



Tennessee's Report on Healthcare Associated Infections:

July 1, 2008 — June 30, 2009

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Executive Summary

Since January 2008, hospitals in Tennessee have monitored central line-associated bloodstream infection (CLABSI) rates in the following types of intensive care units (ICUs, also referred to as critical care units): pediatric, surgical, major teaching medical, non-major teaching medical, major teaching medical-surgical, non-major teaching medical-surgical with ≤15 beds or with >15 beds, neurosurgical, coronary, and cardiothoracic-surgical units. Starting July 2008, neonatal ICUs began to report CLABSIs into NHSN. For each ICU, hospitals collect the number of CLABSIs occurring, the number of patient days, and the number of central line days which also include umbilical line days reported in neonatal ICUs.

Central Line-Associated Bloodstream Infections (CLABSIs) in adult and pediatric ICUs in the reporting period from July 2008 through June 2009 [2008-9]

CLABSI rates in 2008-9 were highest in major teaching medical ICUs (6.9 infections per 1,000 central line days), followed by: pediatric (3.2), major teaching medical-surgical (2.9), coronary (2.6), surgical (2.5), neurosurgical (2.5), non-major teaching medical (2.1), cardiothoracic-surgical (1.7), non-major teaching medical-surgical with ≤15 beds (1.6) and non-major teaching medical-surgical with >15 beds (1.5) (Table 2). Tennessee CLABSI rates were significantly higher than 2006-2008 National Healthcare Safety Network (NHSN) rates in major teaching medical ICUs (6.9 vs. 2.6 infections per 1,000 central line days) and in major teaching medical-surgical ICUs (2.9 vs. 2.1 infections per 1,000 central line days). In 2008-9, the overall CLABSI rate was 19% higher in Tennessee compared to the national rate for 2006-8 (SIR=1.19; 95% CI: 1.09–1.30).

CLABSI rates in 2008-9 varied across the three grand divisions of Tennessee (Table 3). CLABSI rates were significantly higher than national 2006-8 rates in West Tennessee among major teaching medical-surgical ICUs [4.3 vs. 2.1 infections per 1,000 central line days; SIR=2.0 (1.4–3.0); i.e., 100% higher than the national rate for 2006-8]. CLABSI rates were significantly higher in Middle Tennessee among major teaching medical ICUs [8.3 vs. 2.6; SIR=3.2 (2.2–4.6), i.e., 220% higher than the national rate for 2006-8]. None of the ICU types in Tennessee had CLABSI rates that were significantly lower than national 2006-8 rates. The overall SIR was 1.1 (0.9–1.2) in East Tennessee, 1.2 (1.0–1.4) in Middle Tennessee, and 1.3 (1.1–1.5) in West Tennessee. Statistically, the overall CLABSI rate for ICUs in West Tennessee was 30% higher than the national 2006-8 rate.

Some hospitals' ICUs reported zero infections. However, because of the low number of central line days, these results may not be statistically significant. We cannot conclude that these ICUs would continue to have zero infections if there were an increased number of central line days. The number and proportion of facilities that reported zero infection rates are listed by ICU type in the result section 'Hospital-Specific CLABSI Rates in Adult/Pediatric ICUs'.

The microorganisms identified in 495 CLABSI events among adult and pediatric ICU patients are listed in Table 4. The four most common pathogens among total positive isolates were: coagulase-negative staphylococci (24.2%), *Candida* spp. and other yeasts (19.2%),

Enterococcus spp. (18.1%), and *Staphylococcus aureus* (11.2%). Methicillin-resistant *S. aureus* (MRSA) accounted for 8.1% and vancomycin-resistant enterococci (VRE) for 7.2% of total positive isolates.

Central Line-Associated Bloodstream Infections (CLABSI) in neonatal ICUs in the reporting period from July 2008 through June 2009 [2008-9]

In 2008-9, overall CLABSI rates in level III neonatal ICUs were statistically significantly higher in Tennessee compared to national CLABSI rates in level III neonatal ICUs [SIR=1.4 (1.1–1.7); i.e., 40% higher than the national rate for 2006-8; [Table 19](#)]. Among infants with **birth weight ≤750 grams in level III neonatal ICUs**, the Tennessee CLABSI rate was significantly higher than the corresponding 2006-8 national rate (6.8 vs. 3.9 infections per 1,000 central line days). The SIR for level III neonatal ICUs with birth weight ≤750 grams in Tennessee was 1.7 (1.2–2.4). Thus, the CLABSI rate among infants with birth weight ≤750 grams in level III neonatal ICUs in Tennessee was 70% higher than the corresponding published 2006-8 national rate. For **other birth weight categories in level III and level II/III neonatal ICUs** in Tennessee, CLABSI and umbilical catheter-associated bloodstream infection (UCABSI) rates were not significantly different from corresponding national rates for 2006-8 ([Tables 19-22](#)).

In 2008-9, combined CLABSI/UCABSI rates in neonatal ICUs varied across the three grand divisions of Tennessee ([Table 23](#)). Across the three grand divisions, neither level III nor level II/III neonatal ICUs had combined CLABSI/UCABSI rates that were significantly different from national 2006-8 rates. The overall SIR was 1.3 (1.0-1.7) in East Tennessee, 1.2 (0.9-1.6) in Middle Tennessee, and 1.3 (1.0-1.7) in West Tennessee. As an example, the overall CLABSI rate for ICUs in West Tennessee was 30% higher than the national 2006-8 rate, although the difference was statistically not significant.

Some hospitals' neonatal ICUs reported zero infections. However, because of the low number of central line days and umbilical line days, these results may not be statistically significant. We cannot conclude that these ICUs would continue to have zero infections if there were an increased number of central line and/or umbilical line days. The number and proportion of facilities that reported zero infection rates by neonatal ICU type are listed in the result section 'Hospital-Specific CLABSI Rates in Neonatal ICUs'.

The microorganisms identified in 174 CLABSI/UCABSI events among neonatal ICU patients are listed in [Table 24](#). The most common microorganisms identified in neonatal ICU-related CLABSIs/UCABSIs were coagulase-negative staphylococci (39.1%), *Staphylococcus aureus* (14.9%), enterococci (10.9%) and *Candida* spp. and other yeasts (10.3%). MRSA accounted for 8.6% of organisms identified, while no VRE were found among the isolates.

BACKGROUND:

Healthcare-associated infections (HAIs) are a major public health problem. According to the Centers for Disease Control and Prevention (CDC), there were an estimated 1.7 million HAIs and 99,000 HAI-related deaths in 2002, making HAIs one of the top ten leading causes of death (Klevens et al, 2007, Public Health Reports). A recent CDC report estimated that the annual medical costs (adjusted to 2007 dollars) of HAIs to U.S. hospitals to be between \$35.7 billion and \$45 billion (Scott, 2009 available at URL: http://www.cdc.gov/ncidod/dhqp/pdf/Scott_CostPaper.pdf). These monetary costs do not measure the effects of HAIs on patients or their family members, friends, and colleagues. The emotional, physical and personal costs associated with HAIs are not quantifiable.

In June 2006, the Tennessee Legislature passed Senate Bill 2978 and the Governor signed the Public Acts, Public Chapter 904 (PC904) requiring hospitals to report selected HAIs to the Tennessee Department of Health (TDH or “the Department”). The legislation required use of CDC’s National Healthcare Safety Network (NHSN) for reporting, making Tennessee the fifth state to use this system. Currently, 21 states require reporting of HAI using NHSN, which has become the standard system for state reporting.

The following report summarizes the TDH HAI reporting program activities for the **period from July 2008 through June 2009 [2008-9]**; provides HAI rates by individual hospital, grand division, and Tennessee totals; and compares these rates to the most recent available national data (2006-2008).

METHODS:

HAI reporting indicators for 2008-9

Central line-associated bloodstream infection (CLABSI) – A central line is a tube that is placed into a patient's large vein, usually in the neck, chest, arm or groin. The line is used to give fluids and medication, withdraw blood, and monitor the patient's condition. A bloodstream infection can occur when microorganisms (e.g., bacteria, fungi) are introduced, attach and multiply on the tubing or in fluid administered through the tubing, and then enter the blood.

CLABSIs are not frequently monitored throughout the hospital, but rather, in selected intensive care units (ICUs). ICUs are hospital units that provide intensive observation and treatment for patients either dealing with, or at risk of developing, life threatening problems. ICUs are also referred to as critical care units. ICUs are described by the types of patients cared for. In Tennessee, the following ICU types were required to participate in the reporting program for CLABSI if their facility had an average daily census of 25+:

- Coronary ICUs
- Cardiothoracic Surgery ICUs
- Medical ICUs
- Medical-surgical ICUs
- Surgical ICUs
- Neurosurgical ICUs
- Pediatric ICUs
- Neonatal ICUs [NICUs] – level III and level II/III

Level 1 trauma ICUs and burn ICUs were not required to report CLABSIs during this time period. Neonatal ICUs started reporting in July 2008, and data from NICUs are published for the first time in this reporting cycle; all other ICUs started to report in January 2008 as seen in the first public report released in December 2009.

Training of Infection Preventionists at Healthcare Facilities

Hospitals were required to review the NHSN patient safety protocol and other training materials/archived webinars from CDC as per CDC/NHSN instructions. Regional face-to-face training sessions were conducted throughout Tennessee in April 2007 and four were conducted in September 2007 to ensure full understanding of NHSN protocols and definitions. These sessions included didactic lectures on NHSN enrollment, CLABSI, and surgical site infections (SSI) definitions with ample time for questions and answers, case-studies, and a pop-quiz to re-enforce fine-print definition details. The support of the local Association for Professionals in Infection Control and Prevention (APIC) chapters and the Tennessee Hospital Association (THA) was essential to the success of this training; they provided venues, logistical support (e.g., registration), and copied training materials. Hospitals continue to participate in monthly NHSN conference calls during which definitions and protocols are clarified and case scenarios are discussed.

Timeliness, Completeness and Accuracy of Reporting

TDH staff monitored the timeliness, completeness, and accuracy of hospital reports and conducted on-site audits to assure compliance with the statutory reporting requirements. Two facilities are missing data for part of the July 2008–June 2009 reporting period (Table 1). CLABSI rates and SIR values for these facilities only represent the time period for which data are available.

Table 1: Facilities with Incomplete Central Line-Associated Bloodstream Infection (CLABSI) Data for the Reporting Period July 2008–June 2009

Facility	Missing Data		Reason for Missing Data
	From	To	
Horizon Medical Center	July 2008	December 2008	Staff turnover*
River Park Hospital	January 2009	June 2009	Staff turnover*

*Indicates that a former IP left the facility without completing NHSN reporting.

Data Validation

Data reported to NHSN are validated using several methods:

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.

Monthly checks for internal consistency - Each month, TDH staff download the data from NHSN and verify completeness with a computerized data validation program. Data that are missing, unusual, inconsistent, or duplicate are identified and investigated through email or telephone communication with hospital staff. Hospitals are given the opportunity to verify and/or correct the data.

On-site audits - Audits of a sample of medical records were conducted by the Department to assess compliance with reporting requirements. Onsite visits were conducted by HAI program staff in 14 reporting hospitals in 2009 and consisted of reviewing medical charts from adult and pediatric ICUs. The purposes of the audits were to:

- Enhance the reliability and consistency in applying the surveillance definitions
- Evaluate the adequacy of surveillance methods to detect infections
- Evaluate intervention strategies designed to reduce or eliminate specific infections
- Discuss identified inconsistencies and allow hospitals to modify records as needed

Ongoing monitoring, education, and trainings are provided to ensure integrity of the data.

Thresholds for Reporting Hospital-Specific Infection Rates

Only hospitals that provide ICU care and have an average daily census of at least 25 inpatients were required to report CLABSIs since 2008. Hospital ICUs with very few patients with central lines will have infection rates that may fluctuate greatly over time. Even a few infections will yield a numerically high rate in the rate calculation when the denominator of central lines is small. To assure a fair and representative set of data, the Department adopted the NHSN minimum thresholds for reporting. The minimum thresholds are:

- For CLABSIs, there must be a minimum of 50 central-line days over a 12-month period. Central line days are the total number of days that central lines are used for each patient in an ICU over a given period of time.

For the calculation of a facility-wide standard infection ratio [SIR] based on all reporting ICUs, there must be a minimum of 50 central-line days in these ICUs combined over a 12-month period.

Risk Adjustment

Risk adjustment is a statistical technique that allows hospitals to be more fairly compared by accounting for differences in patient populations in terms of severity of illness and other factors that may affect the risk of developing a hospital-associated infection. A hospital that performs a large number of complex procedures on very sick patients would be expected to have a higher infection rate than a hospital that performs more routine procedures on healthier patients. Therefore, before comparing the infection rates of hospitals, it is important to adjust for the number and proportion of high- and low-risk patients. Different risk adjustment methods are used for different types of HAIs (e.g., CLABSIs and SSIs).

Patient-level data are not collected on adult or pediatric patients with central lines; therefore, risk adjustment is limited to the type of intensive care unit, number of in-patient days, and numbers of patients with a central line. Additional information such as birth weight [≤ 750 g, 751-1000 g, 1001-1500 g, 1501-2500 g, >2500 g) and line type (central line or umbilical line) are collected in neonatal ICUs for further risk adjustment in neonates and infants.

Tennessee State and National Comparisons

This report displays Tennessee rates calculated from 7/2008-6/2009 data. For comparison, national data were obtained from the latest National Healthcare Safety Network (NHSN) report, which covered the period of 2006 through 2008 (available at <http://www.cdc.gov/nhsn/PDFs/dataStat/2009NHSNReport.pdf>). The CDC modified definitions as of January 1, 2008, and used the new definitions and methods of analysis for their 2006-2007 report onward. The CDC definition of a CLABSI event no longer includes situations in which a single blood culture was positive for a normal skin contaminant even if antibiotic therapy was started. Therefore, although the time periods of the data differ, the analyses and methods used are consistent.

While national aggregate CLABSI data for adult/pediatric ICUs are published in the annual NHSN reports, these rates must be stratified by types of locations to be risk-adjusted. This

scientifically sound risk-adjustment strategy creates a practical challenge to summarizing this information nationally, regionally, or even for an individual healthcare facility. For instance, when comparing CLABSI rates, there may be a number of different types of locations for which a CLABSI rates could be reported. In neonatal ICUs, data are further stratified by birth weight and line type as additional risk categories apart from location type. This stratification raises the need for a method of combining CLABSI rate data across different risk categories that take into account the varying risk of CLABSIs for different locations for adult/pediatric ICUs and for different locations, birth weight, and line type for neonatal ICUs.

Tennessee rates were compared to national rates using the same statistical tests implemented in NHSN for comparing hospital rates to national rates within risk categories. CLABSI rates are based on the Poisson distribution. We used the standardized infection ratio (SIR) as a summary measure to compare pooled mean rates of CLABSI in adult, pediatric, and neonatal ICUs in Tennessee for 7/2008-6/2009 to published national (NHSN) rates for 2006-8 for each ICU type. The SIR is identical in concept to a standardized mortality ratio and is an indirect standardization method for summarizing the HAI experience across any number of stratified groups of data.

The SIR calculation is based on dividing the total number of observed CLABSI events by the predicted* number of CLABSIs, using the CLABSI rates from the standard population (in this case: NHSN for 2006-8). This predicted number, which can also be understood as a projection, is calculated by multiplying the national CLABSI rate from the standard population by the observed number of central line-days (CLD) for each stratum. When the $SIR = 1$, the healthcare facility's ICUs had the same CLABSI rate as the national average rate. A $SIR > 1$ implies the facility is producing more CLABSIs than predicted; an $SIR < 1$ means the facility is producing fewer infections than predicted.

We calculated SIRs for each ICU type as well as an overall SIR for adult and pediatric ICUs in Tennessee compared to national NHSN data. In calculating SIRs for neonatal ICUs, we also took into account birth weight and line type (central line or umbilical line). In addition, we calculated SIRs for the three Grand Divisions of Tennessee (West, Middle, and East). Finally, an SIR for each facility was calculated separately for data representing adult/pediatric ICUs and neonatal ICUs. This allows a single risk-adjusted summary measure for each hospital, although a facility may have multiple ICUs.

The following table illustrates the method of calculating an SIR across two risk strata (2 ICU types: coronary and med-surg) for which national data exist from NHSN. If the observed data represented a follow-up period such as 2009, one would state that an SIR of 0.77 implies that there was a 23% reduction in CLABSIs overall for the nation, region, or facility.

* "Predicted" is used throughout the report as a synonym for the standard statistical term "expected".

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Risk Group Stratifier	Observed CLABSI Rates			NHSN CLABSI Rates for 2006-2007 (Standard Population)			
	Location Type	#CLABSI	#Central line-days	CLABSI rate*	#CLABSI	#Central line-days	CLABSI rate*
	Coronary ICU	170	100,000	1.7	1260	600,000	2.1
	Med-Surg ICU	58	58,000	1.0	600	400,000	1.5
$\text{SIR} = \frac{\text{observed}}{\text{expected}} = \frac{170 + 58}{100000 \times \left(\frac{2.1}{1000}\right) + 58,000 \times \left(\frac{1.5}{1000}\right)} = \frac{228}{210 + 87} = \frac{228}{297} = 0.77$							

In summary, to calculate the Standardized Infection Ratio (SIR) for a facility:

1. For each reporting ICU, multiply the number of central line days (CLD) by the published infection rate for that ICU type to estimate the number of infections predicted (expected) for that ICU if it were to produce CLABSIs at the same frequency as the national rate (CLD x national rate / 1000).
2. Within each hospital, calculate the sum of predicted (expected) infections and the sum of reported infections across all reporting ICUs.
3. Calculate SIR = (total reported infections/total predicted (expected) infections).¹

The SIR concept and calculation are based on the underlying CLABSI rate data that exist across a potentially large number of strata. Thus, the SIR provides a single metric for performing comparisons as an alternative to the cumbersome task of performing multiple comparisons across many strata. Given the underlying CLABSI rate data, one retains the option to perform comparisons within a particular set of strata where observed rates may differ significantly from the standard populations. These types of more detailed comparisons can be very useful and necessary for identifying areas needing more focused prevention efforts.

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Calculation of Exact Confidence Interval of SIR²

Rationale:

Confidence intervals are frequently required in epidemiology, particularly in relation to standardized infection ratios (SIRs). The SIR is the ratio of the observed number of infections, which is usually assumed to be the realization of a Poisson variate, to the predicted number of infections, which is assumed to be a constant because the referent mortality rates are usually based on a very large number of persons so that the variation in these rates can be ignored. For a larger number of observed infections, several approximation methods are available. When the number of infections is small, however, all of the approximation methods will be inadequate, and exact confidence limits may be desirable.

Exact Test:

Exact confidence limits for an SIR can be derived by setting limits for the numerator and assuming the expected number in the denominator to be a constant. The limits for 'a' with 100(1-α) percent confidence are the iterative solutions \underline{a} and \bar{a} .

Computations for the iterative solutions \underline{a} and \bar{a} are below.

Fisher's exact test:

Lower bound:
$$\sum_{i=0}^a \frac{e^{-\lambda} \lambda^i}{i!} = 1 - \alpha/2$$

Upper bound:
$$\sum_{i=0}^a \frac{e^{-\lambda} \lambda^i}{i!} = \alpha/2$$

Therefore, the exact lower and upper limits for SIR equal to "a/λ" would be

$$\frac{\underline{a}}{\lambda} \text{ and } \frac{\bar{a}}{\lambda}$$
, respectively.

The notation for the formulae is:

a = the observed number of infections

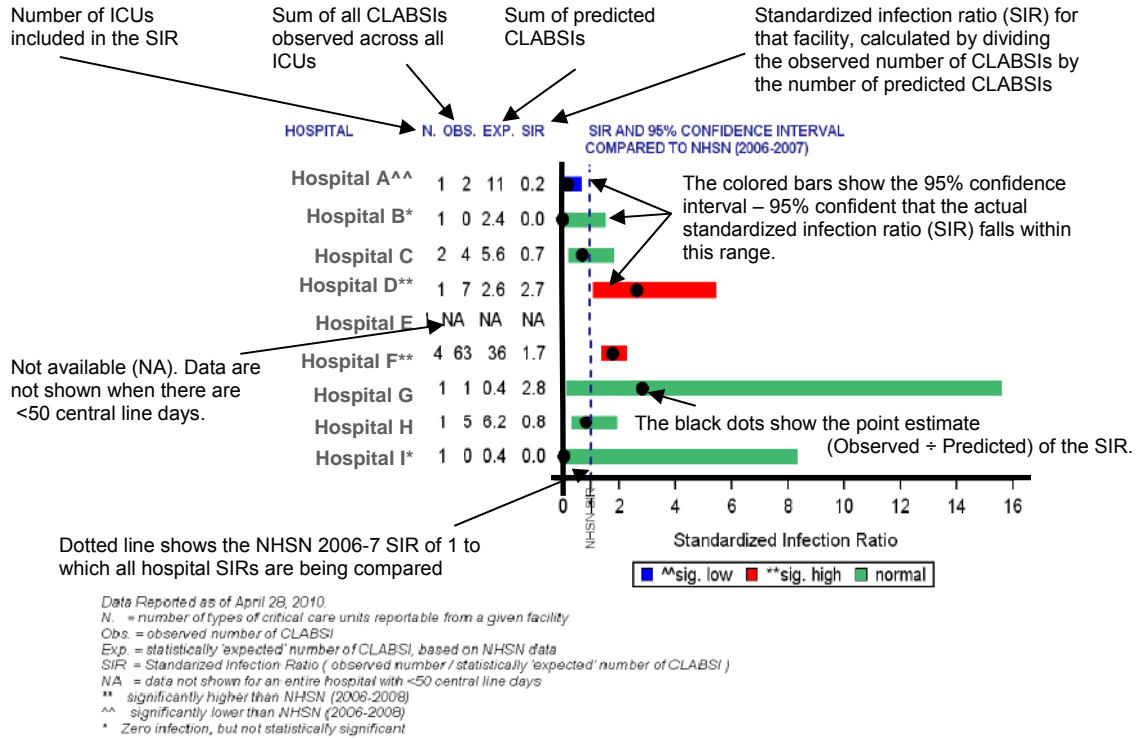
λ = the expected number of infections

In this report, statistical analyses were performed using SAS version 9.2. Tables and figures were created using SAS version 9.2 and/or Microsoft Excel.

² Rothman KJ, Boice JD Jr: Epidemiologic analysis with a programmable calculator. NIH Pub No. 79-1649. Bethesda, MD: National Institutes of Health, 1979;31-32.

Figures 1 and 2 demonstrate how the figures pertaining to facility-specific standardized infection ratios (SIRs) and infection rates should be interpreted in this report.

Figure 1. How to Read Hospital-Specific Standardized Infection Ratio Figures

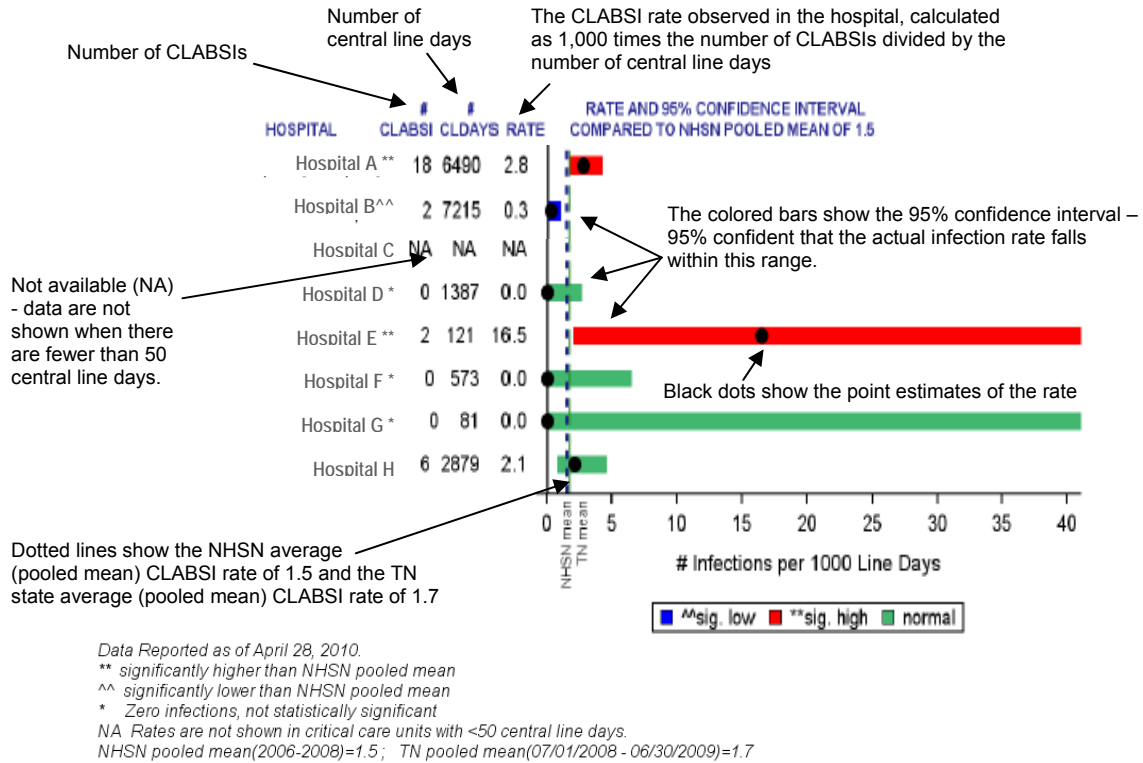


- Hospital A reported CLABSIs from one ICU (N=1). They had a total of two (2) CLABSIs in 2008. Statistically, 11 CLABSIs were predicted (EXP) during that time, based on the number of central line days in Hospital A’s ICU and the national NHSN rate for that type of ICU (e.g., med-surg, coronary). The standardized infection ratio (SIR) is 0.2. Thus, the number of infections observed was 1/5 of what was predicted or, alternatively, 80% lower than the national pooled mean (average). This result was statistically significant, as the blue bar did not cross the dotted line (or 1, the NHSN 2006-8 SIR). The 95% confidence interval is indicated by the width of the blue bar. The 95% confidence interval for hospital A is narrow, probably due to a large number of central line days.
- Hospital B reported CLABSIs from one ICU (N=1). They totaled zero (0) CLABSIs in 2008 (OBS). Statistically, two (2) CLABSIs were predicted (EXP) during that time, based on the number of central line days in that ICU and the national rate for that type of ICU. The standardized infection ratio (SIR) is zero (0), but the green bar indicates that the 95% confidence interval crosses the dotted line. Therefore, the observed number of CLABSIs is not statistically significantly lower than the predicted number based on national rates. All hospitals reporting zero observed infections (and consequently have an SIR of zero) are noted with a star (*) because they deserve acknowledgement for achieving zero infections.

