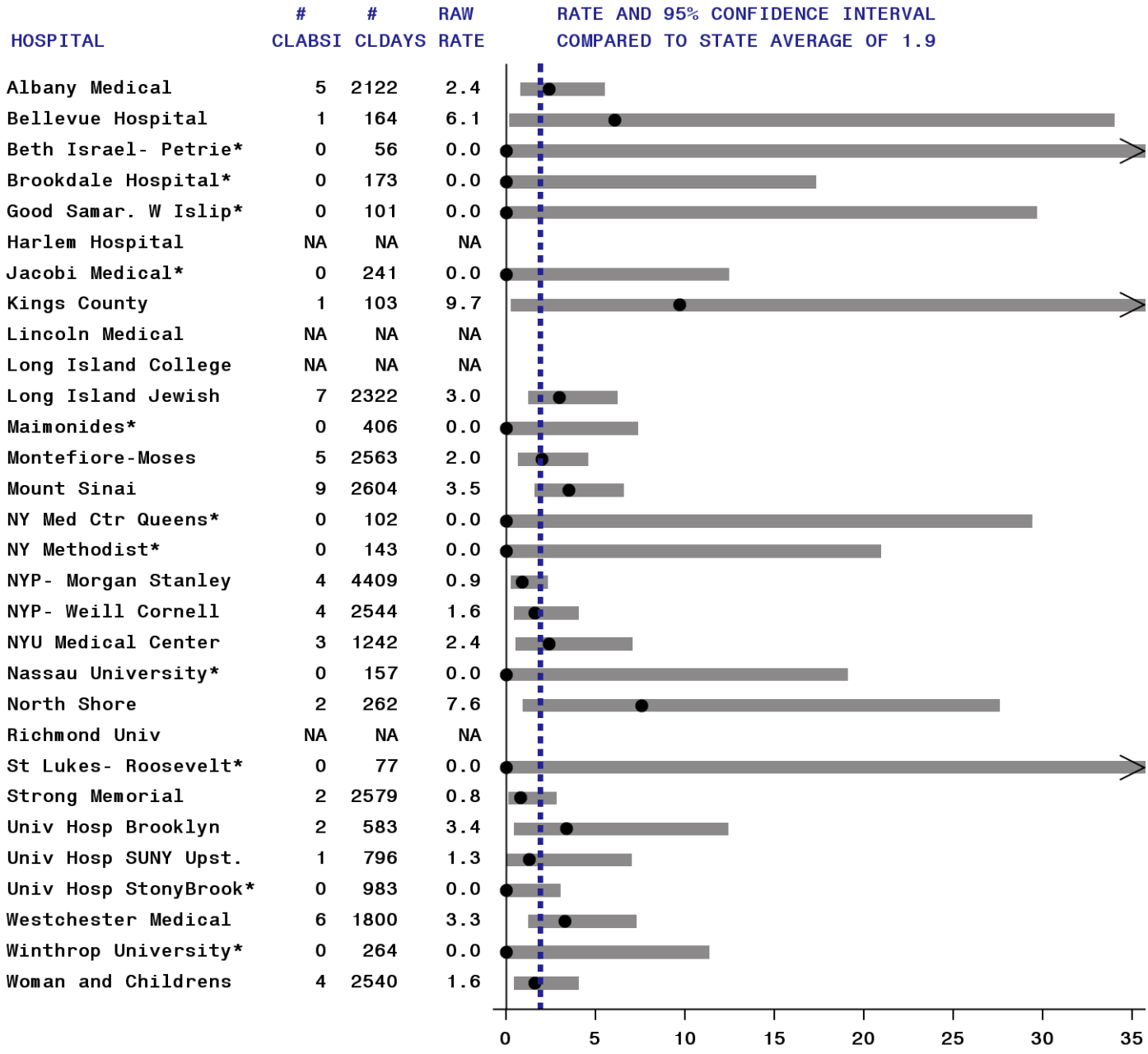
State Average. ●Infection rate. > Upper confidence limit exceeds graph area. —^^Significantly higher than state average.
—**Significantly lower than state average. —Average. —*Zero infections, not significant. NA: Hospitals with < 50 central line days.
Data reported as of June 30, 2011. Rates are per 1000 central line days (CLDAYS).
Excludes untreated events with a single-pathogen contaminated specimen.

Figure 18. Central Line-Associated Blood Stream Infection (CLABSI) Rates
Neurosurgical Intensive Care Units, New York 2010 (page 1 of 1)



State Average. ●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 < 50 central line days.
Data reported as of June 30, 2011. Rates are per 1000 central line days (CLDAYS).
Excludes untreated events with a single-pathogen contaminated specimen.

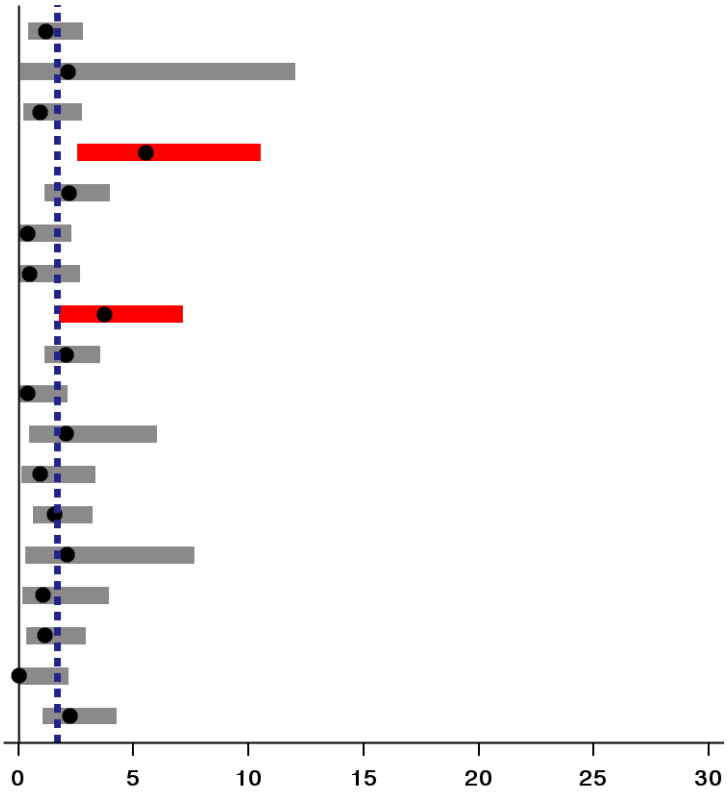
Figure 19. Central Line-Associated Blood Stream Infection (CLABSI) Rates
Pediatric Intensive Care Units, New York 2010 (page 1 of 1)



State Average. ●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 < 50 central line days.
Data reported as of June 30, 2011. Rates are per 1000 central line days (CLDAYS).
Excludes untreated events with a single-pathogen contaminated specimen.

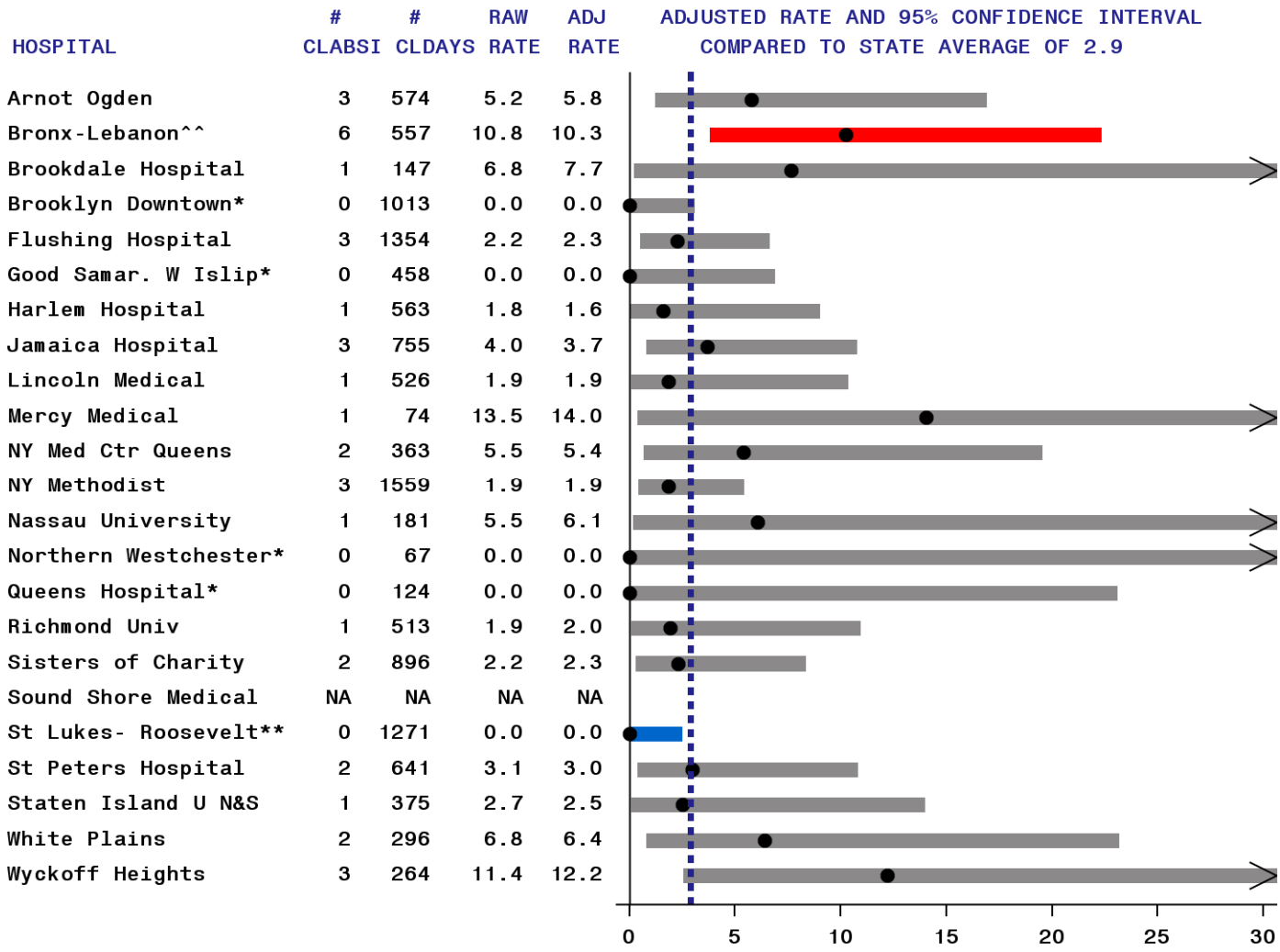
Figure 20. Central Line-Associated Blood Stream Infection (CLABSI) Rates
Regional Perinatal Center Intensive Care Units, New York 2010

HOSPITAL	# CLABSI	# CLDAYS	RAW RATE	ADJ RATE
Albany Medical	5	4268	1.2	1.2
Bellevue Hospital	1	440	2.3	2.2
Crouse Hospital	3	3346	0.9	0.9
Jacobi Medical^^	9	1508	6.0	5.5
Long Island Jewish	11	4977	2.2	2.2
Maimonides	1	2313	0.4	0.4
Montefiore-Einstein	1	2015	0.5	0.5
Mount Sinai^^	9	2321	3.9	3.8
NYP- Morgan Stanley	13	6076	2.1	2.1
NYP- Weill Cornell	1	2665	0.4	0.4
NYU Medical Center	3	1461	2.1	2.1
North Shore	2	2167	0.9	0.9
Strong Memorial	7	4639	1.5	1.6
Univ Hosp Brooklyn	2	826	2.4	2.1
Univ Hosp StonyBrook	2	1984	1.0	1.1
Westchester Medical	4	3611	1.1	1.1
Winthrop University*	0	1459	0.0	0.0
Woman and Childrens	9	4170	2.2	2.2



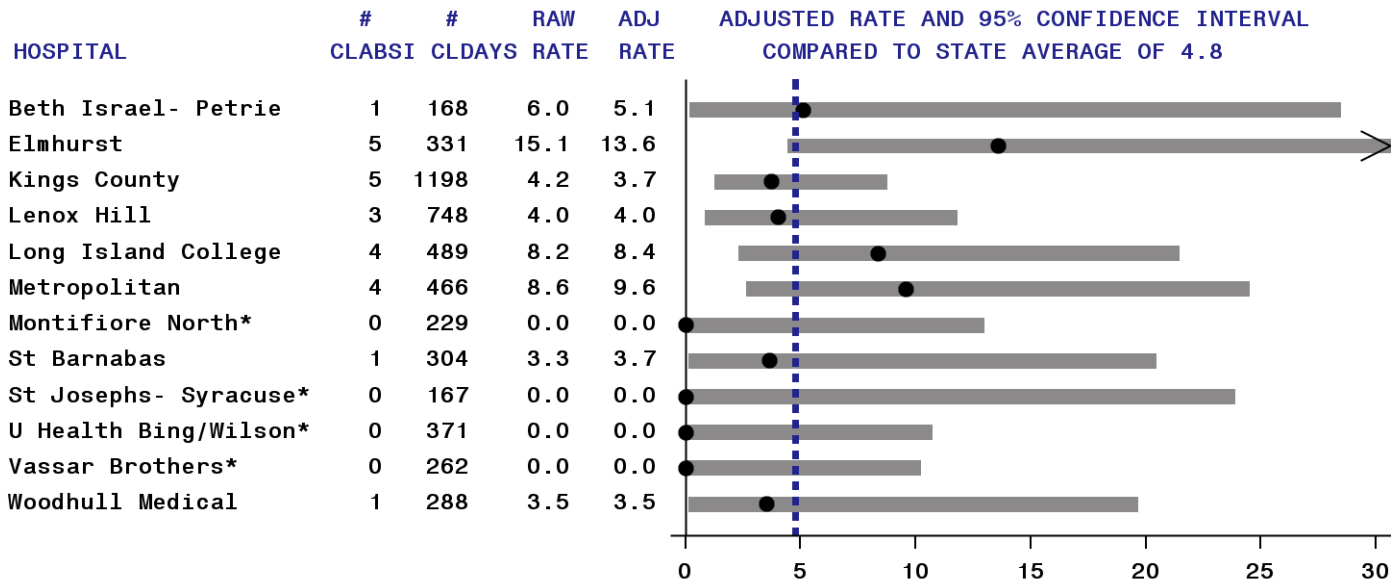
State average. ●Risk-adjusted infection rate. > Upper confidence limit exceeds graph area. ^^Significantly higher than state average. **Significantly lower than state average. —Average. —*Zero infections, not significant.
NA: Hospitals with less than 50 central line days. Adj Rate: Adjusted by NHSN Birth Weight Category.
Data reported as of July 18, 2011. Rates are per 1000 central line days (CLDAYS).
Excludes untreated events with a single-pathogen contaminated specimen.

Figure 21. Central Line-Associated Blood Stream Infection (CLABSI) Rates
Level III Neonatal Intensive Care Units, New York 2010



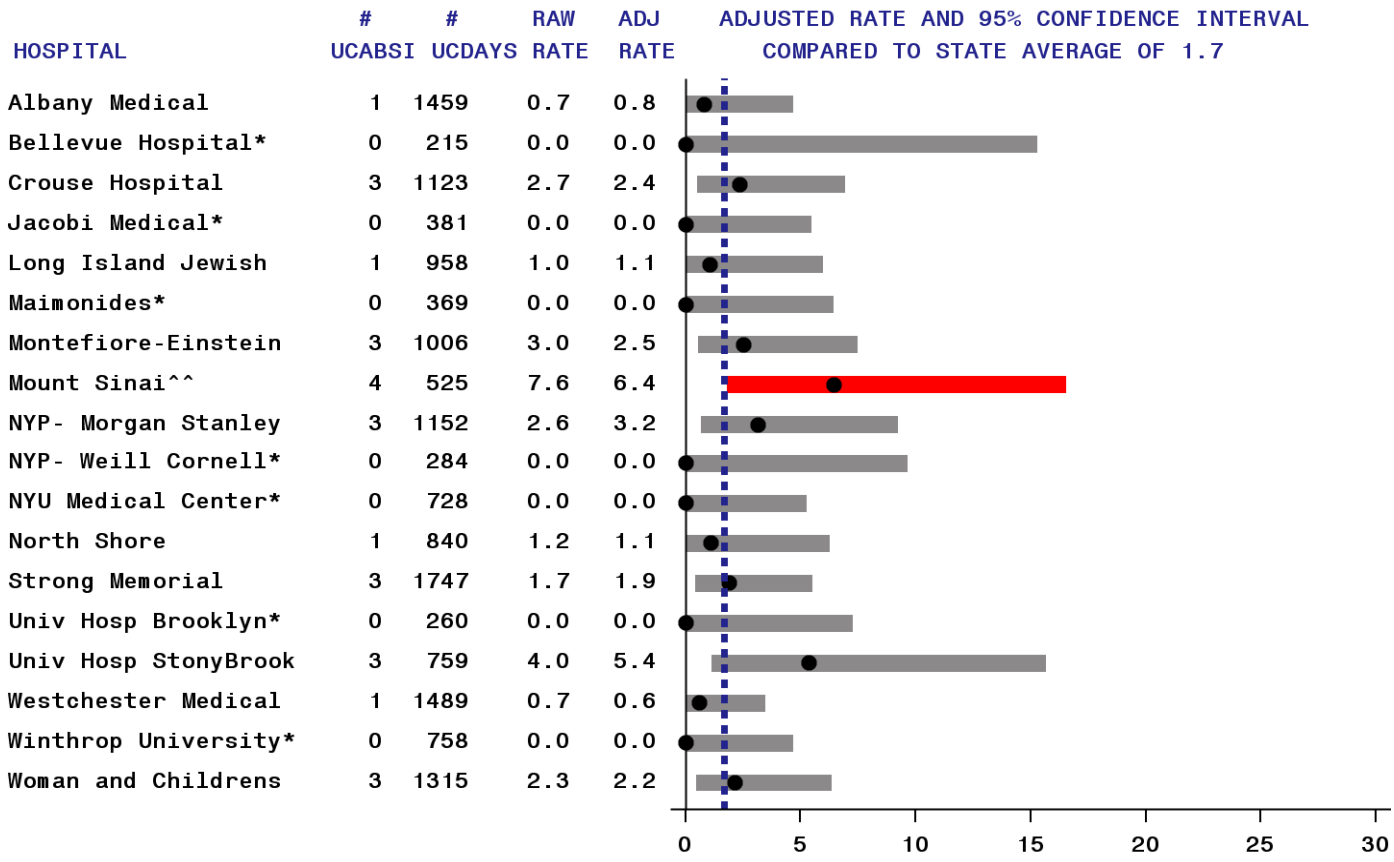
State average. ●Risk-adjusted infection rate. > Upper confidence limit exceeds graph area. —^^Significantly higher than state average.
—**Significantly lower than state average. —Average. —*Zero infections, not significant.
NA: Hospitals with less than 50 central line days. Adj Rate: Adjusted by NHSN Birth Weight Category.
Data reported as of July 18, 2011. Rates are per 1000 central line days (CLDAYS).
Excludes untreated events with a single-pathogen contaminated specimen.

Figure 22. Central Line-Associated Blood Stream Infection (CLABSI) Rates
Level II/III Neonatal Intensive Care Units, New York 2010



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 50 central line days. Adj Rate: Adjusted by NHSN Birth Weight Category.
Data reported as of July 18, 2011. Rates are per 1000 central line days (CLDAYS).
Excludes untreated events with a single-pathogen contaminated specimen.

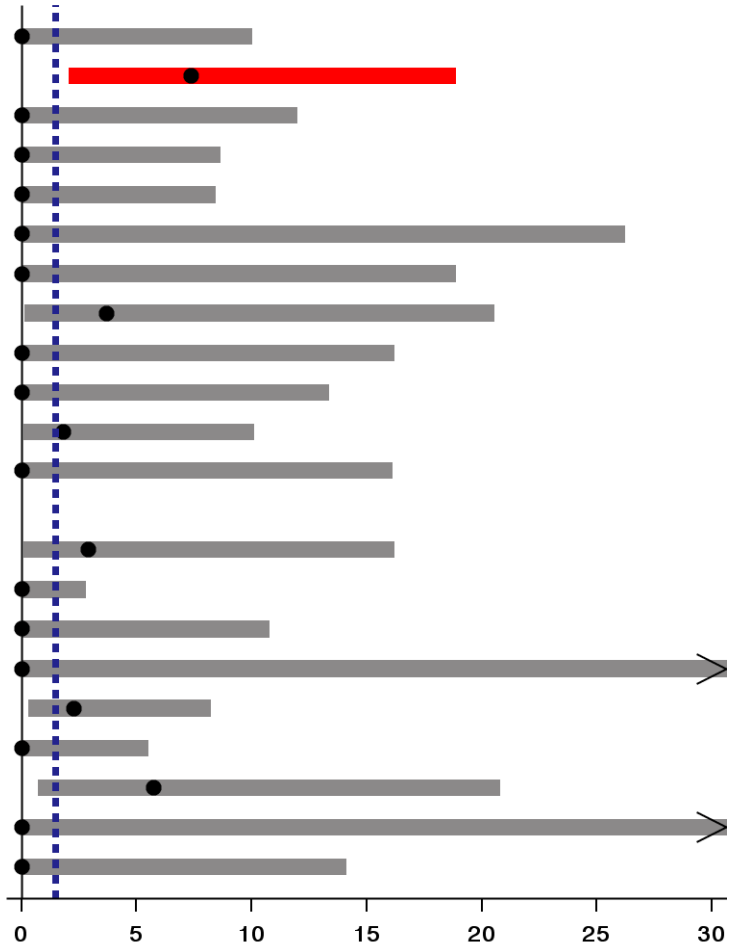
Figure 23. Umbilical Catheter-Associated Blood Stream Infection (UCABSI) Rates
Regional Perinatal Center Neonatal Intensive Care Units, New York 2010



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 50 central line days. Adj Rate: Adjusted by NHSN Birth Weight Category.
Data reported as of July 18, 2011. Rates are per 1000 umbilical catheter days (CLDAYS).
Excludes untreated events with a single-pathogen contaminated specimen.

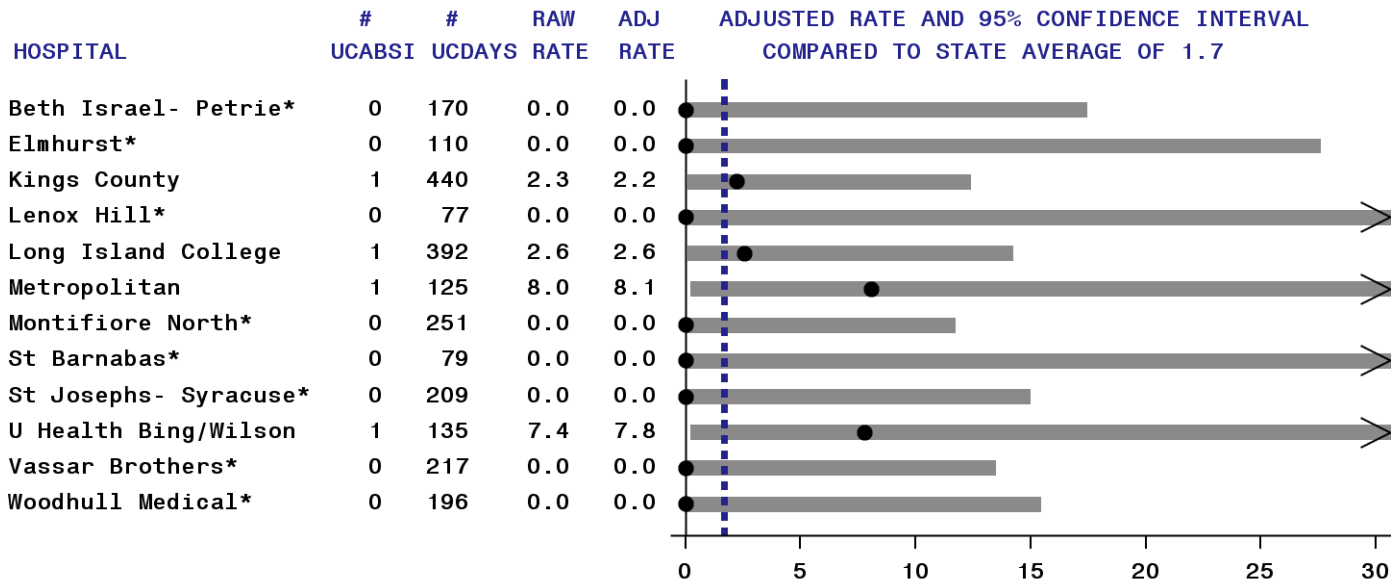
Figure 24. Umbilical Catheter-Associated Blood Stream Infection (UCABSI) Rates
Level III Neonatal Intensive Care Units, New York 2010

HOSPITAL	# UCABSI	# UCDAYS	RAW RATE	ADJ RATE
Arnot Ogden*	0	409	0.0	0.0
Brookdale Hospital^^	4	534	7.5	7.4
Brooklyn Downtown*	0	201	0.0	0.0
Flushing Hospital*	0	385	0.0	0.0
Good Samar. W Islip*	0	318	0.0	0.0
Harlem Hospital*	0	82	0.0	0.0
Jamaica Hospital*	0	152	0.0	0.0
Lincoln Medical	1	215	4.7	3.7
Mercy Medical*	0	293	0.0	0.0
NY Med Ctr Queens*	0	221	0.0	0.0
NY Methodist	1	424	2.4	1.8
Nassau University*	0	224	0.0	0.0
Northern Westchester	NA	NA	NA	NA
Queens Hospital	1	269	3.7	2.9
Richmond Univ*	0	915	0.0	0.0
Sisters of Charity*	0	278	0.0	0.0
Sound Shore Medical*	0	50	0.0	0.0
St Lukes- Roosevelt	2	1094	1.8	2.3
St Peters Hospital*	0	621	0.0	0.0
Staten Island U N&S	2	302	6.6	5.7
White Plains*	0	65	0.0	0.0
Wyckoff Heights*	0	232	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 50 central line days. Adj Rate: Adjusted by NHSN Birth Weight Category.
Data reported as of July 18, 2011. Rates are per 1000 umbilical catheter days (CLDAYS).
Excludes untreated events with a single-pathogen contaminated specimen.

Figure 25. Umbilical Catheter-Associated Blood Stream Infection (UCABSI) Rates
Level II/III Neonatal Intensive Care Units, New York 2010



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 50 central line days. Adj Rate: Adjusted by NHSN Birth Weight Category.
Data reported as of July 18, 2011. Rates are per 1000 umbilical catheter days (CLDAYS).
Excludes untreated events with a single-pathogen contaminated specimen.

Clostridium difficile Infections

Clostridium difficile (*C. difficile*) is a common cause of diarrhea acquired in healthcare settings. In a small percentage of people, the *C. difficile* bacterium lives along with other types of bacteria normally found in the intestinal tract (bowels) and does not cause any symptoms or problems. *C. difficile* infection has been associated with taking antibiotics. Antibiotics can disrupt normal bowel bacteria populations and produce an overgrowth of *C. difficile*, resulting in infection. In addition to antibiotics being associated with developing *C. difficile* infection, patients can also become infected if they touch their mouth after touching contaminated environmental surfaces or patient care items. When the *C. difficile* bacterium crowds out the other naturally occurring bowel bacteria populations, it excretes a toxin into the intestines that may result in symptoms of infection ranging from abdominal cramping and mild diarrhea, to severe diarrhea and bowel damage, which in some instances can result in death. *C. difficile* infection rates are increasing in pediatric and adult populations but remain highest in the elderly, aged 65 and older.

Following several training programs, 177 NYS hospitals began reporting *C. difficile* cases during a pilot phase in July 2009 for all adult and pediatric inpatient care units. To identify and report inpatient *C. difficile* cases, hospitals followed the CDC's newly released NHSN "*C. difficile* Laboratory ID" surveillance protocol. The protocol includes information about how to identify a *C. difficile* infection as well as instructions for reporting. The diagnosis of *C. difficile* infection is usually made by performing a laboratory test on a liquid stool sample. Patients are not tested for *C. difficile* unless they have symptoms of infection. Patients newly admitted with a laboratory-confirmed *C. difficile* infection and patients who acquire a laboratory-confirmed *C. difficile* infection during their hospitalization are required to be reported. Hospitals then enter information about the patient and the positive test result into the NHSN reporting system. During the 2009 pilot phase and the 2010 reporting period, all hospitals underwent a rigorous audit process to ensure accuracy and completeness of *C. difficile* reporting.

C. difficile 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 4 weeks after any previous discharge from that same hospital. These cases are presumed 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 4 weeks is readmitted to that hospital with a new positive *C. difficile* test during the first three days of admission. In CO-PMH cases, it is not certain whether the *C. difficile* infection 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.

Risk Adjustment for Comparison of *C. difficile* Rates

The rates are intended to be used by hospitals as a baseline for tracking *C. difficile* within their own hospital over time. These data should not be used to compare rates between hospitals or to the state average. Some of the reasons are as follows:

- Because data are not available on potential risk factors for *C. difficile* among the hospital's entire patient populations from which *C. difficile* infections are being reported, it is not possible to use risk adjustment to compare rates between hospitals. For example, we could not account for differences in average patient age between hospitals. Hospitals that see older patients might have higher rates merely because the patient population is more susceptible to the infection.

- Laboratory testing methods vary between hospitals. Hospitals that use more sensitive tests might have higher reported rates.

- The categorization of *C. difficile* cases with regard to where the patients acquired the infection is a best estimate, but we cannot know with certainly where people acquire *C. difficile*. It sometimes takes weeks to develop symptoms of infection after a patient acquires the bacteria. Elderly patients may move in and out of their homes and facilities such as hospitals, nursing homes, and assisted living and could be exposed to *C. difficile* in any location.

Hospital-Specific *C. difficile* Rates

One hundred seventy-seven (177) NYS hospitals reported data. There were 5,928 CO-NMH *C. difficile* infections (that is, infections not acquired at that hospital) from 2,294,007 patient admissions for a rate of 0.26 per 100 admissions. There were 10,125 HO *C. difficile* infections reported from 12,381,645 patient days for a HO rate of 8.2 per 10,000 patient days. It is important to note that *C. difficile* rates can be influenced by different laboratory testing methods. There are several approved products available to laboratories to test for the presence of *C.difficile* in stool. Because reporting of *C. difficile* cases is based only on positive laboratory tests, different testing practices may influence an individual hospital's rates.

