HEALTHCARE-ASSOCIATED INFECTIONS TOPPED 13,000 FOR LATEST REPORTING PERIOD

On January 12, 2010, the Pennsylvania Department of Health released a lengthy report, indicating that in the Commonwealth of Pennsylvania healthcare-associated infections topped 13,000 in the second half of 2008. This is the latest period for which there is reporting.

The report mentions that Act 52 was passed in order to drive down the number of infections. According to the Center for Disease Control, hospital acquired infections have been estimated to result in an excess of $30 billion in healthcare costs per year in the United States.

We have written about the problems with hospital acquired infections for many years. Fortunately government agencies and the public are beginning to take notice. Act 52 is a very positive step to drive down the costs associated with infections contracted in hospitals.

One item left out of the report is that virtually none of these result in compensation to patients. Why is it that there are so many preventable infections in hospitals and virtually no compensation for patients? This is generally in keeping with information that more than 300,000 reports of incidents and serious events arrive at the doorstep of the Patient Safety Authority in the Commonwealth of Pennsylvania and yet there are only 1,300 lawsuits per year for medical malpractice.

The public has been sold the view that people sue at the drop of a hat and there are major recoveries in connection with those lawsuits. The truth is far from that and it has been pointed out by many studies over the years that compensation for preventable injuries are sparse.

The law in Pennsylvania, and in most states, lags behind the science. In Pennsylvania, no professional liability case can proceed without a Certificate of Merit. A Certificate of Merit means that a professional in the same field as those being sued has stated that there was negligent care or treatment and that the negligence was causative of harm.

It is virtually impossible to show the hospital acquired infection was caused by negligence. Nurses, doctors and other healthcare workers are not going to admit that they dropped something on the floor, broke a sterile field during surgery, or did not wash their hands. At most, a patient may have a chance of recovering if they showed signs of infection after the fact but it was not caught in time. Much to the shock and amazement of the public, there is no presumption that a hospital is negligent and should have to pay damages **merely** because a person acquired an infection in a hospital. There is no principal in the law, at least as of yet, that hospitals in following the law must reduce infections or be responsible for the consequences. The hospitals are going to have to answer to a government bureaucracy under Act 52 if they do not do what they are supposed to do, if the bureaucracy follows up the way it should, but as to payment to the patient there is usually no remedy.

Courts undoubtedly will have the opportunity to determine whether a lack of compliance with Act 52 means that a person should be able to recover

damages for the hospital acquired infection. Sooner or later the law may catch up to the science and offer compensation to those who acquired infections while in a hospital to get well.

This is an area in need of much further discussion.

The press release of January 12, 2010, is Attachment 1. The full report is Attachment 2 and Act 52 is Attachment 3.

Please feel free to call with any questions.

Clifford A. Rieders, Esquire
Rieders, Travis, Humphrey, Harris,
Waters & Waffenschmidt
161 West Third Street
Williamsport, PA 17701
(570) 323-8711 (telephone)
(570) 323-4192 (facsimile)
crieders@riederstravis.com

Cliff Rieders, who practices law in Williamsport, is Past President of the Pennsylvania Trial Lawyers Association and a member of the Pennsylvania Patient Safety Authority. None of the opinions expressed necessarily represent the views of these organizations.

ACT 52 OF 2007
MEDICAL CARE AVAILABILITY AND REDUCTION OF ERROR (MCARE) ACT
CHAPTER 4. HEALTH CARE-ASSOCIATED INFECTIONS
40 P.S. § 1303.401 – 1303.411 (2007)

§ 1303.401. Scope of chapter

This chapter relates to the reduction and prevention of health care-associated infections.

§ 1303.402. Definitions

The following words and phrases when used in this chapter shall have the meanings given to them in this section unless the context clearly indicates otherwise:

"AMBULATORY SURGICAL FACILITY." An entity defined as an ambulatory surgical facility under the act of July 19, 1979 (P.L. 130, No. 48), known as the Health Care Facilities Act.

"ANTIMICROBIAL AGENT." A general term for drugs, chemicals or other substances that kill or slow the growth of microbes, including, but not limited to, antibacterial drugs, antiviral agents, antifungal agents and antiparasitic drugs.

"AUTHORITY." The Patient Safety Authority established under this act.

"CENTERS FOR DISEASE CONTROL AND PREVENTION" or "CDC." The United States Department of Health and Human Services Centers for Disease Control and Prevention.

"COLONIZATION." The first stage of microbial infection or the presence of nonreplicating microorganisms usually present in host tissues that are in contact with the external environment.

"COUNCIL." The Pennsylvania Health Care Cost Containment Council established under the act of July 8, 1986 (P.L. 408, No. 89), known as the Health Care Cost Containment Act.

"DEPARTMENT." The Department of Health of the Commonwealth.

"FUND." The Patient Safety Trust Fund as defined in section 305

"HEALTH CARE-ASSOCIATED INFECTION." A localized or systemic condition that results from an adverse reaction to the presence of an infectious agent or its toxins that:

(1) occurs in a patient in a health care setting;

(2) was not present or incubating at the time of admission, unless the infection was related to a previous admission to the same setting; and

(3) if occurring in a hospital setting, meets the criteria for a specific infection site as defined by the Centers for Disease Control and Prevention and its National Healthcare Safety Network.

"HEALTHCARE FACILITIES ACT." The act of July 19, 1979 (P.L. 130, No. 48), known as the Health Care Facilities Act.

"HEALTH CARE FACILITY." A hospital or nursing home licensed or otherwise regulated to provide health care services under the laws of this Commonwealth.

"HEALTH PAYOR." An individual or entity providing a group health, sickness or accident policy, subscriber contract or program issued or provided by an entity, including any one of the following:

(1) The act of June 2, 1915 (P.L. 736, No. 338), known as The Workers' Compensation Act.

(2) The act of May 17, 1921 (P.L. 682, No. 284), known as The Insurance Company Law of 1921

(3) The act of December 29, 1972 (P.L. 1701, No. 364), known as The Health Maintenance Organization Act.

(4) The act of May 18, 1976 (P.L. 123, No. 54), known as The Individual Accident and Sickness Insurance Minimum Standards Act.

(5) 40 Pa.C.S. Ch. 61 (relating to hospital plan corporations).

(6) 40 Pa.C.S. Ch. 63 (relating to professional health services plan corporations).

"MEDICAL ASSISTANCE." The Commonwealth's medical assistance program established under the act of June 13, 1967 (P.L. 31, No. 21), known as The Public Welfare Code.

"METHICILLIN-RESISTANT STAPHYLOCOCCUS AUREUS" or "MRSA." A strain of bacteria that is resistant to certain antibiotics and is difficult to treat medically.

"MULTIDRUG-RESISTANT ORGANISM" or "MDRO." Microorganisms, predominantly bacteria, that are resistant to more than one class of antimicrobial agents.

"NATIONAL HEALTHCARE SAFETY NETWORK" or "NHSN." A secure Internet-based data collection system managed by the Division of Healthcare Quality Promotion at the Centers for Disease Control and Prevention.

"NATIONALLY RECOGNIZED STANDARDS." Standards developed by the Department of Health and Human Services Centers for Disease Control and Prevention (CDC) and its National Healthcare Safety Network.

"NURSING HOME." An entity licensed as a long-term care nursing facility under the act of July 19, 1979 (P.L. 130, No. 48), known as The Health Care Facilities Act.

"SURVEILLANCE SYSTEM." An ongoing and comprehensive method of measuring health status, outcomes and related processes of care, analyzing data and providing information from data sources within a health care facility to assist in reducing health care-associated infections.

§ 1303.403. Infection control plan

(a) DEVELOPMENT AND COMPLIANCE. – Within 120 days of the effective date of this section, a health care facility and an ambulatory surgical facility shall develop and implement an internal infection control plan that shall be established for the purpose of improving the health and safety of patients and health care workers and shall include:

(1) A multidisciplinary committee including representatives from each of the following if applicable to that specific health care facility:

(i) Medical staff that could include the chief medical officer or the nursing home medical director.
(ii) Administration representatives that could include the chief executive officer, the chief financial officer or the nursing home administrator.
(iii) Laboratory personnel.
(iv) Nursing staff that could include a director of nursing or a nursing supervisor.
(v) Pharmacy staff that could include the chief of pharmacy.
(vi) Physical plant personnel.
(vii) A patient safety officer.
(viii) Members from the infection control team, which could include an epidemiologist.
(ix) The community, except that these representatives may not be an agent, employee or contractor of the health care facility or ambulatory surgical facility.

(2) Effective measures for the detection, control and prevention of health care-associated infections.

(3) Culture surveillance processes and policies.

(4) A system to identify and designate patients known to be colonized or infected with MRSA or other MDRO that includes:

(i) The procedures necessary for requiring cultures and screenings for nursing home residents admitted to a hospital.
(ii) The procedures for identifying other high-risk patients admitted to the hospital who necessitate routine cultures and screening.

(5) The procedures and protocols for staff who may have had potential exposure to a patient or resident known to be colonized or infected with MRSA or MDRO, including cultures and screenings, prophylaxis and follow-up care.

(6) An outreach process for notifying a receiving health care facility or an ambulatory surgical facility of any patient known to be colonized prior to transfer within or between facilities.

(7) A required infection-control intervention protocol which includes:

(i) Infection control precautions, based on nationally recognized standards, for general surveillance of infected or colonized patients.
(ii) Intervention protocols based on evidence-based standards.
(iii) Isolation procedures.
(iv) Physical plant operations related to infection control.
(v) Appropriate use of antimicrobial agents.
(vi) Mandatory educational programs for personnel.
(vii) Fiscal and human resource requirements.

(8) The procedure for distribution of advisories issued under section 405(b)(4) so as to ensure easy access in each health care facility for all administrative staff, medical personnel and health care workers.

(b) DEPARTMENT REVIEW. – No later than 14 days after implementation of its infection control plan, a health care facility and an ambulatory surgical facility shall submit the plan to the department. The department shall review each health care facility's and ambulatory surgical facility's infection control plan to ensure compliance under the Health Care Facilities Act and section 408(3) If, at any time, the department finds that an infection control plan does not meet the requirements of this chapter or any applicable laws, the health care facility or ambulatory surgical facility shall modify its plan to come into compliance.

(c) NOTIFICATION. – Upon submission to the department of its infection control plan, a health care facility and an ambulatory surgical facility shall notify all health care workers, physical plant personnel and medical staff of the facility of the infection control plan. Compliance with the infection control plan shall be enforced by the facility.

§ 1303.404. Health care facility reporting

(a) NURSING HOME REPORTING. – In addition to reporting pursuant to The Health Care Facilities Act, a nursing home shall also electronically report health care-associated infection data to the department and the authority using nationally recognized standards based on CDC definitions, provided that the data is reported on a patient-specific basis in the form, with the time for reporting and format as determined by the department and the authority.

(b) HOSPITAL REPORTING. – A hospital shall report health care-associated infection data to the CDC and its National Healthcare Safety Network no later than 180 days following the effective date of this section. A hospital shall:

(1) Report all components as defined in the NHSN Manual, Patient Safety Component Protocol and any successor edition, for all patients throughout the facility on a continuous basis.

(2) Report patient-specific data to include, at a minimum, patient identification number, gender and date of birth. The patient identification number must be compatible with the patient identifier on the uniform billing forms submitted to the council.

(3) Report data on a monthly basis in accordance with protocols defined in the NHSN Manual as updated by the CDC.

(4) Authorize the department, the authority and the council to have access to the NHSN for facility-specific reports of health care-associated infection data contained in the NHSN database for purposes of viewing and analyzing that data.

(c) STRATEGIC ASSESSMENTS. – Each hospital, other than those currently using a qualified electronic surveillance system, shall by December 31, 2007, conduct a strategic assessment of the utility and efficacy of implementing a qualified electronic surveillance system pursuant to subsections (d) and (e) for the purpose of improving infection control and prevention. The assessment shall also include an examination of financial and technological barriers to implementation of a qualified electronic surveillance system pursuant to subsections (d) and (e). The assessment shall be submitted to the department within 14 days of completion.

(d) QUALIFIED ELECTRONIC SURVEILLANCE SYSTEM. – A qualified electronic surveillance system shall include the following minimum elements:

(1) Extractions of existing electronic clinical data from health care facility systems on an ongoing, constant and consistent basis.

(2) Translation of nonstandardized laboratory, pharmacy and/or radiology data into uniform information that can be analyzed on a population-wide basis.

(3) Clinical support, educational tools and training to ensure that information provided under this subsection will assist the hospital in reducing the incidence of health care-associated infections in a manner that meets or exceeds benchmarks.

(4) Clinical improvement measurements designed to provide positive and negative feedback to health care facility infection control staff.

(5) Collection of data that is patient-specific for the entire facility.

(e) ELECTRONIC SURVEILLANCE SYSTEM IMPLEMENTATION. – Except as otherwise provided in this subsection, a hospital shall have a qualified electronic surveillance system in place by December 31, 2008. The following apply:

(1) If a determination has been made under subsection (c) that a qualified electronic surveillance system can be implemented, the hospital shall comply with subsection (f) until implementation.

(2) If a determination has been made under subsection (c) that a qualified electronic surveillance system cannot be implemented, by December 31, 2008, the hospital shall comply with subsection (f) until such time as a qualified electronic surveillance system is implemented.

(f) SURVEILLANCE SYSTEM. – Until a hospital implements a qualified electronic surveillance system, the facility shall use a surveillance system that includes:

(1) A written plan of the elements of the surveillance process to include, but not be limited to, definitions, collection of surveillance data and reporting of information.

(2) Identification of personnel resources that will be used in the surveillance process.

(3) Identification of information or technological support needed to implement the surveillance system.

(4) A process for periodic evaluation and validation to ensure accuracy of surveillance.

(g) CONTINUED REPORTING. – Until hospitals begin reporting to NHSN and have authorized access to the department, the authority and the council, hospitals shall continue to meet reporting requirements pursuant to Chapter 3 of this act and section 6 of the act of July 8, 1986 (P.L. 408, No. 89), known as The Health Care Cost Containment Act.

§ 1303.405. Patient Safety Authority jurisdiction.

(a) HEALTH CARE FACILITY REPORTS TO AUTHORITY. – The occurrence of a health care-associated infection in a health care facility shall be deemed a serious event as defined in section 302 The report to the authority shall also be subject to all of the confidentiality protections set forth in section 311 The occurrence of a health care-associated infection shall only constitute a serious event for hospitals if it meets the criteria for reporting as defined by the current CDC and NHSN Manual, Patient Safety Component Protocol and any successor edition.

(b) DUTIES. – In addition to its existing responsibilities, the authority is responsible for all of the following:

(1) Establishing, based on CDC definitions, uniform definitions using nationally recognized standards for the identification and reporting of health care-associated infections by nursing homes.

(2) Publishing a notice in the Pennsylvania Bulletin stating the uniform reporting requirements established pursuant to this subsection and the effective date for the commencement of required reporting by hospitals consistent with this chapter, which, at a minimum, shall begin 120 days after publication of the notice.

(3) Publishing a notice in the Pennsylvania Bulletin stating the uniform reporting requirements established pursuant to this subsection and section 404(a) and the effective date for the commencement of required reporting by nursing homes consistent with this chapter, which, at a minimum, shall begin 120 days after publication of the notice.

(4) Issuing advisories to health care facilities in a manner similar to section 304(a)(7).

(5) Including a separate category for providing information about health care-associated infections in the annual report under section 304(c).

(6) Creating and conducting training programs for infection control teams, health care workers and physical plant personnel about the prevention and control of health care-associated infections. Nothing in this act shall preclude the authority from working with the department or any organization in conducting these programs.

(7) Appointing an advisory panel of health care-associated infection control experts, including at least one representative of a not-for-profit nursing home, at least one representative of a for-profit nursing home, at least one representative of a county nursing home and at least two representatives of a hospital, one of which must be from a rural hospital, to assist in carrying out the requirements of this chapter.

(c) PUBLIC COMMENT. – Prior to publishing a notice under subsection (b)(2) and (3), the authority shall solicit public comments for at least 30 days. The authority shall respond to the comments it receives during the 30-day public comment period.

§ 1303.406. Payment for performing routine cultures and screenings.

The cost of routine cultures and screenings performed on patients in compliance with a health care facility's and ambulatory surgical facility's infection control plan shall be considered a reimbursable cost to be paid by health payors and medical assistance upon Federal approval. These costs shall be subject to any copayment, coinsurance or deductible in amounts imposed in any applicable policy issued by a health payor and to any agreements between a health care facility, ambulatory surgical facility and payor.

§ 1303.407. Quality improvement payment.

(a) GENERAL RULE. – Commencing on January 1, 2009, the Department of Public Welfare in consultation with the department shall make a quality improvement payment to a health care facility that achieves at least a 10% reduction for that facility in the total number of reported health care-associated infections over the preceding year pursuant to section 408(7)(i) For calendar year 2010 and thereafter, the Department of Public Welfare shall consult with the department to establish appropriate percentage benchmarks for the reduction of health care-associated infections in each health care facility in order to be eligible for a payment pursuant to this section.

(b) ADDITIONAL QUALITY IMPROVEMENT PAYMENTS. – Nothing in this section shall prevent the Department of Public Welfare in consultation with the department from providing additional quality improvement payments to a health care facility that has implemented a qualified electronic surveillance system and has achieved or exceeded reductions in the total number of reported health care-associated infections for that facility over the preceding year as provided in subsection (a).

(c) ELIGIBILITY. – In addition to meeting the requirements contained in this section, to be eligible for a quality improvement payment, a health care facility must be in compliance with health care-associated reporting requirements contained in this act and the Health Care Facilities Act.

(d) DISTRIBUTION OF FUNDS. – Funds for the purpose of implementing this section shall be appropriated to the Department of Public Welfare and distributed to eligible health care facilities as set forth in this section. Quality improvement payments to health care facilities shall be limited to funds available for this purpose.

§ 1303.408. Duties of Department of Health.

The department is responsible for the following:

(1) The development of a public health awareness campaign on health care-associated infections to be known as the Community Awareness Program. The program shall provide information to the public on causes and symptoms of health care-associated infections, diagnosis and treatment prevention methods and the proper use of antimicrobial agents.

(2) The consideration and determination of the feasibility of establishing an active surveillance program involving other entities, such as athletic teams or correctional facilities for the purpose of identifying those persons in the community that are colonized and at risk of susceptibility to and transmission of MRSA bacteria.

(3) The review of each health care facility's and ambulatory surgical facility's infection control plan. This review shall be performed pursuant to the department's authority under the Health Care Facilities Act and the regulations promulgated thereunder.

(4) The development of recommendations and best practices that implement and effectuate improved screenings and cultures and other means for the reduction and elimination of health care-associated infections.

(5) The development of recommendations regarding evidence-based screening protocols for an individual with MRSA and MDRO prior to admission to a hospital.

(6) The review of strategic assessments under section 404(c) and the provision of assistance to hospitals in implementing a qualified electronic surveillance system pursuant to the requirements of section 404(d) and (e).

(7) The development of a methodology, in consultation with the authority and the council, for determining and assessing the rate of health care-associated infections that occur in health care facilities in this Commonwealth. This methodology shall be used:

(i) to determine the rate of reduction in health care-associated infection rates within a health care facility during a reporting period;
(ii) to compare health care-associated infection rates among similar health care facilities within this Commonwealth; and
(iii) to compare health care-associated infection rates among similar health care facilities nationwide.

(8) The development, in consultation with the authority and the council, of reasonable benchmarks to measure the progress health care facilities make toward reducing health care-associated infections. Beginning in 2010, all health care facilities shall be measured against these benchmarks. A health care facility with a rate of health care-associated infections that does not meet the benchmark appropriate to that type of facility shall be required to submit a plan of correction to the department within 60 days of receiving notification that the rate does not meet the benchmark. After 180 days, a facility that has not shown progress in reducing its rate of infection shall consult with and obtain department approval for a new plan of correction that includes resources available to assist the health care facility. After an additional 180 days, a facility that fails to show progress in reducing its rate of infection may be subject to action under The Health Care Facilities Act.

(9) Publishing a notice in the Pennsylvania Bulletin of the specific benchmarks the department shall use to measure the progress of health care facilities in reducing health care-associated infections. Prior to publishing the notice, the department shall seek public comments for at least 30 days. The department shall respond to the comments it receives during the 30-day public comment period.

§ 1303.409. Nursing home assessment to Patient Safety Authority.

(a) ASSESSMENT. – Commencing July 1, 2008, each nursing home shall pay the department a surcharge on its licensing fee as necessary to provide sufficient revenues for the authority to perform its responsibilities under this chapter. The total annual assessment for all nursing homes shall not be more than an aggregate amount of $ 1,000,000. The department shall transfer the total assessment amount to the fund within 30 days of receipt.

(b) BASE AMOUNT. – For each succeeding calendar year, the authority shall determine the appropriate assessment amount and the department shall assess each nursing home its proportionate share of the authority's budget for its responsibilities under this chapter. The total assessment amount shall not be more than $ 1,000,000 in fiscal year 2008-2009 and shall be increased according to the Consumer Price Index in each succeeding fiscal year.

(c) EXPENDITURES. – Money appropriated to the fund under this chapter shall be expended by the authority to implement this chapter.

(d) DISSOLUTION. – In the event that the fund is discontinued or the authority is dissolved by operation of law, any balance paid by nursing homes remaining in the fund, after deducting administrative costs of liquidation, shall be returned to the nursing homes in proportion to their financial contributions to the fund in the preceding licensing period.

(e) FAILURE TO PAY SURCHARGE. – If, after 30 days' notice, a nursing home fails to pay a surcharge levied by the department under this chapter, the department may assess an administrative penalty of $ 1,000 per day until the surcharge is paid.

(f) REIMBURSABLE COST. – Subject to Federal approval, the annual assessment amount paid by a nursing home shall be a reimbursable cost under the medical assistance program. The Department of Public Welfare shall pay each nursing home, as a separate, pass-through payment, an amount equal to the assessment paid by a nursing home multiplied by the facility's medical assistance occupancy rate as reported in its annual cost report.

§ 1303.410. Scope of reporting.

For purposes of reporting health care-associated infections to the Commonwealth, its agencies and independent agencies, this chapter sets forth the applicable criteria to be utilized by health care facilities in making such reports. Nothing in this act shall supersede the requirements set forth in the act of April 23, 1956 (1955 P.L. 1510, No. 500), known as the Disease Prevention and Control Law of 1955, and the regulations promulgated thereunder.

§ 1303.411. Penalties.

(a) VIOLATION OF HEALTH CARE FACILITIES ACT. – The failure of a health care facility to report health care-associated infections as required by sections 404 and 405 or the failure of a health care facility or ambulatory surgical facility to develop, implement and comply with its

infection control plan in accordance with the requirements of section 403 shall be a violation of the Health Care Facilities Act.

(b) ADMINISTRATIVE PENALTY. – In addition to any penalty that may be imposed under the Health Care Facilities Act, a health care facility which negligently fails to report a health care-associated infection as required under this chapter may be subject to an administrative penalty of $ 1,000 per day imposed by the department.

Commonwealth of Pennsylvania
Department of Health

2008 REPORT
Healthcare-Associated Infections (HAI) in Pennsylvania Hospitals

pennsylvania
DEPARTMENT OF HEALTH

December 2009

REVISED- January 13, 2010

PENNSYLVANIA DEPARTMENT OF HEALTH
2008 REPORT
Healthcare-Associated Infections (HAI) in Hospitals

PENNSYLVANIA DEPARTMENT OF HEALTH
2008 REPORT
Healthcare-Associated Infections (HAI) in Hospitals

Executive Summary

Under the Pennsylvania Healthcare Associated Infections and Control Act (Act 52) passed in 2007, all hospitals in the Commonwealth are required to report healthcare associated infections (HAI) that occurs in their patients. These reports are submitted through the National Healthcare Safety Network (NHSN) operated by the Centers for Disease Control and Prevention (CDC). The Pennsylvania Department of Health (PADOH) has responsibility to review the data submitted by Pennsylvania hospitals, analyze the data, and publicly report findings and trends. This is the first report of HAI data collected under Act 52. Since Act 52's reporting provision took effect in February 2008, and the earliest data proved to be unreliable for analytic purposes as hospitals became familiar with the system, less than a full year's worth of data are available for 2008. This report incorporates information from the second half of 2008. Because the definitions and data collection methods in NHSN differ from those used by the Pennsylvania Health Care Cost Containment Council (PHC4) for previous reports on HAIs in Pennsylvania, the numbers & rates reported by PHC4 cannot be directly compared to those resulting from Act 52's reporting requirements.

To analyze the HAI data, PADOH elected to use an approach known as the standardized infection ratio (SIR). This approach involves calculating statewide rates of HAIs by infection type (e.g. catheter associated urinary tract infection) for a given ward type (e.g. cardiac intensive care unit). Based on the ward types present in a facility and the number of device days (e.g. urinary catheters) reported by each hospital, a calculated expected number of specific HAIs can be derived for each facility. This expected number is then compared to the actual (observed) number reported by the facility in NHSN. A ratio of the observed to expected is then calculated, producing the facility specific SIR for that infection.

The focus of this report is catheter-associated urinary tract infections (CAUTI) and central-line associated bloodstream infections (CLABSI) since these two conditions were selected for benchmarking purposes. Information on the patterns of other HAIs is also included. However, the third benchmarking category (selected surgical site infections) will be addressed in a subsequent report because the time frame allowed by NHSN between when a procedure is done and when an infection may occur can be up to 12 months.

During July-December 2008, a total of 13,771 HAIs were reported by Pennsylvania hospitals, for an overall rate of 2.84 HAIs per 1,000 patient days. The most commonly reported HAIs were urinary tract infections (24.83%), surgical site infections (22.23%) and gastrointestinal infections (18.15%). Among the urinary tract infections, 69% were associated with a urinary catheter. Among the blood stream infections, 68% were associated with a central line.

At least one CAUTI was reported by 176 (69%) of the hospitals, for a total of 2,357 CAUTIs. When assessing the CAUTI-specific SIRs for the 240 facilities with infection data, 166 of the facilities had SIRs <1.00, meaning they had fewer reported infections than expected. Among these 166 facilities, 38 of them had SIRs that were significantly lower than expected (meaning the upper limit of the 95% confidence interval was less than 1.00 so the interval did not include 1.00). A total of 73 facilities had SIRs that were significantly >1.00, meaning they reported more infections than expected. Among

these 73 hospitals, the SIR was significantly elevated in 25 (the lower limit of the 95% confidence interval was greater than 1.00 so the interval did not include 1.00). One institution had the same number of infections reported as expected.

At least one CLABSI was reported by 150 (59%) of the hospitals, for a total of 1,356 CLABSIs. When assessing the CLABSI-specific adjusted SIRs for the 221 hospitals that had infection data, 156 hospitals had SIRs that were significantly <1.00, meaning they had fewer infections that expected. Among these 156 facilities, 13 of them had SIRs that were significantly lower than expected. A total of 58 facilities had SIRs that were significantly >1.00, meaning they reported more infections than expected. Among the 58 facilities, the SIR was significantly elevated in 19. Four institutions had the same number of infections reported as expected.

When comparing Pennsylvania's data to national data contained in NHSN, the rates of CAUTI and CLABSI were in general better than those elsewhere in the United States. This was more apparent for CAUTI than for CLABSI. This may reflect Pennsylvania's history of encouraging HAI prevention and control. However, national data are not directly comparable to those from Pennsylvania, as reporting through NHSN is voluntary in many other parts of the country and participating hospitals are self-selected. In contrast, reporting is mandatory in Pennsylvania and all facilities must participate.

A significant aspect of Act 52 relates to multidrug-resistant organisms (MDROs), especially methicillin-resistant *Staphylococcus aureus* (MRSA). Among the 13,771 HAIs, 1,118 (8.12%) were due to MRSA. The most common anatomic sites for MRSA were surgical site infections, bloodstream infections, and pneumonias. However, among the more common categories, the highest proportion (21.29%) of skin and soft tissue infections were caused by MRSA. PADOH will gather further data related to MRSA for subsequent reports, including data on screening practices mandated by Act 52 and the results of screening.

Although all hospitals were required to report HAI data under Act 52, some specialized facilities (such as psychiatric hospitals and drug and alcohol treatment facilities) had no infections and little information to report, including the benchmarking conditions. In addition, long term acute care facilities differ significantly from other types of institutions. Consideration will be given to addressing issues related to HAIs separately in these types of facilities for future reports.

HAIs have a significant impact on patient outcomes (morbidity and mortality) and burden the health care system with unnecessary costs. These problems are reflected in the current report. The findings emphasize the need for a concerted effort to reduce the impact of HAIs, to meet targets for the reduction of HAIs in Pennsylvania required under Act 52, and to reach the long-term goal of the eventual elimination of HAIs.

PENNSYLVANIA DEPARTMENT OF HEALTH
2008 REPORT
Healthcare-Associated Infections (HAI) in Hospitals

A. Background

1. Healthcare-Associated Infections (HAI):

Healthcare-Associated Infections (HAIs) are infections that patients acquire during the course of receiving treatment for other conditions within a healthcare setting. HAIs are a major cause of excess morbidity and death in the United States. In American hospitals alone, HAIs account for an estimated 1.7 million infections and contribute to 99,000 deaths each year[1].

Although HAIs occur throughout the continuum of healthcare, most research, control and prevention efforts have focused on the in-patient hospital setting, where the sickest patients are usually found and the resulting impact of HAIs has been most profound. Within the hospital, HAIs occur in every patient care area. In 2002, it was estimated that among the 1.7 million HAIs, 2 percent were in newborns in high-risk nurseries; 1 percent were among newborns in well-baby nurseries; 25 percent were among patients in pediatric and adult Intensive Care Units (ICUs); and the remaining 72 percent were found in other parts of the hospital. Among the more common HAIs are those associated with medical interventions, such as surgical site infections, cather-associated urinary tract and bloodstream infections, and ventilator-associated pneumonias. However, non-device or procedure-associated HAIs, such as those related to skin and soft tissue and the gastrointestinal tract, also have a substantial impact. The magnitude of the HAI problem is compounded by the fact that many of the infections are caused by multidrug-resistant pathogens. These are common in the hospital environment due to the selective pressure resulting from high usage of antimicrobial agents. Among the more challenging drug-resistant HAIs are those caused by methicillin-resistant *Staphylococcus aureus* (MRSA), vancomycin-resistant enterococci (VRE), and multidrug resistant gram-negative bacteria such as *Klebsiella* and *Acinetobacter* species.

The number of extra days a patient spends in the hospital due to an HAI varies depending on the type of infection the patient acquires. For example, there is an average increase in length of stay from 1 to 4 days for a urinary tract infection, 7 to 8 days for an infection at the site of a surgery procedure, 7 to 21 days for a bloodstream infection, and 7 to 30 days for pneumonia. The costs vary too - anywhere from approximately $600 for an uncomplicated urinary tract infection to $5,000 or more for pneumonia. Prolonged bloodstream infections can top $50,000. In total, HAIs have been estimated to result in an excess of $30 billion in health care costs per year in the United States. Decreasing the impact of HAIs is an urgent health care reform priority not only because the result will be dramatic improvements in patient outcomes, including a large number of unnecessary deaths, but also because there are significant cost savings to be realized.

It is increasingly evident that HAIs are not an inevitable or expected consequence of hospitalization. Many HAIs have been demonstrated to be highly amenable to consistent use

[1] *Centers for Disease Control and Prevention (http://www.cdc.gov/ncidod/dhqp/healthDis.html)*

of prevention measures that can result in significant declines in their incidence within a hospital or health care system. Pennsylvania researchers and facilities have often been at the forefront of efforts to implement and assess measures to reduce HAIs. The results have been impressive, showing that well structured packages of interventions can result in sustained reductions in certain HAIs and can reduce the prevalence of multidrug resistant organisms. As a result, today there are an array of organizations and agencies that target HAIs for prevention efforts. At the federal level, these include the US Centers for Disease Control and Prevention (CDC), the Agency for Healthcare Research and Quality (AHRQ), and the Centers for Medicaid and Medicare Services (CMS) in the Department of Health and Human Services, and the Veteran's Administration health care system. Many quality improvement consortia and organizations have also targeted HAIs.

To build upon these efforts, in Pennsylvania, HAI reductions were included in Governor Rendell's *Prescription for Pennsylvania (Rx for PA)* that was issued in January 2007. Rx for PA was designed to provide citizens of the Commonwealth with accessible, affordable, and quality health care. Reduction of HAIs is one of the goals contained in the quality component of Rx for PA. Rx for PA calls for monitoring the occurrence of HAIs in all Pennsylvania hospitals and long term care facilities, for all facilities to implement scientifically demonstrated interventions to reduce HAIs, and for limiting reimbursement for costs associated with the occurrence of HAIs. The goal is to control and eventually eliminate HAIs in health care institutions in the Commonwealth of Pennsylvania.

2. Pennsylvania's HAI Reporting Background, and Act 52:

Even before 2007's Rx for PA, efforts were well underway to monitor the occurrence of HAIs in Pennsylvania. For many years, a small number of Pennsylvania hospitals voluntarily took part in the CDC's National Nosocomial Infections Surveillance (NNIS) system, designed to estimate the burden and trends in HAIs nationally. Beginning in 2004, the Pennsylvania Cost Care Containment Council (PHC4) began collecting HAI data from all acute care facilities in the state and publicly reporting facility-specific information. In doing so, Pennsylvania was a trend setter, being one of the first states in the country to publicly report HAIs. Only six years later, almost half the states have similar requirements in place, although none have an approach to HAI data collection and reporting as comprehensive as Pennsylvania's.

In July 2007, the state legislature passed the Pennsylvania Healthcare-Associated Infection and Control Act (also known as Act 52). Act 52 is the implementing statute for many of the HAI reporting activities found in Rx for PA. Act 52 was signed by Governor Edward G. Rendell and became law on August 18, 2007. Among its many provisions, Act 52 replaced the PHC4 data collection approach with a requirement that all PA hospitals use the CDC's National Healthcare Safety Network (NHSN), the successor to the NNIS system, for reporting purposes. Act 52 requires that reporting to NHSN must include all components of the Patient Safety Module and must be facility wide. The data submitted by Pennsylvania's hospitals are shared between PHC4, the Patient Safety Authority (PSA), and the Pennsylvania Department of Health (PADOH). PADOH is required to analyze the data and report facility-specific rates, to determine temporal trends in the occurrence of HAIs by institution, and to compare Pennsylvania's rates to those seen in other parts of the country. Act 52 also requires setting annual HAI reduction targets. This makes Pennsylvania the first state to explicitly link HAI reporting to prevention. The Act requires PADOH to set annual reduction targets starting in 2010. Act 52 also requires reporting (through a non-specified system) from long term care

facilities (LTCFs). To accomplish this requirement, a new module was added to PSA's Patient Safety Reporting System (PA-PCRS) and reporting from LTCFs began in the summer of 2009.

Before reporting could begin in the time frames established by Act 52, most of Pennsylvania's 255 hospitals needed to enroll in NHSN and confer user rights that enabled PADOH, PSA, and PHC4 to view submitted data. More than 85 percent of Pennsylvania's hospitals had not previously used NNIS or NHSN. To address this need, PADOH conducted an intensive training and outreach program for facilities around the state. .

Act 52 also required the Patient Safety Authority to establish an external advisory committee composed of experts in HAIs from around the state. Participants on this committee include hospital and nursing home infection preventionists. The HAI advisory committee has assisted the involved state agencies in (1) identifying benchmarking conditions for determining rates of HAIs and for comparing HAI rates between institutions (2) determining the approach to analyzing and reporting data collected within NHSN and (3) establishing conditions to be monitored in LTCFs for the purposes of HAI reporting. A list of HAI Advisory Committee members is included in Appendix 1.

Infection Control Plans: Under Act 52, all hospitals were required to develop and implement an internal infection control plan that incorporated all elements identified by the Act for the purpose of improving the health and safety of patients and healthcare workers. These documents were required to be submitted to PADOH for review by December 31, 2007. PADOH staff verified that these documents satisfied the requirements of the Act. When submitted plans did not meet requirements, PADOH staff consulted with the facility to assist them in full compliance. Additionally, the law required that all healthcare workers, physical plant personnel and medical staff for the facility be notified of this plan.

Strategic Assessments: All hospitals, except those already using a qualified electronic surveillance system (QESS), had to conduct a strategic assessment of the utility and efficacy of implementing a QESS. These systems are designed to improve the timely recognition and investigation of possible HAIs throughout the facility, to aid in the prevention and control of HAIs, and to assist in reporting. The assessment had to include an examination of financial and technological barriers to the implementation of a QESS. Assessments had to be submitted to the Department for review by December 31, 2007. As a result of this effort, at present 46 hospitals have a QESS in place and 95 additional hospitals are in the process of installing these systems for an eventual total of 141/255 (55%) hospitals.

Reporting: Act 52 was signed into law in August 2007 and stipulated that reporting would commence 180 days later. This resulted in a reporting start date of February 14, 2008.

NHSN groups HAIs into event types and subtypes. CDC definitions of Event Types and Subtypes can be found in NHSN Patient Safety Component Protocol[2]. Any HAI meeting CDC's Event Type or Subtype definition must be reported in NHSN within 24 hours of confirmation, unless confirmation occurs on a weekend or recognized holiday. In this case, the HAI must be reported in NHSN by the close of business on the next business day. Exceptions to this rule may apply in the event of outbreak conditions and are addressed individually with respective hospitals.

[2] NHSN Patient Safety Component Protocol. https://sdn2.cdc.gov/nhsn/help/NHSN_PS_Help.htm.

Act 52 also requires monthly reporting of aggregate data in accordance with NHSN protocols. Protocols require collection and monthly reporting of summary or denominator data that provides for the calculation of infection rates. This data should be collected at the same time daily from locations in each facility by counting the number of patients (i.e., patient days) and the number of patients with one or more central lines (i.e., central line-days), and urinary catheters (i.e., catheter- days). Hospitals must enter the totals within 30 days of the end of the month.

B. Methods

1. HAI Reporting Indicators:

Beginning in 2010, annual targets will be established by PADOH. Because reporting under Act 52 did not begin until February 2008, the first full year of data collection necessary for the establishment of rates, will be in 2009.

PADOH, in collaboration with the PSA, PHC4, and HAI Advisory Panel, chose a set of HAIs for initial benchmarking that includes:

a. Central-Line-Associated Bloodstream Infections (CLABSI) - facility-wide, all in-patient
b. Catheter-Associated Urinary Tract Infections (CAUTI) - facility-wide, all in-patient
c. Selected Surgical Site Infections (SSI) - facility-wide, all in-patient
    2) Hip Prosthesis (HPRO*)
    3) Knee Prosthesis (KPRO*)
    4) Abdominal Hysterectomies (HYST*)
    5) Cardiac Surgeries (3):
    Cardiac Surgery (CARD*) other than CBGB, CBGC, transplant, or pacemaker implant
    Coronary Bypass with **chest** and **donor** incisions (CBGB)[3]
    Coronary Bypass with **chest incision** only (CBGC)

These infections/procedures were selected based on the following criteria:

a. They align with conditions targeted in national initiatives to reduce the incidence of HAIs;
b. They produce significant HAI-related morbidity and/or mortality
c. They reflect the quality of HAI prevention efforts within an institution;
d. They incorporate a wide enough array of infections that should allow all facilities, regardless of size, to be benchmarked in at least one of the categories,
e. They are considered "clean" procedures which reduces the opportunity for contamination not associated with procedural failures.

Hospitals must collect and report numerator and denominator data for these indicator infections. Beginning in 2010, a hospital with an HAI rate that does not meet the benchmark appropriate for that type of facility for the time period of measure, will be required to submit a plan of correction to the Department within 60 days. After 180 days, a hospital that has not shown progress in reducing its HAI rate will consult with and obtain PADOH approval for a new plan of correction that includes resources available to assist the facility. After an additional 180

[3] *CDC NHSN Operative Procedure Categories table for related applicable ICD-9-CM codes*

days, a hospital that still fails to show progress in reducing its rate may be subject to sanctions under The Health Care Facilities Act.

2. Evaluation and Validation:

Data reported to the NHSN undergo validation using a number of methods:

a. Point of entry checks: 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.

b. Monthly checks for internal consistency - Each month, PADOH staff download the data from the NHSN and run it through a computerized data validation code. Missing data or data elements that are unusual, inconsistent, or duplicate are flagged and investigated by sending a monthly data analysis and feedback report. This report is called the **Data Integrity Validation (DIV) Report** and consists of individualized reports sent to each hospital by the PADOH that identifies data quality issues that need to be investigated, verified, or resolved. The purpose of the DIV report is to ensure that the data supplied by the hospital, and the analysis that will be performed by PADOH, reflect as accurately as possible the HAI profile of that institution.

   Hospitals have 30 days from the end of the analysis month to make corrections to their data. At the end of the thirty day correction period, the database for the pre-defined reporting period is locked down and extracted from NHSN and saved to a secure drive for formal analysis and rate calculation. This data extraction or lockdown is necessary because users are able to make changes to data within NHSN at any time

   The first DIV report, for the period July through October 2008, was distributed in December 2008. In January 2009, the Department began distributing a monthly DIV report. Each series of reports showed significant reduction in the total number of errors or flagged data from the previous month.

c. Annual on-site audits - Audits of a sample of medical records are planned to be conducted by PADOH to assess compliance with reporting requirements. The purposes of the audit are to:

   1) Enhance the reliability and consistency in applying the surveillance definitions;
   2) Evaluate the adequacy of surveillance methods to detect infections;
   3) Evaluate intervention strategies designed to reduce or eliminate specific infections; and
   4) Provide in-person opportunities to discuss data inconsistencies identified, discrepancies and to discuss if records need to be modified by the hospitals.