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- Hospital C has two ICUs (N=2) and reported four (4) infections (5.6 were predicted). Their SIR point estimate was 0.7, meaning they were 30% below the national average. However, the green bar crosses the dotted line (national SIR of 1), which indicates that the point estimate was not statistically significantly lower than the national SIR.
- Hospital D has one ICU (N=1) and observed seven (7) CLABSIs (2.6 were predicted). The SIR was 2.7, and the red bar was above the dotted line. The CLABSI rates in Hospital D were 2.7 times (170%) higher than national rates. Although this hospital's SIR was significantly higher than the national SIR (the confidence interval does not cross the dotted line), the wide confidence interval indicates that this SIR is not very stable (it could be as low as 1.5 and as high as 5.5). Hospital D probably has a small number of central line days.
- Hospital E reported less than 50 central line days. Hospital E's data are not shown because, with such a small denominator, the SIR is not stable.
- Hospital F has four ICUs (N=4), and observed 63 CLABSIs across the ICUs during the reporting period. A total of 36 CLABSIs were predicted based on national data. The SIR was 1.7, meaning that Hospital F had 70% higher infection rate than the national average. The red bar does not cross the dotted line; thus, the SIR is significantly higher than the national SIR. Because the confidence interval is very narrow, the SIR is stable and we can be more confident in its measurement.
- Hospital G reported one (1) CLABSI from one ICU (N=1). There were 0.4 infections predicted, and the SIR was 2.8 (180% higher than the national average — the highest of any of the hospitals in this figure). However, the green bar crosses the dotted line and is very wide, so we cannot be very confident in the accuracy of this SIR. Therefore, Hospital G's SIR is not significantly higher than the national SIR.
- Hospital H reported five (5) CLABSIs from one ICU (N=1). There were 6.2 infections predicted, and the SIR was 0.8. Because the green bar crosses the dotted line, this hospital's SIR is not significantly lower than the national SIR.
- Hospital I reported zero (0) CLABSI infections from its one ICU (N=1). There were 0.4 infections predicted, and the SIR was zero. However, the green bar crosses the dotted line. This means that we cannot be certain this hospital would have continued to have zero infections if there were more central line days. All hospitals observing zero infections (and consequently have an SIR of zero) receive a star (*) because they deserve acknowledgement for achieving zero infections.

Figure 2. How to Read Hospital-Specific Infection Rate Figures



- Hospital A had a CLABSI rate of 2.8 per 1,000 central line days. This infection rate is significantly higher than the national pooled mean (average) rate, graphically represented by the red bar falling entirely above the dotted line representing the national NHSN pooled mean of 1.5 CLABSIs per 1,000 central line days. The 95% confidence interval is narrow because there were a large number of central line days (6,490). A narrow confidence interval implies that the rate is stable, and we can be more confident in the rate measurement.
- Hospital B had a rate of 0.3 CLABSIs per 1,000 central line days, which is significantly lower than the national pooled mean (i.e., the blue bar is entirely below the dotted line representing the national pooled mean of 1.5 CLABSIs per 1,000 central line days). The 95% confidence interval is very narrow because of a large number of central line days (7,215). A narrow confidence interval implies that the rate is stable, and we can be more confident in the rate measurement.
- Hospital C data are not shown because there were fewer than 50 central line days; therefore, the rate is not stable.
- Hospital D had zero CLABSIs, but the rate was not significantly lower than the national pooled mean because the green bar crosses the dotted line. The hospital had 1,387 central line days, but we cannot be certain that the hospital would have observed zero infections if they had more central line days. All hospitals observing

zero infections receive a star (*) because they deserve acknowledgement for achieving zero infections.

- Hospital E had the highest infection rate (16.5 CLABSIs per 1,000 central line days), which was significantly higher than the national pooled mean because the red bar falls entirely above the dotted line. The confidence interval is wide because there were few central line days (121).
- Hospital F had zero CLABSIs, but the rate was not statistically lower than the national pooled mean because the green bar crosses the dotted line. The hospital had 573 central line days, and we cannot be certain the hospital would have seen zero infections if they had more central line days. All hospitals observing zero infections receive a star (*) because they deserve acknowledgement for achieving zero infections.
- Hospital G had zero CLABSIs, but the rate was not significantly lower than the national pooled mean because the green bar crosses the dotted line. The hospital only had 81 central line days, and we cannot be certain the hospital would have seen zero infections if they had more central line days. The 95% confidence interval is extremely wide because there were very few central line days. All hospitals observing zero infections receive a star (*) because they deserve acknowledgement for achieving zero infections.
- Hospital H had the third highest infection rate (2.1 CLABSIs per 1,000 central line days), but the rate was not significantly higher than the national pooled mean because the green bar crosses the dotted line. The 95% confidence interval is narrow because there were a large number of central line days (2,879). A narrow confidence interval implies that the rate is stable, and we can be more confident in the rate measurement.

RESULTS:

CLABSI in Adult/Pediatric ICUs

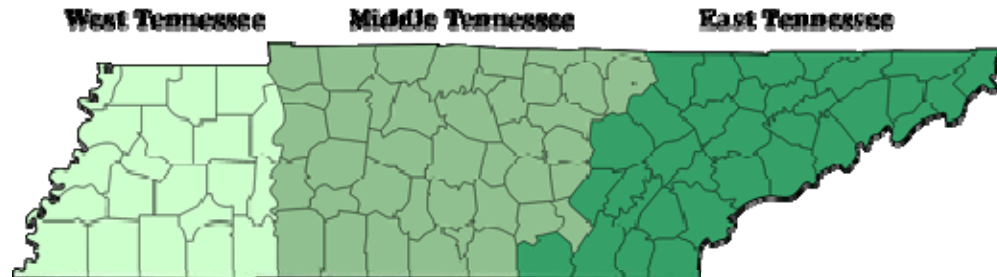
Total number of Adult/Pediatric ICUs participating in this reporting period=124

Tennessee and National Comparisons (Table 2, Figures 3 and 4)

- The following list summarizes the CLABSI rates per 1,000 central line days in Tennessee for 2008-9. CLABSI rates were highest in medical ICUs in major teaching hospitals and lowest among medical-surgical units with >15 beds in non-major teaching hospitals:
 - Major teaching medical (6.9),
 - pediatric (3.2),
 - major teaching medical-surgical (2.9),
 - coronary (2.6),
 - surgical (2.5),
 - neurosurgical (2.5),
 - non-major teaching medical (2.1),
 - cardiothoracic-surgical (1.7),
 - non-major teaching medical-surgical with ≤15 beds (1.6)
 - non-major teaching medical-surgical with >15 beds (1.5)
- Tennessee CLABSI rates were significantly higher than 2006-8 national rates in major teaching medical ICUs (6.9 vs. 2.6 infections per 1,000 central line days) and major teaching medical-surgical ICUs (2.9 vs. 2.1 infections per 1,000 central line days). The SIRs for medical ICUs and medical-surgical ICUs in major teaching hospitals in Tennessee were 2.70 (95% CI: 1.93–3.67) and 1.38 (95% CI: 1.06–1.77), respectively. This means, for example, CLABSI infection rates in medical-surgical ICUs in major teaching hospitals in Tennessee were 38% higher than published national rates. As of publication of this report, national rates are only available for 2006-8.
- The overall SIR across all 124 reporting adult and pediatric ICUs in Tennessee in 2008-9 was statistically significantly higher than 1, the national SIR (SIR=1.19; 95% CI: 1.09–1.30). This means that overall CLABSI rates in ICUs were 19% higher in Tennessee in 2008-9 compared to national rates. Again, national rates are only available for 2006-8.
- The median CLABSI rate across 124 reporting ICUs was 1.5 infections per 1,000 central line days.

CLABSI Rates in Adult/Pediatric ICUs – Across the Three Grand Divisions in Tennessee: (Table 3, Figure 5)

The following map depicts the three grand divisions in Tennessee:



- CLABSI rates varied across the three grand divisions of Tennessee within ICU settings.
- None of the ICU types in Tennessee had CLABSI rates significantly lower than national 2006-8 rates.
- CLABSI rates (infections per 1,000 central line days) were significantly higher in:
 - Middle Tennessee among major teaching medical ICUs [8.3 vs. 2.6; SIR=3.2 (2.2–4.6); i.e., 220% higher than national 2006-8 rates]
 - West Tennessee among major teaching medical-surgical ICUs [4.3 vs. 2.1; SIR=2.0 (1.4–3.0); i.e., 100% higher than national 2006-8 rates].
- The overall SIRs and 95% confidence intervals by Grand Division are as follows:
 - East Tennessee: 1.1 (0.9–1.2).
 - Middle Tennessee: 1.2 (1.0–1.4)
 - West Tennessee: 1.3 (1.1–1.5)
- Overall CLABSI rates among adult and pediatric ICUs in West Tennessee were significantly higher (30% higher) than national 2006-8 rates.

Central Line Utilization Ratio by ICU type (Figure 6)

- The central line utilization ratio, or device utilization (DU) ratio, for major teaching medical ICUs was substantially higher in Tennessee compared to the NHSN ratio. In general, DU ratios for the remaining ICU types in Tennessee were similar to national ratios.

Microorganisms Associated with CLABSIs in Adult and Pediatric ICUs (Table 4, Figure 7)

- The most common microorganisms identified in adult/pediatric ICU-related CLABSIs were coagulase-negative staphylococci (24%), *Candida* spp. and other yeasts (19%), enterococci (18%), and *Staphylococcus aureus* (11%). MRSA accounted for 8% of organisms identified from CLABSIs, while VRE accounted for 7% of total positive isolates.

Hospital-Specific CLABSI Rates in Adult and Pediatric ICUs (Figures 8–18, Tables 5–14)

- The hospital-specific CLABSI rates are displayed by type of ICU. The bar (representing the confidence interval) is blue if the CLABSI rate was significantly lower than the national pooled mean for 2006-8 and red if the CLABSI rate was significantly higher than the national pooled mean. Some hospitals have reported zero (0) CLABSIs in specific ICUs, although the rate may not be statistically significant due to small numbers of patient days and central line days. The following numbers and percentages of ICUs reported zero (0) infections:
 - 2 of 9 coronary ICUs – 22%
 - 3 of 14 cardiothoracic ICUs – 21%
 - 0 of 2 major teaching medical ICUs – 0%
 - 5 of 18 non-major teaching medical ICUs – 28%
 - 0 of 7 major teaching medical-surgical ICUs – 0%
 - 17 of 33 non-major teaching medical-surgical ICUs with ≤15 beds– 52%
 - 3 of 17 non-major teaching medical-surgical ICUs with >15 beds– 18%
 - 1 of 10 surgical ICUs – 10%
 - 0 of 7 neurosurgical ICUs – 0%
 - 0 of 7 pediatric medical-surgical ICUs – 0%

CLABSIs in Neonatal ICUs

Total number of Neonatal ICUs participating in this reporting period=26

Tennessee and National Comparisons (Table 15-22, Figures 19-26)

- **Tables 15-22** and **Figures 19-26** summarize CLABSI/UCABSI rates per 1,000 central line days by birth weight among neonatal ICU locations in Tennessee for 2008-9. Rates are reported separately for central lines (CLABSI) and umbilical lines (UCABSI).
- The overall SIR for **CLABSI** among all 7 reporting level III neonatal ICUs in Tennessee in 2008-9 was statistically significantly higher than national 2006-8 data (SIR= 1.4; 95% CI: 1.1–1.7; **Table 19**). This means that overall CLABSI rates in level III neonatal ICUs were 40% higher in Tennessee in 2008-9 compared to national CLABSI rates in level III neonatal ICUs. Again, national data are only available for 2006-8.
- Among infants with **birth weight ≤750 grams in level III neonatal ICUs**, CLABSI rates in Tennessee were significantly higher than corresponding 2006-8 national rates in level III neonatal ICUs (**Table 19**). The SIR for level III neonatal ICUs with birth weight ≤750 g in Tennessee was 1.7 (95% CI: 1.2–2.4). This means that CLABSI

- For **other birth weight categories in level III and II/III neonatal ICUs** in Tennessee, **CLABSI and UCABSI** rates were not significantly different from corresponding national 2006-8 rates (Tables 19-22).

CLABSI Rates in Neonatal ICUs – Across the Three Grand Divisions in Tennessee: (Table 23, Figure 27)

- Combined CLABSI/UCABSI rates varied across the three grand divisions of Tennessee within neonatal ICU settings.
- Neither level III nor II/III neonatal ICUs in all three grand regions of Tennessee had infection rates significantly different from national 2006-8 rates.
- The overall SIRs and 95% confidence intervals by Grand Division are as follows:
 - East Tennessee: 1.3 (1.0-1.7).
 - Middle Tennessee: 1.2 (0.9-1.6)
 - West Tennessee: 1.3 (1.0-1.7)

Central Line Utilization Ratio by ICU type (Figure 28-31)

- In level III neonatal ICUs, the device utilization (DU) ratios for central lines and umbilical lines in Tennessee were slightly higher than the national averages. In level II/III neonatal ICUs, the DU ratios for central lines and umbilical lines were lower than the national averages, except for umbilical line utilization in neonates/infants with birth weight ≤ 750 g and > 2500 g.

Microorganisms Associated with CLABSIs in Neonatal ICUs (Table 24, Figure 32)

- The most common microorganisms identified in neonatal ICU-related CLABSIs/UCABSIs were coagulase-negative staphylococci (39.1%), *Staphylococcus aureus* (14.9%), enterococci (10.9%), and *Candida* spp. and other yeasts (10.3%). MRSA accounted for 8.6% of organisms identified from CLABSIs and UCABSIs, while no VRE were found among the isolates.

Hospital-Specific CLABSI Rates in Neonatal ICUs (Figure 33, Tables 25-34)

- The hospital-specific combined CLABSI/UCABSI rates in neonatal ICUs are displayed in Figure 33 and Tables 25-34. In Figure 33, if CLABSI/UCABSI rates are significantly lower than the national NHSN pooled mean (for 2006-8), the bar (representing the confidence interval) is blue and, if significantly higher, the bar is red. Some hospitals have reported zero (0) CLABSIs/UCABSIs in specific ICUs,

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although the rate may not be statistically significant due to low numbers of patient days and central line days. The following numbers and percentages of ICUs reported zero (0) infections:

- 2 of 7 neonatal level-III ICUs – 29%
- 9 of 19 neonatal level-II/III ICUs – 47%

Definitions

Unless a reader works in the healthcare field or understands statistics, he/she may not be familiar with some of the words or labels mentioned in the Tennessee Healthcare-Associated Infections (HAI) Report. On this page, we attempt to explain what some of these terms mean. Do not worry if it seems like too much information to absorb at once. A reader does not need to know all the terms to understand the reports.

Definition of Terms - HAI Public Report

Central line: A flexible tube that is inserted near a patient's heart or into one of the large blood vessels near the heart. A central line (or, for newborns, an umbilical line) can be used to give fluids, antibiotics, medical treatments such as chemotherapy, and liquid food if a patient is unable to eat or digest food normally. If a central line is inserted incorrectly or not cared for properly, it can cause dangerous bloodstream infections. Central lines are also sometimes called central venous lines or central venous catheters.

Central line-associated bloodstream infection (CLABSI): When a patient develops a bloodstream infection while having a central line in place or within 48 hours of central line removal, the infection is considered a CLABSI. According to the Centers for Disease Control and Prevention (CDC), an estimated 200,000 CLABSIs occur in U.S. hospitals each year. These bloodstream infections often lead to longer hospital stays, higher costs, and an increased risk of dying. CLABSIs can be prevented through proper insertion and care of the central line ([see Patient guide to CLABSI](#)). Every time a patient gets an infection that meets the definition of a CLABSI, hospitals must report it to the National Healthcare Safety Network (NHSN), defined below.

Note: For the neonatal ICU data in this report, we use the term "umbilical catheter-associated bloodstream infection" (UCABSI) to distinguish BSIs associated with umbilical catheters from other CLABSIs.

Central line days: This is the total number of days a central line is in place for patients in surgical, intensive care, and certain other hospital units. The count is performed at the same time each day. Each patient with one or more central lines at the time the count is performed is counted as one central line day.

For example: Five patients on the first day of the month had one or more central lines in place. Similarly, five patients on day 2, two patients on day 3, five patients on day 4, three patients on day 5, four patients on day 6, and four patients on day 7 had central lines in place. Adding the number of patients with central lines on days 1 to 7 we would have $5 + 5 + 2 + 5 + 3 + 4 + 4 = 28$ central line days for the first week. The number of central line days for the month is simply the sum of the daily counts.

CLABSI infection rate: To calculate this rate, we divide the total number of central line-associated bloodstream infections by the number of central line days and then multiply the result by 1,000.

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

Confidence intervals: Confidence intervals tell us about the reliability of a point estimate. If TDH mentions a confidence interval of 95 percent, it means that the TDH is 95 percent confident that the hospital's precise infection rate (the point estimate in this case) falls within the range given.

For TDH reports, the confidence interval is based on the specific number of infections observed in a hospital during the time period in question and on the number of patient-days involving a central line.

If two hospitals have different infection rates, but the confidence intervals for the two rates overlap, then it is reasonably possible that the true rates are the same. ([Discussion of confidence intervals](#)) (pdf)

Healthcare-associated infection (HAI): For an infection to qualify as an HAI, there must be no evidence that the infection was present or incubating at the time of hospital admission. An HAI may be confined to one area of the body (localized) or be spread throughout (systemic). It is the body's adverse reaction to the presence of an infectious agent(s) or its toxin(s).

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

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

Infection preventionists (IPs): These health professionals have special training in infection prevention and monitoring.

Intensive care unit (ICU) (also known as a "critical care unit"): ICUs are hospital units that provide intensive observation and treatment for patients either dealing with, or at risk of developing, life threatening problems. Smaller hospitals typically care for both

medical and surgical patients in a combined medical-surgical ICU. Larger hospitals typically have separate ICUs for medical patients and surgical patients.

National Healthcare Safety Network (NHSN): This is the data reporting system that Tennessee hospitals must use to report HAIs to the Tennessee Department of Health. NHSN is a secure, internet-based surveillance (monitoring and reporting) system. Among other features, the network offers integrated patient and healthcare worker safety surveillance systems. NHSN is managed by CDC's Division of Healthcare Quality Promotion. Hospitals submit specific infection and other information (e.g, number of central line days, procedural information) to NHSN that is needed to calculate CLABSI infection rates for each critical care unit and surgical site infection rates for coronary artery bypass graft surgical procedures. Hospitals must confer rights to TDH to collect data from NHSN so that the information can be reported to the public.

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

Standardized infection ratio (SIR) methodology: The SIR is a summary measure used to compare CLABSI rates from a group of reporting locations (e.g., ICUs) to rates based on a "standard population." For HAI reports, the standard population comes from data reported from the hundreds of U.S. hospitals that use the NHSN system.

The SIR is the observed number of infections divided by the predicted (or statistically expected) number of infections. The predicted number is based on the national average and the number of central line days.

Standardized infection ratio (SIR) statistical method: The indirect standardization method accounts for differences in the risk of CLABSIs among different critical care units.

A SIR is the number of observed infections divided by the number of predicted infections. The predicted number is calculated by multiplying the number of central line days from each location by the NHSN pooled mean CLABSI rate (divided by 1000) for that location.

- A SIR of 1.0 means the observed number of infections is equal to the number of expected infections.
- A SIR above 1.0 means that the infection rate is higher than that found in the "standard population." For HAI reports, the standard population comes from data reported by the hundreds of U.S. hospitals that use the NHSN system. The difference above 1.0 is the percentage by which the infection rate exceeds that of the standard population.
- A SIR below 1.0 means that the infection rate is lower than that of the standard population. The difference below 1.0 is the percentage by which the infection rate is lower than that experienced by the standard population.

Surveillance: The process of finding and documenting infections.

- Active surveillance: This includes, but is not limited to, active, patient-based, prospective surveillance by a trained infection control professional (IP). The IP seeks out infections during a patient's stay by screening a variety of data sources. The sources may include laboratory, pharmacy, admission/discharge/transfer, radiology/imaging, and pathology databases; and patient charts, including history and physical exams notes, nurses/physician notes, and temperature charts. The complete definition for surveillance, including how to capture denominator data to calculate infection rates, is found in each module of the patient safety component of NHSN <http://www.cdc.gov/nhsn/psc.html>.
- Post-discharge surveillance: This is the process IPs use to seek out infections after patients have been discharged from the hospital. Post-discharge surveillance includes screening a variety of data sources, including re-admissions and emergency department visits.

Validation: In Tennessee, validation is the process of making sure the HAI data reported to NHSN are complete and accurate. HAIs, the total numbers of surgical procedures performed, central line days, and patient information to assign risk scores must all be validated. The purpose of the validation visits are to:

- Assess the accuracy and quality of the data submitted to NHSN
 - Provide hospitals with information to help them use the data system
 - Provide education to the IPs and other hospital staff (or anesthesia and IT) if necessary to improve data accuracy and quality
 - Teach the IPs how to validate the written or electronic data they receive from other departments such as the Operating Room
 - Look for unreported HAIs
 - Assess selected infection control processes
 - Make recommendations for improvements if data accuracy and/or quality issues are discovered
-

Key Abbreviations Found in the HAI Public Report

APIC – Association for Professionals in Infection Control and Epidemiology

CABG – coronary artery bypass graft surgery

CBGB – coronary artery bypass graft surgery: both chest and leg and/or arm

CBGC – coronary artery bypass graft surgery: chest only

CCU – critical care unit (used interchangeably with intensive care unit (ICU))

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CDC – Centers for Disease Control and Prevention

CI – confidence intervals

CL days- central line days

CLABSI – central line-associated bloodstream infection

CMS – Centers for Medicare and Medicaid Services

CNS – coagulase-negative *Staphylococcus*

DHHS – Department of Health and Human Services (U.S.)