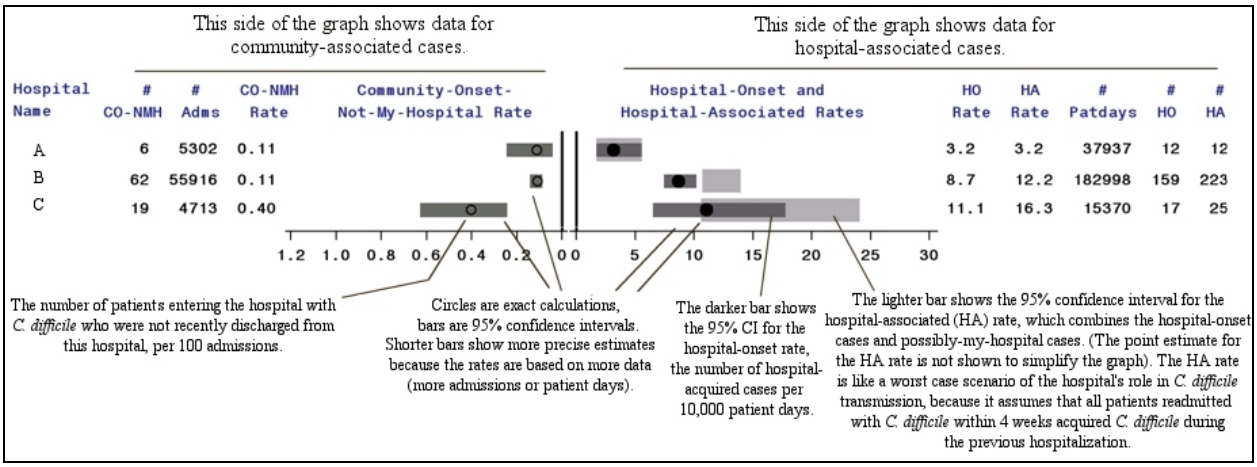
Rates calculated for each hospital and displayed in Figure 27 include:

- **Community-Onset-Not-My-Hospital (CO-NMH):** The CO-NMH rate is the number of CO-NMH cases divided by the number hospital admissions and multiplied by 100.

- **Hospital-Onset (HO):** The HO rate is calculated by dividing the number of HO cases by the number of hospital inpatient days and multiplying by 10,000.

- **Hospital-Associated (HA):** This rate is the sum of the number of HO cases and the number of CO-PMH cases, divided by the number of hospital inpatient days and multiplied by 1000.

Figure 26. How to read hospital-specific *C. difficile* rate tables



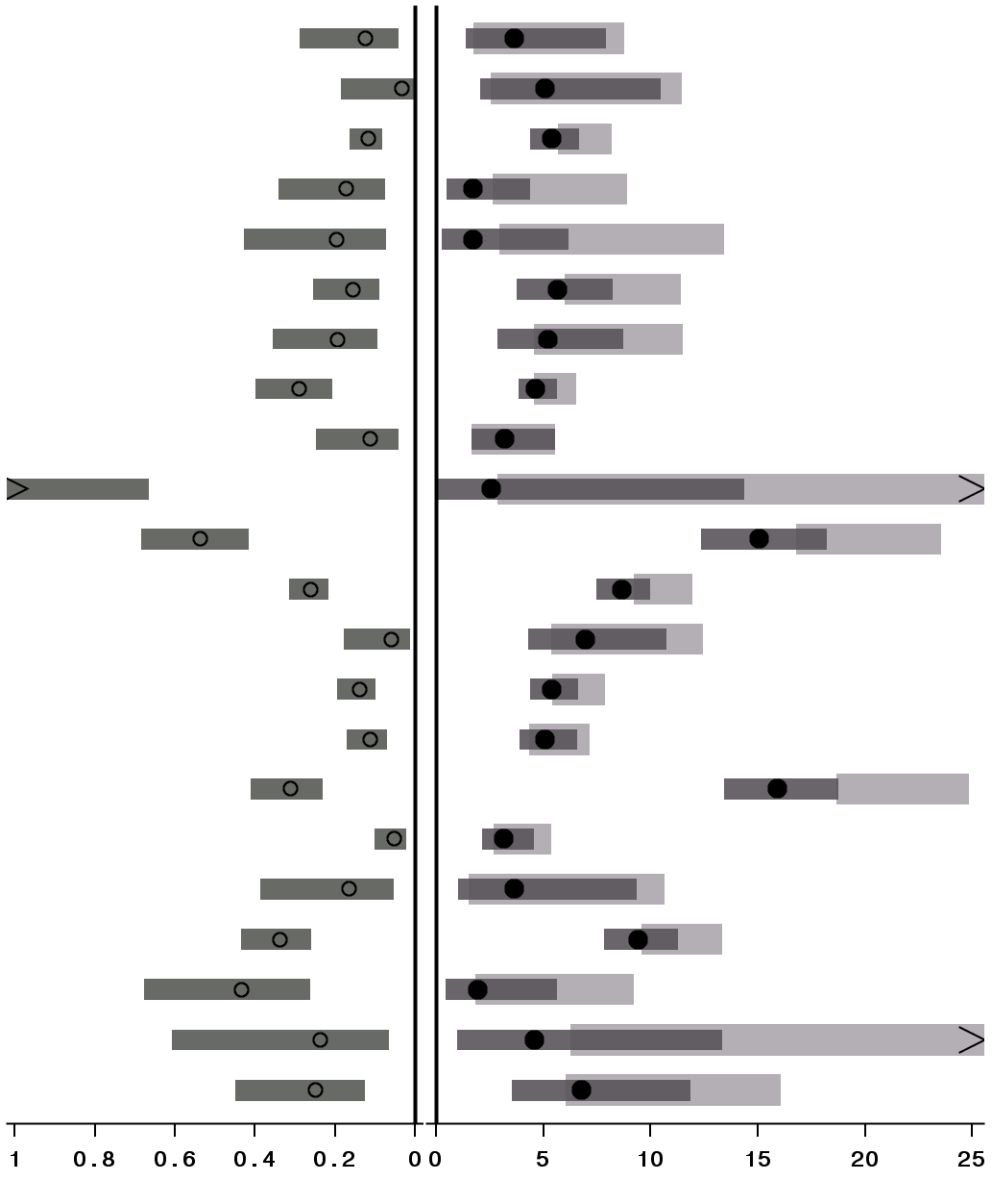
- Hospital A has a low CO-NMH rate and a low HO rate. No patients were admitted to the hospital with *C. difficile* within 4 weeks of the last hospitalization at hospital A; therefore, the HO rate is equal to the HA rate. Hospital A will use these rates as a baseline to track *C. difficile* rates over time.

- Hospital B has a higher HA rate than HO rate, because many patients (223-159=64) were admitted to the hospital with *C. difficile* within 4 weeks of the last hospitalization to this specific hospital (CO-PMH). Hospital B will use these rates as a baseline to track *C. difficile* rates over time.

- Hospital C has the highest HO rate, but it also has the highest CO-NMH rate. Hospital C's rates may appear high if they use a more sensitive test or test more frequently, or if they serve a high risk population such as elderly from nursing homes. Hospital C will use these rates as a baseline to track *C. difficile* rates over time and to assess infection prevention strategies.

Figure 27. *C. difficile* Rates, 2010 (page 1 of 8)

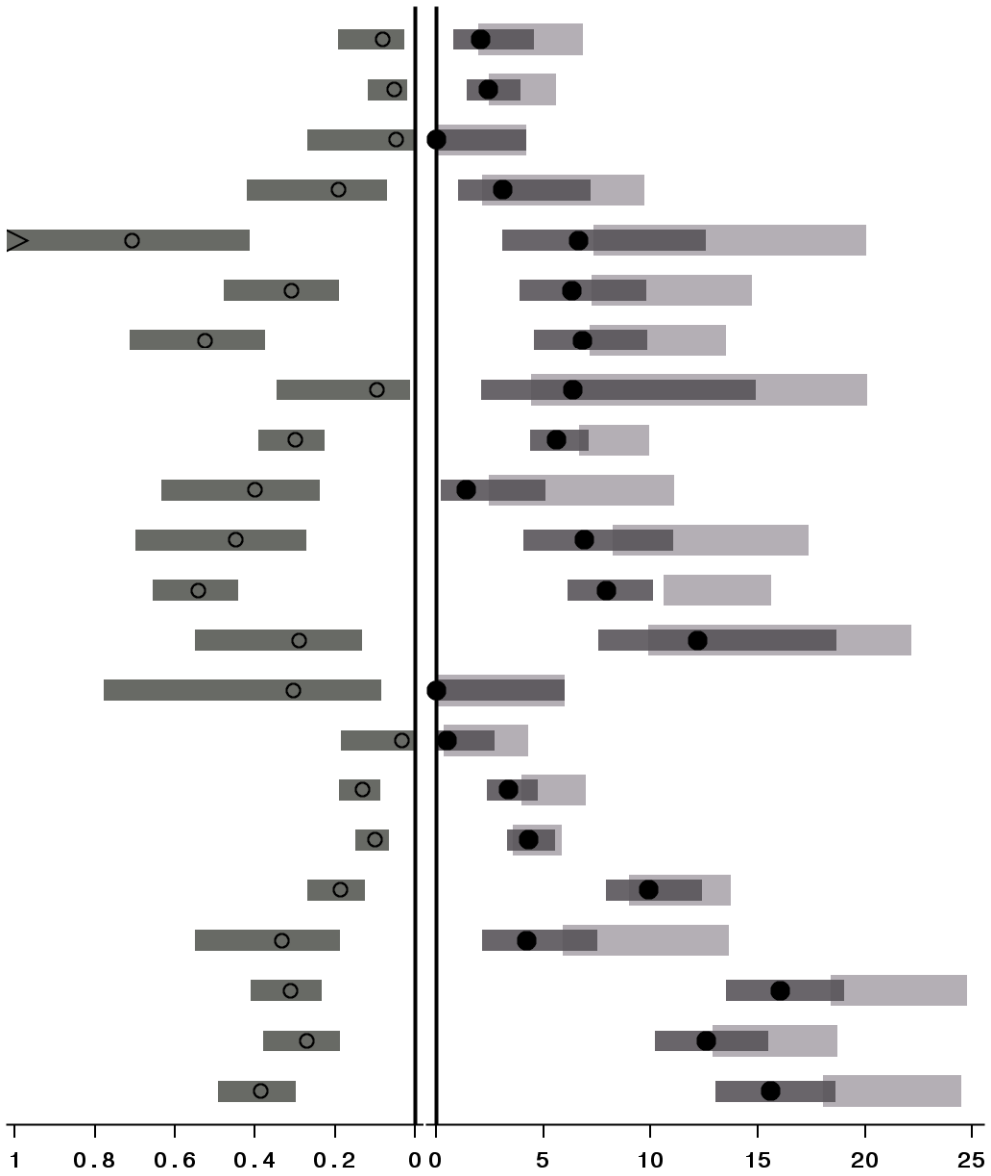
Hospital Name	# CO-NMH	# Adms	CO-NMH Rate	HO Rate	HA Rate	# Patdays	# HO	# HA
AO Fox Memorial	5	4036	0.12	3.6	4.2	16553	6	7
Adirondack Medical	1	2997	0.03	5.1	5.8	13817	7	8
Albany Medical	35	29917	0.12	5.4	6.8	168962	91	115
Albany Memorial	8	4630	0.17	1.7	5.1	23672	4	12
Alice Hyde	6	3060	0.20	1.7	6.8	11785	2	8
Arnot Ogden	16	10253	0.16	5.6	8.3	47920	27	40
Auburn Memorial	10	5173	0.19	5.2	7.4	26989	14	20
Bellevue Hospital	39	13408	0.29	4.6	5.4	224549	104	122
Benedictine Hospital	6	5302	0.11	3.2	3.2	37937	12	12
Bertrand Chaffee	13	1045	1.24	2.6	10.3	3886	1	4
Beth Israel- Kings	65	12110	0.54	15.0	19.9	69879	105	139
Beth Israel- Petrie	110	42083	0.26	8.6	10.5	223675	193	234
Bon Secours	3	4946	0.06	6.9	8.3	28825	20	24
Bronx-Lebanon	35	25000	0.14	5.4	6.5	173482	93	113
Brookdale Hospital	21	18724	0.11	5.0	5.6	114922	58	64
Brookhaven Memorial	50	16068	0.31	15.9	21.5	90081	143	194
Brooklyn Downtown	8	15463	0.05	3.1	3.8	89279	28	34
Brooks Memorial	5	3020	0.17	3.6	4.6	10984	4	5
Buffalo General	61	18049	0.34	9.4	11.3	126660	119	143
Canton-Potsdam	19	4376	0.43	1.9	4.5	15695	3	7
Carthage Area	4	1680	0.24	4.5	13.6	6598	3	9
Catskill Regional	11	4386	0.25	6.8	10.1	17735	12	18



community-onset-not-my-hospital (CO-NMH) rate and 95% confidence interval = # CO-NMH cases per 100 admissions (state average = 0.26).
hospital-onset (HO) rate and 95% confidence interval = # HO cases per 10,000 patient days (state average = 8.2)
95% confidence interval of hospital-associated (HA) rate = # HO plus community-onset-possibly-my-hospital cases (CO-PMH) per 10,000 patient days (state average = 10.6)
> Upper confidence limit exceeds graph area. NYS data as of July 18, 2011.

Figure 27. *C. difficile* Rates, 2010 (page 2 of 8)

Hospital Name	# CO-NMH	# Adms	CO-NMH Rate	HO Rate	HA Rate	# Patdays	# HO	# HA
Cayuga Medical Cntr	5	6055	0.08	2.1	3.8	28834	6	11
Champlain Valley	6	11148	0.05	2.4	3.8	66503	16	25
Chenango Memorial	1	2072	0.05	0	0	8876	0	0
Claxton-Hepburn	6	3112	0.19	3.1	4.9	16267	5	8
Clifton Springs	17	2398	0.71	6.6	12.5	13609	9	17
Columbia Memorial	20	6462	0.31	6.3	10.4	31584	20	33
Community General	40	7621	0.52	6.8	9.9	41263	28	41
Community Memorial	2	2094	0.10	6.4	10.2	7862	5	8
Coney Island	55	18288	0.30	5.6	8.1	121766	68	99
Corning Hospital	18	4484	0.40	1.4	5.6	14258	2	8
Cortland Reg Med	19	4237	0.45	6.9	12.1	24692	17	30
Crouse Hospital	104	19203	0.54	7.9	12.9	82253	65	106
DeGraff Memorial	9	3108	0.29	12.2	15.1	17233	21	26
EJ Noble Hospital	4	1314	0.30	0	0	6180	0	0
Eastern Long Island	1	2995	0.03	0.5	1.5	20628	1	3
Ellis Hospital	28	21355	0.13	3.4	5.3	98403	33	52
Elmhurst	24	23972	0.10	4.3	4.6	142577	61	65
Erie Medical Center	28	15006	0.19	9.9	11.2	80696	80	90
FF Thompson	15	4488	0.33	4.2	9.1	26249	11	24
Faxton St. Lukes	50	16020	0.31	16.0	21.4	84750	136	181
Flushing Hospital	34	12512	0.27	12.6	15.6	73858	93	115
Forest Hills Hosp	64	16567	0.39	15.6	21.0	80783	126	170



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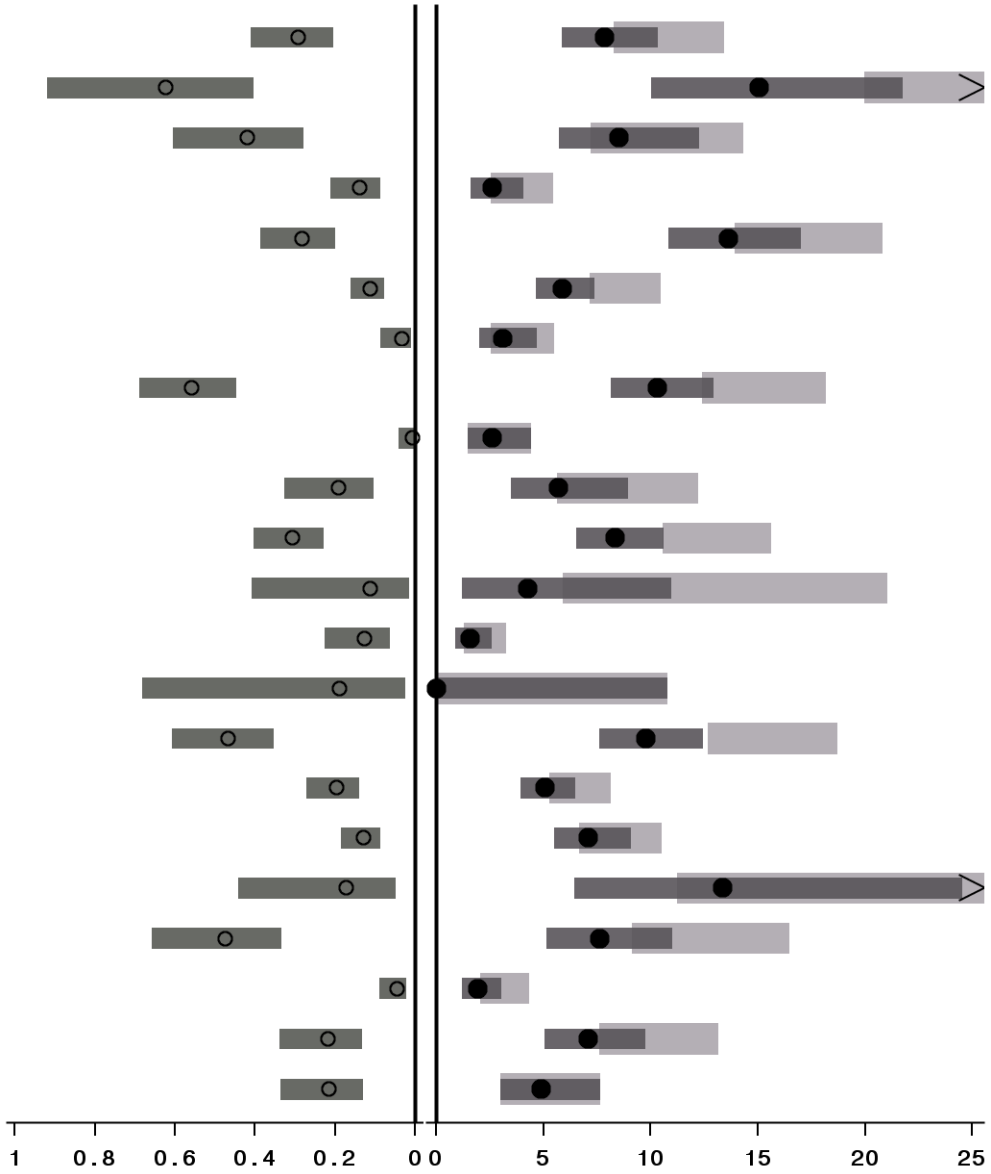
> Upper confidence limit exceeds graph area. NYS data as of July 18, 2011.

Figure 27. *C. difficile* Rates, 2010 (page 3 of 8)

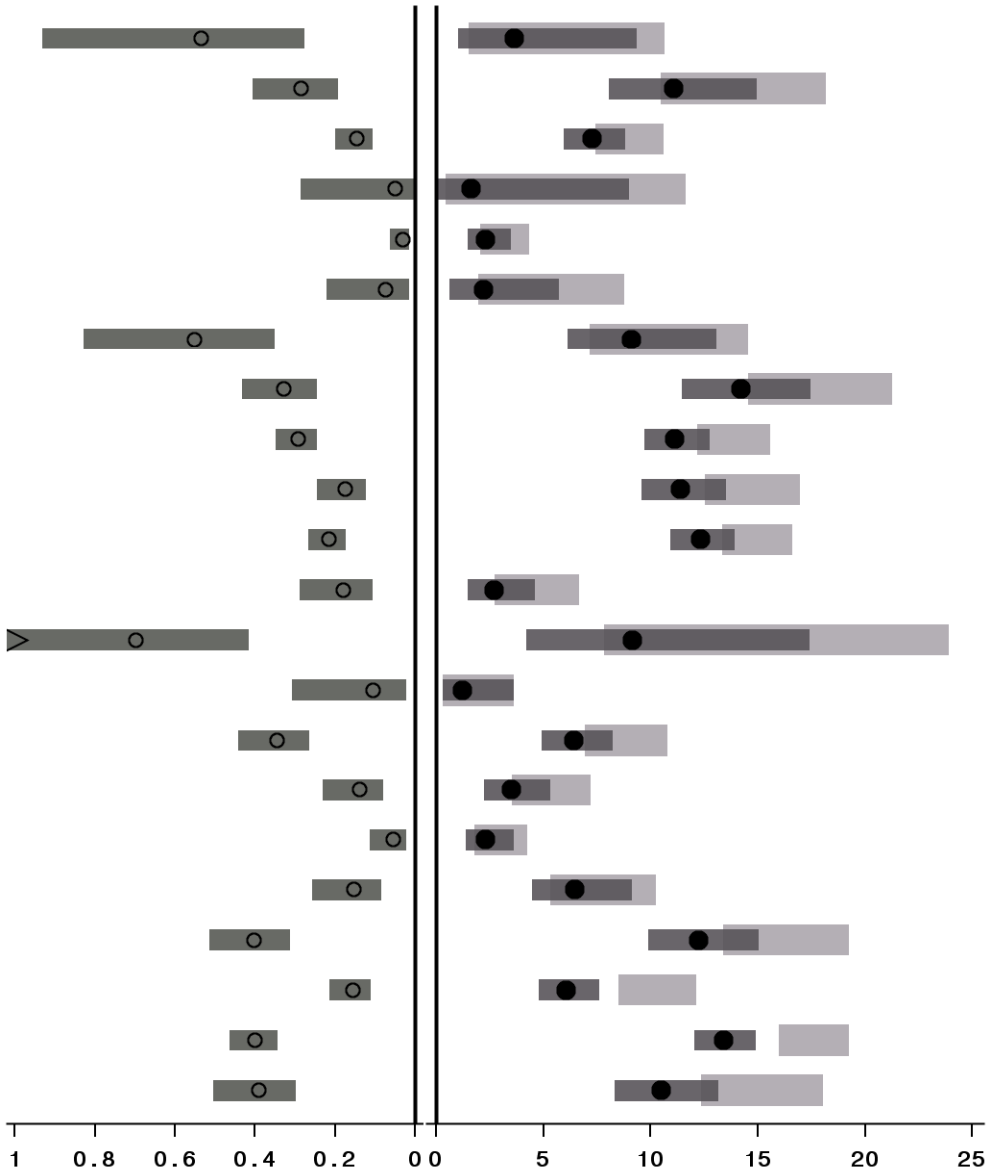
Hospital Name	# CO-NMH	# Adms	CO-NMH Rate	HO Rate	HA Rate	# Patdays	# HO	# HA
Franklin	34	11584	0.29	7.8	10.6	65128	51	69
Geneva General	25	4013	0.62	15.0	26.8	18631	28	50
Glen Cove Hospital	28	6681	0.42	8.5	10.3	34071	29	35
Glens Falls	21	15164	0.14	2.6	3.8	76927	20	29
Good Samar. Suffern	38	13448	0.28	13.6	17.1	58064	79	99
Good Samar. W Islip	30	26456	0.11	5.9	8.7	129318	76	112
Harlem Hospital	4	11969	0.03	3.1	3.8	74143	23	28
Highland Hospital	87	15576	0.56	10.3	15.0	73776	76	111
Hosp for Spec Surg	1	13530	0.01	2.6	2.6	53515	14	14
Hudson Valley	13	6782	0.19	5.7	8.4	33286	19	28
Huntington	51	16587	0.31	8.3	12.9	81546	68	105
Intercomm. Newfane	2	1766	0.11	4.3	11.7	9368	4	11
Interfaith Medical	11	8699	0.13	1.6	2.1	96169	15	20
Ira Davenport	2	1058	0.19	0	0	3427	0	0
JT Mather	55	11776	0.47	9.8	15.4	68714	67	106
Jacobi Medical	37	18794	0.20	5.1	6.5	128420	65	84
Jamaica Hospital	29	22455	0.13	7.1	8.4	91812	65	77
Jones Memorial	4	2314	0.17	13.3	20.0	7506	10	15
Kenmore Mercy	36	7580	0.47	7.6	12.4	38032	29	47
Kings County	9	19309	0.05	1.9	3.0	99378	19	30
Kingsbrook Jewish	19	8743	0.22	7.1	10.0	53758	38	54
Kingston Hospital	19	8833	0.22	4.9	4.9	38876	19	19



community-onset-not-my-hospital (CO-NMH) rate and 95% confidence interval = # CO-NMH cases per 100 admissions (state average = 0.26).
hospital-onset (HO) rate and 95% confidence interval = # HO cases per 10,000 patient days (state average = 8.2)
95% confidence interval of hospital-associated (HA) rate = # HO plus community-onset-possibly-my-hospital cases (CO-PMH) per 10,000 patient days (state average = 10.6)
> Upper confidence limit exceeds graph area. NYS data as of July 18, 2011.

Figure 27. *C. difficile* Rates, 2010 (page 4 of 8)

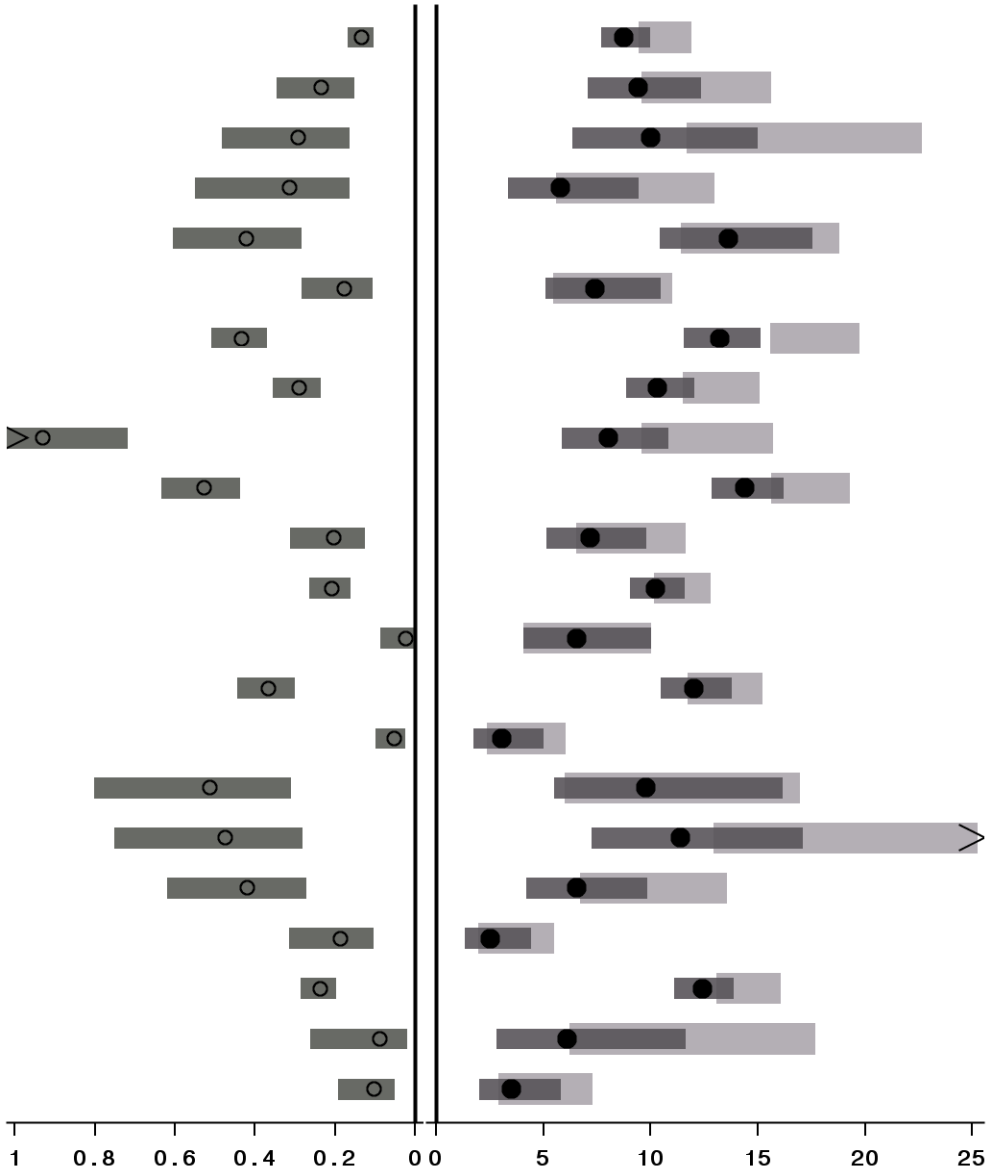
Hospital Name	# CO-NMH	# Adms	CO-NMH Rate	HO Rate	HA Rate	# Patdays	# HO	# HA
Lakeside Memorial	12	2245	0.53	3.6	4.5	11018	4	5
Lawrence	30	10527	0.28	11.1	13.9	38873	43	54
Lenox Hill	42	28613	0.15	7.2	8.9	140989	102	125
Lewis County	1	1947	0.05	1.6	3.2	6224	1	2
Lincoln Medical	8	24849	0.03	2.3	3.0	96847	22	29
Lockport Memorial	3	3967	0.08	2.2	4.4	18049	4	8
Long Beach	23	4162	0.55	9.1	10.3	31935	29	33
Long Island College	50	15234	0.33	14.2	17.6	63496	90	112
Long Island Jewish	130	44453	0.29	11.1	13.8	193336	215	266
Lutheran Medical	35	19948	0.18	11.4	14.6	117967	134	172
Maimonides	85	39505	0.22	12.3	14.9	218648	269	325
Mary Imogene Bassett	17	9426	0.18	2.7	4.3	48496	13	21
Massena Memorial	18	2578	0.70	9.1	14.2	9846	9	14
Medina Memorial	3	2855	0.11	1.2	1.2	24496	3	3
Mercy Buffalo	63	18284	0.34	6.4	8.7	96965	62	84
Mercy Medical	15	10716	0.14	3.5	5.1	62959	22	32
Metropolitan	7	12805	0.05	2.3	2.8	79491	18	22
Millard Fill. Gates	14	9155	0.15	6.5	7.4	51041	33	38
Millard Fill. Suburb	66	16335	0.40	12.2	16.1	75242	92	121
Montefiore-Einstein	38	24349	0.16	6.0	10.2	124083	75	126
Montefiore-Moses	178	44433	0.40	13.4	17.5	257909	345	452
Montifiore North	59	15079	0.39	10.5	14.9	74301	78	111



community-onset-not-my-hospital (CO-NMH) rate and 95% confidence interval = # CO-NMH cases per 100 admissions (state average = 0.26).
hospital-onset (HO) rate and 95% confidence interval = # HO cases per 10,000 patient days (state average = 8.2)
95% confidence interval of hospital-associated (HA) rate = # HO plus community-onset-possibly-my-hospital cases (CO-PMH) per 10,000 patient days (state average = 10.6)
> Upper confidence limit exceeds graph area. NYS data as of July 18, 2011.