3. Analysis:

a. Analysis Period

For this first report, the time period of analysis is **July through December 2008**. This period was chosen even though mandatory reporting by hospitals in Pennsylvania under Act 52 began in mid-February 2008. However, analysis of the earliest data found that many hospitals had difficulty entering information into NHSN, resulting in frequent errors. NHSN is a complex system, and most had no prior experience with it. By mid-2008, the quality of data entered into NHSN had largely stabilized, and the DIV reports provided a mechanism

to enable institutions to identify and correct data entry errors. Data from the last half of 2008 is therefore considered suitable for analysis.

Because the analysis period for this report is less than a full year in length, there are limitations to the interpretation of the results. Although there are not thought to be seasonal trends in HAIs, the occurrence of some infections may not be uniform throughout the year. More significantly, a six month period of analysis results in smaller numbers of infections available for analysis, even for the more common HAIs. The numbers are especially small for small hospitals. In many cases, this resulted in no or few infections reported for the benchmarking conditions. The small numbers result in statistically unstable rates as demonstrated by very wide confidence intervals.

Finally, the current report does not contain a detailed analysis of surgical site infections. For some of the benchmark surgical site infections (hip and knee prostheses) the time frame between the date of the procedure and the occurrence of an infection can be lengthy. NHSN permits a full 12 months for an implantable device or prosthesis-associated infection to be diagnosed and reported. For procedures that were done in the last half of 2008, this period does not close until the end of 2009. Additional time is then needed for data entry, validation, and for the data to be "locked down" for analysis purposes. A detailed analysis of surgical site infections will be contained in a subsequent report.

b. **Device-Associated HAIs (CAUTIs & CLABSIs)**:
CDC definitions for Device-Associated (DA) HAI's are located in "The NHSN Manual: Patient Safety Protocol" published by the Division of Healthcare Quality Promotion, National Center for Infectious Diseases within the CDC. Reportable DA-HAI's include: Central Line-Associated Infection (CLABSI), Catheter-Associated Urinary Tract Infection (CAUTI).

1) **CAUTI**:
   i. **Criteria**: Urinary tract infections (UTI) are the most common type of HAI. In national data, they account for more than 30% of infections reported by hospitals. Most are associated with urinary catheters and are referred to as Catheter-Associated Urinary Tract Infections (CAUTIs). Although generally assumed to have low associated morbidity, CAUTIs can in some cases lead to such complications as cystitis, pyelonephritis, gram-negative bacteremia, prostatitis, epididymitis, and orchitis in males and, less commonly, endocarditis, vertebral osteomyelitis, septic arthritis, endophthalmitis, meningitis and even death. The end result in these cases is increased patient morbidity/mortality; prolonged hospital stays, and increased healthcare costs.

   According to the 2008 NHSN Patient Safety Component Protocol definition, CAUTIs are infections where the patient had an indwelling urinary catheter at the time of, or within 48 hours before, onset of the event. There is no minimum period of time that the catheter must be in place in order for the UTI to be considered catheter-associated. An indwelling catheter (also called a Foley catheter) is a drainage tube that is inserted into the urinary bladder through the urethra, is left in place, and is connected to a closed collection system. (Straight in-and-out catheters are not included among NHSN-defined CAUTIs.)

There are numerous measures to reduce the occurrence of CAUTIs. One of the most important is to assess on a daily basis the need to have a urinary catheter, and to remove it at the earliest possible time. In general, the risk of infection rises the longer a catheter remains in place.

As of 2008, NHSN defined two specific types of catheter-associated UTI.

- Symptomatic UTI (SUTI): A SUTI must meet at least one of 4 NHSN-defined criteria, most of which involve a varying combination of signs and symptoms along with a laboratory diagnostic test or physician diagnosis.
- Asymptomatic Bacteruria (ASB): An ASB requires a urinary catheter within 7 days of culture, a positive culture, and no fever or urinary symptoms. ASB is generally not treated because it causes no symptoms and resolves on its own.

In January 2009, the NHSN definitions of UTI changed by eliminating the ASB definition. Consequently, ASB-defined events were removed from the data used for this analysis and report and only SUTI are included.

2) **CLABSI**:

i. **Criteria**: Central-line-associated blood stream infections (CLABSI) are primary bloodstream infections associated with the presence of a central line. According to national data, an estimated 248,000 bloodstream infections (BSI) occur in US hospitals each year. These infections are responsible for excess patient morbidity/mortality, increased hospital stays and increased costs. CLABSI can be prevented through proper management and decreased use of central lines. A central line is defined within NHSN as an intravascular catheter that terminates at or close to the heart or terminates in one of the great vessels and is used for infusion, withdrawal of blood, or hemodynamic monitoring. The NHSN manual also defines three specific types of central line: Umbilical catheter (neonatal intensive care units only), Temporary and Permanent catheters (Specialty care areas only).

According to the 2008 NHSN Patient Safety Component Protocol definition, CLABSIs include bloodstream infections where a central line or umbilical catheter was in place at the time of, or within 48 hours before, onset of event. There is no minimum period of time that the central line must be in place in order for the BSI to be considered central-line-associated.

As of 2008, NHSN defined two specific types of CLABSI:

- Laboratory-confirmed BSI (LCBSI): LCBI must meet one of three criteria.
- Clinical Sepsis (CSEP): Used to report primary BSIs in neonates and infants only.

4. **Descriptive Analysis**:

a. Hospitals in PA:
Characteristics of Hospitals in PA are outlined in Tables 1A and 1B, and were calculated from two major sources: NHSN annual survey, and the 2007 US Census data. The first source was used to calculate the percentages of facilities with certain characteristics like ownership, type, medical school affiliation, and number of ICPs. US Census data was used to calculate county population densities (total county population/ total county square miles),

and based on natural breaks in the density distribution, each county was then designated as rural (range 10-270 persons/sq mi), suburban (340-1000 persons/sq mi) or urban (1500-10,200 persons/sq mi). Each hospital was then designated as rural, suburban or urban based on county of address.

Two hundred and thirteen hospitals (83.5% of the facilities) completed the NHSN survey in 2008. Of these, more than two-thirds (70%) reported a non-profit ownership as compared to 27% that reported "for-profit" ownership. The remaining six hospitals were government-owned or physician-owned. Of the 8 facility types defined in NHSN, 72 % of Pennsylvania facilities were general hospitals; 10.8% were long-term acute care hospitals; 6% were rehabilitation facilities; 5.6% were psychiatric, and 2.8% were children's hospitals. Orthopedic, Oncology and Women's hospitals combined constituted less than 3% of facilities completing the survey.

Table 1A
Hospital Characteristics in Pennsylvania
NHSN Annual Survey

Hospital Characteristics	N	%
Hospital Completing the Survey 2008	**213**	**83.5%**
Facility Owner		
Government	5	2.3%
Non-profit	149	70.0%
For profit	58	27.2%
Physician(s)	1	0.5%
Facility Type		
Children's	6	2.8%
General	154	72.3%
Long-term Acute Care (LTAC)	23	10.8%
Oncology	2	0.9%
Orthopedic	2	0.9%
Psychiatric	12	5.6%
Rehab	13	6.1%
Women's	1	0.5%
Medical School Affiliation		
No Affiliation	150	70.4%
Limited	17	8.0%
Graduate	22	10.3%
Major	18	8.5%
Missing	6	2.8%
Number of Infection Preventionists (IPs)		
<1	1	0.5%

1	138	64.8%
2	38	17.9%
3+	36	17.0%

Table 1B
Hospital characteristics by Population Size
2007 US Census data

Urban Status*	**N=252**	
Rural	80	31.7%
Suburban	87	34.5%
Urban	85	33.7%
Hospital Bed Size		
<=200	168	66.7%
201-500	60	23.8%
501-1000	22	8.7%
>1000	2	0.8%
** Total county population/ total county square miles.		

Considering medical school affiliation among those who completed the survey, the majority (70%) of Pennsylvania hospitals do not have any teaching affiliations, while 10.3% reported limited affiliation with graduate training programs. Only eighteen hospitals (8.5%) were part of major teaching programs and about the same numbers (8.0%) had limited extent of teaching affiliations.

All hospitals were required to have at least one assigned infection preventionist (IP). About two-thirds (65%) of hospitals in PA have one IP, 18% had two IPs, and 17% reported having 3 or more IPs. However, these IP assignments only address who is assigned responsibility, and does not describe the total hours (i.e. FTE) devoted to infection prevention.

Each licensed hospital was matched by county of address to its county population density (county population/ county square miles). Four counties were designated as urban; fifteen counties as suburban; and the majority (48 counties) were rural. In PA, two-thirds (66.7%) of hospitals have 200 or less licensed beds, sixty hospitals (23.8%) have 201-500 beds, 22 (8.7%) hospitals have 501-1000 beds, and two (0.8%) have more than 1000 licensed beds.

b. Data Sources: Most data for the analyses came directly from the Patient Safety Component within the NHSN. There are two types of NHSN forms within the Device-associated module with data entry windows: the Event (i.e. HAI) form, which contains the information for the numerator of the rate calculation, includes all of HAI information

as well as patient-specific information as reported by the hospitals; and the Summary data form contains the aggregate denominator data on all of the device time (e.g. central line or urinary catheter time) in the facility or ward. The denominator data, which is not patient-specific and contains no individual patient data, consists of reported aggregate/total device days and patient days. It is a sum of all of the device time of all patients whether or not they had an HAI. Data are categorized by month of occurrence and location of occurrence. Consequently, risk adjustment of the results requires evaluating hospital characteristics and device utilization through statistical modeling described in detail later in this section.

c. Event Analysis: The analysis framework for the data collected through NHSN was developed in an effort to allow valid comparisons between infection profiles for each facility and the statewide patterns; as well as among facilities. In order to accomplish that goal several approaches were taken, including calculating crude rates. Because crude rates can produce misleading results by not accounting for differences in facilities or populations served, an alternative approach was utilized. This approach is known as the Standardized Infection Ratio (SIR).

   The SIR is defined as the ratio of the observed number of infections divided by the expected number of infections. The expected number is calculated based on the statewide rate for a particular infection. The SIR is best considered as a point estimate rather than exact measure and its accuracy may be influenced by measurement biases, potential confounders, and/or small sample sizes. Despite these and other limitations, SIR is considered to be the best statistical analytic approach when risk-adjusting is used in infection control. In particular, it has several advantages over direct standardization:

   i. it gives a better estimate for the true infection rate when there are relatively small numerators or denominators in some or all risk strata,
   ii. it gives a more precise representation of the infection rate
   iii. the distribution of patients by risk strata at a given hospital is less variable over time[4]

   In addition to a specific SIR, confidence intervals (CI) were also calculated because, similar to a margin of error, it takes into account the inherent variability of this measure and gives some idea of the precision of the estimate. The resulting CIs or margins of error allow for the classification of the SIRs for each facility into one of three categories, compared to the state rates:

   i. SIRs that are statistically less than the statewide rate (the *upper* limit of the confidence interval is <1.0)
   ii. SIRs that are no different from the statewide rate (the *lower* limit of the confidence interval is <1, but the *upper* limit is >1.0), or
   iii. SIRs that are greater than the statewide rate (the *lower* limit of the confidence interval is >1.0)

5. **Analysis Methods**

   a. Expected HAI and SIR Calculations: There are several steps involved with risk adjusting the SIR (#Observed HAIs/ #Expected HAIs). The key to this risk adjustment is the

[4] Gustafson, 2006

calculation of the Expected (i.e. expected number of infections) for each facility. At its most basic level, the expected is calculated by multiplying the total number of device days reported by a facility by the rate of the standard population—in this case, pooled facility rates for Pennsylvania *by ward category* (see Appendix 2 for ward category description). At this basic level, the Expected takes into account the volume of device days and the ward types for a specific facility. But statistical modeling often provides a means of more detailed and complete risk adjustment.

Before the data could be put into the model for analysis, some data management was necessary. First, facilities that were not open continuously during the period of data collection (July through December, 2008) were removed from the dataset. Also, urinary catheter infections were defined from the events data based on whether or not there was a urinary tract infection and if a catheter was present, in place, or removed.

Another issue was the presence of orphan records (i.e. facilities that recorded events but did not have corresponding device day information). By definition, there must be a device present to have a device-associated infection. The merging of the rate and event tables was set up to preserve all denominator (rate) information so that the number of device days and number of patient days were preserved in the analysis. The table below shows the impact of the orphan records on the sample sizes of events used in the models:

Events	Total	Orphan	Adjusted
CAUTI	2357	33	2324
CLABSI	1356	61	1295

b. Pathogen Analysis: Frequency data for pathogen analyses was obtained from lab data reported by facilities into NHSN. The percentage of the top seven CAUTI and CLABSI pathogens as compared to all pathogens reported is displayed in the results section.

c. Facility Infection Rates: Facility Infection Rates for CAUTI and CLABSI were obtained by dividing the total number of events (UTI or BSI) by device days (urinary catheters or central-line) per facility for each of the ward types present in the facility.

d. Statewide Rates and Device Utilization Ratios: Pooled statewide rates are defined as the total number of CAUTIs/ CLABSI per 1000 catheter/central-line days per ward category across the state. Statewide rates per ward category are based on nineteen ward categories derived from CDC-defined ward types previously described in this report.

   Pooled statewide device utilization ratios are calculated from the sum of all device days for each of the nineteen ward categories divided by the sum of all patient days for the same ward categories.

e. National Comparison of Statewide Rates and Device Utilization Ratios: Pooled statewide CAUTI/CLABSI rates of CDC-defined ward types that exist in PA hospitals were compared to the national pooled rates for like ward types calculated by the CDC. These ward types were divided into critical care and non-critical care wards. There were nine critical care wards consisting of the following units: Burn, Coronary, Cardio-Thoracic Surgical, Medical, Adult Medical/Surgical, Pediatric Medical/Surgical, and Trauma. There were five non-critical care wards consisting of the following units: Adult Step-Down, Medical, Medical/Surgical,

Rehabilitation, and Surgical. Additionally, pooled statewide urinary catheter/ central line utilization ratios for the same ward types were also compared to those ratios calculated by the CDC[5]. CLABSI rates for critical care ward comparisons were divided up into four tables—Intensive Care Units and Other wards (ICUother), Neonatal Intensive Care Units (NICU) (umbilical catheter), NICU (central line), and Specialty Care Area (permanent line). The same was true for critical care device utilization ratio comparisons. For comparing non-critical care wards, only two tables were needed—one for CLABSI rate comparisons and one for central line utilization ratio comparisons.

Comparisons between Pennsylvania facilities and national data must be interpreted with care, since under Act 52 all PA facilities must report all infections. In other states reporting is voluntary and facilities are self-selected. Where reporting is mandatory, in most places only selected infection types are required. Voluntary reporters may also choose to report infections only in certain locations (like intensive care units) rather than the entire facility and they are only required to participate in NHSN for six out of twelve months to remain active in the system.

f. Risk Adjustment of Facility SIRs: The first step in this modeling involved identifying possible characteristics that were associated with the outcome of interest and then using statistical software to test these for significance. Those characteristics that were found to be significant were retained in the model.

The device utilization ratio (DUR) is the most important and powerful risk factor for device associated infections and reported SIRs are adjusted for the DUR of each facility. The results from this showed the numerical coefficients and the corresponding levels of significance that were used to weight these factors to derive the number of expected infections. Since infections involve patients, patient characteristics are the most important ones to consider when risk adjusting. As previously mentioned, patient-level information was only available for those patients who were reported to have had an HAI and not for all the patients who had a device (i.e. urinary catheter or central line) inserted. Therefore, it was necessary to use hospital characteristics as surrogates in these models. For this analysis, those variables included DUR (device utilization ratio), licensed bed size, medical school affiliation, and the urbanization parameter previously mentioned.

DUR distributions of CAUTI and CLABSI were skewed and transformed by natural log to mask out the impact of smaller DURs by larger ones. SAS Proc GENMOD (specifying Poisson model) was used for this project. The facility-wide totals of infection (event) counts, catheter days, and patient days were entered into the model. Both zero device days and DURs were excluded from the model because natural log transformation cannot be applied to zero values. From the models, the Expected numbers of infections could be obtained. The SIRs were then obtained by dividing the observed numbers of CAUTIs and CLABSIs by the expected number of infection counts, respectively.

The p-value is a commonly used measure to assess statistical significance. Most often a p-value of 0.05 is an important threshold so that values less than or equal to this are significant while those greater are not statistically significant. By this criterion, it was found

[5] Jonathan R. Edwards, et al; National Healthcare Safety Network (NHSN) Report, data summary for 2006 through 2008, issued December 2009; Published by APIC, Inc. Am J Infect Control 2009;37:783-805

that DU had the strongest affect on the occurrence of CAUTI infections and was kept in the model taking the form:

$$\log (\text{CAUCount}) = b1 * \log (\text{DUR})$$

In this model, all the other potential hospital characteristics were dropped out so that the formula can be considered the best or most appropriate model for fitting CAUTI events with corresponding hospital characteristics. This equation states a proportional change in DUR (by the weighting factor b1) would be expected to yield a corresponding proportional change in CAUTI infections for a particular facility. Proc GENMOD can calculate an expected CAUTI count (CAUCount). From this, it is easy to calculate the SIR since SIR=CAUTICount/expectedCAUTICount.

Then the following equations can be applied to the data for each organizational ID to calculate lower and upper bounds assuming a 95% confidence interval.

The 95% confidence interval for the SIRs of each type of device associated infections has the following lower and upper limits:

1) $SIR_L = O(1 - 1/9O - Z_{\alpha/2}/\sqrt{9O})^3/E$

2) $SIR_U = (O+1)((1 - 1/9(O+1) + Z_{\alpha/2}/\sqrt{9(O+1)})^3/E$

Where "O" is the observed number of infections and is obtained from data reported by hospitals and "E" is the expected number of infections which is derived from the statistical models described above.

In general, the same methods can be applied to CLABSI as for CAUTI. However, CLABSI is more complex to analyze and interpret. In the case of CAUTI, only one rate table was used to model the data. With CLABSIs, three separate rate tables were used: Intensive Care Unit (ICU)/Other, Neonatal Intensive Care Unit (NICU), and Specialty Care Area (SCA). These were individually merged with the events table (preserving all denominator information). Prior to merging, ICU/Other, NICU, and SCA were summed by organization ID respectively in the same manner as the CAUTI.

Both the NICU and SCA had two outcomes that were analyzed. The NICU wards recorded both regular CLABSI and umbilical catheter infection events and a separate regression model was used for both classes of events. Similarly, the SCA wards recorded both permanent and temporary CLABSI events and the risk profiles for these were evaluated separately. One complicating factor is that some NICU facilities recorded both CLABSI and umbilical catheter infections in the same patient while some SCAs recorded both temporary and permanent events in the same patient. In the case of both regular CLABSI and umbilical catheter infections, the regular CLABSIs were reclassified as umbilical catheter infections. Likewise, in the case of both temporary and permanent events in the same patient, the permanent events were reclassified as temporary as per NHSN definitions.

Similar Poisson stepwise techniques were used for the CLABSI data as for CAUTI. One difference was that in the NICU wards, birth weight was looked as an additional separate predictor for infection. However, this was not found to be statistically significant. After evaluating each separate risk factor, the device utilization rate (DUR) generally came out

as being the most important risk factor for the model. Thus, five equations were derived similar to the CAUTI equation:

(1) $\log(\text{CLABSICountICUO}) = b1*\log(DUR_{ICUO})$

(2) $\log(\text{CLABSICountNICU}) = b2*\log(DUR_{NICU})$

(3) $\log(\text{CLABSICountumbC}) = b3*\log(DUR_{UMBC})$

(4) $\log(\text{CLABSICountSCAPerm}) = b4*\log(DUR_{SCAP})$

(5) $\log(\text{CLABSICountSCATemp}) = b5*\log(DUR_{SCAT})$

Equations (1) – (5) were used to obtain individual expected counts for each type of CLABSI. After performing the stepwise procedures similar to what was done for the CAUTIs, these equations can be considered the best models for fitting the hospital characteristics data. The interpretation here is similar to that of the CAUTIs: looking at a particular type of CLABSI, a proportional change in its DUR would be expected to yield a proportional change in its infection count. From this, the expression for SIR was used by taking the sum of each of these:

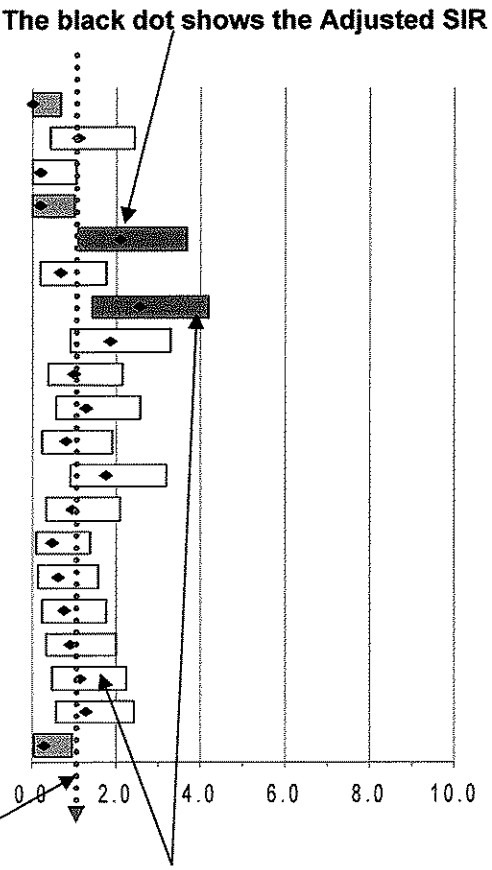
$$SIR = \Sigma\text{CLABSICount}/\ \Sigma\text{ExpectedCLABSICount} = \frac{\text{CombinedCLABSICount}}{\text{CombinedExpectedCLABSICount}}$$

Substituting the terms CombinedCLABSICount and CombinedExpectedCLABSICount into O and E in 1) and 2), gives lower and upper confidence limits for the SIRs.

How to Read Adjusted SIR Tables:

NHSN Number	Facility Name	# CAUTI reported	# CAUTI expected	# CAUTI difference	95% Confidence Interval	
Facility		Obs	Exp	Diff	Adjusted SIR	Confidence Interval
#	Hospital A	0	5.3	-5.3	0.00	0 - 0.69
#	Hospital B	6	5.4	0.6	1.12	0.41 - 2.43
#	Hospital C	1	5.4	-4.4	0.18	0 - 1.03
#	Hospital D	1	5.7	-4.7	0.18	0 - 0.98
#	Hospital E	12	5.7	6.3	2.10	1.09 - 3.68
#	Hospital F	4	5.8	-1.8	0.69	0.18 - 1.76
#	Hospital G	15	5.9	9.1	2.55	1.43 - 4.21
#	Hospital H	11	6.0	5.0	1.84	0.92 - 3.29
#	Hospital I	6	6.0	0.0	0.99	0.36 - 2.16
#	Hospital J	8	6.1	1.9	1.31	0.56 - 2.58
#	Hospital K	5	6.2	-1.2	0.81	0.26 - 1.89
#	Hospital L	11	6.2	4.8	1.77	0.88 - 3.17
#	Hospital M	6	6.3	-0.3	0.96	0.35 - 2.08
#	Hospital N	3	6.3	-3.3	0.47	0.1 - 1.38
#	Hospital O	4	6.5	-2.5	0.62	0.17 - 1.58
#	Hospital P	5	6.6	-1.6	0.76	0.24 - 1.77
#	Hospital Q	6	6.6	-0.6	0.91	0.33 - 1.98
#	Hospital R	8	7.0	1.0	1.14	0.49 - 2.24
#	Hospital S	9	7.1	1.9	1.27	0.58 - 2.42
#	Hospital T	2	7.4	-5.4	0.27	0.03 - 0.97
#	Hospital U	N/A	N/A	N/A	N/A	N/A

N/A: Not Available – Hospitals with SIRs and DUs of N/A had zero device days and therefore SIR and DU could not be calculated



Significantly higher than state rate (95% confidence interval (margin of error) is completely above 1)

Significantly lower than state rate (95% confidence interval (margin of error) is completely below 1)

Not significantly different than state rate (95% confidence interval (margin of error) includes 1)
SIR of 1 represents the state rate of infection

g. All other infections: Act 52 requires that hospitals report all infections that occur throughout the facility. For the infection types that are not included in the benchmarking process, hospitals are not required to report denominator information. In addition, many of these "other" infections are not device-associated (e.g. skin and soft tissue infections and gastrointestinal infections). Because hospitals have such great variation in size, complexity of care, patient profiles, and location, simply presenting the number of infections by type for each facility is not useful. Therefore, these infections are presented per 1,000 patient days. Of note, such crude, unadjusted rates are subject to significant limitations. This is the reason this information should not be used for benchmarking purposes. The numbers and rates are presented for informational purposes and to comply with the requirements of Act 52.

h. Methicillin-resistant *Staphylococcus aureus* (MRSA): Since a significant focus of Act 52 relates to infections that are attributed to MRSA, information is provided on the proportion of reported infections due to MRSA for each infection type. These numbers represent the MRSAs that are associated with an actual HAI infection. Act 52 also requires all facilities to screen for the presence of MRSA in certain patients on admission. However, the screening data are not required to be reported to PADOH, since they are not associated with a specific infection (in most instances they represent colonization). However, PADOH plans to assess data that are related to MRSA screening, including screening practices and prevalence. This information will be the basis for a future report.

C. Results

1. **Statewide results**:
   a. During July – December 2008, a total of 13,771 HAIs were reported by Pennsylvania hospitals. Among these infections, the five most commonly reported types were urinary tract infections (UTI) (24.83%), surgical site infections (SSI) (22.23%), gastrointestinal infections (GI) (18.15%), blood stream infections (BSI) (14.38%), and pneumonias (10.76%). Among the UTIs, 69% were associated with a urinary catheter (CAUTI), and among the BSI, 68% were associated with a central line (CLABSI).

Table 2
Percentage of Healthcare Associated Infections in PA Hospitals by Type
July to December 2008

Infection Type	Number of Infections	%
Bone and Joint (BJ)	5	0.04
Blood Stream Infection (BSI)	1,980	14.38
Central Nervous System (CNS)	39	0.28
Cardiovascular System (CVS)	73	0.53
Ear Nose and Throat (EENT)	322	2.34
Gastrointestinal (GI)	2,499	18.15
Lower Respiratory Tract (LRI)	411	2.98
Pneumonia (PNEU)	1,485	10.78
Reproductive (REPR)	59	0.43
Surgical Site Infection (SSI)	3,062	22.23
Skin and Soft Tissue (SST)	418	3.04
Urinary Tract Infection (UTI)	3,418	24.82
TOTAL	**13,771**	**100%**

b. Among all the HAIs reported during this period, a total of 1,118 (8.12%) infections were associated with methicillin-resistant *Staphylococcus aureus* (MRSA). By infection type, the highest proportion associated with MRSA were skin & soft tissue infections (21.3%), followed by SSI (16.8%), and lower respiratory tract infections (14.4%). MRSA infrequently resulted in gastrointestinal infections (0.1%) or urinary tract infections (1.6%). See Table 3.
c. The total number of patient days reported by PA hospitals is 4,853,593. Using this number as the statewide denominator, and based on the reported 13,771 infections, the overall state infection rate is 2.84 HAIs per 1,000 patient days.
d. **Crude rates** for each facility are included for reference only. These crude rates are not risk adjusted and therefore are **NOT valid for facility- to-facility comparisons**. These numbers and rates will be used in future reports to illustrate infection trends within each facility.

Table 3
Healthcare Associated Infections in PA Hospitals by
Methicillin-Resistant *Staphylococcus aureaus* Infection
July to December 2008

Infection Type	Total count	MRSA count	% of MRSA
Bone & Joint	5	2	40.00
Bloodstream (BSI)	1,980	203	10.25
Central Nervous System (CNS)	39	1	2.56
Cardiovascular (CVS)	73	12	16.44
Eyes Ear Nose Throat (EENT)	322	16	4.97
Gastrointestinal (GI)	2,499	3	0.12
Lower respiratory infections (LRI)	411	59	14.36
Pneumonia (PNEU)	1,485	163	10.98
Reproductive (REPR)	59	0	0
Surgical Site Infection (SSI)	3,062	514	16.79
Skin & Soft Tissue (SST)	418	89	21.29
Urinary Tract Infection (UTI)	3,418	56	1.64
Total	**13,771**	**1,118**	**8.12**

Table 4
Healthcare Associated Infections in PA Hospitals by Type
Hospital-wide Crude Rate per 1,000 patient days
July to December 2008

orgID	Hospital Name	Total Patient Days	Infections	BSI	EENT	GI	LRI	PNEU	REPR	SSI	SST	UTI	Other	Crude Infection Rate/ 1000 pt days
11838	ABINGTON MEMORIAL HOSPITAL	86,802	236	36	1	31	3	45	1	54	6	59	0	2.72
10585	ALBERT EINSTEIN MEDICAL CENTER	64,057	298	95	4	35	2	33	1	48	8	67	5	4.65
12500	ALBERT EINSTEIN MEDICAL CENTER AT ELKINS PARK	5,594	10	2	0	5	0	0	0	2	0	1	0	1.79
12508	ALBERT EINSTEIN MEDICAL CENTER – MOSS REHAB	20,924	58	3	0	20	0	0	0	0	2	33	0	2.77
10648	ALLEGHENY GENERAL HOSPITAL	81,994	461	64	3	100	66	38	0	103	1	78	8	5.62
11842	ALLE-KISKI MEDICAL CENTER	22,901	47	3	0	14	0	1	0	10	3	16	0	2.05
11962	ALLENTOWN STATE HOSPITAL	7,264	21	0	6	1	0	0	1	0	9	4	0	2.89
12591	ALLIED SERVICES INSTITUTE OF REHABILITATION	12,111	15	0	0	4	0	0	0	0	0	11	0	1.24
10178	ALTOONA REGIONAL HEALTH SYSTEM	43,174	82	8	2	4	0	17	0	42	6	3	0	1.90
12350	ANGELA JANE PAVILION REHABILITATION HOSPITAL	891	4	0	0	0	0	0	0	0	0	4	0	4.49
11388	ARIA HEALTH	71,519	291	55	2	70	3	26	0	44	4	82	5	4.07
12057	ARMSTRONG COUNTY MEMORIAL HOSPITAL	16,141	12	1	0	4	0	1	0	5	0	1	0	0.74
12037	BARIX CLINICS OF PENNSYLVANIA, LLC	766	2	0	0	0	0	0	0	2	0	0	0	2.61
12404	BARNES-KASSON COUNTY HOSPITAL	2,834	1	0	0	1	0	0	0	0	0	0	0	0.35
12505	BELMONT CENTER FOR COMPREHENSIVE TREATMENT	23,734	0	0	0	0	0	0	0	0	0	0	0	0.00

orgID	Hospital Name	Total Patient Days	Infections	BSI	EENT	GI	LRI	PNEU	REPR	SSI	SST	UTI	Other	Crude Infection Rate/ 1000 pt days
11442	BERWICK HOSPITAL CENTER	8,531	3	0	0	1	0	0	0	0	0	2	0	0.35
12008	BLOOMSBURG HOSPITAL	7,176	3	0	0	0	0	2	0	1	0	0	0	0.42
12361	BRADFORD REGIONAL MEDICAL CTR	5,124	14	1	0	4	0	3	0	3	0	3	0	2.73
11979	BRANDYWINE HOSPITAL	18,322	31	2	0	10	0	2	0	8	0	9	0	1.69
12623	BROOKE GLEN BEHAVIORAL HOSPITAL	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12418	BROOKVILLE HOSPITAL	3,721	10	1	0	1	0	1	3	0	0	4	0	2.69
13080	BROWNSVILLE TRI COUNTY HOSPITAL	3,807	1	0	0	0	0	1	0	0	0	0	0	0.26
11417	BRYN MAWR REHAB HOSPITAL	23,443	64	3	0	22	0	0	0	0	4	35	0	2.73
12461	BUCKTAIL MEDICAL CENTER	481	0	0	0	0	0	0	0	0	0	0	0	0.00
11736	BUTLER MEMORIAL HOSPITAL	28,358	82	3	1	4	1	11	0	33	4	25	0	2.89
11586	CANONSBURG GENERAL HOSPITAL	10,404	19	1	0	5	0	1	0	9	1	2	0	1.83
11997	CARLISLE REGIONAL MEDICAL CENTER	13,657	64	2	0	4	0	6	1	35	2	14	0	4.69
11913	CHAMBERSBURG HOSPITAL	23,492	49	5	0	7	0	7	0	17	0	13	0	2.09
11956	CHARLES COLE MEMORIAL HOSPITAL	4,987	10	2	0	0	0	1	0	2	0	5	0	2.01
12016	CHESTER COUNTY HOSPITAL	29,447	92	6	4	10	4	7	1	9	6	45	0	3.12
12304	CHESTNUT HILL HOSPITAL	15,170	31	4	0	8	1	7	0	3	0	8	0	2.04
12336	CHILDRENS HOME OF PITTSBURGH, THE	1,786	3	3	0	0	0	0	0	0	0	0	0	1.68
10306	CHILDRENS HOSPITAL OF PHILADELPHIA	62,287	149	101	0	0	0	5	0	7	0	36	0	2.39
11640	CHILDREN'S HOSPITAL OF PITTSBURGH	31,932	76	29	0	14	6	8	0	12	0	6	1	2.38
12266	CHILDRENS INSTITUTE OF PITTSBURGH	9,523	2	1	0	1	0	0	0	0	0	0	0	0.21
11654	CLARION HOSPITAL	5,649	6	1	0	0	0	2	0	1	0	2	0	1.06

orgID	Hospital Name	Total Patient Days	Infections	BSI	EENT	GI	LRI	PNEU	REPR	SSI	SST	UTI	Other	Crude Infection Rate/ 1000 pt days
12454	CLARION PSYCHIATRIC CENTER	N/A	3	0	3	0	0	0	0	0	0	0	0	N/A
12051	CLARKS SUMMIT STATE HOSPITAL	40,766	11	0	5	0	0	0	1	0	1	4	0	0.27
11843	CLEARFIELD HOSPITAL	10,158	12	0	0	0	0	1	0	5	0	6	0	1.18
11914	COMMUNITY MEDICAL CENTER	28,156	41	3	0	2	0	9	0	25	0	0	2	1.46
10280	CONEMAUGH VALLEY MEMORIAL HOSP	61,738	156	32	2	37	14	2	0	34	2	29	4	2.53
11872	COORDINATED HEALTH ORTHOPEDIC HOSPITAL LLC	844	5	0	0	0	0	0	0	4	0	1	0	5.92
12283	CORRY MEMORIAL HOSPITAL	2,619	1	0	0	0	0	1	0	0	0	0	0	0.38
12273	CRICHTON REHABILITATION CENTER	4,709	3	0	0	1	0	0	0	0	0	2	0	0.64
11839	CROZER CHESTER MEDICAL CENTER	50,616	63	18	0	9	0	7	0	22	3	4	0	1.24
11851	CROZER CHESTER MEDICAL CENTER- SPRINGFIELD HOSP	3,340	3	0	0	1	0	1	0	1	0	0	0	0.90
11932	CROZER CHESTER MEDICAL CENTER- TAYLOR HOSP	20,053	33	2	0	22	0	1	0	3	1	4	0	1.65
11848	DANVILLE STATE HOSPITAL	28,462	16	0	5	0	0	1	1	0	5	4	0	0.56
11972	DELAWARE COUNTY MEMORIAL HOSPITAL	29,508	39	11	1	11	0	4	0	3	1	8	0	1.32
12738	DEVEREUX MAPLETON PSYCHIATRIC INSTITUTE	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11743	DIVINE PROVIDENCE HOSP	2,352	1	0	0	0	0	0	0	0	1	0	0	0.43
10190	DOYLESTOWN HOSPITAL	25,813	86	4	2	23	1	12	1	18	2	23	0	3.33
12451	DSI OF BUCKS COUNTY	144	1	0	0	0	0	0	0	1	0	0	0	6.94
11606	DUBOIS REGIONAL MEDICAL CTR	18,268	80	10	0	14	2	9	0	33	1	10	1	4.38
12965	EAGLEVILLE HOSPITAL	7,274	0	0	0	0	0	0	0	0	0	0	0	0.00
12348	EASTERN REGIONAL MEDICAL CENTER	4,987	31	17	1	4	0	1	0	0	0	8	0	6.22

orgID	Hospital Name	Total Patient Days	Infections	BSI	EENT	GI	LRI	PNEU	REPR	SSI	SST	UTI	Other	Crude Infection Rate/ 1000 pt days
11929	EASTON HOSPITAL	24,575	109	24	0	19	5	8	0	13	2	36	2	4.44
12552	EDGEWOOD SURGICAL HOSP	181	0	0	0	0	0	0	0	0	0	0	0	0.00
11859	ELK REGIONAL HEALTH CENTER	6,538	11	0	0	1	1	3	0	0	3	3	0	1.68
11779	ELLWOOD CITY HOSPITAL	5,643	11	1	0	5	0	0	0	0	0	5	0	1.95
11764	EPHRATA COMMUNITY HOSP	15,859	21	2	0	0	0	4	0	10	0	5	0	1.32
11701	EVANGELICAL COMMUNITY HOSP	11,968	18	0	0	3	0	1	0	6	1	7	0	1.50
11639	EXCELA HEALTH FRICK HOSPITAL	11,183	12	0	0	3	0	3	0	6	0	0	0	1.07
11651	EXCELA HEALTH LATROBE HOSPITAL	20,892	31	4	0	5	0	2	0	16	1	3	0	1.48
11637	EXCELA HEALTH WESTMORELAND REGIONAL HOSPITAL	65,649	52	6	0	14	0	6	0	7	3	16	0	0.79
12565	FAIRMOUNT BEHAVIORAL HEALTH SYSTEM	N/A	127	0	75	0	0	0	10	0	9	33	0	N/A
12050	FIRST HOSPITAL OF WYOMING VALLEY	14,198	0	0	0	0	0	0	0	0	0	0	0	0.00
12832	FOUNDATIONS BEHAVIORAL HEALTH - UHS OF DOYLESTOWN	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12488	FRIENDS HOSPITAL	28,139	1	0	0	1	0	0	0	0	0	0	0	0.04
11939	FULTON COUNTY MEDICAL CENTER	2,056	0	0	0	0	0	0	0	0	0	0	0	0.00
11993	GEISINGER HEALTHSOUTH REHABILITATION HOSPITAL	5,473	4	0	2	1	0	0	0	0	0	1	0	0.73
11775	GEISINGER MEDICAL CENTER	61,711	249	43	0	25	2	19	0	104	4	51	1	4.03
11781	GEISINGER SOUTH WILKES BARRE	4,787	16	1	0	2	1	0	0	9	0	3	0	3.34
11780	GEISINGER WYOMING VALLEY	28,296	99	17	0	4	1	13	0	44	0	20	0	3.50
11531	GETTYSBURG HOSPITAL	7,515	17	0	0	3	0	1	1	10	1	1	0	2.26
12262	GIRARD MEDICAL CENTER	17,086	23	13	0	0	0	1	0	0	0	9	0	1.35
12241	GNADEN HUETTEN MEMORIAL HOSPITAL	7,260	15	1	0	2	0	1	0	10	0	1	0	2.07
11712	GOOD SAMARITAN HOSPITAL, THE	22,238	65	7	4	7	3	3	0	20	7	14	0	2.92

orgID	Hospital Name	Total Patient Days	Infections	BSI	EENT	GI	LRI	PNEU	REPR	SSI	SST	UTI	Other	Crude Infection Rate/ 1000 pt days
13929	GOOD SHEPHERD PENN PARTNERS	931	2	2	0	0	0	0	0	0	0	0	0	2.15
11896	GOOD SHEPHERD REHABILITATION HOSPITAL, THE	11,331	31	3	0	4	0	0	0	0	0	24	0	2.74
11887	GOOD SHEPHERD SPECIALTY HOSPITAL	5,221	40	11	0	7	0	1	0	0	2	19	0	7.66
11847	GRAND VIEW HOSPITAL	23,358	53	3	0	9	0	14	0	17	2	8	0	2.27
11722	GROVE CITY MEDICAL CENTER	6,461	14	1	0	3	0	1	1	1	3	4	0	2.17
11437	HAHNEMANN UNIVERSITY HOSPITAL	63,854	120	31	1	49	1	8	0	2	3	24	1	1.88
11725	HAMOT MEDICAL CENTER	39,577	150	9	0	16	3	15	0	44	1	62	0	3.79
11899	HANOVER HOSPITAL	10,765	29	1	0	8	0	1	0	7	1	11	0	2.69
11878	HAZLETON GENERAL HOSPITAL	18,376	38	0	0	18	0	2	0	3	1	14	0	2.07
11727	HEALTHSOUTH HARMARVILLE REHABILITATION HOSPITAL	17,726	40	3	2	16	1	1	0	0	2	15	0	2.26
12254	HEALTHSOUTH HOSPITAL OF PITTSBURGH	9,785	48	8	0	26	5	1	0	0	1	7	0	4.91
11667	HEALTHSOUTH NITTANY VALLEY REHABILITATION HOSPITAL	6,429	18	1	0	4	0	0	0	0	1	12	0	2.80
12388	HEALTHSOUTH REGIONAL SPECIALTY HOSPITAL	6,663	47	8	0	13	0	7	0	0	0	19	0	7.05
11903	HEALTHSOUTH REHAB HOSP OF ALTOONA	11,317	21	2	0	5	1	1	0	0	5	7	0	1.86
11810	HEALTHSOUTH REHAB HOSP OF ERIE INC	8,032	15	1	0	1	1	1	0	0	2	9	0	1.87
12402	HEALTHSOUTH REHAB HOSP OF MECHANICSBURG	7,446	15	1	0	6	0	1	0	0	0	7	0	2.01
12139	HEALTHSOUTH REHAB HOSP OF READING	6,829	16	1	2	1	0	0	0	0	0	12	0	2.34
12066	HEALTHSOUTH REHAB HOSP OF SEWICKLEY	4,541	15	0	0	2	0	0	0	0	1	12	0	3.30