DU – device utilization ratio

HAI – healthcare-associated infection

HICPAC – Healthcare Infection Control Practices Advisory Committee

IT – information technology

IP – infection preventionist (new term for ICP)

ICP – infection control professional (now called IP)

ICU – intensive care unit (use interchangeably with critical care unit (CCU))

MDRO – multidrug-resistant organism

MRSA – methicillin-resistant *Staphylococcus aureus*

NHSN – National Healthcare Safety Network

No. – number

NQF – National Quality Forum

POA – present on admission

QIO – quality improvement organization

SCIP – Surgical Care Improvement Project

SHEA – Society for Healthcare Epidemiologists of America

SIR – standardized infection ratio

SSI – surgical site infection

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TDH – Tennessee Department of Health

THA – Tennessee Hospital Association

TN – Tennessee

UCABSI – umbilical catheter-associated bloodstream infection

VAP – ventilator-associated pneumonia

VRE – vancomycin-resistant enterococcus

CLABSI Graphs and Tables
Adult and Pediatric Critical Care Units

Figure 3: Central Line-Associated Bloodstream Infection (CLABSI) Incidence Density Rate per 1,000 Central Line Days (Pooled Means): Tennessee 7/2008-6/2009 vs. National Healthcare Safety Network (NHSN) 2006-8

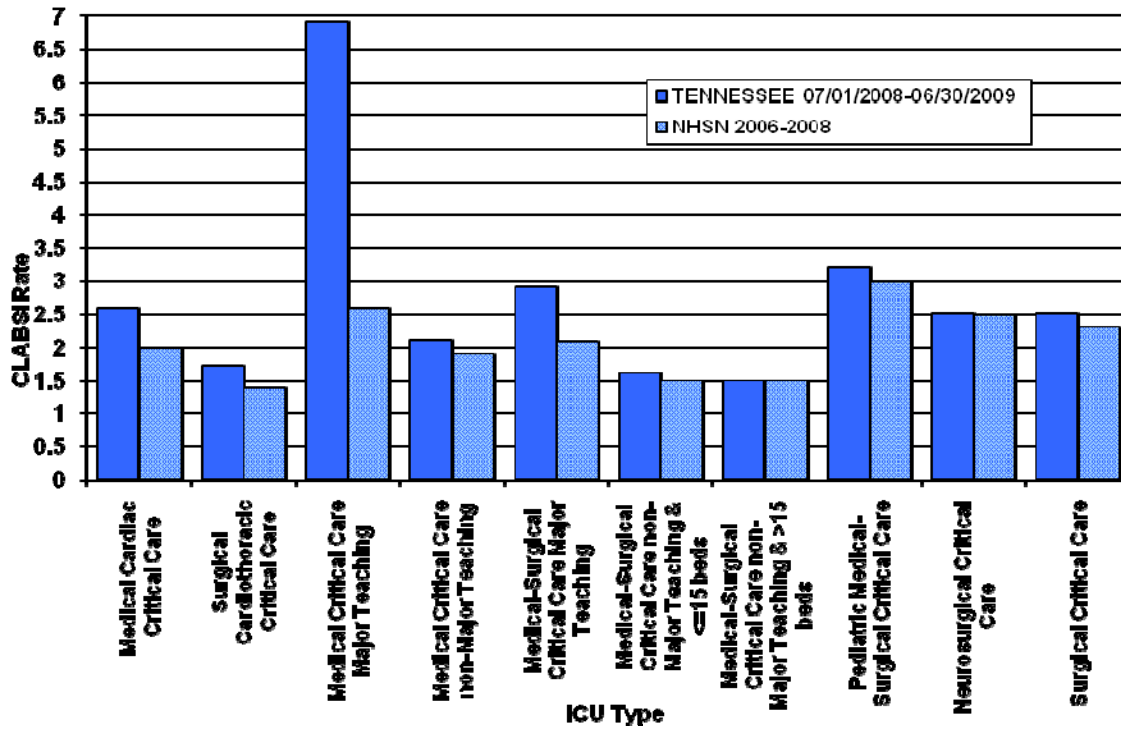


Figure 4: Standardized Infection Ratios (SIR) of Central Line-Associated Bloodstream Infections (CLABSI) by Intensive Care Unit (ICU) Type: Tennessee, 7/2008-6/2009. [Reference standard: National Healthcare Safety Network (NHSN) 2006-8]

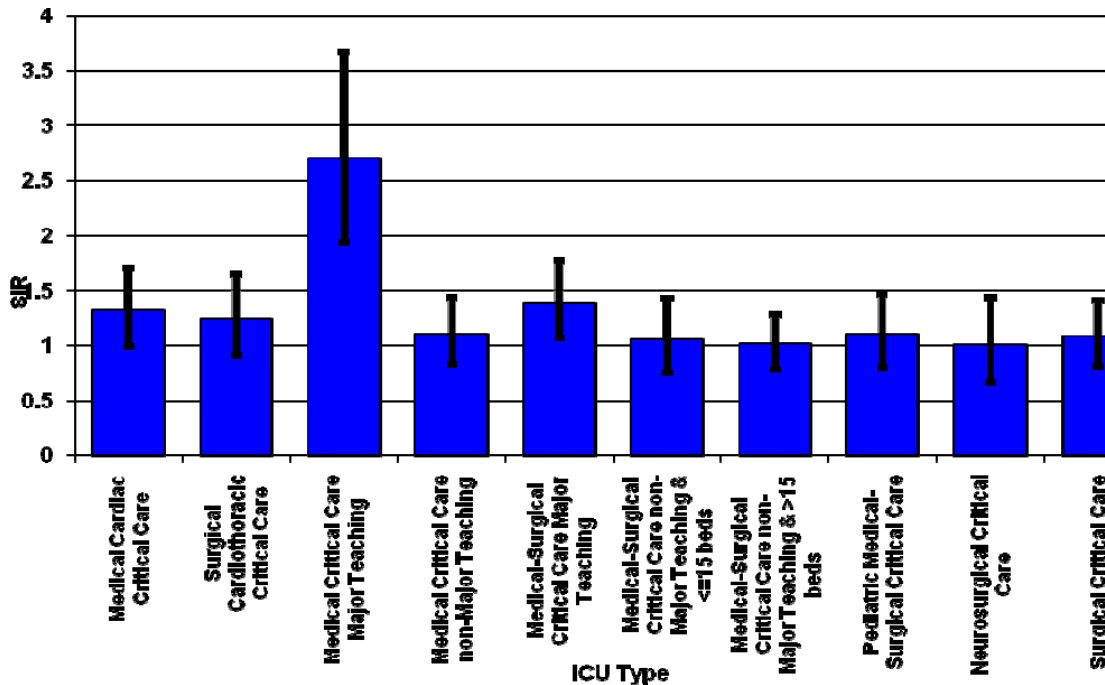


Figure 5: Standardized Infection Ratio (SIR) for Central Line-Associated Bloodstream Infections (CLABSI) by ICU Type and Grand Division, Tennessee, 7/2008-6/2009.
 [Reference standard: National Healthcare Safety Network (NHSN) 2006-8]

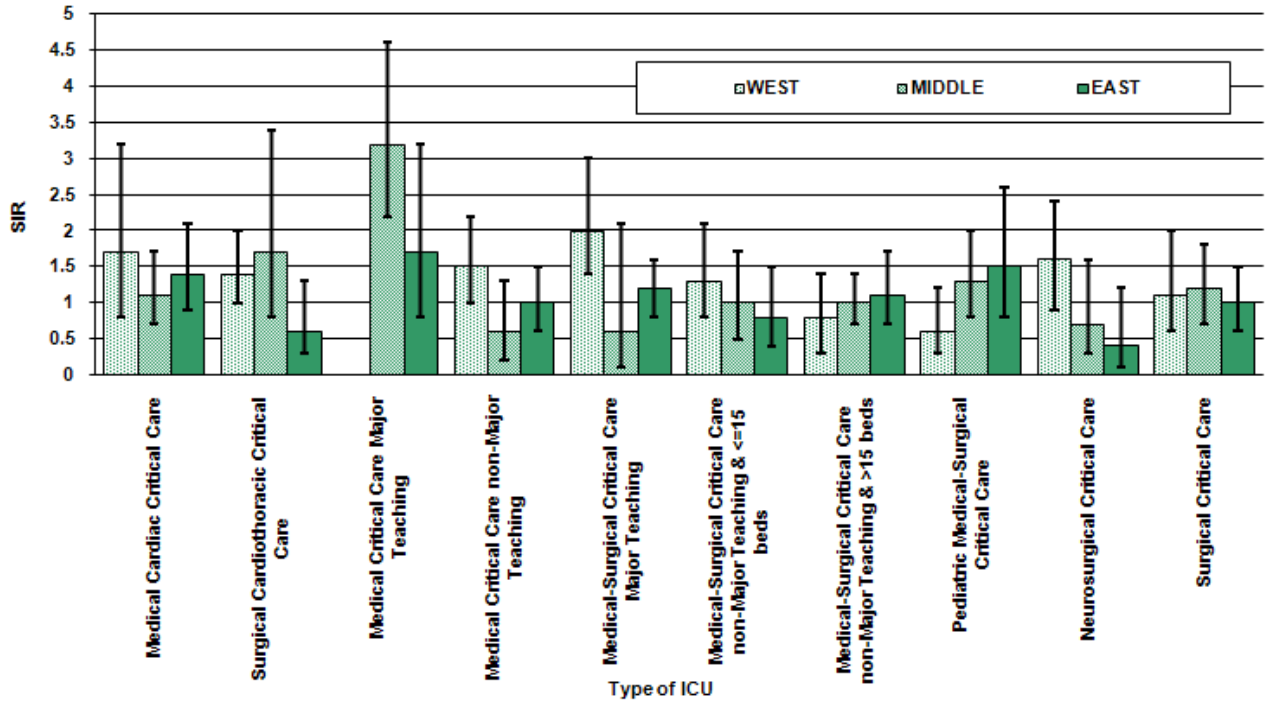
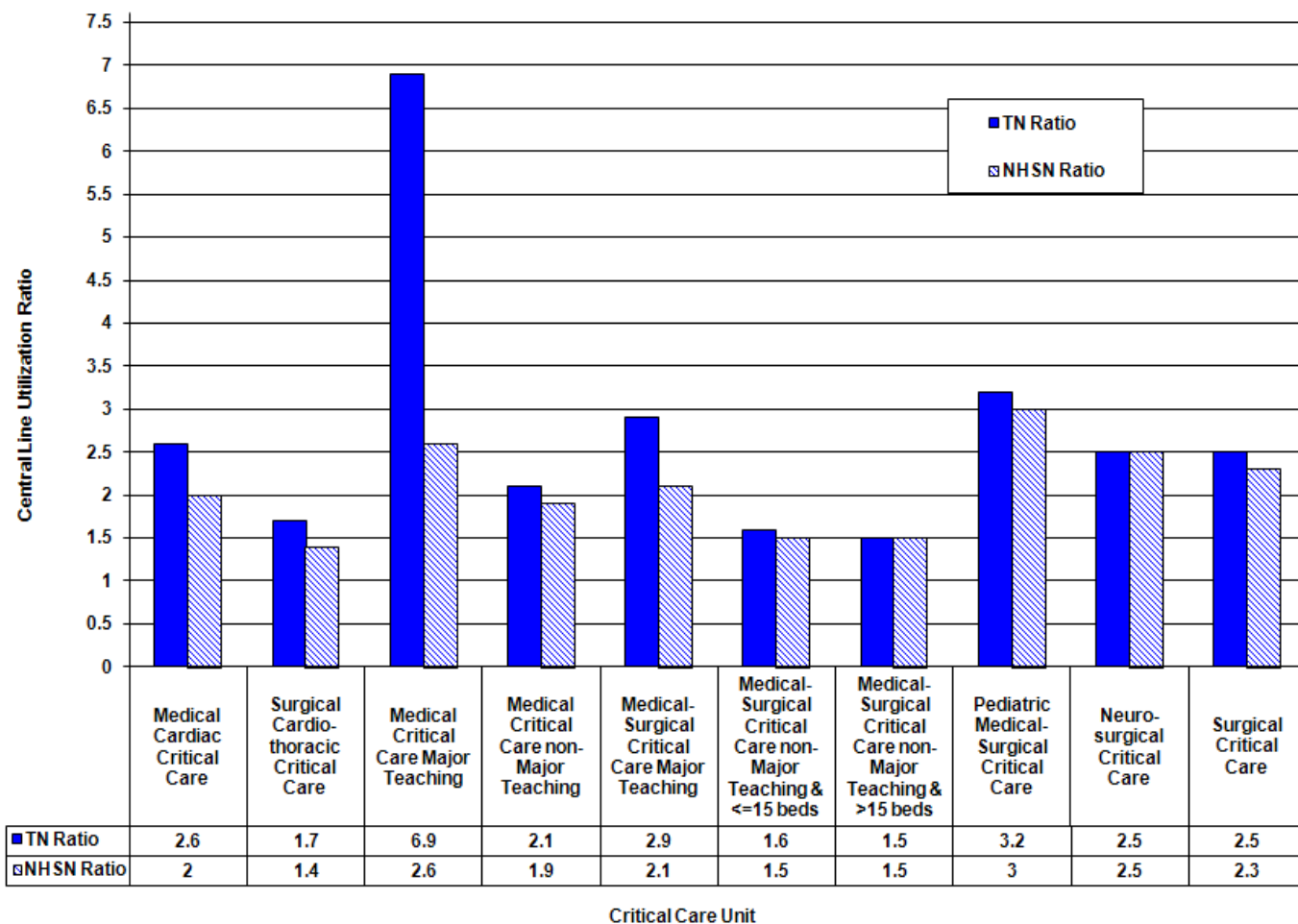
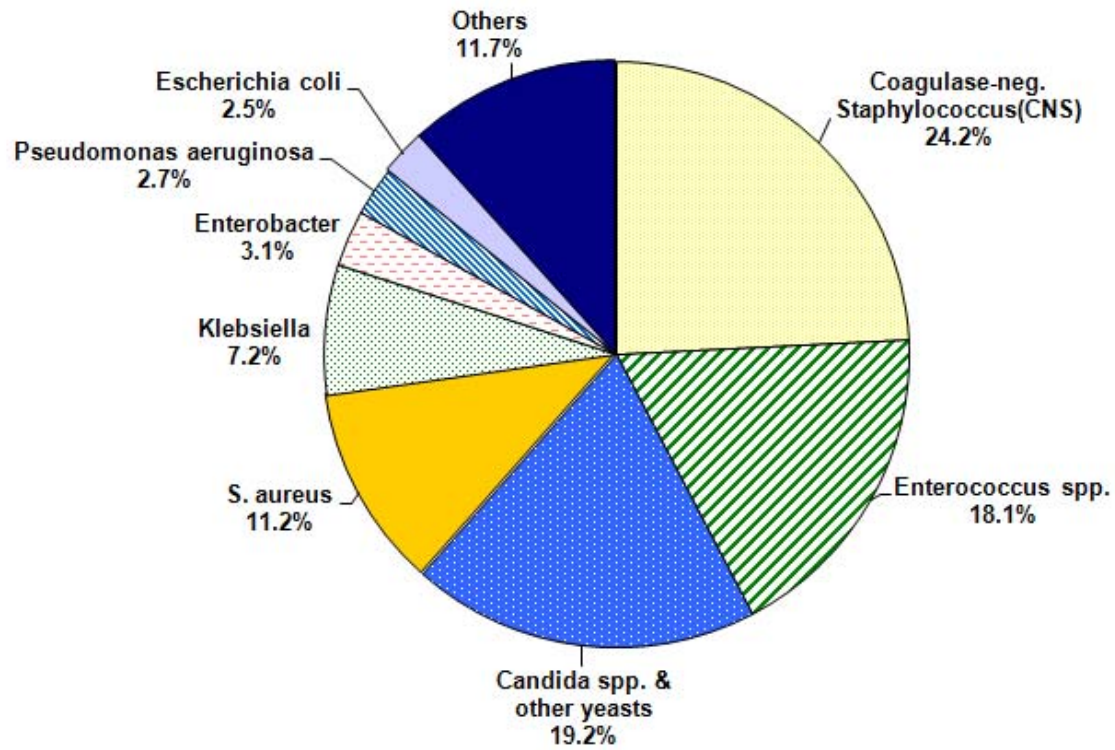


Figure 6: Central Line Utilization Ratio by ICU Type: Tennessee 7/2008-6/2009 vs. National Healthcare Safety Network (NHSN) 2006-8



Central line utilization ratio = number of central line-days/ number of patient days

Figure 7: Organisms Isolated from Central Line-Associated Bloodstream Infections (CLABSI) in Adult and Pediatric Intensive Care Units, Tennessee, 7/2008-6/2009
[Number of organisms = 552; number of events = 494]



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**Table 2: Comparison of Tennessee and National Healthcare Safety Network (NHSN)
Central Line-Associated Bloodstream Infection (CLABSI) Rates by Type of Critical Care Unit (CCU)
[Reportable period: 07/01/2008 - 06/30/2009]**

CCU TYPE	TENNESSEE 07/01/2008 - 06/30/2009					NHSN 2006-2008				SIR AND 95% CONFIDENCE INTERVAL		
	No.	CLABSI	CL DAYS	POOLED MEAN	MEDIAN RATE	CLABSI	CL DAYS	POOLED MEAN	MEDIAN RATE	SIR	LOWER LIMIT	UPPER LIMIT
Medical Cardiac Critical Care	9	56	21200	2.6	2.8	876	436409	2.0	1.3	1.32	0.99	1.71
Surgical Cardiothoracic Critical Care	14	47	27337	1.7	1.4	879	632769	1.4	0.8	1.24	0.91	1.65
Medical Critical Care Major Teaching	2	40	5775	6.9	6.4	1410	549088	2.6	2.3	2.70	1.93	3.67
Medical Critical Care non-Major Teaching	18	55	26297	2.1	1.4	687	362388	1.9	1.0	1.10	0.83	1.44
Medical-Surgical Critical Care Major Teaching	7	62	21255	2.9	3.0	1474	699300	2.1	1.7	1.38	1.06	1.77
Medical-Surgical Critical Care non-Major Teaching & <=15 beds	33	40	25514	1.6	0.0	1130	755437	1.5	0.0	1.05	0.75	1.43
Medical-Surgical Critical Care non-Major Teaching & >15 beds	17	69	46612	1.5	1.2	1449	986982	1.5	1.1	1.01	0.78	1.28
Pediatric Medical-Surgical Critical Care	7	45	13868	3.2	4.1	929	314306	3.0	2.5	1.10	0.80	1.47
Neurosurgical Critical Care	7	28	11419	2.5	1.9	396	160879	2.5	1.9	1.00	0.66	1.44
Surgical Critical Care	10	52	20911	2.5	2.1	1683	729989	2.3	1.7	1.08	0.81	1.41
TOTAL	.	.	.	.	1.5	.	.	.		1.19	1.09	1.30

Data reported as of June 28, 2010

No. number of facilities

CLDays Central Line Days

SIR Standardized Infection Ratio (observed number/ statistically 'expected' number of CLABSI)

*per 1000 central line days

Red highlighting indicates Tennessee rate for 2008-9 is significantly higher than National 2006-2008 rate

Blue highlighting indicates rate for 2008-9 is significantly lower than National 2006-2008 rates

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Table 3: Central Line-Associated Bloodstream Infection (CLABSI) Rates by Grand Division [Reportable period: 07/01/2008 - 06/30/2009]

CCU TYPE	EAST							MIDDLE							WEST						
	No.	CLABSI	CL DAYS	POOLED MEAN	SIR	Lower Limit	Upper Limit	No.	CLABSI	CL DAYS	POOLED MEAN	SIR	Lower Limit	Upper Limit	No.	CLABSI	CL DAYS	POOLED MEAN	SIR	Lower Limit	Upper Limit
Medical Cardiac Critical Care	5	25	8959	2.8	1.4	0.9	2.1	3	22	9558	2.3	1.1	0.7	1.7	1	9	2683	3.4	1.7	0.8	3.2
Surgical Cardiothoracic Critical Care	6	7	7907	0.9	0.6	0.3	1.3	3	8	3294	2.4	1.7	0.8	3.4	5	32	16136	2.0	1.4	1.0	2.0
Medical Critical Care Major Teaching	1	9	2060	4.4	1.7	0.8	3.2	1	31	3715	8.3	3.2	2.2	4.6	.	.	.	.	.	.	.
Medical Critical Care non-Major Teaching	10	23	12089	1.9	1.0	0.6	1.5	4	6	5116	1.2	0.6	0.2	1.3	4	26	9092	2.9	1.5	1.0	2.2
Medical-Surgical Critical Care Major Teaching	4	32	13168	2.4	1.2	0.8	1.6	1	2	1596	1.3	0.6	0.1	2.1	2	28	6491	4.3	2.0	1.4	3.0
Medical-Surgical Critical Care non-Major Teaching & <=15 beds	14	9	7756	1.2	0.8	0.4	1.5	11	12	8195	1.5	1.0	0.5	1.7	8	19	9563	2.0	1.3	0.8	2.1
Medical-Surgical Critical Care non-Major Teaching & >15 beds	5	25	14969	1.7	1.1	0.7	1.7	8	35	23509	1.5	1.0	0.7	1.4	4	9	8134	1.1	0.8	0.3	1.4
Pediatric Medical-Surgical Critical Care	4	14	3114	4.5	1.5	0.8	2.6	1	21	5457	3.8	1.3	0.8	2.0	2	10	5297	1.9	0.6	0.3	1.2
Neurosurgical Critical Care	2	3	3077	1.0	0.4	0.1	1.2	2	6	3367	1.8	0.7	0.3	1.6	3	19	4975	3.8	1.6	0.9	2.4
Surgical Critical Care	5	21	9198	2.3	1.0	0.6	1.5	3	19	7108	2.7	1.2	0.7	1.8	2	12	4605	2.6	1.1	0.6	2.0
TOTAL	.	.	.	.	1.1	0.9	1.2	.	.	.	.	1.2	1.0	1.4	.	.	.	.	1.3	1.1	1.5

Data reported as of June 28, 2010

No. number of facilities; CL Days Central Line Days; SIR Standardized Infection Ratio (observed number/ statistically 'expected' number of CLABSI)

*per 1000 central line days

Red highlighting indicates rate for 2008-9 is significantly higher than National 2006-2008 rate; Blue highlighting indicates rate for 2008-9 is significantly lower than National 2006-2008 rate

Table 4: Microorganisms Identified in Central Line-Associated Bloodstream Infections (CLABSIs) in Adult and Pediatric Critical Care Units, Tennessee
[Reportable period: 07/01/2008 - 06/30/2009]
[Number of organisms = 553; number of events: 495]

Microorganism	Number Isolates	Percent
Coagulase-negative <i>Staphylococcus</i> species	134	24.2
<i>Candida</i> species and other yeasts	106	19.2
<i>Candida albicans</i> only (% of total positive isolates)	48	(8.7)
<i>Enterococcus</i> species (includes VRE)	100	18.1
Vancomycin-resistant <i>enterococcus</i> (VRE) only (% of total positive isolates)	40	(7.2)
<i>Staphylococcus aureus</i>	62	11.2
Methicillin-resistant <i>S. aureus</i> (MRSA) only (% of total positive isolates)	45	(8.1)
<i>Klebsiella</i> species	40	7.2
<i>Enterobacter</i> species	17	3.1
<i>Pseudomonas aeruginosa</i>	15	2.7
<i>Escherichia coli</i>	14	2.5
<i>Acinetobacter baumannii</i>	12	2.2
<i>Serratia</i> species	10	1.8
<i>Streptococcus</i> species	10	1.8
<i>Proteus</i> species	8	1.4
<i>Bacteroides</i> species	2	0.4
<i>Cryptococcus neoformans</i>	2	0.4
<i>Propionibacterium</i> species	2	0.4
<i>Acinetobacter</i> species	1	0.2
<i>Chromobacterium</i> species	1	0.2
<i>Clostridium</i> species	1	0.2
<i>Lactobacillus</i> species	1	0.2
<i>Morganella</i> species	1	0.2
<i>Peptostreptococcus</i> species	1	0.2
<i>Bacillus cereus</i>	1	0.2
Other pathogens	12	2.2

Data reported as of June 28, 2010

Total number of isolates= 553; Total number of CLABSI events= 495;

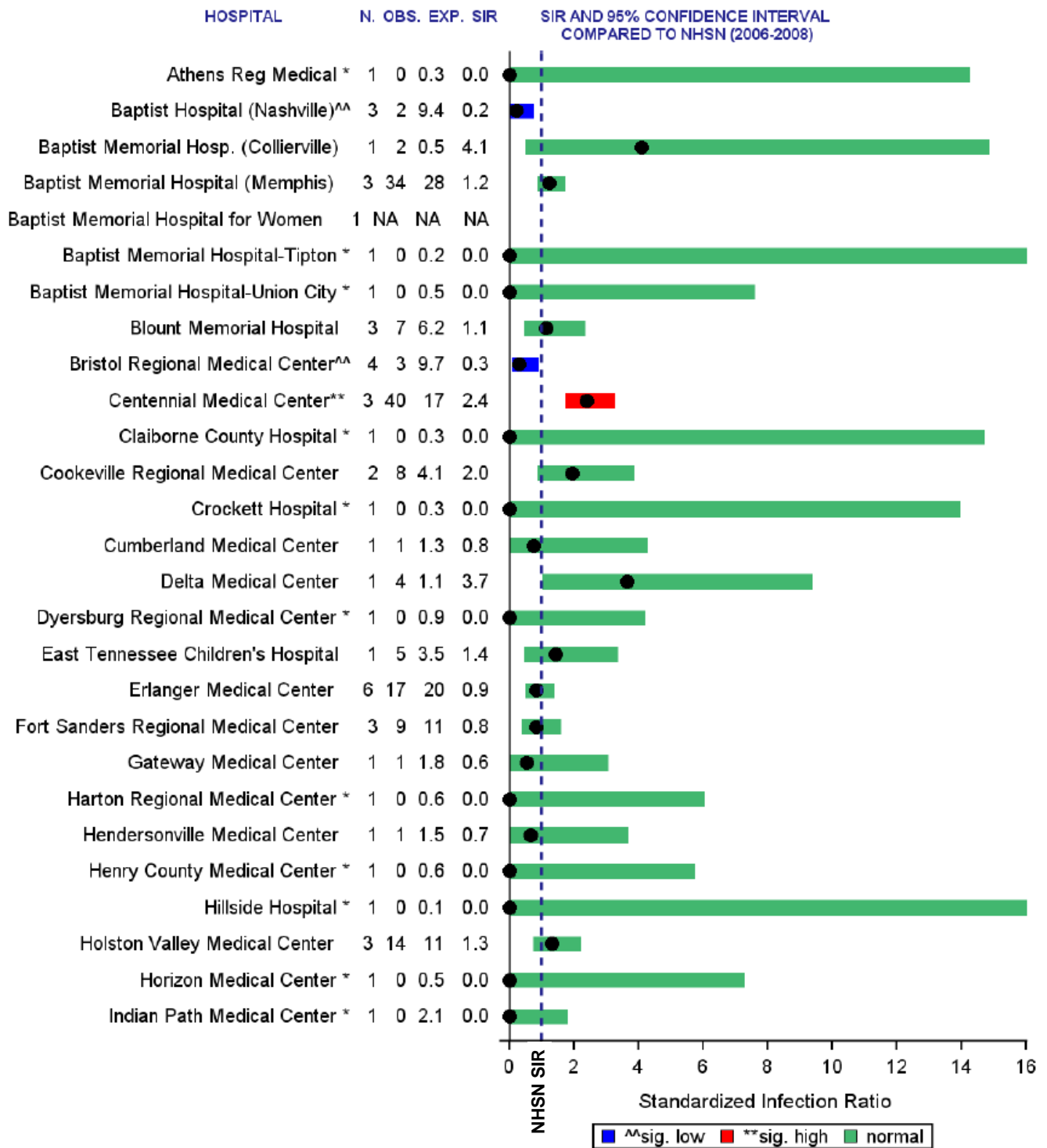
Other pathogens = *Gemella morbillorum* (anaerobic), *Pantoea agglomerans*, *Prevotella melaninogenica*, *Providencia stuartii*, *Pseudomonas* species unspecified, *Rhodotorula*, *Staphylococcus coagulase-positive*, *Stenotrophomonas maltophilia*

VRE = vancomycin-resistant enterococci

MRSA = methicillin-resistant *Staphylococcus aureus*

Figure 8. Summary Measure for CLABSIs in Adult and Pediatric Critical Care Units, One Standardized Infection Ratio (SIR) per Facility. Tennessee, 7/2008-6/2009