Figure 27. *C. difficile* Rates, 2010 (page 5 of 8)

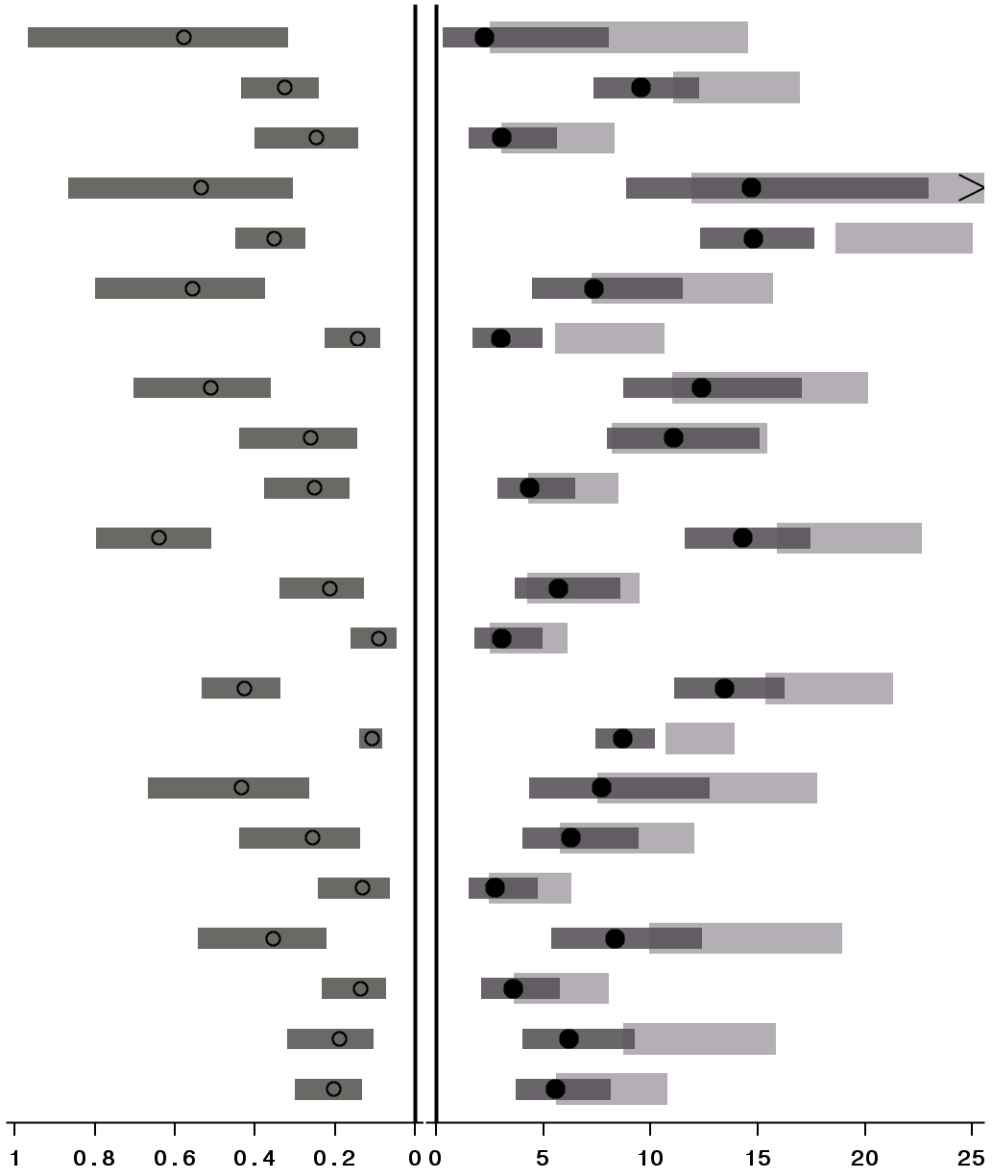
Hospital Name	# CO-NMH	# Adms	CO-NMH Rate	HO Rate	HA Rate	# Patdays	# HO	# HA
Mount Sinai	68	50996	0.13	8.7	10.6	275567	241	291
Mount Sinai Queens	25	10668	0.23	9.4	12.3	55345	52	68
Mount St. Marys	15	5131	0.29	10.0	16.5	23060	23	38
Mount Vernon	12	3809	0.32	5.8	8.7	27608	16	24
NY Community Bklyn	29	6878	0.42	13.6	14.7	44138	60	65
NY Downtown	18	10068	0.18	7.4	7.8	43356	32	34
NY Med Ctr Queens	156	35850	0.44	13.2	17.5	161399	213	283
NY Methodist	92	31652	0.29	10.3	13.2	161076	166	212
NYP- Allen	64	6871	0.93	8.0	12.3	53629	43	66
NYP- Columbia	118	22325	0.53	14.4	17.3	202882	292	352
NYP- Morgan Stanley	20	9856	0.20	7.2	8.8	55797	40	49
NYP- Weill Cornell	64	30805	0.21	10.2	11.4	254671	260	290
NYU Joint Disease	2	8408	0.02	6.5	6.5	32166	21	21
NYU Medical Center	103	28083	0.37	12.0	13.3	172508	207	230
Nassau University	9	17192	0.05	3.0	3.8	49587	15	19
Nathan Littauer	19	3692	0.51	9.8	10.4	15358	15	16
Newark Wayne	18	3786	0.48	11.4	18.3	20219	23	37
Niagara Falls	25	5947	0.42	6.5	9.7	35190	23	34
North Central Bronx	14	7450	0.19	2.5	3.4	47660	12	16
North Shore	115	48217	0.24	12.4	14.5	259020	321	375
Northern Dutchess	3	3347	0.09	6.1	10.8	14749	9	16
Northern Westchester	10	9580	0.10	3.5	4.7	42711	15	20



community-onset-not-my-hospital (CO-NMH) rate and 95% confidence interval = # CO-NMH cases per 100 admissions (state average = 0.26).
hospital-onset (HO) rate and 95% confidence interval = # HO cases per 10,000 patient days (state average = 8.2)
95% confidence interval of hospital-associated (HA) rate = # HO plus community-onset-possibly-my-hospital cases (CO-PMH) per 10,000 patient days (state average = 10.6)
> Upper confidence limit exceeds graph area. NYS data as of July 18, 2011.

Figure 27. *C. difficile* Rates, 2010 (page 6 of 8)

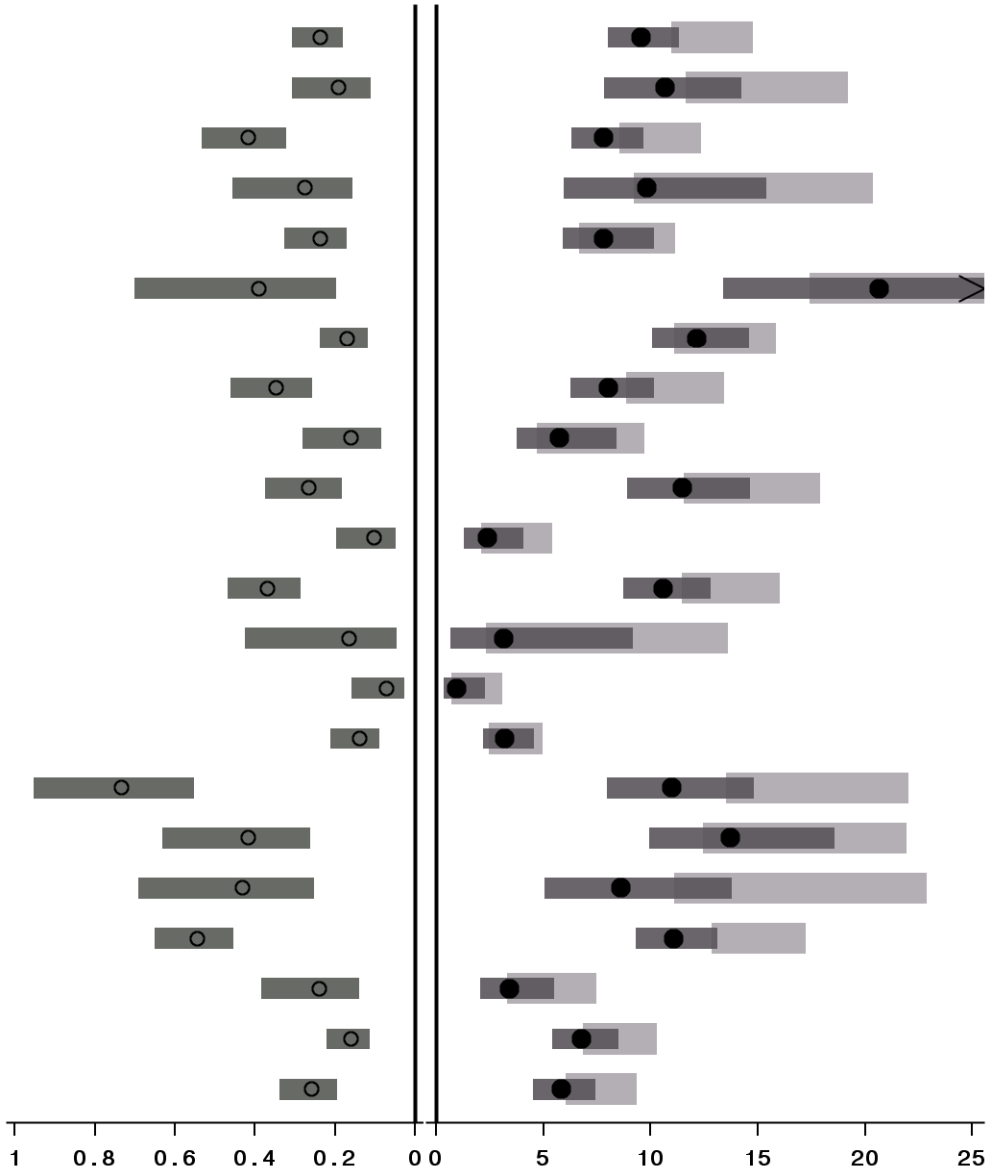
Hospital Name	# CO-NMH	# Adms	CO-NMH Rate	HO Rate	HA Rate	# Patdays	# HO	# HA
Noyes Memorial	14	2423	0.58	2.2	6.7	9015	2	6
Nyack Hospital	47	14352	0.33	9.5	13.7	64055	61	88
Olean General	16	6489	0.25	3.1	5.2	32778	10	17
Oneida Healthcare	16	2992	0.53	14.7	18.5	12950	19	24
OrangeReg Goshen&Mid	67	18960	0.35	14.8	21.6	83338	123	180
Oswego Hospital	29	5204	0.56	7.3	10.8	25855	19	28
Our Lady of Lourdes	19	13180	0.14	3.0	7.8	50248	15	39
Peconic Bay Medical	37	7233	0.51	12.3	15.0	29979	37	45
Peninsula Hospital	14	5346	0.26	11.1	11.3	36157	40	41
Phelps Memorial	24	9479	0.25	4.4	6.1	57409	25	35
Plainview Hospital	80	12470	0.64	14.3	19.0	67296	96	128
Putnam Hospital	18	8397	0.21	5.7	6.4	40335	23	26
Queens Hospital	11	12197	0.09	3.0	4.0	52826	16	21
Richmond Univ	77	18049	0.43	13.4	18.1	81835	110	148
Rochester General	60	55916	0.11	8.7	12.2	182998	159	223
Rome Memorial	20	4615	0.43	7.7	11.8	19485	15	23
Roswell Park	13	5068	0.26	6.3	8.5	36652	23	31
Samaritan- Troy	10	7557	0.13	2.7	4.0	47324	13	19
Samaritan- Watertown	21	5906	0.36	8.3	13.9	28864	24	40
Saratoga Hospital	13	9580	0.14	3.6	5.5	47652	17	26
Seton Health	14	7346	0.19	6.2	11.9	38773	24	46
Sisters of Charity	25	12311	0.20	5.6	7.8	48505	27	38



community-onset-not-my-hospital (CO-NMH) rate and 95% confidence interval = # CO-NMH cases per 100 admissions (state average = 0.26).
hospital-onset (HO) rate and 95% confidence interval = # HO cases per 10,000 patient days (state average = 8.2)
95% confidence interval of hospital-associated (HA) rate = # HO plus community-onset-possibly-my-hospital cases (CO-PMH) per 10,000 patient days (state average = 10.6)
> Upper confidence limit exceeds graph area. NYS data as of July 18, 2011.

Figure 27. *C. difficile* Rates, 2010 (page 7 of 8)

Hospital Name	# CO-NMH	# Adms	CO-NMH Rate	HO Rate	HA Rate	# Patdays	# HO	# HA
Sloan Kettering	58	24348	0.24	9.5	12.7	140612	134	179
Sound Shore Medical	17	8879	0.19	10.6	15.0	43209	46	65
South Nassau Comm.	65	15549	0.42	7.8	10.3	113954	89	117
Southampton	15	5410	0.28	9.8	14.0	19344	19	27
Southside	39	16360	0.24	7.8	8.6	70643	55	61
St Anthony	11	2803	0.39	20.6	25.6	12126	25	31
St Barnabas	34	20045	0.17	12.1	13.3	94798	115	126
St Catherine Siena	48	13801	0.35	8.0	10.9	85051	68	93
St Charles Hospital	12	7462	0.16	5.7	6.8	45445	26	31
St Elizabeth Medical	32	12034	0.27	11.5	14.4	57545	66	83
St Francis- Pough.	9	8659	0.10	2.4	3.4	55285	13	19
St Francis- Roslyn	67	18178	0.37	10.6	13.5	104868	111	142
St James Mercy	4	2404	0.17	3.1	6.2	9620	3	6
St Johns Episcopal	6	8208	0.07	1.0	1.5	52083	5	8
St Johns Riverside	22	15680	0.14	3.2	3.5	94387	30	33
St Joseph -Bethpage	55	7497	0.73	11.0	17.3	39236	43	68
St Joseph Cheektow.	22	5277	0.42	13.7	16.7	30627	42	51
St Josephs- Elmira	17	3933	0.43	8.6	16.2	19790	17	32
St Josephs- Syracuse	121	22188	0.55	11.0	14.9	122323	135	182
St Josephs- Yonkers	17	7071	0.24	3.4	5.0	49669	17	25
St Lukes- Roosevelt	37	23127	0.16	6.8	8.4	115226	78	97
St Lukes- St Lukes	53	20497	0.26	5.8	7.5	110326	64	83



community-onset-not-my-hospital (CO-NMH) rate and 95% confidence interval = # CO-NMH cases per 100 admissions (state average = 0.26).
hospital-onset (HO) rate and 95% confidence interval = # HO cases per 10,000 patient days (state average = 8.2)
95% confidence interval of hospital-associated (HA) rate = # HO plus community-onset-possibly-my-hospital cases (CO-PMH) per 10,000 patient days (state average = 10.6)
> Upper confidence limit exceeds graph area. NYS data as of July 18, 2011.

Figure 27. *C. difficile* Rates, 2010 (page 8 of 8)

Hospital Name	# CO-NMH	# Adms	CO-NMH Rate	HO Rate	HA Rate	# Patdays	# HO	# HA
St LukesNewburgh&Cor	44	11659	0.38	6.4	10.0	51937	33	52
St Marys Amsterdam	22	5599	0.39	6.2	9.4	27590	17	26
St Peters Hospital	42	25522	0.16	3.6	5.3	112023	40	59
Staten Island U N&S	117	36230	0.32	10.7	13.8	161800	173	223
Strong Memorial	132	31483	0.42	13.3	16.2	205628	274	333
Syosset Hospital	17	4713	0.36	11.1	16.3	15370	17	25
TLC Lake Shore	4	1797	0.22	6.3	7.6	7916	5	6
U Health Bing/Wilson	28	9839	0.28	3.5	6.3	71021	25	45
United Memorial	16	4440	0.36	8.5	11.5	19956	17	23
Unity Hosp Rochester	33	12557	0.26	8.7	14.0	65201	57	91
Univ Hosp Brooklyn	25	18192	0.14	3.9	5.7	109373	43	62
Univ Hosp SUNY Upst.	56	19018	0.29	9.4	11.2	113130	106	127
Univ Hosp StonyBrook	138	27920	0.49	10.8	14.3	169588	184	243
Vassar Brothers	72	20873	0.34	8.0	12.6	91404	73	115
Westchester Medical	57	22858	0.25	10.1	10.9	173196	175	188
Westchester Square	20	6572	0.30	12.4	14.0	44382	55	62
White Plains	44	14757	0.30	7.3	9.8	77636	57	76
Winthrop University	79	32400	0.24	10.6	12.6	156169	165	197
Woman and Childrens	9	4485	0.20	2.2	3.1	35575	8	11
Womans Christian	5	5657	0.09	5.1	8.8	27261	14	24
Woodhull Medical	9	16089	0.06	1.6	1.7	109308	17	19
Wyckoff Heights	15	18884	0.08	4.7	5.5	84963	40	47
Wyoming County Comm.	6	2553	0.24	2.2	2.2	13941	3	3

community-onset-not-my-hospital (CO-NMH) rate and 95% confidence interval = # CO-NMH cases per 100 admissions (state average = 0.26).
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95% confidence interval of hospital-associated (HA) rate = # HO plus community-onset-possibly-my-hospital cases (CO-PMH) per 10,000 patient days (state average = 10.6)
> Upper confidence limit exceeds graph area. NYS data as of July 18, 2011.

Comparison of NYS HAI rates with National HAI Rates

To compare the performance of NYS to national average HAI rates, the most recently published national data was identified, and matched against NYS data from a comparable time period. For SSI data, the most recently available national averages are from 2006-8[6]; these data were compared with 2007-8 data from NYS since no NYS data were available in 2006. For CLABSI data, the most recently available national averages are for 2009[5]; these data were compared to NYS 2009 data. No national data is yet available for *C. difficile*. Data were risk adjusted following the NHSN methodology: surgical site infection data were adjusted using NHSN risk score, adult CLABSI data were stratified by type of ICU, and neonatal CLABSI were adjusted by birth weight and type of NICU. Table 16 summarizes the standardized infection ratios (SIRs), which compare the number of actual infections to the number of statistically expected infections, adjusting for risk group.

For SSIs, NYS rates were 16% higher than national rates for CABG chest SSI, and 19% higher for donor SSI. NYS rates were the same as national rates for colon and hip SSI. For blood stream infections, NYS rates were 21% higher than national rates overall. Specifically, the significant differences occurred within Medical, Medical/Surgical (Non-Major teaching), Neurosurgical, Cardiothoracic, and Neonatal Level II/III ICUs.

NYS rates may appear higher than national rates because NYS has had a strong data validation program since 2007, while states that have more recently implemented reporting mandates have not yet begun data validation. The data validation process is likely to increase HAI rates, since 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. In CDC's First State-Specific Healthcare-Associated Infections Summary Data Report[3], for the period January-June 2009, the five states with data validation programs in place in 2008 had CLABSI rates 8% higher than the national baseline period (2006−2008), while twelve states without data validation programs had CLABSI rates 29% lower than the same baseline. In the next CDC report, using data from July-December 2009[5], the eleven states with data validation programs in place in 2009 had CLABSI rates 13% lower than the national baseline (2006−2008), while the seven states without data validation programs had CLABSI rates 29% lower than the national baseline. In summary, states with data validation programs might appear to have higher rates merely because of their validation efforts, rather than because of a truly higher rate.

Table 16. Comparison of New York State and National HAI Rates

Type of HAI	Location	Year of comparison	# actual infections NYS	# statistically expected infections NYS	SIR (95% confidence interval)
Surgical Site Infections*	CABG chest	2007-8 NYS/ 2006-8 CDC	696	598.1	1.16 (1.08, 1.25) ***H**
	CABG donor	2007-8 NYS/ 2006-8 CDC	288	243.0	1.19 (1.05, 1.33) ***H**
	Colon	2007-8 NYS/ 2006-8 CDC	1961	2021.6	0.97 (0.93, 1.01)
	Hip	2008 NYS/ 2006-8 CDC	298	296.1	1.01 (0.90, 1.13)
	TOTAL SSI (all above)	2008 NYS/ 2006-8 CDC	3243	3158.7	1.03(0.99, 1.06)
Blood Stream Infections†	Coronary ICU	2009	95	85.4	1.11 (0.90, 1.36)
	Medical ICU	2009	219	182.0	1.20 (1.05, 1.37) ***H**
	Medical/Surgical ICU - Major Teaching	2009	75	75.0	1.00 (0.79, 1.25)
	Medical/Surgical ICU -Non Major Teaching	2009	319	219.7	1.45 (1.30, 1.62) ***H**
	Neurosurgical ICU	2009	40	28.1	1.42 (1.02, 1.94) ***H**
	Surgical ICU	2009	161	132.3	1.22 (1.04, 1.42) ***H**
	Cardiothoracic ICU	2009	97	88.2	1.10 (0.89, 1.34)
	Pediatric ICU	2009	69	69.8	0.99 (0.77, 1.25)
	Neonatal Level III, CLABSI	2009	152	142.9	1.06 (0.90, 1.25)
	Neonatal Level III UCABSI	2009	44	39.7	1.11 (0.80, 1.49)
	Neonatal Level II/III CLABSI	2009	25	16.3	1.53 (0.99, 2.26)
	Neonatal Level II/III UCABSI	2009	14	7.4	1.90 (1.04, 3.19) ***H**
	TOTAL BSI (all above)	2009	1310	1086.8	1.21 (1.14, 1.27) ***H**

***H**: NYS rate is significantly higher than national rate

*National Healthcare Safety Network (NHSN) report: Data summary for 2006 through 2008. http://www.cdc.gov/nhsn/PDFs/dataStat/2009NHSNReport.pdf

†National Healthcare Safety Network (NHSN) report, Data Summary for 2009, Device-associated Module. http://www.cdc.gov/nhsn/PDFs/dataStat/2010NHSNReport.pdf

Cost and Savings of Hospital-Acquired Infections

Since NYS public reporting of HAIs began in 2007, the reductions in colon, CABG, and hip replacement infection rates, as well as ICU related CLABSIs, have also resulted in cost savings.

A recent CDC report provided a range of estimates for the direct hospital cost of treating of HAIs (Scott 2009)*. Ranges were provided because HAIs vary in severity. For example, a deep chest infection following CABG surgery is more complicated and expensive than a superficial site infection following CABG surgery. 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 (Table 17).

Table 17. Estimated Costs and Cost Savings of HAIs, New York State

CLABSI costs and cost savings

Year	# Actual Infections in Year	# Infections Statistically Expected Using NYS Baseline	# Infections Avoided	Minimum Direct Cost (millions)	Maximum Direct Cost (millions)	Minimum Estimated Cost Savings, millions (in 2007 dollars)	Maximum Estimated Cost Savings, millions (in 2007 dollars)
2008	1,557	1,631	74	11.3	45.4	0.5	2.2
2009	1,310	1,645	335	9.5	38.2	2.4	9.8
2010	1,007	1,606	599	7.3	29.4	4.4	17.5
TOTAL	3,874	4,882	1,008	28.2	113.0	7.3	29.4

Based on surveillance of CLABSIs in Medical, Surgical, Medical/Surgical, Cardiac, Cardiothoracic, Neurosurgical, Pediatric, and Neonatal Intensive Care Units beginning in 2007. Direct costs per CLABSI* minimum = $ 7,288 ; maximum = $ 29,156

SSI costs and cost savings

Year	# Actual Infections in Year	# Infections Statistically Expected Using NYS Baseline	# Infections Avoided	Minimum Direct Cost (millions)	Maximum Direct Cost (millions)	Minimum Estimated Cost Savings, millions (in 2007 dollars)	Maximum Estimated Cost Savings, millions (in 2007 dollars)
2008	1,640	1,896	256	19.5	56.9	3.0	8.9
2009	1,699	1,842	143	20.2	58.9	1.7	5.0
2010	1,508	1,776	268	17.9	52.3	3.2	9.3
TOTAL	4,847	5,514	667	57.6	168.0	7.9	23.1

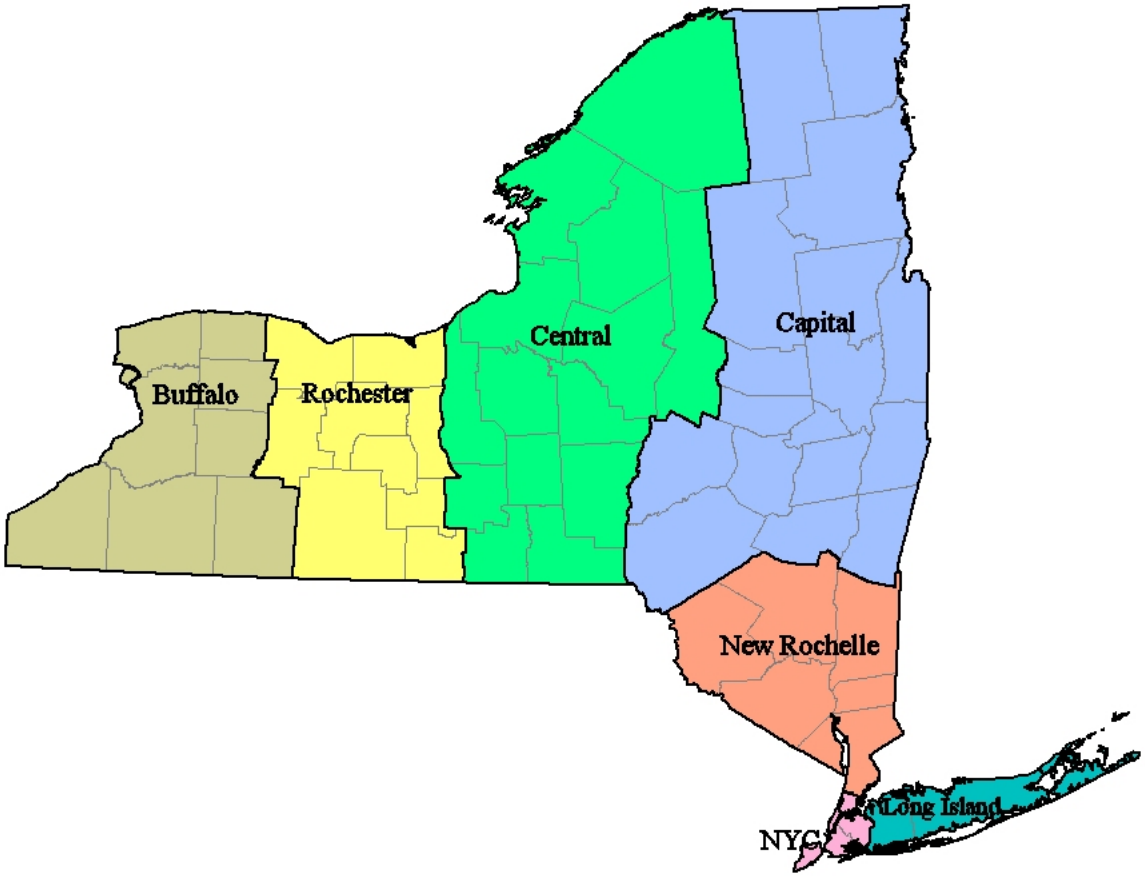
Based on surveillance of Colon and Coronary Artery Bypass Graft procedures beginning in 2007, and Hip Procedures beginning in 2008. Direct costs per SSI* minimum = $11,874; maximum = $ 34,670

*Scott RD. The direct medical costs of healthcare-associated infections in U.S. hospitals and the benefits of prevention, 2009. http://www.cdc.gov/ncidod/dhqp/pdf/Scott_costPaper.pdf

Regional Differences

The following map (Figure 28) shows NYS divided into seven regions.

Figure 28. **Regional Map**



Hospital-specific risk adjusted rates were summarized by region using the standardized infection ratio method (Table 18). For surgical site infections, rates were 24% higher than the state average in the Buffalo region, and 22% lower than the state average in the New Rochelle region. For blood stream infections, rates were 12% higher than the state average in the NYC region and 36% lower than the state average in the Capital region.

There was more variation in *C. difficile* rates. Community-onset *C. difficile* rates were highest in the Central region (39% higher than the state average), Rochester region (24% higher than the state average), and Long Island (19% higher than the state average), and lowest in the Capital region (24% lower than the state average) and NYC region (11% lower than the state average). Hospital-onset rates were 8% lower in the Buffalo region than the state average, and not significantly different in the Central and NYC regions.

Table 18. Regional Differences in Hospital-Acquired Infections, New York State 2010: Standardized Infection Ratios and 95% confidence intervals compared to NYS 2010 average

Region	Surgical Site Infections	Blood Stream Infections	Community-Onset *C. difficile*	Hospital-Onset *C. difficile*
Buffalo	1.24 (1.05 , 1.45) ***H**	0.91 (0.71 , 1.15)	1.07 (0.99 , 1.15)	0.92 (0.85 , 1.00) ***L**
Rochester	0.96 (0.78 , 1.17)	0.93 (0.71 , 1.20)	1.24 (1.15 , 1.33) ***H**	1.17 (1.09 , 1.26) ***H**
Central	0.91 (0.77 , 1.08)	0.64 (0.48 , 0.83) ***L**	1.39 (1.30 , 1.48) ***H**	1.01 (0.94 , 1.09)
Capital	0.87 (0.72 , 1.03)	0.78 (0.59 , 1.02)	0.66 (0.60 , 0.72) ***L**	0.49 (0.44 , 0.54) ***L**
New Rochelle	0.78 (0.63 , 0.95) ***L**	1.15 (0.93 , 1.42)	0.97 (0.91 , 1.04)	0.94 (0.88 , 1.00) ***L**
NYC	1.04 (0.95 , 1.13)	1.12 (1.03 , 1.22) ***H**	0.89 (0.86 , 0.92) ***L**	1.02 (0.99 , 1.05)
Long Island	1.06 (0.93 , 1.19)	0.92 (0.77 , 1.09)	1.19 (1.13 , 1.25) ***H**	1.17 (1.12 , 1.23) ***H**

*H significantly higher than the state average.
*L significantly lower than the state average.