orgID	Hospital Name	Total Patient Days	Infections	BSI	EENT	GI	LRI	PNEU	REPR	SSI	SST	UTI	Other	Crude Infection Rate/ 1000 pt days
12058	HEALTHSOUTH REHAB HOSP OF YORK	10,125	22	0	0	7	0	0	0	0	0	15	0	2.17
12571	HEART OF LANCASTER REGIONAL MEDICAL CENTER	3,353	3	0	0	0	0	1	0	1	0	0	1	0.89
11831	HERITAGE VALLEY BEAVER MEDICAL CENTER	34,571	80	9	0	15	0	6	1	26	2	21	0	2.31
10375	HERITAGE VALLEY SEWICKLEY	22,112	26	3	0	6	0	2	1	5	1	7	1	1.18
11902	HIGHLANDS HOSPITAL	5,867	7	3	0	1	0	0	0	1	0	1	1	1.19
11973	HOLY REDEEMER HOSP & MED CTR	33,506	49	11	0	7	0	0	1	9	2	19	0	1.46
12387	HOLY SPIRIT HOSPITAL	31,669	92	10	4	23	0	9	0	20	4	22	0	2.91
12543	HORSHAM CLINIC	N/A	70	0	22	0	5	4	0	0	19	20	0	N/A
12134	HOSP OF FOX CHASE CANCER CTR	11,091	69	18	0	0	0	11	0	22	0	18	0	6.22
10219	HOSP OF THE UNIV OF PA	116,109	727	62	10	166	76	51	0	139	43	172	8	6.26
11759	INDIANA REGIONAL MEDICAL CENTER	18,803	58	4	0	10	0	6	0	8	8	22	0	3.08
11724	J C BLAIR MEMORIAL HOSP	6,495	37	1	2	1	0	9	0	14	0	9	1	5.70
11954	JAMESON MEMORIAL HOSPITAL	20,202	33	1	0	16	0	4	0	4	0	8	0	1.63
11459	JEANES HOSPITAL	16,420	32	5	0	6	0	1	0	8	3	9	0	1.95
10237	JEFFERSON REGIONAL MEDICAL CENTER	44,487	143	15	1	14	1	25	0	51	2	31	3	3.21
12337	JENNERSVILLE REGIONAL HOSPITAL	6,504	21	0	0	2	0	8	0	5	0	6	0	3.23
11689	JERSEY SHORE HOSPITAL	2,110	1	0	0	0	0	0	0	1	0	0	0	0.47
11861	JOHN HEINZ INSTITUTE OF REHABILITATION	10,804	45	0	1	27	0	2	0	0	0	15	0	4.17
12111	KANE COMMUNITY HOSPITAL	2,302	3	0	0	0	0	0	0	2	0	1	0	1.30
12609	KENSINGTON HOSPITAL	2,259	0	0	0	0	0	0	0	0	0	0	0	0.00
12430	KIDSPEACE ORCHAD HILLS CAMPUS	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12268	KINDRED HOSPITAL AT HERITAGE VALLEY	4,868	34	5	0	10	11	0	0	0	0	8	0	6.98

orgID	Hospital Name	Total Patient Days	Infections	BSI	EENT	GI	LRI	PNEU	REPR	SSI	SST	UTI	Other	Crude Infection Rate/ 1000 pt days
12504	KINDRED HOSPITAL-DELAWARE COUNTY	3,505	6	0	0	0	0	0	0	0	0	6	0	1.71
11832	KINDRED HOSPITAL-PHILADELPHIA	7,212	14	1	0	1	1	0	0	0	0	11	0	1.94
12908	KINDRED HOSPITAL PHILADELPHIA-HAVERTOWN	4,379	9	0	0	2	0	0	0	0	0	7	0	2.06
12358	KINDRED HOSPITAL-PITTSBURGH	6,743	32	8	3	11	0	1	0	0	0	9	0	4.75
12296	KINDRED HOSPITAL PITTSBURGH- NORTH SHORE	4,356	8	7	0	0	0	0	0	0	0	1	0	1.84
12485	KINDRED HOSPITAL-WYOMING VALLEY	3,795	12	5	0	0	0	0	0	0	0	7	0	3.16
12624	KIRKBRIDE CENTER													
10183	LANCASTER GENERAL HOSPITAL	81,748	219	19	3	14	28	32	3	88	7	20	5	2.68
12335	LANCASTER REGIONAL MEDICAL CTR	11,887	9	4	0	0	0	0	0	4	0	1	0	0.76
12628	LANCASTER REHABILITATION HOSPITAL	7,583	40	0	0	1	0	0	0	0	0	39	0	5.27
12032	LANSDALE HOSPITAL	10,843	28	3	0	4	1	5	0	1	2	12	0	2.58
11884	LEHIGH VALLEY HOSPITAL	98,286	341	67	0	51	4	33	1	73	1	108	3	3.47
11898	LEHIGH VALLEY HOSPITAL - MUHLENBERG	23,973	59	10	0	16	2	3	0	5	2	19	2	2.46
11825	LEWISTOWN HOSPITAL	12,571	16	0	0	5	0	2	0	4	0	5	0	1.27
12005	LIFECARE HOSPITALS OF CHESTER COUNTY	4,517	16	7	0	3	0	1	0	0	0	5	0	3.54
11945	LIFECARE HOSPITALS OF PITTSBURGH	15,237	13	2	1	5	0	1	0	0	1	3	0	0.85
12385	LIFECARE HOSPITALS OF PITTSBURGH – NORTH CAMPUS	4,375	0	0	0	0	0	0	0	0	0	0	0	0.00
12097	LOCK HAVEN HOSPITAL	3,198	5	0	0	0	0	0	0	1	0	4	0	1.56
12390	LOWER BUCKS HOSPITAL	11,371	4	1	0	0	0	2	0	0	0	1	0	0.35
12146	MAGEE REHAB HOSPITAL	15,285	19	0	0	0	0	0	0	0	0	19	0	1.24
10301	MAGEE WOMENS HOSPITAL OF UPMC HEALTH SYSTEM	46,121	95	3	11	13	6	8	1	38	2	13	0	2.06

orgID	Hospital Name	Total Patient Days	Infections	BSI	EENT	GI	LRI	PNEU	REPR	SSI	SST	UTI	Other	Crude Infection Rate/ 1000 pt days
11750	MAIN LINE HOSPITAL - PAOLI	24,458	36	5	0	3	0	8	0	11	1	5	3	1.47
11753	MAIN LINE HOSPITAL BRYN MAWR	49,231	67	12	0	18	0	15	0	12	1	9	0	1.36
11770	MAIN LINE HOSPITAL LANKENAU	42,245	231	49	5	15	5	60	0	40	3	54	0	5.47
12338	MARIAN COMMUNITY HOSPITAL	5,645	11	0	0	3	0	1	0	5	0	2	0	1.95
12147	MEADOWS PSYCHIATRIC CENTER, THE	N/A	33	0	12	0	1	0	2	0	12	6	0	N/A
11583	MEADVILLE MEDICAL CENTER	17,576	60	1	1	6	1	7	0	15	6	22	1	3.41
11633	MEMORIAL HOSPITAL YORK	12,977	22	1	0	0	0	5	0	12	0	4	0	1.70
12549	MEMORIAL HOSPITAL, INC. TOWANDA	3,123	0	0	0	0	0	0	0	0	0	0	0	0.00
11683	MERCY FITZGERALD HOSPITAL	27,273	87	17	0	22	4	15	0	18	2	8	1	3.19
12533	MERCY HOSPITAL SCRANTON	22,669	27	10	0	0	0	5	0	6	0	6	0	1.19
11946	MERCY PHILADELPHIA HOSPITAL	22,450	42	22	0	12	0	4	0	4	0	0	0	1.87
12604	MERCY SPECIAL CARE HOSPITAL	8,217	30	1	4	3	11	1	0	0	2	8	0	3.65
11952	MERCY SUBURBAN HOSP NORRISTOWN	17,128	43	6	0	3	0	10	1	17	3	3	0	2.51
11968	MEYERSDALE COMMUNITY HOSP	900	0	0	0	0	0	0	0	0	0	0	0	0.00
11557	MID-VALLEY HOSPITAL	2,570	3	2	0	0	0	0	0	0	1	0	0	1.17
12253	MILLCREEK COMMUNITY HOSP	9,656	17	1	0	2	1	1	0	3	1	8	0	1.76
11747	MILTON S. HERSHEY MEDICAL CENTER	68,769	255	81	0	24	2	14	0	71	1	59	3	3.71
12295	MINERS MEDICAL CENTER	2,313	4	0	0	0	0	2	0	2	0	0	0	1.73
11069	MONONGAHELA VALLEY HOSP	26,302	29	4	0	2	0	11	0	6	0	6	0	1.10
12287	MONTGOMERY COUNTY MH/MR EMERGENCY SERVICES, INC.	3,080	2	0	2	0	0	0	0	0	0	0	0	0.65
11947	MONTGOMERY HOSPITAL	13,396	17	4	0	1	0	0	0	4	0	8	0	1.27

orgID	Hospital Name	Total Patient Days	Infections	BSI	EENT	GI	LRI	PNEU	REPR	SSI	SST	UTI	Other	Crude Infection Rate/ 1000 pt days
11817	MONTROSE GENERAL HOSPITAL	2,001	0	0	0	0	0	0	0	0	0	0	0	0.00
11528	MOSES TAYLOR HOSPITAL	20,788	95	15	0	11	0	27	0	19	7	16	0	4.57
11797	MOUNT NITTANY MEDICAL CENTER	25,538	88	9	0	9	0	8	1	29	4	28	0	3.45
11748	MUNCY VALLEY HOSPITAL	2,557	4	1	0	2	0	0	0	1	0	0	0	1.56
11907	NASON HOSPITAL	4,028	2	0	0	0	0	0	0	1	0	1	0	0.50
11919	NAZARETH HOSPITAL	24,093	47	9	0	14	0	0	0	7	0	16	1	1.95
12047	NORRISTOWN STATE HOSPITAL	67,666	0	0	0	0	0	0	0	0	0	0	0	0.00
11472	NORTHEASTERN HOSPITAL	23,353	36	9	0	6	3	5	0	6	2	5	0	1.54
12298	OHIO VALLEY GENERAL HOSP	10,943	4	1	0	1	0	0	0	2	0	0	0	0.37
12396	PALMERTON HOSPITAL	6,037	1	0	0	1	0	0	0	0	0	0	0	0.17
11814	PENN PRESBYTERIAN MEDICAL CENTER	31,657	96	20	0	21	3	7	0	21	0	24	0	3.03
11915	PENN STATE HERSHEY REHABILITATION LLC	3,667	12	0	0	3	0	1	0	0	0	8	0	3.27
11448	PENNSYLVANIA HOSP OF THE UNIV OF PA HEALTH SYSTEM	55,294	211	23	8	49	3	14	3	87	4	15	5	3.82
11740	PHILHAVEN HOSPITAL	17,486	17	0	7	0	0	0	0	0	3	7	0	0.97
11836	PHOENIXVILLE HOSPITAL COMPANY LLC	17,095	46	2	2	4	0	16	1	11	1	8	1	2.69
10122	PINNACLE HEALTH HOSPITALS	70,926	243	21	3	43	1	20	2	89	10	48	6	3.43
11772	POCONO MEDICAL CENTER	28,900	76	6	0	11	0	14	1	34	3	7	0	2.63
11983	POTTSTOWN MEMORIAL MEDICAL CENTER	20,772	47	2	0	4	0	18	1	13	0	9	0	2.26
11830	PUNXSUTAWNEY AREA HOSP	3,825	6	0	0	2	2	1	0	1	0	0	0	1.57
12375	READING HOSPITAL AND MEDICAL CENTER	75,622	183	25	2	34	0	6	0	61	7	47	1	2.42
11731	RIDDLE MEMORIAL HOSP	24,194	32	5	0	9	2	3	0	8	0	5	0	1.32
12422	ROBERT PACKER HOSPITAL	24,891	47	13	0	6	1	4	0	11	1	11	0	1.89

orgID	Hospital Name	Total Patient Days	Infections	BSI	EENT	GI	LRI	PNEU	REPR	SSI	SST	UTI	Other	Crude Infection Rate/ 1000 pt days
11978	ROXBOROUGH MEMORIAL HOSP	16,168	27	8	1	7	0	2	0	2	1	5	1	1.67
12723	ROXBURY TREATMENT CENTER	N/A	23	0	14	0	1	1	0	0	6	1	0	N/A
11684	SACRED HEART HOSPITAL	16,815	17	0	0	5	0	4	0	5	1	2	0	1.01
11699	SAINT VINCENT HEALTH CENTER	42,712	138	4	1	26	7	19	2	47	3	28	1	3.23
11922	SCHUYLKILL MEDICAL CENTER - EAST NORWEGIAN STREET	16,884	35	5	0	6	0	2	0	6	3	13	0	2.07
12087	SCHUYLKILL MEDICAL CENTER - SOUTH JACKSON STREET	22,013	32	1	0	12	0	0	0	5	0	14	0	1.45
13921	SELECT MEDICAL AT POLYCLINIC MEDICAL CENTER	546	1	0	0	1	0	0	0	0	0	0	0	1.83
11880	SELECT SPECIALTY HOSPITAL - ERIE	10,464	54	6	0	10	3	5	0	0	2	26	2	5.16
12147	SELECT SPECIALTY HOSPITAL - CENTRAL PENNSYLVANIA (CAMP HILL	3,851	20	10	0	5	0	0	0	0	1	4	0	5.19
12334	SELECT SPECIALTY HOSPITAL - CENTRAL PENNSYLVANIA (YORK)	1,920	16	6	0	4	0	0	0	0	1	5	0	8.33
12123	SELECT SPECIALTY HOSPITAL - DANVILLE	3,071	41	5	0	20	0	1	0	0	0	15	0	13.35
12299	SELECT SPECIALTY HOSPITAL - JOHNSTOWN	3,635	28	2	0	11	7	4	0	0	1	3	0	7.70
12271	SELECT SPECIALTY HOSPITAL - MCKEESPORT, INC.	3,249	1	1	0	0	0	0	0	0	0	0	0	0.31
12009	SELECT SPECIALTY HOSPITAL - PITTSBURGH/UPMC	4,142	25	12	0	1	1	3	0	0	1	7	0	6.04
12108	SELECT SPECIALTY HOSPITAL LAUREL HIGHLANDS INC	4,353	23	10	0	7	0	0	0	0	1	5	0	5.28
12133	SHAMOKIN AREA COMMUNITY HOSP	6,604	12	2	0	0	0	5	0	3	0	2	0	1.82
12250	SHARON REGIONAL HEALTH SYSTEM	19,913	35	3	1	2	1	11	0	9	0	8	0	1.76

orgID	Hospital Name	Total Patient Days	Infections	BSI	EENT	GI	LRI	PNEU	REPR	SSI	SST	UTI	Other	Crude Infection Rate/ 1000 pt days
12244	SHRINERS HOSPITALS FOR CHILDREN - PHILA	4,923	7	0	0	1	0	0	0	5	0	1	0	1.42
12411	SHRINERS HOSPITALS FOR CHILDREN ERIE	470	3	0	0	0	0	0	0	1	2	0	0	6.38
11688	SOLDIERS & SAILORS MEM HOSP	5,953	9	0	0	0	0	3	0	5	0	1	0	1.51
12282	SOMERSET HOSPITAL	10,478	20	2	0	6	0	3	0	2	0	7	0	1.91
11942	SOUTHWEST REGIONAL MEDICAL CENTER	7,428	1	0	0	0	0	0	0	0	0	1	0	0.13
12453	SOUTHWOOD PSYCHIATRIC HOSPITAL	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11940	ST AGNES LONG TERM CARE HOSPITAL	5,543	44	24	0	4	1	6	0	0	0	8	1	7.94
12365	ST CATHERINE MEDICAL CENTER FOUNTAIN SPRINGS	1,679	10	0	3	0	0	0	0	4	1	2	0	5.96
12290	ST CHRISTOPHERS HOSP FOR CHILDREN	23,619	84	22	11	6	11	1	0	11	3	17	2	3.56
10561	ST CLAIR MEMORIAL HOSP	38,756	92	10	1	13	0	11	0	41	5	11	0	2.37
12548	ST JOHN VIANNEY HOSPITAL	N/A	1	0	1	0	0	0	0	0	0	0	0	N/A
11961	ST JOSEPH MEDICAL CTR	22,430	22	5	0	0	0	3	0	8	0	6	0	0.98
12438	ST JOSEPH'S HOSPITAL	10,585	50	25	0	0	0	9	0	0	0	16	0	4.72
11718	ST LUKE'S HOSPITAL BETHLEHEM	71,870	239	24	12	31	15	11	0	35	3	107	1	3.33
11784	ST LUKE'S MINERS MEMORIAL HOSPITAL	4,488	7	0	0	0	0	0	0	2	0	5	0	1.56
11711	ST LUKE'S QUAKERTOWN HOSPITAL	6,672	9	1	0	4	0	0	0	3	0	1	0	1.35
11885	ST MARY MEDICAL CTR	47,464	92	15	1	16	1	12	0	22	4	21	0	1.94
12483	ST MARY MEDICAL CTR-Rehab	3,867	8	0	0	3	0	0	0	0	0	5	0	2.07
12105	SUNBURY COMMUNITY HOSP	4,861	9	0	2	2	0	3	0	1	0	1	0	1.85
12535	SURGICAL INSTITUTE OF READING	1,185	0	0	0	0	0	0	0	0	0	0	0	0.00
12382	TEMPLE UNIVERSITY HOSPITAL	69,633	302	66	0	37	19	26	0	47	13	86	8	4.34
12394	TEMPLE UNIVERSITY HOSPITAL - REHAB	1,157	1	0	0	0	0	0	0	0	0	1	0	0.86

OrgID	Hospital Name	Total Patient Days	Infections	BSI	EENT	GI	LRI	PNEU	REPR	SSI	SST	UTI	Other	Crude Infection Rate/ 1000 pt days
11506	THOMAS JEFFERSON UNIV HOSP	86,260	447	37	0	92	0	66	0	146	0	105	1	5.18
12017	THOMAS JEFFERSON UNIV HOSP-Methodist	28,703	106	23	0	16	1	23	0	6	4	33	0	3.69
11738	TITUSVILLE AREA HOSPITAL	4,690	6	0	0	0	0	3	0	2	0	1	0	1.28
12091	TORRANCE STATE HOSPITAL	202	40	1	16	0	1	7	0	0	3	12	0	198.02
12007	TRIUMPH HOSPITAL EASTON	3,877	28	12	0	2	3	3	0	0	2	6	0	7.22
12018	TROY COMMUNITY HOSPITAL	3,645	8	0	0	0	0	4	0	0	0	4	0	2.19
11829	TYLER MEMORIAL HOSPITAL	4,006	5	0	0	0	0	4	0	1	0	0	0	1.25
12717	TYRONE HOSPITAL	1,773	0	0	0	0	0	0	0	0	0	0	0	0.00
10441	UNIONTOWN HOSPITAL	22,142	31	1	0	15	0	3	0	10	0	2	0	1.40
11680	UPMC BEDFORD	3,665	12	0	0	4	0	0	1	4	1	2	0	3.27
10576	UPMC BRADDOCK	18,733	22	2	0	9	0	0	0	2	1	8	0	1.17
11675	UPMC HORIZON	19,278	39	4	0	11	0	8	0	10	0	6	0	2.02
11707	UPMC MCKEESPORT	21,456	75	5	0	21	0	9	0	5	4	31	0	3.50
10384	UPMC MERCY	48,782	175	17	0	47	1	30	0	33	1	42	4	3.59
11837	UPMC NORTHWEST - SENECA	17,788	20	1	0	5	0	2	1	3	0	8	0	1.12
11242	UPMC PASSAVANT	42,196	152	14	1	37	3	25	1	32	1	37	1	3.60
10348	UPMC PRESBYTERIAN	140,034	445	42	2	102	10	65	0	104	9	105	6	3.18
10118	UPMC PRESBYTERIAN-SHADYSIDE	70,674	346	60	3	109	2	37	0	81	7	41	6	4.90
10659	UPMC SOUTH SIDE	18,295	61	3	1	19	0	8	0	10	0	20	0	3.33
11561	UPMC ST MARGARET	35,007	95	6	0	28	0	16	0	27	1	17	0	2.71
12029	VALLEY FORGE MED CTR & HOSP	7,784	0	0	0	0	0	0	0	0	0	0	0	0.00
12216	WARREN GENERAL HOSPITAL	6,126	5	0	0	0	0	0	1	2	0	2	0	0.82
12081	WARREN STATE HOSPITAL	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11460	WASHINGTON HOSPITAL, THE	33,570	55	1	0	8	0	12	0	23	1	10	0	1.64
12004	WAYNE MEMORIAL HOSPITAL	10,129	17	1	0	6	0	1	0	5	0	4	0	1.68
11642	WAYNESBORO HOSPITAL	6,153	22	1	0	6	0	7	3	1	0	4	0	3.58

OrgID	Hospital Name	Total Patient Days	Infections	BSI	EENT	GI	LRI	PNEU	REPR	SSI	SST	UTI	Other	Crude Infection Rate/ 1000 pt days
11265	WESTERN PENNSYLVANIA HOSPITAL FORBES REGIONAL CAMPUS, THE	37,643	68	3	1	33	1	5	0	14	1	10	0	1.81
11864	WESTERN PENNSYLVANIA HOSPITAL, THE	45,683	159	33	3	24	9	14	1	43	5	27	0	3.48
12368	WERNESVILLE STATE HOSPITAL	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12487	WESTFIELD HOSPITAL	386	0	0	0	0	0	0	0	0	0	0	0	0.00
11732	WILLIAMSPORT HOSPITAL & MEDICAL CENTER, THE	25,552	112	7	0	28	1	6	0	43	7	19	1	4.38
12031	WINDBER HOSPITAL	3,755	6	0	2	0	0	0	0	3	0	1	0	1.60
11916	WVHCS HOSPITAL	40,913	176	27	1	12	5	28	0	33	7	62	1	4.30
10108	YORK HOSPITAL	75,640	269	15	12	57	4	31	6	70	8	62	4	3.56

2. CAUTI Outcomes:

a. Statewide Aggregated Results:

Out of 255 Pennsylvania hospitals, 176 reported a total of 2,357 CAUTI from July 1 to December 31, 2008. This number represents 17% of all reported events for the time period. The remaining hospitalis either had no CAUTI, or information was missing (15 hospitals) on event counts, catheter days, and/or patient days. The hospitals in the latter category are generally psychiatric facilities, substance abuse treatment facilities, or rehabilitation units.

Pooled Device Utilization Ratios (DURs) were calculated for all hospitals (Table 5). The pooled DURs were highest for critical care units (0.25 – 0.84) and lowest for non-critical care units (0.0 – 0.24). Of the critical units, Trauma (0.84) and Surgery (0.76) units had the highest DURs and Pediatrics (0.25) and Specialty Care (0.34) units had the lowest. Among non-critical care units, Step (0.23) and Surgery (0.24) had the highest DURs and Newborn (0.00) and Behavioral (<0.001) units had the lowest.

Newborn wards (non-critical care) had a rate equal to zero and therefore were not a risk location for device/catheter-associated UTI. Critical care units with the lowest CAUTI rates included Medical/Surgical (1.50), Medical (1.73), and Cardio-Thoracic (1.78) units. The critical care units with the highest rates included Trauma (3.00), Burn (3.36), Surgery (3.48), and Pediatrics (3.46). The lowest rates for non-critical care units included Labor & Delivery/Postpartum (0.93) and Behavioral (1.06) units. The highest rates for non-critical care units included Medical (2.50), Surgical (2.72), and Rehabilitation (4.48).

Table 5
CAUTI in PA Hospitals by Location
Infection Rate and Device Utilization - July 1, to December 31, 2008

Ward Category	CAUTI	Urinary Catheter Days	Patient Days	Rate	DUR
NICU*	4				
SCA	205	87789	254253	2.34	0.35
Step	157	66928	285545	2.35	0.23
cc:Burn	8	2378	5274	3.36	0.45
cc:CT	60	33668	50053	1.78	0.67
cc:MS	218	144930	215313	1.50	0.67
cc:Med	75	43450	68277	1.73	0.64
cc:Peds	23	6657	26188	3.46	0.25
cc:SpecMed	81	33328	68587	2.43	0.49
cc:Surgery	146	41968	55425	3.48	0.76
cc:Trauma	64	21311	25452	3.00	0.84
w:Behavior	2	1888	533255	1.06	0.00
w:LD_pp	27	29122	200212	0.93	0.15
w:MS	606	273917	1428689	2.21	0.19
w:Med	246	98368	562815	2.50	0.17
w:Newborn	0	1	80844	0.00	0.00
w:Ped_ms	19	8073	129872	2.35	0.06
w:Rehab	143	31942	309804	4.48	0.10
w:Surgery	273	100274	420167	2.72	0.24
Total	2,357	1,025,992	4,720,025	1.52	0.22

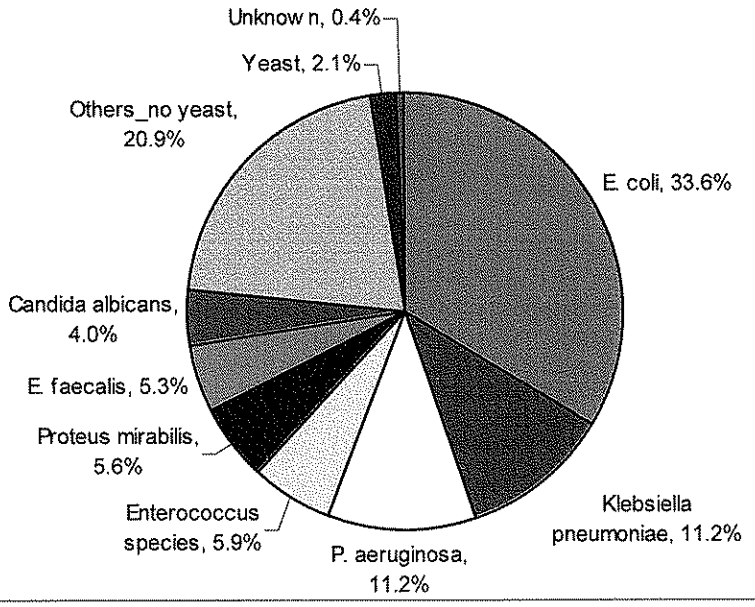
* The 4 reported NICU CAUTIs did not include data on catheter days (they are considered orphan records)

b. **Pathogen Data**:
Information is obtained in NHSN on laboratory confirmed infections. For CAUTI, the top six pathogens in descending order are *Escherichia coli* (33.6%), *Klebsiella pneumonia* (11.2%), *Pseudomonas aeruginosa* (11.2%), *Enterococcus* not otherwise specified (5.9%), *Proteus mirabilis* (5.6%), and *Enterococcus faecalis* (5.3%). The "Others" category (23%) consisted of 62 pathogens among 541 isolates.

Table 6
Percentage of CAUTI in PA Hospitals by Pathogens
July 1, to December 31, 2008

Pathogen	Count	%
E. coli	791	33.6%
Klebsiella pneumoniae	265	11.2%
P. aeruginosa	263	11.2%
Enterococcus species	138	5.9%
Proteus mirabilis	131	5.6%
E. faecalis	124	5.3%
Candida albicans	94	4.0%
Others_no yeast	492	20.09%
Yeast	49	2.1%
Unknown	10	0.4%
TOTAL	**2357**	**100%**

Figure 1
Percentage of Confirmed Primary Pathogens of CAUTI Cases in PA Hospitals between July and December 2008 (N=2357)



c. **National Comparisons**: Pooled statewide CAUTI rates of CDC-defined ward types that exist in PA hospitals were compared to the national pooled rates for like ward types calculated by the CDC. These ward types were divided into critical care and non-critical care wards. There were nine critical care wards consisting of the following units: Burn, Coronary, Cardio-Thoracic Surgical, Medical, Adult Medical/Surgical, Pediatric Medical/Surgical, and Trauma. There were five non-critical care wards consisting of the following units: Adult Step-Down, Medical, Medical/Surgical, Rehabilitation, and Surgical. Additionally, pooled statewide urinary catheter utilization ratios for the same ward types were also compared to those ratios calculated by the CDC[6]. The results of these analysis are as follows:

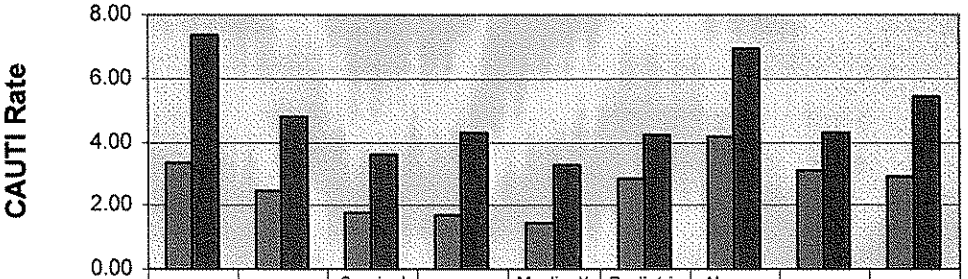
1) All nine PA critical care units had lower CAUTI rates than the national levels. (See Table 7 and Figure 2)
2) The same was true for catheter utilization rates with the exception of the Pediatric-Medical/Surgical unit; though the utilization rate for surgical units was close to equal (Figure 4).
3) Among non-critical care units, CAUTI rates in PA wards were lower in all cases as compared with the national rates (Figure 3).
4) Catheter utilization rates were also lower in Pennsylvania non-critical care units, though they were close in rehabilitation units (Figure 5).

Table 7
Comparison of CAUTI rates and Device-Utilization Ratio in PA Hospitals to NHSN Reported Data by Ward Type
July 1, to December 31, 2008

Type of location	NO. of Hospitals with ward	CAUTI_rate	NHSN_rate	DUR PA	NHSN DUR
Critical Care Units					
Burn	4	3.36	7.40	0.45	0.61
Coronary	29	2.45	4.80	0.44	0.56
Surgical cardio- thoratic	33	1.78	3.60	0.67	0.77
Medical	29	1.70	4.30	0.64	0.73
Medical/surgical	134	1.46	3.30	0.67	0.74
Pediatric medical/surgical	6	2.82	4.20	0.33	0.29
Neuro-surgical	6	4.19	6.90	0.69	0.76
Surgical	16	3.07	4.30	0.80	0.81
Trauma	10	2.91	5.40	0.84	0.89
Inpatient wards					
Adult Step down unit	68	2.35	6.80	0.23	0.26
Medical	58	2.49	6.70	0.17	0.20
Medical/surgical	152	2.20	5.90	0.19	0.22
Rehabilitation	78	4.48	14.40	0.10	0.11
Surgical	46	2.96	6.50	0.23	0.26

[6] Jonathan R. Edwards, et al; National Healthcare Safety Network (NHSN) Report, data summary for 2006 through 2008, issued December 2009; Published by APIC, Inc. Am J Infect Control 2009;37:783-805

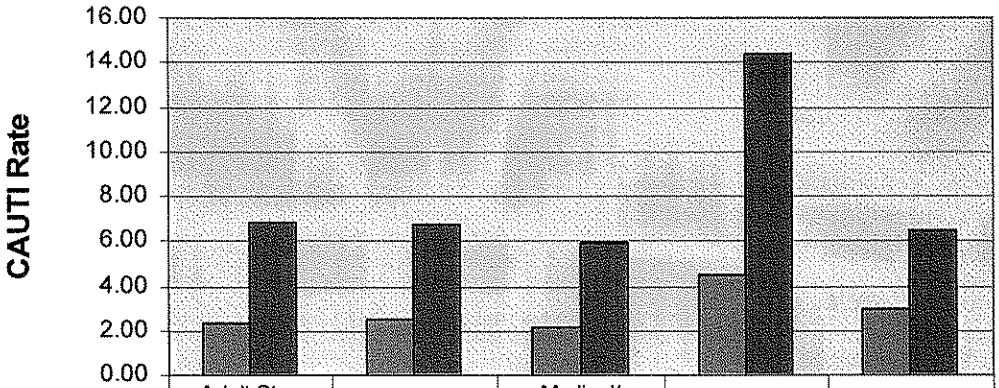
Figure 2
Comparison of CAUTI Rates in PA Hospitals by Selected Critical Care Locations at Baseline (July to December 2008) to Available NHSN Rate from 2006 through 2008



	Burn	Coronary	Surgical cardio-	Medical	Medical/ surgical	Pediatric medical/	Neuro- surgical	Surgical	Trauma
PA Rate	3.36	2.45	178	170	146	2.82	4.19	3.07	2.91
NHSN	7.40	4.80	3.60	4.30	3.30	4.20	6.90	4.30	5.40

Critical Care Unit

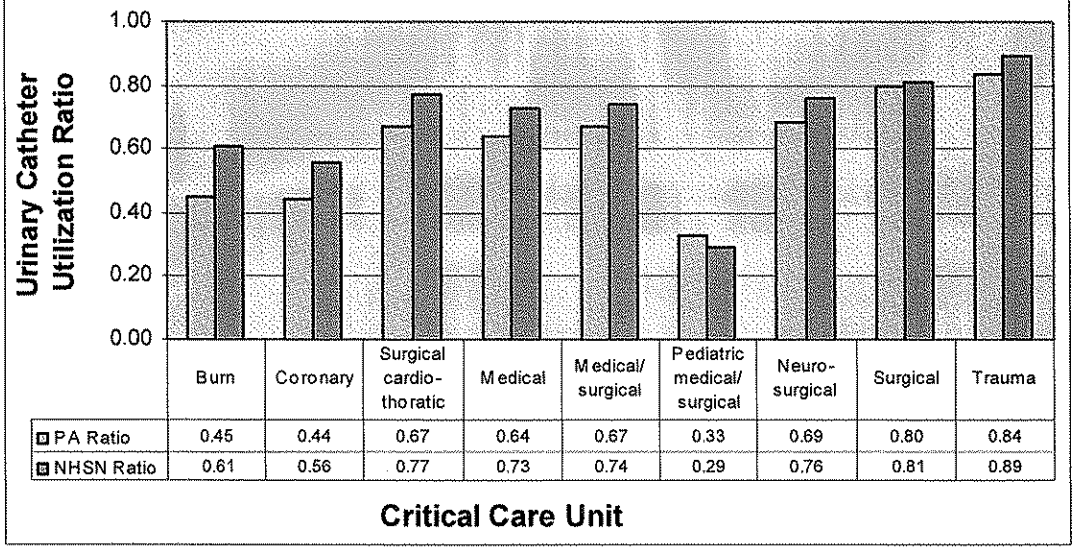
Figure 3
Comparison of CAUTI Rates in PA Hospitals by Selected Ward Locations at Baseline (July to December 2008) to Available NHSN Rate from 2006 through 2008



	Adult Step dow n unit	Medical	Medical/ surgical	Rehabilitation	Surgical
PA Rate	2.35	2.49	2.20	4.48	2.96
NHSN Rate	6.80	6.70	5.90	14.40	6.50

Ward Unit

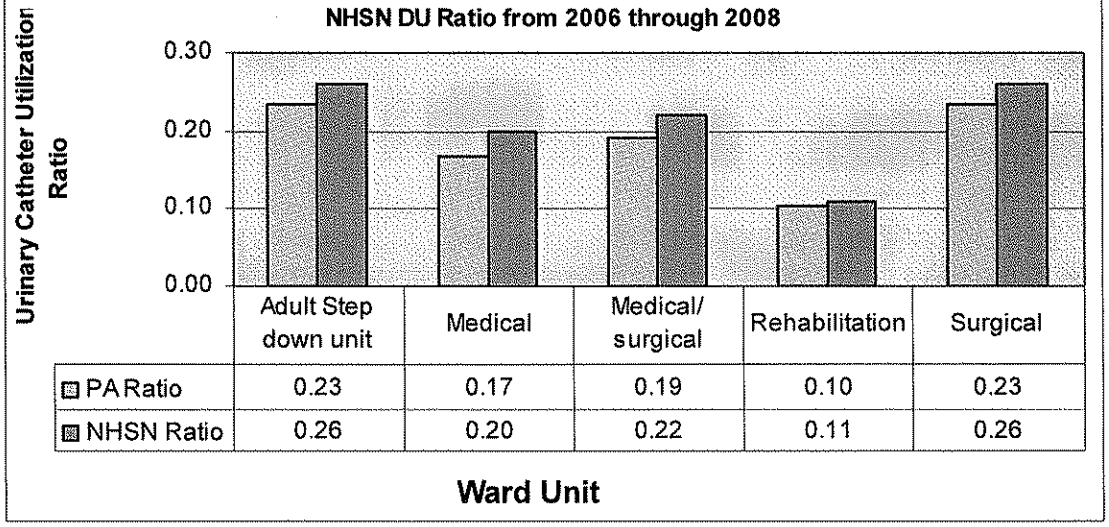
Figure 4
Comparison of Urinary Catheter Utilization Ratio in PA Hospitals by Selected Critical Care Locations at Baseline (July to December 2008) to Available NHSN DU Ratio from 2006 through 2008



	Burn	Coronary	Surgical cardio-thoratic	Medical	Medical/ surgical	Pediatric medical/ surgical	Neuro-surgical	Surgical	Trauma
PA Ratio	0.45	0.44	0.67	0.64	0.67	0.33	0.69	0.80	0.84
NHSN Ratio	0.61	0.56	0.77	0.73	0.74	0.29	0.76	0.81	0.89

Critical Care Unit

Figure 5
Comparison of Urinary Catheter Utilization Ratio in PA Hospitals by Selected Ward Locations at Baseline (July to December 2008) to Available NHSN DU Ratio from 2006 through 2008



	Adult Step down unit	Medical	Medical/ surgical	Rehabilitation	Surgical
PA Ratio	0.23	0.17	0.19	0.10	0.23
NHSN Ratio	0.26	0.20	0.22	0.11	0.26

Ward Unit

d. **Facility-Specific Results**: Poisson regression analysis was applied to the CAUTI data. The observed number of events was run against the DUR (transformed by natural log) and ward categories. The DUR was found to be significantly associated with CAUTI results ($p<0.0001$) as were the following ward categories: critical-care burn ($p=0.0234$), critical-care surgery ($p<0.0001$), critical-care trauma ($p=0.009$), medical-surgical ward ($p<0.0001$), and medical ward ($p=0.0123$). This Poisson model was used to generate expected CAUTI Counts, which in turn were used to generate Standardized Infection Ratios (SIRs) scores and 95% confidence limits. The CAUTI SIRs are divided into six different categories based on the number of infections expected to occur within a facility: <1 CAUTI; 1 to 2.99 CAUTIs; 3 to 7.49 CAUTIs; 7.50 to 14.99 CAUTIs; 15 to 29.99 CAUTIs; and ≥30 CAUTIs (Tables 8 to 15). These groupings allow a general

comparison of similar types of facilities. For example, smaller hospitals are more likely to have expected numbers of CAUTI that are <1 while the largest facilities would be in the ≥30 category.

For the **CAUTI** SIR outcomes, 166 hospitals had SIRs that were <1.00, meaning they had *fewer* infections than expected based on statewide rates for the ward types present in their facilities. A total of 73 hospitals had SIRs that were >1.00, meaning they reported *more* infections than expected. One facility had an SIR of 1.00, meaning the observed number equaled the expected number. SIRs could not be calculated for those hospitals (15) that were missing event counts, catheter days, and/or patient days.

Although 166 facilities had SIRs <1.00, in only 38 of these facilities was the SIR significantly lower than expected from a statistical perspective. This is due to the fact that relatively small numbers of infections were reported by most facilities for the time period of analysis. This results in wide confidence intervals (CIs) that cross over a value of 1.00. Most of the facilities that had SIRs that were statistically signficiantly lower than expected had a large difference between the number of observed infections versus the number expected. These facilities CIs are shown in **GREEN** in the tables.

Although 73 hospitals had SIRs that were greater than 1.00 (meaning there was a larger number of infections reported than expected), in only 25 hospitals was the SIR significantly higher than expected from a statistical perspective. The CIs for these facilities are shown in **RED** in the tables. As with the lower than expected SIRs, this mostly occurred in larger institutions that had a sizeable number of expected infections.

For 22 facilities, the expected number of infections was <1. From the statistical perspective, any differences between the number of observed and expected infections should be viewed with extreme caution.