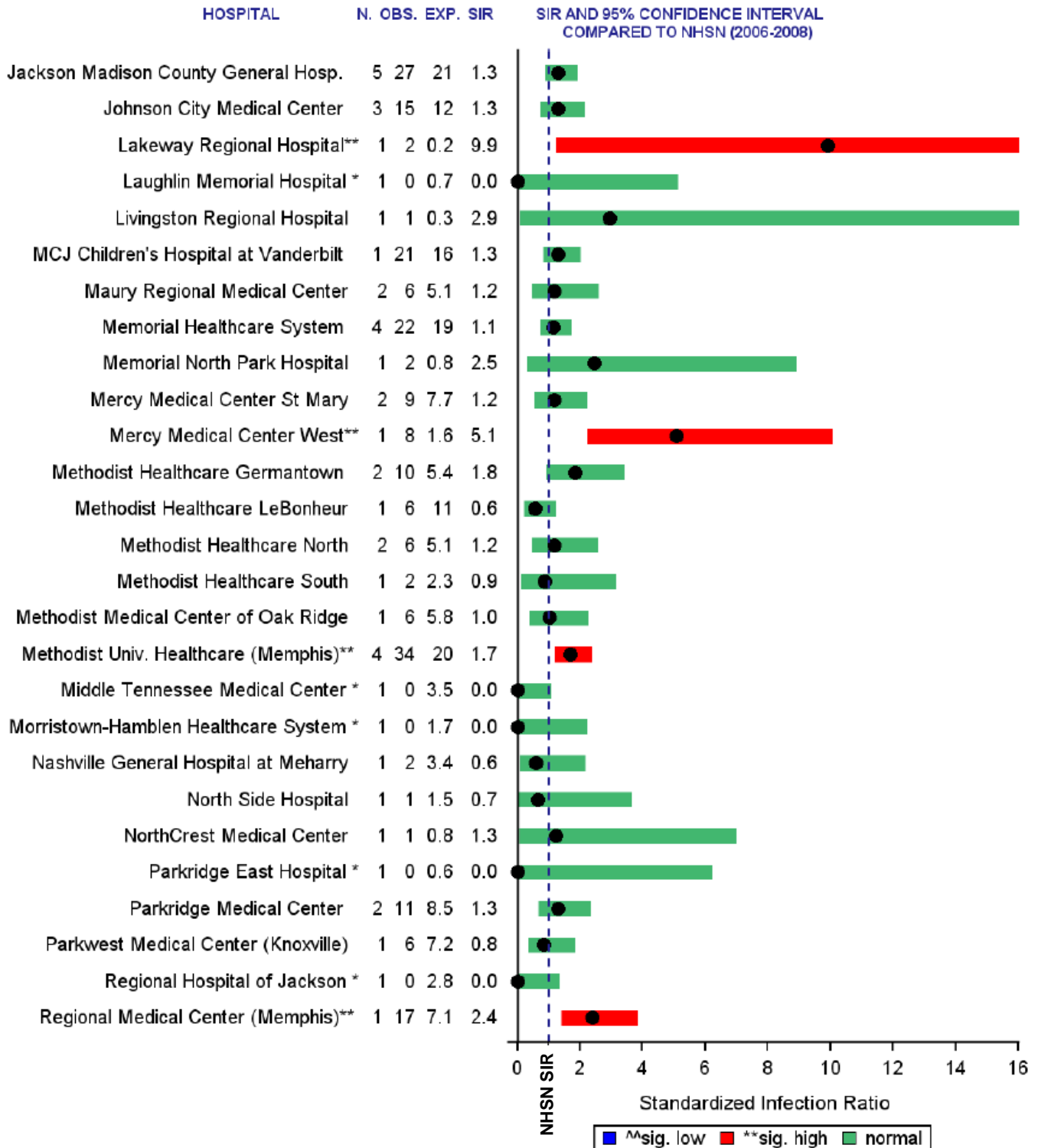
**Central Line-Associated Blood Stream Infection [CLABSI] Standardized Infection Ratio [SIR]
Tennessee (Reportable period: 07/01/2008 - 06/30/2009)**



Data Reported from adult/pediatric ICUs as of June 28, 2010.
 N. = number of types of critical care units reportable from a given facility
 Obs. = observed number of CLABSI
 Exp. = statistically 'expected' number of CLABSI, based on NHSN data
 SIR = Standardized Infection Ratio (observed number / statistically 'expected' number of CLABSI)
 NA = data not shown for an entire hospital with <50 central line days
 ** significantly higher than NHSN (2006-2008)
 ^^ significantly lower than NHSN (2006-2008)
 * Zero infection, but not statistically significant

Figure 8 (cont'd)

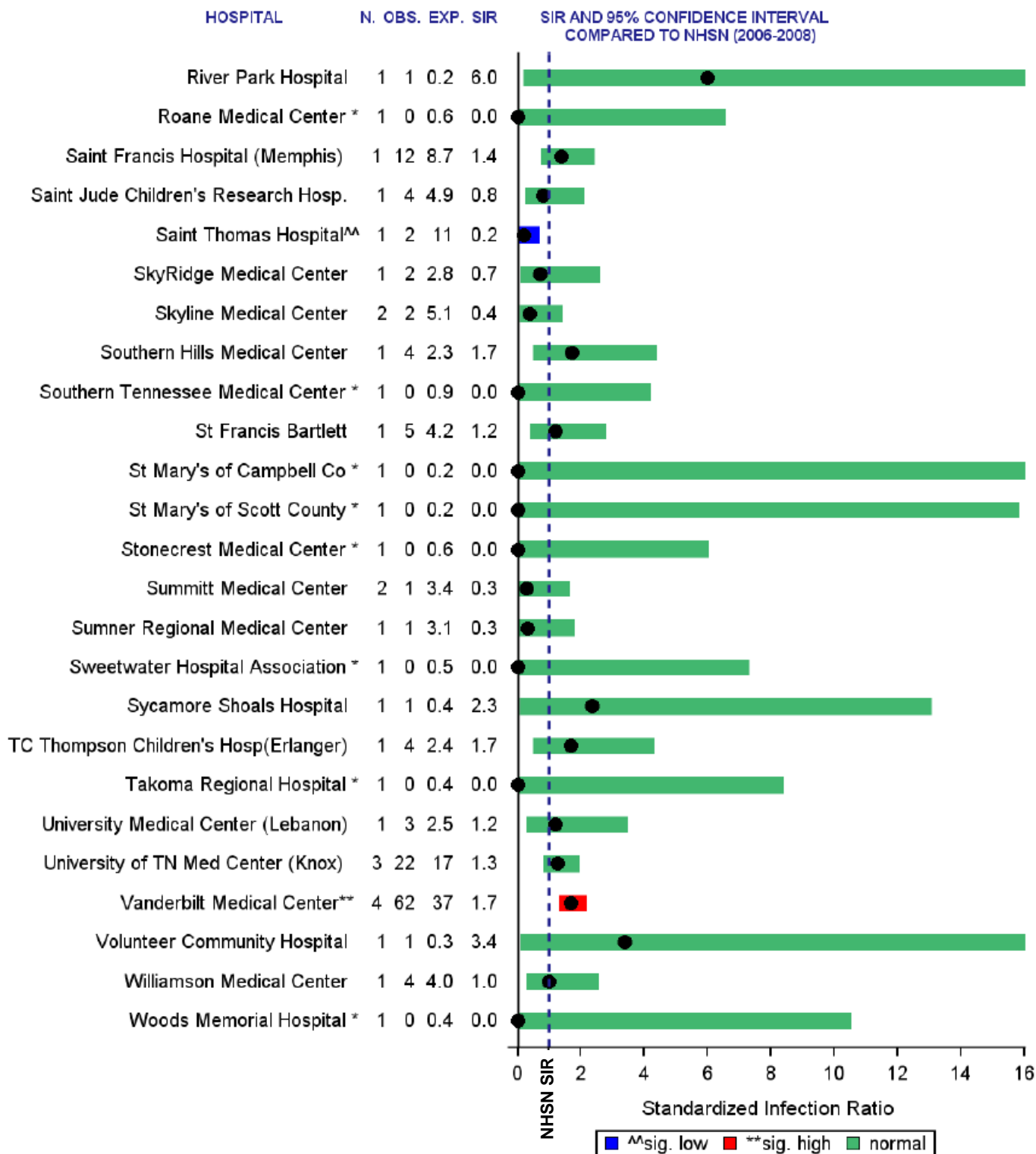
Central Line-Associated Blood Stream Infection [CLABSI] Standardized Infection Ratio [SIR]
Tennessee (Reportable period: 07/01/2008 - 06/30/2009)



Data Reported from adult/pediatric ICUs as of June 28, 2010.
 N. = number of types of critical care units reportable from a given facility
 Obs. = observed number of CLABSI
 Exp. = statistically 'expected' number of CLABSI, based on NHSN data
 SIR = Standardized Infection Ratio (observed number / statistically 'expected' number of CLABSI)
 NA = data not shown for an entire hospital with <50 central line days
 ** significantly higher than NHSN (2006-2008)
 ^^ significantly lower than NHSN (2006-2008)
 * Zero infection, but not statistically significant

Figure 8 (cont'd)

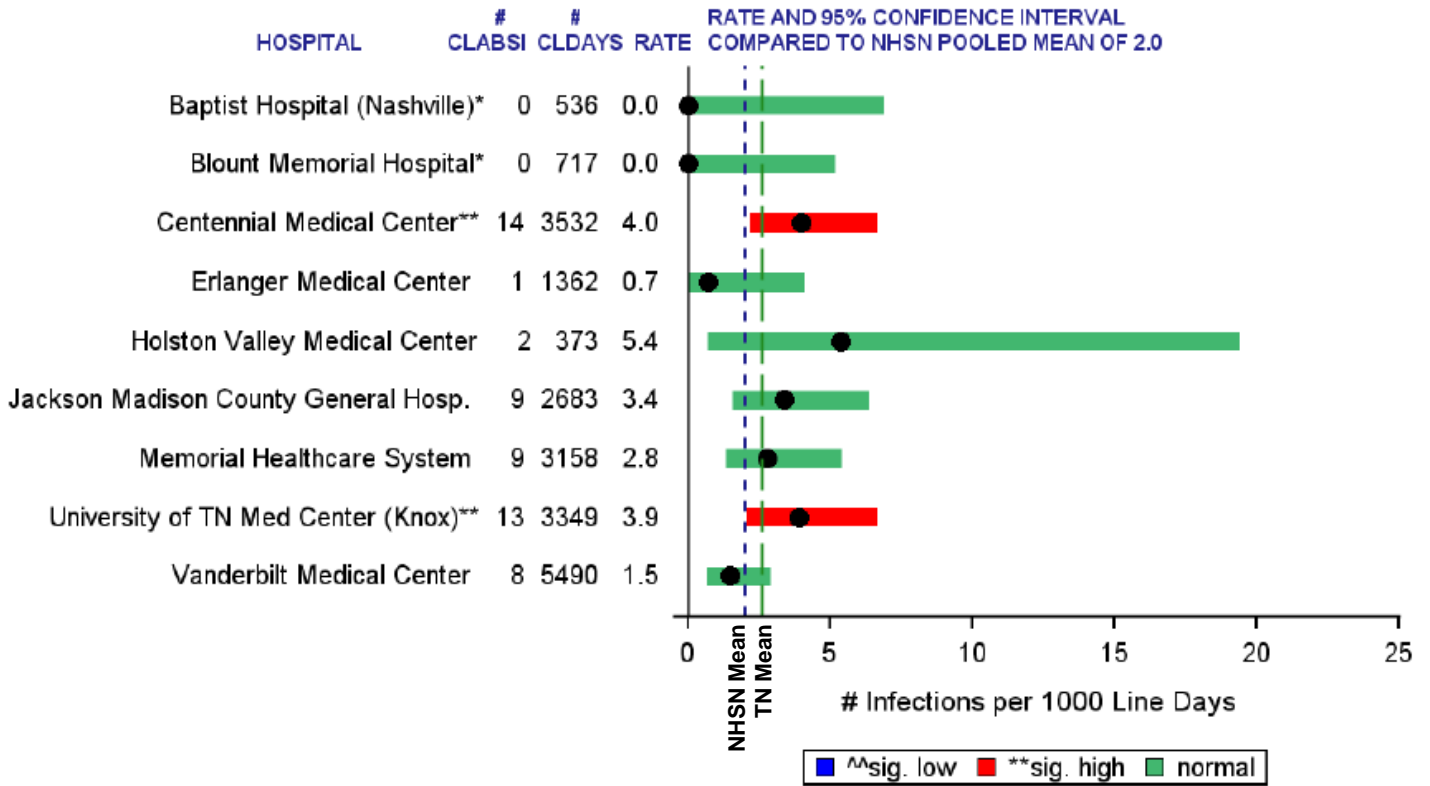
Central Line-Associated Blood Stream Infection [CLABSI] Standardized Infection Ratio [SIR]
 Tennessee (Reportable period: 07/01/2008 - 06/30/2009)



Data Reported from adult/pediatric ICUs as of June 28, 2010.
 N. = number of types of critical care units reportable from a given facility
 Obs. = observed number of CLABSI
 Exp. = statistically 'expected' number of CLABSI, based on NHSN data
 SIR = Standardized Infection Ratio (observed number / statistically 'expected' number of CLABSI)
 NA = data not shown for an entire hospital with <50 central line days
^{**} significantly higher than NHSN (2006-2008)
^{^^} significantly lower than NHSN (2006-2008)
 * Zero infection, but not statistically significant

Figure 9: Central Line-Associated Bloodstream Infection Rates per 1,000 Central Line Days in Tennessee, 7/2008-6/2009, Medical Cardiac Critical Care Units

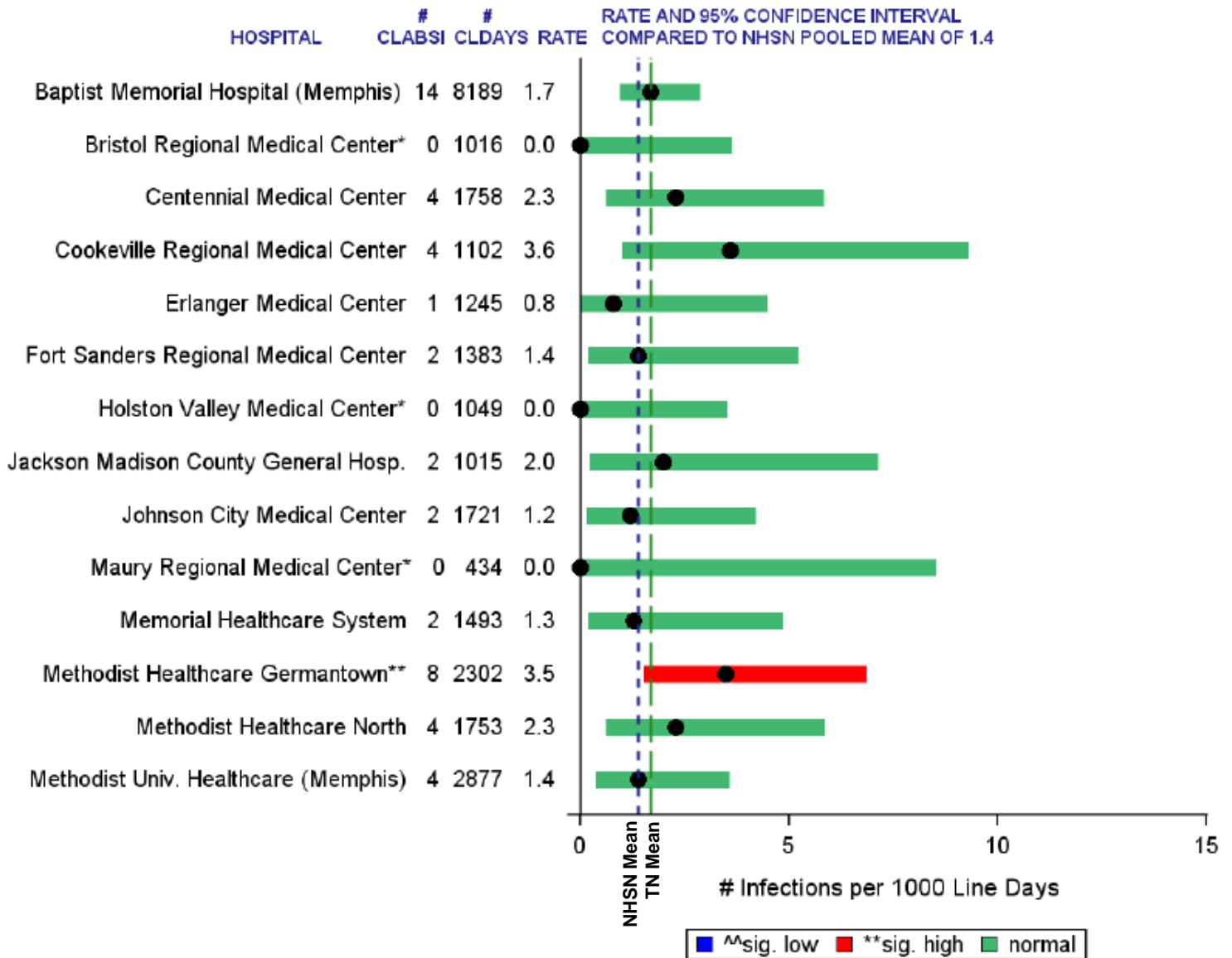
**Central Line-Associated Blood Stream Infection [CLABSI] Rates (per 1000 central line days)
Tennessee (Reportable period: 07/01/2008 - 06/30/2009)
Medical Cardiac Critical Care**



Data Reported as of June 28, 2010.
 ** significantly higher than NHSN pooled mean
 ^^ significantly lower than NHSN pooled mean
 * Zero infections, not statistically significant
 NA Rates are not shown in critical care units with <50 central line days.
 NHSN pooled mean (2006-2008)=2.0; TN pooled mean (2008)=2.6

Figure 10: Central Line-Associated Bloodstream Infection Rates per 1,000 Central Line Days in Tennessee, 7/2008-6/2009, Surgical Cardiothoracic Critical Care Units

Central Line-Associated Blood Stream Infection [CLABSI] Rates (per 1000 central line days)
 Tennessee (Reportable period: 07/01/2008 - 06/30/2009)
 Surgical Cardiothoracic Critical Care



Data Reported as of June 28, 2010.

** significantly higher than NHSN pooled mean

^^ significantly lower than NHSN pooled mean

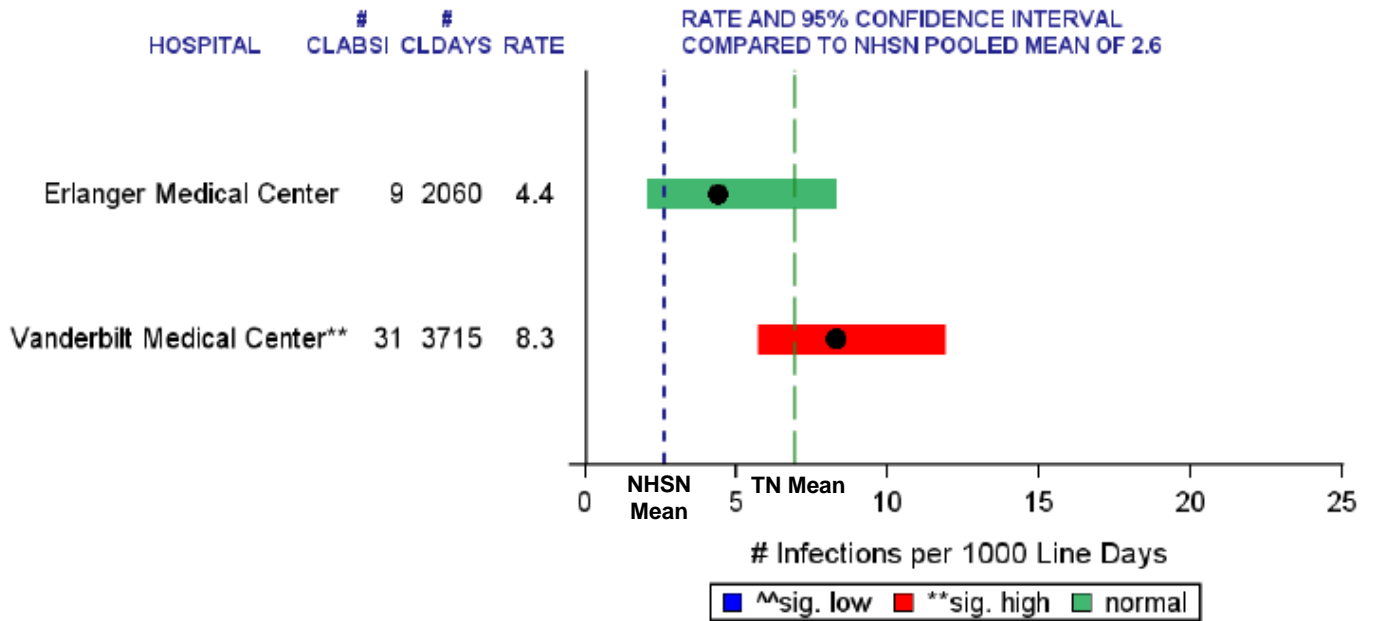
* Zero infections, not statistically significant

NA Rates are not shown in critical care units with <50 central line days.

NHSN pooled mean(2006-2008)=1.4 ; TN pooled mean(07/01/2008 - 06/30/2009)=1.7

Figure 11: Central Line-Associated Bloodstream Infection Rates per 1,000 Central Line Days in Tennessee, 7/2008-6/2009, Medical Critical Care Units in Major Teaching Hospitals

**Central Line-Associated Blood Stream Infection [CLABSI] Rates (per 1000 central line days)
Tennessee (Reportable period: 07/01/2008 - 06/30/2009)
Medical Critical Care Major Teaching Hospitals**



Data Reported as of June 28, 2010.

** significantly higher than NHSN pooled mean

^^ significantly lower than NHSN pooled mean

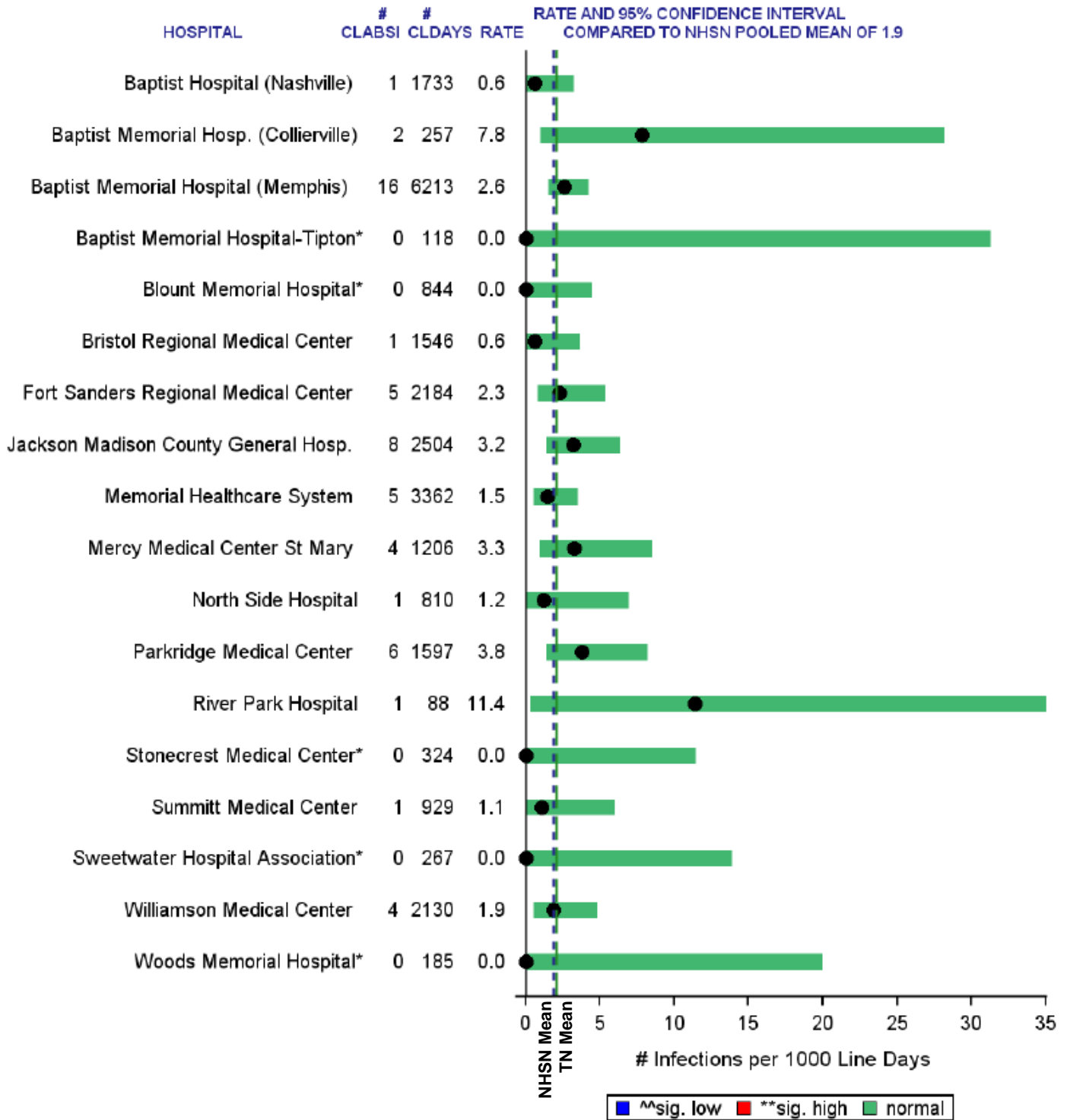
* Zero infections, not statistically significant

NA Rates are not shown in critical care units with <50 central line days.