Hospital Rate Summary

The following table (Table 19) summarizes all the data collected by NYSDOH in 2009 and 2010. The 2009 data are included again this year both because there have been some modifications as a result of further auditing of the data, and in order to visualize patterns of repeated high and low performance.

Table 19: Summary of Hospital-Acquired Infection Data, New York State 2009-2010

		Surgical Site Infections									Blood Stream Infections																		C. difficile	
		Colon		Hip		Coronary Artery Bypass Chest		Coronary Artery Bypass Donor		All SSI	Coronary ICU		Cardiothoracic ICU		Medical ICU		Medical Surgical ICU		Surgical ICU		Neurosurgical ICU		Pediatric ICU		Neonatal ICU				All BSI	Hospital Onset	
Hospital	Year	SSI/ procs	Adj. Rate	SSI/ procs	Adj. Rate	SSI/ procs	Adj. Rate	SSI/ procs	Adj. Rate	SIR	CLABSI/ CLDays	Rate	CLABSI/ CLDays	Rate	CLABSI/ CLDays	Rate	CLABSI/ CLDays	Rate	CLABSI/ CLDays	Rate	CLABSI/ CLDays	Rate	CLABSI/ CLDays	Rate	CLABSI/ CLDays	CLABSI Adj rate	UCABSI/ UCDays	UCABSI Adj rate	SIR	C.difficile/ patdays	Rate
State average	**2009**	**4.9**		**1.1**		**2.3**		**0.9**		**1.0**	**1.9**		**1.2**		**2.3**		**Teaching/Non 1.7/1.9**		**2.1**		**2.1**		**2.2**		**RPC/Lev3/Lev2-3 2.2/3.6/3.8**		**RPC/Lev3/Lev2-3 1.5/3.0/4.0**		**1.0**	**7.8**	
	2010	**4.5**		**1.0**		**2.1**		**0.8**		**1.0**	**1.7**		**1.0**		**1.9**		**Teaching/Non 1.0/1.5**		**1.4**		**2.0**		**1.9**		**RPC/Lev3/Lev2-3 1.7/2.9/4.8**		**RPC/Lev3/Lev2-3 1.7/1.5/1.7**		**1.0**	**8.2**	
AO Fox Memorial	2009	3/ 50	6.3	0/ 25	* 0.0					1.2							0/ 272	* 0.0											0.0		
	2010	0/ 28	* 0.0	0/ 21	* 0.0					0.0							0/ 376	* 0.0											0.0	6/ 16553	3.6
Adirondack Medical	2009	2/ 21	9.4	1/ 58	1.7					1.8							0/ 506	* 0.0											0.0		
	2010	1/ 34	2.6	1/ 64	1.3					0.8							0/ 269	* 0.0											0.0	7/ 13817	5.1
Albany Medical	2009	20/379	5.4	1/ 270	0.4	7/ 367	1.8	1/ 340	0.3	0.9	1/2163	0.5	4/2868	1.4	5/2821	1.8			5/4111	1.2	0/1148	* 0.0	0/2039	** 0.0	1/4706	** 0.2	0/1449	* 0.0	**0.4		
	2010	21/376	5.5	0/ 256	* 0.0	9/ 373	2.0	0/ 345	** 0.0	0.9	2/2210	0.9	0/2994	* 0.0	5/2952	1.7			4/5053	0.8	0/1203	* 0.0	5/2122	2.4	5/4268	1.2	1/1459	0.8	**0.6	91/168962	5.4
Albany Memorial	2009	1/120	0.9	0/ 101	* 0.0					**0.2							1/ 826	1.2											0.6		
	2010	5/ 99	5.3	0/ 89	* 0.0					0.9							2/ 712	2.8											1.9	4/ 23672	1.7
Alice Hyde	2009	1/ 34	2.8	0/ 44	* 0.0					0.4							0/ 213	* 0.0											0.0		
	2010	0/ 40	* 0.0	0/ 30	* 0.0					0.0							0/ 151	* 0.0											0.0	2/ 11785	1.7
Arnot Ogden	2009	6/ 84	6.5	3/ 149	2.2	4/ 148	2.3	4/ 138	2.8	1.5							7/3467	2.0							2/ 453	5.0	1/ 502	3.5	1.1		
	2010	2/ 80	2.3	1/ 182	0.5	4/ 102	3.0	6/ 97	^^ 4.6	1.3							2/3525	0.6							3/ 574	5.8	0/ 409	* 0.0	0.7	27/ 47920	5.6
Auburn Memorial	2009	2/ 35	6.0	0/ 48	* 0.0					0.9							0/ 384	* 0.0											0.0		
	2010	0/ 50	* 0.0	0/ 33	* 0.0					0.0							0/ 707	* 0.0											0.0	14/ 26989	5.2
Bellevue Hospital	2009	14/119	^^11.2	0/ 48	* 0.0	4/ 148	2.5	2/ 145	1.3	^^1.7	5/ 896	5.6	2/ 880	2.3	4/1471	2.7			9/1806	^^ 5.0	1/ 654	1.5	0/ 56	* 0.0	5/ 519	^^ 8.8	1/ 199	5.0	^^2.1		
	2010	20/107	^^16.8	1/ 84	0.9	0/ 148	** 0.0	0/ 147	* 0.0	^^1.9	5/1144	4.4	1/1075	0.9	10/1758	^^ 5.7			3/2181	1.4	1/ 882	1.1	1/ 164	6.1	1/ 440	2.2	0/ 215	* 0.0	^^1.7	104/224549	4.6
Benedictine Hospital	2009	0/ 77	** 0.0	0/ 62	* 0.0					**0.0							0/1014	* 0.0											0.0		
	2010	0/ 29	* 0.0	0/ 75	* 0.0					0.0							0/ 613	* 0.0											0.0	12/ 37937	3.2
Bertrand Chaffee	2009										NA	NA																	NA		
	2010										NA	NA																	NA	1/ 3886	2.6
Beth Israel- Kings	2009	1/ 49	1.9	2/ 56	2.6					0.9							4/1457	2.7											1.4		
	2010	1/ 73	1.3	0/ 58	* 0.0					0.2							3/1504	2.0											1.4	105/ 69879	15.0
Beth Israel- Petrie	2009	18/229	7.8	3/ 296	1.1	5/ 247	2.0	5/ 245	2.0	1.4	1/ 625	1.6	2/1074	1.9	8/3526	2.3			1/1776	0.6			0/ 167	* 0.0	1/ 203	4.9	1/ 201	4.1	0.9		
	2010	13/264	5.0	2/ 350	0.6	4/ 254	1.6	1/ 227	0.5	0.9	0/ 756	* 0.0	1/1245	0.8	3/3259	0.9			2/1859	1.1			0/ 56	* 0.0	1/ 168	5.1	0/ 170	* 0.0	0.5	193/223675	8.6
Bon Secours	2009	0/ 22	* 0.0	NA	NA					0.8							1/ 330	3.0											1.6		
	2010	2/ 26	8.2	NA	NA					1.4							0/ 455	* 0.0											0.0	20/ 28825	6.9

***Color key:** **Blue: significantly lower than state average ^^Red: significantly higher than state average Grey: not statistically different from state average *: Zero infections, not statistically significant*
NA: Fewer than 20 procedures or 50 line days reported Blank: No procedures or ICUs at hospital

Table 19 - Summary of Hospital-Acquired Infection Data, New York State 2009-10 (continued)

		Surgical Site Infections									Blood Stream Infections																	C. difficile	
		Colon		Hip		Coronary Artery Bypass Chest		Coronary Artery Bypass Donor		All SSI	Coronary ICU		Cardiothoracic ICU		Medical ICU		Medical Surgical ICU		Surgical ICU		Neurosurgical ICU		Pediatric ICU		Neonatal ICU				All BSI	Hospital Onset	
Hospital	Year	SSI/ procs	Adj. Rate	SSI/ procs	Adj. Rate	SSI/ procs	Adj. Rate	SSI/ procs	Adj. Rate	SIR	CLABSI/ CLDays	Rate	CLABSI/ CLDays	Rate	CLABSI/ CLDays	Rate	CLABSI/ CLDays	Rate	CLABSI/ CLDays	Rate	CLABSI/ CLDays	Rate	CLABSI/ CLDays	Rate	CLABSI/ CLDays	CLABSI Adj rate	UCABSI/ UCDays	UCABSI Adj rate	SIR	C.difficile/ patdays	Rate
State average	**2009**	**4.9**		**1.1**		**2.3**		**0.9**		**1.0**	**1.9**		**1.2**		**2.3**		**Teaching/Non 1.7/1.9**		**2.1**		**2.1**		**2.2**		**RPC/Lev3/Lev2-3 2.2/3.6/3.8**		**RPC/Lev3/Lev2-3 1.5/3.0/4.0**		**1.0**	**7.8**	
	2010	**4.5**		**1.0**		**2.1**		**0.8**		**1.0**	**1.7**		**1.0**		**1.9**		**Teaching/Non 1.0/1.5**		**1.4**		**2.0**		**1.9**		**RPC/Lev3/Lev2-3 1.7/2.9/4.8**		**RPC/Lev3/Lev2-3 1.7/1.5/1.7**		**1.0**	**8.2**	
Bronx-Lebanon	2009	0/ 75	** 0.0	0/ 31	* 0.0					**0.0	0/ 213	* 0.0					5/3845	1.3							3/ 616	4.3			0.8		
	2010	1/ 62	1.7	2/ 64	2.9					0.9	0/ 246	* 0.0					4/3884	1.0							6/ 557	^^10.3			1.3	93/173482	5.4
Brookdale Hospital	2009	4/ 84	4.5	0/ 31	* 0.0					0.8	1/ 740	1.4			5/2564	2.0			3/1538	2.0	1/ 469	2.1	0/ 106	* 0.0	NA	NA	6/ 542	^^ 9.3	1.2		
	2010	2/ 66	2.7	NA	NA					0.5	2/ 563	3.6			11/2651	^^ 4.1			7/1698	^^ 4.1	3/ 856	3.5	0/ 173	* 0.0	1/ 147	7.7	4/ 534	^^ 7.4	^^2.4	58/114922	5.0
Brookhaven Memorial	2009	3/130	2.3	6/ 121	^^ 4.3					1.1	3/1246	2.4			4/1368	2.9			8/1653	^^ 4.8									1.7		
	2010	11/129	7.8	1/ 118	0.6					1.5	4/1315	3.0			2/1578	1.3			5/1837	2.7									1.4	143/ 90081	15.9
Brooklyn Downtown	2009	4/ 85	5.1	NA	NA					1.0					6/1297	4.6			2/ 939	2.1					6/1517	4.3	0/ 250	* 0.0	1.3		
	2010	2/ 57	3.3	1/ 30	2.1					0.9					0/1939	** 0.0			1/1232	0.8					0/1013	* 0.0	0/ 201	* 0.0	**0.1	28/ 89279	3.1
Brooks Memorial	2009	NA	NA	0/ 96	* 0.0					0.0							0/ 268	* 0.0											0.0		
	2010	3/ 23	13.7	2/ 96	2.3					2.7							0/ 163	* 0.0											0.0	4/ 10984	3.6
Buffalo General	2009	12/156	7.7	3/ 568	0.5	21/ 468	^^ 4.1	3/ 415	0.8	1.3	3/ 802	3.7	2/2180	0.9	13/3098	4.2			13/1942	^^ 6.7									^^2.0		
	2010	6/149	3.6	7/ 687	1.1	15/ 440	3.5	4/ 411	1.0	1.2	1/ 916	1.1	1/1905	0.5	5/3441	1.5			3/2088	1.4									0.8	119/126660	9.4
Canton-Potsdam	2009	5/ 73	6.3	2/ 74	2.8					1.5							0/ 102	* 0.0											0.0		
	2010	3/ 56	4.6	1/ 70	1.1					1.0							0/ 123	* 0.0											0.0	3/ 15695	1.9
Carthage Area	2009	NA	NA							NA																					
	2010	NA	NA							NA																				3/ 6598	4.5
Catskill Regional	2009	0/ 33	* 0.0	1/ 30	3.0					0.5							0/ 548	* 0.0											0.0		
	2010	0/ 54	* 0.0	0/ 35	* 0.0					0.0							0/ 624	* 0.0											0.0	12/ 17735	6.8
Cayuga Medical Cntr	2009	5/ 50	9.1	0/ 66	* 0.0					1.4							0/1386	* 0.0											0.0		
	2010	8/ 55	^^15.1	1/ 77	1.1					^^2.7							0/1106	* 0.0											0.0	6/ 28834	2.1
Champlain Valley	2009	10/114	8.7	0/ 113	* 0.0	0/ 121	** 0.0	1/ 119	0.9	1.0							2/1791	1.1											0.6		
	2010	10/ 69	^^14.1	0/ 102	* 0.0	1/ 109	0.8	0/ 104	* 0.0	1.4							3/2104	1.4											1.0	16/ 66503	2.4
Chenango Memorial	2009	NA	NA	0/ 45	* 0.0					0.0							0/ 205	* 0.0											0.0		
	2010	NA	NA	0/ 36	* 0.0					0.0							0/ 130	* 0.0											0.0	0/ 8876	0.0
Claxton-Hepburn	2009	1/ 44	2.4	NA	NA					0.5							1/ 500	2.0											1.0		
	2010	1/ 31	3.4	NA	NA					0.6							0/ 378	* 0.0											0.0	5/ 16267	3.1

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NA: Fewer than 20 procedures or 50 line days reported Blank: No procedures or ICUs at hospital

Table 19 - Summary of Hospital-Acquired Infection Data, New York State 2009-10 (continued)

		Surgical Site Infections									Blood Stream Infections																		C. difficile	
		Colon		Hip		Coronary Artery Bypass Chest		Coronary Artery Bypass Donor		All SSI	Coronary ICU		Cardiothoracic ICU		Medical ICU		Medical Surgical ICU		Surgical ICU		Neurosurgical ICU		Pediatric ICU		Neonatal ICU				All BSI	Hospital Onset	
Hospital	Year	SSI/ procs	Adj. Rate	SSI/ procs	Adj. Rate	SSI/ procs	Adj. Rate	SSI/ procs	Adj. Rate	SIR	CLABSI/ CLDays	Rate	CLABSI/ CLDays	Rate	CLABSI/ CLDays	Rate	CLABSI/ CLDays	Rate	CLABSI/ CLDays	Rate	CLABSI/ CLDays	Rate	CLABSI/ CLDays	Rate	CLABSI/ CLDays	CLABSI Adj rate	UCABSI/ UCDays	UCABSI Adj rate	SIR	C.difficile/ patdays	Rate
State average	**2009**	**4.9**		**1.1**		**2.3**		**0.9**		**1.0**	**1.9**		**1.2**		**2.3**		**Teaching/Non 1.7/1.9**		**2.1**		**2.1**		**2.2**		**RPC/Lev3/Lev2-3 2.2/3.6/3.8**		**RPC/Lev3/Lev2-3 1.5/3.0/4.0**		**1.0**	**7.8**	
	2010	**4.5**		**1.0**		**2.1**		**0.8**		**1.0**	**1.7**		**1.0**		**1.9**		**Teaching/Non 1.0/1.5**		**1.4**		**2.0**		**1.9**		**RPC/Lev3/Lev2-3 1.7/2.9/4.8**		**RPC/Lev3/Lev2-3 1.7/1.5/1.7**		**1.0**	**8.2**	
Clifton Springs	2009	1/ 31	3.6	0/ 100	* 0.0					0.4							0/ 422	* 0.0											0.0		
	2010	3/ 29	12.6	1/ 96	1.3					2.1							1/ 509	2.0											1.3	9/ 13609	6.6
Columbia Memorial	2009	1/ 69	1.5	2/ 80	1.8					0.7							4/ 789	5.1											2.6		
	2010	0/ 65	** 0.0	2/ 70	2.0					0.5							3/ 637	4.7											3.2	20/ 31584	6.3
Community General	2009	2/124	1.5	1/ 498	0.3					**0.3							1/1404	0.7											0.4		
	2010	5/114	4.2	4/ 554	0.9					0.9							1/1143	0.9											0.6	28/ 41263	6.8
Community Memorial	2009	NA	NA	2/ 214	1.2					0.8							0/ 131	* 0.0											0.0		
	2010	NA	NA	1/ 212	0.7					0.6							0/ 112	* 0.0											0.0	5/ 7862	6.4
Coney Island	2009	4/ 39	9.1	2/ 69	1.7					1.7	0/ 148	* 0.0			5/1353	3.7			3/ 746	4.0									1.6		
	2010	2/ 45	3.8	1/ 83	0.7					0.8	0/ 152	* 0.0			8/1277	^^ 6.3			4/ 930	4.3									^^3.0	68/121766	5.6
Corning Hospital	2009	3/ 29	10.6	0/ 52	* 0.0					1.3							0/ 361	* 0.0											0.0		
	2010	1/ 36	2.7	0/ 43	* 0.0					0.4							0/ 377	* 0.0											0.0	2/ 14258	1.4
Cortland Reg Med	2009	1/ 29	3.2	NA	NA					0.6					2/ 912	2.2													1.0		
	2010	1/ 36	2.5	0/ 21	* 0.0					0.5					0/ 713	* 0.0													0.0	17/ 24692	6.9
Crouse Hospital	2009	14/258	5.7	4/ 269	1.6					1.2							1/3125	** 0.3							9/3167	2.8	6/1247	3.5	1.0		
	2010	10/238	4.6	3/ 275	1.1					1.0							3/3317	0.9							3/3346	0.9	3/1123	2.4	0.7	65/ 82253	7.9
DeGraff Memorial	2009	2/ 43	5.1	1/ 49	1.6					1.2							1/ 524	1.9											1.0		
	2010	2/ 32	7.2	0/ 51	* 0.0					1.0							0/ 376	* 0.0											0.0	21/ 17233	12.2
EJ Noble Hospital	2009																NA	NA											NA		
	2010	NA	NA							NA																				0/ 6180	0.0
Eastern Long Island	2009	NA	NA	NA	NA					0.0							0/ 148	* 0.0											0.0		
	2010	NA	NA	NA	NA					0.0							0/ 105	* 0.0											0.0	1/ 20628	0.5
Ellis Hospital	2009	10/253	4.0	3/ 265	1.0	9/ 254	3.8	1/ 227	0.5	1.0							12/5718	2.1											1.1		
	2010	5/259	2.3	0/ 217	* 0.0	6/ 241	2.4	1/ 229	0.5	0.6							1/4542	** 0.2											**0.2	33/ 98403	3.4
Elmhurst	2009	3/ 63	4.8	0/ 42	* 0.0					0.8	1/ 424	2.4													0/ 223	* 0.0	0/ 148	* 0.0	0.4		
	2010	2/ 52	3.8	0/ 35	* 0.0					0.7	1/ 251	4.0													5/ 331	13.6	0/ 110	* 0.0	2.5	61/142577	4.3

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NA: Fewer than 20 procedures or 50 line days reported Blank: No procedures or ICUs at hospital

Table 19 - Summary of Hospital-Acquired Infection Data, New York State 2009-10 (continued)

Hospital	Year	Surgical Site Infections: Colon SSI/ procs	Colon Adj. Rate	Hip SSI/ procs	Hip Adj. Rate	Coronary Artery Bypass Chest SSI/ procs	Coronary Artery Bypass Chest Adj. Rate	Coronary Artery Bypass Donor SSI/ procs	Coronary Artery Bypass Donor Adj. Rate	All SSI SIR	Blood Stream Infections: Coronary ICU CLABSI/ CLDays	Coronary ICU Rate	Cardiothoracic ICU CLABSI/ CLDays	Cardiothoracic ICU Rate	Medical ICU CLABSI/ CLDays	Medical ICU Rate	Medical Surgical ICU CLABSI/ CLDays	Medical Surgical ICU Rate	Surgical ICU CLABSI/ CLDays	Surgical ICU Rate	Neurosurgical ICU CLABSI/ CLDays	Neurosurgical ICU Rate	Pediatric ICU CLABSI/ CLDays	Pediatric ICU Rate	Neonatal ICU CLABSI/ CLDays	Neonatal ICU CLABSI Adj rate	Neonatal ICU UCABSI/ UCDays	Neonatal ICU UCABSI Adj rate	All BSI SIR	*C.difficile* Hospital Onset *C.difficile*/ patdays	*C.difficile* Hospital Onset Rate
State average	**2009**	**4.9**		**1.1**		**2.3**		**0.9**		**1.0**	**1.9**		**1.2**		**2.3**		**Teaching/Non 1.7/1.9**		**2.1**		**2.1**		**2.2**		**RPC/Lev3/Lev2-3 2.2/3.6/3.8**		**RPC/Lev3/Lev2-3 1.5/3.0/4.0**		**1.0**	**7.8**	
	2010	**4.5**		**1.0**		**2.1**		**0.8**		**1.0**	**1.7**		**1.0**		**1.9**		**Teaching/Non 1.0/1.5**		**1.4**		**2.0**		**1.9**		**RPC/Lev3/Lev2-3 1.7/2.9/4.8**		**RPC/Lev3/Lev2-3 1.7/1.5/1.7**		**1.0**	**8.2**	
Erie Medical Center	2009	3/ 98	3.1	3/ 137	1.6	3/ 137	2.0	0/ 111	* 0.0	0.8	0/1604	* 0.0	0/ 428	* 0.0	3/2683	1.1													**0.3		
	2010	4/ 75	5.1	0/ 133	* 0.0	6/ 105	5.8	1/ 83	1.4	1.4	0/1210	* 0.0	0/ 448	* 0.0	2/2354	0.8													0.3	80/ 80696	9.9
FF Thompson	2009	1/ 40	2.5	1/ 155	0.9					0.6							1/ 585	1.7											0.9		
	2010	0/ 20	* 0.0	0/ 130	* 0.0					0.0							0/ 422	* 0.0											0.0	11/ 26249	4.2
Faxton St. Lukes	2009	0/141	** 0.0	1/ 138	0.5					**0.1	3/2907	1.0					1/2543	0.4											**0.4		
	2010	5/112	4.0	2/ 142	0.9					0.9	3/2745	1.1					2/2787	0.7											0.6	136/ 84750	16.0
Flushing Hospital	2009	2/ 58	3.9	0/ 40	* 0.0					0.7	1/ 530	1.9			4/1323	3.0			0/ 736	* 0.0					0/ 969	* 0.0	1/ 277	4.6	0.7		
	2010	5/ 74	6.6	1/ 27	3.0					1.6	1/ 462	2.2			3/1389	2.2			0/ 550	* 0.0					3/1354	2.3	0/ 385	* 0.0	0.8	93/ 73858	12.6
Forest Hills Hosp	2009	6/111	5.6	3/ 114	2.0					1.3							8/3508	2.3											1.2		
	2010	10/ 77	^^12.9	3/ 100	2.3					^^2.7							5/2847	1.8											1.2	126/ 80783	15.6
Franklin	2009	0/ 96	** 0.0	0/ 127	* 0.0					**0.0							3/2715	1.1											0.6		
	2010	1/ 61	1.6	3/ 122	2.2					1.0							3/2461	1.2											0.8	51/ 65128	7.8
Geneva General	2009	0/ 49	* 0.0	1/ 72	1.3					0.3							6/ 705	^^ 8.5											^^4.4		
	2010	0/ 46	* 0.0	0/ 59	* 0.0					**0.0							1/ 963	1.0											0.7	28/ 18631	15.0
Glen Cove Hospital	2009	5/ 52	8.9	5/ 440	1.4					1.5							0/1883	** 0.0											**0.0		
	2010	1/ 54	1.7	2/ 416	0.6					0.5							0/1747	* 0.0											0.0	29/ 34071	8.5
Glens Falls	2009	7/130	5.7	1/ 169	0.6					1.0							3/2179	1.4											0.7		
	2010	2/130	2.0	7/ 203	^^ 3.2					1.3							3/1938	1.5											1.1	20/ 76927	2.6
Good Samar. Suffern	2009	3/ 89	3.5	0/ 60	* 0.0	5/ 206	2.2	2/ 193	1.0	0.9			1/1023	1.0			6/1610	3.7	1/ 828	1.2									1.3		
	2010	0/ 89	** 0.0	1/ 61	1.7	1/ 159	0.6	2/ 150	1.3	0.4			0/ 940	* 0.0			2/1432	1.4	1/ 821	1.2									0.7	79/ 58064	13.6
Good Samar. W Islip	2009	9/242	3.8	2/ 138	1.2					0.8							7/4982	1.4					1/ 276	3.6	1/ 762	1.5	3/ 558	5.1	0.8		
	2010	10/279	3.9	3/ 112	1.7					1.0							9/4776	1.9					0/ 101	* 0.0	0/ 458	* 0.0	0/ 318	* 0.0	1.0	76/129318	5.9
Harlem Hospital	2009	0/ 48	* 0.0	NA	NA					0.4	4/ 729	5.5					7/2401	2.9					0/ 129	* 0.0	2/ 472	4.1	0/ 143	* 0.0	1.5		
	2010	2/ 39	4.6	NA	NA					1.4	0/ 481	* 0.0					7/2145	3.3					NA	NA	1/ 563	1.6	0/ 82	* 0.0	1.3	23/ 74143	3.1
Highland Hospital	2009	8/182	4.5	7/ 719	1.0					0.9							1/3190	0.3											0.2		
	2010	10/168	6.3	8/ 717	1.1					1.2							2/2754	0.7											0.7	76/ 73776	10.3

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Hospital	Year	Surgical Site Infections: Colon SSI/ procs	Colon Adj. Rate	Hip SSI/ procs	Hip Adj. Rate	Coronary Artery Bypass Chest SSI/ procs	Coronary Artery Bypass Chest Adj. Rate	Coronary Artery Bypass Donor SSI/ procs	Coronary Artery Bypass Donor Adj. Rate	All SSI SIR	Blood Stream Infections: Coronary ICU CLABSI/ CLDays	Coronary ICU Rate	Cardiothoracic ICU CLABSI/ CLDays	Cardiothoracic ICU Rate	Medical ICU CLABSI/ CLDays	Medical ICU Rate	Medical Surgical ICU CLABSI/ CLDays	Medical Surgical ICU Rate	Surgical ICU CLABSI/ CLDays	Surgical ICU Rate	Neurosurgical ICU CLABSI/ CLDays	Neurosurgical ICU Rate	Pediatric ICU CLABSI/ CLDays	Pediatric ICU Rate	Neonatal ICU CLABSI/ CLDays	Neonatal ICU CLABSI Adj rate	Neonatal ICU UCABSI/ UCDays	Neonatal ICU UCABSI Adj rate	All BSI SIR	C.difficile Hospital Onset C.difficile/ patdays	C.difficile Hospital Onset Rate
State average	**2009**	**4.9**		**1.1**		**2.3**		**0.9**		**1.0**	**1.9**		**1.2**		**2.3**		**Teaching/Non 1.7/1.9**		**2.1**		**2.1**		**2.2**		**RPC/Lev3/Lev2-3 2.2/3.6/3.8**		**RPC/Lev3/Lev2-3 1.5/3.0/4.0**		**1.0**	**7.8**	
	2010	**4.5**		**1.0**		**2.1**		**0.8**		**1.0**	**1.7**		**1.0**		**1.9**		**Teaching/Non 1.0/1.5**		**1.4**		**2.0**		**1.9**		**RPC/Lev3/Lev2-3 1.7/2.9/4.8**		**RPC/Lev3/Lev2-3 1.7/1.5/1.7**		**1.0**	**8.2**	
Hosp for Spec Surg	2009			15/3932	** 0.6					**0.5																					
	2010			12/3828	** 0.5					**0.5																				14/ 53515	2.6
Hudson Valley	2009	3/ 69	4.1	1/ 98	0.8					0.8							4/1467	2.7											1.4		
	2010	2/ 67	2.8	0/ 86	* 0.0					0.4							0/1406	* 0.0											0.0	19/ 33286	5.7
Huntington	2009	4/129	3.0	8/ 227	^^ 3.4					1.3	3/ 852	3.5					2/1490	1.3											1.1		
	2010	5/122	3.9	6/ 228	2.4					1.3	2/ 688	2.9					0/1056	* 0.0											0.7	68/ 81546	8.3
Intercomm. Newfane	2009	NA	NA	NA	NA					0.0							0/ 107	* 0.0											0.0		
	2010	NA	NA	NA	NA					2.8							0/ 187	* 0.0											0.0	4/ 9368	4.3
Interfaith Medical	2009	1/ 28	3.8	NA	NA					0.7							8/2342	3.4											1.8		
	2010	0/ 28	* 0.0	NA	NA					0.8							2/2241	0.9											0.6	15/ 96169	1.6
Ira Davenport	2009														NA	NA													NA		
	2010														NA	NA													NA	0/ 3427	0.0
JT Mather	2009	10/139	7.2	2/ 86	2.7					1.6	3/1313	2.3					3/1849	1.6											1.0		
	2010	10/121	8.9	3/ 85	2.8					^^2.1	3/1113	2.7					2/1531	1.3											1.2	67/ 68714	9.8
Jacobi Medical	2009	9/ 66	^^12.0	1/ 53	1.5					^^2.3	5/1112	4.5			4/1890	2.1			7/ 971	^^ 7.2			1/ 293	3.4	6/1471	3.8	0/ 494	* 0.0	^^1.7		
	2010	7/ 55	^^11.6	3/ 53	3.4					^^2.7	3/ 989	3.0			4/1809	2.2			3/ 951	3.2			0/ 241	* 0.0	9/1508	^^ 5.5	0/ 381	* 0.0	^^1.8	65/128420	5.1
Jamaica Hospital	2009	5/ 65	7.6	2/ 44	3.2					1.8					1/1833	0.5			4/1678	2.4					4/ 812	4.7	0/ 115	* 0.0	0.8		
	2010	6/ 60	8.8	2/ 43	2.3					2.0					1/1604	0.6			4/1387	2.9					3/ 755	3.7	0/ 152	* 0.0	1.0	65/ 91812	7.1
Jones Memorial	2009	NA	NA							NA							0/ 180	* 0.0											0.0		
	2010	NA	NA							NA							0/ 229	* 0.0											0.0	10/ 7506	13.3
Kenmore Mercy	2009	4/156	2.8	3/ 415	1.1					0.7							3/1830	1.6											0.8		
	2010	2/116	2.1	6/ 365	2.3					1.1							1/1616	0.6											0.4	29/ 38032	7.6
Kings County	2009	0/ 89	** 0.0	NA	NA					**0.0	2/ 844	2.4			8/1387	^^ 5.8			1/ 876	1.1	2/ 759	2.6	0/ 64	* 0.0	5/1286	3.8	1/ 265	3.3	1.3		
	2010	6/ 83	6.2	NA	NA					1.3	2/ 857	2.3			8/1062	^^ 7.5			0/ 865	* 0.0	1/ 764	1.3	1/ 103	9.7	5/1198	3.7	1/ 440	2.2	1.3	19/ 99378	1.9
Kingsbrook Jewish	2009	3/ 30	8.9	NA	NA					2.0	2/1103	1.8					11/1658	^^ 6.6											^^2.5		
	2010	3/ 48	5.8	3/ 22	^^ 7.2					2.1	3/1249	2.4					2/1477	1.4											1.2	38/ 53758	7.1