Table 8
CAUTI Adjusted SIR for PA Hospitals Sorted by SIR
July 1, to December 31, 2008

Facility ID	Hospital Name	Obs	Exp	Diff	Adjusted SIR	95% Conf Int
12965	Eagleville Hospital	0	0.0	0.0	0.00	0 - 0
12050	First Hospital of Wyoming Valley	0	0.0	0.0	0.00	0 - 0
12488	Friends Hospital	0	0.0	0.0	0.00	0 - 0
12287	Montgomery County MH/MR Emergency Services, Inc.	0	0.0	0.0	0.00	0 - 0
11740	Philhaven Hospital	0	0.0	0.0	0.00	0 - 0
12336	The Childrens Home Of Pittsburgh	0	0.0	0.0	0.00	0 - 0
12029	Valley Forge Medical Center & Hospital	0	0.0	0.0	0.00	0 - 0
12487	Westfield Hospital	0	0.0	0.0	0.00	0 - 0
11962	Allentown State Hospital	0	0.0	0.0	0.00	0 - 0
12091	Torrance State Hospital	0	0.0	0.0	0.00	0 - 116.94
12552	Edgewood Surgical Hospital	0	0.0	0.0	0.00	0 - 95.47
11743	Divine Providence Hospital	0	0.1	-0.1	0.00	0 - 51.21
12394	Temple University Hospital - Rehab	0	0.1	-0.1	0.00	0 - 40.39
12047	Norristown State Hospital	0	0.1	-0.1	0.00	0 - 34.3
12411	Shriners Hospitals For Children Erie	0	0.1	-0.1	0.00	0 - 25.17

Facility ID	Hospital Name	Obs	Exp	Diff	Adjusted SIR	95% Conf Int
12451	DSI of Bucks County	0	0.1	-0.1	0.00	0 - 25.01
12505	Belmont Center for Comprehensive Treatment	0	0.2	-0.2	0.00	0 - 16.54
12461	Bucktail Medical Center	0	0.4	-0.4	0.00	0 - 9.89
11968	Meyersdale Community Hospital	0	0.4	-0.4	0.00	0 - 9.52
13929	Good Shepherd Penn Partners Specialty Hospital at Rittenhouse	0	0.4	-0.4	0.00	0 - 8.85
12483	St. Mary Medical Center - Rehab	0	0.5	-0.5	0.00	0 - 7
12051	Clarks Summit State Hospital	0	0.6	-0.6	0.00	0 - 6.26
11748	Muncy Valley Hospital	0	0.6	-0.6	0.00	0 - 5.77
13080	Brownsville Tri County Hospital	0	0.7	-0.7	0.00	0 - 5.5
11689	Jersey Shore Hospital	0	0.7	-0.7	0.00	0 - 5.49
12535	Surgical Institute of Reading	0	0.7	-0.7	0.00	0 - 5.17
12037	Barix Clinics of Pennsylvania, LLC	0	0.7	-0.7	0.00	0 - 4.99
11939	Fulton County Medical Center	0	0.8	-0.8	0.00	0 - 4.66
12273	Crichton Rehabilitation Center	0	1.0	-1.0	0.00	0 - 3.8
12609	Kensington Hospital	0	1.0	-1.0	0.00	0 - 3.78
12283	Corry Memorial Hospital	0	1.0	-1.0	0.00	0 - 3.63
12404	Barnes-Kasson County Hospital	0	1.0	-1.0	0.00	0 - 3.63
11817	Montrose General Hospital	0	1.0	-1.0	0.00	0 - 3.53
11993	Geisinger Healthsouth Rehabilitation Hospital	0	1.1	-1.1	0.00	0 - 3.46
11810	Healthsouth Rehabilitation Hospital of Erie	0	1.1	-1.1	0.00	0 - 3.28
12295	Miners Medical Center	0	1.2	-1.2	0.00	0 - 3.1
12717	Tyrone Hospital	0	1.3	-1.3	0.00	0 - 2.88
11557	Mid-Valley Hospital	0	1.3	-1.3	0.00	0 - 2.8
12266	Children's Institute of Pittsburgh	0	1.5	-1.5	0.00	0 - 2.42
11851	Crozer Chester Medical Center - Springfield Hospital	0	1.6	-1.6	0.00	0 - 2.31
12571	Heart of Lancaster Regional Medical Center	0	1.8	-1.8	0.00	0 - 2.09
12244	Shriners Hospitals for Children	0	1.9	-1.9	0.00	0 - 1.97
11848	Danville State Hospital	0	2.1	-2.1	0.00	0 - 1.73
11830	Punxsutawney Area Hospital	0	2.2	-2.2	0.00	0 - 1.7
11711	St. Luke's Quakertown Hospital	0	2.2	-2.2	0.00	0 - 1.64
11829	Tyler Memorial Hospital	0	2.5	-2.5	0.00	0 - 1.49
12216	Warren General Hospital	0	2.7	-2.7	0.00	0 - 1.35
12396	Palmerton Hospital	0	2.9	-2.9	0.00	0 - 1.27
12008	Bloomsburg Hospital	0	3.0	-3.0	0.00	0 - 1.22
12549	Memorial Hospital, Inc. Towanda	0	3.1	-3.1	0.00	0 - 1.19
11859	Elk Regional Health Center	0	3.3	-3.3	0.00	0 - 1.11
12591	Allied Services Institute of Rehabilitation	0	3.3	-3.3	0.00	0 - 1.1
11903	Healthsouth Rehabilitation Hospital of Altoona, LLC	0	3.4	-3.4	0.00	0 - 1.09
11942	Southwest Regional Medical Center	0	3.4	-3.4	0.00	0 - 1.09
12500	Albert Einstein Medical Center at Elkins Park	0	3.5	-3.5	0.00	0 - 1.04
12271	Select Specialty Hospital - McKeesport, Inc.	0	3.9	-3.9	0.00	0 - 0.95
12298	Ohio Valley General Hospital	0	3.9	-3.9	0.00	0 - 0.93
11442	Berwick Hospital Center	0	4.2	-4.2	0.00	0 - 0.87
11684	Sacred Heart Hospital	0	5.0	-5.0	0.00	0 - 0.73
12385	Lifecare Hospitals of Pittsburgh - North Campus	0	5.1	-5.1	0.00	0 - 0.72
11639	Excela Health - Frick Hospital	0	5.3	-5.3	0.00	0 - 0.69
11946	Mercy Philadelphia Hospital	0	9.8	-9.8	0.00	0 - 0.37
11914	Community Medical Center	0	12.3	-12.3	0.00	0 - 0.3
10178	Altoona Regional Health System	3	28.7	-25.7	0.10	0.02 - 0.31
12057	Armstrong County Memorial Hospital	1	7.8	-6.8	0.13	0 - 0.71

Facility ID	Hospital Name	Obs	Exp	Diff	Adjusted SIR	95% Conf Int
11731	Riddle Memorial Hospital	3	19.4	-16.4	0.15	0.03 - 0.45
11651	Excela Health - Latrobe Area Hospital	2	12.6	-10.6	0.16	0.02 - 0.57
10441	Uniontown Hospital	2	12.2	-10.2	0.16	0.02 - 0.59
11839	Crozer Chester Medical Center	4	24.4	-20.4	0.16	0.04 - 0.42
12335	Lancaster Regional Medical Center	1	5.7	-4.7	0.18	0 - 0.98
11586	Canonsburg General Hospital	1	5.4	-4.4	0.18	0 - 1.03
12296	Kindred Hospital Pittsburgh - North Shore	1	4.7	-3.7	0.21	0 - 1.18
12390	Lower Bucks Hospital	1	4.5	-3.5	0.22	0 - 1.25
11675	UPMC Horizon	2	8.7	-6.7	0.23	0.03 - 0.83
12241	Gnaden Huetten Memorial Hospital	1	4.2	-3.2	0.24	0 - 1.33
11978	Roxborough Memorial Hospital	2	8.1	-6.1	0.25	0.03 - 0.89
11460	The Washington Hospital	4	15.5	-11.5	0.26	0.07 - 0.66
11945	Lifecare Hospitals of Pittsburgh	3	11.6	-8.6	0.26	0.05 - 0.76
11837	UPMC Northwest	2	7.4	-5.4	0.27	0.03 - 0.97
11952	Mercy Suburban Hospital	3	10.9	-7.9	0.28	0.06 - 0.81
11932	Crozer Chester Medical Center - Taylor Hospital	4	12.5	-8.5	0.32	0.09 - 0.82
11847	Grand View Hospital	4	12.1	-8.1	0.33	0.09 - 0.85
12254	HealthSouth Hospital of Pittsburgh	3	9.1	-6.1	0.33	0.07 - 0.97
12133	Shamokin Area Community Hospital	1	3.0	-2.0	0.33	0 - 1.86
11637	Excela Health Westmoreland Regional Hospital	12	35.8	-23.8	0.34	0.17 - 0.59
11531	Gettysburg Hospital	1	3.0	-2.0	0.34	0 - 1.87
12338	Marian Community Hospital	1	2.9	-1.9	0.35	0 - 1.93
10183	Lancaster General Hospital	14	39.2	-25.2	0.36	0.2 - 0.6
11688	Soldiers & Sailors Memorial Hospital	1	2.7	-1.7	0.37	0 - 2.07
11954	Jameson Memorial Hospital	4	10.6	-6.6	0.38	0.1 - 0.97
11472	Northeastern Hospital	4	10.5	-6.5	0.38	0.1 - 0.97
12108	Select Specialty Hospital Laurel Highlands Inc	2	5.1	-3.1	0.39	0.04 - 1.41
11753	Main Line Hospital Bryn Mawr	7	17.8	-10.8	0.39	0.16 - 0.81
11722	Grove City Medical Center	1	2.5	-1.5	0.41	0.01 - 2.27
11069	Monongahela Valley Hospital	5	12.1	-7.1	0.41	0.13 - 0.96
11448	PA Hospital of the University of PA Health System	11	26.6	-15.6	0.41	0.21 - 0.74
12422	Robert Packer Hospital	7	16.7	-9.7	0.42	0.17 - 0.87
12533	Mercy Hospital	6	13.8	-7.8	0.44	0.16 - 0.95
11772	Pocono Medical Center	6	13.7	-7.7	0.44	0.16 - 0.95
11265	The Western Pennsylvania Hospital Forbes Regional Campus	8	18.3	-10.3	0.44	0.19 - 0.86
12105	Sunbury Community Hospital	1	2.3	-1.3	0.44	0.01 - 2.47
11437	Hahnemann University Hospital	12	26.3	-14.3	0.46	0.24 - 0.8
11750	Main Line Hospital Paoli	5	10.9	-5.9	0.46	0.15 - 1.07
11972	Delaware County Memorial Hospital	7	15.2	-8.2	0.46	0.18 - 0.95
11712	The Good Samaritan Hospital	7	15.1	-8.1	0.46	0.19 - 0.96
10375	Heritage Valley Sewickley Medical Center	7	15.1	-8.1	0.46	0.19 - 0.96
11961	St. Joseph Medical Center	5	10.8	-5.8	0.46	0.15 - 1.08
11764	Ephrata Community Hospital	3	6.3	-3.3	0.47	0.1 - 1.38
11907	Nason Hospital	1	2.1	-1.1	0.48	0.01 - 2.67
11902	Highlands Hospital	1	2.1	-1.1	0.49	0.01 - 2.71
11633	Memorial Hospital York	4	8.1	-4.1	0.49	0.13 - 1.26
11683	Mercy Fitzgerald Hospital	7	14.1	-7.1	0.50	0.2 - 1.02
12031	Windber Hospital	1	2.0	-1.0	0.50	0.01 - 2.8
11738	Titusville Area Hospital	1	1.9	-0.9	0.51	0.01 - 2.86
11701	Evangelical Community Hospital	5	9.1	-4.1	0.55	0.18 - 1.28
10561	St. Clair Memorial Hospital	9	15.7	-6.7	0.57	0.26 - 1.09
12418	Brookville Hospital	1	1.7	-0.7	0.58	0.01 - 3.25

Facility ID	Hospital Name	Obs	Exp	Diff	Adjusted SIR	95% Conf Int
11640	Children's Hospital of Pittsburgh of UPMC	6	10.0	-4.0	0.60	0.22 - 1.3
11606	Dubois Regional Medical Center	5	8.2	-3.2	0.61	0.2 - 1.42
11727	HealthSouth Harmarville Rehabilitation Hospital	4	6.5	-2.5	0.62	0.17 - 1.58
11922	Schuylkill Medical Center - East Norwegian Street	5	8.0	-3.0	0.63	0.2 - 1.47
11459	Jeanes Hospital	7	11.1	-4.1	0.63	0.25 - 1.3
11654	Clarion Hospital	2	3.2	-1.2	0.63	0.07 - 2.29
11836	Phoenixville Hospital Company LLC	6	9.4	-3.4	0.64	0.23 - 1.39
11919	Nazareth Hospital	10	15.5	-5.5	0.64	0.31 - 1.19
12004	Wayne Memorial Hospital	3	4.6	-1.6	0.65	0.13 - 1.89
10384	UPMC Mercy	20	29.2	-9.2	0.69	0.42 - 1.06
12604	Mercy Special Care Hospital	4	5.8	-1.8	0.69	0.18 - 1.76
10118	UPMC Presbyterian - Shadyside Campus	32	45.5	-13.5	0.70	0.48 - 0.99
10301	Magee Womens Hospital of UPMC Health System	10	14.2	-4.2	0.71	0.34 - 1.3
11973	Holy Redeemer Health System Hospital & Medical Center	12	16.6	-4.6	0.72	0.37 - 1.26
10280	Conemaugh Valley Memorial Hospital	25	33.8	-8.8	0.74	0.48 - 1.09
12387	Holy Spirit Hospital	14	18.9	-4.9	0.74	0.4 - 1.24
12253	Millcreek Community Hospital	2	2.7	-0.7	0.75	0.08 - 2.72
11699	St. Vincent Health Center	18	23.8	-5.8	0.76	0.45 - 1.2
10576	UPMC Braddock	5	6.6	-1.6	0.76	0.24 - 1.77
10122	Pinnacle Health Hospitals	41	54.0	-13.0	0.76	0.54 - 1.03
11983	Pottstown Memorial Medical Center	9	11.6	-2.6	0.77	0.35 - 1.47
11885	St. Mary Medical Center	15	19.4	-4.4	0.77	0.43 - 1.28
11864	The Western Pennsylvania Hospital	23	29.4	-6.4	0.78	0.5 - 1.17
11913	Chambersburg Hospital	9	11.5	-2.5	0.78	0.36 - 1.49
12375	Reading Hospital And Medical Center	26	32.8	-6.8	0.79	0.52 - 1.16
11838	Abington Memorial Hospital	37	46.5	-9.5	0.80	0.56 - 1.1
11825	Lewistown Hospital	5	6.2	-1.2	0.81	0.26 - 1.89
11979	Brandywine Hospital	7	8.6	-1.6	0.81	0.33 - 1.68
11781	Geisinger South Wilkes Barre	3	3.6	-0.6	0.83	0.17 - 2.41
12304	CHHS Hospital Company - Chestnut Hill Hospital	7	8.3	-1.3	0.84	0.34 - 1.74
12147	Select Specialty Hospital - Central Pennsylvania (Camp Hill)	4	4.6	-0.6	0.86	0.23 - 2.21
12299	Select Specialty Hospital - Johnstown	3	3.5	-0.5	0.87	0.17 - 2.54
11680	UPMC Bedford	2	2.3	-0.3	0.87	0.1 - 3.15
10237	Jefferson Regional Medical Center	19	21.7	-2.7	0.88	0.53 - 1.37
12361	Bradford Regional Medical Center	3	3.4	-0.4	0.88	0.18 - 2.57
11861	John Heinz Institute Of Rehabilitation	3	3.4	-0.4	0.88	0.18 - 2.57
11561	UPMC St. Margaret	17	19.3	-2.3	0.88	0.51 - 1.41
11940	St. Agnes Long Term Care Hospital	6	6.6	-0.6	0.91	0.33 - 1.98
11779	Ellwood City Hospital	2	2.2	-0.2	0.92	0.1 - 3.31
12250	Sharon Regional Health System	7	7.6	-0.6	0.93	0.37 - 1.91
11732	The Williamsport Hospital & Medical Center	14	15.0	-1.0	0.93	0.51 - 1.56
11878	Hazleton General Hospital	10	10.6	-0.6	0.94	0.45 - 1.73
12005	Lifecare Hospitals of Chester County	5	5.3	-0.3	0.95	0.31 - 2.22
11997	Carlisle Regional Medical Center	8	8.4	-0.4	0.95	0.41 - 1.88
11797	Mount Nittany Medical Center	16	16.7	-0.7	0.96	0.55 - 1.55
11947	Montgomery Hospital	6	6.3	-0.3	0.96	0.35 - 2.08
10190	Doylestown Hospital	13	13.6	-0.6	0.96	0.51 - 1.64
11583	Meadville Medical Center	11	11.2	-0.2	0.98	0.49 - 1.75
12282	Somerset Community Hospital Somerset	6	6.0	0.0	0.99	0.36 - 2.16
12009	Select Specialty Hospital - Pittsburgh/UPMC	5	5.0	0.0	1.00	0.32 - 2.33
12087	Schuylkill Medical Center - South Jackson Street	8	7.9	0.1	1.01	0.43 - 1.99
12111	Kane Community Hospital	1	1.0	0.0	1.01	0.01 - 5.64

Facility ID	Hospital Name	Obs	Exp	Diff	Adjusted SIR	95% Conf Int
11417	Bryn Mawr Rehabilitation Hospital	5	4.9	0.1	1.02	0.33 - 2.37
11899	Hanover Hospital, Inc.	9	8.8	0.2	1.02	0.47 - 1.94
10348	UPMC Presbyterian	92	89.9	2.1	1.02	0.82 - 1.25
12134	Hosp of Fox Chase Cancer Center	9	8.8	0.2	1.03	0.47 - 1.95
11780	Geisinger Wyoming Valley Medical Center	20	19.3	0.7	1.04	0.63 - 1.6
11898	Lehigh Valley Hospital - Muhlenberg	17	16.2	0.8	1.05	0.61 - 1.69
11736	Butler Memorial Hospital	15	14.2	0.8	1.06	0.59 - 1.74
11832	Kindred Hospital - Philadelphia	10	9.4	0.6	1.06	0.51 - 1.95
11242	UPMC Passavant	26	24.4	1.6	1.06	0.69 - 1.56
12358	Kindred Hospital - Pittsburgh	9	8.4	0.6	1.07	0.49 - 2.03
11831	Heritage Valley Beaver Medical Center	21	19.5	1.5	1.08	0.67 - 1.65
11642	Waynesboro Hospital	3	2.8	0.2	1.09	0.22 - 3.19
11843	Clearfield Hospital	6	5.4	0.6	1.12	0.41 - 2.43
12485	Kindred Hospital - Wyoming Valley	6	5.3	0.7	1.13	0.41 - 2.46
10659	UPMC South Side	8	7.0	1.0	1.14	0.49 - 2.24
11707	UPMC McKeesport	9	7.9	1.1	1.14	0.52 - 2.16
11842	Alle-Kiski Medical Center	13	11.3	1.7	1.15	0.61 - 1.97
11528	Moses Taylor Hospital	14	12.0	2.0	1.17	0.64 - 1.96
10648	Allegheny General Hospital	67	54.6	12.4	1.23	0.95 - 1.56
12146	Magee Rehabilitation Hospital	16	12.7	3.3	1.26	0.72 - 2.04
12262	Girard Medical Center	9	7.1	1.9	1.27	0.58 - 2.42
10108	York Hospital	55	42.9	12.1	1.28	0.97 - 1.67
11747	Milton S Hershey Medical Center	55	42.6	12.4	1.29	0.97 - 1.68
12268	Kindred Hospital at Heritage Valley	8	6.1	1.9	1.31	0.56 - 2.58
11506	Thomas Jefferson University Hospital	82	61.5	20.5	1.33	1.06 - 1.66
12007	Triumph Hospital Easton	6	4.4	1.6	1.35	0.49 - 2.94
10585	Albert Einstein Medical Center	50	35.6	14.4	1.41	1.04 - 1.85
12058	HealthSouth Rehabilitation Hospital of York	4	2.8	1.2	1.41	0.38 - 3.61
12402	HealthSouth Rehabilitation of Mechanicsburg	3	2.1	0.9	1.42	0.29 - 4.15
12504	Kindred Hospital - Delaware County	6	4.2	1.8	1.42	0.52 - 3.09
11872	Coordinated Health Orthopedic Hospital LLC	1	0.7	0.3	1.42	0.02 - 7.91
11784	St. Luke's Miners Memorial Medical Center	4	2.8	1.2	1.42	0.38 - 3.64
12908	Kindred Hospitals East, Philadelphia-Havertown	7	4.8	2.2	1.46	0.58 - 3
12017	Thomas Jefferson University Hospital - Methodist	25	17.1	7.9	1.46	0.95 - 2.16
11775	Geisinger Medical Center	46	30.8	15.2	1.49	1.09 - 1.99
12337	Jennersville Regional Hospital	6	4.0	2.0	1.52	0.55 - 3.31
12348	Eastern Regional Medical Center	3	1.9	1.1	1.55	0.31 - 4.52
12365	St. Catherine Medical Center Fountain Springs	2	1.3	0.7	1.59	0.18 - 5.75
11718	St. Luke's Hospital Bethlehem	76	47.4	28.6	1.60	1.26 - 2.01
12438	St. Joseph's Hospital	14	8.7	5.3	1.61	0.88 - 2.7
11814	Penn Presbyterian Medical Center	22	13.4	8.6	1.64	1.03 - 2.49
12382	Temple University Hospital	65	39.5	25.5	1.65	1.27 - 2.1
12018	Troy Community Hospital	4	2.3	1.7	1.71	0.46 - 4.38
11759	Indiana Regional Medical Center	11	6.2	4.8	1.77	0.88 - 3.17
11884	Lehigh Valley Hospital	95	53.5	41.5	1.78	1.44 - 2.17
11915	Penn State Hershey Rehabilitation LLC	2	1.1	0.9	1.80	0.2 - 6.51
11388	Aria Health	76	41.8	34.2	1.82	1.43 - 2.27
12032	Lansdale Hospital Corporation	11	6.0	5.0	1.84	0.92 - 3.29
11916	Wilkes-Barre General Hospital	54	29.1	24.9	1.85	1.39 - 2.42
11929	Easton Hospital	29	14.9	14.1	1.94	1.3 - 2.79
10219	Hospital of the University of Pennsylvania	119	58.1	60.9	2.05	1.7 - 2.45
10306	Children's Hospital of Philadelphia	19	9.2	9.8	2.07	1.24 - 3.23
11880	Select Specialty Hospital - Erie	12	5.7	6.3	2.10	1.09 - 3.68
11725	Hamot Medical Center	46	21.8	24.2	2.11	1.54 - 2.81

Facility ID	Hospital Name	Obs	Exp	Diff	Adjusted SIR	95% Conf Int
12508	Albert Einstein Medical Center - Moss Rehab	17	8.0	9.0	2.13	1.24 - 3.42
11770	Main Line Hospital Lankenau	49	22.3	26.7	2.20	1.63 - 2.91
12016	Chester County Hospital	33	14.5	18.5	2.27	1.57 - 3.19
12334	Select Specialty Hospital - Central Pennsylvania (York)	5	2.0	3.0	2.45	0.79 - 5.71
11667	HealthSouth Nittany Valley Rehabilitation Hospital	4	1.6	2.4	2.53	0.68 - 6.47
12388	HealthSouth Regional Specialty Hospital	15	5.9	9.1	2.55	1.43 - 4.21
11724	J C Blair Memorial Hospital	8	3.1	4.9	2.59	1.11 - 5.1
11956	Charles Cole Memorial Hospital	4	1.5	2.5	2.59	0.7 - 6.64
12097	Lock Haven Hospital	3	1.1	1.9	2.72	0.55 - 7.95
11887	Good Shepherd Specialty Hospital	14	4.9	9.1	2.88	1.57 - 4.83
12139	HealthSouth Reading Rehabilitation Hospital	5	1.6	3.4	3.12	1.01 - 7.28
12290	St. Christophers Hospital For Children	8	2.5	5.5	3.14	1.35 - 6.19
12066	Healthsouth Rehabilitation Hospital of Sewickley	3	0.9	2.1	3.21	0.65 - 9.39
11896	The Good Shepherd Rehabilitation Hospital	13	4.0	9.0	3.29	1.75 - 5.63
12628	Lancaster Rehabilitation Hospital	5	1.5	3.5	3.40	1.09 - 7.92
12123	Select Specialty Hospital - Danville	12	1.8	10.2	6.58	3.4 - 11.49
12350	Angela Jane Pavilion Rehabilitation Hospital	1	0.1	0.9	10.20	0.1 - 56.78
12623	Brooke Glen Behavioral Hospital	N/A	N/A	N/A	N/A	#N/A
12454	Clarion Psychiatric Center	N/A	N/A	N/A	N/A	#N/A
12738	Devereux Mapleton Psychiatric Institute	N/A	N/A	N/A	N/A	#N/A
12565	Fairmount Behavioral Health System	N/A	N/A	N/A	N/A	#N/A
12832	Foundations Behavioral Health - UHS of Doylestown	N/A	N/A	N/A	N/A	#N/A
12543	Horsham Clinic	N/A	N/A	N/A	N/A	#N/A
12430	Kidspeace Orchard Hills Campus	N/A	N/A	N/A	N/A	#N/A
12624	Kirkbride Center	N/A	N/A	N/A	N/A	#N/A
12723	Roxbury Treatment Center	N/A	N/A	N/A	N/A	#N/A
13921	Select Specialty Hospital - Central PA, LP (Harrisburg campus)	N/A	N/A	N/A	N/A	#N/A
12453	Southwood Psychiatric Hospital	N/A	N/A	N/A	N/A	#N/A
12548	St. John Vianney Hospital	N/A	N/A	N/A	N/A	#N/A
12156	The Meadows Psychiatric Center	N/A	N/A	N/A	N/A	#N/A
12081	Warren State Hospital	N/A	N/A	N/A	N/A	#N/A
12368	Wernersville State Hospital	N/A	N/A	N/A	N/A	#N/A

Table 9
Ranking of PA Hospitals by Adjusted SIR for CAUTI
Hospitals with <1 Expected Infections - July 1, to December 31, 2008

Facility ID	Hospital Name	Obs	Exp	Diff	Adjusted SIR	Conf Int
11939	Fulton County Medical Center	0	0.8	-0.8	0.00	0 - 4.66
12037	Barix Clinics of Pennsylvania, LLC	0	0.7	-0.7	0.00	0 - 4.99
12535	Surgical Institute of Reading	0	0.7	-0.7	0.00	0 - 5.17
11689	Jersey Shore Hospital	0	0.7	-0.7	0.00	0 - 5.49
13080	Brownsville Tri County Hospital	0	0.7	-0.7	0.00	0 - 5.5
11748	Muncy Valley Hospital	0	0.6	-0.6	0.00	0 - 5.77
12051	Clarks Summit State Hospital	0	0.6	-0.6	0.00	0 - 6.26
12483	St. Mary Medical Center - Rehab	0	0.5	-0.5	0.00	0 - 7
13929	Good Shepherd Penn Partners Specialty Hospital at Rittenhouse	0	0.4	-0.4	0.00	0 - 8.85
11968	Meyersdale Community Hospital	0	0.4	-0.4	0.00	0 - 9.52
12461	Bucktail Medical Center	0	0.4	-0.4	0.00	0 - 9.89
12505	Belmont Center for Comprehensive Treatment	0	0.2	-0.2	0.00	0 - 16.54
12451	DSI of Bucks County	0	0.1	-0.1	0.00	0 - 25.01
12411	Shriners Hospitals For Children Erie	0	0.1	-0.1	0.00	0 - 25.17
12047	Norristown State Hospital	0	0.1	-0.1	0.00	0 - 34.3
12394	Temple University Hospital - Rehab	0	0.1	-0.1	0.00	0 - 40.39
11743	Divine Providence Hospital	0	0.1	-0.1	0.00	0 - 51.21
12552	Edgewood Surgical Hospital	0	0.0	0.0	0.00	0 - 95.47
12091	Torrance State Hospital	0	0.0	0.0	0.00	0 - 116.94
11872	Coordinated Health Orthopedic Hospital LLC	1	0.7	0.3	1.42	0.02 - 7.91
12066	Healthsouth Rehabilitation Hospital of Sewickley	3	0.9	2.1	3.21	0.65 - 9.39
12350	Angela Jane Pavilion Rehabilitation Hospital	1	0.1	0.9	10.20	0.13 - 56.78

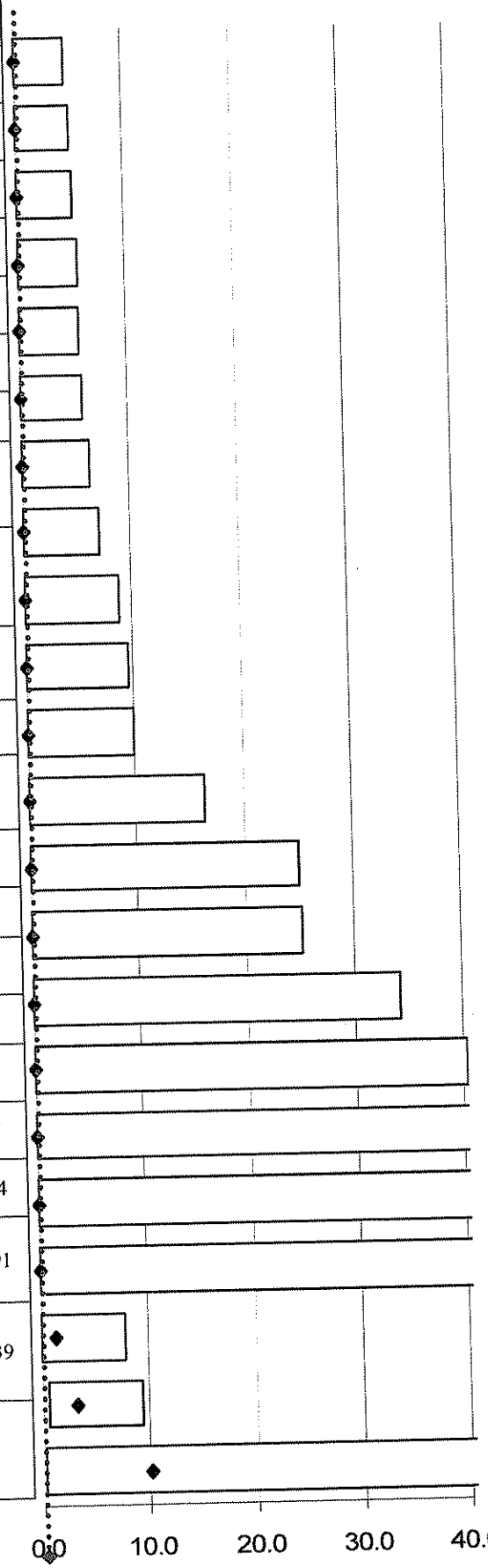


Table 10
Ranking of PA Hospitals by Adjusted SIR for CAUTI
Hospitals with 1 to 2.99 Expected Infections - July 1, to December 31, 2008

Facility ID	Hospital Name	Obs	Exp	Diff	Adjusted SIR	Conf Int
12396	Palmerton Hospital	0	2.9	-2.9	0.00	0 - 1.27
12216	Warren General Hospital	0	2.7	-2.7	0.00	0 - 1.35
11829	Tyler Memorial Hospital	0	2.5	-2.5	0.00	0 - 1.49
11711	St. Luke's Quakertown Hospital	0	2.2	-2.2	0.00	0 - 1.64
11830	Punxsutawney Area Hospital	0	2.2	-2.2	0.00	0 - 1.7
11848	Danville State Hospital	0	2.1	-2.1	0.00	0 - 1.73
12244	Shriners Hospitals for Children	0	1.9	-1.9	0.00	0 - 1.97
12571	Heart of Lancaster Regional Medical Center	0	1.8	-1.8	0.00	0 - 2.09
11851	Crozer Chester Medical Center - Springfield Hospital	0	1.6	-1.6	0.00	0 - 2.31
12266	Children's Institute of Pittsburgh	0	1.5	-1.5	0.00	0 - 2.42
11557	Mid-Valley Hospital	0	1.3	-1.3	0.00	0 - 2.8
12717	Tyrone Hospital	0	1.3	-1.3	0.00	0 - 2.88
12295	Miners Medical Center	0	1.2	-1.2	0.00	0 - 3.1
11810	Healthsouth Rehabilitation Hospital of Erie	0	1.1	-1.1	0.00	0 - 3.28
11993	Geisinger Healthsouth Rehabilitation Hospital	0	1.1	-1.1	0.00	0 - 3.46
11817	Montrose General Hospital	0	1.0	-1.0	0.00	0 - 3.53
12404	Barnes-Kasson County Hospital	0	1.0	-1.0	0.00	0 - 3.63
12283	Corry Memorial Hospital	0	1.0	-1.0	0.00	0 - 3.63
12609	Kensington Hospital	0	1.0	-1.0	0.00	0 - 3.78
12273	Crichton Rehabilitation Center	0	1.0	-1.0	0.00	0 - 3.8
12338	Marian Community Hospital	1	2.9	-1.9	0.35	0 - 1.93
11688	Soldiers & Sailors Memorial Hospital	1	2.7	-1.7	0.37	0 - 2.07
11722	Grove City Medical Center	1	2.5	-1.5	0.41	0.01 - 2.27
12105	Sunbury Community Hospital	1	2.3	-1.3	0.44	0.01 - 2.47
11907	Nason Hospital	1	2.1	-1.1	0.48	0.01 - 2.67
11902	Highlands Hospital	1	2.1	-1.1	0.49	0.01 - 2.71
12031	Windber Hospital	1	2.0	-1.0	0.50	0.01 - 2.8
11738	Titusville Area Hospital	1	1.9	-0.9	0.51	0.01 - 2.86
12418	Brookville Hospital	1	1.7	-0.7	0.58	0.01 - 3.25
12253	Millcreek Community Hospital	2	2.7	-0.7	0.75	0.08 - 2.72
11680	UPMC Bedford	2	2.3	-0.3	0.87	0.1 - 3.15
11779	Ellwood City Hospital	2	2.2	-0.2	0.92	0.1 - 3.31
12111	Kane Community Hospital	1	1.0	0.0	1.01	0.01 - 5.64
11642	Waynesboro Hospital	3	2.8	0.2	1.09	0.22 - 3.19
12058	HealthSouth Rehabilitation Hospital of York	4	2.8	1.2	1.41	0.38 - 3.61
12402	HealthSouth Rehabilitation of Mechanicsburg	3	2.1	0.9	1.42	0.29 - 4.15

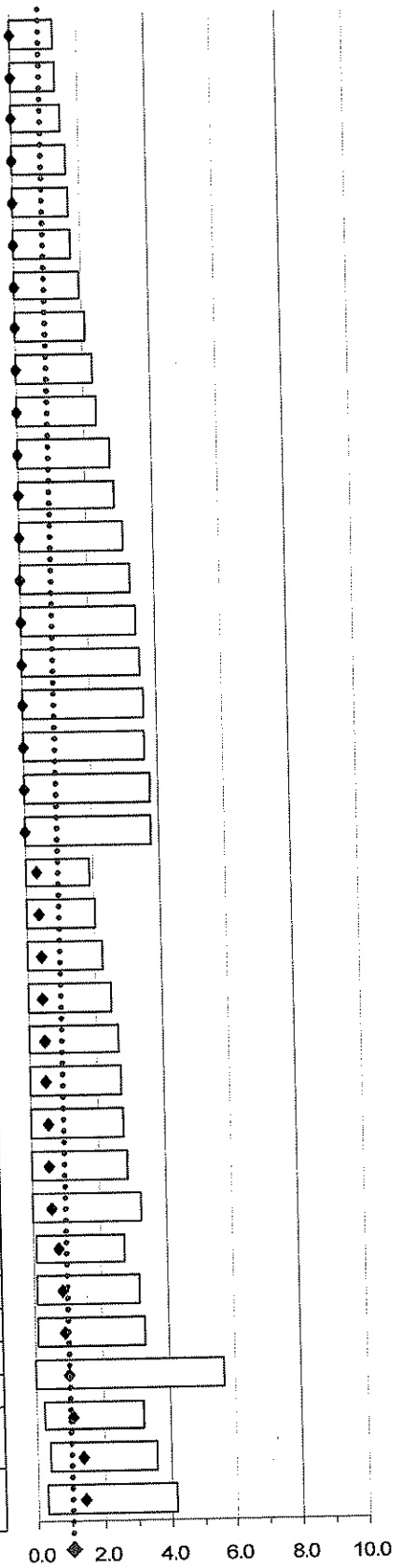


Table 10 cont...
Ranking of PA Hospitals by Adjusted SIR for CAUTI
Hospitals with 1 to 2.99 Expected Infections - July 1, to December 31, 2008

Facility ID	Hospital Name	Obs	Exp	Diff	Adjusted SIR	Conf Int
11784	St. Luke's Miners Memorial Medical Center	4	2.8	1.2	1.42	0.38 - 3.64
12348	Eastern Regional Medical Center	3	1.9	1.1	1.55	0.31 - 4.52
12365	St. Catherine Medical Center Fountain Springs	2	1.3	0.7	1.59	0.18 - 5.75
12018	Troy Community Hospital	4	2.3	1.7	1.71	0.46 - 4.38
11915	Penn State Hershey Rehabilitation LLC	2	1.1	0.9	1.80	0.2 - 6.51
12334	Select Specialty Hospital - Central Pennsylvania (York)	5	2.0	3.0	2.45	0.79 - 5.71
11667	HealthSouth Nittany Valley Rehabilitation Hospital	4	1.6	2.4	2.53	0.68 - 6.47
11956	Charles Cole Memorial Hospital	4	1.5	2.5	2.59	0.7 - 6.64
12097	Lock Haven Hospital	3	1.1	1.9	2.72	0.55 - 7.95
12139	HealthSouth Reading Rehabilitation Hospital	5	1.6	3.4	3.12	1.01 - 7.28
12290	St. Christophers Hospital For Children	8	2.5	5.5	3.14	1.35 - 6.19
12628	Lancaster Rehabilitation Hospital	5	1.5	3.5	3.40	1.09 - 7.92
12123	Select Specialty Hospital - Danville	12	1.8	10.2	6.58	3.4 - 11.49

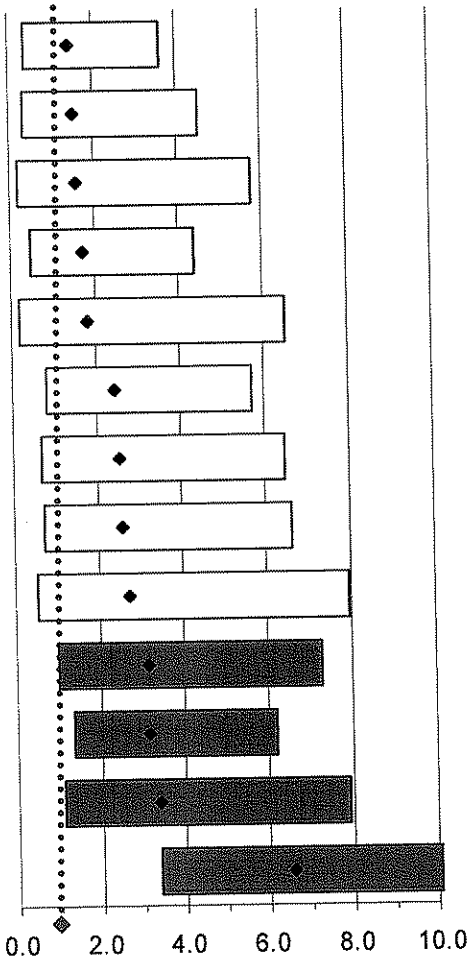


Table 11
Ranking of PA Hospitals by Adjusted SIR for CAUTI
Hospitals with 3 to 7.49 Expected Infections - July 1, to December 31, 2008