NHSN pooled mean(2006-2008)=2.6 ; TN pooled mean(07/01/2008 - 06/30/2009)=6.9

Figure 12: Central Line-Associated Bloodstream Infection Rates per 1,000 Central Line Days in Tennessee, 7/2008-6/2009, Medical Critical Care Units in Non-Major Teaching Hospitals

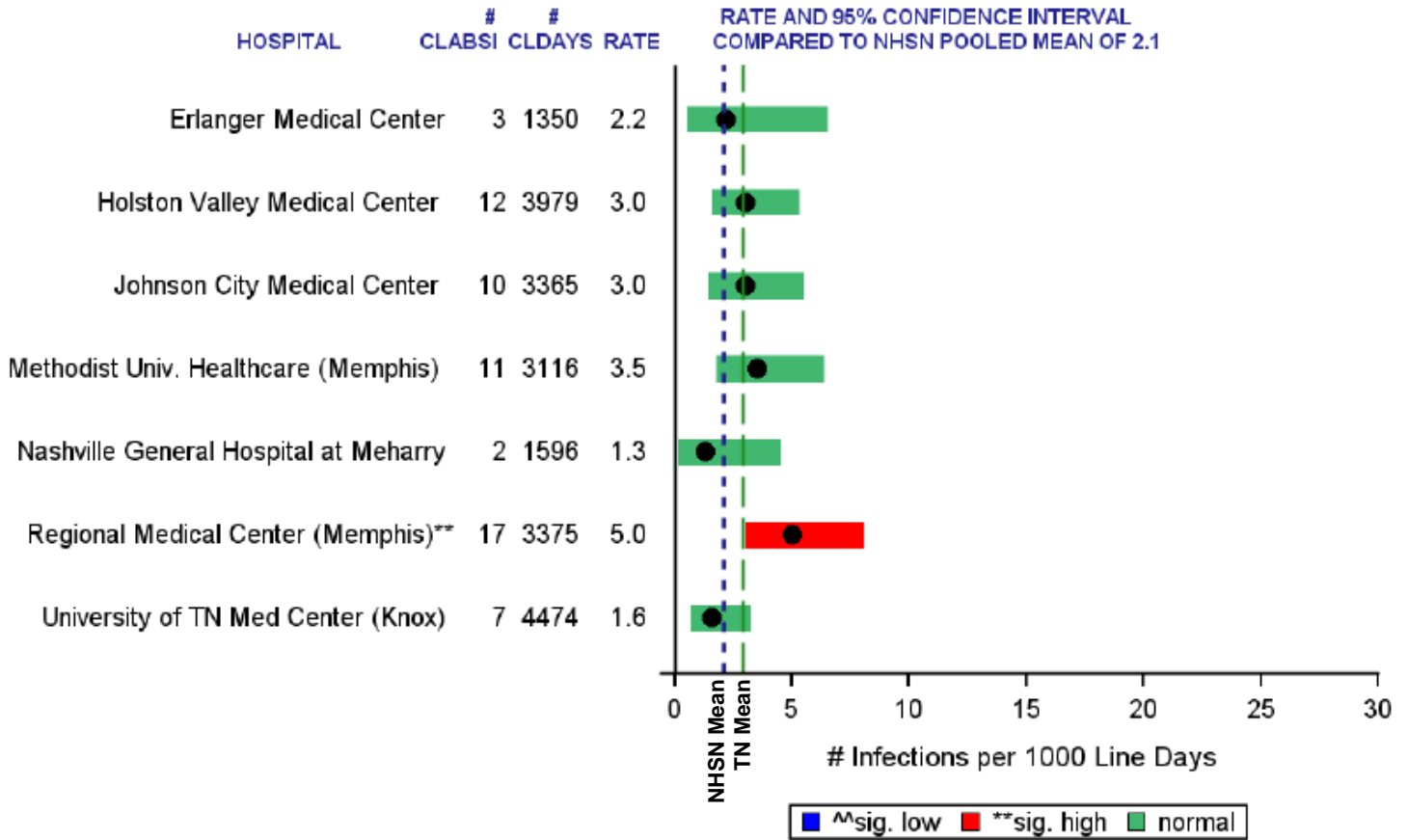
Central Line-Associated Blood Stream Infection [CLABSI] Rates (per 1000 central line days)
 Tennessee (Reportable period: 07/01/2008 - 06/30/2009)
 Medical Critical Care non-Major Teaching Hospitals



Data Reported as of June 28, 2010.
 ** significantly higher than NHSN pooled mean
 ^^ significantly lower than NHSN pooled mean
 * Zero infections, not statistically significant
 NA Rates are not shown in critical care units with <50 central line days.
 NHSN pooled mean(2006-2008)=1.9; TN pooled mean(07/01/2008 - 06/30/2009)=2.1

Figure 13: Central Line-Associated Bloodstream Infection Rates per 1,000 Central Line Days in Tennessee, 7/2008-6/2009, Medical-Surgical Critical Care Units in Major Teaching Hospitals

Central Line-Associated Blood Stream Infection [CLABSI] Rates (per 1000 central line days)
 Tennessee (Reportable period: 07/01/2008 - 06/30/2009)
 Medical-Surgical Critical Care Major Teaching Hospitals



Data Reported as of June 28, 2010.

** significantly higher than NHSN pooled mean

^^ significantly lower than NHSN pooled mean

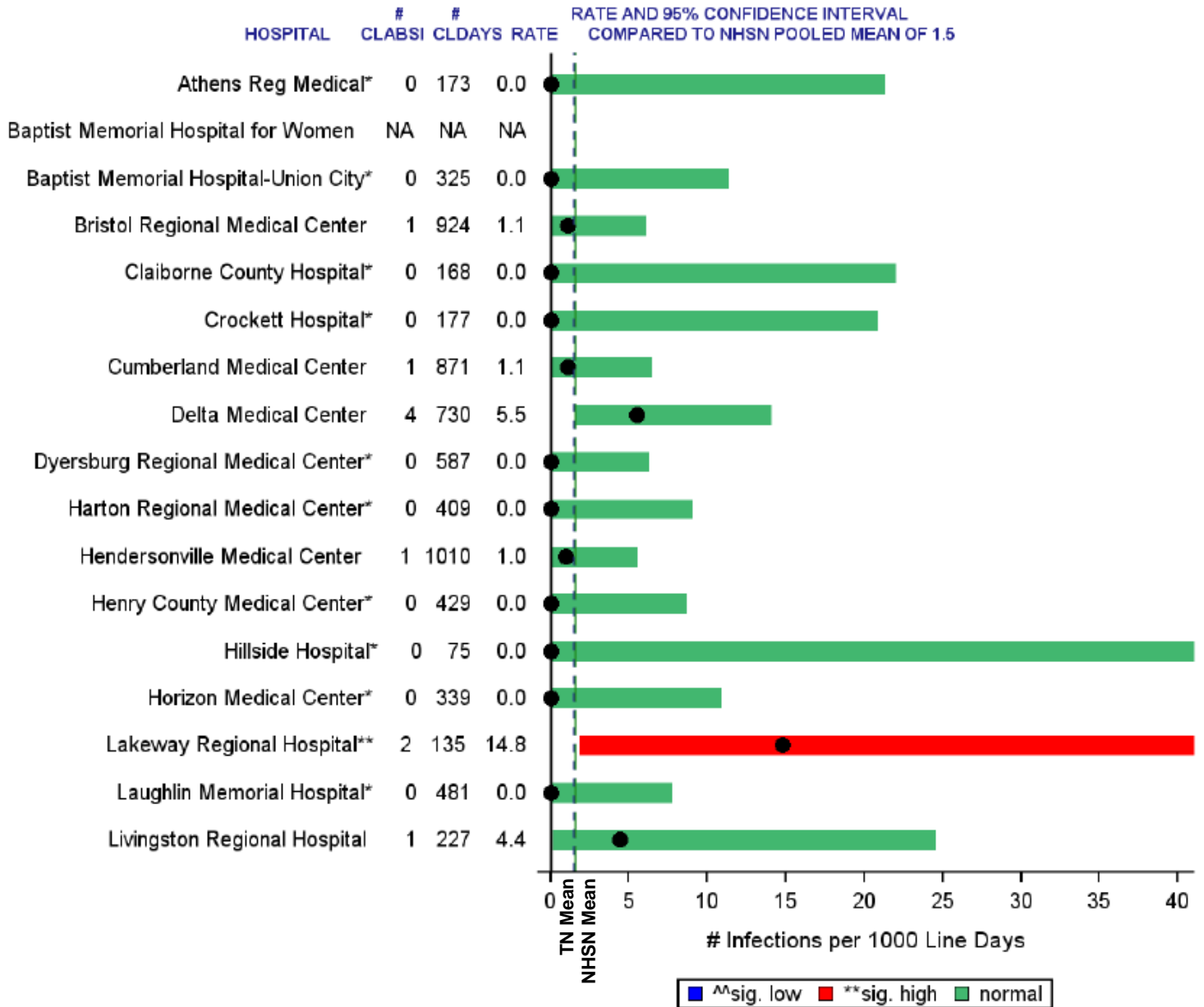
^ Zero infections, not statistically significant

NA Rates are not shown in critical care units with <50 central line days.

NHSN pooled mean(2006-2008)=2.1 ; TN pooled mean(07/01/2008 - 06/30/2009)=2.9

Figure 14: Central Line-Associated Bloodstream Infection Rates per 1,000 Central Line Days in Tennessee, 7/2008-6/2009, Medical-Surgical ICUs with ≤15 beds in Non-Major Teaching Hospitals

Central Line-Associated Blood Stream Infection [CLABSI] Rates (per 1000 central line days)
 Tennessee (Reportable period: 07/01/2008 - 06/30/2009)
 Medical-Surgical Critical Care non-Major Teaching Hospitals (ICU beds <=15)



Data Reported as of June 28, 2010.

** significantly higher than NHSN pooled mean

^^ significantly lower than NHSN pooled mean

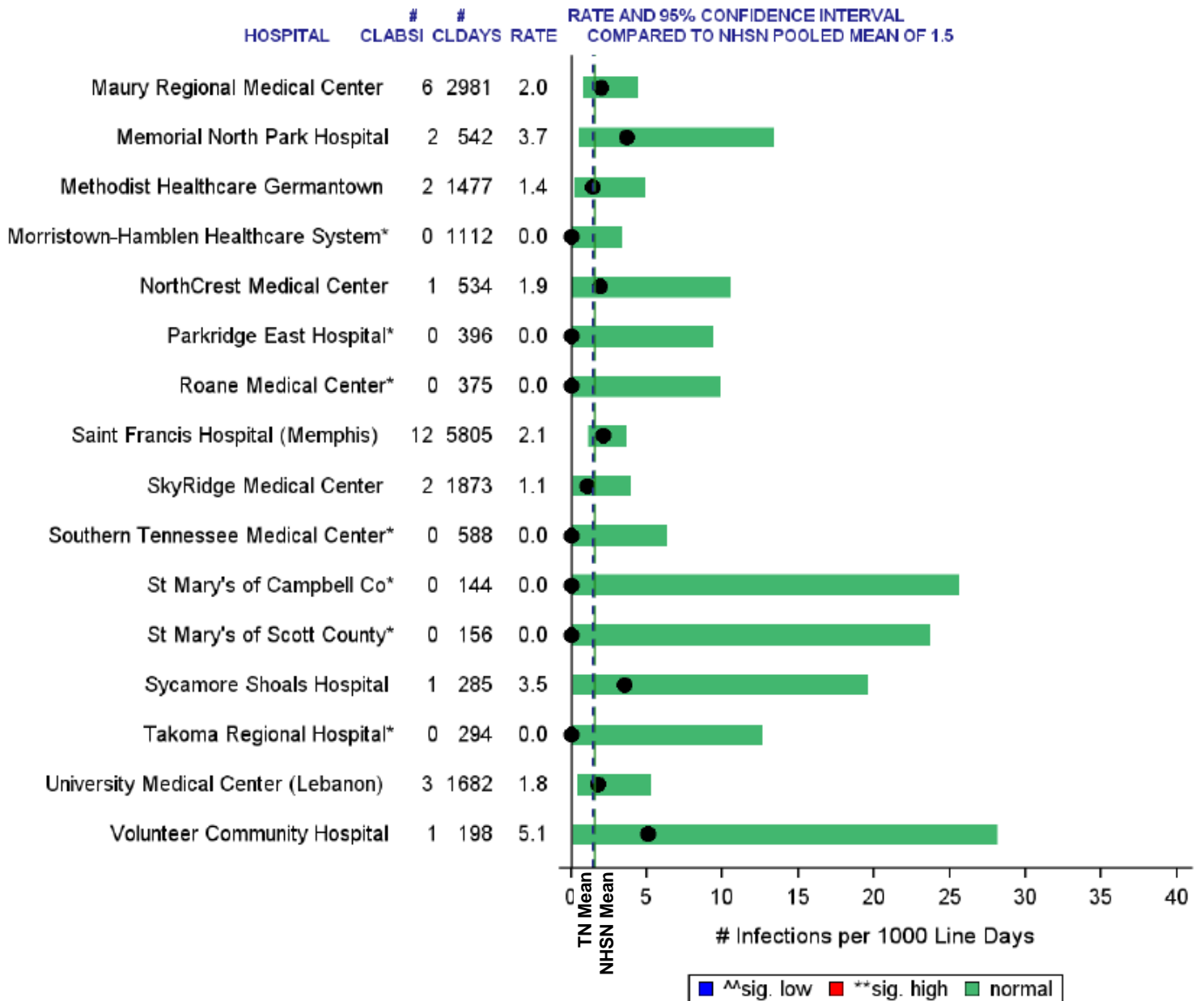
* Zero infections, not statistically significant

NA Rates are not shown in critical care units with <50 central line days.

NHSN pooled mean(2006-2008)=1.5; TN pooled mean(07/01/2008 - 06/30/2009)=1.6

Figure 14 (cont'd)

Central Line-Associated Blood Stream Infection [CLABSI] Rates (per 1000 central line days)
 Tennessee (Reportable period: 07/01/2008 - 06/30/2009)
 Medical-Surgical Critical Care non-Major Teaching Hospitals (ICU beds <=15) [continued...]



Data Reported as of June 28, 2010.

** significantly higher than NHSN pooled mean

^^ significantly lower than NHSN pooled mean

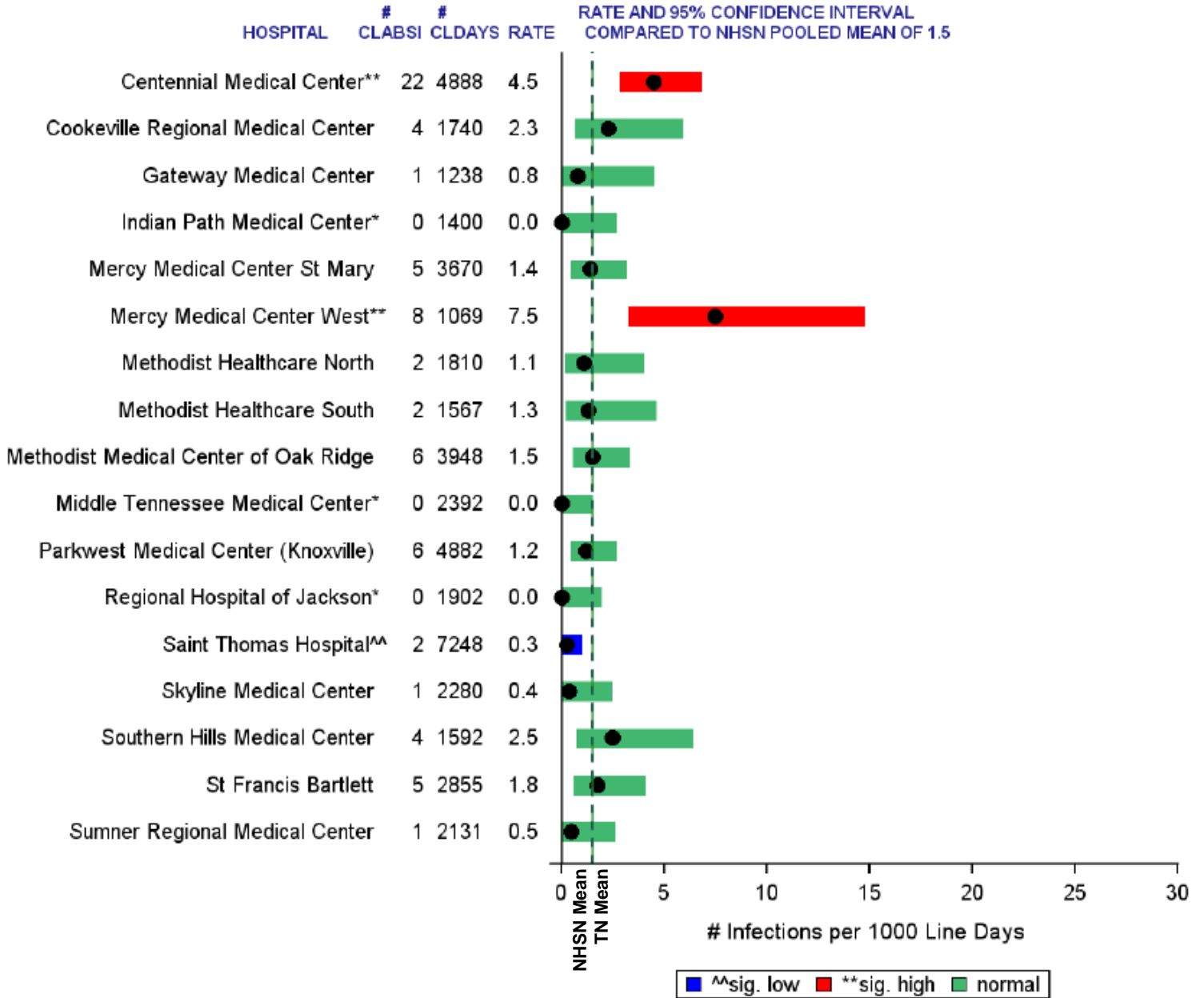
* Zero infections, not statistically significant

NA Rates are not shown in critical care units with <50 central line days.

NHSN pooled mean(2006-2008)=1.5; TN pooled mean(07/01/2008 - 06/30/2009)=1.6

Figure 15: Central Line-Associated Bloodstream Infection Rates per 1,000 Central Line Days in Tennessee, 7/2008-6/2009, Medical-Surgical ICUs with >15 beds in Non-Major Teaching Hospitals

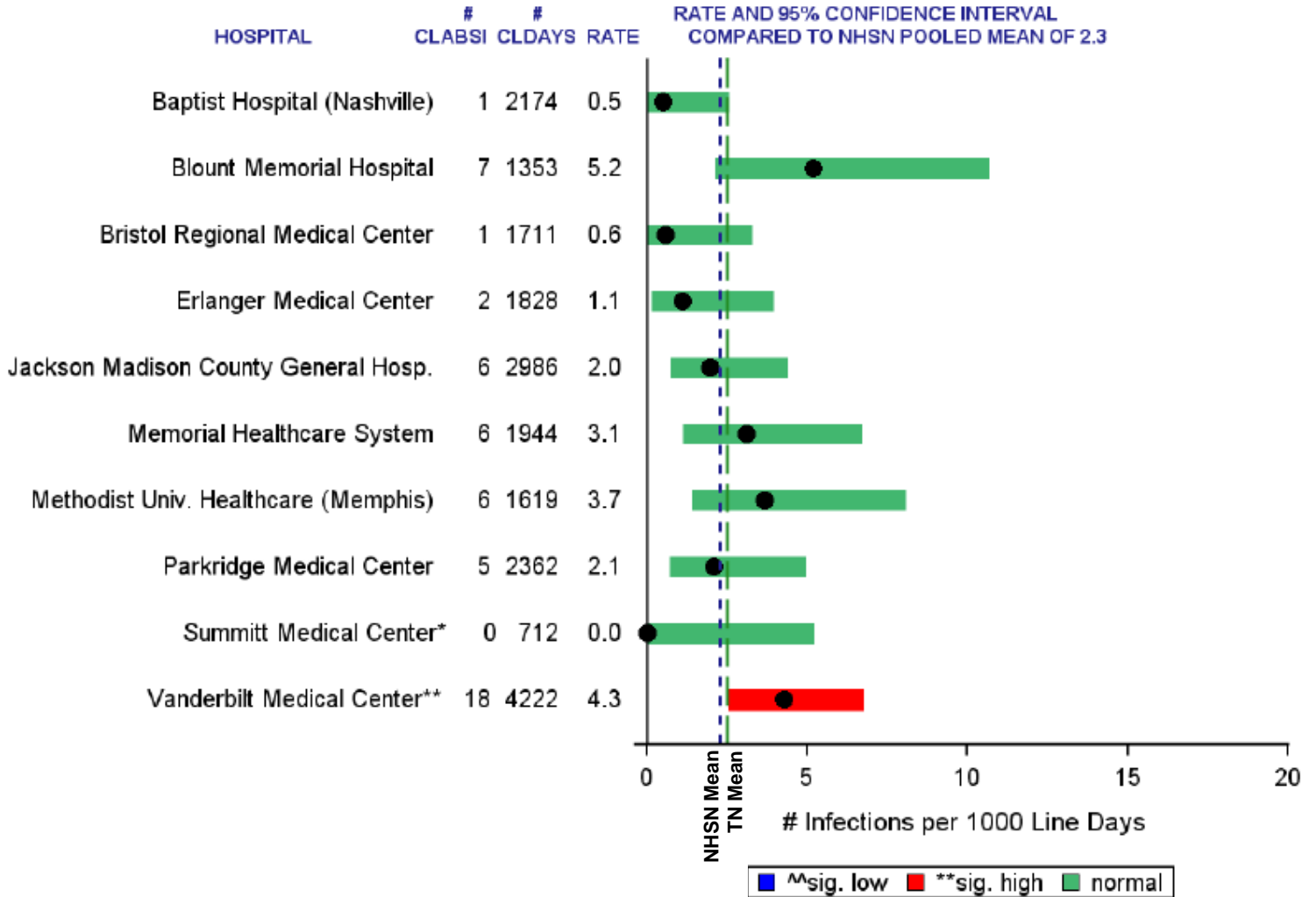
Central Line-Associated Blood Stream Infection [CLABSI] Rates (per 1000 central line days)
 Tennessee (Reportable period: 07/01/2008 - 06/30/2009)
 Medical-Surgical Critical Care non-Major Teaching Hospitals (ICU beds >15)



Data Reported as of June 28, 2010.
 ** significantly higher than NHSN pooled mean
 ^^ significantly lower than NHSN pooled mean
 * Zero infections, not statistically significant
 NA Rates are not shown in critical care units with <50 central line days.
 NHSN pooled mean(2006-2008)=1.5 ; TN pooled mean(07/01/2008 - 06/30/2009)=1.5

Figure 16: Central Line-Associated Bloodstream Infection Rates per 1,000 Central Line Days in Tennessee, 7/2008-6/2009, Surgical Critical Care Units

**Central Line-Associated Blood Stream Infection [CLABSI] Rates (per 1000 central line days)
Tennessee (Reportable period: 07/01/2008 - 06/30/2009)
Surgical Critical Care**



Data Reported as of June 28, 2010.

** significantly higher than NHSN pooled mean

^^ significantly lower than NHSN pooled mean

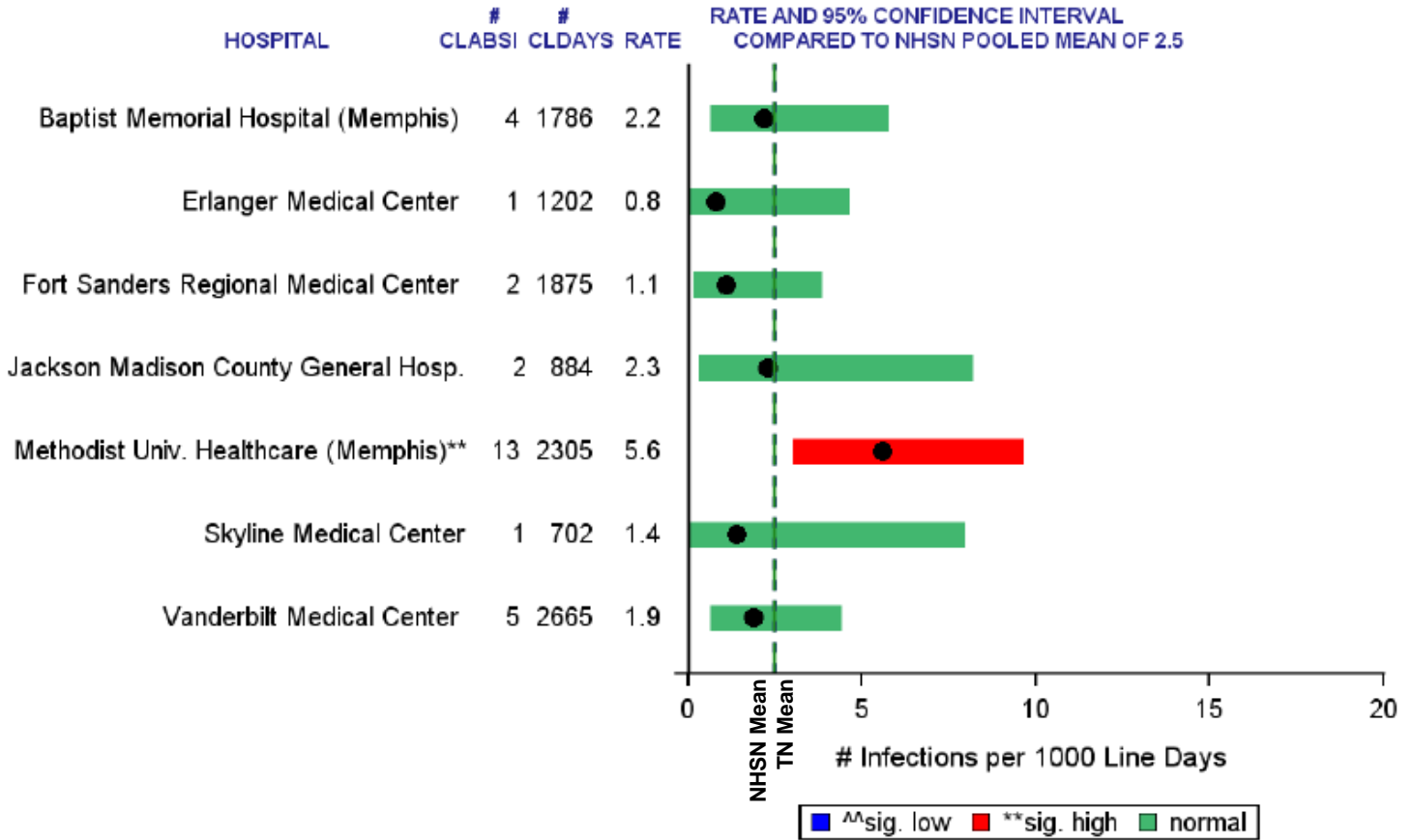
* Zero infections, not statistically significant

NA Rates are not shown in critical care units with <50 central line days.