Color key: *****Blue: significantly lower than state average*** ***^^Red: significantly higher than state average*** ***Grey: not statistically different from state average*** ****: Zero infections, not statistically significant***
NA: Fewer than 20 procedures or 50 line days reported Blank: No procedures or ICUs at hospital

Table 19 - Summary of Hospital-Acquired Infection Data, New York State 2009-10 (continued)

		Surgical Site Infections									Blood Stream Infections																		C. difficile	
		Colon		Hip		Coronary Artery Bypass Chest		Coronary Artery Bypass Donor		All SSI	Coronary ICU		Cardiothoracic ICU		Medical ICU		Medical Surgical ICU		Surgical ICU		Neurosurgical ICU		Pediatric ICU		Neonatal ICU				All BSI	Hospital Onset	
Hospital	Year	SSI/ procs	Adj. Rate	SSI/ procs	Adj. Rate	SSI/ procs	Adj. Rate	SSI/ procs	Adj. Rate	SIR	CLABSI/ CLDays	Rate	CLABSI/ CLDays	Rate	CLABSI/ CLDays	Rate	CLABSI/ CLDays	Rate	CLABSI/ CLDays	Rate	CLABSI/ CLDays	Rate	CLABSI/ CLDays	Rate	CLABSI/ CLDays	CLABSI Adj rate	UCABSI/ UCDays	UCABSI Adj rate	SIR	C.difficile/ patdays	Rate
State average	**2009**	**4.9**		**1.1**		**2.3**		**0.9**		**1.0**	**1.9**		**1.2**		**2.3**		**Teaching/Non 1.7/1.9**		**2.1**		**2.1**		**2.2**		**RPC/Lev3/Lev2-3 2.2/3.6/3.8**		**RPC/Lev3/Lev2-3 1.5/3.0/4.0**		**1.0**	**7.8**	
	2010	**4.5**		**1.0**		**2.1**		**0.8**		**1.0**	**1.7**		**1.0**		**1.9**		**Teaching/Non 1.0/1.5**		**1.4**		**2.0**		**1.9**		**RPC/Lev3/Lev2-3 1.7/2.9/4.8**		**RPC/Lev3/Lev2-3 1.7/1.5/1.7**		**1.0**	**8.2**	
Kingston Hospital	2009	1/ 83	1.1	1/ 62	1.5					0.4							3/1820	1.6											0.9		
	2010	0/ 76	** 0.0	0/ 58	* 0.0					**0.0							1/1976	0.5											0.3	19/ 38876	4.9
Lakeside Memorial	2009	NA	NA	0/ 27	* 0.0					0.0					0/ 238	* 0.0													0.0		
	2010	0/ 22	* 0.0	0/ 25	* 0.0					0.0					0/ 262	* 0.0													0.0	4/ 11018	3.6
Lawrence	2009	5/103	4.8	1/ 106	0.9					1.0					3/ 947	3.2													1.4		
	2010	6/ 85	7.5	0/ 88	* 0.0					1.3					10/1065	^^ 9.4													^^4.9	43/ 38873	11.1
Lenox Hill	2009	18/187	^^ 9.3	7/ 456	1.4	21/ 468	^^ 4.4	12/ 412	^^ 2.8	^^2.0	6/1377	4.4	3/2573	1.2			11/3074	^^ 3.6							7/1104	6.3	NA	NA	^^1.8		
	2010	6/152	4.0	6/ 566	1.1	10/ 414	2.3	7/ 339	1.8	1.2	2/1786	1.1	3/2676	1.1			7/3179	2.2							3/ 748	4.0	0/ 77	* 0.0	1.2	102/140989	7.2
Lewis County	2009	2/ 24	7.7	0/ 25	* 0.0					1.3							0/ 122	* 0.0											0.0		
	2010	NA	NA	0/ 25	* 0.0					2.5							0/ 72	* 0.0											0.0	1/ 6224	1.6
Lincoln Medical	2009	7/ 60	10.5	0/ 21	* 0.0					1.9	1/ 795	1.3			2/1642	1.2			1/ 826	1.2			NA	NA	2/ 735	2.4	0/ 230	* 0.0	0.5		
	2010	3/ 64	3.8	1/ 25	2.2					1.0	1/ 881	1.1			0/1685	** 0.0			2/ 935	2.1			NA	NA	1/ 526	1.9	1/ 215	3.7	0.6	22/ 96847	2.3
Lockport Memorial	2009	3/ 35	9.4	0/ 36	* 0.0					1.5							1/ 517	1.9											1.0		
	2010	NA	NA	0/ 23	* 0.0					1.0							0/ 313	* 0.0											0.0	4/ 18049	2.2
Long Beach	2009	NA	NA	0/ 20	* 0.0					0.0							1/ 908	1.1											0.7		
	2010	NA	NA	NA	NA					0.0							0/ 647	* 0.0											0.0	29/ 31935	9.1
Long Island College	2009	9/116	7.6	0/ 88	* 0.0					1.2	0/ 427	* 0.0					2/2292	0.9					NA	NA	3/ 390	7.5	0/ 333	* 0.0	0.6		
	2010	6/ 82	6.8	0/ 72	* 0.0					1.2	1/ 336	3.0					2/2370	0.8					NA	NA	4/ 489	8.4	1/ 392	2.6	1.1	90/ 63496	14.2
Long Island Jewish	2009	14/248	5.5	4/ 274	1.3	10/ 354	2.6	3/ 350	0.8	1.1	3/ 817	3.7	0/1362	* 0.0	12/1922	^^ 6.2			2/2378	0.8			3/2709	1.1	6/3771	1.7	1/ 877	1.4	1.0		
	2010	13/308	3.9	4/ 298	1.2	6/ 241	2.4	1/ 240	0.3	0.9	0/ 722	* 0.0	0/1235	* 0.0	1/1364	0.7			0/2196	** 0.0			7/2322	3.0	11/4977	2.2	1/ 958	1.1	0.9	215/193336	11.1
Lutheran Medical	2009	5/167	2.9	3/ 166	1.7					0.8					5/2991	1.7			8/2238	3.6									1.1		
	2010	3/170	1.7	0/ 155	* 0.0					**0.3					4/2512	1.6			4/1645	2.4									1.1	134/117967	11.4
Maimonides	2009	19/216	^^ 9.2	3/ 162	1.3	2/ 334	** 0.5	4/ 322	1.0	1.1	0/ 108	* 0.0	0/1990	* 0.0	2/2182	0.9			3/1703	1.8			5/ 584	^^ 8.6	9/2190	3.9	0/ 344	* 0.0	1.0		
	2010	11/124	8.9	1/ 151	0.4	7/ 308	2.0	1/ 291	0.3	1.1	2/ 332	6.0	4/2450	1.6	3/2620	1.1			6/1456	^^ 4.1			0/ 406	* 0.0	1/2313	0.4	0/ 369	* 0.0	1.0	269/218648	12.3
Mary Imogene Bassett	2009	5/ 98	4.6	4/ 210	1.4	1/ 98	1.0	0/ 81	* 0.0	0.9							2/2641	0.8											0.5		
	2010	3/ 95	3.0	8/ 186	^^ 3.1	0/ 95	* 0.0	0/ 89	* 0.0	1.1							2/2641	0.8											0.8	13/ 48496	2.7

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NA: Fewer than 20 procedures or 50 line days reported Blank: No procedures or ICUs at hospital

Table 19 - Summary of Hospital-Acquired Infection Data, New York State 2009-10 (continued)

		Surgical Site Infections									Blood Stream Infections																	C. difficile	
		Colon		Hip		Coronary Artery Bypass Chest		Coronary Artery Bypass Donor		All SSI	Coronary ICU		Cardiothoracic ICU		Medical ICU		Medical Surgical ICU		Surgical ICU		Neurosurgical ICU		Pediatric ICU		Neonatal ICU				All BSI	Hospital Onset	
Hospital	Year	SSI/ procs	Adj. Rate	SSI/ procs	Adj. Rate	SSI/ procs	Adj. Rate	SSI/ procs	Adj. Rate	SIR	CLABSI/ CLDays	Rate	CLABSI/ CLDays	Rate	CLABSI/ CLDays	Rate	CLABSI/ CLDays	Rate	CLABSI/ CLDays	Rate	CLABSI/ CLDays	Rate	CLABSI/ CLDays	Rate	CLABSI/ CLDays	CLABSI Adj rate	UCABSI/ UCDays	UCABSI Adj rate	SIR	C.difficile/ patdays	Rate
State average	**2009**	**4.9**		**1.1**		**2.3**		**0.9**		**1.0**	**1.9**		**1.2**		**2.3**		**Teaching/Non 1.7/1.9**		**2.1**		**2.1**		**2.2**		**RPC/Lev3/Lev2-3 2.2/3.6/3.8**		**RPC/Lev3/Lev2-3 1.5/3.0/4.0**		**1.0**	**7.8**	
	2010	**4.5**		**1.0**		**2.1**		**0.8**		**1.0**	**1.7**		**1.0**		**1.9**		**Teaching/Non 1.0/1.5**		**1.4**		**2.0**		**1.9**		**RPC/Lev3/Lev2-3 1.7/2.9/4.8**		**RPC/Lev3/Lev2-3 1.7/1.5/1.7**		**1.0**	**8.2**	
Massena Memorial	2009	NA	NA	NA	NA					NA							0/ 84	* 0.0											0.0		
	2010	NA	NA	NA	NA					NA							NA	NA											NA	9/ 9846	9.1
Medina Memorial	2009	NA	NA	NA	NA					0.0							1/ 90	11.1											5.8		
	2010	2/ 24	9.3	NA	NA					1.7							2/ 72	^^27.8											^^18.9	3/ 24496	1.2
Mercy Buffalo	2009	21/214	^^10.5	0/ 197	* 0.0	15/ 368	^^ 4.3	0/ 341	* 0.0	^^1.6	5/2099	2.4	0/1311	* 0.0			4/2504	1.6											0.9		
	2010	13/275	5.7	1/ 194	0.4	20/ 422	^^ 5.3	2/ 383	0.6	^^1.5	5/1513	3.3	0/1225	* 0.0			7/2327	3.0											1.7	62/ 96965	6.4
Mercy Medical	2009	0/ 65	** 0.0	0/ 106	* 0.0					**0.0							7/2171	3.2							0/ 115	* 0.0	2/ 513	5.0	1.5		
	2010	2/108	1.7	2/ 121	2.2					0.6							8/2137	^^ 3.7							1/ 74	14.0	0/ 293	* 0.0	^^2.5	22/ 62959	3.5
Metropolitan	2009	1/ 32	3.0	1/ 32	2.3					0.9					4/1043	3.8			0/ 384	* 0.0					2/ 583	3.4	0/ 199	* 0.0	1.0		
	2010	1/ 21	4.6	0/ 29	* 0.0					0.7					7/1019	^^ 6.9			1/ 496	2.0					4/ 466	9.6	1/ 125	8.1	^^2.7	18/ 79491	2.3
Millard Fill. Gates	2009	NA	NA	NA	NA	8/ 314	2.6	1/ 283	0.4	1.0			0/1834	* 0.0	3/2333	1.3			1/ 683	1.5	2/ 759	2.6							0.6		
	2010	NA	NA	NA	NA	6/ 292	2.2	5/ 255	2.1	1.5			2/2035	1.0	3/2033	1.5			2/ 681	2.9	1/ 993	1.0							0.9	33/ 51041	6.5
Millard Fill. Suburb	2009	8/156	5.3	4/ 439	1.0					1.0							9/4370	2.1											1.1		
	2010	14/208	6.7	5/ 396	1.3					1.4							10/4323	2.3											1.6	92/ 75242	12.2
Montefiore-Einstein	2009	3/ 98	3.1	0/ 103	* 0.0	4/ 210	1.7	1/ 196	0.4	0.6			4/2177	1.8			3/3565	0.8							3/2335	1.3	0/1410	* 0.0	0.6		
	2010	6/ 93	6.4	2/ 206	0.9	12/ 234	^^ 4.8	1/ 195	0.5	1.5			0/2015	* 0.0			3/3659	0.8							1/2015	0.5	3/1006	2.5	0.6	75/124083	6.0
Montefiore-Moses	2009	15/190	7.7	5/ 188	2.1	5/ 301	1.4	3/ 266	0.9	1.2	1/ 887	1.1	3/2520	1.2	10/4066	2.5			1/2118	0.5			8/1882	4.3					1.0		
	2010	8/168	4.4	3/ 213	1.1	6/ 276	2.0	2/ 241	0.9	1.0	3/1026	2.9	3/2389	1.3	3/3884	0.8			1/2113	0.5			5/2563	2.0					0.8	345/257909	13.4
Montifiore North	2009	6/ 36	^^16.0	NA	NA					^^2.8							0/2409	** 0.0							0/ 291	* 0.0	2/ 279	8.3	0.3		
	2010	0/ 35	* 0.0	0/ 24	* 0.0					0.0							1/2673	0.4							0/ 229	* 0.0	0/ 251	* 0.0	0.2	78/ 74301	10.5
Mount Sinai	2009	4/197	2.0	9/ 299	2.2	28/ 464	^^ 6.1	5/ 464	1.1	^^1.6	3/1617	1.9	7/3841	1.8	5/3617	1.4			9/4123	2.2	7/1952	3.6	15/2728	^^ 5.5	4/2467	1.7	0/ 542	* 0.0	1.2		
	2010	4/171	2.5	2/ 279	0.6	21/ 481	^^ 4.6	6/ 481	1.5	1.4	3/1919	1.6	4/3423	1.2	5/2840	1.8			8/4042	2.0	6/1619	3.7	9/2604	3.5	9/2321	^^ 3.8	4/ 525	^^ 6.4	^^1.5	241/275567	8.7
Mount Sinai Queens	2009	8/ 63	^^11.6	0/ 38	* 0.0					2.1							1/1557	0.6											0.3		
	2010	5/ 83	5.7	3/ 54	3.5					1.6							3/1512	2.0											1.4	52/ 55345	9.4
Mount St. Marys	2009	2/ 71	2.8	2/ 93	1.7					0.8					0/ 454	* 0.0													0.0		
	2010	1/ 63	1.5	1/ 85	0.9					0.5					0/ 388	* 0.0													0.0	23/ 23060	10.0

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NA: Fewer than 20 procedures or 50 line days reported Blank: No procedures or ICUs at hospital

Table 19 - Summary of Hospital-Acquired Infection Data, New York State 2009-10 (continued)

Hospital	Year	Surgical Site Infections: Colon SSI/ procs	Colon Adj. Rate	Hip SSI/ procs	Hip Adj. Rate	Coronary Artery Bypass Chest SSI/ procs	Coronary Artery Bypass Chest Adj. Rate	Coronary Artery Bypass Donor SSI/ procs	Coronary Artery Bypass Donor Adj. Rate	All SSI SIR	Blood Stream Infections: Coronary ICU CLABSI/ CLDays	Coronary ICU Rate	Cardiothoracic ICU CLABSI/ CLDays	Cardiothoracic ICU Rate	Medical ICU CLABSI/ CLDays	Medical ICU Rate	Medical Surgical ICU CLABSI/ CLDays	Medical Surgical ICU Rate	Surgical ICU CLABSI/ CLDays	Surgical ICU Rate	Neurosurgical ICU CLABSI/ CLDays	Neurosurgical ICU Rate	Pediatric ICU CLABSI/ CLDays	Pediatric ICU Rate	Neonatal ICU CLABSI/ CLDays	Neonatal ICU CLABSI Adj rate	Neonatal ICU UCABSI/ UCDays	Neonatal ICU UCABSI Adj rate	All BSI SIR	*C. difficile* Hospital Onset *C.difficile*/ patdays	*C. difficile* Hospital Onset Rate
State average	**2009**	**4.9**		**1.1**		**2.3**		**0.9**		**1.0**	**1.9**		**1.2**		**2.3**		**Teaching/Non 1.7/1.9**		**2.1**		**2.1**		**2.2**		**RPC/Lev3/Lev2-3 2.2/3.6/3.8**		**RPC/Lev3/Lev2-3 1.5/3.0/4.0**		**1.0**	**7.8**	
	2010	**4.5**		**1.0**		**2.1**		**0.8**		**1.0**	**1.7**		**1.0**		**1.9**		**Teaching/Non 1.0/1.5**		**1.4**		**2.0**		**1.9**		**RPC/Lev3/Lev2-3 1.7/2.9/4.8**		**RPC/Lev3/Lev2-3 1.7/1.5/1.7**		**1.0**	**8.2**	
Mount Vernon	2009	NA	NA	NA	NA					1.0							3/ 505	5.9											3.1		
	2010	1/ 26	3.4	NA	NA					0.6							0/ 301	* 0.0											0.0	16/ 27608	5.8
NY Community Bklyn	2009	11/ 44	^^23.2	2/ 30	4.8					^^4.7							3/ 779	3.9											2.0		
	2010	5/ 50	9.0	NA	NA					1.8							1/ 801	1.2											0.9	60/ 44138	13.6
NY Downtown	2009	1/ 55	1.9	1/ 64	1.4					0.6							5/1948	2.6											1.3		
	2010	1/ 49	1.7	0/ 57	* 0.0					0.3							1/2585	0.4											0.3	32/ 43356	7.4
NY Med Ctr Queens	2009	22/284	^^ 8.1	3/ 215	1.3	1/ 101	1.1	7/ 97	^^ 6.0	^^1.7	3/1224	2.5	2/ 934	2.1	3/2089	1.4			0/1671	** 0.0					0/ 193	* 0.0	1/ 469	2.4	0/ 149	* 0.0	0.6		
	2010	15/243	6.6	4/ 241	1.2	1/ 129	0.8	2/ 122	1.7	1.3	1/1198	0.8	0/ 915	* 0.0	0/2204	** 0.0			0/1710	* 0.0					0/ 102	* 0.0	2/ 363	5.4	0/ 221	* 0.0	**0.3	213/161399	13.2
NY Methodist	2009	10/123	8.3	3/ 174	1.1	2/ 132	1.6	0/ 116	* 0.0	1.2	0/ 453	* 0.0	0/1390	* 0.0			10/4238	2.4					0/ 168	* 0.0	7/1829	3.5	0/ 371	* 0.0	0.9		
	2010	5/149	3.4	1/ 152	0.4	1/ 124	0.8	1/ 120	0.9	0.6	0/ 596	* 0.0	1/1080	0.9			6/4478	1.3					0/ 143	* 0.0	3/1559	1.9	1/ 424	1.8	0.8	166/161076	10.3
NYP- Allen	2009	3/ 47	5.9	0/ 46	* 0.0					1.0							2/ 882	2.3											1.4		
	2010	3/ 46	6.5	2/ 39	3.8					1.9							1/ 540	1.9											1.9	43/ 53629	8.0
NYP- Columbia	2009	9/208	4.3	4/ 277	1.3	15/ 562	2.7	1/ 453	0.2	0.9	9/3352	2.7	13/6087	2.1			3/4904	0.6	4/3511	1.1	7/2516	2.8							1.0		
	2010	15/196	7.5	3/ 287	1.2	13/ 529	2.4	1/ 430	0.2	1.2	9/3542	2.5	10/6942	1.4			9/4209	2.1	2/3172	0.6	8/2642	3.0							1.4	292/202882	14.4
NYP- Morgan Stanley	2009	1/ 39	2.5							0.5													9/5616	1.6	17/6559	2.5	6/1699	3.8	1.1		
	2010	1/ 24	3.9							0.9													4/4409	0.9	13/6076	2.1	3/1152	3.2	1.0	40/ 55797	7.2
NYP- Weill Cornell	2009	13/540	** 2.5	1/ 75	0.9	4/ 378	1.3	1/ 353	0.3	**0.5	3/3256	0.9	4/4311	0.9			7/3355	2.1	7/3275	2.1	4/2423	1.7	2/2579	0.8	7/2490	2.9	0/ 620	* 0.0	0.8		
	2010	27/555	5.3	3/ 95	2.5	8/ 326	2.8	0/ 310	* 0.0	1.2	9/3298	2.7	4/4068	1.0			7/3023	2.3	8/2631	3.0	3/2003	1.5	4/2544	1.6	1/2665	0.4	0/ 284	* 0.0	1.2	260/254671	10.2
NYU Joint Disease	2009			16/ 889	1.6					1.4																					
	2010			9/1082	0.9					0.9																				21/ 32166	6.5
NYU Medical Center	2009	11/219	4.6	5/ 209	1.6	14/ 239	^^ 5.8	5/ 217	1.6	^^1.5			1/1459	0.7	6/2646	2.3	14/4575	3.1			1/ 589	1.7	5/1071	4.7	3/ 606	5.7	0/ 457	* 0.0	1.4		
	2010	9/335	2.5	0/ 115	* 0.0	5/ 207	2.6	3/ 191	1.7	0.7			1/1252	0.8	9/3958	2.3			11/4607	2.4	0/ 540	* 0.0	3/1242	2.4	3/1461	2.1	0/ 728	* 0.0	1.2	207/172508	12.0
Nassau University	2009	1/ 39	2.5	1/ 42	2.0					0.8	5/ 912	5.5			11/1796	^^ 6.1			4/ 670	6.0			0/ 84	* 0.0	4/ 246	^^15.8	1/ 289	3.6	^^2.7		
	2010	4/ 37	9.4	1/ 51	1.2					1.8	1/ 908	1.1			3/1595	1.9			1/ 800	1.3			0/ 157	* 0.0	1/ 181	6.1	0/ 224	* 0.0	0.9	15/ 49587	3.0
Nathan Littauer	2009	1/ 28	3.5	3/ 44	^^ 7.1					2.1							0/ 187	* 0.0											0.0		
	2010	NA	NA	0/ 34	* 0.0					0.0							0/ 118	* 0.0											0.0	15/ 15358	9.8

Color key: *****Blue: significantly lower than state average*** ***^^Red: significantly higher than state average*** ***Grey: not statistically different from state average*** ****: Zero infections, not statistically significant***
NA: Fewer than 20 procedures or 50 line days reported Blank: No procedures or ICUs at hospital

Table 19 - Summary of Hospital-Acquired Infection Data, New York State 2009-10 (continued)

		Surgical Site Infections									Blood Stream Infections																		C. difficile	
		Colon		Hip		Coronary Artery Bypass Chest		Coronary Artery Bypass Donor		All SSI	Coronary ICU		Cardiothoracic ICU		Medical ICU		Medical Surgical ICU		Surgical ICU		Neurosurgical ICU		Pediatric ICU		Neonatal ICU				All BSI	Hospital Onset	
Hospital	Year	SSI/ procs	Adj. Rate	SSI/ procs	Adj. Rate	SSI/ procs	Adj. Rate	SSI/ procs	Adj. Rate	SIR	CLABSI/ CLDays	Rate	CLABSI/ CLDays	Rate	CLABSI/ CLDays	Rate	CLABSI/ CLDays	Rate	CLABSI/ CLDays	Rate	CLABSI/ CLDays	Rate	CLABSI/ CLDays	Rate	CLABSI/ CLDays	CLABSI Adj rate	UCABSI/ UCDays	UCABSI Adj rate	SIR	C.difficile/ patdays	Rate
State average	**2009**	**4.9**		**1.1**		**2.3**		**0.9**		**1.0**	**1.9**		**1.2**		**2.3**		**Teaching/Non 1.7/1.9**		**2.1**		**2.1**		**2.2**		**RPC/Lev3/Lev2-3 2.2/3.6/3.8**		**RPC/Lev3/Lev2-3 1.5/3.0/4.0**		**1.0**	**7.8**	
	2010	**4.5**		**1.0**		**2.1**		**0.8**		**1.0**	**1.7**		**1.0**		**1.9**		**Teaching/Non 1.0/1.5**		**1.4**		**2.0**		**1.9**		**RPC/Lev3/Lev2-3 1.7/2.9/4.8**		**RPC/Lev3/Lev2-3 1.7/1.5/1.7**		**1.0**	**8.2**	
Newark Wayne	2009	NA	NA	1/ 29	4.4					2.1							1/ 771	1.3											0.7		
	2010	3/ 37	8.3	1/ 51	2.0					1.9							0/1028	* 0.0											0.0	23/ 20219	11.4
Niagara Falls	2009	NA	NA	0/ 25	* 0.0					0.0							0/ 691	* 0.0											0.0		
	2010	NA	NA	0/ 23	* 0.0					0.9							0/ 832	* 0.0											0.0	23/ 35190	6.5
North Central Bronx	2009	NA	NA							NA							1/ 504	2.0											1.0		
	2010	NA	NA							NA							2/ 540	3.7											2.5	12/ 47660	2.5
North Shore	2009	19/616	** 3.0	2/ 410	0.5	16/ 684	2.3	6/ 684	0.7	**0.7	0/1002	* 0.0	8/4008	2.0	7/4176	1.7			4/3341	1.2	1/1810	0.6	0/ 385	* 0.0	2/2370	0.9	2/ 824	2.3	0.7		
	2010	24/560	3.9	11/ 391	^^ 2.6	16/ 656	2.5	7/ 649	1.0	1.1	1/1007	1.0	3/3876	0.8	4/3622	1.1			3/2932	1.0	4/1658	2.4	2/ 262	7.6	2/2167	0.9	1/ 840	1.1	0.8	321/259020	12.4
Northern Dutchess	2009	0/ 23	* 0.0	3/ 286	1.3					0.8							0/ 389	* 0.0											0.0		
	2010	1/ 24	4.9	0/ 224	* 0.0					0.3							0/ 338	* 0.0											0.0	9/ 14749	6.1
Northern Westchester	2009	7/141	5.2	1/ 136	0.8					1.0							0/ 884	* 0.0							1/ 52	19.2	NA	NA	0.5		
	2010	6/140	5.0	1/ 141	0.9					1.1							2/1140	1.8							0/ 67	* 0.0	NA	NA	1.1	15/ 42711	3.5
Noyes Memorial	2009	2/ 25	8.7	0/ 28	* 0.0					1.4							2/ 192	10.4											5.4		
	2010	2/ 30	6.7	1/ 40	2.6					1.7							0/ 242	* 0.0											0.0	2/ 9015	2.2
Nyack Hospital	2009	7/125	5.3	3/ 149	1.8					1.2					6/ 972	6.2			0/ 703	* 0.0									1.6		
	2010	0/106	** 0.0	7/ 161	^^ 4.1					1.2					0/1363	* 0.0			0/ 655	* 0.0									**0.0	61/ 64055	9.5
Olean General	2009	3/ 64	4.6	1/ 69	1.3					1.0							1/ 808	1.2											0.6		
	2010	5/ 55	9.0	0/ 77	* 0.0					1.4							0/ 807	* 0.0											0.0	10/ 32778	3.1
Oneida Healthcare	2009	3/ 74	4.4	0/ 22	* 0.0					0.8							0/ 347	* 0.0											0.0		
	2010	0/ 59	* 0.0	0/ 34	* 0.0					0.0							0/ 297	* 0.0											0.0	19/ 12950	14.7
OrangeReg Goshen&Mid	2009	2/167	** 1.2	2/ 223	0.9					**0.4							10/3452	2.9											1.5		
	2010	6/138	4.5	3/ 239	1.4					1.1							5/3109	1.6											1.1	123/ 83338	14.8
Oswego Hospital	2009	0/ 33	* 0.0	NA	NA					0.0					0/ 396	* 0.0													0.0		
	2010	0/ 24	* 0.0	NA	NA					0.0					0/ 679	* 0.0													0.0	19/ 25855	7.3
Our Lady of Lourdes	2009	7/125	5.2	5/ 233	1.8					1.2							1/1188	0.8											0.4		
	2010	10/164	6.0	3/ 270	1.0					1.2							3/1385	2.2											1.5	15/ 50248	3.0

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NA: Fewer than 20 procedures or 50 line days reported Blank: No procedures or ICUs at hospital

Table 19 - Summary of Hospital-Acquired Infection Data, New York State 2009-10 (continued)