Facility ID	Hospital Name	Obs	Exp	Diff	Adjusted SIR	Conf Int
11639	Excela Health - Frick Hospital	0	5.3	-5.3	0.00	0 - 0.69
12385	Lifecare Hospitals of Pittsburgh - North Campus	0	5.1	-5.1	0.00	0 - 0.72
11684	Sacred Heart Hospital	0	5.0	-5.0	0.00	0 - 0.73
11442	Berwick Hospital Center	0	4.2	-4.2	0.00	0 - 0.87
12298	Ohio Valley General Hospital	0	3.9	-3.9	0.00	0 - 0.93
12271	Select Specialty Hospital - McKeesport, Inc.	0	3.9	-3.9	0.00	0 - 0.95
12500	Albert Einstein Medical Center at Elkins Park	0	3.5	-3.5	0.00	0 - 1.04
11903	Healthsouth Rehabilitation Hospital of Altoona, LLC	0	3.4	-3.4	0.00	0 - 1.09
11942	Southwest Regional Medical Center	0	3.4	-3.4	0.00	0 - 1.09
12591	Allied Services Institute of Rehabilitation	0	3.3	-3.3	0.00	0 - 1.1
11859	Elk Regional Health Center	0	3.3	-3.3	0.00	0 - 1.11
12549	Memorial Hospital, Inc. Towanda	0	3.1	-3.1	0.00	0 - 1.19
12008	Bloomsburg Hospital	0	3.0	-3.0	0.00	0 - 1.22
12335	Lancaster Regional Medical Center	1	5.7	-4.7	0.18	0 - 0.98
11586	Canonsburg General Hospital	1	5.4	-4.4	0.18	0 - 1.03
12296	Kindred Hospital Pittsburgh - North Shore	1	4.7	-3.7	0.21	0 - 1.18
12390	Lower Bucks Hospital	1	4.5	-3.5	0.22	0 - 1.25
12241	Gnaden Huetten Memorial Hospital	1	4.2	-3.2	0.24	0 - 1.33
11837	UPMC Northwest	2	7.4	-5.4	0.27	0.03 - 0.97
12133	Shamokin Area Community Hospital	1	3.0	-2.0	0.33	0 - 1.86
11531	Gettysburg Hospital	1	3.0	-2.0	0.34	0 - 1.87
12108	Select Specialty Hospital Laurel Highlands Inc	2	5.1	-3.1	0.39	0.04 - 1.41
11764	Ephrata Community Hospital	3	6.3	-3.3	0.47	0.1 - 1.38
11727	HealthSouth Harmarville Rehabilitation Hospital	4	6.5	-2.5	0.62	0.17 - 1.58
11654	Clarion Hospital	2	3.2	-1.2	0.63	0.07 - 2.29
12004	Wayne Memorial Hospital	3	4.6	-1.6	0.65	0.13 - 1.89
12604	Mercy Special Care Hospital	4	5.8	-1.8	0.69	0.18 - 1.76
10576	UPMC Braddock	5	6.6	-1.6	0.76	0.24 - 1.77
11825	Lewistown Hospital	5	6.2	-1.2	0.81	0.26 - 1.89
11781	Geisinger South Wilkes Barre	3	3.6	-0.6	0.83	0.17 - 2.41
12147	Select Specialty Hospital - Central Pennsylvania (Camp Hill)	4	4.6	-0.6	0.86	0.23 - 2.21
12299	Select Specialty Hospital - Johnstown	3	3.5	-0.5	0.87	0.17 - 2.54
12361	Bradford Regional Medical Center	3	3.4	-0.4	0.88	0.18 - 2.57
11861	John Heinz Institute Of Rehabilitation	3	3.4	-0.4	0.88	0.18 - 2.57
11940	St. Agnes Long Term Care Hospital	6	6.6	-0.6	0.91	0.33 - 1.98
12005	Lifecare Hospitals of Chester County	5	5.3	-0.3	0.95	0.31 - 2.22

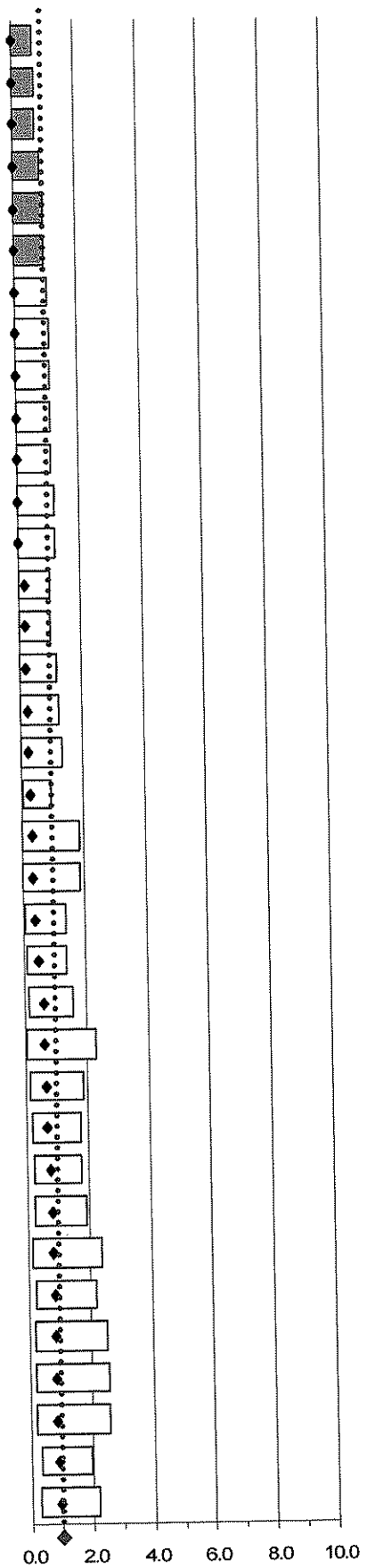


Table 11 cont...
Ranking of PA Hospitals by Adjusted SIR for CAUTI
Hospitals with 3 to 7.49 Expected Infections - July 1, to December 31, 2008

Facility	Hospital Name	Obs	Exp	Diff	Adjusted SIR	Confidence Interval
11947	Montgomery Hospital	6	6.3	-0.3	0.96	0.35 - 2.08
12282	Somerset Community Hospital Somerset	6	6.0	0.0	0.99	0.36 - 2.16
12009	Select Specialty Hospital - Pittsburgh/UPMC	5	5.0	0.0	1.00	0.32 - 2.33
11417	Bryn Mawr Rehabilitation Hospital	5	4.9	0.1	1.02	0.33 - 2.37
11843	Clearfield Hospital	6	5.4	0.6	1.12	0.41 - 2.43
12485	Kindred Hospital - Wyoming Valley	6	5.3	0.7	1.13	0.41 - 2.46
10659	UPMC South Side	8	7.0	1.0	1.14	0.49 - 2.24
12262	Girard Medical Center	9	7.1	1.9	1.27	0.58 - 2.42
12268	Kindred Hospital at Heritage Valley	8	6.1	1.9	1.31	0.56 - 2.58
12007	Triumph Hospital Easton	6	4.4	1.6	1.35	0.49 - 2.94
12504	Kindred Hospital - Delaware County	6	4.2	1.8	1.42	0.52 - 3.09
12908	Kindred Hospitals East, Philadelphia-Havertown	7	4.8	2.2	1.46	0.58 - 3
12337	Jennersville Regional Hospital	6	4.0	2.0	1.52	0.55 - 3.31
11759	Indiana Regional Medical Center	11	6.2	4.8	1.77	0.88 - 3.17
12032	Lansdale Hospital Corporation	11	6.0	5.0	1.84	0.92 - 3.29
11880	Select Specialty Hospital - Erie	12	5.7	6.3	2.10	1.09 - 3.68
12388	HealthSouth Regional Specialty Hospital	15	5.9	9.1	2.55	1.43 - 4.21
11724	J C Blair Memorial Hospital	8	3.1	4.9	2.59	1.11 - 5.1
11887	Good Shepherd Specialty Hospital	14	4.9	9.1	2.88	1.57 - 4.83
11896	The Good Shepherd Rehabilitation Hospital	13	4.0	9.0	3.29	1.75 - 5.63

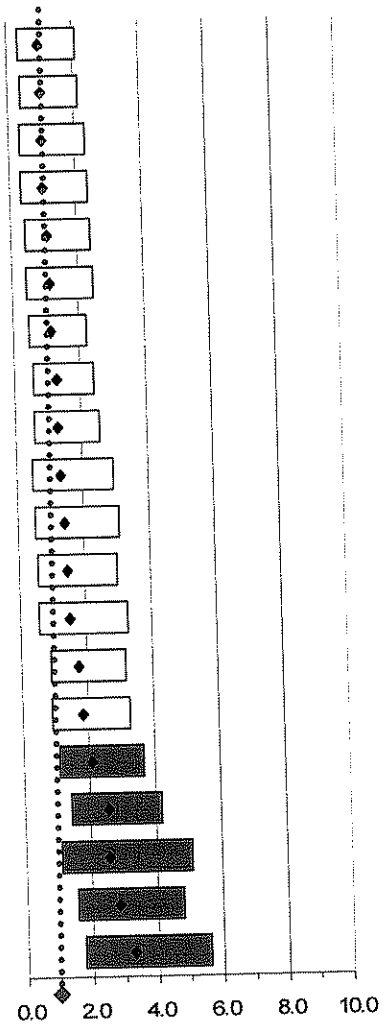


Table 12
Ranking of PA Hospitals by Adjusted SIR for CAUTI
Hospitals with 7.50 to 14.99 Expected Infections - July 1, to December 31, 2008

Facility	Hospital Name	Obs	Exp	Diff	Adjusted SIR	Confidence Interval
11946	Mercy Philadelphia Hospital	0	9.8	-9.8	0.00	0 - 0.37
11914	Community Medical Center	0	12.3	-12.3	0.00	0 - 0.3
12057	Armstrong County Memorial Hospital	1	7.8	-6.8	0.13	0 - 0.71
11651	Excela Health - Latrobe Area Hospital	2	12.6	-10.6	0.16	0.02 - 0.57
10441	Uniontown Hospital	2	12.2	-10.2	0.16	0.02 - 0.59
11675	UPMC Horizon	2	8.7	-6.7	0.23	0.03 - 0.83
11978	Roxborough Memorial Hospital	2	8.1	-6.1	0.25	0.03 - 0.89
11945	Lifecare Hospitals of Pittsburgh	3	11.6	-8.6	0.26	0.05 - 0.76
11952	Mercy Suburban Hospital	3	10.9	-7.9	0.28	0.06 - 0.81
11932	Crozer Chester Medical Center - Taylor Hospital	4	12.5	-8.5	0.32	0.09 - 0.82
11847	Grand View Hospital	4	12.1	-8.1	0.33	0.09 - 0.85
12254	HealthSouth Hospital of Pittsburgh	3	9.1	-6.1	0.33	0.07 - 0.97
11954	Jameson Memorial Hospital	4	10.6	-6.6	0.38	0.1 - 0.97
11472	Northeastern Hospital	4	10.5	-6.5	0.38	0.1 - 0.97
11069	Monongahela Valley Hospital	5	12.1	-7.1	0.41	0.13 - 0.96
12533	Mercy Hospital	6	13.8	-7.8	0.44	0.16 - 0.95
11772	Pocono Medical Center	6	13.7	-7.7	0.44	0.16 - 0.95
11750	Main Line Hospital Paoli	5	10.9	-5.9	0.46	0.15 - 1.07
11961	St. Joseph Medical Center	5	10.8	-5.8	0.46	0.15 - 1.08
11633	Memorial Hospital York	4	8.1	-4.1	0.49	0.13 - 1.26
11683	Mercy Fitzgerald Hospital	7	14.1	-7.1	0.50	0.2 - 1.02
11701	Evangelical Community Hospital	5	9.1	-4.1	0.55	0.18 - 1.28
11640	Children's Hospital of Pittsburgh of UPMC	6	10.0	-4.0	0.60	0.22 - 1.3
11606	Dubois Regional Medical Center	5	8.2	-3.2	0.61	0.2 - 1.42
11922	Schuylkill Medical Center - East Norwegian Street	5	8.0	-3.0	0.63	0.2 - 1.47
11459	Jeanes Hospital	7	11.1	-4.1	0.63	0.25 - 1.3
11836	Phoenixville Hospital Company LLC	6	9.4	-3.4	0.64	0.23 - 1.39
10301	Magee Womens Hospital of UPMC Health System	10	14.2	-4.2	0.71	0.34 - 1.3
11983	Pottstown Memorial Medical Center	9	11.6	-2.6	0.77	0.35 - 1.47
11913	Chambersburg Hospital	9	11.5	-2.5	0.78	0.36 - 1.49
11979	Brandywine Hospital	7	8.6	-1.6	0.81	0.33 - 1.68
12304	CHHS Hospital Company - Chestnut Hill Hospital	7	8.3	-1.3	0.84	0.34 - 1.74
12250	Sharon Regional Health System	7	7.6	-0.6	0.93	0.37 - 1.91
11878	Hazleton General Hospital	10	10.6	-0.6	0.94	0.45 - 1.73
11997	Carlisle Regional Medical Center	8	8.4	-0.4	0.95	0.41 - 1.88
10190	Doylestown Hospital	13	13.6	-0.6	0.96	0.51 - 1.64

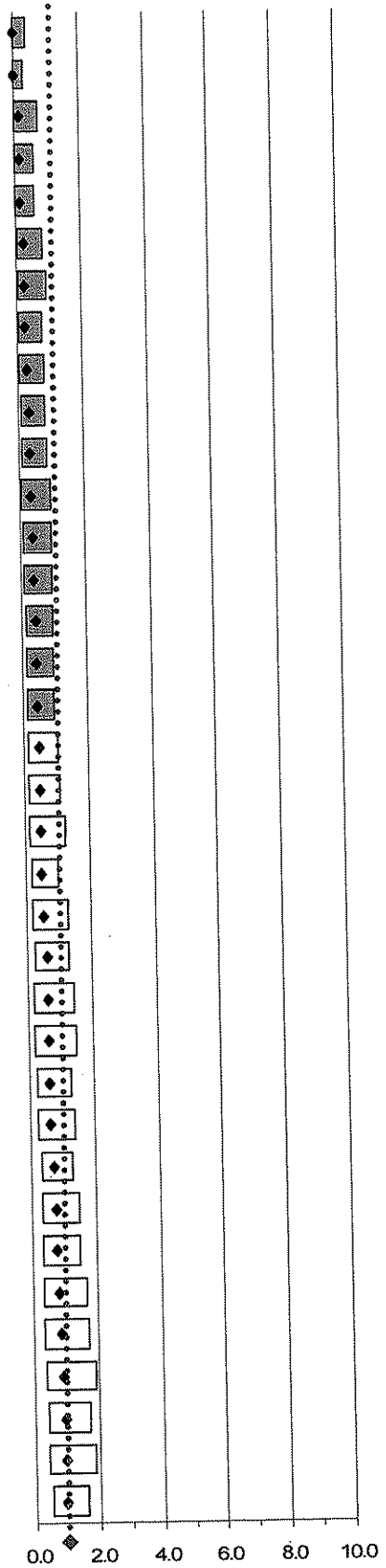


Table 12 cont...
Ranking of PA Hospitals by Adjusted SIR for CAUTI
Hospitals with 7.50 to 14.99 Expected Infections - July 1, to December 31, 2008

Facility	Hospital Name	Obs	Exp	Diff	Adjusted SIR	Confidence Interval
11583	Meadville Medical Center	11	11.2	-0.2	0.98	0.49 - 1.75
12087	Schuylkill Medical Center - South Jackson Street	8	7.9	0.1	1.01	0.43 - 1.99
11899	Hanover Hospital, Inc.	9	8.8	0.2	1.02	0.47 - 1.94
12134	Hosp of Fox Chase Cancer Center	9	8.8	0.2	1.03	0.47 - 1.95
11736	Butler Memorial Hospital	15	14.2	0.8	1.06	0.59 - 1.74
11832	Kindred Hospital - Philadelphia	10	9.4	0.6	1.06	0.51 - 1.95
12358	Kindred Hospital - Pittsburgh	9	8.4	0.6	1.07	0.49 - 2.03
11707	UPMC McKeesport	9	7.9	1.1	1.14	0.52 - 2.16
11842	Alle-Kiski Medical Center	13	11.3	1.7	1.15	0.61 - 1.97
11528	Moses Taylor Hospital	14	12.0	2.0	1.17	0.64 - 1.96
12146	Magee Rehabilitation Hospital	16	12.7	3.3	1.26	0.72 - 2.04
12438	St. Joseph's Hospital	14	8.7	5.3	1.61	0.88 - 2.7
11814	Penn Presbyterian Medical Center	22	13.4	8.6	1.64	1.03 - 2.49
11929	Easton Hospital	29	14.9	14.1	1.94	1.3 - 2.79
10306	Children's Hospital of Philadelphia	19	9.2	9.8	2.07	1.24 - 3.23
12508	Albert Einstein Medical Center - Moss Rehab	17	8.0	9.0	2.13	1.24 - 3.42
12016	Chester County Hospital	33	14.5	18.5	2.27	1.57 - 3.19

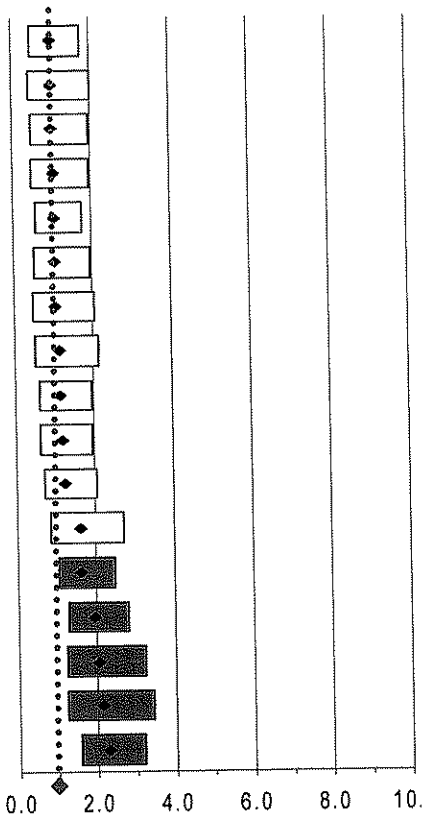


Table 13
Ranking of PA Hospitals by Adjusted SIR for CAUTI
Hospitals with 15 to 29.99 Expected Infections - July 1, to December 31, 2008

Facility	Hospital Name	Obs	Exp	Diff	Adjusted SIR	Confidence Interval
10178	Altoona Regional Health System	3	28.7	-25.7	0.10	0.02 - 0.31
11731	Riddle Memorial Hospital	3	19.4	-16.4	0.15	0.03 - 0.45
11839	Crozer Chester Medical Center	4	24.4	-20.4	0.16	0.04 - 0.42
11460	The Washington Hospital	4	15.5	-11.5	0.26	0.07 - 0.66
11753	Main Line Hospital Bryn Mawr	7	17.8	-10.8	0.39	0.16 - 0.81
11448	Pennsylvania Hospital of the University of PA Health System	11	26.6	-15.6	0.41	0.21 - 0.74
12422	Robert Packer Hospital	7	16.7	-9.7	0.42	0.17 - 0.87
11265	The Western Pennsylvania Hospital Forbes Regional Campus	8	18.3	-10.3	0.44	0.19 - 0.86
11437	Hahnemann University Hospital	12	26.3	-14.3	0.46	0.24 - 0.8
11972	Delaware County Memorial Hospital	7	15.2	-8.2	0.46	0.18 - 0.95
11712	The Good Samaritan Hospital	7	15.1	-8.1	0.46	0.19 - 0.96
10375	Heritage Valley Sewickley Medical Center	7	15.1	-8.1	0.46	0.19 - 0.96
10561	St. Clair Memorial Hospital	9	15.7	-6.7	0.57	0.26 - 1.09
11919	Nazareth Hospital	10	15.5	-5.5	0.64	0.31 - 1.19
10384	UPMC Mercy	20	29.2	-9.2	0.69	0.42 - 1.06
11973	Holy Redeemer Health System Hospital & Medical Center	12	16.6	-4.6	0.72	0.37 - 1.26
12387	Holy Spirit Hospital	14	18.9	-4.9	0.74	0.4 - 1.24
11699	St. Vincent Health Center	18	23.8	-5.8	0.76	0.45 - 1.2
11885	St. Mary Medical Center	15	19.4	-4.4	0.77	0.43 - 1.28
11864	The Western Pennsylvania Hospital	23	29.4	-6.4	0.78	0.5 - 1.17
10237	Jefferson Regional Medical Center	19	21.7	-2.7	0.88	0.53 - 1.37
11561	UPMC St. Margaret	17	19.3	-2.3	0.88	0.51 - 1.41
11732	The Williamsport Hospital & Medical Center	14	15.0	-1.0	0.93	0.51 - 1.56
11797	Mount Nittany Medical Center	16	16.7	-0.7	0.96	0.55 - 1.55
11780	Geisinger Wyoming Valley Medical Center	20	19.3	0.7	1.04	0.63 - 1.6
11898	Lehigh Valley Hospital - Muhlenberg	17	16.2	0.8	1.05	0.61 - 1.69
11242	UPMC Passavant	26	24.4	1.6	1.06	0.69 - 1.56
11831	Heritage Valley Beaver Medical Center	21	19.5	1.5	1.08	0.67 - 1.65
12017	Thomas Jefferson University Hospital - Methodist	25	17.1	7.9	1.46	0.95 - 2.16
11916	Wilkes-Barre General Hospital	54	29.1	24.9	1.85	1.39 - 2.42
11725	Hamot Medical Center	46	21.8	24.2	2.11	1.54 - 2.81
11770	Main Line Hospital Lankenau	49	22.3	26.7	2.20	1.63 - 2.91

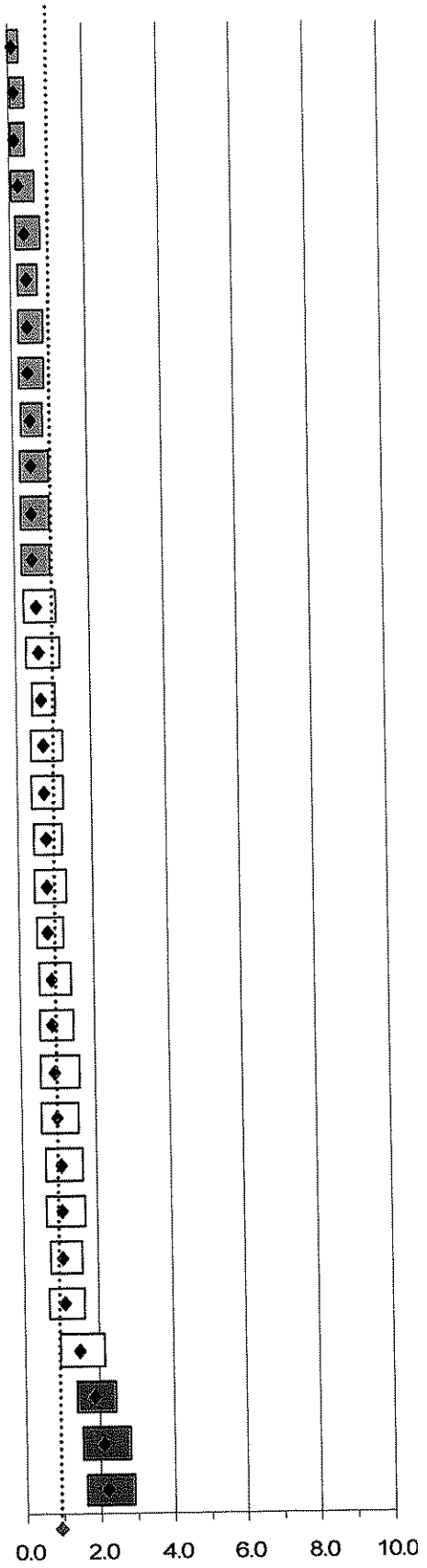


Table 14
Ranking of PA Hospitals by Adjusted SIR for CAUTI
Hospitals with >30 Expected Infections - July 1, to December 31, 2008

Facility	Hospital Name	Obs	Exp	Diff	Adjusted SIR	Confidence Interval
11637	Excela Health Westmoreland Regional Hospital	12	35.8	-23.8	0.34	0.17 - 0.59
10183	Lancaster General Hospital	14	39.2	-25.2	0.36	0.2 - 0.6
10118	UPMC Presbyterian - Shadyside Campus	32	45.5	-13.5	0.70	0.48 - 0.99
10280	Conemaugh Valley Memorial Hospital	25	33.8	-8.8	0.74	0.48 - 1.09
10122	Pinnacle Health Hospitals	41	54.0	-13.0	0.76	0.54 - 1.03
12375	Reading Hospital And Medical Center	26	32.8	-6.8	0.79	0.52 - 1.16
11838	Abington Memorial Hospital	37	46.5	-9.5	0.80	0.56 - 1.1
10348	UPMC Presbyterian	92	89.9	2.1	1.02	0.82 - 1.25
10648	Allegheny General Hospital	67	54.6	12.4	1.23	0.95 - 1.56
10108	York Hospital	55	42.9	12.1	1.28	0.97 - 1.67
11747	Milton S Hershey Medical Center	55	42.6	12.4	1.29	0.97 - 1.68
11506	Thomas Jefferson University Hospital	82	61.5	20.5	1.33	1.06 - 1.66
10585	Albert Einstein Medical Center	50	35.6	14.4	1.41	1.04 - 1.85
11775	Geisinger Medical Center	46	30.8	15.2	1.49	1.09 - 1.99
11718	St. Luke's Hospital Bethlehem	76	47.4	28.6	1.60	1.26 - 2.01
12382	Temple University Hospital	65	39.5	25.5	1.65	1.27 - 2.1
11884	Lehigh Valley Hospital	95	53.5	41.5	1.78	1.44 - 2.17
11388	Aria Health	76	41.8	34.2	1.82	1.43 - 2.27
10219	Hospital of the University of Pennsylvania	119	58.1	60.9	2.05	1.7 - 2.45

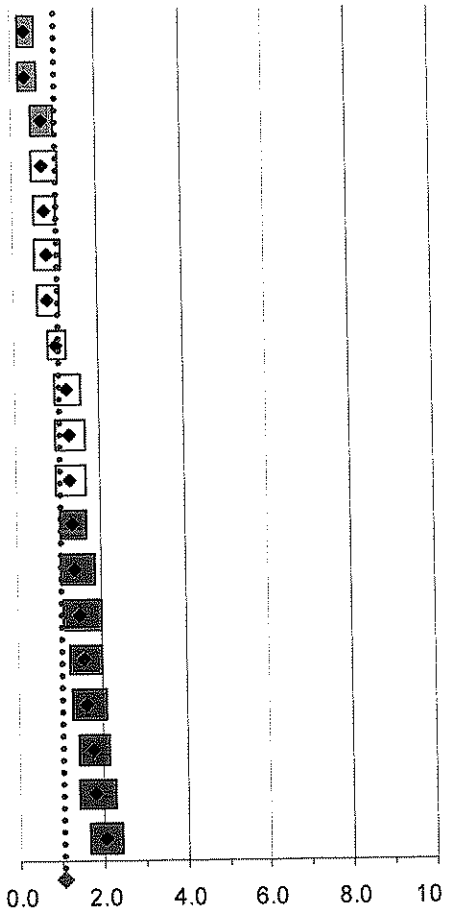


Table 15
Ranking of PA Hospitals by Adjusted SIR for CAUTI
Hospitals with Non-Measurable Expected Infections - July 1, to December 31, 2008

Facility	Hospital Name	Obs	Exp	Diff	Adjusted SIR	Confidence Interval
11962	Allentown State Hospital	N/A	N/A	N/A	N/A	N/A
12623	Brooke Glen Behavioral Hospital	N/A	N/A	N/A	N/A	N/A
12454	Clarion Psychiatric Center	N/A	N/A	N/A	N/A	N/A
12738	Devereux Mapleton Psychiatric Institute	N/A	N/A	N/A	N/A	N/A
12965	Eagleville Hospital	N/A	N/A	N/A	N/A	N/A
12565	Fairmount Behavioral Health System	N/A	N/A	N/A	N/A	N/A
12050	First Hospital of Wyoming Valley	N/A	N/A	N/A	N/A	N/A
12832	Foundations Behavioral Health - UHS of Doylestown	N/A	N/A	N/A	N/A	N/A
12488	Friends Hospital	N/A	N/A	N/A	N/A	N/A
12543	Horsham Clinic	N/A	N/A	N/A	N/A	N/A
12430	Kidspeace Orchard Hills Campus	N/A	N/A	N/A	N/A	N/A
12624	Kirkbride Center	N/A	N/A	N/A	N/A	N/A
12287	Montgomery County MH/MR Emergency Services, Inc.	N/A	N/A	N/A	N/A	N/A
11740	Philhaven Hospital	N/A	N/A	N/A	N/A	N/A
12723	Roxbury Treatment Center	N/A	N/A	N/A	N/A	N/A
13921	Select Specialty Hospital - Central PA, LP (Harrisburg campus)	N/A	N/A	N/A	N/A	N/A
12453	Southwood Psychiatric Hospital	N/A	N/A	N/A	N/A	N/A
12548	St. John Vianney Hospital	N/A	N/A	N/A	N/A	N/A
12336	The Childrens Home Of Pittsburgh	N/A	N/A	N/A	N/A	N/A
12156	The Meadows Psychiatric Center	N/A	N/A	N/A	N/A	N/A
12029	Valley Forge Medical Center & Hospital	N/A	N/A	N/A	N/A	N/A
12081	Warren State Hospital	N/A	N/A	N/A	N/A	N/A
12368	Wernersville State Hospital	N/A	N/A	N/A	N/A	N/A
12487	Westfield Hospital	N/A	N/A	N/A	N/A	N/A

3. **CLABSI Outcomes**:
   a. **Statewide Aggregated Results**:
      1) Among the 255 Pennsylvania hospitals, 150 reported a total of 1,356 Central Line Associated Bloodstream Infections (CLABSI) from July 1 to December 31, 2008, which represents 9.85% of all reported events for that period of time. The remaining hospitalis either had no CLABSI, or information was missing (34 hospitals) on event counts, central line days, and/or patient days. The hospitals in the latter category are generally psychiatric facilities, substance abuse treatment facilities, or rehabilitation units that would be unlikely to have patients with central lines in place.

      2) Pooled Device Utilization Ratios (DURs) were calculated for all hospitals (Table 16). The pooled DURs were highest for the critical care units (0.08 – 0.67) and lowest for the *non*-critical care units (0.0 – 0.18). Of the critical units, Surgical (0.58), Cardio-Thoracic (0.66) and Trauma (0.67) units had the highest DUR and NICU (0.08 umb, 0.16 central line) and Specialty Care Area (0.20 perm, 0.36 temp) units had the lowest. NICU and Specialty Care Areas (SCA) have two DURs each for CLABSIs due to the use of two different types of central lines. NICUs use both regular central lines and umbilical central lines. SCAs use both temporary and permanent central lines.

         Among *non*-critical care units, Medical (0.18), Surgery (0.14) and Step (0.14) units had the highest DUR. Newborn (<0.001), Behavioral (<0.001) and Labor & Delivery/Post-partum (0.00) had the lowest DURs.

      3) CLABSI pooled rates for all the wards with a DUR greater than zero ranged from 0.77 to 5.18. Critical care units with the lowest rates included CardioThoracic (1.21), Medical (1.54), and Trauma (1.64) units. The highest critical care units included Burn (5.18) and Pediatrics (4.07). The lowest rates for *non*-critical care units included Labor & Delivery/Postpartum (0.00), Surgery (0.77) and Rehabilitation (0.84) units. The highest rates for *non*-critical care units included Pediatric Medical-Surgical (2.85) and Newborn (3.69) units.

Table 16
CLABSI in PA Hospitals by Location
Infection Rate and Device Utilization
July 1, to December 31, 2008

Ward Category		CLABSIs	CL Days	PatientDays	RATE	DUR
StepDown		63	40801	285545	1.54	0.14
cc:Burn		13	2510	5274	5.18	0.48
cc:CardioThoracic		40	32979	50053	1.21	0.66
cc:Medical/Surgical		165	97241	215313	1.70	0.45
cc:Medical		57	36972	68277	1.54	0.54
cc:Pediatrics		56	13760	26188	4.07	0.53
cc:MedicalSpecialty		44	24352	68587	1.81	0.36
cc:Surgery		59	32005	55425	1.84	0.58
cc:Trauma		30	17051	25452	1.76	0.67
w:Behavior		3	1595	373672	1.88	<.01
w:MedicalSurgical		228	182168	1428689	1.25	0.13
w:Medical		125	101768	562815	1.23	0.18
w:Newborn		1	271	82144	3.69	<.01
w:Pediatrics-Medical Surgical		50	17200	129872	2.91	0.13
w:Rehabilitation		18	21472	309804	0.84	0.07

w:Surgery		45	58459	418982	0.77	0.14
NICU						
	Central Line	56	20537	126466	2.73	0.16
	Umbilical Line	27	9978	126466	2.71	0.08
SpecialtyCareArea						
	Permanent Line	96	51828	253707	1.85	0.20
	Temporary Line	180	90691	253707	1.98	0.36

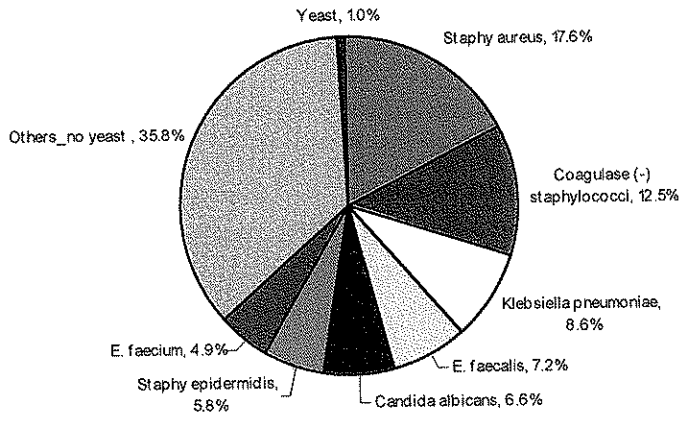
cc = critical care unit w = non-critical care unit CL = Central Line DUR = Device Utilization Ratio

b. **Pathogen Data**:
Information is obtained in NHSN on laboratory confirmed infections. For CLABSI, the top six pathogens in descending order are *Staphylococcus aureus* (17.7%), Coagulase-negative *Staphylococcus aureus* (12.5%), *Klebsiella pneumoniae* (8.7%), *Enterococcus faecalis* (7.3%), *Candida albicans* (6.7%), *Staphylococcus epidermidis* (5.8%).

Table 17
Percentage of CLABSI in PA Hospitals by Pathogens
July 1, to December 31, 2008

Pathogen	Count	%
Staphy aureus	239	17.6%
Coagulase (-) staphylococci	169	12.5%
Klebsiella pneumoniae	117	8.6%
E. faecalis	98	7.2%
Candida albicans	90	6.6%
Staphy epidermidis	78	5.8%
E. faecium	66	4.9%
Others_no yeast	486	35.8%
Yeast	13	1.0%
TOTAL	1,356	100%

Figure 6
Percentage of Confirmed Primary Pathogens of CLABSI Cases in PA Hospitals between July and December 2008 (N=1356)



c. **National Comparisons**: Pooled statewide CLABSI rates of CDC-defined ward types that are present in Pennsylvania hospitals were compared to the national pooled rates for like ward types calculated by the CDC. These ward types were divided into critical care and non-critical care wards. There were nine critical care wards consisting of the following units: Burn, Coronary, Cardio-Thoracic Surgical, Medical, Adult Medical/Surgical, Pediatric Medical/Surgical, and Trauma. There were five non-critical care wards consisting of the following units: Adult Step-Down, Medical, Medical/Surgical, Rehabilitation, and Surgical. CLABSI rates for critical care ward comparisons were divided up into three tables—Critical and Non-Critical Care wards (Allwards), Neonatal Intensive Care Unites (NICU) (umbilical catheter), and Specialty Care Area (SCA) (permanent line). The same categories were used for critical care DUR comparisons. For non-critical care wards, only two tables were needed—one for CLABSI rate comparisons and one for central line DUR comparisons. The results of these analysis are as follows:

1) In comparing CLABSI rates among ICUs in PA and nationally, in most cases, Pennsylvania rates are lower. (See Table 18 and Figure 7 and 8).
2) CLABSI rates in PA are higher than national rates for Pediatric-Medical/Surgical and also in Pediatric Medical ICU's. They are also higher in NICU's in all birthweight categories except for the largest (>2500g).
3) Among Specialty Care Areas, PA rates are lower for Bone Marrow Transplant and similar for Hematology/Oncology ward types as compared to like wards nationally.
4) In comparing non-critical care units, PA rates are lower than national rates in Adult Step Down, Medical, and Surgical wards.
5) PA has similar rates for Medical Surgical wards and higher rates for Rehabilitation units as compared to national rates.
6) When comparing DUR in critical care units, the results are closer to national data (See Figure 9 and 10). When compared to national data, PA has higher or near equal DURs in the following wards types: Pediatric-Medical/Surgical, Neurological, Neuro-Surgical, Surgical and Trauma.
7) In the remaining six ICU unit types, PA's DUR is lower than the national ratio (Burn, Coronary, CardioThoracic, Medical, Medical-Surgical, Pediatric-Medical).
8) In Specialty Care Areas, PA has lower DURs in Bone Marrow Transplant and near equal in Hematology/Oncology units.
9) In comparing Umbilical catheter use ratios in NICUs, PA ratios are lower in the following birth weight categories: ≤750g, 751-1000g, and >2500g. They are slightly higher in the 1001-1500g birth weight category and nearly equal in the 1501-2500g birth weight category.
10) Looking at central line use in NICUs, PA ratios are lower in all birth weight categories.