NHSN pooled mean(2006-2008)=2.3 ; TN pooled mean(07/01/2008 - 06/30/2009)=2.5

Figure 17: Central Line-Associated Bloodstream Infection Rates per 1,000 Central Line Days in Tennessee, 7/2008-6/2009, Neurosurgical Critical Care Units

**Central Line-Associated Blood Stream Infection [CLABSI] Rates (per 1000 central line days)
Tennessee (Reportable period: 07/01/2008 - 06/30/2009)
Neurosurgical Critical Care**



Data Reported as of June 28, 2010.

** significantly higher than NHSN pooled mean

^^ significantly lower than NHSN pooled mean

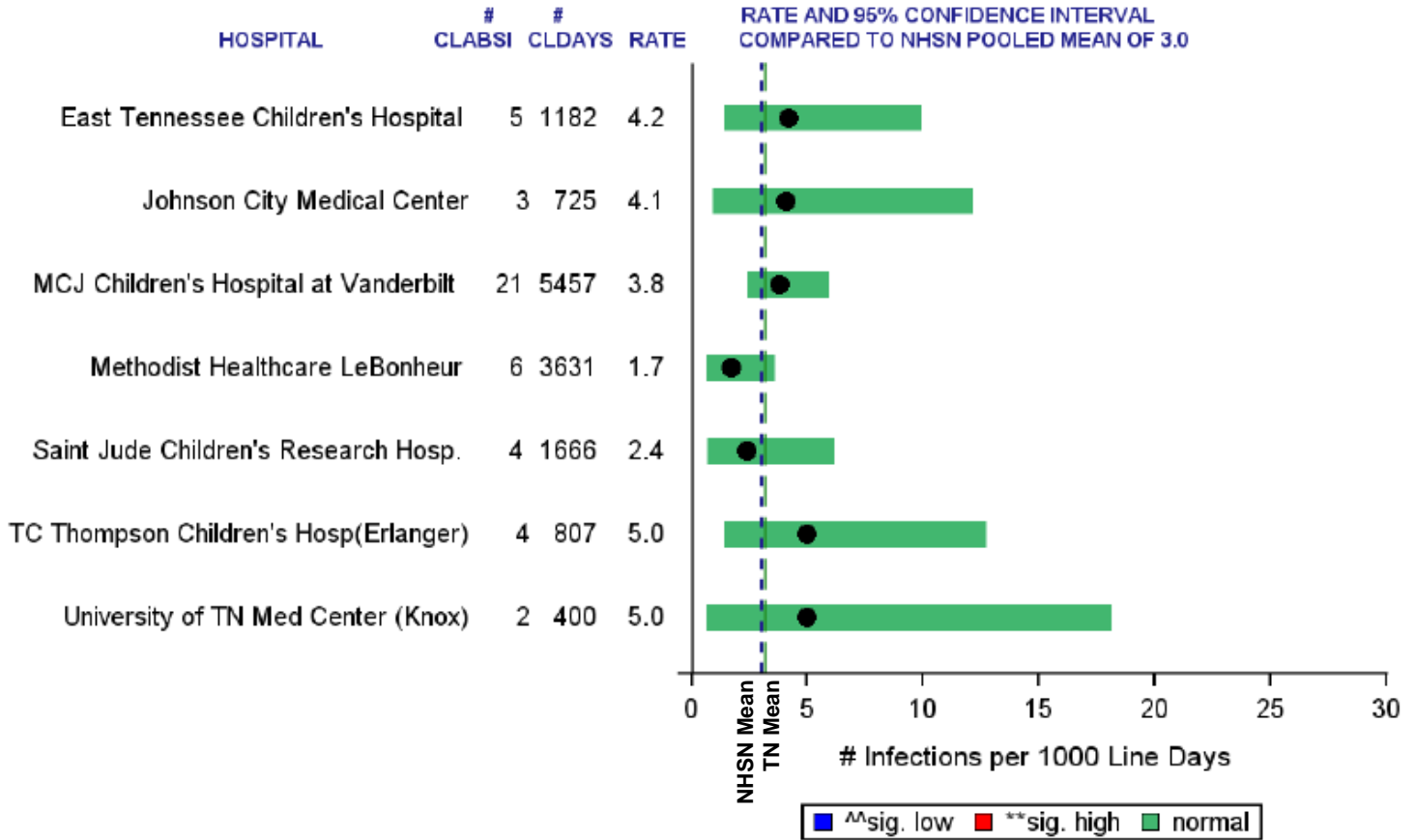
* Zero infections, not statistically significant

NA Rates are not shown in critical care units with <50 central line days.

NHSN pooled mean(2006-2008)=2.5; TN pooled mean(07/01/2008 - 06/30/2009)=2.5

Figure 18: Central Line-Associated Bloodstream Infection Rates per 1,000 Central Line Days in Tennessee, 7/2008-6/2009, Pediatric Medical-Surgical Critical Care Units

**Central Line-Associated Blood Stream Infection [CLABSI] Rates (per 1000 central line days)
Tennessee (Reportable period: 07/01/2008 - 06/30/2009)
Pediatric Medical-Surgical Critical Care**



Data Reported as of June 28, 2010.

** significantly higher than NHSN pooled mean

^^ significantly lower than NHSN pooled mean

^ Zero infections, not statistically significant

NA Rates are not shown in critical care units with <50 central line days.

NHSN pooled mean(2006-2008)=3.0 ; TN pooled mean(07/01/2008 - 06/30/2009)=3.2

**Table 5: Measures of Central Line-Associated Bloodstream Infections (CLABSI) by Type of Critical Care Unit, Tennessee [Reportable period: 07/01/2008 - 06/30/2009]
Location = Medical Cardiac Critical Care**

Hospital	INCIDENCE DENSITY RATE (LINE DAYS)				DEVICE UTILIZATION		INCIDENCE DENSITY RATE (INPATIENT DAYS)	
	RATE*	Lower Limit	Upper limit	TN %ile	DU(%)	TN %ile	INPATIENT DAYS	RATE**
Baptist Hospital (Nashville)	0.0	0.0	6.9	13	21	11	2565	0.0
Blount Memorial Hospital	0.0	0.0	5.1	13	39	33	1847	0.0
Centennial Medical Center	4.0	2.2	6.7	88	50	44	7082	2.0
Erlanger Medical Center	0.7	0.0	4.1	25	54	56	2528	0.4
Holston Valley Medical Center	5.4	0.6	19.4	100	36	22	1036	1.9
Jackson Madison County General Hosp.	3.4	1.5	6.4	63	67	89	3989	2.3
Memorial Healthcare System	2.8	1.3	5.4	50	56	67	5646	1.6
University of TN Med Center (Knox)	3.9	2.1	6.6	75	61	78	5495	2.4
Vanderbilt Medical Center	1.5	0.6	2.9	38	69	100	7930	1.0

Data reported as of June 28, 2010

* per 1000 central line days

** per 1000 inpatient days

TN%ile percentile in TN (07/01/2008 - 06/30/2009)

DU(%) device utilization(%)

NA not reported due to central line days <50

Red highlighting indicates rate for 2008-9 is significantly higher than the National 2006-2008 rate of 2.0 CLABSIs/1000 central line days

Blue highlighting indicates rate for 2008-9 is significantly lower than the National 2006-2008 rate of 2.0 CLABSIs/1000 central line days

**Table 6: Measures of Central Line-Associated Bloodstream Infections (CLABSI) by Type of Critical Care Unit, Tennessee [Reportable period: 07/01/2008 - 06/30/2009]
Location = Surgical Cardiothoracic Critical Care**

Hospital	INCIDENCE DENSITY RATE (LINE DAYS)				DEVICE UTILIZATION		INCIDENCE DENSITY RATE (INPATIENT DAYS)	
	RATE*	Lower Limit	Upper limit	TN %ile	DU(%)	TN %ile	INPATIENT DAYS	RATE**
Baptist Memorial Hospital (Memphis)	1.7	0.9	2.9	58	75	82	10925	1.3
Bristol Regional Medical Center	0.0	0.0	3.6	8	46	18	2226	0.0
Centennial Medical Center	2.3	0.6	5.8	75	100	100	1759	2.3
Cookeville Regional Medical Center	3.6	1.0	9.3	100	63	64	1748	2.3
Erlanger Medical Center	0.8	0.0	4.5	17	62	55	2017	0.5
Fort Sanders Regional Medical Center	1.4	0.2	5.2	50	74	73	1866	1.1
Holston Valley Medical Center	0.0	0.0	3.5	8	81	91	1289	0.0
Jackson Madison County General Hosp.	2.0	0.2	7.1	67	75	82	1349	1.5
Johnson City Medical Center	1.2	0.1	4.2	25	45	9	3807	0.5
Maury Regional Medical Center	0.0	0.0	8.5	8	61	45	712	0.0
Memorial Healthcare System	1.3	0.2	4.8	33	63	64	2353	0.8
Methodist Healthcare Germantown	3.5	1.5	6.8	92	50	27	4597	1.7
Methodist Healthcare North	2.3	0.6	5.8	83	53	36	3317	1.2
Methodist Univ. Healthcare (Memphis)	1.4	0.4	3.6	42	63	64	4534	0.9

Data reported as of June 28, 2010

* per 1000 central line days

** per 1000 inpatient days

TN%ile percentile in TN (07/01/2008 - 06/30/2009)

DU(%) device utilization(%)

NA not reported due to central line days <50

Red highlighting indicates rate for 2008-9 is significantly **higher** than the National 2006-2008 rate of 1.4 CLABSIs/1000 central line days

Blue highlighting indicates rate for 2008-9 is significantly **lower** than the National 2006-2008 rate of 1.4 CLABSIs/1000 central line days

**Table 7: Measures of Central Line-Associated Bloodstream Infections (CLABSIs) by Type of Critical Care Unit, Tennessee [Reportable period: 07/01/2008 - 06/30/2009]
Location = Medical Critical Care Major Teaching**

Hospital	INCIDENCE DENSITY RATE (LINE DAYS)				DEVICE UTILIZATION		INCIDENCE DENSITY RATE (INPATIENT DAYS)	
	RATE*	Lower Limit	Upper limit	TN %ile	DU(%)	TN %ile	INPATIENT DAYS	RATE**
Erlanger Medical Center	4.4	2.0	8.3	50	56	100	3672	2.5
Vanderbilt Medical Center	8.3	5.7	11.8	100	48	50	7770	4.0

Data reported as of June 28, 2010

* per 1000 central line days

** per 1000 inpatient days

TN%ile percentile in TN (07/01/2008 - 06/30/2009)

DU(%) device utilization(%)

NA not reported due to central line days <50

Red highlighting indicates rate for 2008-9 is significantly higher than the National 2006-2008 rate of 2.6 CLABSIs/1000 central line days

Blue highlighting indicates rate for 2008-9 is significantly lower than the National 2006-2008 rate of 2.6 CLABSIs/1000 central line days

**Table 8: Measures of Central Line-Associated Bloodstream Infections (CLABSIs) by Type of Critical Care Unit, Tennessee [Reportable period: 07/01/2008 - 06/30/2009]
Location = Medical Critical Care Non-Major Teaching**

Hospital	INCIDENCE DENSITY RATE (LINE DAYS)				DEVICE UTILIZATION		INCIDENCE DENSITY RATE (INPATIENT DAYS)	
	RATE*	Lower Limit	Upper limit	TN %ile	DU(%)	TN %ile	INPATIENT DAYS	RATE**
Baptist Hospital (Nashville)	0.6	0.0	3.2	14	40	44	4280	0.2
Baptist Memorial Hosp. (Collierville)	7.8	0.9	28.1	93	26	28	1005	2.0
Baptist Memorial Hospital (Memphis)	2.6	1.5	4.2	64	70	83	8898	1.8
Baptist Memorial Hospital-Tipton	0.0	0.0	31.3	7	27	33	435	0.0
Blount Memorial Hospital	0.0	0.0	4.4	7	49	67	1720	0.0
Bristol Regional Medical Center	0.6	0.0	3.6	21	51	72	3020	0.3
Fort Sanders Regional Medical Center	2.3	0.7	5.3	57	82	100	2664	1.9
Jackson Madison County General Hosp.	3.2	1.4	6.3	71	73	94	3448	2.3
Memorial Healthcare System	1.5	0.5	3.5	43	71	89	4726	1.1
Mercy Medical Center St Mary	3.3	0.9	8.5	79	38	39	3139	1.3
North Side Hospital	1.2	0.0	6.9	36	47	61	1734	0.6
Parkridge Medical Center	3.8	1.4	8.2	86	53	78	3031	2.0
River Park Hospital	11.4	0.3	63.3	100	1	6	6274	0.2
Stonecrest Medical Center	0.0	0.0	11.4	7	16	11	2038	0.0
Summitt Medical Center	1.1	0.0	6.0	29	43	50	2159	0.5
Sweetwater Hospital Association	0.0	0.0	13.8	7	21	22	1273	0.0
Williamson Medical Center	1.9	0.5	4.8	50	44	56	4813	0.8
Woods Memorial Hospital	0.0	0.0	19.9	7	17	17	1077	0.0

Data reported as of June 28, 2010

* per 1000 central line days

** per 1000 inpatient days

TN%ile percentile in TN (07/01/2008 - 06/30/2009)

DU(%) device utilization(%)

NA not reported due to central line days <50

Red highlighting indicates rate for 2008-9 is significantly higher than the National 2006-2008 rates of 1.9 CLABSIs/1000 central line days

Blue highlighting indicates rate for 2008-9 is significantly lower than the National 2006-2008 rates of 1.9 CLABSIs/1000 central line days

**Table 9: Measures of Central Line-Associated Bloodstream Infections (CLABSIs) by Type of Critical Care Unit, Tennessee [Reportable period: 07/01/2008 - 06/30/2009]
Location = Medical-Surgical Critical Care Major Teaching**

Hospital	INCIDENCE DENSITY RATE (LINE DAYS)				DEVICE UTILIZATION		INCIDENCE DENSITY RATE (INPATIENT DAYS)	
	RATE*	Lower Limit	Upper limit	TN %ile	DU(%)	TN %ile	INPATIENT DAYS	RATE**
Erlanger Medical Center	2.2	0.5	6.5	43	58	60	2340	1.3
Holston Valley Medical Center	3.0	1.6	5.3	71	64	80	6263	1.9
Johnson City Medical Center	3.0	1.4	5.5	57	56	40	6039	1.7
Methodist Univ. Healthcare (Memphis)	3.5	1.8	6.3	86	64	80	4897	2.2
Nashville General Hospital at Meharry	1.3	0.2	4.5	14	49	20	3227	0.6
Regional Medical Center (Memphis)	5.0	2.9	8.1	100	56	40	5981	2.8
University of TN Med Center (Knox)	1.6	0.6	3.2	29	67	100	6719	1.0

Data reported as of June 28, 2010

* per 1000 central line days

** per 1000 inpatient days

TN%ile percentile in TN (07/01/2008 - 06/30/2009)

DU(%) device utilization(%)

NA not reported due to central line days <50

Red highlighting indicates rate for 2008-9 is significantly **higher** than the National 2006-2008 rate of 2.1 CLABSIs/1000 central line days

Blue highlighting indicates rate for 2008-9 is significantly **lower** than the National 2006-2008 rate of 2.1 CLABSIs/1000 central line days

**Table 10: Measures of Central Line-Associated Bloodstream Infections (CLABSI) by Type of Critical Care Unit, Tennessee [Reportable period: 07/01/2008 - 06/30/2009]
Location = Medical-Surgical Critical Care Non-Major Teaching with ≤15 beds**

Hospital	INCIDENCE DENSITY RATE (LINE DAYS)				DEVICE UTILIZATION		INCIDENCE DENSITY RATE (INPATIENT DAYS)	
	RATE*	Lower Limit	Upper limit	TN %ile	DU(%)	TN %ile	INPATIENT DAYS	RATE**
Athens Reg Medical	0.0	0.0	21.3	6	19	26	913	0.0
Baptist Memorial Hospital for Women	NA	NA	NA	NA	11	9	114	0.0
Baptist Memorial Hospital-Union City	0.0	0.0	11.4	6	23	39	1388	0.0
Bristol Regional Medical Center	1.1	0.0	6.0	25	41	78	2269	0.4
Claiborne County Hospital	0.0	0.0	22.0	6	15	17	1134	0.0
Crockett Hospital	0.0	0.0	20.8	6	18	22	962	0.0
Cumberland Medical Center	1.1	0.0	6.4	31	31	57	2804	0.4
Delta Medical Center	5.5	1.5	14.0	94	58	91	1261	3.2
Dyersburg Regional Medical Center	0.0	0.0	6.3	6	29	52	2058	0.0
Harton Regional Medical Center	0.0	0.0	9.0	6	20	30	2091	0.0
Hendersonville Medical Center	1.0	0.0	5.5	13	39	70	2597	0.4
Henry County Medical Center	0.0	0.0	8.6	6	25	43	1747	0.0
Hillside Hospital	0.0	0.0	49.2	6	6	4	1214	0.0
Horizon Medical Center	0.0	0.0	10.9	6	39	70	866	0.0
Lakeway Regional Hospital	14.8	1.8	53.5	100	11	9	1279	1.6
Laughlin Memorial Hospital	0.0	0.0	7.7	6	26	48	1886	0.0
Livingston Regional Hospital	4.4	0.1	24.5	81	20	30	1148	0.9
Maury Regional Medical Center	2.0	0.7	4.4	56	59	96	5022	1.2
Memorial North Park Hospital	3.7	0.4	13.3	75	33	65	1636	1.2
Methodist Healthcare Germantown	1.4	0.2	4.9	38	59	96	2523	0.8
Morristown-Hamblen Healthcare System	0.0	0.0	3.3	6	19	26	5717	0.0
NorthCrest Medical Center	1.9	0.0	10.4	50	21	35	2489	0.4
Parkridge East Hospital	0.0	0.0	9.3	6	32	61	1224	0.0
Roane Medical Center	0.0	0.0	9.8	6	40	74	935	0.0
Saint Francis Hospital (Memphis)	2.1	1.1	3.6	63	56	87	10385	1.2
SkyRidge Medical Center	1.1	0.1	3.9	19	45	83	4175	0.5
Southern Tennessee Medical Center	0.0	0.0	6.3	6	23	39	2610	0.0
St Mary's of Campbell Co	0.0	0.0	25.6	6	12	13	1188	0.0
St Mary's of Scott County	0.0	0.0	23.6	6	18	22	883	0.0
Sycamore Shoals Hospital	3.5	0.1	19.5	69	18	22	1552	0.6
Takoma Regional Hospital	0.0	0.0	12.5	6	23	39	1288	0.0
University Medical Center (Lebanon)	1.8	0.4	5.2	44	62	100	2730	1.1

Hospital	INCIDENCE DENSITY RATE (LINE DAYS)				DEVICE UTILIZATION		INCIDENCE DENSITY RATE (INPATIENT DAYS)	
	RATE*	Lower Limit	Upper limit	TN %ile	DU(%)	TN %ile	INPATIENT DAYS	RATE**
Volunteer Community Hospital	5.1	0.1	28.1	88	18	22	1121	0.9

Data reported as of June 28, 2010

* per 1000 central line days

** per 1000 inpatient days

TN%ile percentile in TN (07/01/2008 - 06/30/2009)

DU(%) device utilization(%)

NA not reported due to central line days <50

Red highlighting indicates rate for 2008-9 is significantly higher than the National 2006-2008 rate of 1.5 CLABSIs/1000 central line days

Blue highlighting indicates rate for 2008-9 is significantly lower than the National 2006-2008 rate of 1.5 CLABSIs/1000 central line days

**Table 11: Measures of Central Line-Associated Bloodstream Infections (CLABSIs) by Type of Critical Care Unit, Tennessee [Reportable period: 07/01/2008 - 06/30/2009]
Location = Medical-Surgical Critical Care Non-Major Teaching with >15 beds**

Hospital	INCIDENCE DENSITY RATE (LINE DAYS)				DEVICE UTILIZATION		INCIDENCE DENSITY RATE (INPATIENT DAYS)	
	RATE*	Lower Limit	Upper limit	TN %ile	DU(%)	TN %ile	INPATIENT DAYS	RATE**
Centennial Medical Center	4.5	2.8	6.8	93	53	67	9266	2.4
Cookeville Regional Medical Center	2.3	0.6	5.9	80	37	17	4672	0.9
Gateway Medical Center	0.8	0.0	4.5	33	32	8	3843	0.3
Indian Path Medical Center	0.0	0.0	2.6	7	46	42	3036	0.0
Mercy Medical Center St Mary	1.4	0.4	3.2	60	53	67	6924	0.7
Mercy Medical Center West	7.5	3.2	14.7	100	38	25	2786	2.9
Methodist Healthcare North	1.1	0.1	4.0	40	50	58	3605	0.6
Methodist Healthcare South	1.3	0.2	4.6	53	43	33	3679	0.5
Methodist Medical Center of Oak Ridge	1.5	0.6	3.3	67	59	75	6717	0.9
Middle Tennessee Medical Center	0.0	0.0	1.5	7	38	25	6323	0.0
Parkwest Medical Center (Knoxville)	1.2	0.5	2.7	47	65	92	7519	0.8
Regional Hospital of Jackson	0.0	0.0	1.9	7	47	50	4022	0.0
Saint Thomas Hospital	0.3	0.0	1.0	13	74	100	9829	0.2
Skyline Medical Center	0.4	0.0	2.4	20	38	25	6034	0.2
Southern Hills Medical Center	2.5	0.7	6.4	87	38	25	4137	1.0
St Francis Bartlett	1.8	0.6	4.1	73	63	83	4548	1.1
Sumner Regional Medical Center	0.5	0.0	2.6	27	59	75	3599	0.3

Data reported as of June 28, 2010

* per 1000 central line days

** per 1000 inpatient days

TN%ile percentile in TN (07/01/2008 - 06/30/2009)

DU(%) device utilization(%)

NA not reported due to central line days <50

Red highlighting indicates rate for 2008-9 is significantly higher than the National 2006-2008 rate of 1.5 CLABSIs/1000 central line days

Blue highlighting indicates rate for 2008-9 is significantly lower than the National 2006-2008 rate of 1.5 CLABSIs/1000 central line days

**Table 12: Measures of Central Line-Associated Bloodstream Infections (CLABSIs) by Type of Critical Care Unit, Tennessee [Reportable period: 07/01/2008 - 06/30/2009]
Location = Pediatric Medical-Surgical Critical Care**

Hospital	INCIDENCE DENSITY RATE (LINE DAYS)				DEVICE UTILIZATION		INCIDENCE DENSITY RATE (INPATIENT DAYS)	
	RATE*	Lower Limit	Upper limit	TN %ile	DU(%)	TN %ile	INPATIENT DAYS	RATE**
East Tennessee Children's Hospital	4.2	1.4	9.9	71	46	29	2568	1.9
Johnson City Medical Center	4.1	0.9	12.1	57	35	14	2054	1.5
MCJ Children's Hospital at Vanderbilt	3.8	2.4	5.9	43	60	57	9094	2.3
Methodist Healthcare LeBonheur	1.7	0.6	3.6	14	67	86	5411	1.1
Saint Jude Children's Research Hosp.	2.4	0.7	6.1	29	93	100	1791	2.2
TC Thompson Children's Hosp(Erlanger)	5.0	1.4	12.7	86	52	43	1559	2.6
University of TN Med Center (Knox)	5.0	0.6	18.1	100	66	71	605	3.3

Data reported as of June 28, 2010

* per 1000 central line days

** per 1000 inpatient days

TN%ile percentile in TN (07/01/2008 - 06/30/2009)

DU(%) device utilization(%)

NA not reported due to central line days <50

Red highlighting indicates rate for 2008-9 is significantly higher than the National 2006-2008 rate of 3.0 CLABSIs/1000 central line days

Blue highlighting indicates rate for 2008-9 is significantly lower than the National 2006-2008 rate of 3.0 CLABSIs/1000 central line days

**Table 13: Measures of Central Line-Associated Bloodstream Infections (CLABSIs) by Type of Critical Care Unit, Tennessee [Reportable period: 07/01/2008 - 06/30/2009]
Location = Neurosurgical Critical Care**

Hospital	INCIDENCE DENSITY RATE (LINE DAYS)				DEVICE UTILIZATION		INCIDENCE DENSITY RATE (INPATIENT DAYS)	
	RATE*	Lower Limit	Upper limit	TN %ile	DU(%)	TN %ile	INPATIENT DAYS	RATE**
Baptist Memorial Hospital (Memphis)	2.2	0.6	5.7	71	55	71	3253	1.2
Erlanger Medical Center	0.8	0.0	4.6	14	46	57	2603	0.4
Fort Sanders Regional Medical Center	1.1	0.1	3.9	29	72	100	2595	0.8
Jackson Madison County General Hosp.	2.3	0.3	8.2	86	57	86	1545	1.3
Methodist Univ. Healthcare (Memphis)	5.6	3.0	9.6	100	45	43	5110	2.5
Skyline Medical Center	1.4	0.0	7.9	43	29	14	2456	0.4
Vanderbilt Medical Center	1.9	0.6	4.4	57	37	29	7180	0.7

Data reported as of June 28, 2010

* per 1000 central line days

** per 1000 inpatient days

TN%ile percentile in TN (07/01/2008 - 06/30/2009)

DU(%) device utilization(%)

NA not reported due to central line days <50

Red highlighting indicates rate for 2008-9 is significantly higher than the National 2006-2008 rate of 2.5 CLABSIs/1000 central line days

Blue highlighting indicates rate for 2008-9 is significantly lower than the National 2006-2008 rate of 2.5 CLABSIs/1000 central line days

**Table 14: Measures of Central Line-Associated Bloodstream Infections (CLABSI) by Type of Critical Care Unit, Tennessee [Reportable period: 07/01/2008 - 06/30/2009]
Location = Surgical Critical Care**