Hospital	Year	Surgical Site Infections: Colon SSI/ procs	Colon Adj. Rate	Hip SSI/ procs	Hip Adj. Rate	Coronary Artery Bypass Chest SSI/ procs	Coronary Artery Bypass Chest Adj. Rate	Coronary Artery Bypass Donor SSI/ procs	Coronary Artery Bypass Donor Adj. Rate	All SSI SIR	Blood Stream Infections: Coronary ICU CLABSI/ CLDays	Coronary ICU Rate	Cardiothoracic ICU CLABSI/ CLDays	Cardiothoracic ICU Rate	Medical ICU CLABSI/ CLDays	Medical ICU Rate	Medical Surgical ICU CLABSI/ CLDays	Medical Surgical ICU Rate	Surgical ICU CLABSI/ CLDays	Surgical ICU Rate	Neurosurgical ICU CLABSI/ CLDays	Neurosurgical ICU Rate	Pediatric ICU CLABSI/ CLDays	Pediatric ICU Rate	Neonatal ICU CLABSI/ CLDays	Neonatal ICU CLABSI Adj rate	Neonatal ICU UCABSI/ UCDays	Neonatal ICU UCABSI Adj rate	All BSI SIR	*C. difficile* Hospital Onset: *C.difficile*/ patdays	*C. difficile* Hospital Onset: Rate
State average	**2009**	**4.9**		**1.1**		**2.3**		**0.9**		**1.0**	**1.9**		**1.2**		**2.3**		**Teaching/Non 1.7/1.9**		**2.1**		**2.1**		**2.2**		**RPC/Lev3/Lev2-3 2.2/3.6/3.8**		**RPC/Lev3/Lev2-3 1.5/3.0/4.0**		**1.0**	**7.8**	
	2010	**4.5**		**1.0**		**2.1**		**0.8**		**1.0**	**1.7**		**1.0**		**1.9**		**Teaching/Non 1.0/1.5**		**1.4**		**2.0**		**1.9**		**RPC/Lev3/Lev2-3 1.7/2.9/4.8**		**RPC/Lev3/Lev2-3 1.7/1.5/1.7**		**1.0**	**8.2**	
Peconic Bay Medical	2009	1/ 46	2.1	0/ 79	* 0.0					0.3							0/ 734	* 0.0											0.0		
	2010	0/ 61	* 0.0	1/ 145	0.6					0.2							2/ 622	3.2											2.2	37/ 29979	12.3
Peninsula Hospital	2009	1/ 24	3.8	NA	NA					0.7							0/1232	* 0.0											0.0		
	2010	0/ 28	* 0.0	NA	NA					0.6							0/1506	* 0.0											0.0	40/ 36157	11.1
Phelps Memorial	2009	0/ 72	** 0.0	2/ 162	1.5					0.4							1/ 894	1.1											0.6		
	2010	3/ 55	6.1	2/ 198	1.3					1.3							4/ 973	4.1											2.8	25/ 57409	4.4
Plainview Hospital	2009	10/171	6.1	4/ 175	2.0					1.4							5/3370	1.5											0.8		
	2010	10/155	6.5	1/ 139	0.5					1.2							3/3292	0.9											0.6	96/ 67296	14.3
Putnam Hospital	2009	0/100	** 0.0	1/ 218	0.6					**0.2							0/ 607	* 0.0											0.0		
	2010	0/ 91	** 0.0	0/ 213	* 0.0					**0.0							0/ 534	* 0.0											0.0	23/ 40335	5.7
Queens Hospital	2009	0/ 38	* 0.0							0.0							4/1585	2.5							3/ 210	12.1	1/ 267	2.3	1.5		
	2010	3/ 42	6.0							1.3							4/1324	3.0							0/ 124	* 0.0	1/ 269	2.9	1.8	16/ 52826	3.0
Richmond Univ	2009	5/ 99	5.1	5/ 84	^^ 4.9					1.7	1/1214	0.8			1/2539	** 0.4			1/ 894	1.1			0/ 51	* 0.0	0/ 258	* 0.0	2/ 759	2.4	**0.4		
	2010	7/132	5.1	2/ 76	2.3					1.2	1/1547	0.6			0/2291	** 0.0			0/1087	* 0.0			NA	NA	1/ 513	2.0	0/ 915	* 0.0	**0.2	110/ 81835	13.4
Rochester General	2009	11/361	3.3	5/ 383	1.7	3/ 574	** 0.6	2/ 572	0.5	**0.6			2/1810	1.1	6/3489	1.7			1/2413	0.4									0.6		
	2010	12/296	4.8	2/ 397	0.6	3/ 492	** 0.7	4/ 478	1.1	0.8			4/2495	1.6	4/3668	1.1			0/1912	* 0.0									0.7	159/182998	8.7
Rome Memorial	2009	2/ 50	3.9	0/ 34	* 0.0					0.7							0/1338	* 0.0											0.0		
	2010	0/ 66	* 0.0	0/ 30	* 0.0					**0.0							0/1161	* 0.0											0.0	15/ 19485	7.7
Roswell Park	2009	8/136	6.3							1.3							12/2130	^^ 5.6											^^3.4		
	2010	7/144	4.8							1.1							3/1972	1.5											1.5	23/ 36652	6.3
Samaritan- Troy	2009	1/ 72	1.5	1/ 72	1.3					0.5							2/ 879	2.3											1.2		
	2010	2/ 72	3.0	0/ 48	* 0.0					0.5							1/ 744	1.3											0.9	13/ 47324	2.7
Samaritan- Watertown	2009	2/ 68	2.8	0/ 124	* 0.0					0.4							2/ 808	2.5											1.3		
	2010	4/ 76	5.3	1/ 135	0.9					1.1							2/1281	1.6											1.1	24/ 28864	8.3
Saratoga Hospital	2009	2/136	1.5	3/ 157	2.2					0.6							0/1661	** 0.0											**0.0		
	2010	7/120	6.7	2/ 198	1.0					1.3							1/1134	0.9											0.6	17/ 47652	3.6

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NA: Fewer than 20 procedures or 50 line days reported Blank: No procedures or ICUs at hospital

Table 19 - Summary of Hospital-Acquired Infection Data, New York State 2009-10 (continued)

		Surgical Site Infections									Blood Stream Infections																	C. difficile	
		Colon		Hip		Coronary Artery Bypass Chest		Coronary Artery Bypass Donor		All SSI	Coronary ICU		Cardiothoracic ICU		Medical ICU		Medical Surgical ICU		Surgical ICU		Neurosurgical ICU		Pediatric ICU		Neonatal ICU				All BSI	Hospital Onset	
Hospital	Year	SSI/ procs	Adj. Rate	SSI/ procs	Adj. Rate	SSI/ procs	Adj. Rate	SSI/ procs	Adj. Rate	SIR	CLABSI/ CLDays	Rate	CLABSI/ CLDays	Rate	CLABSI/ CLDays	Rate	CLABSI/ CLDays	Rate	CLABSI/ CLDays	Rate	CLABSI/ CLDays	Rate	CLABSI/ CLDays	Rate	CLABSI/ CLDays	CLABSI Adj rate	UCABSI/ UCDays	UCABSI Adj rate	SIR	C.difficile/ patdays	Rate
State average	**2009**	**4.9**		**1.1**		**2.3**		**0.9**		**1.0**	**1.9**		**1.2**		**2.3**		**Teaching/Non 1.7/1.9**		**2.1**		**2.1**		**2.2**		**RPC/Lev3/Lev2-3 2.2/3.6/3.8**		**RPC/Lev3/Lev2-3 1.5/3.0/4.0**		**1.0**	**7.8**	
	2010	**4.5**		**1.0**		**2.1**		**0.8**		**1.0**	**1.7**		**1.0**		**1.9**		**Teaching/Non 1.0/1.5**		**1.4**		**2.0**		**1.9**		**RPC/Lev3/Lev2-3 1.7/2.9/4.8**		**RPC/Lev3/Lev2-3 1.7/1.5/1.7**		**1.0**	**8.2**	
Seton Health	2009	7/ 75	9.6	2/ 114	1.6					1.8							3/1230	2.4											1.3		
	2010	7/ 84	9.0	3/ 111	2.3					2.1							4/1314	3.0											2.1	24/ 38773	6.2
Sisters of Charity	2009	8/103	8.4	1/ 133	1.0					1.6							3/1676	1.8							1/ 925	1.0	0/ 237	* 0.0	0.5		
	2010	3/ 74	4.2	1/ 165	0.7					0.8							1/1776	0.6							2/ 896	2.3	0/ 278	* 0.0	0.5	27/ 48505	5.6
Sloan Kettering	2009	27/580	4.4	4/ 91	1.9					1.0							11/5188	2.1											1.1		
	2010	24/606	3.6	2/ 80	1.5					0.8							12/5253	2.3											1.6	134/140612	9.5
Sound Shore Medical	2009	6/ 67	8.9	1/ 120	0.7					1.4							1/ 963	1.0									NA	NA	0.5		
	2010	6/ 45	^^13.7	2/ 151	1.1					2.1							2/1068	1.9							NA	NA	0/ 50	* 0.0	1.2	46/ 43209	10.6
South Nassau Comm.	2009	13/149	7.9	5/ 294	1.4					1.5							11/2592	^^ 4.2											^^2.2		
	2010	15/158	^^ 8.4	5/ 313	1.2					1.6							6/2617	2.3											1.6	89/113954	7.8
Southampton	2009	1/ 43	2.1	0/ 31	* 0.0					0.4							4/ 936	4.3											2.2		
	2010	0/ 37	* 0.0	0/ 28	* 0.0					0.0							4/ 973	4.1											2.8	19/ 19344	9.8
Southside	2009	6/129	4.6	4/ 134	2.7					1.2							3/2935	1.0											0.5		
	2010	1/122	0.9	2/ 187	0.9					0.4							2/2517	0.8											0.5	55/ 70643	7.8
St Anthony	2009	1/ 23	4.6	0/ 23	* 0.0					0.7							0/ 494	* 0.0											0.0		
	2010	NA	NA	0/ 29	* 0.0					1.8							0/ 535	* 0.0											0.0	25/ 12126	20.6
St Barnabas	2009	3/ 63	4.4	NA	NA					1.4							1/1533	0.7							0/ 306	* 0.0	0/ 87	* 0.0	0.2		
	2010	3/ 70	3.7	NA	NA					0.8							1/1291	0.8							1/ 304	3.7	0/ 79	* 0.0	0.7	115/ 94798	12.1
St Catherine Siena	2009	11/129	8.3	1/ 98	1.0					1.6	4/1330	3.0					1/1537	0.7											0.9		
	2010	8/146	5.7	2/ 105	1.7					1.3	1/1443	0.7					2/1684	1.2											0.6	68/ 85051	8.0
St Charles Hospital	2009	NA	NA	4/ 240	2.4					1.6					2/1259	1.6													0.7		
	2010	1/ 37	2.3	6/ 199	^^ 4.5					2.1					2/1041	1.9													1.0	26/ 45445	5.7
St Elizabeth Medical	2009	5/ 80	6.1	0/ 159	* 0.0	3/ 365	0.9	4/ 333	1.6	0.8			0/2185	* 0.0			3/3100	1.0											0.3		
	2010	7/ 83	9.0	2/ 202	1.1	2/ 287	0.7	0/ 261	* 0.0	0.8			1/2012	0.5			4/2725	1.5											0.8	66/ 57545	11.5
St Francis- Pough.	2009	4/ 43	9.2	2/ 175	1.6					1.7							1/1670	0.6											0.3		
	2010	2/ 39	4.8	0/ 145	* 0.0					0.6							0/2132	** 0.0											**0.0	13/ 55285	2.4

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NA: Fewer than 20 procedures or 50 line days reported Blank: No procedures or ICUs at hospital

Table 19 - Summary of Hospital-Acquired Infection Data, New York State 2009-10 (continued)

		Surgical Site Infections									Blood Stream Infections																		C. difficile	
		Colon		Hip		Coronary Artery Bypass Chest		Coronary Artery Bypass Donor		All SSI	Coronary ICU		Cardiothoracic ICU		Medical ICU		Medical Surgical ICU		Surgical ICU		Neurosurgical ICU		Pediatric ICU		Neonatal ICU				All BSI	Hospital Onset	
Hospital	Year	SSI/ procs	Adj. Rate	SSI/ procs	Adj. Rate	SSI/ procs	Adj. Rate	SSI/ procs	Adj. Rate	SIR	CLABSI/ CLDays	Rate	CLABSI/ CLDays	Rate	CLABSI/ CLDays	Rate	CLABSI/ CLDays	Rate	CLABSI/ CLDays	Rate	CLABSI/ CLDays	Rate	CLABSI/ CLDays	Rate	CLABSI/ CLDays	CLABSI Adj rate	UCABSI/ UCDays	UCABSI Adj rate	SIR	C.difficile/ patdays	Rate
State average	**2009**	**4.9**		**1.1**		**2.3**		**0.9**		**1.0**	**1.9**		**1.2**		**2.3**		**Teaching/Non 1.7/1.9**		**2.1**		**2.1**		**2.2**		**RPC/Lev3/Lev2-3 2.2/3.6/3.8**		**RPC/Lev3/Lev2-3 1.5/3.0/4.0**		**1.0**	**7.8**	
	2010	**4.5**		**1.0**		**2.1**		**0.8**		**1.0**	**1.7**		**1.0**		**1.9**		**Teaching/Non 1.0/1.5**		**1.4**		**2.0**		**1.9**		**RPC/Lev3/Lev2-3 1.7/2.9/4.8**		**RPC/Lev3/Lev2-3 1.7/1.5/1.7**		**1.0**	**8.2**	
St Francis- Roslyn	2009	12/117	^^10.0	1/ 57	1.6	13/1100	** 1.2	9/1043	0.9	0.9			5/5754	0.9	7/5281	1.3			3/2533	1.2									0.6		
	2010	5/ 72	8.1	1/ 68	1.2	21/1132	2.0	16/1061	^^ 1.4	1.2			4/5648	0.7	9/5964	1.5			5/3232	1.5									0.8	111/104868	10.6
St James Mercy	2009	NA	NA	NA	NA					0.8							0/ 651	* 0.0											0.0		
	2010	3/ 32	8.9	1/ 24	2.2					2.0							3/ 565	5.3											3.6	3/ 9620	3.1
St Johns Episcopal	2009	2/ 27	7.0	1/ 21	4.0					1.8	4/ 840	4.8					6/ 977	^^ 6.1											^^2.9		
	2010	0/ 29	* 0.0	0/ 23	* 0.0					0.0	2/ 873	2.3			3/1161	2.6													1.4	5/ 52083	1.0
St Johns Riverside	2009	8/ 64	^^12.5	3/ 66	3.6					^^2.7							12/1919	^^ 6.3											^^3.2		
	2010	5/ 78	6.6	2/ 75	1.9					1.5							11/1917	^^ 5.7											^^3.9	30/ 94387	3.2
St Joseph -Bethpage	2009	1/ 57	1.6	2/ 123	1.8					0.7							2/1670	1.2											0.6		
	2010	0/ 57	* 0.0	1/ 138	0.6					0.2							5/1806	2.8											1.9	43/ 39236	11.0
St Joseph Cheektow.	2009	6/ 68	8.7	1/ 144	0.7					1.4							3/1659	1.8											0.9		
	2010	0/ 68	** 0.0	0/ 135	* 0.0					**0.0							0/1459	* 0.0											0.0	42/ 30627	13.7
St Josephs- Elmira	2009	NA	NA	0/ 61	* 0.0					0.0							0/ 520	* 0.0											0.0		
	2010	NA	NA	0/ 34	* 0.0					1.3							3/ 836	3.6											2.4	17/ 19790	8.6
St Josephs- Syracuse	2009	12/269	4.3	2/ 438	0.5	22/ 724	3.0	4/ 627	0.7	1.0					4/2975	1.3			4/4948	0.8					1/ 208	4.6	0/ 226	* 0.0	**0.5		
	2010	9/292	3.0	7/ 524	1.3	17/ 694	2.2	6/ 615	0.8	0.9					7/3184	2.2			2/5127	** 0.4					0/ 167	* 0.0	0/ 209	* 0.0	0.6	135/122323	11.0
St Josephs- Yonkers	2009	4/ 26	16.2	0/ 28	* 0.0					2.5							5/ 609	^^ 8.2											^^4.3		
	2010	NA	NA	0/ 39	* 0.0					0.0							4/ 436	^^ 9.2											^^6.3	17/ 49669	3.4
St Lukes- Roosevelt	2009	13/161	7.8	1/ 78	1.4					1.6							1/1450	0.7			1/1072	0.9	0/ 75	* 0.0	3/1254	2.5	2/1217	1.7	0.5		
	2010	8/175	4.4	2/ 101	1.9					1.1							0/1391	* 0.0			1/ 754	1.3	0/ 77	* 0.0	0/1271	** 0.0	2/1094	2.3	0.4	78/115226	6.8
St Lukes- St Lukes	2009	8/ 77	10.4	1/ 156	0.7	5/ 175	3.0	1/ 127	0.8	1.5					3/1960	1.5	7/2055	3.4	4/1004	4.0									1.4		
	2010	5/ 59	7.8	3/ 130	2.6	2/ 141	1.4	0/ 117	* 0.0	1.3					5/1784	2.8	0/1692	* 0.0	1/ 735	1.4									1.0	64/110326	5.8
St LukesNewburgh&Cor	2009	0/ 56	* 0.0	2/ 84	2.4					0.6					1/ 169	5.9	3/1863	1.6											1.0		
	2010	1/100	1.1	1/ 80	0.9					0.4							3/1749	1.7											1.2	33/ 51937	6.4
St Marys Amsterdam	2009	2/ 53	4.4	0/ 110	* 0.0					0.6							NA	NA											NA		
	2010	5/ 67	9.6	0/ 100	* 0.0					1.5							0/ 155	* 0.0											0.0	17/ 27590	6.2

Color key: *****Blue: significantly lower than state average*** ***^^Red: significantly higher than state average*** ***Grey: not statistically different from state average*** ****: Zero infections, not statistically significant***
NA: Fewer than 20 procedures or 50 line days reported Blank: No procedures or ICUs at hospital

Table 19 - Summary of Hospital-Acquired Infection Data, New York State 2009-10 (continued)

		Surgical Site Infections									Blood Stream Infections																	C. difficile	
		Colon		Hip		Coronary Artery Bypass Chest		Coronary Artery Bypass Donor		All SSI	Coronary ICU		Cardiothoracic ICU		Medical ICU		Medical Surgical ICU		Surgical ICU		Neurosurgical ICU		Pediatric ICU		Neonatal ICU				All BSI	Hospital Onset	
Hospital	Year	SSI/ procs	Adj. Rate	SSI/ procs	Adj. Rate	SSI/ procs	Adj. Rate	SSI/ procs	Adj. Rate	SIR	CLABSI/ CLDays	Rate	CLABSI/ CLDays	Rate	CLABSI/ CLDays	Rate	CLABSI/ CLDays	Rate	CLABSI/ CLDays	Rate	CLABSI/ CLDays	Rate	CLABSI/ CLDays	Rate	CLABSI/ CLDays	CLABSI Adj rate	UCABSI/ UCDays	UCABSI Adj rate	SIR	*C.difficile*/ patdays	Rate
State average	**2009**	**4.9**		**1.1**		**2.3**		**0.9**		**1.0**	**1.9**		**1.2**		**2.3**		**Teaching/Non 1.7/1.9**		**2.1**		**2.1**		**2.2**		**RPC/Lev3/Lev2-3 2.2/3.6/3.8**		**RPC/Lev3/Lev2-3 1.5/3.0/4.0**		**1.0**	**7.8**	
	2010	**4.5**		**1.0**		**2.1**		**0.8**		**1.0**	**1.7**		**1.0**		**1.9**		**Teaching/Non 1.0/1.5**		**1.4**		**2.0**		**1.9**		**RPC/Lev3/Lev2-3 1.7/2.9/4.8**		**RPC/Lev3/Lev2-3 1.7/1.5/1.7**		**1.0**	**8.2**	
St Peters Hospital	2009	12/377	3.6	6/ 677	1.1	5/ 531	1.0	2/ 502	0.5	**0.7	3/ 915	3.3	4/2188	1.8			9/2678	3.4							2/ 453	4.5	0/ 592	* 0.0	1.5		
	2010	12/368	3.9	4/ 756	0.8	1/ 450	** 0.2	0/ 424	** 0.0	**0.5	0/1000	* 0.0	4/2238	1.8			6/2745	2.2							2/ 641	3.0	0/ 621	* 0.0	1.1	40/112023	3.6
Staten Island U N&S	2009	16/241	6.3	2/ 208	0.6	14/ 390	^^ 4.2	3/ 376	1.1	1.3	2/2286	0.9	3/2027	1.5			1/4828	** 0.2							2/ 234	7.0	2/ 222	8.2	0.6		
	2010	11/249	4.4	3/ 181	1.3	5/ 380	1.6	1/ 349	0.4	0.9	0/2312	** 0.0	4/2211	1.8			1/4676	0.2							1/ 375	2.5	2/ 302	5.7	0.6	173/161800	10.7
Strong Memorial	2009	17/317	5.5	0/ 60	* 0.0	7/ 482	1.6	2/ 438	0.6	0.9			9/4444	2.0	4/3095	1.3			9/3577	2.5			7/2359	3.0	10/3904	2.5	3/2015	1.8	1.2		
	2010	14/324	4.1	1/ 55	0.9	6/ 401	1.6	2/ 363	0.7	0.9			9/4124	^^ 2.2	9/2979	3.0			5/2972	1.7			2/2579	0.8	7/4639	1.6	3/1747	1.9	1.2	274/205628	13.3
Syosset Hospital	2009	2/ 88	2.8	0/ 26	* 0.0					0.5							0/ 579	* 0.0											0.0		
	2010	1/ 57	2.4	0/ 23	* 0.0					0.4							0/ 558	* 0.0											0.0	17/ 15370	11.1
TLC Lake Shore	2009	NA	NA	0/ 71	* 0.0					0.0							0/ 62	* 0.0											0.0		
	2010	NA	NA	0/ 63	* 0.0					0.0							0/ 85	* 0.0											0.0	5/ 7916	6.3
U Health Bing/Wilson	2009	8/170	5.0	2/ 225	1.0	5/ 245	2.3	3/ 208	2.1	1.1	1/2071	0.5	0/2254	* 0.0			1/ 655	1.5							3/ 95	^^33.9	2/ 74	^^32.8	0.8		
	2010	9/125	8.3	1/ 221	0.5	2/ 243	0.9	1/ 222	0.5	1.0	0/1625	* 0.0	1/2060	0.5			0/ 676	* 0.0							0/ 371	* 0.0	1/ 135	7.8	**0.3	25/ 71021	3.5
United Memorial	2009	2/ 28	7.1	2/ 84	2.4					1.7							0/ 572	* 0.0											0.0		
	2010	2/ 24	7.5	2/ 76	2.7					2.0							0/ 428	* 0.0											0.0	17/ 19956	8.5
Unity Hosp Rochester	2009	1/142	** 0.7	3/ 503	0.7					**0.3							3/3042	1.0											0.5		
	2010	0/144	** 0.0	9/ 499	^^ 2.4					0.9							0/2290	** 0.0											**0.0	57/ 65201	8.7
Univ Hosp Brooklyn	2009	2/ 46	4.1	0/ 58	* 0.0	1/ 78	1.0	1/ 78	0.9	0.6	0/ 370	* 0.0	2/1411	1.4			8/1987	^^ 4.0					0/ 382	* 0.0	0/ 678	* 0.0	1/ 391	1.9	1.2		
	2010	0/ 40	* 0.0	2/ 69	3.5	1/ 68	0.9	0/ 64	* 0.0	0.5	0/ 361	* 0.0	0/1080	* 0.0			0/2157	* 0.0					2/ 583	3.4	2/ 826	2.1	0/ 260	* 0.0	0.6	43/109373	3.9
Univ Hosp SUNY Upst.	2009	7/102	6.5	0/ 129	* 0.0	2/ 172	0.9	0/ 136	* 0.0	0.7	0/ 624	* 0.0	0/2159	* 0.0	4/3212	1.2	0/ 624	* 0.0	3/2593	1.2	1/1557	0.6	1/ 484	2.1					**0.4		
	2010	6/103	5.6	2/ 145	1.1	2/ 166	0.8	1/ 133	0.4	0.8	2/1198	1.7	4/2513	1.6	8/3999	2.0	0/ 570	* 0.0	1/2989	0.3	3/2201	1.4	1/ 796	1.3					0.8	106/113130	9.4
Univ Hosp StonyBrook	2009	7/134	4.8	2/ 206	0.7	2/ 298	0.6	0/ 270	* 0.0	**0.6	0/ 882	* 0.0	6/2075	2.9	8/2425	3.3			4/2244	1.8			1/ 859	1.2	10/1579	^^ 6.5	0/ 913	* 0.0	1.4		
	2010	11/159	5.8	0/ 230	* 0.0	2/ 346	0.6	0/ 308	* 0.0	0.6	0/1002	* 0.0	3/2007	1.5	0/1957	** 0.0			2/2732	0.7			0/ 983	* 0.0	2/1984	1.1	3/ 759	5.4	0.6	184/169588	10.8
Vassar Brothers	2009	1/ 87	1.1	5/ 88	^^ 4.7	1/ 321	** 0.3	0/ 305	** 0.0	**0.4	0/1299	* 0.0	0/1099	* 0.0			0/1740	** 0.0							0/ 206	* 0.0	1/ 191	5.0	**0.1		
	2010	2/ 92	2.2	0/ 63	* 0.0	1/ 271	** 0.3	0/ 260	* 0.0	**0.2	1/1226	0.8	0/ 919	* 0.0			0/1606	* 0.0							0/ 262	* 0.0	0/ 217	* 0.0	**0.1	73/ 91404	8.0
Westchester Medical	2009	9/109	7.4	1/ 128	0.5	7/ 444	1.6	4/ 433	0.8	0.9	0/ 696	* 0.0	5/2611	1.9	13/2910	^^ 4.5			5/1641	3.0	8/1399	^^ 5.7	3/1605	1.9	10/4485	2.2	1/1589	0.6	1.3		
	2010	4/108	3.2	0/ 114	* 0.0	13/ 362	3.8	2/ 346	0.6	1.1	2/ 674	3.0	1/3060	0.3	15/2882	^^ 5.2			5/1460	3.4	4/1603	2.5	6/1800	3.3	4/3611	1.1	1/1489	0.6	1.4	175/173196	10.1

Color key: *****Blue: significantly lower than state average*** ***^^Red: significantly higher than state average*** *Grey: not statistically different from state average* ****: Zero infections, not statistically significant***
NA: Fewer than 20 procedures or 50 line days reported Blank: No procedures or ICUs at hospital

Table 19 - Summary of Hospital-Acquired Infection Data, New York State 2009-10 (continued)

		Surgical Site Infections									Blood Stream Infections																		C. difficile	
		Colon		Hip		Coronary Artery Bypass Chest		Coronary Artery Bypass Donor		All SSI	Coronary ICU		Cardiothoracic ICU		Medical ICU		Medical Surgical ICU		Surgical ICU		Neurosurgical ICU		Pediatric ICU		Neonatal ICU				All BSI	Hospital Onset	
Hospital	Year	SSI/ procs	Adj. Rate	SSI/ procs	Adj. Rate	SSI/ procs	Adj. Rate	SSI/ procs	Adj. Rate	SIR	CLABSI/ CLDays	Rate	CLABSI/ CLDays	Rate	CLABSI/ CLDays	Rate	CLABSI/ CLDays	Rate	CLABSI/ CLDays	Rate	CLABSI/ CLDays	Rate	CLABSI/ CLDays	Rate	CLABSI/ CLDays	CLABSI Adj rate	UCABSI/ UCDays	UCABSI Adj rate	SIR	C.difficile/ patdays	Rate
State average	**2009**	**4.9**		**1.1**		**2.3**		**0.9**		**1.0**	**1.9**		**1.2**		**2.3**		**Teaching/Non 1.7/1.9**		**2.1**		**2.1**		**2.2**		**RPC/Lev3/Lev2-3 2.2/3.6/3.8**		**RPC/Lev3/Lev2-3 1.5/3.0/4.0**		**1.0**	**7.8**	
	2010	**4.5**		**1.0**		**2.1**		**0.8**		**1.0**	**1.7**		**1.0**		**1.9**		**Teaching/Non 1.0/1.5**		**1.4**		**2.0**		**1.9**		**RPC/Lev3/Lev2-3 1.7/2.9/4.8**		**RPC/Lev3/Lev2-3 1.7/1.5/1.7**		**1.0**	**8.2**	
Westchester Square	2009	1/ 58	1.7	0/ 29	* 0.0					0.3	2/ 518	3.9							0/ 786	* 0.0									0.8		
	2010	0/ 79	** 0.0	0/ 39	* 0.0					**0.0	5/ 632	^^ 7.9							0/ 775	* 0.0									2.3	55/ 44382	12.4
White Plains	2009	3/122	2.6	2/ 213	0.9					0.6							3/2211	1.4							0/ 139	* 0.0	0/ 55	* 0.0	0.6		
	2010	5/104	5.4	1/ 197	0.5					1.0							3/2488	1.2							2/ 296	6.4	0/ 65	* 0.0	1.1	57/ 77636	7.3
Winthrop University	2009	14/343	4.3	2/ 171	0.9	7/ 378	1.8	3/ 346	0.7	0.8					9/2302	3.9			15/4049	^^ 3.7	4/1578	2.5	0/ 476	* 0.0	1/1933	0.5	2/ 756	2.8	1.3		
	2010	11/319	3.5	2/ 198	0.7	10/ 316	3.1	3/ 303	0.9	1.0					5/2020	2.5			7/4414	1.6	3/ 859	3.5	0/ 264	* 0.0	0/1459	* 0.0	0/ 758	* 0.0	0.9	165/156169	10.6
Woman and Childrens	2009	0/ 38	* 0.0							0.0													6/3128	1.9	7/3975	1.8	2/1121	1.5	0.9		
	2010	0/ 22	* 0.0							0.0													4/2540	1.6	9/4170	2.2	3/1315	2.2	1.2	8/ 35575	2.2
Womans Christian	2009	3/ 66	4.8	2/ 108	1.8					1.2							2/1219	1.6											0.8		
	2010	4/ 71	6.2	0/ 80	* 0.0					1.0							2/1146	1.7											1.2	14/ 27261	5.1
Woodhull Medical	2009	2/ 48	3.9	NA	NA					0.8							14/4135	3.4							0/ 217	* 0.0	3/ 203	15.3	^^1.8		
	2010	3/ 53	4.8	0/ 22	* 0.0					0.9							13/4098	^^ 3.2							1/ 288	3.5	0/ 196	* 0.0	1.8	17/109308	1.6
Wyckoff Heights	2009	7/ 54	^^12.3	1/ 24	3.0					^^2.5							14/2360	^^ 5.9							0/ 209	* 0.0	0/ 167	* 0.0	^^2.5		
	2010	3/ 59	4.9	0/ 23	* 0.0												5/2185	2.3							3/ 264	12.2	0/ 232	* 0.0	1.9	40/ 84963	4.7
										1.0																					
Wyoming County Comm.	2009	0/ 22	* 0.0	0/ 25	* 0.0					0.0							0/ 123	* 0.0											0.0		
	2010	NA	NA	1/ 31	2.5					1.6							1/ 101	* 0.0											0.0	3/ 13941	2.2

Colon, hip, and CLABSI data reported as of June 30, 2010; CABG and *C. difficile* data reported as of July 18, 2011.

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, and laparoscope. CABG chest data adjusted using diabetes, body mass index, gender, end stage renal disease, COPD, peripheral artery disease, and duration. CABG donor data adjusted using body mass index, gender, congestive heart failure, COPD, diabetes, peripheral artery disease, and duration. Hip data adjusted using ASA score, duration, trauma, and type of procedure. SIR: Standardized Infection Ratio: compares observed number of colon, CABG, and hip infections to the statistically expected number of infections based on the NYS 2010 average, after adjusting for the risk factors listed above.