Table 18
Comparison of CLABSI rates and Device-Utilization Ratio in PA Hospitals to NHSN Reported Data by Ward Type - ICU
July 1, to December 31, 2008

Type of location	No. of Hospitals with ward	CLB_All Wards rate	NHSN_rate	Central Line ratio	NHSN_ratio
Critical care units					
Burn	4	5.18	5.50	0.48	0.56
Coronary	29	1.71	2.00	0.33	0.40
Surgical cardio- thoratic	33	1.21	1.40	0.66	0.71

Type of location	No. of Hospitals with ward	CLB_All Wards rate	NHSN_rate	Central Line ratio	NHSN_ratio
Medical	29	1.54	2.25	0.54	0.53
Medical/ surgical	134	1.70	1.80	0.45	0.5
Pediatric medical/ surgical	6	3.46	3.00	0.60	0.48
Pediatric medical	1	3.47	1.30	0.29	0.40
Neuro-logical	4	1.76	1.40	0.48	0.45
Neuro-surgical	6	1.68	2.50	0.45	0.44
Surgical	16	1.91	2.30	0.65	0.59
Trauma	10	1.64	3.60	0.67	0.63
Inpatient wards					
Adult Step down unit	68	1.54	2.10	0.14	0.18
Medical	58	1.25	1.50	0.19	0.20
Medical/ surgical	152	1.25	1.20	0.13	0.16
Rehabilitation	78	0.84	0.80	0.07	0.08
Surgical	45	0.86	1.40	0.17	0.20

Figure 7
Comparison of CLABSI Rates in PA Hospitals by Selected Critical Care Locations at Baseline (July to December 2008) to Available NHSN Rate from 2006 through 2008

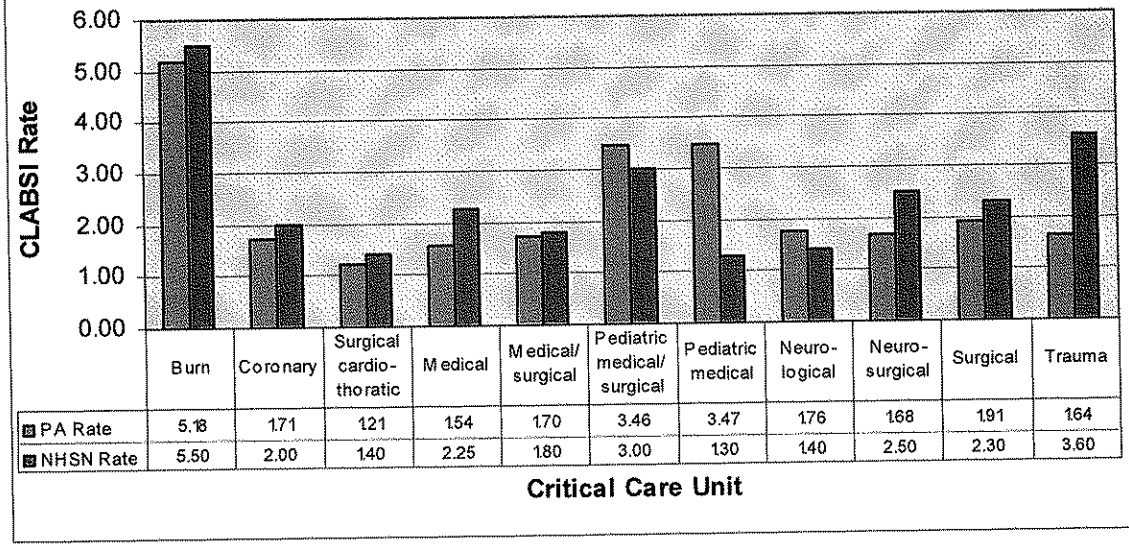
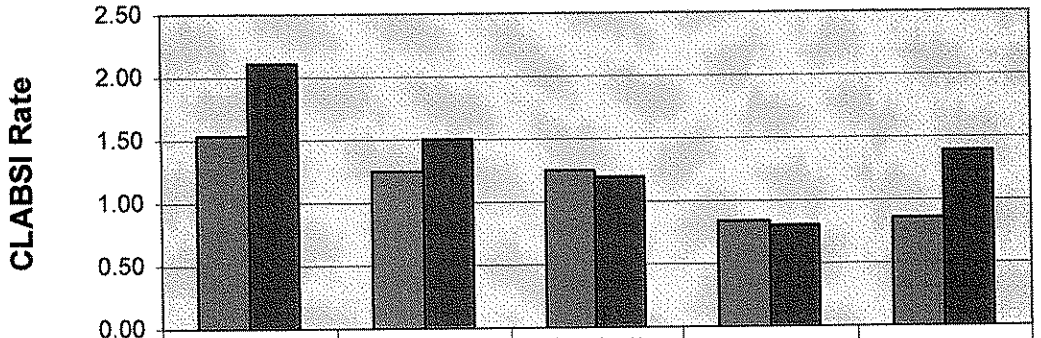


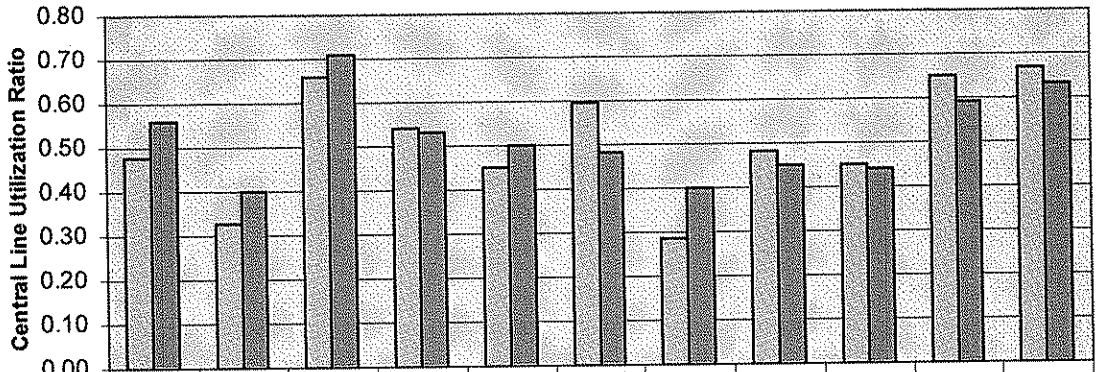
Figure 8
Comparison of CLABSI Rates in PA Hospitals by Selected Ward Locations at Baseline (July to December 2008) to Available NHSN Rate from 2006 through 2008



	Adult Step down unit	Medical	Medical/ surgical	Rehabilitation	Surgical
PA Rate	1.54	1.25	1.25	0.84	0.86
NHSN Rate	2.10	1.50	1.20	0.80	1.40

Ward Unit

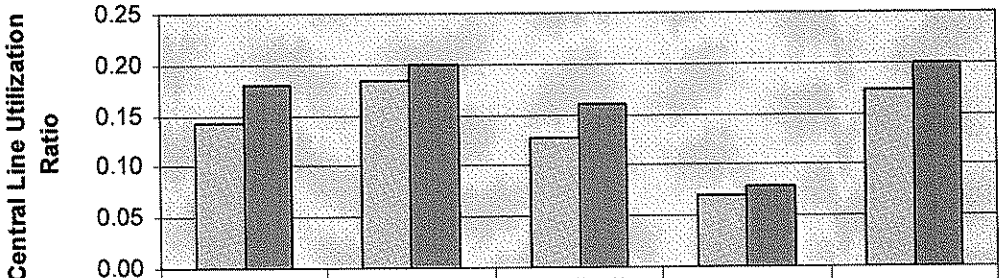
Figure 9
Comparison of Central Line Utilization Ratio in PA Hospitals by Selected Critical Care Locations at Baseline (July to December 2008) to Available NHSN DU Ratio from 2006 through 2008



	Burn	Coronary	Surgical cardio-thoratic	Medical	Medical/ surgical	Pediatric medical/ surgical	Pediatric medical	Neuro-logical	Neuro-surgical	Surgical	Trauma
PA Ratio	0.48	0.33	0.66	0.54	0.45	0.60	0.29	0.48	0.45	0.65	0.67
NHSN Ratio	0.56	0.4	0.71	0.53	0.5	0.48	0.4	0.45	0.44	0.59	0.63

Critical Care Unit

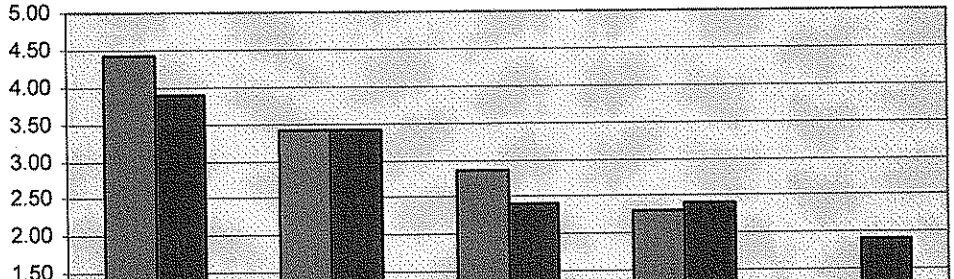
Figure 10
Comparison of Central Line Utilization Ratio in PA Hospitals by Selected Ward Locations at Baseline (July to December 2008) to Available NHSN DU Ratio from 2006 through 2008



	Adult Step down unit	Medical	Medical/ surgical	Rehabilitation	Surgical
PA Ratio	0.14	0.19	0.13	0.07	0.17
NHSN Rato	0.18	0.2	0.16	0.08	0.2

Ward Unit

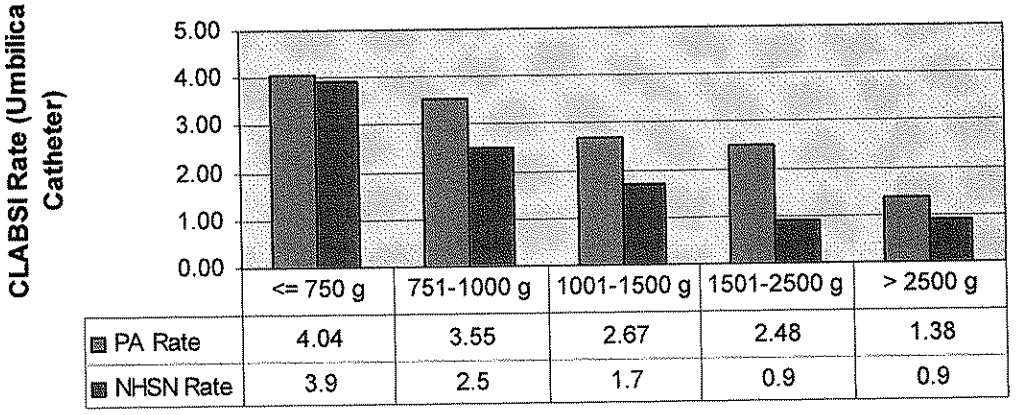
Figure 11
Comparison of CLABSI Rates in PA Hospitals by Neonatal Birth Weight at Baseline (July to December 2008) to Available NHSN DU Ratio from 2006 through 2008



	<= 750 g	751-1000 g	1001-1500 g	1501-2500 g	> 2500 g
PA Rate	4.41	3.41	2.85	2.30	0.46
NHSN Rate	3.9	3.4	2.4	2.4	1.9

Neonatal Intensive Care Unit

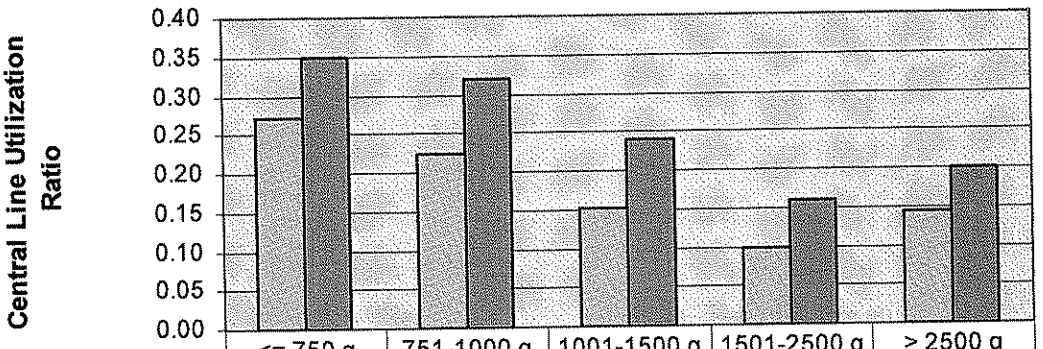
Figure 12
Comparison of Associated Umbilical Catheter- CLABSI Rates in PA Hospitals by Neonatal Birth Weight at Baseline (July to December 2008) to Available NHSN DU Ratio from 2006 through 2008



	<= 750 g	751-1000 g	1001-1500 g	1501-2500 g	> 2500 g
PA Rate	4.04	3.55	2.67	2.48	1.38
NHSN Rate	3.9	2.5	1.7	0.9	0.9

Neonatal Intensive Care Unit

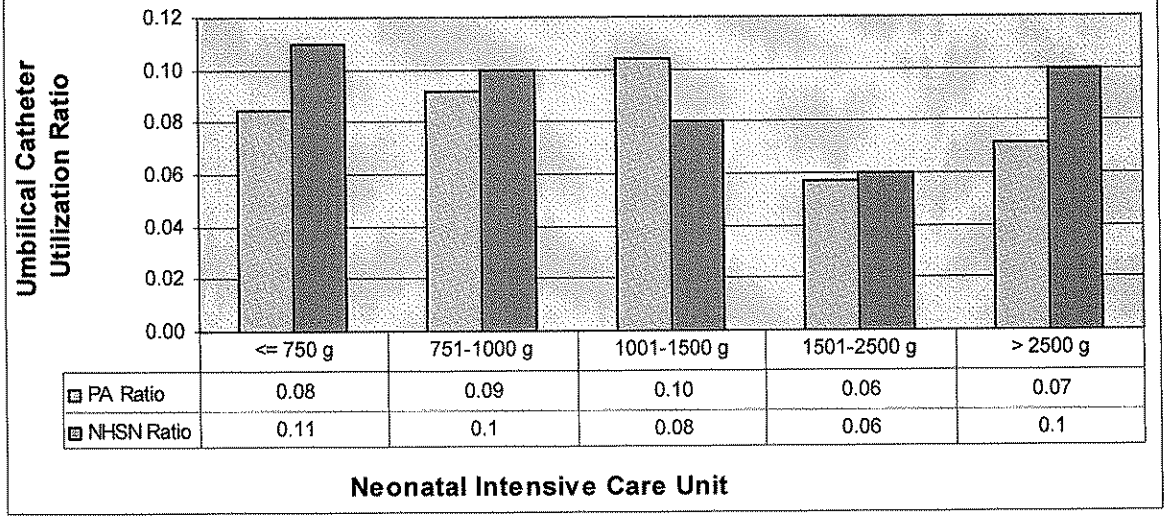
Figure 13
Comparison of Central Line Utilization Ratio in PA Hospitals by Neonatal Birth Weight at Baseline (July to December 2008) to Available NHSN DU Ratio from 2006 through 2008



	<= 750 g	751-1000 g	1001-1500 g	1501-2500 g	> 2500 g
PA Rate	0.27	0.22	0.15	0.10	0.14
NHSN Rate	0.35	0.32	0.24	0.16	0.2

Neonatal Intensive Care Unit

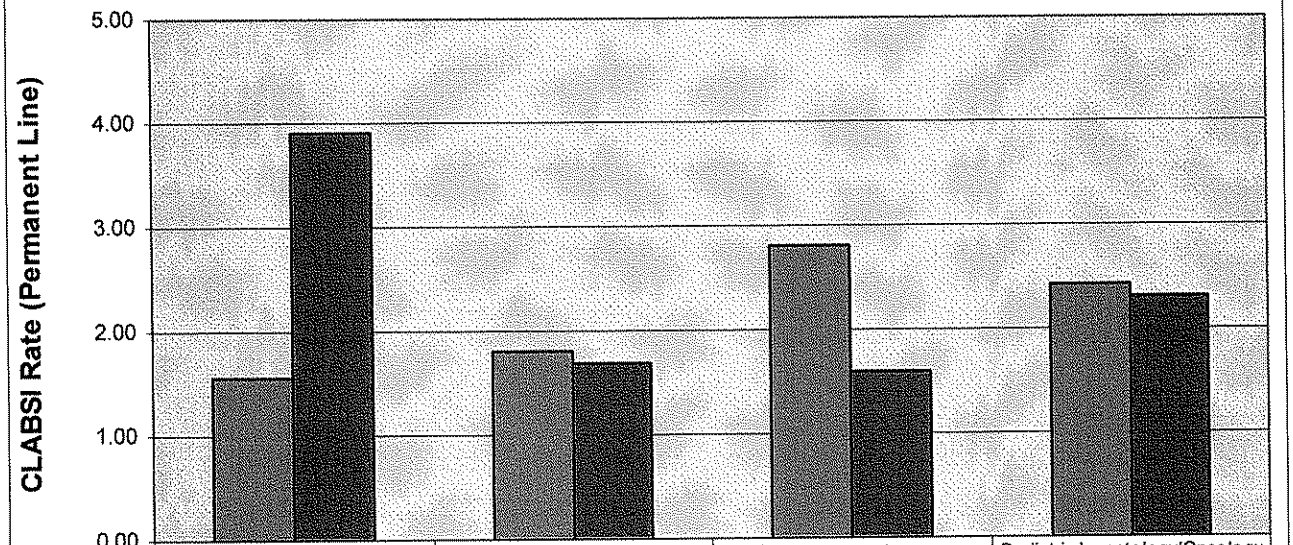
Figure 14
Comparison of Umbilical Catheter Utilization Ratio in PA Hospitals by Neonatal Birth Weight at Baseline (July to December 2008) to Available NHSN DU Ratio from 2006 through 2008



	<= 750 g	751-1000 g	1001-1500 g	1501-2500 g	> 2500 g
PA Ratio	0.08	0.09	0.10	0.06	0.07
NHSN Ratio	0.11	0.1	0.08	0.06	0.1

Neonatal Intensive Care Unit

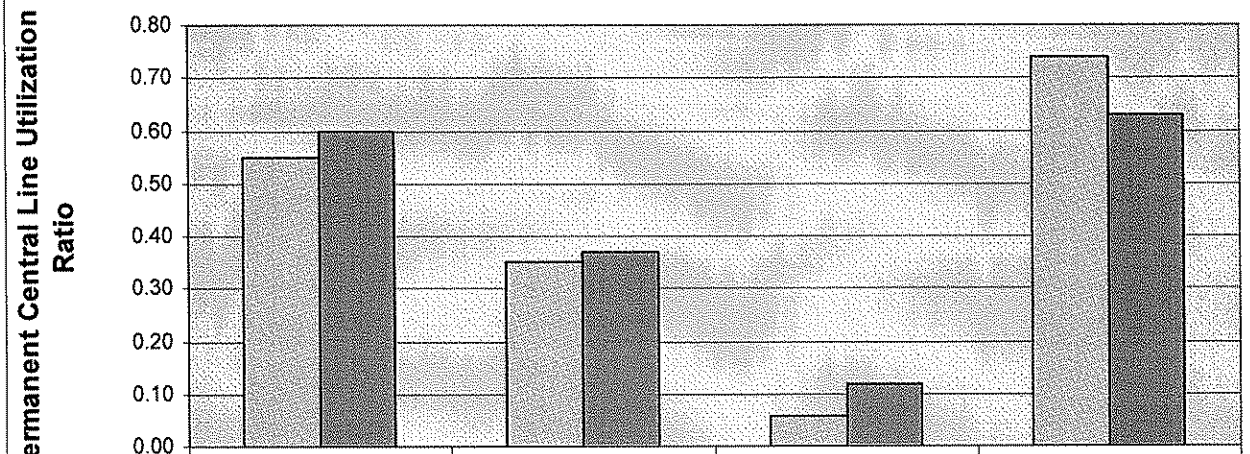
Figure 15
Comparison of Permanent Central Line CLABSI Rates in PA Hospitals by Selected Specialty Care Areas at Baseline (July to December 2008) to Available NHSN DU Ratio from 2006 through 2008



	Bone Marrow Transplant	Hematology/Oncology	Long-term acute care	Pediatric hematology/Oncology
PA Rate	1.56	1.80	2.80	2.42
NHSN Rate	3.9	1.7	1.6	2.3

Specialty Care Area

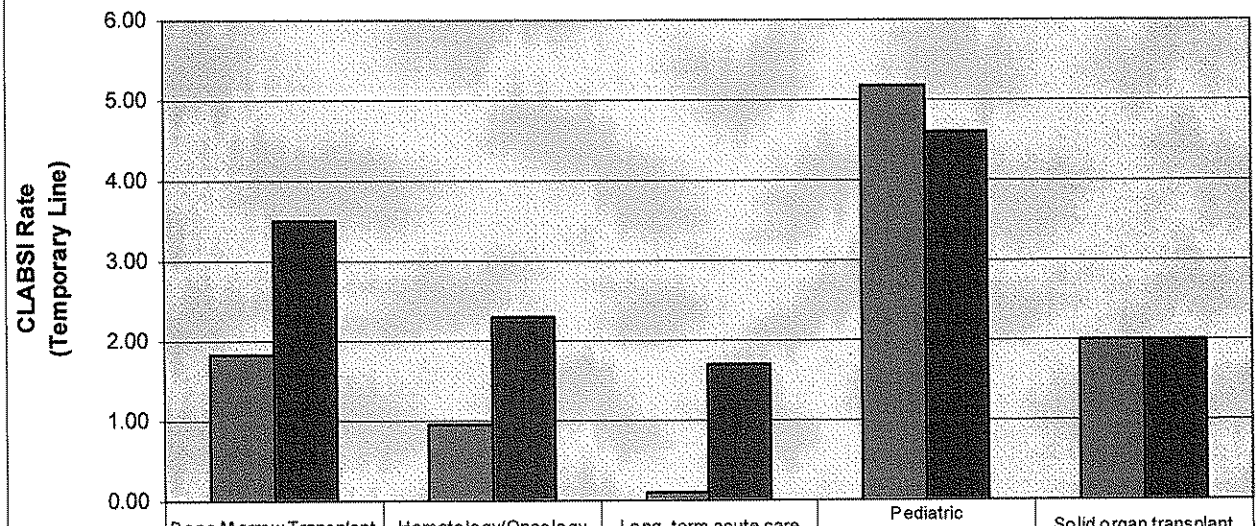
Figure 16
Comparison of Permanent Central Line Utilization Ratio in PA Hospitals by Selected Specialty Care Areas at Baseline (July to December 2008) to Available NHSN DU Ratio from 2006 through 2008



	Bone Marrow Transplant	Hematology/Oncology	Long -term acute care	Pediatric hematology/Oncology
PA Rate	0.55	0.35	0.06	0.74
NHSN Rate	0.6	0.37	0.12	0.63

Specialty Care Area

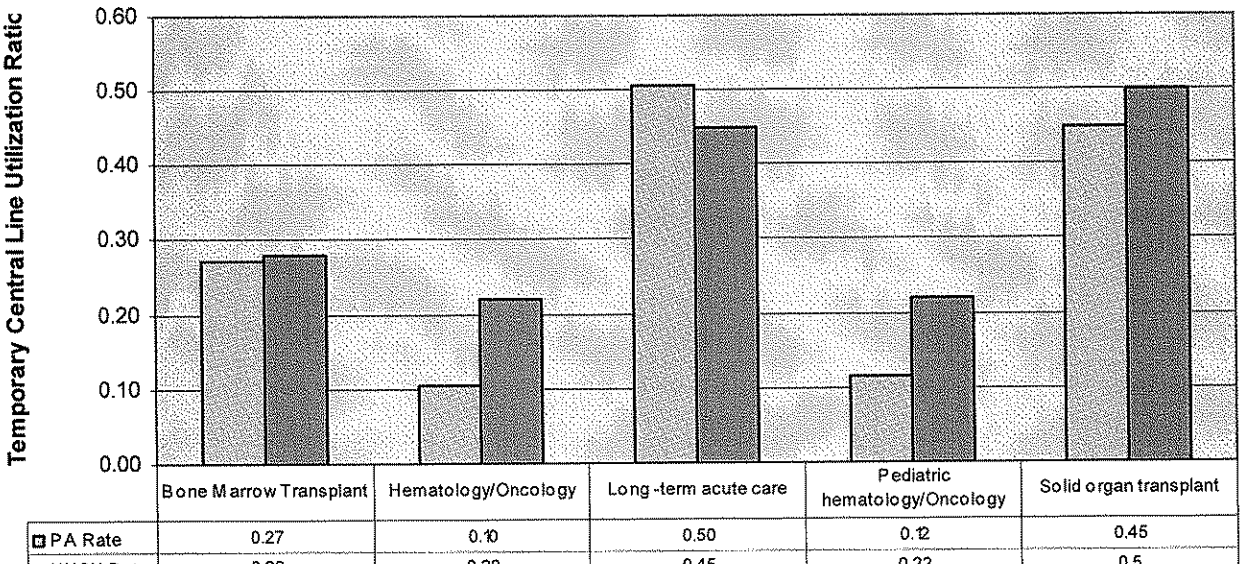
Figure 17
Comparison of Temporary Central Line CLABSI Rates in PA Hospitals by Selected Specialty Care Areas at Baseline (July to December 2008) to Available NHSN DU Ratio from 2006 through 2008



	Bone Marrow Transplant	Hematology/Oncology	Long -term acute care	Pediatric hematology/Oncology	Solid organ transplant
PA Rate	1.83	0.96	0.09	5.18	1.99
NHSN Rate	3.5	2.3	1.7	4.6	2

Specialty Care Area

Figure 18
Comparison of Temporary Central Line Utilization Ratio in PA Hospitals by Selected Specialty Care Areas at Baseline (July to December 2008) to Available NHSN DU Ratio from 2006 through 2008



	Bone Marrow Transplant	Hematology/Oncology	Long-term acute care	Pediatric hematology/Oncology	Solid organ transplant
PA Rate	0.27	0.10	0.50	0.12	0.45
NHSN Rate	0.28	0.22	0.45	0.22	0.5

Specialty Care Area

d. **Facility-Specific Results:** Poisson regression analysis was applied to the CLABSI data which was read in separately from All wards, NICU, and SCA databases using the DUR (transformed by natural log). For Allwards, DUR was found to be significant ($p<0.0001$) as were the following ward categories: critical-care burn ($p<0.0001$) critical-care cardio/thoracic ($p=0.0004$), critical-care medical/surgical ($p<0.0001$), critical-care medical ($p=0.0005$), critical-care pediatric ($p<0.0001$), critical-care spinal/medicine ($p=0.0001$), critical-care surgical ($p=0.0003$), critical-care trauma ($p=0.0049$), STEP ($p=0.0125$), newborn ward ($p=0.0373$), pediatric medical ward ($p=0.0006$). For the NICU wards, the DUR was not found to be statistically significant for either central lines ($p=0.4184$) or for Umbilical Catheters ($p=0.8727$). However, for SCA wards, the DUR was found to be significant for both permanent ($p=0.0124$) and temporary ($p=0.0011$) central lines. The expected and observed CLABSI counts for each of the above models were summed to calculate aggregate SIRs and their 95% confidence limits.

The CLABSI SIRs are divided by ward categories and those categories are also sub-divided into six different categories, depending on the number of infections expected to occur within a facility: <1 CLABSI; 1 to 2.99 CLABSIs; 3 to 7.49 CLABSIs; 7.5 to 14.99 CLABSIs; 15 to 29.99 CLABSIs; and ≥30 CLABSIs (Tables 18 to 25). These groupings allow a general comparison of similar types of facilities, since smaller hospitals are more likely to have expected numbers of CLABSI that are <1 while the largest facilities would be in the ≥30 category.

For the **CLABSI** SIR outcomes, 156 hospitals had SIRs that were <1.00, meaning they had *fewer* infections than expected based on statewide rates. A total of 58 hospitals had SIRs that were >1.00, meaning they reported *more* infections than expected. Four

facilities had an SIR of 1.00, meaning the observed number equaled the expected number. SIRs could not be calculated for those hospitals (34) that were missing event counts, catheter days, and patient days.

Although 156 facilities had SIRs <1.00, in only 13 of these facilities was the SIR significantly lower than expected from a statistical perspective. This is due to the relatively small numbers of infections reported by most facilities for the time period of analysis. This produces wide confidence intervals that are likely to cross over 1.00. Most of the facilities that had SIRs that were statistically significantly low had a sizeable difference between the number of observed infections and the number of expected infections. These facilities are shown in GREEN in the tables.

Although 58 hospitals had SIRs that were greater than 1.00, meaning there was a larger number of infections reported than expected, in only 19 hospitals was the SIR significantly higher than expected. These facilities are shown in **RED** in the tables. As with the lower than expected SIRs, this occurred mostly in the larger institutions that had a sizeable number of expected infections.

For 68 facilities, the expected number of infections was <1. In such facilities, any differences between the number of observed infections and the number of expected infections should be viewed with great caution.

Tables 27 through 31 display CLABSI data for the subsets of institutions with neonatal intensive care units (NICU) and speciality care areas (SCA). There were 42 facilities in each category. In none of the 42 NICU facilities was the SIR associated with these units statistically significant. However, among the SCA, there were three institutions that had SIRs >1.00 that were statistically significant. For these facilities, the elevated SIRs in the SCA areas contributed to their composite SIRs being significantly elevated.

Of note, the SCA category is inclusive of long term care facilities and facilities that provide specialty care such as cancer centers. **These facilities and their accompanying data are not directly comparable.**

Table 19
CLABSI Adjusted SIR for PA Hospitals
July 1, to December 31, 2008

Facility	Hospital Name	Obs	Exp	Diff	Adjusted SIR	Conf. Interval
11837	UPMC Northwest	0	2.3	-2.3	0.00	0-1.61
11639	Excela Health - Frick Hospital	0	2.2	-2.2	0.00	0-1.64
11878	Hazleton General Hospital	0	2.0	-2.0	0.00	0-1.83
12508	Albert Einstein Medical Center - Moss Rehab	0	1.9	-1.9	0.00	0-1.89
11586	Canonsburg General Hospital	0	1.9	-1.9	0.00	0-1.93
11701	Evangelical Community Hospital	0	1.7	-1.7	0.00	0-2.13
11684	Sacred Heart Hospital	0	1.7	-1.7	0.00	0-2.2
12087	Schuylkill Medical Center - South Jackson Street	0	1.4	-1.4	0.00	0-2.6
11825	Lewistown Hospital	0	1.4	-1.4	0.00	0-2.61
12018	Troy Community Hospital	0	1.4	-1.4	0.00	0-2.68

Facility	Hospital Name	Obs	Exp	Diff	Adjusted SIR	Conf. Interval
11843	Clearfield Hospital	0	1.3	-1.3	0.00	0-2.89
12609	Kensington Hospital	0	1.2	-1.2	0.00	0-3.14
11810	Healthsouth Rehabilitation Hospital of Erie	0	1.1	-1.1	0.00	0-3.44
12244	Shriners Hospitals for Children	0	1.0	-1.0	0.00	0-3.56
11942	Southwest Regional Medical Center	0	1.0	-1.0	0.00	0-3.85
12058	HealthSouth Rehabilitation Hospital of York	0	0.9	-0.9	0.00	0-4.1
12591	Allied Services Institute of Rehabilitation	0	0.8	-0.8	0.00	0-4.32
11531	Gettysburg Hospital	0	0.8	-0.8	0.00	0-4.38
11781	Geisinger South Wilkes Barre	0	0.8	-0.8	0.00	0-4.65
12139	HealthSouth Reading Rehabilitation Hospital	0	0.7	-0.7	0.00	0-4.9
12628	Lancaster Rehabilitation Hospital	0	0.7	-0.7	0.00	0-4.98
12483	St. Mary Medical Center - Rehab	0	0.7	-0.7	0.00	0-5.01
11915	Penn State Hershey Rehabilitation LLC	0	0.7	-0.7	0.00	0-5.21
11667	HealthSouth Nittany Valley Rehabilitation Hospital	0	0.7	-0.7	0.00	0-5.34
12396	Palmerton Hospital	0	0.7	-0.7	0.00	0-5.58
12337	Jennersville Regional Hospital	0	0.6	-0.6	0.00	0-5.67
12571	Heart of Lancaster Regional Medical Center	0	0.6	-0.6	0.00	0-5.87
11442	Berwick Hospital Center	0	0.6	-0.6	0.00	0-5.95
12066	Healthsouth Rehabilitation Hospital of Sewickley	0	0.6	-0.6	0.00	0-6.35
11851	Crozer Chester Medical Center - Springfield Hospital	0	0.6	-0.6	0.00	0-6.64
11859	Elk Regional Health Center	0	0.5	-0.5	0.00	0-6.99
11688	Soldiers & Sailors Memorial Hospital	0	0.5	-0.5	0.00	0-7.03
12133	Shamokin Area Community Hospital	0	0.5	-0.5	0.00	0-7.3
11962	Allentown State Hospital	0	0.5	-0.5	0.00	0-7.8
11861	John Heinz Institute Of Rehabilitation	0	0.5	-0.5	0.00	0-8.02
12029	Valley Forge Medical Center & Hospital	0	0.4	-0.4	0.00	0-8.21
11779	Ellwood City Hospital	0	0.4	-0.4	0.00	0-8.93
11956	Charles Cole Memorial Hospital	0	0.4	-0.4	0.00	0-9.28
12338	Marian Community Hospital	0	0.4	-0.4	0.00	0-9.51
11689	Jersey Shore Hospital	0	0.3	-0.3	0.00	0-10.63
11830	Punxsutawney Area Hospital	0	0.3	-0.3	0.00	0-11.51
11680	UPMC Bedford	0	0.3	-0.3	0.00	0-11.62
11993	Geisinger Healthsouth Rehabilitation Hospital	0	0.3	-0.3	0.00	0-11.8
12549	Memorial Hospital, Inc. Towanda	0	0.3	-0.3	0.00	0-12.59
12008	Bloomsburg Hospital	0	0.3	-0.3	0.00	0-12.6
11829	Tyler Memorial Hospital	0	0.3	-0.3	0.00	0-13.32
12111	Kane Community Hospital	0	0.3	-0.3	0.00	0-13.43
12216	Warren General Hospital	0	0.3	-0.3	0.00	0-13.65
12105	Sunbury Community Hospital	0	0.3	-0.3	0.00	0-14.6
12461	Bucktail Medical Center	0	0.2	-0.2	0.00	0-14.77

Facility	Hospital Name	Obs	Exp	Diff	Adjusted SIR	Conf. Interval
11738	Titusville Area Hospital	0	0.2	-0.2	0.00	0-16.51
12717	Tyrone Hospital	0	0.2	-0.2	0.00	0-16.67
12365	St. Catherine Medical Center Fountain Springs	0	0.2	-0.2	0.00	0-19.2
11784	St. Luke's Miners Memorial Medical Center	0	0.2	-0.2	0.00	0-19.22
13080	Brownsville Tri County Hospital	0	0.2	-0.2	0.00	0-22.42
11817	Montrose General Hospital	0	0.1	-0.1	0.00	0-26.48
11907	Nason Hospital	0	0.1	-0.1	0.00	0-29.76
12031	Windber Hospital	0	0.1	-0.1	0.00	0-31.85
12295	Miners Medical Center	0	0.1	-0.1	0.00	0-34.92
12273	Crichton Rehabilitation Center	0	0.1	-0.1	0.00	0-36.66
11939	Fulton County Medical Center	0	<.1	-0.1	0.00	0-38.52
12418	Brookville Hospital	0	<.1	-0.1	0.00	0-40
12097	Lock Haven Hospital	0	<.1	-0.1	0.00	0-55.38
12411	Shriners Hospitals For Children Erie	0	<.1	-0.1	0.00	0-56.3
12404	Barnes-Kasson County Hospital	0	<.1	-0.1	0.00	0-59.6
11872	Coordinated Health Orthopedic Hospital LLC	0	<.1	-0.1	0.00	0-65.4
11968	Meyersdale Community Hospital	0	<.1	0.0	0.00	0-99.58
12283	Corry Memorial Hospital	0	<.1	0.0	0.00	0-107.17
12394	Temple University Hospital - Rehab	0	<.1	0.0	0.00	0-185.58
12037	Barix Clinics of Pennsylvania, LLC	0	<.1	0.0	0.00	0-243.46
11898	Lehigh Valley Hospital - Muhlenberg	1	8.8	-7.8	0.11	0-0.63
11460	The Washington Hospital	1	8.0	-7.0	0.13	0-0.7
11561	UPMC St. Margaret	1	7.5	-6.5	0.13	0-0.74
11736	Butler Memorial Hospital	1	5.6	-4.6	0.18	0-1
11913	Chambersburg Hospital	1	4.8	-3.8	0.21	0-1.16
11847	Grand View Hospital	1	4.5	-3.5	0.22	0-1.24
10178	Altoona Regional Health System	2	8.9	-6.9	0.23	0.03-0.81
10648	Allegheny General Hospital	8	30.8	-22.8	0.26	0.11-0.51
11836	Phoenixville Hospital Company LLC	1	3.8	-2.8	0.26	0-1.47
11707	UPMC McKeesport	1	3.7	-2.7	0.27	0-1.48
11842	Alle-Kiski Medical Center	1	3.7	-2.7	0.27	0-1.51
11699	St. Vincent Health Center	3	10.9	-7.9	0.27	0.06-0.8
12057	Armstrong County Memorial Hospital	1	3.5	-2.5	0.28	0-1.59
12016	Chester County Hospital	2	6.7	-4.7	0.30	0.03-1.08
11954	Jameson Memorial Hospital	1	3.3	-2.3	0.30	0-1.68
10441	Uniontown Hospital	1	3.2	-2.2	0.31	0-1.72
11997	Carlisle Regional Medical Center	1	3.1	-2.1	0.32	0-1.78
11797	Mount Nittany Medical Center	2	5.8	-3.8	0.35	0.04-1.25
11583	Meadville Medical Center	1	2.9	-1.9	0.35	0-1.95
10301	Magee Womens Hospital of UPMC Health System	3	7.9	-4.9	0.38	0.08-1.11
11725	Hamot Medical Center	6	15.6	-9.6	0.38	0.14-0.84
10183	Lancaster General Hospital	6	15.4	-9.4	0.39	0.14-0.85
11979	Brandywine Hospital	1	2.6	-1.6	0.39	0.01-2.17
11633	Memorial Hospital York	1	2.5	-1.5	0.40	0.01-2.23
11899	Hanover Hospital, Inc.	1	2.5	-1.5	0.41	0.01-2.26

Facility	Hospital Name	Obs	Exp	Diff	Adjusted SIR	Conf. Interval
12271	Select Specialty Hospital - McKeesport, Inc.	1	2.4	-1.4	0.41	0.01-2.3
11945	Lifecare Hospitals of Pittsburgh	2	4.8	-2.8	0.41	0.05-1.5
11932	Crozer Chester Medical Center - Taylor Hospital	2	4.7	-2.7	0.42	0.05-1.53
11265	The Western Pennsylvania Hospital Forbes Regional Campus	3	6.7	-3.7	0.45	0.09-1.32
11637	Excela Health Westmoreland Regional Hospital	6	13.1	-7.1	0.46	0.17-1
11832	Kindred Hospital - Philadelphia	1	2.1	-1.1	0.47	0.01-2.59
10659	UPMC South Side	2	4.3	-2.3	0.47	0.05-1.68
10190	Doylestown Hospital	3	6.1	-3.1	0.49	0.1-1.43
10348	UPMC Presbyterian	28	57.0	-29.0	0.49	0.33-0.71
12268	Kindred Hospital at Heritage Valley	5	9.6	-4.6	0.52	0.17-1.21
11961	St. Joseph Medical Center	3	5.8	-2.8	0.52	0.1-1.52
11831	Heritage Valley Beaver Medical Center	4	7.6	-3.6	0.52	0.14-1.34
10122	Pinnacle Health Hospitals	13	24.2	-11.2	0.54	0.29-0.92
12032	Lansdale Hospital Corporation	1	1.8	-0.8	0.54	0.01-3.03
11922	Schuylkill Medical Center - East Norwegian Street	1	1.8	-0.8	0.55	0.01-3.08
10375	Heritage Valley Sewickley Medical Center	2	3.6	-1.6	0.55	0.06-2
11983	Pottstown Memorial Medical Center	2	3.5	-1.5	0.58	0.06-2.08
10561	St. Clair Memorial Hospital	4	6.8	-2.8	0.58	0.16-1.5
12358	Kindred Hospital - Pittsburgh	8	13.3	-5.3	0.60	0.26-1.19
11884	Lehigh Valley Hospital	21	34.0	-13.0	0.62	0.38-0.95
10118	UPMC Presbyterian - Shadyside Campus	23	37.1	-14.1	0.62	0.39-0.93
11718	St. Luke's Hospital Bethlehem	18	28.1	-10.1	0.64	0.38-1.01
10108	York Hospital	13	19.7	-6.7	0.66	0.35-1.13
12290	St. Christophers Hospital For Children	7	10.4	-3.4	0.67	0.27-1.39
12304	CHHS Hospital Company - Chestnut Hill Hospital	2	3.0	-1.0	0.68	0.08-2.44
12282	Somerset Community Hospital Somerset	1	1.5	-0.5	0.68	0.01-3.77
12005	Lifecare Hospitals of Chester County	7	10.3	-3.3	0.68	0.27-1.4
12254	HealthSouth Hospital of Pittsburgh	7	10.2	-3.2	0.68	0.27-1.41
12298	Ohio Valley General Hospital	1	1.4	-0.4	0.70	0.01-3.89
12387	Holy Spirit Hospital	6	8.6	-2.6	0.70	0.26-1.53
11731	Riddle Memorial Hospital	5	7.1	-2.1	0.71	0.23-1.65
12422	Robert Packer Hospital	4	5.5	-1.5	0.73	0.2-1.87
12007	Triumph Hospital Easton	7	9.6	-2.6	0.73	0.29-1.51
12390	Lower Bucks Hospital	1	1.3	-0.3	0.75	0.01-4.18
12388	HealthSouth Regional Specialty Hospital	8	10.5	-2.5	0.76	0.33-1.5
11887	Good Shepherd Specialty Hospital	11	14.4	-3.4	0.76	0.38-1.36
11764	Ephrata Community Hospital	2	2.5	-0.5	0.79	0.09-2.85
11880	Select Specialty Hospital - Erie	5	6.2	-1.2	0.81	0.26-1.88
12485	Kindred Hospital - Wyoming Valley	5	6.2	-1.2	0.81	0.26-1.89
12147	Select Specialty Hospital - Central Pennsylvania (Camp Hill)	10	12.1	-2.1	0.83	0.4-1.52

Facility	Hospital Name	Obs	Exp	Diff	Adjusted SIR	Conf. Interval
11759	Indiana Regional Medical Center	2	2.4	-0.4	0.83	0.09-2.99
11642	Waynesboro Hospital	1	1.2	-0.2	0.83	0.01-4.63
10384	UPMC Mercy	15	17.9	-2.9	0.84	0.47-1.39
12296	Kindred Hospital Pittsburgh - North Shore	7	8.1	-1.1	0.87	0.35-1.78
11459	Jeanes Hospital	4	4.6	-0.6	0.87	0.23-2.23
10576	UPMC Braddock	2	2.3	-0.3	0.87	0.1-3.15
10219	Hospital of the University of Pennsylvania	46	51.8	-5.8	0.89	0.65-1.18
12009	Select Specialty Hospital - Pittsburgh/UPMC	11	12.3	-1.3	0.89	0.45-1.6
12004	Wayne Memorial Hospital	1	1.1	-0.1	0.89	0.01-4.98
11727	HealthSouth Harmarville Rehabilitation Hospital	2	2.2	-0.2	0.90	0.1-3.26
11864	The Western Pennsylvania Hospital	18	19.8	-1.8	0.91	0.54-1.44
11750	Main Line Hospital Paoli	5	5.5	-0.5	0.92	0.3-2.14
11506	Thomas Jefferson University Hospital	35	37.4	-2.4	0.94	0.65-1.3
12123	Select Specialty Hospital - Danville	2	2.1	-0.1	0.95	0.11-3.42
10280	Conemaugh Valley Memorial Hospital	11	11.5	-0.5	0.95	0.47-1.7
11640	Children's Hospital of Pittsburgh of UPMC	27	28.2	-1.2	0.96	0.63-1.39
12108	Select Specialty Hospital Laurel Highlands Inc	10	10.4	-0.4	0.96	0.46-1.76
11242	UPMC Passavant	10	10.4	-0.4	0.97	0.46-1.78
12375	Reading Hospital And Medical Center	20	20.7	-0.7	0.97	0.59-1.49
13929	Good Shepherd Penn Partners Specialty Hospital at Rittenhouse	1	1.0	0.0	0.97	0.01-5.39
12250	Sharon Regional Health System	3	3.1	-0.1	0.97	0.2-2.85
11654	Clarion Hospital	1	1.0	0.0	0.98	0.01-5.47
11753	Main Line Hospital Bryn Mawr	10	10.0	0.0	1.00	0.48-1.83
11069	Monongahela Valley Hospital	4	4.0	0.0	1.00	0.27-2.56
11437	Hahnemann University Hospital	22	21.9	0.1	1.00	0.63-1.52
11732	The Williamsport Hospital & Medical Center	5	5.0	0.0	1.00	0.32-2.34
12334	Select Specialty Hospital - Central Pennsylvania (York)	6	6.0	0.0	1.01	0.37-2.19
11724	J C Blair Memorial Hospital	1	1.0	0.0	1.01	0.01-5.62
11838	Abington Memorial Hospital	24	23.7	0.3	1.01	0.65-1.51
11973	Holy Redeemer Health System Hospital & Medical Center	5	4.9	0.1	1.02	0.33-2.37
11772	Pocono Medical Center	5	4.9	0.1	1.02	0.33-2.37
11472	Northeastern Hospital	4	3.9	0.1	1.03	0.28-2.63
11903	Healthsouth Rehabilitation Hospital of Altoona, LLC	1	1.0	0.0	1.04	0.01-5.77
11675	UPMC Horizon	4	3.8	0.2	1.06	0.29-2.72
12402	HealthSouth Rehabilitation of Mechanicsburg	1	0.9	0.1	1.08	0.01-5.99
11448	Pennsylvania Hospital of the University of PA Health System	13	12.0	1.0	1.08	0.57-1.85
12604	Mercy Special Care Hospital	1	0.9	0.1	1.09	0.01-6.04
11952	Mercy Suburban Hospital	5	4.5	0.5	1.10	0.36-2.57