Hospital	INCIDENCE DENSITY RATE (LINE DAYS)				DEVICE UTILIZATION		INCIDENCE DENSITY RATE (INPATIENT DAYS)	
	RATE*	Lower Limit	Upper limit	TN %ile	DU(%)	TN %ile	INPATIENT DAYS	RATE**
Baptist Hospital (Nashville)	0.5	0.0	2.6	20	51	25	4247	0.2
Blount Memorial Hospital	5.2	2.1	10.7	100	59	63	2306	3.0
Bristol Regional Medical Center	0.6	0.0	3.3	30	55	38	3137	0.3
Erlanger Medical Center	1.1	0.1	4.0	40	58	50	3171	0.6
Jackson Madison County General Hosp.	2.0	0.7	4.4	50	65	75	4610	1.3
Memorial Healthcare System	3.1	1.1	6.7	70	76	100	2559	2.3
Methodist Univ. Healthcare (Memphis)	3.7	1.4	8.1	80	65	75	2497	2.4
Parkridge Medical Center	2.1	0.7	4.9	60	76	100	3122	1.6
Summitt Medical Center	0.0	0.0	5.2	10	28	13	2520	0.0
Vanderbilt Medical Center	4.3	2.5	6.7	90	67	88	6300	2.9

Data reported as of June 28, 2010

* per 1000 central line days

** per 1000 inpatient days

TN%ile percentile in TN (07/01/2008 - 06/30/2009)

DU(%) device utilization(%)

NA not reported due to central line days <50

Red highlighting indicates rate for 2008-9 is significantly higher than the National 2006-2008 rate of 2.3 CLABSIs/1000 central line days

Blue highlighting indicates rate for 2008-9 is significantly lower than the National 2006-2008 rate of 2.3 CLABSIs/1000 central line days

CLABSI Graphs and Tables
Neonatal Critical Care Units

Figure 19: Central Line-Associated Bloodstream Infection (CLABSI) Incidence Density Rate per 1,000 Central Line Days (Pooled Means) in Level III Neonatal Intensive Care Units by Birth Weight Category, Tennessee, 7/2008-6/2009 vs. National Healthcare Safety Network (NHSN) 2006-8

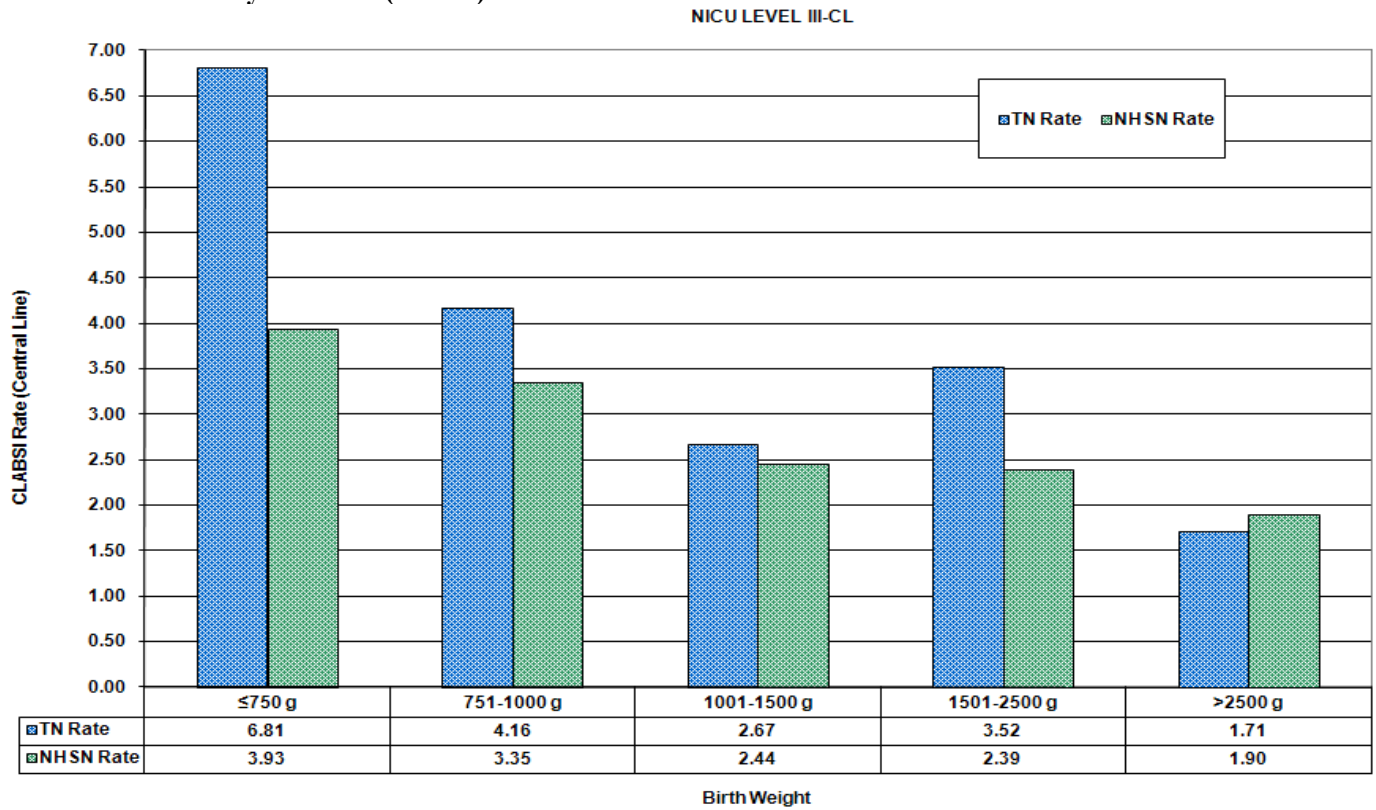


Figure 20: Umbilical Catheter-Associated Bloodstream Infection (UCABSI) Incidence Density Rate per 1,000 Umbilical Line Days (Pooled Means) in Level III Neonatal Intensive Care Units by Birth Weight Category, Tennessee, 7/2008-6/2009 vs. National Healthcare Safety Network (NHSN) 2006-8

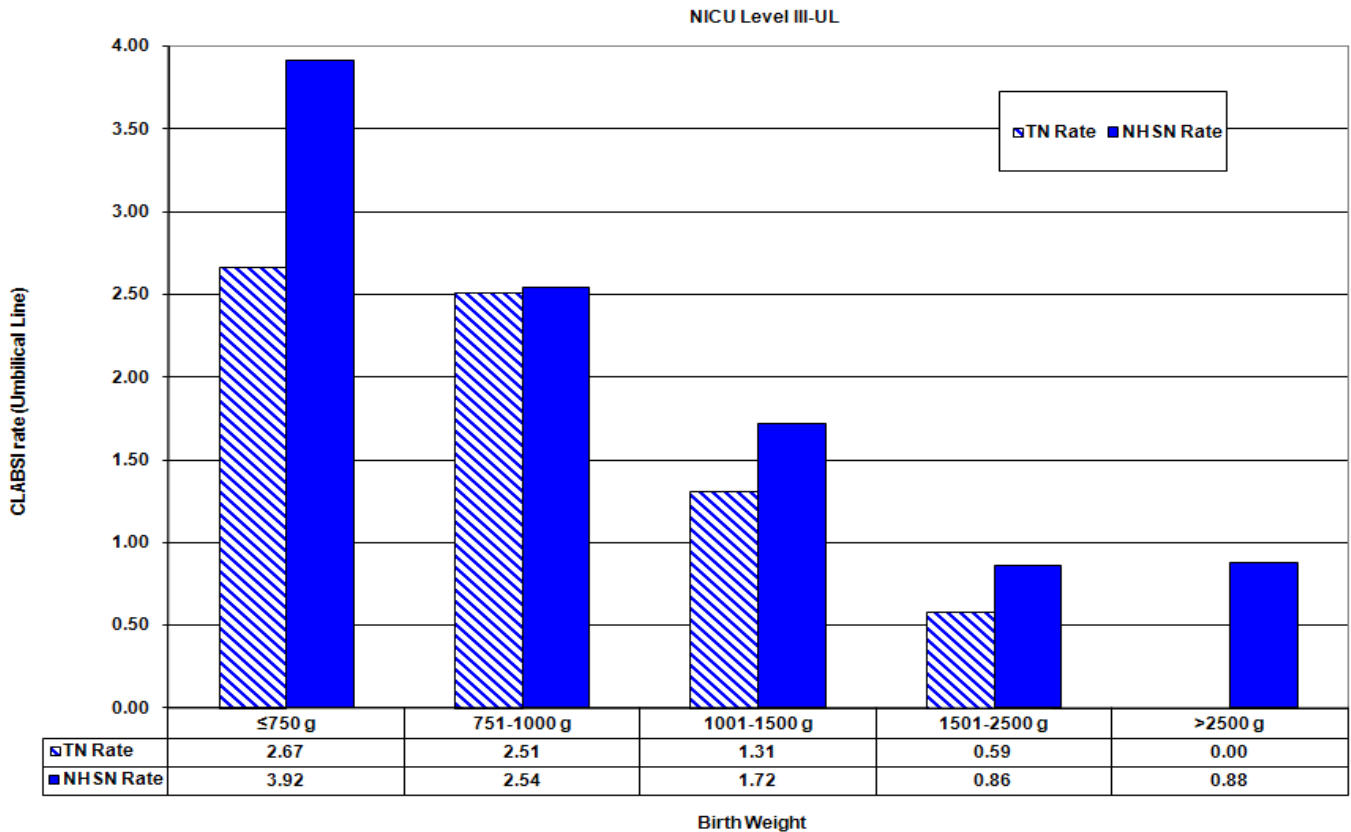


Figure 21: Central Line-Associated Bloodstream Infection (CLABSI) Incidence Density Rate per 1,000 Central Line Days (Pooled Means) in Level II/III Neonatal Intensive Care Units by Birth Weight Category, Tennessee, 7/2008-6/2009 vs. National Healthcare Safety Network (NHSN) 2006-8

NICU LEVEL II_III-CL

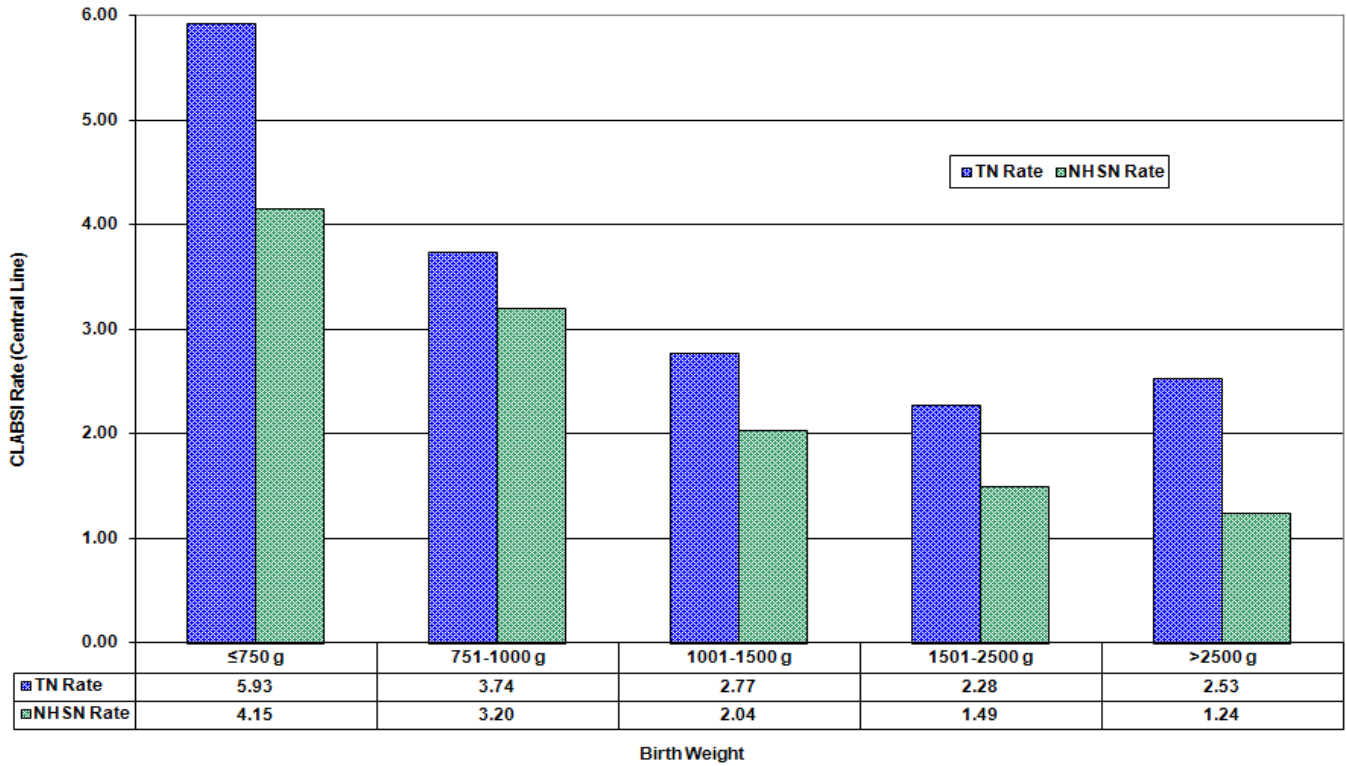


Figure 22: Umbilical Catheter-Associated Bloodstream Infection (UCABSI) Incidence Density Rate per 1,000 Umbilical Line Days (Pooled Means) in Level II/III Neonatal Intensive Care Units by Birth Weight Category, Tennessee, 7/2008-6/2009 vs. National Healthcare Safety Network (NHSN) 2006-8

NICU Level II_III-UL

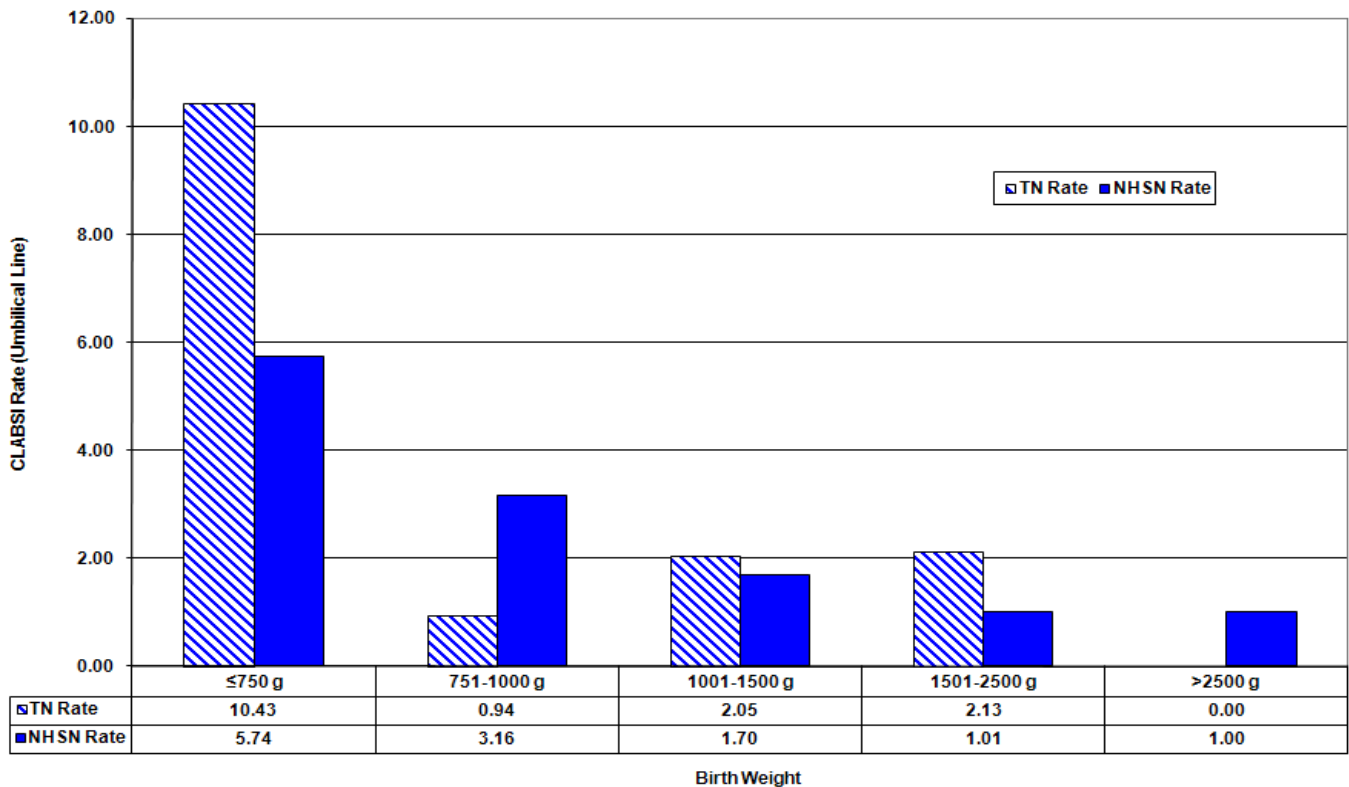


Figure 23: Standardized Infection Ratios (SIRs) for Central Line-Associated Bloodstream Infections (CLABSIs) in Level III Neonatal ICUs (NICUs) by Birth Weight Category, Tennessee, 7/2008-6/2009. [Reference standard: National Healthcare Safety Network (NHSN) 2006-8]

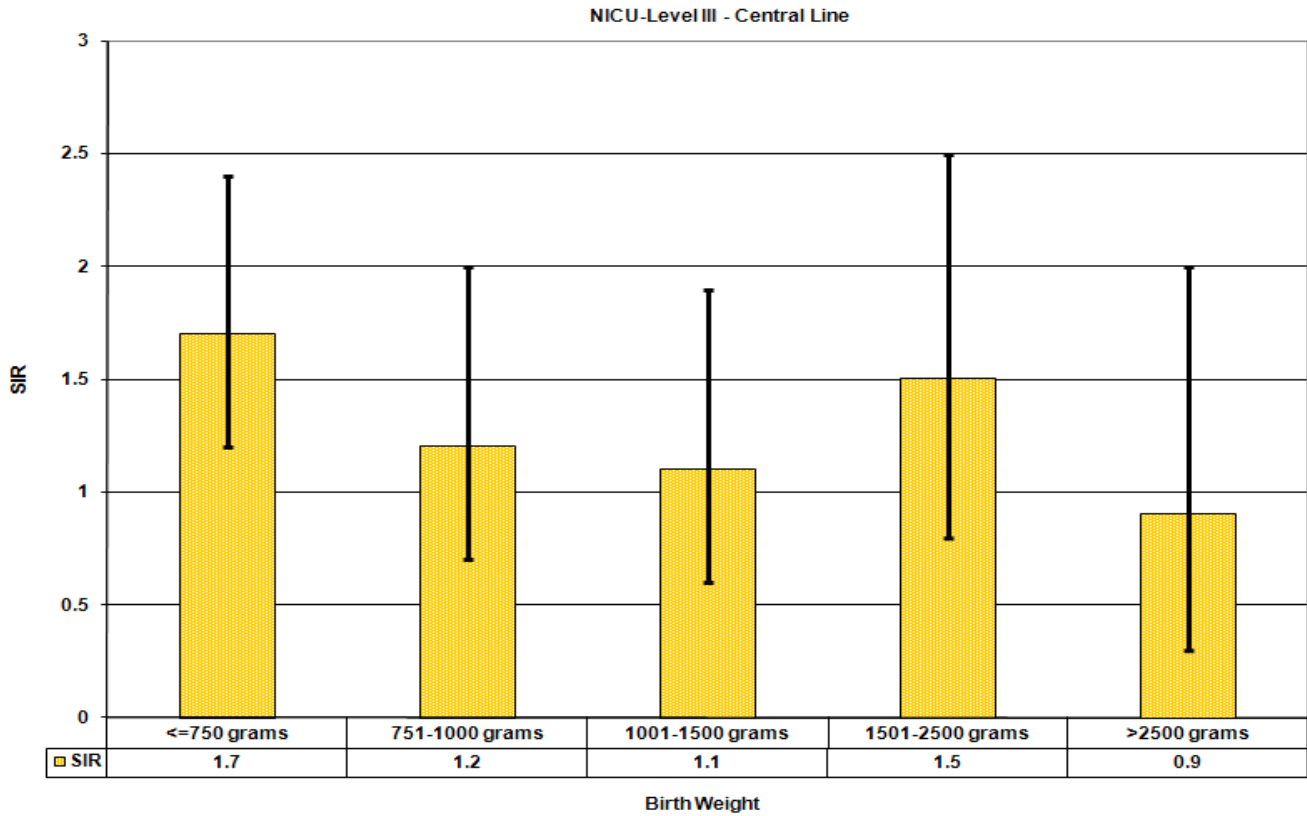


Figure 24: Standardized Infection Ratios (SIRs) for Central Line-Associated Bloodstream Infections (CLABSIs) in Level II/III Neonatal ICUs (NICUs) by Birth Weight Category, Tennessee, 7/2008-6/2009. [Reference standard: National Healthcare Safety Network (NHSN) 2006-8]

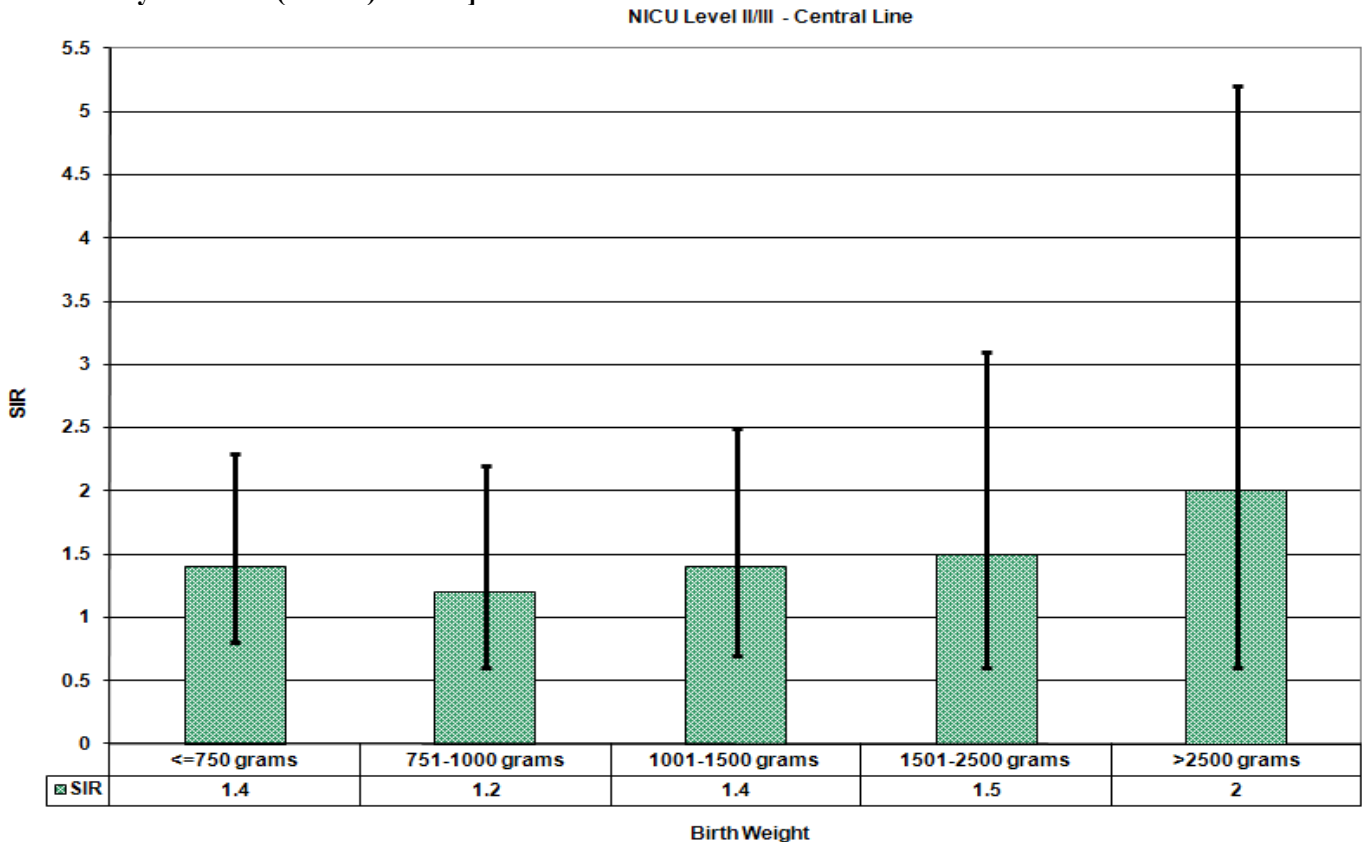


Figure 25: Standardized Infection Ratios (SIRs) for Umbilical Catheter-Associated Bloodstream Infections (UCABSI) in Level III Neonatal ICUs (NICUs) by Birth Weight Category, Tennessee, 7/2008-6/2009. [Reference standard: National Healthcare Safety Network (NHSN) 2006-8]