CLABSI notes: CLABSI: Central Line-Associated Blood Stream Infection; CLDays: Central Line Days. CLABSI data exclude cases in which multiple blood cultures were obtained, only one specimen was positive, the one positive was considered a contaminant and no treatment was given. UCABSI: Umbilical Catheter-Associated Blood Stream Infections; UC Days: Umbilical Catheter Days. Adult CLABSI rates are # infections per 1000 line days and no additional adjustment is performed since the data are stratified by ICU type. Neonatal CLABSI rates are adjusted by birth weight. SIR: compares observed number of CLABSI and UCABSI across ICUs to the statistically expected number of infections based on the NYS 2010 average infection rate in each ICU/birth weight group

C. difficile notes: *C. difficile:* Number of hospital-onset infections; Patdays = Inpatient days, excluding newborns and NICU; Rate is per 10,000 patient days

Each hospital-specific adjusted SSI and CLABSI rate should only be compared with the New York State average in that category in that year. *C. difficile* rates have not been risk-adjusted and should not be compared to state average.

Color key: *****Blue: significantly lower than state average*** ***^^Red: significantly higher than state average*** ***Grey: not statistically different from state average*** ****: Zero infections, not statistically significant***
NA: Fewer than 20 procedures or 50 line days reported Blank: No procedures or ICUs at hospital

Infection Prevention Resources

To measure the impact of mandatory HAI reporting on infection prevention personnel and programs, an infection prevention resource survey is conducted annually. 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:

1) acute care (AC) beds per one full-time-equivalent (FTE) infection preventionist; and
2) aggregate beds per one FTE IP – this 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 acute care bed; 1 dialysis facility = 50 acute care beds; 1 ambulatory surgery center = 50 acute care beds; 1 ambulatory clinic = 10 acute care beds; and a private physician's office = 5 acute care beds.

In 2010, the average FTE infection preventionist in NYS was responsible for 133 acute care beds or an aggregate measure equivalent to 250 AC beds. Staffing levels have been stable over the past three years (Figure 29).

Figure 29. Hospital Beds per One Full Time Equivalent Infection Preventionist in New York State, 2007-2010

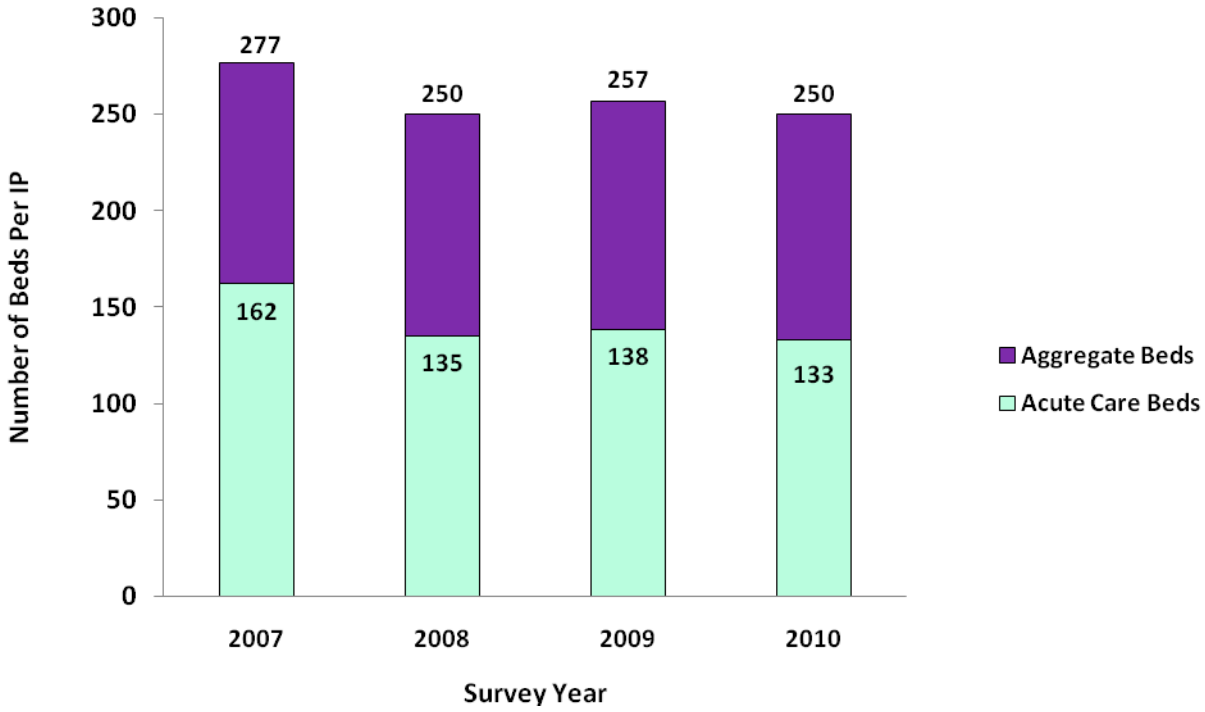
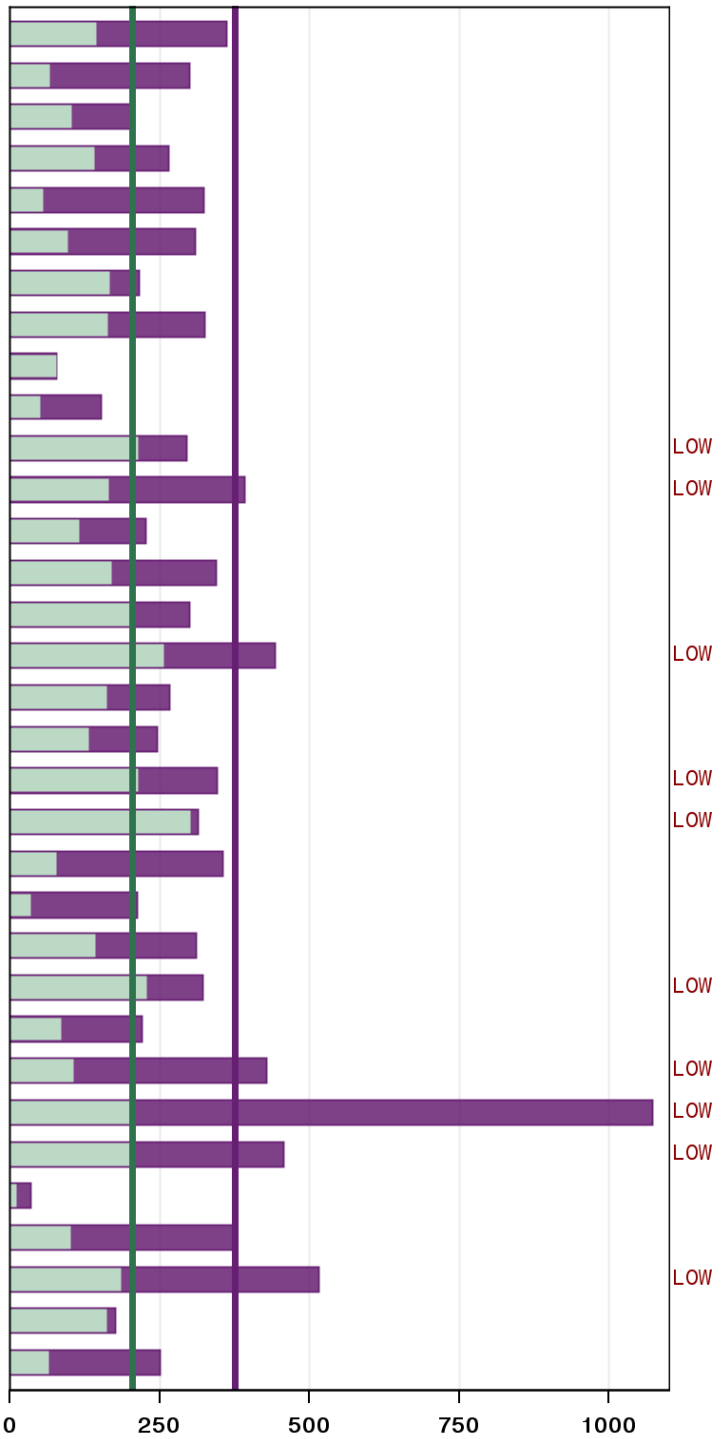


Figure 30 summarizes the staffing levels by hospital. Hospitals in the lowest 15th percentile using either infection prevention staffing measure were designated with a "**Low**" for low IP resources.

Figure 30. Infection Preventionist Personnel Resources in NYS Hospitals, 2010 (page 1 of 6)

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	0.7	100	143	243	347	
Adirondack Medical	0.8	52	65	188	235	
Albany Medical	6.0	608	101	635	106	
Albany Memorial	0.7	90	138	82	126	
Alice Hyde	1.0	53	53	271	271	
Arnot Ogden	2.3	219	95	492	214	
Auburn Memorial	0.6	99	165	30	50	
Bellevue Hospital	5.0	809	162	819	164	
Benedictine Hospital	2.0	150	75	5	3	
Bertrand Chaffee	0.5	24	48	52	104	
Beth Israel- Kings	1.0	212	212	82	82	LOW
Beth Israel- Petrie	5.0	814	163	1146	229	LOW
Bon Secours	0.7	80	114	78	111	
Bronx-Lebanon	3.0	504	168	526	175	
Brookdale Hospital	2.0	400	200	200	100	
Brookhaven Memorial	1.2	306	255	224	187	LOW
Brooklyn Downtown	2.2	350	159	235	107	
Brooks Memorial	0.5	65	130	58	116	
Buffalo General	1.6	339	212	214	134	LOW
Calvary Hospital	0.8	225	300	10	13	LOW
Canton-Potsdam	0.8	60	75	224	280	
Carthage Area	1.5	48	32	269	179	
Catskill Regional	0.9	127	141	152	169	
Cayuga Medical Center	0.9	204	227	86	96	LOW
Champlain Valley	2.2	185	84	299	136	
Chenango Memorial	0.5	52	104	162	324	LOW
Claxton-Hepburn	0.4	79	198	350	875	LOW
Clifton Springs	0.5	103	206	125	250	LOW
Clifton-Fine Hospital	0.6	5	8	16	26	
Cobleskill Regional	0.4	40	100	110	275	
Columbia Memorial	1.1	192	183	349	332	LOW
Community General	1.0	160	160	16	16	
Community Memorial	0.4	25	63	75	188	



Acute care beds per One FTE Infection Preventionist, state average is 133
Aggregate (acute and other) beds per One FTE Infection Preventionist, state average is 250
FTE = Full Time Equivalent; Add. Bed EQ = Additional Bed Equivalent; IP = Infection Preventionist; AC = Acute Care
The following equivalents were used: ICU bed = 2 AC beds; long term care bed = ½ an AC bed; dialysis facility = 50 AC beds; ambulatory surgery center = 50 AC beds; ambulatory clinic = 10 AC beds; and a private physician's office = 5 AC beds.
Vertical reference lines indicate low resources: below the 15th percentile in either Acute- or Aggregate- Beds Per FTE Measure.

Figure 30. Infection Preventionist Personnel Resources in NYS Hospitals, 2010 (page 2 of 6)

Hospital	FTE for IPs	Acute Care Beds	Acute Beds Per IP	Add. Bed EQ	Add. Bed EQ Per IP	LOW Resources Flag
Coney Island Hospital	4.5	363	81	967	215	
Corning Hospital	0.2	99	495	58	290	LOW
Cortland Reg Med	0.8	100	125	102	128	
Crouse Hospital	2.0	387	194	307	154	
Cuba Memorial	0.2	20	100	30	148	
DeGraff Memorial	0.5	74	148	64	128	
Delaware Valley	0.6	25	42	60	100	
EJ Noble Hospital	0.9	15	17	122	136	
Eastern Long Island	0.3	80	267	5	17	LOW
Elizabethtown	0.6	15	25	30	50	
Ellenville Regional	3.0	25	8	50	17	
Ellis Hospital	3.0	455	152	192	64	
Elmhurst	4.5	545	121	943	210	
Erie Medical Center	2.3	425	185	140	61	
FF Thompson Hospital	1.2	113	98	142	123	
Faxton - St. Lukes	2.7	250	94	342	129	
Flushing Hospital	2.5	293	117	215	86	
Forest Hills Hospital	1.5	249	166	88	59	
Franklin Hospital	1.5	225	150	116	77	
Geneva General	1.5	132	88	360	240	
Glen Cove Hospital	1.0	187	187	128	128	
Glens Falls Hospital	2.0	300	150	427	214	
Good Samaritan Suffern	2.0	250	125	181	91	
Good Samaritan W Islip	4.0	355	89	175	44	
Harlem Hospital Center	3.1	286	92	136	44	
Highland Hospital	2.4	261	109	162	68	
Hosp for Special Surg	2.9	162	56	70	24	
Hudson Valley	1.0	120	120	70	70	
Huntington Hospital	2.3	275	120	186	81	
Intercomm. Newfane	0.3	30	120	4	16	
Interfaith Medical	1.8	299	166	103	57	
Ira Davenport	0.3	12	40	66	218	
JT Mather	2.0	248	124	160	80	
Jacobi Medical	4.8	457	96	385	81	

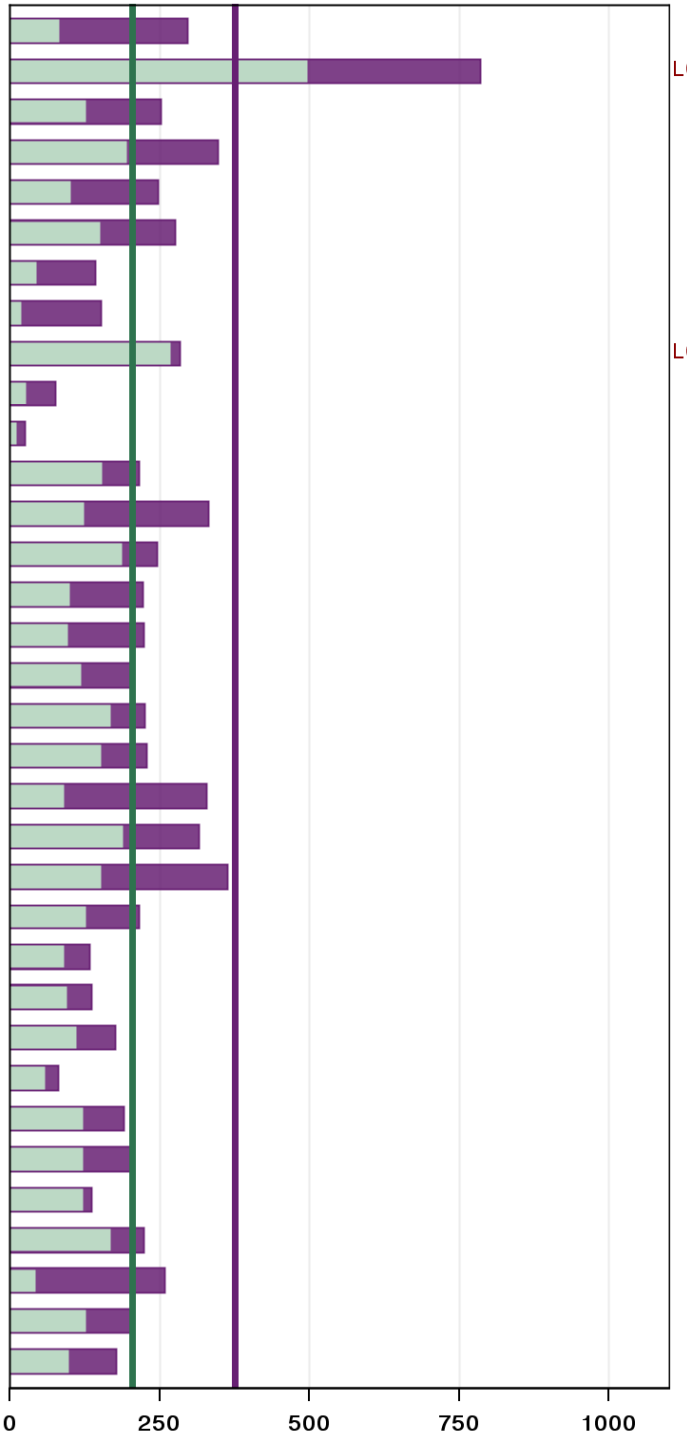


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Figure 30. Infection Preventionist Personnel Resources in NYS Hospitals, 2010 (page 3 of 6)

Hospital	FTE for IPs	Acute Care Beds	Acute Beds Per IP	Add. Bed EQ	Add. Bed EQ Per IP	LOW Resources Flag
Jamaica Hospital	2.5	423	169	417	167	
Jones Memorial	1.0	23	23	116	116	
Kenmore Mercy	1.0	152	152	156	156	
Kings County Hospital	3.0	534	178	1159	386	LOW
Kingsbrook Jewish	3.0	326	111	398	135	
Kingston Hospital	1.0	150	150	165	165	
Lakeside Memorial	1.0	61	61	107	107	
Lawrence Hospital	2.0	189	95	18	9	
Lenox Hill	2.0	467	234	216	108	LOW
Lewis County General	0.4	54	135	131	328	LOW
Lincoln Medical	3.6	369	103	730	203	
Little Falls Hospital	0.4	25	63	20	50	
Lockport Memorial	0.3	65	260	16	64	LOW
Long Beach Medical	1.0	95	95	108	108	
Long Island College	2.0	200	100	795	398	LOW
Long Island Jewish	5.5	880	160	170	31	
Lutheran Medical	3.0	407	136	32	11	
Maimonides	4.0	666	167	465	116	
Margaretville Hospital	0.6	8	13	60	100	
Mary Imogene Bassett	2.0	125	63	524	262	
Massena Memorial	0.8	50	67	144	192	
Medina Memorial	0.5	70	140	172	344	LOW
Mercy Hospital-Buffalo	2.0	344	172	170	85	
Mercy Medical Center	1.5	220	147	123	82	
Metropolitan	3.0	373	124	336	112	
Millard Fill. Gates	1.0	189	189	98	98	
Millard Fill. Suburban	1.5	270	180	20	13	
Montefiore-Einstein	2.4	390	166	303	129	
Montefiore-Moses	4.4	890	205	503	116	LOW
Montifiore-North	2.3	490	213	268	117	LOW
Moses-Ludington	0.5	7	16	105	233	
Mount Sinai Hospital	6.7	1002	151	511	77	
Mount Sinai Queens	1.6	192	120	128	80	

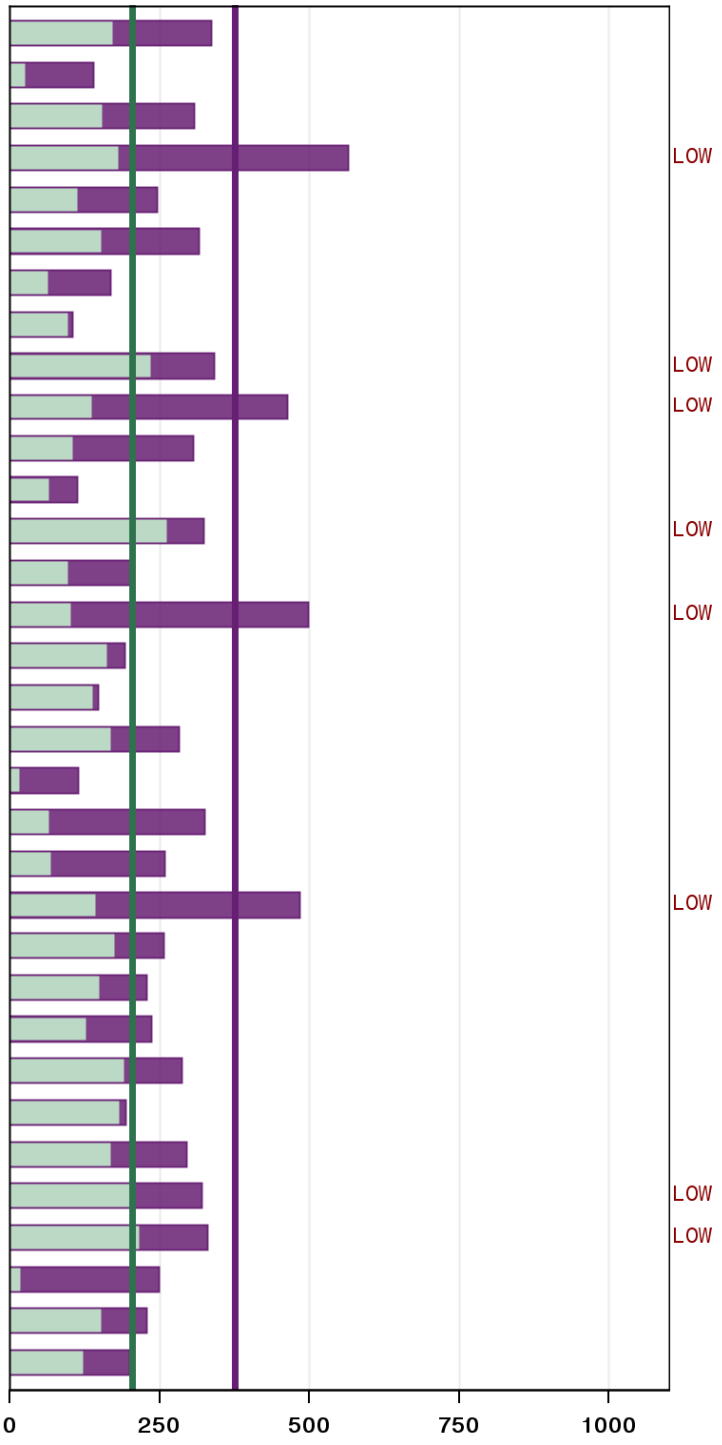

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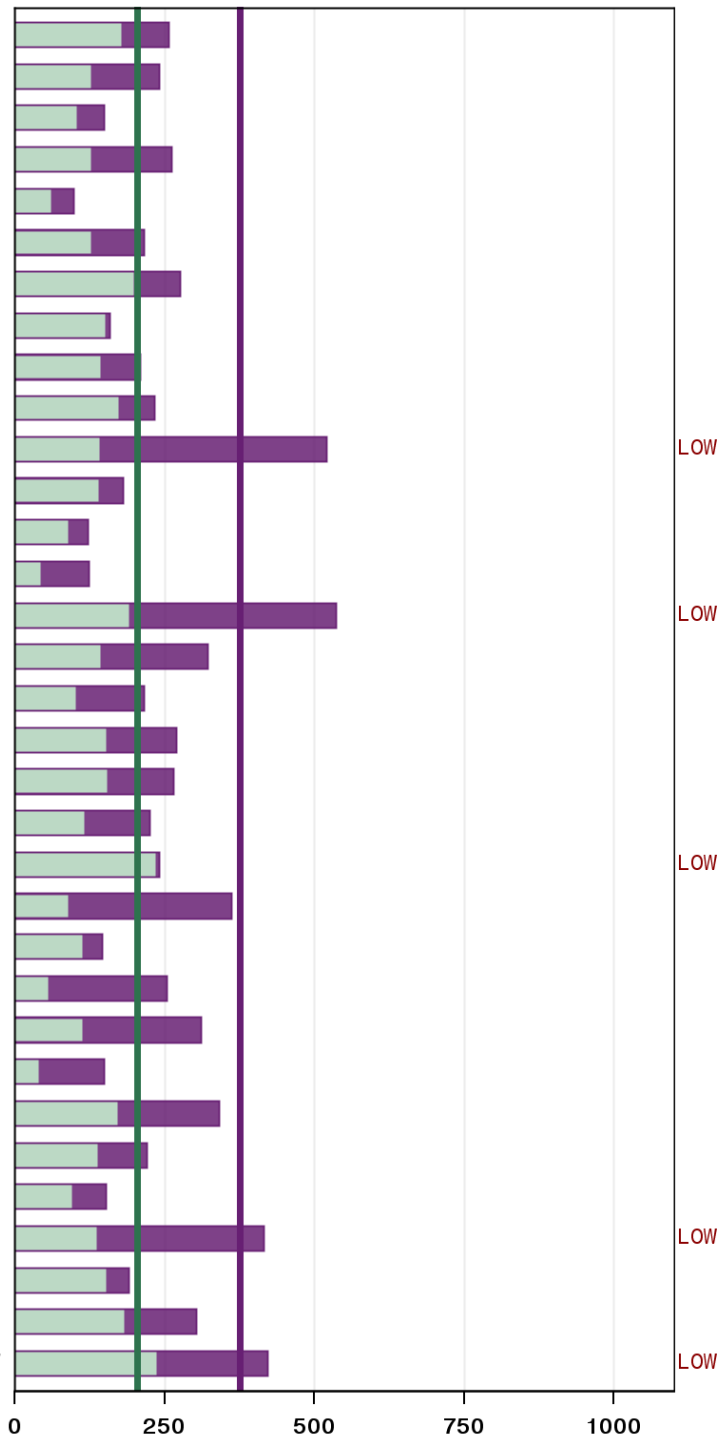
Figure 30. Infection Preventionist Personnel Resources in NYS Hospitals, 2010 (page 4 of 6)

Hospital	FTE for IPs	Acute Care Beds	Acute Beds Per IP	Add. Bed EQ	Add. Bed EQ Per IP	LOW Resources Flag
Mount St. Marys	1.0	175	175	82	82	
Mount Vernon	1.0	125	125	115	115	
NY Community Brooklyn	1.2	122	102	57	48	
NY Downtown	1.0	125	125	136	136	
NY Eye And Ear	1.0	58	58	40	40	
NY Med Ctr Queens	3.9	489	125	351	90	
NY Methodist	3.0	591	197	236	79	
NYP- Allen	1.4	201	149	12	9	
NYP- Columbia	7.0	981	140	484	69	
NYP- Weill Cornell	5.0	857	171	303	61	
NYU Joint Diseases	1.1	146	139	400	381	LOW
NYU Medical Center	5.0	684	137	221	44	
Nassau University	5.0	430	86	178	36	
Nathan Littauer	1.8	74	41	149	83	
Newark Wayne	0.3	47	188	87	348	LOW
Niagara Falls	1.0	140	140	182	182	
North Central Bronx	2.3	223	99	262	116	
North General	1.0	150	150	120	120	
North Shore	5.4	815	152	603	113	
Northern Dutchess	0.6	68	113	67	112	
Northern Westchester	1.0	232	232	9	9	LOW
Noyes Memorial	0.5	43	86	138	276	
Nyack Hospital	2.0	220	110	72	36	
O'Connor Hospital	0.3	16	53	60	200	
Olean General	0.9	100	111	179	199	
Oneida Healthcare	1.1	40	38	116	110	
Orange Reg- Goshen	0.7	110	169	112	172	
Orange Reg- Middletown	1.4	183	136	114	84	
Oswego Hospital	1.5	140	93	88	59	
Our Lady of Lourdes	1.0	135	135	280	280	LOW
Peconic Bay Medical	1.0	150	150	40	40	
Peninsula Hospital	1.0	180	180	122	122	
Phelps Memorial	1.0	235	235	187	187	LOW



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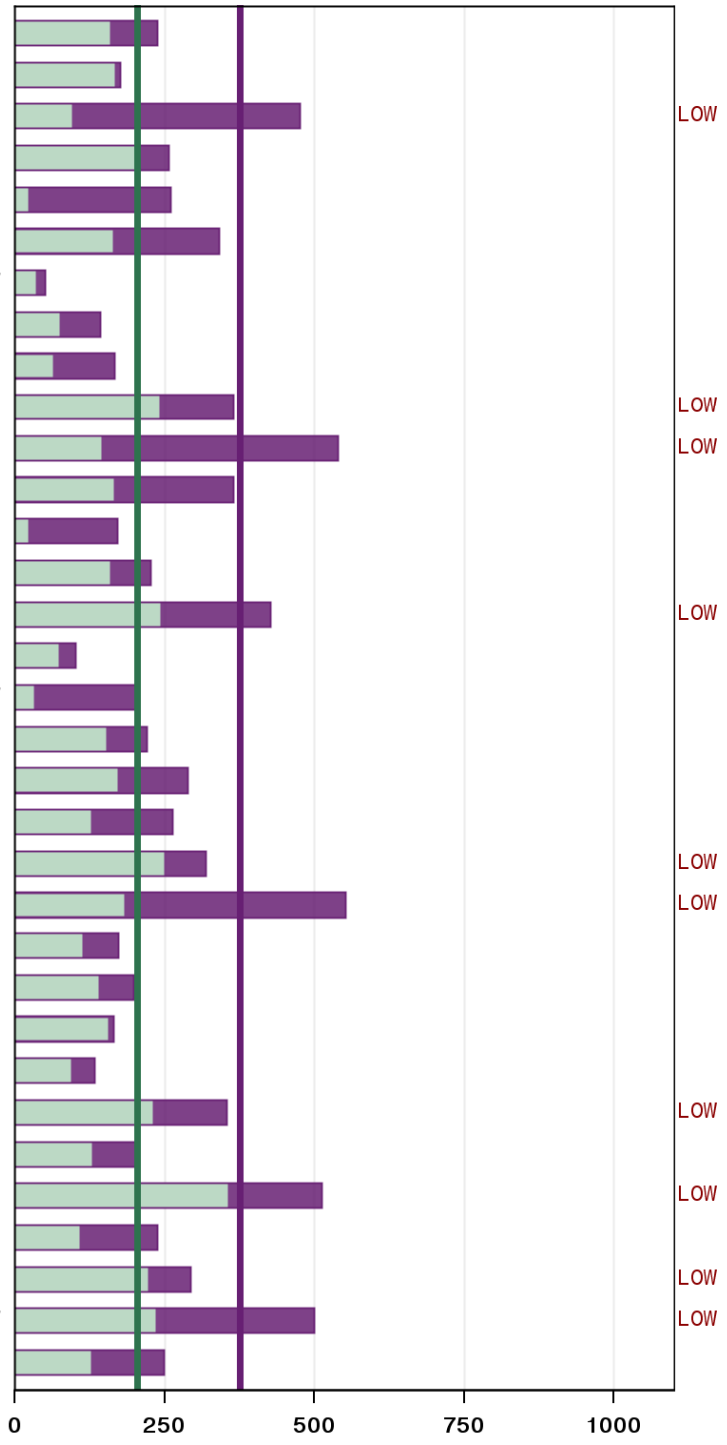
Hospital	FTE for IPs	Acute Care Beds	Acute Beds Per IP	Add. Bed EQ	Add. Bed EQ Per IP	LOW Resources Flag
Plainview Hospital	1.5	235	157	121	81	
Putnam Hospital	1.0	165	165	10	10	
Queens Hospital	3.0	279	93	1150	383	LOW
Richmond Univ	2.5	510	204	131	52	
River Hospital	0.3	5	20	60	240	
Rochester General	3.3	525	162	583	179	
Rockefeller University	0.6	20	33	10	17	
Rome Memorial	1.8	126	72	123	70	
Roswell Park	2.0	123	62	210	105	
Samaritan- Troy	0.7	155	238	82	126	LOW
Samaritan- Watertown	1.0	142	142	398	398	LOW
Saratoga Hospital	1.0	163	163	202	202	
Schyuler Hospital	0.8	15	20	113	151	
Seton Hlth- St Mary's	1.3	196	157	87	70	
Sisters of Charity	1.0	240	240	186	186	LOW
Sloan Kettering	7.0	490	70	220	31	
Soldiers And Sailors	1.2	35	29	212	177	
Sound Shore Medical	1.0	150	150	70	70	
South Nassau Comm.	2.0	340	170	237	119	
Southampton Hospital	1.0	125	125	138	138	
Southside Hospital	1.5	371	247	106	71	LOW
St Anthony Community	0.3	45	180	93	372	LOW
St Barnabas Hospital	4.1	450	110	256	62	
St Catherine of Siena	2.3	311	138	133	59	
St Charles Hospital	1.5	231	154	16	11	
St Elizabeth Medical	2.2	201	91	90	41	
St Francis-Poughkeeps.	1.0	228	228	125	125	LOW
St Francis-Roslyn	2.6	329	127	195	75	
St James Mercy	0.5	177	354	79	158	LOW
St Johns Episcopal	2.0	212	106	263	131	
St Johns Riverside	1.9	407	220	136	74	LOW
St Joseph- Bethpage	0.5	105	233	120	267	LOW
St Joseph- Cheektowaga	1.0	125	125	124	124	