Facility	Hospital Name	Obs	Exp	Diff	Adjusted SIR	Conf. Interval
11651	Excela Health - Latrobe Area Hospital	4	3.6	0.4	1.11	0.3-2.84
10237	Jefferson Regional Medical Center	12	10.8	1.2	1.11	0.58-1.95
11914	Community Medical Center	3	2.7	0.3	1.13	0.23-3.29
11417	Bryn Mawr Rehabilitation Hospital	3	2.6	0.4	1.16	0.23-3.38
12348	Eastern Regional Medical Center	15	12.9	2.1	1.16	0.65-1.91
12134	Hosp of Fox Chase Cancer Center	15	12.9	2.1	1.17	0.65-1.93
11972	Delaware County Memorial Hospital	10	8.1	1.9	1.23	0.59-2.27
11711	St. Luke's Quakertown Hospital	1	0.8	0.2	1.29	0.02-7.16
11839	Crozer Chester Medical Center	16	12.4	3.6	1.29	0.74-2.1
11885	St. Mary Medical Center	15	11.2	3.8	1.34	0.75-2.22
11712	The Good Samaritan Hospital	6	4.4	1.6	1.36	0.5-2.97
11919	Nazareth Hospital	6	4.1	1.9	1.45	0.53-3.15
11606	Dubois Regional Medical Center	6	4.1	1.9	1.47	0.54-3.2
12266	Children's Institute of Pittsburgh	1	0.7	0.3	1.47	0.02-8.2
11916	Wilkes-Barre General Hospital	12	7.8	4.2	1.53	0.79-2.68
11775	Geisinger Medical Center	33	21.2	11.8	1.56	1.07-2.19
12253	Millcreek Community Hospital	1	0.6	0.4	1.58	0.02-8.77
11722	Grove City Medical Center	1	0.6	0.4	1.59	0.02-8.83
11947	Montgomery Hospital	4	2.4	1.6	1.65	0.45-4.24
11780	Geisinger Wyoming Valley Medical Center	11	6.6	4.4	1.66	0.83-2.97
11814	Penn Presbyterian Medical Center	14	8.2	5.8	1.70	0.93-2.86
11683	Mercy Fitzgerald Hospital	13	7.4	5.6	1.76	0.93-3.01
11747	Milton S Hershey Medical Center	75	41.2	33.8	1.82	1.43-2.28
12241	Gnaden Huetten Memorial Hospital	1	0.5	0.5	1.86	0.02-10.34
11770	Main Line Hospital Lankenau	25	13.2	11.8	1.89	1.22-2.79
12335	Lancaster Regional Medical Center	4	2.1	1.9	1.90	0.51-4.86
12361	Bradford Regional Medical Center	1	0.5	0.5	1.98	0.03-10.99
11896	The Good Shepherd Rehabilitation Hospital	3	1.5	1.5	2.01	0.4-5.88
11978	Roxborough Memorial Hospital	5	2.5	2.5	2.03	0.66-4.74
11929	Easton Hospital	13	6.2	6.8	2.11	1.12-3.6
11748	Muncy Valley Hospital	1	0.5	0.5	2.14	0.03-11.89
10306	Children's Hospital of Philadelphia	88	39.2	48.8	2.24	1.8-2.76
12500	Albert Einstein Medical Center at Elkins Park	2	0.9	1.1	2.33	0.26-8.42
12533	Mercy Hospital	10	4.2	5.8	2.37	1.13-4.36
12382	Temple University Hospital	59	24.7	34.3	2.39	1.82-3.08
11388	Aria Health	47	17.7	29.3	2.65	1.95-3.52
12017	Thomas Jefferson University Hospital - Methodist	22	7.7	14.3	2.87	1.8-4.35
11940	St. Agnes Long Term Care Hospital	18	6.3	11.7	2.88	1.7-4.55
11528	Moses Taylor Hospital	11	3.7	7.3	2.96	1.47-5.29
12262	Girard Medical Center	13	4.3	8.7	3.02	1.61-5.17
10585	Albert Einstein Medical Center	53	15.6	37.4	3.41	2.55-4.46
11946	Mercy Philadelphia Hospital	22	5.4	16.6	4.10	2.57-6.2
12438	St. Joseph's Hospital	22	4.6	17.4	4.74	2.97-7.18
12336	The Childrens Home Of Pittsburgh	3	0.5	2.5	6.55	1.32-19.14
11902	Highlands Hospital	3	0.4	2.6	7.94	1.6-23.19
11557	Mid-Valley Hospital	2	0.2	1.8	9.71	1.09-35.04

Facility	Hospital Name	Obs	Exp	Diff	Adjusted SIR	Conf. Interval
12299	Select Specialty Hospital - Johnstown	2	0.2	1.8	9.78	1.1-35.31
12091	Torrance State Hospital	N/A	N/A	N/A	N/A	#N/A
12552	Edgewood Surgical Hospital	N/A	N/A	N/A	N/A	#N/A
11743	Divine Providence Hospital	N/A	N/A	N/A	N/A	#N/A
12350	Angela Jane Pavilion Rehabilitation Hospital	N/A	N/A	N/A	N/A	#N/A
12047	Norristown State Hospital	N/A	N/A	N/A	N/A	#N/A
12451	DSI of Bucks County	N/A	N/A	N/A	N/A	#N/A
12505	Belmont Center for Comprehensive Treatment	N/A	N/A	N/A	N/A	#N/A
12051	Clarks Summit State Hospital	N/A	N/A	N/A	N/A	#N/A
12535	Surgical Institute of Reading	N/A	N/A	N/A	N/A	#N/A
11848	Danville State Hospital	N/A	N/A	N/A	N/A	#N/A
12504	Kindred Hospital - Delaware County	N/A	N/A	N/A	N/A	#N/A
12908	Kindred Hospitals East, Philadelphia-Havertown	N/A	N/A	N/A	N/A	#N/A
12385	Lifecare Hospitals of Pittsburgh - North Campus	N/A	N/A	N/A	N/A	#N/A
12146	Magee Rehabilitation Hospital	N/A	N/A	N/A	N/A	#N/A
12623	Brooke Glen Behavioral Hospital	N/A	N/A	N/A	N/A	#N/A
12454	Clarion Psychiatric Center	N/A	N/A	N/A	N/A	#N/A
12738	Devereux Mapleton Psychiatric Institute	N/A	N/A	N/A	N/A	#N/A
12565	Fairmount Behavioral Health System	N/A	N/A	N/A	N/A	#N/A
12832	Foundations Behavioral Health - UHS of Doylestown	N/A	N/A	N/A	N/A	#N/A
12543	Horsham Clinic	N/A	N/A	N/A	N/A	#N/A
12430	Kidspeace Orchard Hills Campus	N/A	N/A	N/A	N/A	#N/A
12624	Kirkbride Center	N/A	N/A	N/A	N/A	#N/A
12723	Roxbury Treatment Center	N/A	N/A	N/A	N/A	#N/A
13921	Select Specialty Hospital - Central PA, LP (Harrisburg campus)	N/A	N/A	N/A	N/A	#N/A
12453	Southwood Psychiatric Hospital	N/A	N/A	N/A	N/A	#N/A
12548	St. John Vianney Hospital	N/A	N/A	N/A	N/A	#N/A
12156	The Meadows Psychiatric Center	N/A	N/A	N/A	N/A	#N/A
12081	Warren State Hospital	N/A	N/A	N/A	N/A	#N/A
12368	Wernersville State Hospital	N/A	N/A	N/A	N/A	#N/A
12965	Eagleville Hospital	N/A	N/A	N/A	N/A	#N/A
12050	First Hospital of Wyoming Valley	N/A	N/A	N/A	N/A	#N/A
12488	Friends Hospital	N/A	N/A	N/A	N/A	#N/A
12287	Montgomery County MH/MR Emergency Services, Inc.	N/A	N/A	N/A	N/A	#N/A
11740	Philhaven Hospital	N/A	N/A	N/A	N/A	#N/A
12487	Westfield Hospital	N/A	N/A	N/A	N/A	#N/A

Table 20
Ranking of PA Hospitals by Adjusted SIR for CLABSI
Hospitals with <1 Expected Infections - July 1, to December 31, 2008

Facility	Hospital Name	Obs	Exp	Diff	Adjusted SIR	Conf Interval
12058	HealthSouth Rehabilitation Hospital of York	0	0.9	-0.9	0.00	0-4.1
12591	Allied Services Institute of Rehabilitation	0	0.8	-0.8	0.00	0-4.32
11531	Gettysburg Hospital	0	0.8	-0.8	0.00	0-4.38
11781	Geisinger South Wilkes Barre	0	0.8	-0.8	0.00	0-4.65
12139	HealthSouth Reading Rehabilitation Hospital	0	0.7	-0.7	0.00	0-4.9
12628	Lancaster Rehabilitation Hospital	0	0.7	-0.7	0.00	0-4.98
12483	St. Mary Medical Center - Rehab	0	0.7	-0.7	0.00	0-5.01
11915	Penn State Hershey Rehabilitation LLC	0	0.7	-0.7	0.00	0-5.21
11667	HealthSouth Nittany Valley Rehabilitation Hospital	0	0.7	-0.7	0.00	0-5.34
12396	Palmerton Hospital	0	0.7	-0.7	0.00	0-5.58
12337	Jennersville Regional Hospital	0	0.6	-0.6	0.00	0-5.67
12571	Heart of Lancaster Regional Medical Center	0	0.6	-0.6	0.00	0-5.87
11442	Berwick Hospital Center	0	0.6	-0.6	0.00	0-5.95
12066	Healthsouth Rehabilitation Hospital of Sewickley	0	0.6	-0.6	0.00	0-6.35
11851	Crozer Chester Medical Center - Springfield Hospital	0	0.6	-0.6	0.00	0-6.64
11859	Elk Regional Health Center	0	0.5	-0.5	0.00	0-6.99
11688	Soldiers & Sailors Memorial Hospital	0	0.5	-0.5	0.00	0-7.03
12133	Shamokin Area Community Hospital	0	0.5	-0.5	0.00	0-7.3
11962	Allentown State Hospital	0	0.5	-0.5	0.00	0-7.8
11861	John Heinz Institute Of Rehabilitation	0	0.5	-0.5	0.00	0-8.02
12029	Valley Forge Medical Center & Hospital	0	0.4	-0.4	0.00	0-8.21
11779	Ellwood City Hospital	0	0.4	-0.4	0.00	0-8.93
11956	Charles Cole Memorial Hospital	0	0.4	-0.4	0.00	0-9.28
12338	Marian Community Hospital	0	0.4	-0.4	0.00	0-9.51
11689	Jersey Shore Hospital	0	0.3	-0.3	0.00	0-10.63
11830	Punxsutawney Area Hospital	0	0.3	-0.3	0.00	0-11.51
11680	UPMC Bedford	0	0.3	-0.3	0.00	0-11.62
11993	Geisinger Healthsouth Rehabilitation Hosp	0	0.3	-0.3	0.00	0-11.8
12549	Memorial Hospital, Inc. Towanda	0	0.3	-0.3	0.00	0-12.59
12008	Bloomsburg Hospital	0	0.3	-0.3	0.00	0-12.6
11829	Tyler Memorial Hospital	0	0.3	-0.3	0.00	0-13.32
12111	Kane Community Hospital	0	0.3	-0.3	0.00	0-13.43
12216	Warren General Hospital	0	0.3	-0.3	0.00	0-13.65
12105	Sunbury Community Hospital	0	0.3	-0.3	0.00	0-14.6
12461	Bucktail Medical Center	0	0.2	-0.2	0.00	0-14.77
11738	Titusville Area Hospital	0	0.2	-0.2	0.00	0-16.51
12717	Tyrone Hospital	0	0.2	-0.2	0.00	0-16.67
12365	St. Catherine Medical Center Fountain Springs	0	0.2	-0.2	0.00	0-19.2
11784	St. Luke's Miners Memorial Medical Center	0	0.2	-0.2	0.00	0-19.22
13080	Brownsville Tri County Hospital	0	0.2	-0.2	0.00	0-22.42
11817	Montrose General Hospital	0	0.1	-0.1	0.00	0-26.48
11907	Nason Hospital	0	0.1	-0.1	0.00	0-29.76
12031	Windber Hospital	0	0.1	-0.1	0.00	0-31.85
12295	Miners Medical Center	0	0.1	-0.1	0.00	0-34.92
12273	Crichton Rehabilitation Center	0	0.1	-0.1	0.00	0-36.66

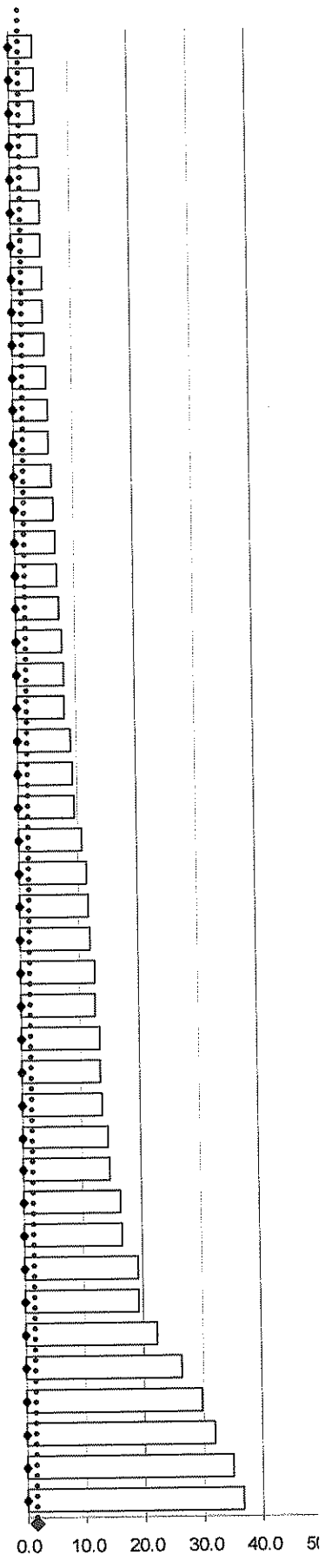


Table 20 cont...
Ranking of PA Hospitals by Adjusted SIR for CLABSI
Hospitals with <1 Expected Infections - July 1, to December 31, 2008

Facility ID	Hospital Name	Obs	Exp	Diff	Adjusted SIR	Conf Int
11939	Fulton County Medical Center	0	<.1	-0.1	0.00	0-38.52
12418	Brookville Hospital	0	<.1	-0.1	0.00	0-40
12097	Lock Haven Hospital	0	<.1	-0.1	0.00	0-55.38
12411	Shriners Hospitals For Children Erie	0	<.1	-0.1	0.00	0-56.3
12404	Barnes-Kasson County Hospital	0	<.1	-0.1	0.00	0-59.6
11872	Coordinated Health Orthopedic Hospital LLC	0	<.1	-0.1	0.00	0-65.4
11968	Meyersdale Community Hospital	0	<.1	0.0	0.00	0-99.58
12283	Corry Memorial Hospital	0	<.1	0.0	0.00	0-107.17
12394	Temple University Hospital - Rehab	0	<.1	0.0	0.00	0-185.58
12037	Barix Clinics of Pennsylvania, LLC	0	<.1	0.0	0.00	0-243.46
12402	HealthSouth Rehabilitation of Mechanicsburg	1	0.9	0.1	1.08	0.01-5.99
12604	Mercy Special Care Hospital	1	0.9	0.1	1.09	0.01-6.04
11711	St. Luke's Quakertown Hospital	1	0.8	0.2	1.29	0.02-7.16
12266	Children's Institute of Pittsburgh	1	0.7	0.3	1.47	0.02-8.2
12253	Millcreek Community Hospital	1	0.6	0.4	1.58	0.02-8.77
11722	Grove City Medical Center	1	0.6	0.4	1.59	0.02-8.83
12241	Gnaden Huetten Memorial Hospital	1	0.5	0.5	1.86	0.02-10.34
12361	Bradford Regional Medical Center	1	0.5	0.5	1.98	0.03-10.99
11748	Muncy Valley Hospital	1	0.5	0.5	2.14	0.03-11.89
12500	Albert Einstein Medical Center at Elkins Park	2	0.9	1.1	2.33	0.26-8.42
12336	The Childrens Home Of Pittsburgh	3	0.5	2.5	6.55	1.32-19.14
11902	Highlands Hospital	3	0.4	2.6	7.94	1.6-23.19
11557	Mid-Valley Hospital	2	0.2	1.8	9.71	1.09-35.04
12299	Select Specialty Hospital - Johnstown	2	0.2	1.8	9.78	1.1-35.31

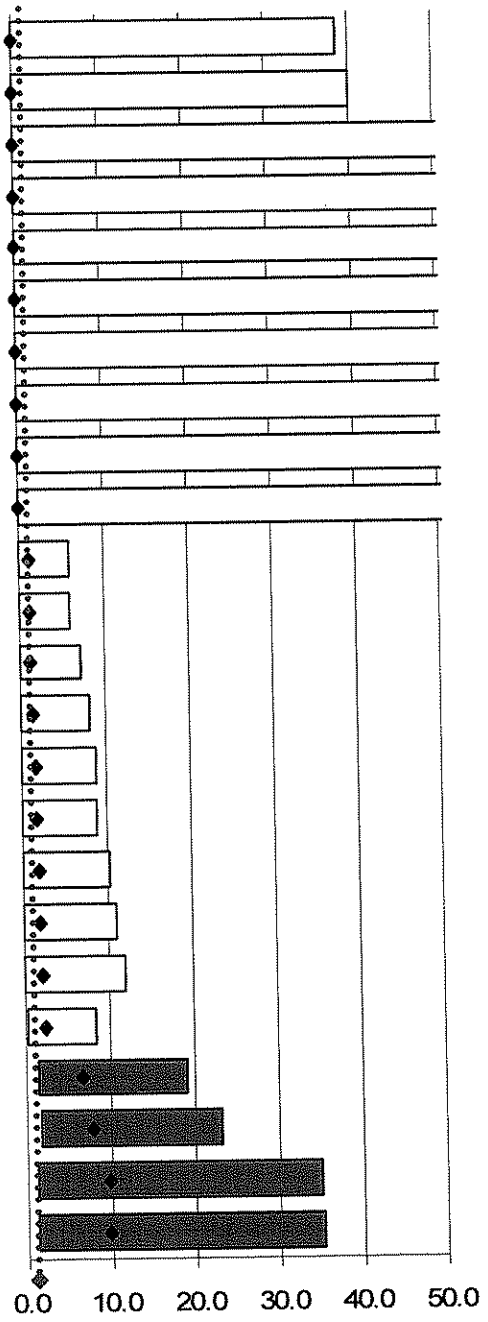


Table 21
Ranking of PA Hospitals by Adjusted SIR for CLABSI
Hospitals with 1 to 2.99 Expected Infections - July 1, to December 31, 2008

Facility	Hospital Name	Obs	Exp	Diff	Adjusted SIR	Conf Interval
11837	UPMC Northwest	0	2.3	-2.3	0.00	0-1.61
11639	Excela Health - Frick Hospital	0	2.2	-2.2	0.00	0-1.64
11878	Hazleton General Hospital	0	2.0	-2.0	0.00	0-1.83
12508	Albert Einstein Medical Center - Moss Rehab	0	1.9	-1.9	0.00	0-1.89
11586	Canonsburg General Hospital	0	1.9	-1.9	0.00	0-1.93
11701	Evangelical Community Hospital	0	1.7	-1.7	0.00	0-2.13
11684	Sacred Heart Hospital	0	1.7	-1.7	0.00	0-2.2
12087	Schuylkill Medical Center - South Jackson Street	0	1.4	-1.4	0.00	0-2.6
11825	Lewistown Hospital	0	1.4	-1.4	0.00	0-2.61
12018	Troy Community Hospital	0	1.4	-1.4	0.00	0-2.68
11843	Clearfield Hospital	0	1.3	-1.3	0.00	0-2.89
12609	Kensington Hospital	0	1.2	-1.2	0.00	0-3.14
11810	Healthsouth Rehabilitation Hospital of Erie	0	1.1	-1.1	0.00	0-3.44
12244	Shriners Hospitals for Children	0	1.0	-1.0	0.00	0-3.56
11942	Southwest Regional Medical Center	0	1.0	-1.0	0.00	0-3.85
11583	Meadville Medical Center	1	2.9	-1.9	0.35	0-1.95
11979	Brandywine Hospital	1	2.6	-1.6	0.39	0.01-2.17
11633	Memorial Hospital York	1	2.5	-1.5	0.40	0.01-2.23
11899	Hanover Hospital, Inc.	1	2.5	-1.5	0.41	0.01-2.26
12271	Select Specialty Hospital - McKeesport, Inc.	1	2.4	-1.4	0.41	0.01-2.3
11832	Kindred Hospital - Philadelphia	1	2.1	-1.1	0.47	0.01-2.59
12032	Lansdale Hospital Corporation	1	1.8	-0.8	0.54	0.01-3.03
11922	Schuylkill Medical Center - East Norwegian Street	1	1.8	-0.8	0.55	0.01-3.08
12282	Somerset Community Hospital Somerset	1	1.5	-0.5	0.68	0.01-3.77
12298	Ohio Valley General Hospital	1	1.4	-0.4	0.70	0.01-3.89
12390	Lower Bucks Hospital	1	1.3	-0.3	0.75	0.01-4.18
11764	Ephrata Community Hospital	2	2.5	-0.5	0.79	0.09-2.85
11759	Indiana Regional Medical Center	2	2.4	-0.4	0.83	0.09-2.99
11642	Waynesboro Hospital	1	1.2	-0.2	0.83	0.01-4.63
10576	UPMC Braddock	2	2.3	-0.3	0.87	0.1-3.15
12004	Wayne Memorial Hospital	1	1.1	-0.1	0.89	0.01-4.98
11727	HealthSouth Harmarville Rehabilitation Hospital	2	2.2	-0.2	0.90	0.1-3.26
12123	Select Specialty Hospital - Danville	2	2.1	-0.1	0.95	0.11-3.42
13929	Good Shepherd Penn Partners Specialty Hospital at Rittenhouse	1	1.0	0.0	0.97	0.01-5.39
11654	Clarion Hospital	1	1.0	0.0	0.98	0.01-5.47
11724	J C Blair Memorial Hospital	1	1.0	0.0	1.01	0.01-5.62
11903	Healthsouth Rehabilitation Hospital of Altoona, LLC	1	1.0	0.0	1.04	0.01-5.77
11914	Community Medical Center	3	2.7	0.3	1.13	0.23-3.29
11417	Bryn Mawr Rehabilitation Hospital	3	2.6	0.4	1.16	0.23-3.38
11947	Montgomery Hospital	4	2.4	1.6	1.65	0.45-4.24
12335	Lancaster Regional Medical Center	4	2.1	1.9	1.90	0.51-4.86
11896	The Good Shepherd Rehabilitation Hos	3	1.5	1.5	2.01	0.4-5.88
11978	Roxborough Memorial Hospital	5	2.5	2.5	2.03	0.66-4.74

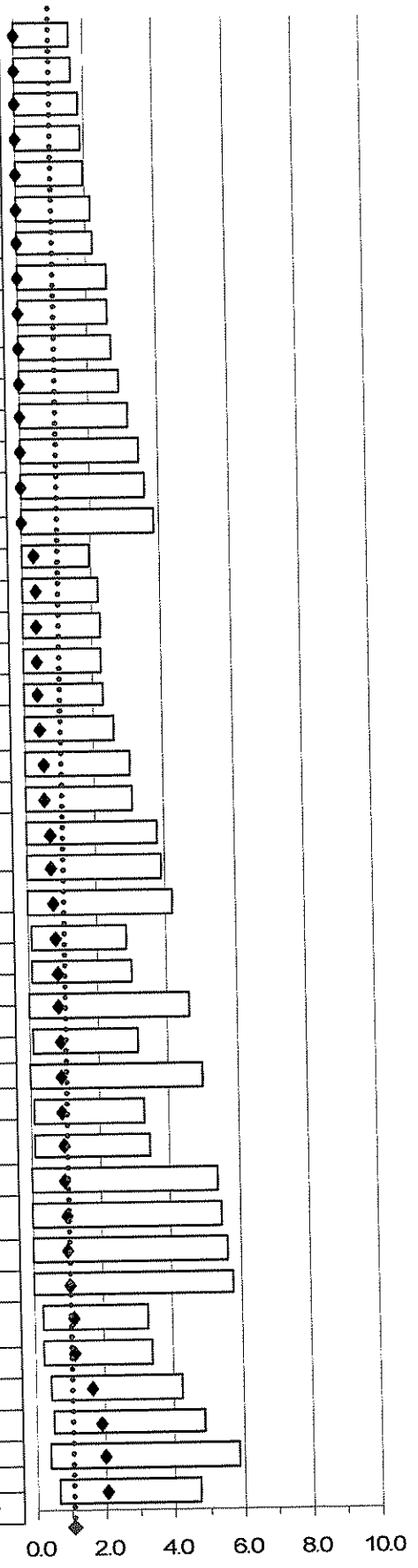


Table 22
Ranking of PA Hospitals by Adjusted SIR for CLABSI
Hospitals with 3 to 7.49 Expected Infections - July 1, to December 31, 2008

Facility	Hospital Name	Obs	Exp	Diff	Adjusted SIR	Conf Interval
11736	Butler Memorial Hospital	1	5.6	-4.6	0.18	0-0.9
11913	Chambersburg Hospital	1	4.8	-3.8	0.21	0-1.16
11847	Grand View Hospital	1	4.5	-3.5	0.22	0-1.24
11836	Phoenixville Hospital Company LLC	1	3.8	-2.8	0.26	0-1.47
11707	UPMC McKeesport	1	3.7	-2.7	0.27	0-1.48
11842	Alle-Kiski Medical Center	1	3.7	-2.7	0.27	0-1.51
12057	Armstrong Co Memorial Hospital	1	3.5	-2.5	0.28	0-1.59
12016	Chester County Hospital	2	6.7	-4.7	0.30	0.03-1.08
11954	Jameson Memorial Hospital	1	3.3	-2.3	0.30	0-1.68
10441	Uniontown Hospital	1	3.2	-2.2	0.31	0-1.72
11997	Carlisle Regional Medical Center	1	3.1	-2.1	0.32	0-1.78
11797	Mount Nittany Medical Center	2	5.8	-3.8	0.35	0.04-1.25
11945	Lifecare Hospitals of Pittsburgh	2	4.8	-2.8	0.41	0.05-1.5
11932	Crozer Chester Medical Center - Taylor Hospital	2	4.7	-2.7	0.42	0.05-1.53
11265	The Western Pennsylvania Hospital Forbes Regional Campus	3	6.7	-3.7	0.45	0.09-1.32
10659	UPMC South Side	2	4.3	-2.3	0.47	0.05-1.68
10190	Doylestown Hospital	3	6.1	-3.1	0.49	0.1-1.43
11961	St. Joseph Medical Center	3	5.8	-2.8	0.52	0.1-1.52
10375	Heritage Valley Sewickley MedCter	2	3.6	-1.6	0.55	0.06-2
11983	Pottstown Memorial Medical Center	2	3.5	-1.5	0.58	0.06-2.08
10561	St. Clair Memorial Hospital	4	6.8	-2.8	0.58	0.16-1.5
12304	CHHS Hospital Company - Chestnut Hill Hospital	2	3.0	-1.0	0.68	0.08-2.44
11731	Riddle Memorial Hospital	5	7.1	-2.1	0.71	0.23-1.65
12422	Robert Packer Hospital	4	5.5	-1.5	0.73	0.2-1.87
11880	Select Specialty Hospital - Erie	5	6.2	-1.2	0.81	0.26-1.88
12485	Kindred Hospital - Wyoming Valley	5	6.2	-1.2	0.81	0.26-1.89
11459	Jeanes Hospital	4	4.6	-0.6	0.87	0.23-2.23
11750	Main Line Hospital Paoli	5	5.5	-0.5	0.92	0.3-2.14
12250	Sharon Regional Health System	3	3.1	-0.1	0.97	0.2-2.85
11069	Monongahela Valley Hospital	4	4.0	0.0	1.00	0.27-2.56
11732	The Williamsport Hospital & Medical Center	5	5.0	0.0	1.00	0.32-2.34
12334	Select Specialty Hospital - Central Pennsylvania (York)	6	6.0	0.0	1.01	0.37-2.19
11973	Holy Redeemer Health System Hospital & Medical Center	5	4.9	0.1	1.02	0.33-2.37
11772	Pocono Medical Center	5	4.9	0.1	1.02	0.33-2.37
11472	Northeastern Hospital	4	3.9	0.1	1.03	0.28-2.63
11675	UPMC Horizon	4	3.8	0.2	1.06	0.29-2.72
11952	Mercy Suburban Hospital	5	4.5	0.5	1.10	0.36-2.57
11651	Excela Health - Latrobe Area Hospital	4	3.6	0.4	1.11	0.3-2.84
11712	The Good Samaritan Hospital	6	4.4	1.6	1.36	0.5-2.97
11919	Nazareth Hospital	6	4.1	1.9	1.45	0.53-3.15
11606	Dubois Regional Medical Center	6	4.1	1.9	1.47	0.54-3.2
11780	Geisinger Wyoming Valley Medical Center	11	6.6	4.4	1.66	0.83-2.97
11683	Mercy Fitzgerald Hospital	13	7.4	5.6	1.76	0.93-3.01
11929	Easton Hospital	13	6.2	6.8	2.11	1.12-3.6
12533	Mercy Hospital	10	4.2	5.8	2.37	1.13-4.36
11940	St. Agnes Long Term Care Hospital	18	6.3	11.7	2.88	1.7-4.55
11528	Moses Taylor Hospital	11	3.7	7.3	2.96	1.47-5.29
12262	Girard Medical Center	13	4.3	8.7	3.02	1.61-5.17
11946	Mercy Philadelphia Hospital	22	5.4	16.6	4.10	2.57-6.2
12438	St. Joseph's Hospital	22	4.6	17.4	4.74	2.97-7.18

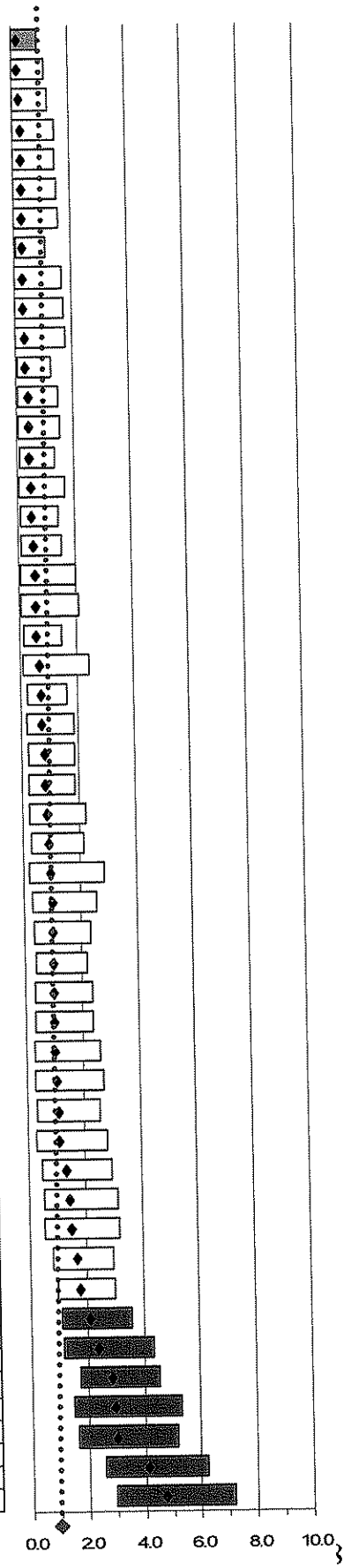


Table 23
Ranking of PA Hospitals by Adjusted SIR for CLABSI
Hospitals with 7.50 to 14.99 Expected Infections - July 1, to December 31, 2008

Facility	Hospital Name	Obs	Exp	Diff	Adjusted SIR	Conf Interval
11898	Lehigh Valley Hospital - Muhlenberg	1	8.8	-7.8	0.11	0-0.63
11460	The Washington Hospital	1	8.0	-7.0	0.13	0-0.7
11561	UPMC St. Margaret	1	7.5	-6.5	0.13	0-0.74
10178	Altoona Regional Health System	2	8.9	-6.9	0.23	0.03-0.81
11699	St. Vincent Health Center	3	10.9	-7.9	0.27	0.06-0.8
10301	Magee Womens Hospital of UPMC Health System	3	7.9	-4.9	0.38	0.08-1.11
11637	Excela Health Westmoreland Regional Hospital	6	13.1	-7.1	0.46	0.17-1
12268	Kindred Hospital at Heritage Valley	5	9.6	-4.6	0.52	0.17-1.21
11831	Heritage Valley Beaver Medical Center	4	7.6	-3.6	0.52	0.14-1.34
12358	Kindred Hospital - Pittsburgh	8	13.3	-5.3	0.60	0.26-1.19
12290	St. Christophers Hospital For Children	7	10.4	-3.4	0.67	0.27-1.39
12005	Lifecare Hospitals of Chester County	7	10.3	-3.3	0.68	0.27-1.4
12254	HealthSouth Hospital of Pittsburgh	7	10.2	-3.2	0.68	0.27-1.41
12387	Holy Spirit Hospital	6	8.6	-2.6	0.70	0.26-1.53
12007	Triumph Hospital Easton	7	9.6	-2.6	0.73	0.29-1.51
12388	HealthSouth Regional Specialty Hospital	8	10.5	-2.5	0.76	0.33-1.5
11887	Good Shepherd Specialty Hospital	11	14.4	-3.4	0.76	0.38-1.36
12147	Select Specialty Hospital - Central Pennsylvania (Camp Hill)	10	12.1	-2.1	0.83	0.4-1.52
12296	Kindred Hospital Pittsburgh - North Shore	7	8.1	-1.1	0.87	0.35-1.78
12009	Select Specialty Hospital - Pittsburgh/UPMC	11	12.3	-1.3	0.89	0.45-1.6
10280	Conemaugh Valley Memorial Hospital	11	11.5	-0.5	0.95	0.47-1.7
12108	Select Specialty Hospital Laurel Highlands Inc	10	10.4	-0.4	0.96	0.46-1.76
11242	UPMC Passavant	10	10.4	-0.4	0.97	0.46-1.78
11753	Main Line Hospital Bryn Mawr	10	10.0	0.0	1.00	0.48-1.83
11448	Pennsylvania Hospital of the University of PA Health System	13	12.0	1.0	1.08	0.57-1.85
10237	Jefferson Regional Medical Center	12	10.8	1.2	1.11	0.58-1.95
12348	Eastern Regional Medical Center	15	12.9	2.1	1.16	0.65-1.91
12134	Hosp of Fox Chase Cancer Center	15	12.9	2.1	1.17	0.65-1.93
11972	Delaware County Memorial Hospital	10	8.1	1.9	1.23	0.59-2.27
11839	Crozer Chester Medical Center	16	12.4	3.6	1.29	0.74-2.1
11885	St. Mary Medical Center	15	11.2	3.8	1.34	0.75-2.22
11916	Wilkes-Barre General Hospital	12	7.8	4.2	1.53	0.79-2.68
11814	Penn Presbyterian Medical Center	14	8.2	5.8	1.70	0.93-2.86
11770	Main Line Hospital Lankenau	25	13.2	11.8	1.89	1.22-2.79
12017	Thomas Jefferson University Hospital - Methodist	22	7.7	14.3	2.87	1.8-4.35

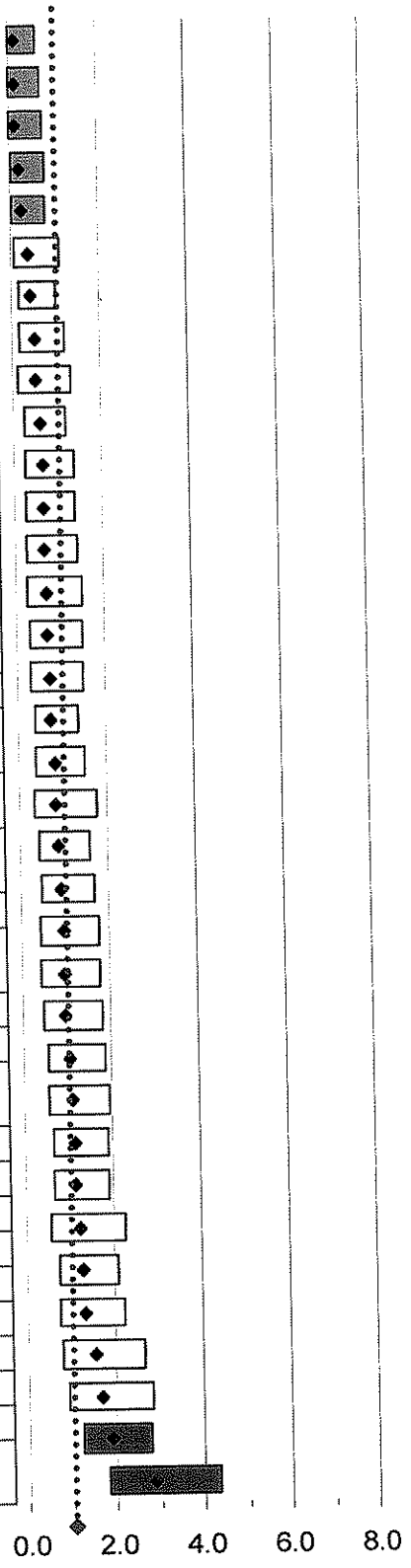


Table 24
Ranking of PA Hospitals by Adjusted SIR for CLABSI
Hospitals with 15 to 29.99 Expected Infections - July 1, to December 31, 2008

Facility	Hospital Name	Obs	Exp	Diff	Adjusted SIR	Conf Interval
11725	Hamot Medical Center	6	15.6	-9.6	0.38	0.14-0.84
10183	Lancaster General Hospital	6	15.4	-9.4	0.39	0.14-0.85
10122	Pinnacle Health Hospitals	13	24.2	-11.2	0.54	0.29-0.92
11718	St. Luke's Hospital Bethlehem	18	28.1	-10.1	0.64	0.38-1.01
10108	York Hospital	13	19.7	-6.7	0.66	0.35-1.13
10384	UPMC Mercy	15	17.9	-2.9	0.84	0.47-1.39
11864	The Western Pennsylvania Hospital	18	19.8	-1.8	0.91	0.54-1.44
11640	Children's Hospital of Pittsburgh of UPMC	27	28.2	-1.2	0.96	0.63-1.39
12375	Reading Hospital And Medical Center	20	20.7	-0.7	0.97	0.59-1.49
11437	Hahnemann University Hospital	22	21.9	0.1	1.00	0.63-1.52
11838	Abington Memorial Hospital	24	23.7	0.3	1.01	0.65-1.51
11775	Geisinger Medical Center	33	21.2	11.8	1.56	1.07-2.19
12382	Temple University Hospital	59	24.7	34.3	2.39	1.82-3.08
11388	Aria Health	47	17.7	29.3	2.65	1.95-3.52
10585	Albert Einstein Medical Center	53	15.6	37.4	3.41	2.55-4.46

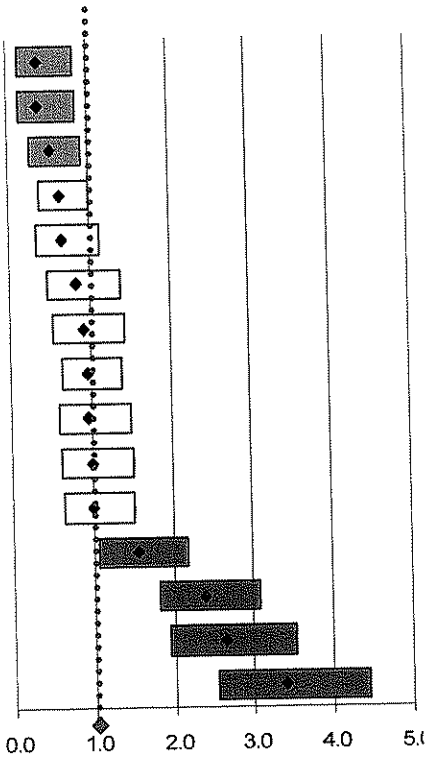


Table 25
Ranking of PA Hospitals by Adjusted SIR for CLABSI
Hospitals with >30 Expected Infections - July 1, to December 31, 2008

Facility	Hospital Name	Obs	Exp	Diff	Adjusted SIR	Conf Interval
10648	Allegheny General Hospital	8	30.8	-22.8	0.26	0.11-0.51
10348	UPMC Presbyterian	28	57.0	-29.0	0.49	0.33-0.71
11884	Lehigh Valley Hospital	21	34.0	-13.0	0.62	0.38-0.95
10118	UPMC Presbyterian - Shadyside Campus	23	37.1	-14.1	0.62	0.39-0.93
10219	Hospital of the University of Pennsylvania	46	51.8	-5.8	0.89	0.65-1.18
11506	Thomas Jefferson University Hospital	35	37.4	-2.4	0.94	0.65-1.3
11747	Milton S Hershey Medical Center	75	41.2	33.8	1.82	1.43-2.28
10306	Children's Hospital of Philadelphia	88	39.2	48.8	2.24	1.8-2.76

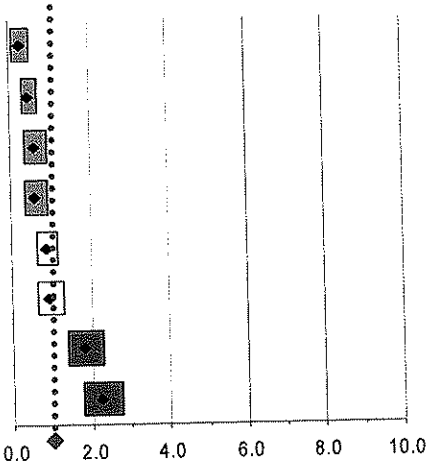


Table 26
Ranking of PA Hospitals by Adjusted SIR for CLABSI
Hospitals with Non-Measurable Expected Infections - July 1, to December 31, 2008

Facility	Hospital Name	Obs	Exp	Diff	Adjusted SIR	Conf Interval
12350	Angela Jane Pavilion Rehabilitation Hospital	N/A	N/A	N/A	N/A	N/A
12505	Belmont Center for Comprehensive Treatment	N/A	N/A	N/A	N/A	N/A
12623	Brooke Glen Behavioral Hospital	N/A	N/A	N/A	N/A	N/A
12454	Clarion Psychiatric Center	N/A	N/A	N/A	N/A	N/A
12051	Clarks Summit State Hospital	N/A	N/A	N/A	N/A	N/A
11848	Danville State Hospital	N/A	N/A	N/A	N/A	N/A
12738	Devereux Mapleton Psychiatric Institute	N/A	N/A	N/A	N/A	N/A
11743	Divine Providence Hospital	N/A	N/A	N/A	N/A	N/A
12451	DSI of Bucks County	N/A	N/A	N/A	N/A	N/A
12965	Eagleville Hospital	N/A	N/A	N/A	N/A	N/A
12552	Edgewood Surgical Hospital	N/A	N/A	N/A	N/A	N/A
12565	Fairmount Behavioral Health System	N/A	N/A	N/A	N/A	N/A
12050	First Hospital of Wyoming Valley	N/A	N/A	N/A	N/A	N/A
12832	Foundations Behavioral Health - UHS of Doylestown	N/A	N/A	N/A	N/A	N/A
12488	Friends Hospital	N/A	N/A	N/A	N/A	N/A
12543	Horsham Clinic	N/A	N/A	N/A	N/A	N/A
12430	Kidspeace Orchard Hills Campus	N/A	N/A	N/A	N/A	N/A
12504	Kindred Hospital - Delaware County	N/A	N/A	N/A	N/A	N/A
12908	Kindred Hospitals East, Philadelphia-Havertown	N/A	N/A	N/A	N/A	N/A
12624	Kirkbride Center	N/A	N/A	N/A	N/A	N/A
12385	Lifecare Hospitals of Pittsburgh - North Campus	N/A	N/A	N/A	N/A	N/A
12146	Magee Rehabilitation Hospital	N/A	N/A	N/A	N/A	N/A
12287	Montgomery County MH/MR Emergency Services, Inc.	N/A	N/A	N/A	N/A	N/A
12047	Norristown State Hospital	N/A	N/A	N/A	N/A	N/A
11740	Philhaven Hospital	N/A	N/A	N/A	N/A	N/A
12723	Roxbury Treatment Center	N/A	N/A	N/A	N/A	N/A
13921	Select Specialty Hospital - Central PA, LP (Harrisburg campus)	N/A	N/A	N/A	N/A	N/A
12453	Southwood Psychiatric Hospital	N/A	N/A	N/A	N/A	N/A
12548	St. John Vianney Hospital	N/A	N/A	N/A	N/A	N/A
12535	Surgical Institute of Reading	N/A	N/A	N/A	N/A	N/A
12156	The Meadows Psychiatric Center	N/A	N/A	N/A	N/A	N/A
12091	Torrance State Hospital	N/A	N/A	N/A	N/A	N/A
12081	Warren State Hospital	N/A	N/A	N/A	N/A	N/A
12368	Wernersville State Hospital	N/A	N/A	N/A	N/A	N/A
12487	Westfield Hospital	N/A	N/A	N/A	N/A	N/A

Table 27
Ranking of PA Hospitals by Adjusted SIR for CLABSI
By Ward Type - NICU
Hospitals with <1 Expected Infections - July 1, to December 31, 2008

Facility	Hospital Names	Obs	Exp	Diff	Adjusted SIR	Conf Int
12387	Holy Spirit Hospital	0	0.0	0.0	0.00	0 - 0
11961	St. Joseph Medical Center	0	0.0	0.0	0.00	0 - 0
11732	The Williamsport Hospital & Medical Center	0	0.0	0.0	0.00	0 - 581.99
11929	Easton Hospital	0	0.0	0.0	0.00	0 - 546.25
12304	CHHS Hospital Company - Chestnut Hill Hospital	0	0.0	0.0	0.00	0 - 142.52
11764	Ephrata Community Hospital	0	0.0	0.0	0.00	0 - 88.44
11839	Crozer Chester Medical Center	0	0.0	0.0	0.00	0 - 85.2
11750	Main Line Hospital Paoli	0	0.1	-0.1	0.00	0 - 64.36
10384	UPMC Mercy	0	0.1	-0.1	0.00	0 - 63.75
11885	St. Mary Medical Center	0	0.1	-0.1	0.00	0 - 55.1
11972	Delaware County Memorial Hospital	0	0.1	-0.1	0.00	0 - 32.09
10280	Conemaugh Valley Memorial Hospital	0	0.2	-0.2	0.00	0 - 17.53
12016	Chester County Hospital	0	0.2	-0.2	0.00	0 - 17.42
11528	Moses Taylor Hospital	0	0.2	-0.2	0.00	0 - 15.38
11914	Community Medical Center	0	0.3	-0.3	0.00	0 - 13.93
11437	Hahnemann University Hospital	0	0.3	-0.3	0.00	0 - 10.83
11725	Hamot Medical Center	0	0.4	-0.4	0.00	0 - 9.44
10183	Lancaster General Hospital	0	0.7	-0.7	0.00	0 - 5.61
10648	Allegheny General Hospital	0	0.7	-0.7	0.00	0 - 5.55
11753	Main Line Hospital Bryn Mawr	1	0.9	0.1	1.08	0.01 - 6.02
11838	Abington Memorial Hospital	1	0.9	0.1	1.08	0.01 - 6.04
11973	Holy Redeemer Health System Hospital & Medical Center	1	0.2	0.8	4.39	-0.48 - 24.41
11606	Dubois Regional Medical Center	2	0.3	1.7	7.01	-0.15 - 25.33
11718	St. Luke's Hospital Bethlehem	5	0.4	4.6	12.90	0 - 30.09
12375	Reading Hospital And Medical Center	2	0.1	1.9	19.07	-23.54 - 68.84

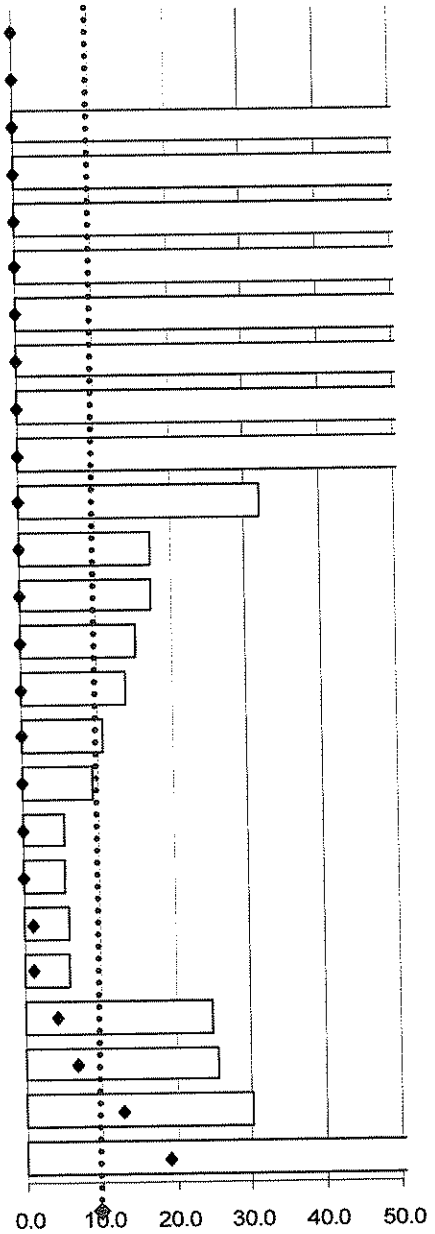


Table 28
Ranking of PA Hospitals by Adjusted SIR for CLABSI
By Ward Type - NICU
Hospitals with 1 to >30 Expected Infections - July 1, to December 31, 2008

Facility	Hospital Name	Obs	Exp	Diff	Adjusted SIR	Conf Int
11864	The Western Pennsylvania Hospital	0	2.0	-2.0	0.00	0 - 1.87
11699	St. Vincent Health Center	0	1.3	-1.3	0.00	0 - 2.83
11640	Children's Hospital of Pittsburgh of UPMC	1	3.9	-2.9	0.25	0.04 - 1.41
12290	St. Christophers Hospital For Children	3	6.2	-3.2	0.48	0.17 - 1.41
10301	Magee Womens Hospital of UPMC Health System	2	3.7	-1.7	0.55	0.12 - 1.97
11747	Milton S Hershey Medical Center	2	3.0	-1.0	0.66	0.12 - 2.39
11775	Geisinger Medical Center	4	4.2	-0.2	0.96	0.27 - 2.47
10122	Pinnacle Health Hospitals	2	1.6	0.4	1.24	0.1 - 4.49
11506	Thomas Jefferson University Hospital	8	5.7	2.3	1.41	0.51 - 2.78
10108	York Hospital	3	1.9	1.1	1.56	0.19 - 4.57
11448	Pennsylvania Hospital of the University of PA Health System	3	1.5	1.5	1.95	0.16 - 5.69
11770	Main Line Hospital Lankenau	3	1.5	1.5	2.06	0.15 - 6.02
10306	Children's Hospital of Philadelphia	18	8.6	9.4	2.10	0.96 - 3.32
10219	Hospital of the University of Pennsylvania	7	2.3	4.7	3.08	0.51 - 6.34
12382	Temple University Hospital	6	1.7	4.3	3.60	0.39 - 7.85
11884	Lehigh Valley Hospital	4	1.1	2.9	3.64	0.15 - 9.32
10585	Albert Einstein Medical Center	5	1.1	3.9	4.37	0.22 - 10.2

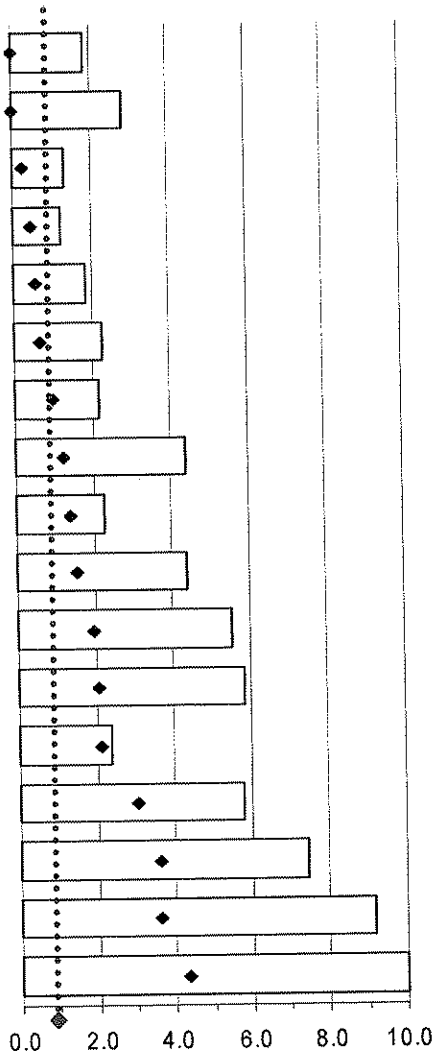


Table 29
Ranking of PA Hospitals by Adjusted SIR for CLABSI
By Ward Type – Special Care Areas (SCA)
Hospitals with <1 Expected Infections - July 1, to December 31, 2008

Facility	Hospital Name	Obs	Exp	Diff	Adjusted SIR	Conf Int
12604	Mercy Special Care Hospital	1	0.9	0.1	1.09	0.01 - 6.04
11265	The Western Pennsylvania Hospital Forbes Regional Campus	1	0.6	0.4	1.73	0.02 - 9.6
11699	St. Vincent Health Center	1	0.5	0.5	2.19	0.03 - 12.19
10183	Lancaster General Hospital	2	0.4	1.6	5.01	0.56 - 18.09
12299	Select Specialty Hospital - Johnstown	2	0.2	1.8	9.78	1.1 - 35.31

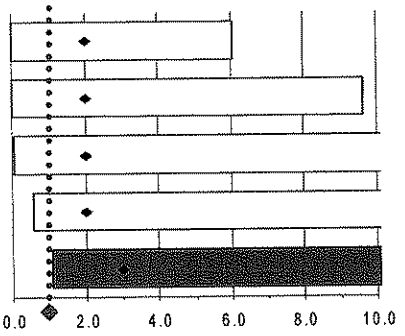


Table 30
Ranking of PA Hospitals by Adjusted SIR for CLABSI
By Ward Type – Special Care Areas (SCA)
Hospitals with 1 – 7.49 Expected Infections - July 1, to December 31, 2008

Facility	Hospital Name	Obs	Exp	Diff	Adjusted SIR	Conf Int
12271	Select Specialty Hospital - McKeesport, Inc.	1	2.4	-1.4	0.41	0.01 - 2.3
11945	Lifecare Hospitals of Pittsburgh	2	4.8	-2.8	0.41	0.05 - 1.5
11832	Kindred Hospital - Philadelphia	1	2.1	-1.1	0.47	0.01 - 2.59
11506	Thomas Jefferson University Hospital	3	5.3	-2.3	0.57	0.11 - 1.66
10348	UPMC Presbyterian	3	5.0	-2.0	0.60	0.12 - 1.74
11437	Hahnemann University Hospital	3	4.0	-1.0	0.75	0.15 - 2.18
11880	Select Specialty Hospital - Erie	5	6.2	-1.2	0.81	0.26 - 1.88
12485	Kindred Hospital - Wyoming Valley	5	6.2	-1.2	0.81	0.26 - 1.89
11972	Delaware County Memorial Hospital	2	2.4	-0.4	0.82	0.09 - 2.97
12123	Select Specialty Hospital - Danville	2	2.1	-0.1	0.95	0.11 - 3.42
13929	Good Shepherd Penn Partners Specialty Hospital at Rittenhouse	1	1.0	0.0	0.97	0.01 - 5.39
12334	Select Specialty Hospital - Central Pennsylvania (York)	6	6.0	0.0	1.01	0.37 - 2.19
11864	The Western Pennsylvania Hospital	7	6.7	0.3	1.04	0.42 - 2.15
12382	Temple University Hospital	5	4.6	0.4	1.10	0.35 - 2.56
11838	Abington Memorial Hospital	7	5.3	1.7	1.33	0.53 - 2.74
10237	Jefferson Regional Medical Center	2	1.4	0.6	1.44	0.16 - 5.21
11929	Easton Hospital	3	1.5	1.5	2.03	0.41 - 5.93
11916	Wilkes-Barre General Hospital	5	2.1	2.9	2.41	0.78 - 5.63
11940	St. Agnes Long Term Care Hospital	18	6.3	11.7	2.88	1.7 - 4.55
12262	Girard Medical Center	13	3.4	9.6	3.86	2.05 - 6.61

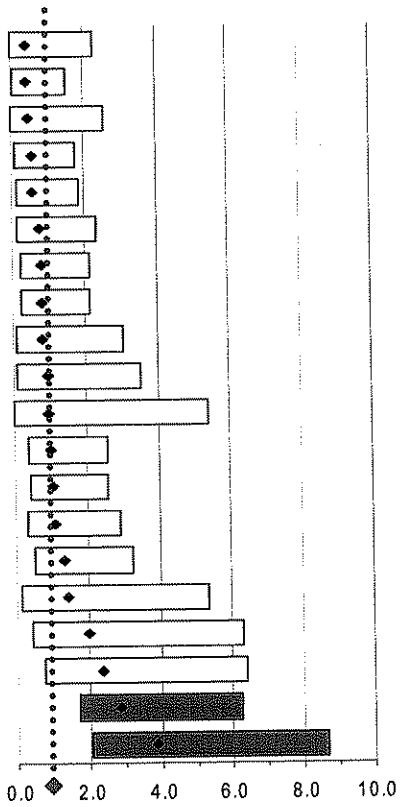
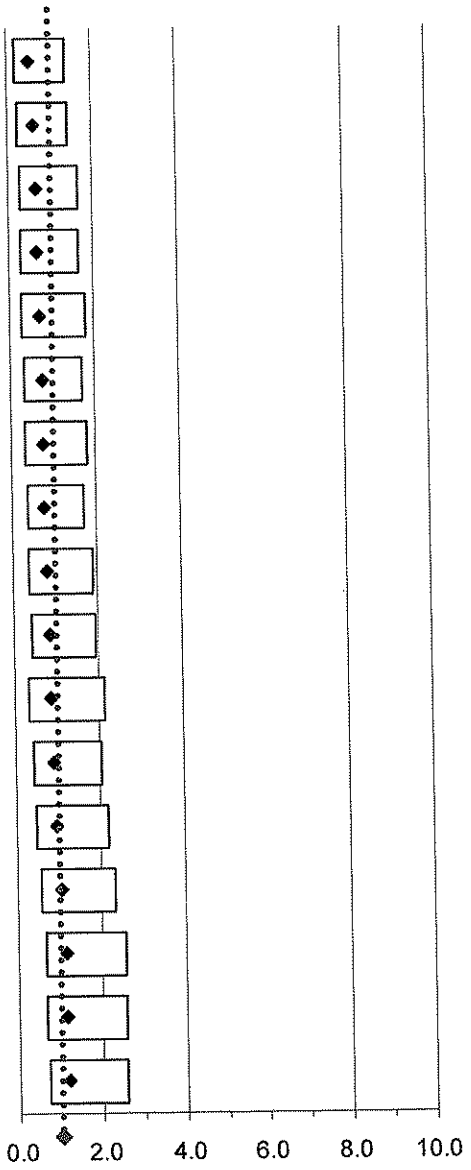


Table 31
Ranking of PA Hospitals by Adjusted SIR for CLABSI
By Ward Type – Special Care Areas (SCA)
Hospitals with 7.50 to >30 Expected Infections - July 1, to December 31, 2008

Facility	Hospital Name	Obs	Exp	Diff	Adjusted SIR	Conf Int
12268	Kindred Hospital at Heritage Valley	5	9.6	-4.6	0.52	0.17 - 1.21
12358	Kindred Hospital - Pittsburgh	8	13.3	-5.3	0.60	0.26 - 1.19
12005	Lifecare Hospitals of Chester County	7	10.3	-3.3	0.68	0.27 - 1.4
12254	HealthSouth Hospital of Pittsburgh	7	10.2	-3.2	0.68	0.27 - 1.41
12007	Triumph Hospital Easton	7	9.6	-2.6	0.73	0.29 - 1.51
10118	UPMC Presbyterian - Shadyside Campus	10	13.4	-3.4	0.75	0.36 - 1.38
12388	HealthSouth Regional Specialty Hospital	8	10.5	-2.5	0.76	0.33 - 1.5
11887	Good Shepherd Specialty Hospital	11	14.4	-3.4	0.76	0.38 - 1.36
12147	Select Specialty Hospital - Central Pennsylvania (Camp Hill)	10	12.1	-2.1	0.83	0.4 - 1.52
11640	Children's Hospital of Pittsburgh of UPMC	10	11.8	-1.8	0.85	0.41 - 1.56
12296	Kindred Hospital Pittsburgh - North Shore	7	8.1	-1.1	0.87	0.35 - 1.78
12009	Select Specialty Hospital - Pittsburgh/UPMC	11	12.3	-1.3	0.89	0.45 - 1.6
12108	Select Specialty Hospital Laurel Highlands Inc	10	10.4	-0.4	0.96	0.46 - 1.76
11747	Milton S Hershey Medical Center	14	13.2	0.8	1.06	0.58 - 1.77
12348	Eastern Regional Medical Center	15	12.9	2.1	1.16	0.65 - 1.91
12134	Hosp of Fox Chase Cancer Center	15	12.9	2.1	1.17	0.65 - 1.93
10306	Children's Hospital of Philadelphia	20	16.5	3.5	1.21	0.74 - 1.87



D. Discussion

The information presented in this report represents the first publicly available data required under Act 52 of 2007. Because of the implementation period (February 2008) specified in the Act and the concerns about the quality of the very earliest data (the period February-June 2008) for analytic purposes, less than a full year's worth of data are used for this report. The data cover the period July-December 2008, and should be considered the pilot period for data collection and presentation under Act 52. This report should be properly viewed as much as an attempt to present the approach to data analysis in Act 52 and the format for data presentation as it is meant to present the actual findings. All stakeholders and users of the Act 52 data should become familiar with this approach. It was determined in consultation with the Centers for Disease Control and Prevention's Division of Healthcare Quality Promotion and the Pennsylvania Healthcare Associated Infections Advisory Panel. The approach was also presented in numerous state and national meetings, and feedback was received. However, any additional feedback and continuous improvement in the data presented and the presentation format are welcome.

Despite the fact that the data represent less than a full year of information, several things are apparent from the findings:

First, hospitals throughout Pennsylvania have invested substantial efforts to comply with the requirements of Act 52, conduct surveillance for HAIs, and report these events into NHSN. This in itself is a commendable achievement of Act 52, as many of the facilities had limited experience with such intensive data collection, in spite of previous requirements through the Pennsylvania Healthcare Cost Containment Council. This effort in HAI surveillance will by itself be beneficial, particularly for institutions that previously had not collected such data, as it is likely to reduce the occurrence of HAIs through improved awareness and intervention. Hopefully many of the institutions are using the analysis packages available in NHSN to better assess the patterns and trends of HAIs within their facilities and can target those locations that suggest ongoing problems.

Second, HAIs impose a significant burden on the healthcare system in Pennsylvania, as they do elsewhere in the United States. Almost 14,000 HAIs were reported in the last half of 2008 alone. Act 52 requires the number of HAIs in Pennsylvania to decline over time. A preliminary analysis of some of the 2009 data in NHSN suggests this may indeed be occurring. However, the 2009 data form the baseline period for the purposes of benchmarking such declines, and it remains to be seen whether Pennsylvania institutions will be able to accomplish the 10% reduction target required in the first year (2010). Many institutions around the state have been in the vanguard of national prevention efforts, and these efforts have already resulted in impressive reductions in HAIs. Some of these results are reflected in the data comparisons from the latter part of 2008. It will be important to assess the temporal trends at institutions that already appear to have lower rates of HAIs in order to see if they can accomplish even further reductions towards the long-term goal of HAI elimination.

Third, in general the rates of HAIs in Pennsylvania fared well when compared to comparable national data. In many categories the rates found in Pennsylvania were substantially lower than the national rates. This finding, however, must be very cautiously interpreted, since participation in NHSN in other parts of the country is voluntary while it is mandatory in Pennsylvania. As of December 2009, 20 other states also mandate reporting by their acute care facilities to NHSN. However, in virtually none is the reporting requirement as comprehensive as in Pennsylvania. In general, self selected institutions would be expected to have better rates of HAIs, since they have invested the time and effort to collect the data and benchmark themselves against other facilities.

But these institutions also differ from health care facilities nationally in important ways. They are usually larger facilities and are often affiliated with academic centers. Larger facilities also in general provide more complex medical care to more severely ill patients who are at higher risk of an HAI. This may explain the higher rates nationally. Because there are reasons to expect that the national data may be better than Pennsylvania's and reasons to think it is worse, any comparisons between the two should be done cautiously, and it would be better to await additional data collection under Act 52 to assess these findings. In addition, CDC is in the process of developing metrics to compare state-by-state rates of HAIs taking into account some of the above problems and this may help address some of the current difficulties in data interpretation.

Among the 255 institutions classified as acute care facilities in Pennsylvania, all are included in this report. However, a number of these institutions had little or no data to contribute because they are specialized facilities such as psychiatric hospitals, drug and alcohol treatment facilities, rehabilitation units, or long term acute care facilities (LTACs). Act 52 requires reporting from all acute care facilities, and does not separate them by type. However, it may be desirable to separate them out for analysis purposes or include them in a separate category, since it is unlikely these facilities will contribute meaningful data in the future.

This report is largely focused on those conditions that have been selected for benchmarking purposes in order to compare facilities to each other and to monitor trends over time. This report principally deals with catheter-associated urinary tract infections and central-line associated bloodstream infections. Reflecting national trends, these are among the most commonly identified infections in the hospital setting. As expected, they were reported by a large majority of the institutions. They are also the targets of national measurement efforts and national prevention efforts. The third category for benchmarking purposes is surgical site infections (SSIs). SSIs cause substantial morbidity, mortality and healthcare costs. But because of the nuances of data collection and reporting, a longer window in time is necessary to properly analyze SSI data. Thus information on SSIs will be included in a future report, and it is possible the SIRs for SSI may be considerably different among the reporting institutions.

Ranking and comparing facilities against each other is always challenging, whether assessing HAIs or assessing other traits. Every hospital in Pennsylvania is different. They differ in size, in population served, in location, in financial structure, in type of services they deliver, in areas of specialization, and teaching responsibilities. All of these factors influence the patterns and frequency of HAIs. And therefore any measurement that does not attempt to account for these differences is subject to creating erroneous conclusions and misimpressions. The SIR approach is the approach that is generally recognized as best incorporating the differences and distinctions between institutions. It does so by attempting to compare "likes" to "likes" by analyzing hospitals on a ward type by ward type approach. It calculates a statewide rate for each ward type, and then compares the reported rate on that ward to the statewide rate for that ward type. A summary SIR is then created that is a composite of the ward types reported by the facility.

However, even this approach is subject to limitations. A cardiac intensive care unit in one hospital may have a considerably different scope of activity than a cardiac intensive care unit in another. Attempts were made to adjust for these differences by looking at device utilization, and by modeling obvious potential differences, such as location (urban versus rural, large versus small) and hospital type, and observing how these factors affected the resulting SIRs. Those factors found to significantly affect the values were incorporated into the adjustment calculations, producing an adjusted SIR which is not a simple composite summary of the ward types in the facility.

One problem with the ward-by-ward approach is that many of the ward types (such as burn units) were present in very few facilities. This makes rates very unstable. To address this problem, ward types were grouped into combined or composite ward types. Different combinations of ward groups were used, and the affect of these groupings was assessed. The most stabile, reasonable grouping was ultimately used to run the final model.

Comparative reports generally stratify hospitals by size to adjust for differences between them. This was not done in this report. However, the SIR data are grouped into strata based on the expected number of infections. To a large degree, this approach is a surrogate for hospital size. But it better captures complexity of care than a simple grouping by size.

It is not possible to account for differences in the approach to data collection and submission by institution. Some facilities, especially those with electronic surveillance systems or long-term participants in NNIS and NHSN, may have been mechanisms in place to identify HAIs and report them. PADOH intends to conduct validation and data quality studies in 2009 in order to address this problem for the data that will be used to establish the baseline measurement period. It was not done for the data from late 2008. However, attempts were made to deal with data quality through the intrinsic NHSN data checks and the monthly error reports. Despite this effort, there were still gaps in the data, including orphan records and facilities that did not submit device days or patient days.

It is also possible that there are other intangible issues which can influence the findings in this report. Knowing that certain conditions would be benchmarked, some facilities may have changed their practices in terms of patients being treated, use of certain interventions such as antimicrobial agents, screening on admission to be able to categorize a condition as non-hospital associated, or decreasing the use of devices. It should be noted that the conditions selected for benchmarking represent only an initial set. Over time, additional conditions may be added for benchmarking, or some conditions may be dropped if they do not result in useful information.

Finally, this report does not focus on drug resistance. When Act 52 was developed and enacted, there was clear concern about multidrug-resistant pathogens, especially MRSA. Some data on MRSA are contained in the current report. However, separate efforts will be made to address MRSA, including data collection on screening practices and findings. In addition, CDC has developed a new module in NHSN that specifically addresses antimicrobial resistance, known as the MDRO/CDAD module. Pennsylvania has received resources from the federal government to implement this module throughout the state. When it place, it should provide a better picture of the pattern and impact of organisms like MRSA.

In summary, the initial set of indicators is presented for healthcare-associated infections in Pennsylvania. Although limited in scope, the data present a compelling story of the burden of HAIs in the Commonwealth. A sustained effort among all facilities is necessary to produce the downward trend that will eventually reduce the impact and costs associated with these preventable problems. In doing so, Pennsylvania can continue to be the national bell weather for efforts to reach the target of HAI elimination.

Appendix 1
Pennsylvania Advisory Panel

Pennsylvania Advisory Panel

For the State's Healthcare-Associated Infections Program

Erick J. Bergquist, MD, MPH
Medical Director for Epidemiology
Indiana Regional Medical Center

Kenneth Brubaker, MD
Director of Geriatric Program
Willow Valley Retirement Community

Joan M. Delovich, BSN, MS
Director of Nursing
Troy Community Hospital

Daniel Haimowitz, MD, FACP, CMD
Medical Director of Geriatric Program
Attleboro Retirement Campus

Sharon L. Jacobs, RN, MS, CIC
Manager, Infection Prevention and Control
St. Clair Memorial Hospital
President, APIC-Three Rivers/ Pittsburgh Chapter

S. Candy Mulholland, RN, MSN
Infection Control Coordinator
Kane Nursing Homes

Stephen Ostroff, MD
Bureau Director
Bureau of Epidemiology
Pennsylvania Department of Health

Linda Winston, MSN, CIC
Infection Control Officer
Altoona Regional Health System

Dorothy Borton, RN, BSN, CIC
Infection Control Practitioner
Albert Einstein Healthcare Network

Susan E. Coffin, MD, MPH
Medical Director, Department of ICP
The Children's Hospital of Philadelphia

Neil O. Fishman, MD
Director, Department of Healthcare Epidemiology and Infection Control; Director, Antimicrobial Management Program
Hospital of the University of Pennsylvania
President-Elect, SHEA

Kathleen Hess, RN, MS
Director of Nursing
Regional Staff Development Coordinator
HCR Manor-Care

Emily McCracken, MPH
Hospital Epidemiologist and Director of Infection Control
Hamort Health System

Carlene A. Muto, MD, MS
Medical Director Department of Hospital Epidemiology and Infection Control
University of Pittsburgh Medical Center

Abby Weand, RN
HAI Project Leader
Pennsylvania Health Care Cost Containment Council (PHC4)

Appendix 2
Pennsylvania Ward Categories vs. NHSN-Defined Ward Names
NHSN Ward Definitions

PA Ward Categories	NHSN-Defined Ward Names	NHSN Ward Definitions
NICU	IN:ACUTE:CC:NURS	Critical care area for the care of newborns and infants with serious illness requiring Level III care, area is supervised by a neonatologist.
	IN:ACUTE:CC_STEP:NURS	Combined nursery housing both Level II and III newborns and infants
Specialty Care Area (SCA)	IN:ACUTE:SCA:BMT	Specialty care area for the care of patients who undergo bone marrow (stem cell) transplant for the treatment of various disorders.
	IN:ACUTE:SCA:LTAC	Area that provides acute care services to patients suffering medically complex conditions, or patients who have suffered recent catastrophic illness or injury and require an extended stay in an acute care environment.
	IN:ACUTE:SCA:SOTP_PED	Specialty care area for the postoperative care of patients ≤18 years old who have had a solid organ transplant (e.g., heart/lung, kidney, liver, pancreas).
	IN:ACUTE:SCA:SOTP	Specialty care area for the postoperative care of patients who have had a solid organ transplant (e.g., heart/lung, kidney, liver, pancreas).
	IN:ACUTE:SCA:HONC	Specialty care area for the evaluation and treatment of patients with cancer and/or blood disorders.
	IN:ACUTE:SCA:HONC_PED	Specialty care area for the evaluation and treatment of patients ≤18 years old with cancer and/or blood disorders.
Step Down Units	IN:ACUTE:STEP	Area for adult patients who are hemodynamically stable and can benefit from close supervision and monitoring, such as frequent pulmonary toilet, vital signs, and/or neurologic and neurovascular checks.
cc:Burn	IN:ACUTE:CC:B	Critical care area for the care of patients with significant/major burns.
cc:CardioThoracic	IN:ACUTE:CC:CT	Critical care area for the care of patients following cardiac and/or thoracic surgery.
cc:Medical/ Surgical	IN:ACUTE:CC:MS	Critical care area for the care of patients with medical and/or surgical conditions.
cc:Medical	IN:ACUTE:CC:M	Critical care area for the care of patients who are being treated for nonsurgical conditions.

cc:Pediatrics	IN:ACUTE:CC:S_PED	Critical care area for the evaluation and management of patients ≤18 years old with serious illness before and/or after surgery.
	IN:ACUTE:CC:MS_PED	Critical care area for the care of patients ≤18 years old with medical and/or surgical conditions.
	IN:ACUTE:CC:CT_PED	Critical care area for the care of patients ≤18 years old following cardiac and thoracic surgery.
	IN:ACUTE:CC:M_PED	Critical care area for the care of patients ≤18 years old who are being treated for nonsurgical conditions.
cc:Medical Specialty	IN:ACUTE:CC:R	Critical care area for the evaluation and treatment of patients with severe respiratory conditions.
	IN:ACUTE:CC:PNATL	Critical care area for the care of pregnant patients with complex medical or obstetric problems requiring a high level of care to prevent the loss of the fetus and to protect the life of the mother.
	IN:ACUTE:CC:N	Critical care area for the care of patients with life-threatening neurologic diseases.
	IN:ACUTE:CC:C	Critical care area for the care of patients with serious heart problems that do not require heart surgery.
cc:Surgery	IN:ACUTE:CC:S	Critical care area for the evaluation and management of patients with serious illness before and/or after surgery
	IN:ACUTE:CC:NS	Critical care area for the surgical management of patients with severe neurologic diseases or those at risk for neurologic injury as a result of surgery.
cc:Trauma	IN:ACUTE:CC:T	Critical care area for the care of patients who require a high level of monitoring and/or intervention following trauma or during critical illness related to trauma.
w:Behavioral	IN:ACUTE:WARD:BHV_PED	Area for the evaluation and treatment of patients ≤18 years old with acute psychiatric or behavioral disorders.
	IN:ACUTE:WARD:BHV_ADOL	Area for the evaluation and treatment of patients 13-18 years old with acute psychiatric or behavioral disorders.
	IN:ACUTE:WARD:BHV	Area for the evaluation and treatment of patients with acute psychiatric or behavioral disorders.
w:Labor & Delivery/ PostPartum	IN:ACUTE:WARD:LD	Area where women labor and give birth.
	IN:ACUTE:WARD:PP	Area for the care of patients recovering from childbirth.
	IN:ACUTE:WARD:LD_PP	Suite used for labor, delivery, recovery and postpartum care -- all within the same suite.

w:Medical/ Surgical	IN:ACUTE:WARD:MS	Area for the evaluation of patients with medical and/or surgical conditions.
w:Medical	IN:ACUTE:WARD:GYN	Area for the evaluation, treatment, or surgery of female patients with reproductive tract disorders.
	IN:ACUTE:WARD:GU	Area for the evaluation, treatment, or surgery of patients with disorders of the genitourinary system.
	IN:ACUTE:WARD:GNT	Area for the evaluation, treatment, or surgery of patients with age-related diseases.
	IN:ACUTE:WARD:STRK	Area for the evaluation, stabilization, and treatment of patients who have experienced an acute stroke.
	IN:ACUTE:WARD:PULM	Area for the evaluation and treatment of patients with respiratory system conditions or disorders.
	IN:ACUTE:WARD:N	Area for the evaluation and treatment of patients with neurologic disorders.
	IN:ACUTE:WARD:M	Area for the evaluation and treatment of patients with medical conditions or disorders.
w:Newborn	IN:ACUTE:STEP:NURS	Area for newborns and infants who are not critically ill but who may remain in the nursery for extended observation or to increase weight.
	IN:ACUTE:WARD:NURS	Area for normal newborns with no identified health problems.
w:Pediatric Medical/ Surgical	IN:ACUTE:STEP:PED	Area for patients ≤18 years old who are hemodynamically stable and can benefit from close supervision and monitoring, such as frequent pulmonary toilet, vital signs, and/or neurologic and neurovascular checks.
	IN:ACUTE:WARD:S_PED	Area for the evaluation and treatment of patients ≤18 years old who have undergone a surgical procedure.
	IN:ACUTE:WARD:REHAB_PED	Area for the evaluation and restoration of function to patients ≤18 years old who have lost function due to acute or chronic pain, musculoskeletal problems, stroke, or catastrophic events resulting in complete or partial paralysis.
	IN:ACUTE:WARD:ORT_PED	Area for the evaluation and treatment of patients ≤18 years old with orthopedic injuries or disorders.
	IN:ACUTE:WARD:M_PED	Area for the evaluation and treatment of patients ≤18 years of old with medical conditions or disorders.
	IN:ACUTE:WARD:MS_PED	Area for the evaluation and treatment of patients ≤18 years old with medical and/or surgical conditions.
w:Rehabilitation	IN:ACUTE:WARD:REHAB	Area for the evaluation and restoration of function to patients who have lost function due to acute or chronic pain, musculoskeletal problems, stroke, or catastrophic events resulting in complete or partial paralysis.

w:Surgery	IN:ACUTE:WARD:VS	Area for the evaluation and treatment of patients who have undergone vascular surgery.
	IN:ACUTE:WARD:T_ORT	Area for the evaluation and treatment of patients with orthopedic injuries or disorders.
	IN:ACUTE:WARD:S	Area for the evaluation and treatment of patients who have undergone a surgical procedure.
	IN:ACUTE:WARD:ORT	Area for the evaluation, treatment, or surgery on bones, joints, and associated structures by an orthopedist.
	IN:ACUTE:WARD:NS	Area for the care of patients whose primary reason for admission is to have neurosurgery or to be cared for by a neurosurgeon after head or spinal trauma.
cc = critical care wards		
w = non critical care wards		

Appendix 3
Act 52 of 2007

Appendix 4
NHSN Patient Safety Protocol Component

pennsylvania
DEPARTMENT OF HEALTH

News for Immediate Release

Jan. 12, 2010

Department of Health: Healthcare-Associated Infections Topped 13,000 in Second Half of 2008

Harrisburg – More than 13,000 healthcare-associated infections – illnesses that often can be prevented – were reported by Pennsylvania hospitals in the second half of 2008, according to initial data released today by the Department of Health.

Such infections, also known as HAIs, are illnesses that patients acquire as a result of being in the hospital and did not have prior to admission. Many HAIs are preventable and account for an estimated 1.7 million infections nationwide and contribute to 99,000 deaths each year, according to the Centers for Disease Control and Prevention, or CDC.

The Health Department reported the data as required by Act 52, the Reduction and Prevention of Health Care Associated Infection and Long-Term Care Nursing Facilities.

"This report highlights important legislation passed with the intent to drive down HAI infection rates in Pennsylvania health facilities," Secretary of Health Everette James said. "The department is responsible for implementing Act 52 and ensuring hospitals are working to decrease their HAI rates, allowing for improvements to Pennsylvania's healthcare system by eliminating avoidable costs."

The report includes HAIs for each hospital, with an emphasis on two specific infection types: urinary tract infections associated with the use of a catheter (CAUTI) and bloodstream infections associated with the use of a central line (CLABSI). These infections are among the more common HAIs and were selected by the department and the HAI Advisory Committee for hospital-to-hospital comparisons and to measure trends over time. Future reports will analyze the patterns of another common type of HAI known as surgical site infections.

In the last six months of 2008, a total of 13,771 HAIs were reported by Pennsylvania hospitals, for a rate of 2.84 HAIs per 1,000 days of hospitalization. The three most commonly reported HAIs were urinary tract infections (24.83 percent), surgical site infections (22.23 percent) and intestinal infections (18.15 percent). Among all reported infections, 8.12 percent were due to methicillin-resistant Staphylococcus aureus, or MRSA, which is a significant concern in the hospital setting.

Nearly a third of hospitals that used urinary catheters were found to have more CAUTI than the department expected. The same was true for CLABSI, where 30 percent of hospitals that used central lines had more infections than expected. When compared to other parts of the nation, the rates of these infections were overall lower in Pennsylvania than elsewhere.

In February 2008, all hospitals began electronically reporting HAIs using the CDC's National Healthcare Safety Network. Hospitals are required to report the infection within 48 hours of their recognition. The Department of Health used the reported data to produce its initial 2008 analysis and will continue to produce an annual report.

"It is important to note that the 2008 data in this report is a snapshot in time. The legislation requires the baseline data to begin in 2009, and that report will be ready by May," said acting Physician General Dr. Stephen Ostroff. "From that point onward, data collected can be used to compare hospital infection rates and educate Pennsylvania health care consumers."

Curbing HAIs is an urgent priority not only because doing so prevents unnecessary illnesses and deaths, but also because of the cost savings to be realized. According to the CDC, HAIs have been estimated to result in an excess of $30 billion in health care costs per year in the United States.

Act 52 is part of Governor Rendell's Prescription for Pennsylvania, a comprehensive blueprint for improving access, quality and affordability of health care. The Governor's goal is to ensure every Pennsylvania resident has access to quality and affordable health care. The ultimate goal of Act 52 is to produce consistent reductions in the occurrence of HAIs in order to eliminate them entirely.

To read the full report, visit www.health.state.pa.us.

Media Contact: Stacy Kriedeman, 717-787-1783

###