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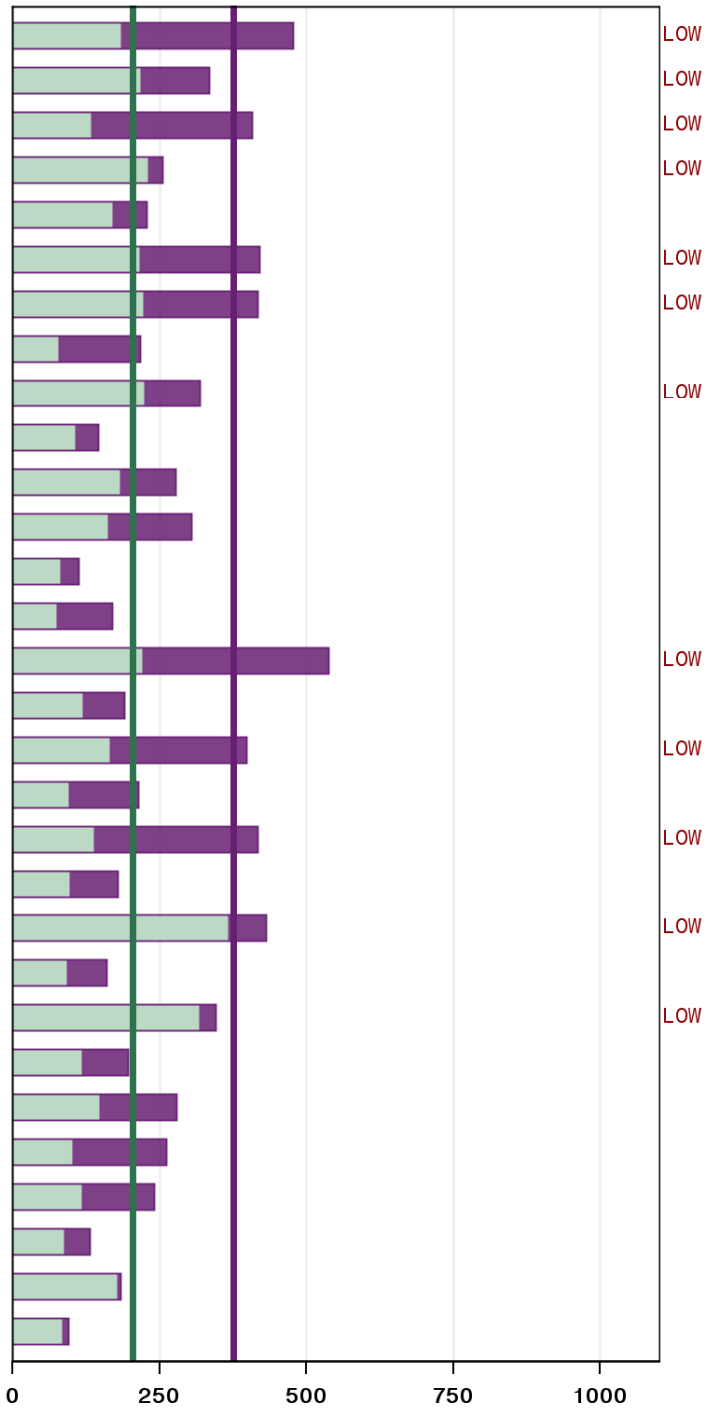
Hospital	FTE for IPs	Acute Care Beds	Acute Beds Per IP	Add. Bed EQ	Add. Bed EQ Per IP	LOW Resources Flag
St Josephs- Elmira	0.5	91	182	148	296	LOW
St Josephs- Syracuse	2.0	431	216	238	119	LOW
St Josephs- Yonkers	1.0	131	131	276	276	LOW
St Lukes - Cornwall	0.6	125	227	15	27	LOW
St Lukes - Newburgh	1.5	242	167	88	61	
St Lukes- Roosevelt	1.5	320	213	310	207	LOW
St Lukes- St Lukes	1.5	330	220	295	197	LOW
St Marys Amsterdam	1.1	80	76	147	140	
St Peters Hospital	2.0	442	221	195	98	LOW
Staten Island U-North	5.0	522	104	201	40	
Staten Island U-South	1.0	181	181	96	96	
Strong Memorial	4.6	735	160	666	145	
Syosset Hospital	1.0	79	79	33	33	
TLC Lake Shore	0.6	40	73	53	96	
U Health Bing/Wilson	2.0	437	219	638	319	LOW
United Memorial- North	1.0	111	117	70	74	
Unity Hosp Rochester	2.0	327	164	470	235	LOW
Univ Hosp Brooklyn	4.0	365	92	480	122	
Univ Hosp SUNY Upst.	3.0	409	136	841	280	LOW
Univ Hosp StonyBrook	6.0	566	94	508	85	
Vassar Brothers	1.0	365	365	67	67	LOW
Westchester Medical	6.1	549	90	424	70	
Westchester Square	0.7	205	315	20	31	LOW
White Plains Hospital	2.0	230	115	161	81	
Winthrop University	4.0	581	145	534	134	
Woman and Childrens	2.0	200	100	324	162	
Womans Christian Assoc	1.0	115	115	125	125	
Woodhull Medical	4.0	337	84	188	47	
Wyckoff Heights	2.0	350	175	16	8	
Wyoming County Comm.	0.6	45	82	7	13	



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NYSDOH-Funded HAI Prevention Projects

HAI Prevention Projects began in FY 2008-2009 and continued in FY 2009-2010 and FY 2010-2011. There is continued funding in FY 2011-2012.

On August 22, 2007, the NYSDOH issued a Request for Applications (RFA) from non-profit health care organizations to develop, implement and evaluate strategies to reduce or eliminate targeted hospital-acquired infections. To be eligible, each applicant had to obtain the collaboration and commitment of at least five participating hospitals. The HAI reporting program is responsible for the evaluation, selection and oversight of the projects.

Continuum Health Partners, New York City, FY 2010-2011 - $184,240

Year three of this project focused on the reduction of hospital acquired CLABSIs in patients with a specific type of central line referred to as a peripherally inserted central catheters (PICC). PICCs are inserted in the hospital but patients often leave the hospital with these catheters still in place. This collaborative was conducted in five acute care hospitals in New York City. This infection prevention collaborative has achieved the following:

- Established base line PICC infection rates in each hospital, which range from 0.8 to 2.4 per 1000 PICC line days.
- Compliance with using the PICC insertion check list was 98% and ranged in each hospital from 92% to 100%.
- Introduction of a PICC maintenance bundle compliance overall was 95% and ranged in each hospital from 91% to 98%.
- Developed an instructional DVD for patients and staff on the care and maintenance of the PICC line and skin insertion site. This DVD was produced in several languages. The instructional DVD will be evaluated for its effectiveness in further reducing PICC CLABSIs as part of year four funding.

North Shore University Hospital, FY 2010-2011 - $184,240

This project was designed to evaluate MRSA transmission, the effect of prevention measures and rapid MRSA detection technology, and strain typing of isolates. This collaborative involves three community hospitals and one university teaching hospital. Year three focused on (1) reducing MRSA acquisition by continuing to evaluate the impact of a daily bath using a chlorhexidine gluconate (CHG) impregnated wash cloth for ICU patients who have MRSA (either with no symptoms or with an infection) and who have a central line and (2) use MRSA

strain typing methods to assess the impact of only placing on contact isolation precautions those patients who have symptoms of infection with MRSA.

- DNA fingerprinting identified that the most common MRSA strains were associated with the community rather than hospital strains.
- Since 2008, implementation of a daily bath using a CHG-impregnated wash cloth for each ICU patient who have MRSA (either with no symptoms or with an infection) and who have a central line has reduced hospital acquisition by more than 50%.
- DNA fingerprinting did not demonstrate an increased hospital MRSA transmission rate when patients who had MRSA, but no symptoms of infection, were not placed routinely on contact precautions.

University of Rochester School of Medicine & Dentistry, FY 2010-2011 - $184,240

This project was designed to reduce central line-associated bloodstream infections outside the ICU using evidence-based protocols for central line insertion and care. Six facilities are part of this Rochester Infection Prevention group: a tertiary care hospital, a large community hospital, a university hospital and three community hospitals. The project includes thirty-seven nursing units from these six facilities. Year three's focus was to monitor sustainability of reduced CLABSIs in non-ICU patient care locations.

Findings and accomplishments:

- CLABSI rate prior to prevention initiatives was 2.9 per 1,000 lines and with interventions was reduced to 1.6 per 1,000 line days.
- The use of a central line care maintenance protocol has led to a decrease of CLABSI on the general medical wards and specialty care units.
- The continued use of an educational teaching module is an important component to maintaining focus on efforts to reduce the CLABSI rate to zero.
- Establishing innovative infection control practices requires a "culture change."

Westchester County Healthcare Corporation, FY 2010-2011 - $184,240

This three-year project involving five hospitals was designed to reduce the incidence of hospital-associated bloodstream infections (BSI) in ICUs and respiratory care patients. The five hospital study in the five ICU and one respiratory care unit evaluated the impact of daily CHG bathing on healthcare-associated bloodstream infections and blood culture contaminants. The following results were identified:

- During the third year of the collaborative, reductions continued to be realized for health care associated bloodstream infections and CLABSI (2.5 to 2.3 per 1000 CL

days), blood culture contaminants (1.0 to 0.2 per 1000 patient care days) and infections with multidrug-resistant organisms (MDROs) (4.0 to 3.1 per 1000 patient care days).

- CHG bathing continued to have minimal risk and was well tolerated by patients.
- An internet-based education module, based on that developed by the Rochester CLABSI collaborative, was implemented and required for all professional medical staff responsible for insertion, maintenance and accessing of CLs.

Lessons Learned

The NYSDOH and hospitals, through annual on-site audits, monthly data checks, newsletters, and regional conference calls, have learned the following important lessons regarding HAI reporting:

- The NHSN continues to be a useful tool in monitoring the infection rates and the effectiveness of prevention strategies.
- Surveillance lessons:
  - Strict adherence to the surveillance definitions is critical to provide consistency and comparability of data across hospitals.
  - The majority of severe SSI infections are detected during the initial hospitalization or upon readmission rather than by post-discharge surveillance methods.
  - The new 2009 NHSN *C. difficile* Lab ID protocol is a reliable method for hospitals to track *C. difficile* rates. Different laboratory *C. difficile* testing practices may influence an individual hospital's rates. NHSN data does not provide potential risk factors to allow risk-adjustment to compare rates between hospitals. The impact of CO-PMH *C. difficile* infections on hospital rates is not certain because it cannot be determined whether *C. difficile* infection occurred as a result of the recent hospitalization or was related to other exposures outside of the hospital.
  - Timely and complete data submission has improved but can be affected by infection control staffing turnover and vacant positions. Hospitals need to continue to provide back-up personnel to ensure compliance with reporting requirements and patient safety.
  - As new HAI indicators are mandated for reporting, hospitals need to integrate health information technology systems to support infection prevention and reporting efforts. For example, only 30 percent of hospitals continue to utilize the NHSN electronic importing process for surgical procedure data from existing operating room data systems. Despite recommendations to hospital administration, the remaining 70 percent of hospitals continue to manually enter this data into the NHSN.
  - NYS conducts intensive on-site hospital audits to assure complete and accurate reporting of HAIs. These audits have resulted in improved understanding and consistency in meeting reporting mandates.

- At the present time, only five other states conduct audits on CLABSI rates, two on SSIs and none on *C. difficile*. All of the states conducting audits have higher rates of CLABSI when compared to national data. Unless or until other states have the same extensive audit processes, comparisons with national rates may be misleading.
- Using the 2007 CPI for inpatient services, reduction of HAIs since 2008 has resulted in an estimated cost savings of between $7.9 million to $23.1 million for SSIs and $7.3 million to $29.4 million for CLABSIs in NYS.

Next Steps

The NYSDOH will work to improve HAI reporting and infection prevention efforts including taking the following actions:

- Integrate the hospital-specific infection rates into the NYSDOH's hospital profile web site.
- Continue to monitor the accuracy and timeliness of data being submitted, discuss findings, and ensure corrective action is taken.
- Continue to conduct on-site audits to evaluate surveillance methods, enhance surveillance definitions, and assess completeness and accuracy of reporting.
- Continue to provide education, training, and ongoing support to hospital infection reporting staff.
- Evaluate and monitor the effect of prevention practices on infection rates.
- Evaluate the relationship between infection prevention personnel resources and surveillance activities, reporting accuracy, and prevention projects.
- Collaborate with other NYSDOH staff to investigate outbreaks and evaluate emerging trends.
- Consult with infection preventionists, hospital epidemiologists, surgeons, and the Cardiac Advisory Committee to identify risk factors and prevention strategies to reduce HAIs.
- Monitor HAI prevention projects for compliance with program objectives, fiscal responsibility and potential applicability to other hospitals or healthcare settings.
- Continue to work with the TAW to monitor, evaluate, and select mandatory reporting indicators; evaluate system modifications; identify and evaluate risk factors; refine methods of risk adjustment; and refine presentation of the data.

HAI Reporting Indicators for 2012

The NYSDOH will continue to require the same HAI reporting indicators in 2012 that were reported in 2011. In addition, inpatient total abdominal hysterectomies as identified in the NHSN surgical procedure patient safety protocols will be required, and results for 2012 will be reported in the 2012 public report to be released in 2013.

Appendix 1: List of Abbreviations

AC – Acute Care
ASA – American Society of Anesthesiologists' Classification of Physical Status
ASP – Antimicrobial Stewardship Program
BSI – Bloodstream Infection
CABG – Coronary Artery Bypass Graft Surgery
CDC – Centers for Disease Control and Prevention
C. difficile- Clostridium difficile
CEOs – Chief Executive Officers
CHF – Congestive Heart Failure
CI – Confidence Interval
CL – Central Line
CLABSI – Central Line Associated Bloodstream Infection
CNS – Coagulase Negative Staphylococcus
CO-Community Onset
CO-NMH – Community Onset Not My Hospital
CO-PMH – Community Onset Possibly My Hospital
CPI – Consumer Price Index
CSRS – Cardiac Surgery Reporting System[8]
DIP – Deep Incisional Infection at the Primary Surgical Site (for CABG procedures, this would be the chest site)
DIS – Deep Incisional Infection at the Secondary Surgical Site (for CABG procedures, this would be the donor vessel site)
DOH – New York State Department of Health
DU- Device Utilization
FTE – Full-Time Equivalent
GNYHA – Greater New York Hospital Association
HA- Hospital Associated
HAI – Hospital-Acquired Infection
HE – Hospital Epidemiologist
HO- Hospital Onset
IC – Infection Control
ICD-9 – International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM)
ICP – Infection Prevention and Control Specialist
ICU – Intensive Care Unit
IP – Infection Preventionist
IT – Information Technology
LCBI – Laboratory Confirmed Bloodstream Infection
MDRO – Multi-Drug Resistant Organism
MRSA – Methicillin-Resistant *Staphylococcus aureus*
MSSA – Methicillin-Sensitive *Staphylococcus aureus*
NICU – Neonatal Intensive Care Unit

NHSN – National Healthcare Safety Network
NYS – New York State
NYSDOH – New York State Department of Health
OR – Operating Room
OR – Odds Ratio (statistical term)
OS – Organ Space Infection
PDS – Post-Discharge Surveillance
PHL – Public Health Law
RPC – Regional Perinatal Center (Level IV – highest level of NICU care)
SHEA – Society for Healthcare Epidemiology of America
SIP – Superficial Incisional Infection at the Primary Surgical Site (for CABG procedures, this would be the chest site)
SIR – Standardized Infection Ratio
SIS – Superficial Incisional Infection at the Secondary Surgical Site (for CABG procedures, this would be the donor vessel site)
SPARCS - Statewide Planning and Research Cooperative System[7]
SSI – Surgical Site Infection
TAW – Technical Advisory Workgroup
UC – Umbilical Catheter
UCABSI – Umbilical Catheter-Associated Blood Stream Infection
VAP – Ventilator-Associated Pneumonia
VRE – Vancomycin-Resistant Enterococci

Appendix 2: Glossary of Terms

Active Surveillance: A system used by a trained infection preventionist (IP) to look for infections during a patient's hospital stay. A variety of tools are used to identify infections and determine if they are related to the patient's hospital stay or if an infection was present on hospital admission. These tools may include, but are not limited to, information from laboratory, radiology, operation, pharmacy reports and nursing care units and/or patient treatment areas.

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.

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.

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. 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 for patients in an ICU or a NICU. 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**.** Overgrowth of *C. difficile* in the bowel, sometimes resulting from a

patient's taking antibiotics, or touching their mouth after coming in contact with contaminated environmental surfaces or patient care items, allows this bacterium to produce a toxin in the bowel causing infection symptoms, which range from mild to severe diarrhea and in some instances death.

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-Not-My-Hospital (CO-NMH): Documented infection occurring within 3 days of hospital admission or more than 4 weeks after discharge from the same hospital Not associated with being acquired while hospitalized.

Community Onset-Possibly-My-Hospital (CO-PMH): Documented new infection within three days of readmission to the same hospital when a discharge from the same hospital occurred within the last four weeks.

Confidence Intervals: The confidence interval for a hospital's infection rate is the range of possible rates within which there is a 95% confidence that the real infection rate for that hospital lies, given the number of infections and procedures that were observed in that hospital in a specific time period.

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.

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 By-pass 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 Cut Point: The cut point of an operation is the typical time between skin incision (cut) and stitching or stapling the skin closed. The duration cut point is the time assigned to that type of surgical operation procedure. Infection risks may increase because of a longer than expected surgical procedure time.

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. It is termed "hospital onset" if the documented new infection occurs during the hospital stay and prior to discharge from the hospital.

Infection control / prevention processes: These are routine measures to prevent infections that can be used in all healthcare settings. These steps or principles can be expanded to meet the needs of specialized types of hospitals. 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 typically 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 specialty ICUs 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.

National Healthcare Safety Network (NHSN): This is a standardized data reporting system that NYS hospitals must use to identify and report select HAIs and enter required data on uninfected patients. NHSN is a secure, internet-based surveillance (monitoring and reporting) system. 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 and newborns under the supervision of a neonatologist.
- **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.

NHSN Patient Safety Protocol Manual: This document contains standardized definitions and data collection methods that are essential for consistent, fair reporting of hospital infection rates.

Obesity: Obesity, defined as greater than 20% of a person's ideal body weight, 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.

Operative Procedure: An operation that takes place during one single trip to the operating room (OR) where a surgeon makes at least one incision (cut) through the skin or mucous membrane, and stitches or staples the incision before the patient leaves the OR.

Outcome Data: HAI outcome data are derived from reports based on data submitted by NYS hospitals into the NHSN. NHSN is a secure, internet-based surveillance (monitoring and reporting) system.

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.

- **Blood Stream Infections:** Raw rate is the number of infections (the numerator) divided by the number of line days (the denominator) or the number of umbilical catheter days (denominator) then multiplied by 1000 to give the number of infections per 1000 line days or per 1000 umbilical catheter days.
- **Surgical Procedures:** 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.

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:

- For surgical site infections, the risk-adjusted rate is based on a comparison of the actual (observed) rate and the rate that would be expected if, statewide, the patients had the same distribution of risk factors as the hospital.
- For CLABSIs, the adjusted rate is a comparison of the actual rate and the expected rate based on statewide rates for each ICU or within birth weight categories for neonates.

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 Incidence Ratio (SIR): The SIR compares infection rates in one population (such as NYS) with infection rates in a standard population (such as the entire United States), after adjusting for risk factors that might affect the chance of developing an infection. The SIR is the actual number of infections in the smaller group (i.e. a hospital), divided by the number of infections that would be statistically expected if the standard population (i.e. NYS) 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.

Surgical Implant: A nonhuman-derived object, material, or tissue that is permanently placed in a patient during an operation. Examples include: heart valves, metal rods, mesh, wires, screws, cements, hip replacements and other devices.

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

Surgical Site Infection (SSI) Rate: Surgical site infection rates per 100 operative procedures are found by dividing the number of SSIs by the total number of specific operative procedures within a given reporting period. The results are then multiplied by 100. These calculations are performed separately for each type of surgical procedure.

Surgical Site Infection (SSI) Risk Index: This is a score used to predict a patient's risk of acquiring a surgical site infection. The risk index score, ranging from 0 to 3, reveals how many of these risk factors are present: the anesthesiologist has given the patient an American Society of Anesthesiologists' (ASA) physical status score of 3, 4, or 5 (see "ASA score" above); the operation site is determined to be contaminated or dirty / infected at the time of the procedure and the operation lasts longer than expected (the duration cut point time).

Umbilical Catheter: A small thin tube that is inserted through the umbilical blood vessel in a newborn.

Umbilical Catheter Days (Device Days): Total number of days umbilical catheters are present in newborns in a NICU. The count is performed at the same time each day. Each newborn with both an umbilical catheter and a central line is counted as one umbilical catheter day.

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 3: 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.

1) Point of entry checks - The NHSN is a web-based data reporting and submission 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.
2) Monthly checks for internal consistency - Each 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.
3) Annual on-site audits - On-site audits of a sample of medical records are conducted by the NYSDOH to assess compliance with reporting requirements. The purposes of the audit are to:
    a. Enhance the reliability and consistency of applying the surveillance definitions;
    b. Evaluate the adequacy of surveillance methods to detect infections; and
    c. Evaluate intervention strategies designed to reduce or eliminate specific infections.

    When data inconsistencies are identified, discrepancies are discussed and data modified by the hospitals as needed. Ongoing monitoring, education and training have been and continue to be provided to ensure the integrity of the data. In 2010, 129 of 177 hospitals (73%) were audited. In 2009, 91% were audited. (The decline in 2010 was the result of staffing shortages.)
4) Checks for completeness in reporting - NYS HAI staff match the NHSN data to other NYSDOH data sets to assess the completeness of the data reported to the NHSN. The other databases include the Cardiac Surgery Reporting System[8] (CSRS) and Statewide Planning and Research Cooperative System[7] (SPARCS).
    a. NHSN CABG data are linked to the 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.

b. NHSN colon and hip data are linked to the 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.

Summary of Rates by HAI Type Included in this Report

Colon, hip, and CLABSI data were downloaded from the NHSN on June 30, 2011. CABG and *C. difficile* data were downloaded on July 18, 2011. There have been small changes to the 2009 data since the publishing of the 2009 report. These changes are due to ongoing auditing of the 2009 data. In addition, for CABG chest and hip SSI data, some SSIs may occur and not be identified for up to one year following the initial procedures, thus a small percentage of these infections are reported by the date of data download. For these reasons, the 2009 hospital HAI rates have been recalculated and updated in this report. There were minor changes in the previously reported 2009 rates for colon, hip, CABG-chest SSIs and coronary, medical, medical/surgical teaching and NICU CLABSI, Table 20 summarizes the changes.

Table 20. Comparison of 2009 NYS HAI Rates Published in 2009 Report and Updated in 2010 Report

	Original	Updated	% change
Colon SSI	5.32	5.36	0.9%
Hip SSI	1.20	1.24	3.2%
CABG chest SSI	2.28	2.34	2.6%
CABG donor SSI	1.04	1.04	0.0%
Cardiothoracic ICU CLABSI	1.29	1.29	0.0%
Coronary ICU CLABSI	1.85	1.87	1.1%
Medical ICU CLABSI	2.30	2.32	0.9%
Medical-Surgical Teaching ICU CLABSI	1.70	1.70	0.0%
Medical-Surgical Non-Teaching ICU CLABSI	1.93	1.97	1.9%
Neurosurgical ICU CLABSI	2.13	2.13	0.0%
Pediatric ICU CLABSI	2.26	2.26	0.0%
Surgical ICU CLABSI	2.13	2.13	0.0%
NICU CLABS	2.62	2.63	0.6%
NICU UCABS	2.17	2.17	0.0%

Rates are based on NHSN definitions, which include post-discharge surveillance SSI cases and CLABSI contaminants

Thresholds for Reporting Hospital-Specific Infection Rates

Only hospitals that perform the selected surgical procedures or provide ICU care are required to report the designated indicator data and HAIs. 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 of central lines 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 and UCABSIs there must be a minimum of 50 central (or umbilical) 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.

Statistical Tests to Detect HAI Indicator Trends over Time

The Cochran-Armitage test for trend was used to test for a significant linear trend in the average NYS surgical site infection rates between 2007 and 2010. Poisson regression was used to test for a significant trend in average CLABSI rates between 2007 and 2010.

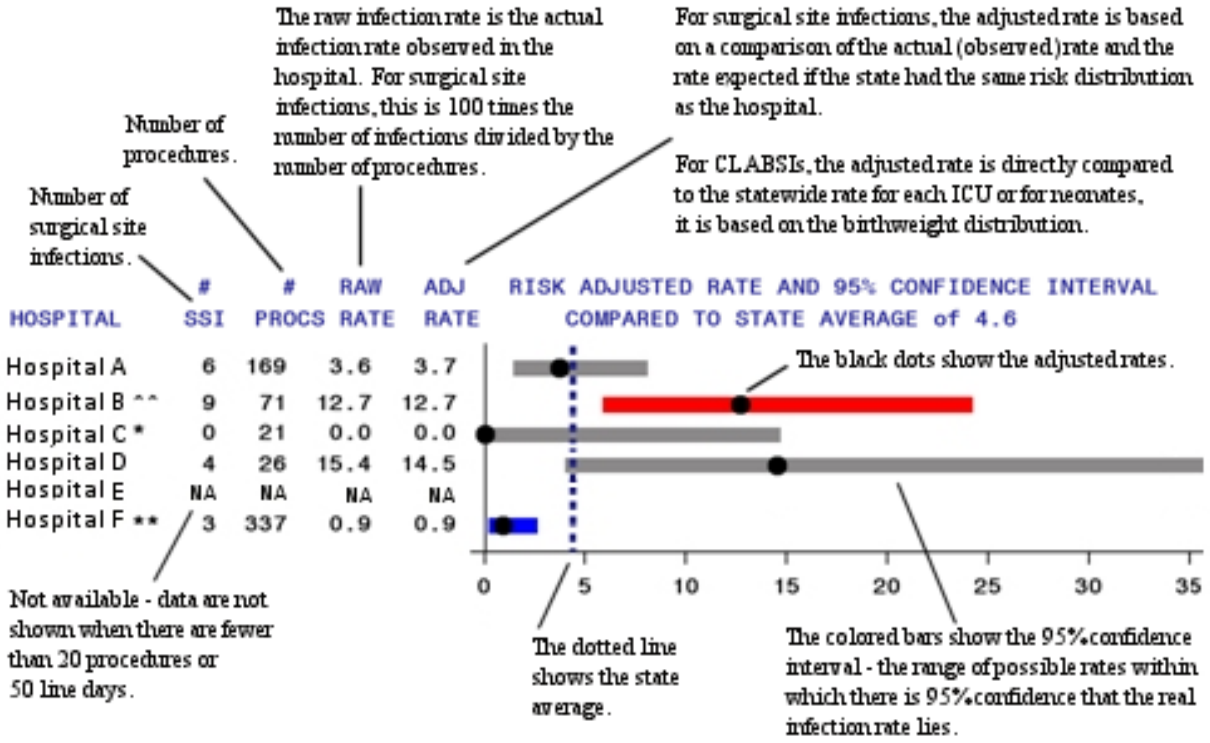
Risk Adjustment

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 provider has a higher infection rate than expected on the basis of its patient mix. If it is smaller than one, the provider 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 versions 9.1 or 9.2 (SAS Institute, Cary NC). Figure 31 provides an example of how to interpret the hospital-specific infection rate tables.

Figure 31. How to Read Hospital-Specific Infection Rate Tables



- 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

Similar risk adjustment techniques were used to compare NYS average infection rates to national infection rates. In this case, NYS data was stratified into risk groups identical to those published in national reports. Within each risk group, the observed number of infections in NYS was compared to the expected number based on the national rates. The observed and expected numbers of infections were added across all the risk groups, and then the total number of observed infections was divided by the total number of expected infections to give an overall SIR.

Notes

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Technical Advisory Workgroup (TAW)

The TAW is made up of a panel of professionals representing state and nationally-recognized experts in the prevention, identification and control of HAIs and the public reporting of performance data as prescribed in the legislation. This group plays a critical role in the selection of reporting indicators, the evaluation of system modifications, the evaluation of potential risk factors, methods of risk adjustment and presentation of the hospital-identified data. The TAW met twice a year in 2006-2008, once in 2009; twice in 2010.

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