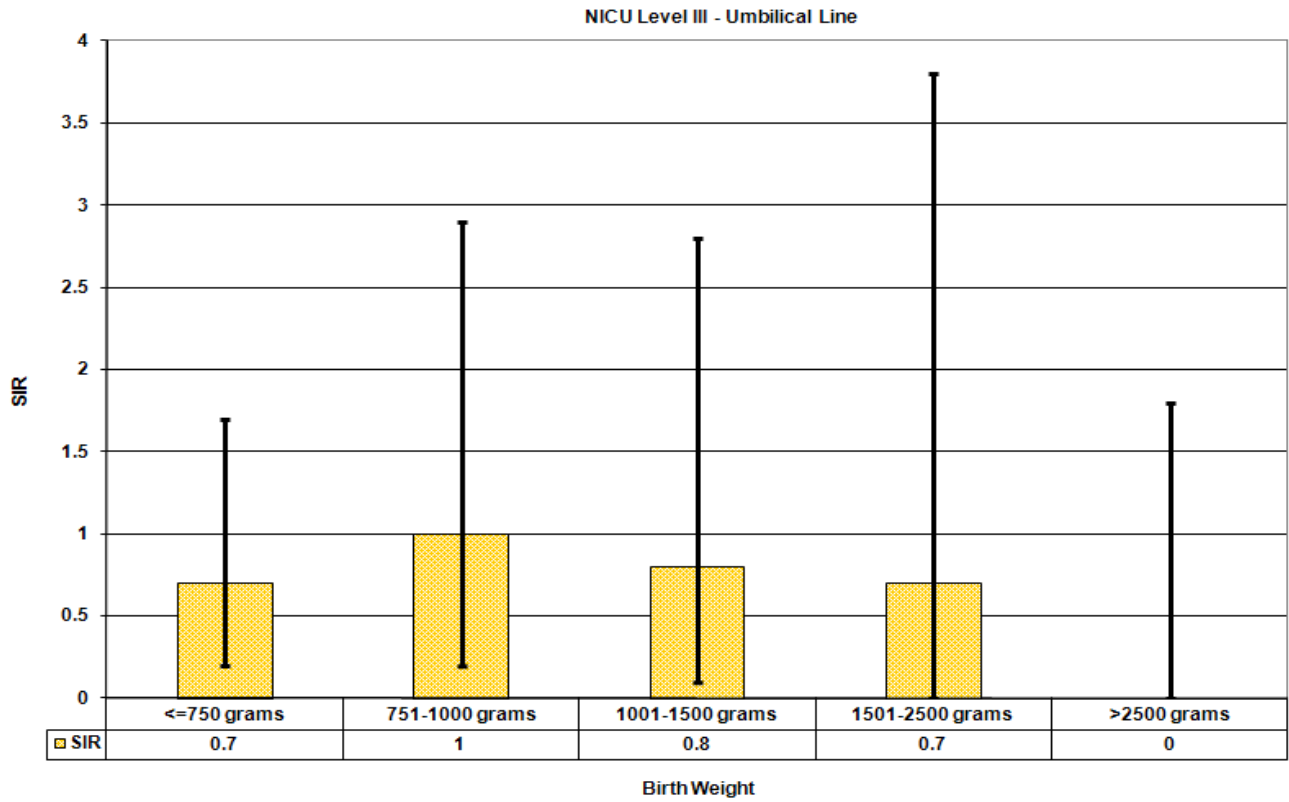


Figure 26: Standardized Infection Ratios (SIRs) for Umbilical Catheter-Associated Bloodstream Infections (UCABSI) in Level II/III Neonatal ICUs (NICUs) by Birth Weight Category, Tennessee, 7/2008-6/2009. [Reference standard: National Healthcare Safety Network (NHSN) 2006-8]

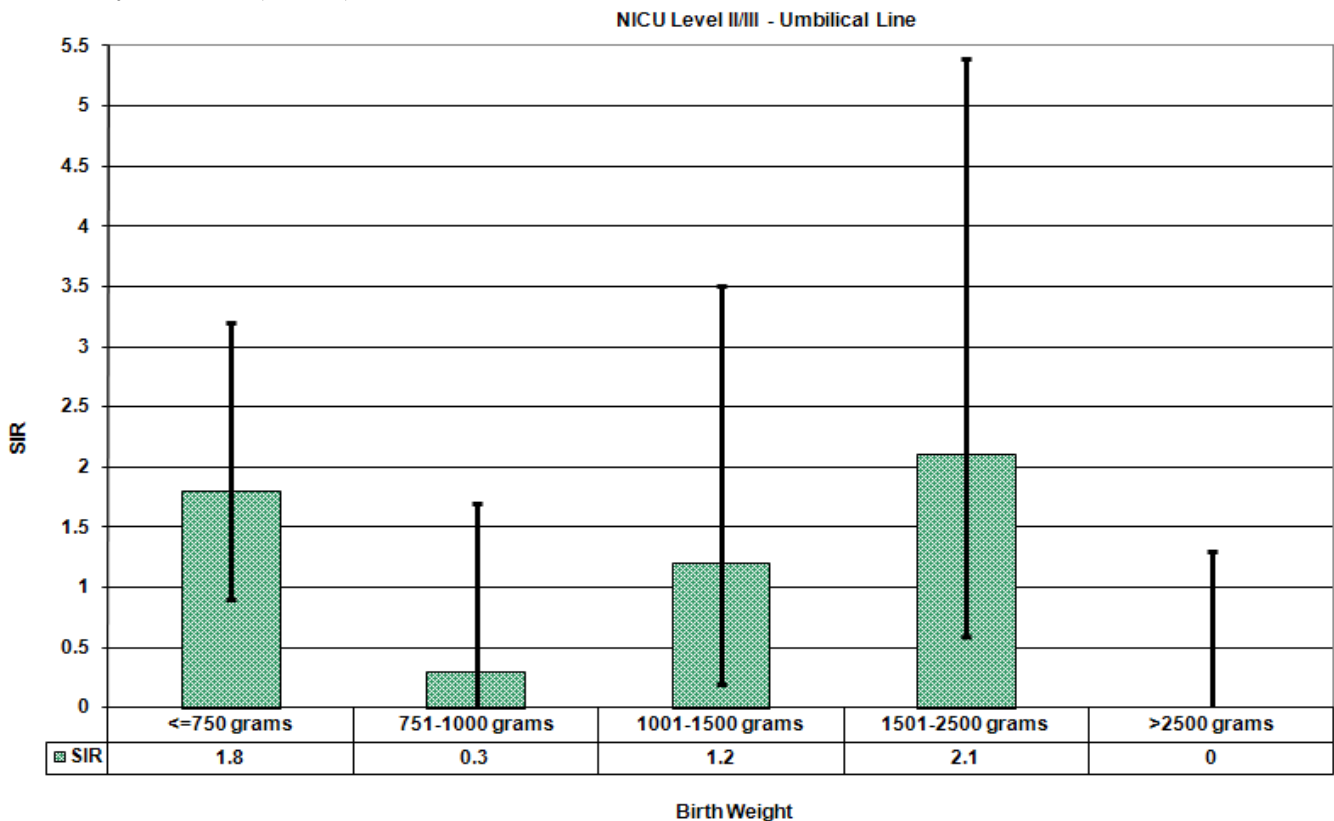


Figure 27: Standardized Infection Ratios (SIRs) for Central Line- and Umbilical Catheter-Associated Blood Stream Infections (CLABSIs/UCABSIs) by Neonatal Intensive Care Unit (NICU) Type and Grand Division, Tennessee, 7/2008-6/2009. [Reference standard: National Healthcare Safety Network (NHSN) 2006-8]

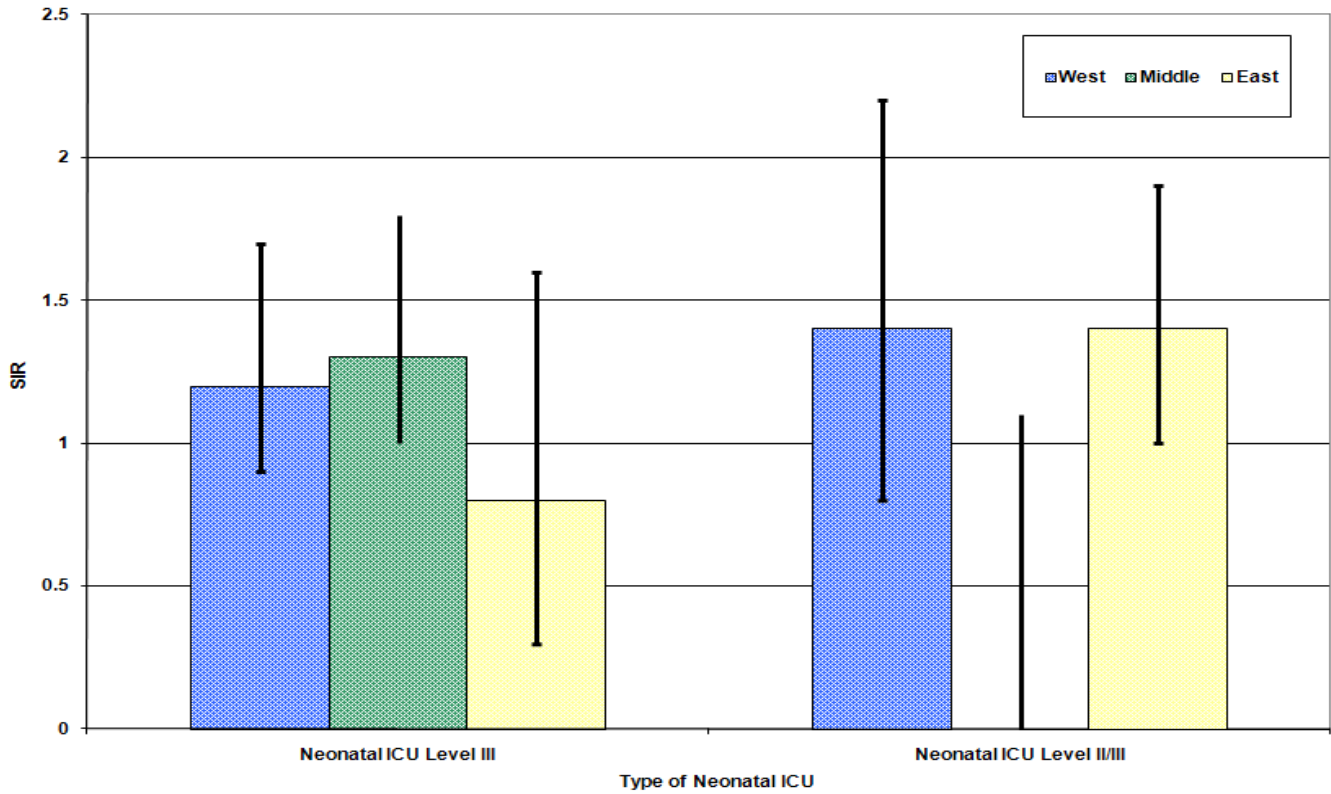
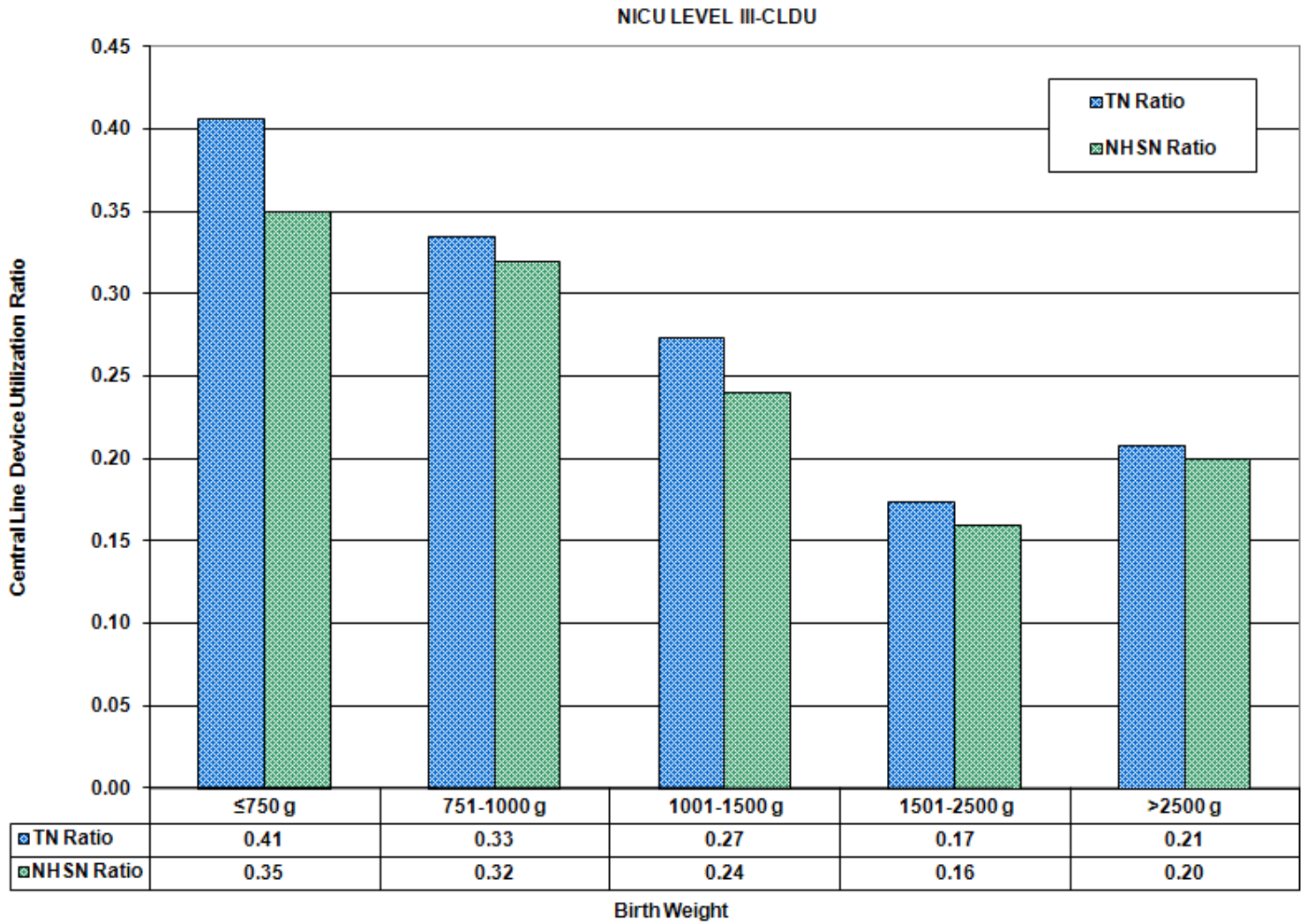
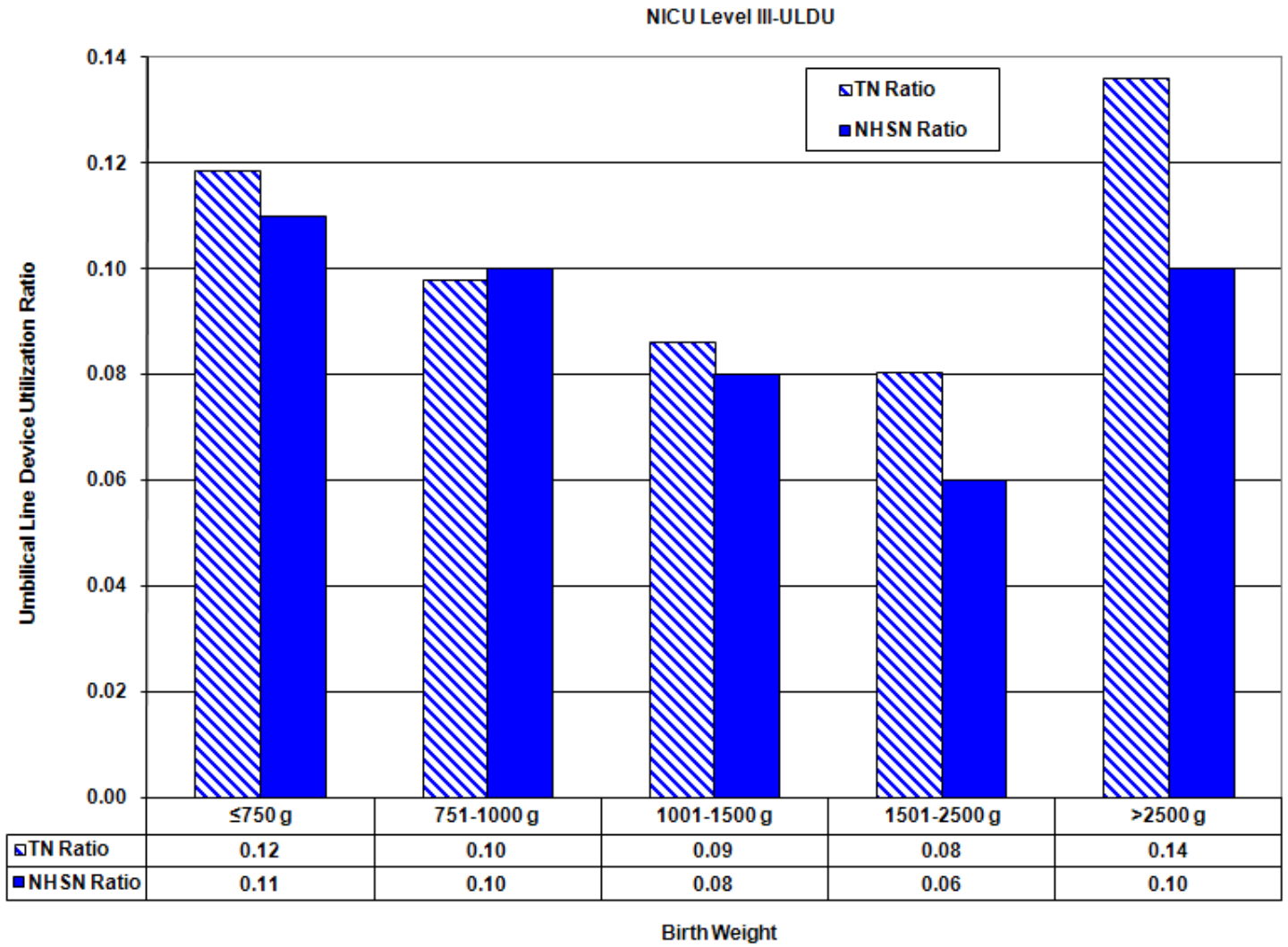


Figure 28: Central Line Utilization Ratios in Level III Neonatal Intensive Care Units (NICUs), Tennessee, 7/2008-6/2009 vs. National Healthcare Safety Network (NHSN) 2006-8



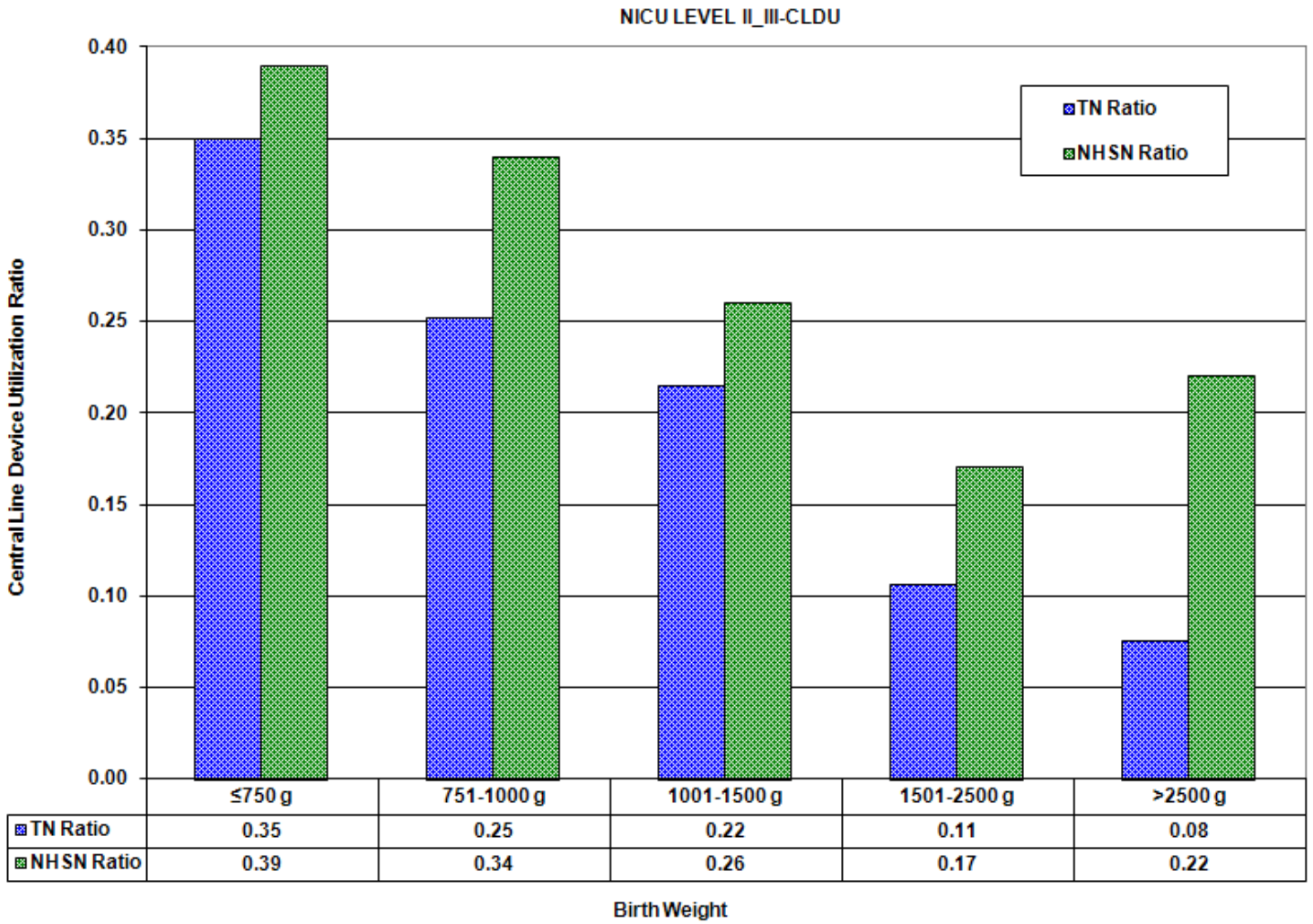
Central Line Utilization Ratio = number of central line days/ number of patient days

Figure 29: Umbilical Line Utilization Ratios in Level III Neonatal Intensive Care Units (NICUs), Tennessee, 7/2008-6/2009 vs. National Healthcare Safety Network (NHSN) 2006-8



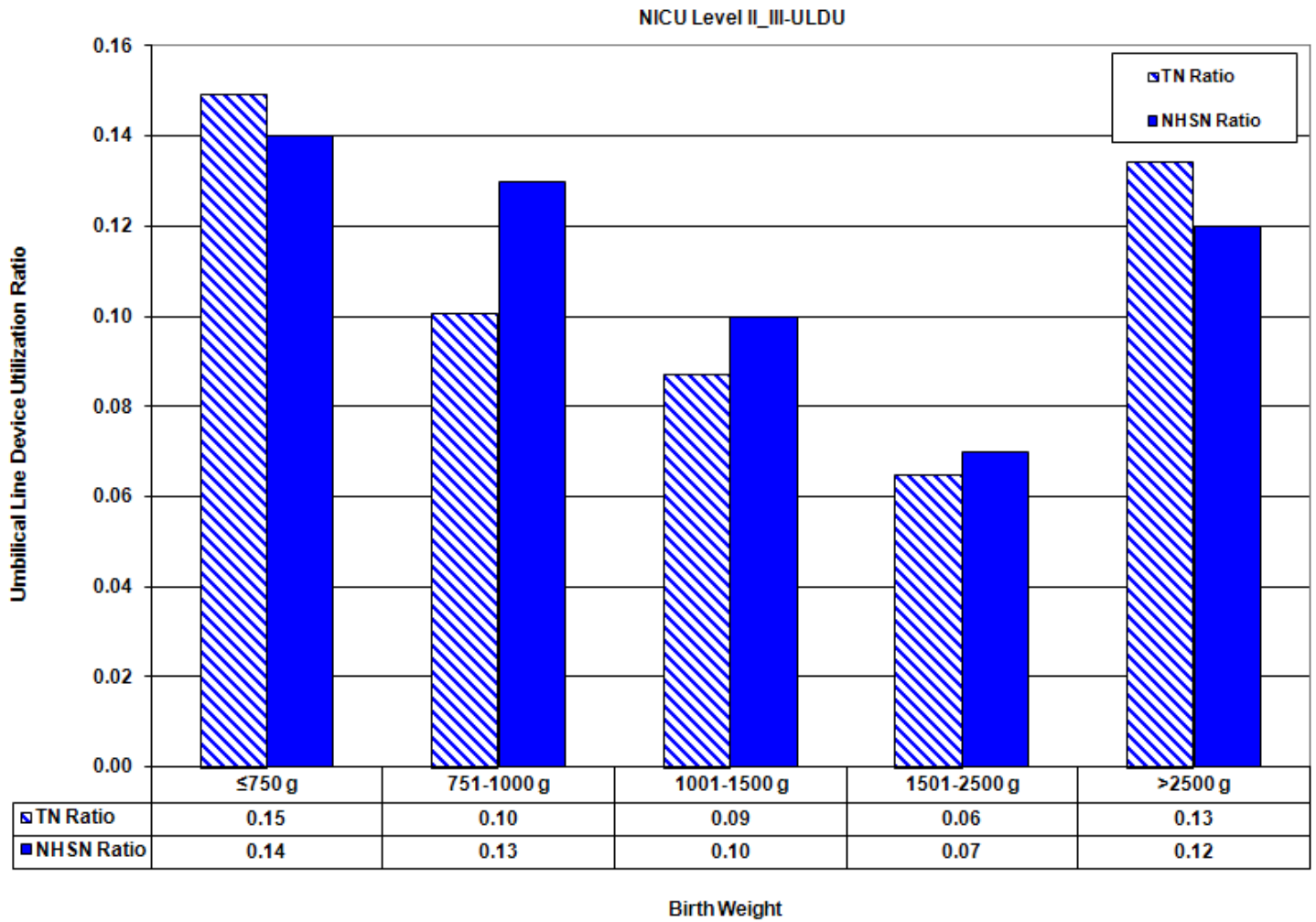
Umbilical Line Utilization Ratio = number of umbilical line days/ number of patient days

Figure 30: Central Line Utilization Ratios in Level II/III Neonatal Intensive Care Units (NICUs), Tennessee, 7/2008-6/2009 vs. National Healthcare Safety Network (NHSN) 2006-8



Central Line Utilization Ratio = number of central line days/ number of patient days

Figure 31: Umbilical Line Utilization Ratios in Level II/III Neonatal Intensive Care Units (NICUs), Tennessee, 7/2008-6/2009 vs. National Healthcare Safety Network (NHSN) 2006-8



Umbilical Line Utilization Ratio = number of umbilical line days/ number of patient days

Figure 32: Organisms Isolated from Central Line-Associated Bloodstream Infections (CLABSI) in Neonatal Intensive Care Units, Tennessee, 7/2008-6/2009
[Number of organisms = 174; number of events: 161]

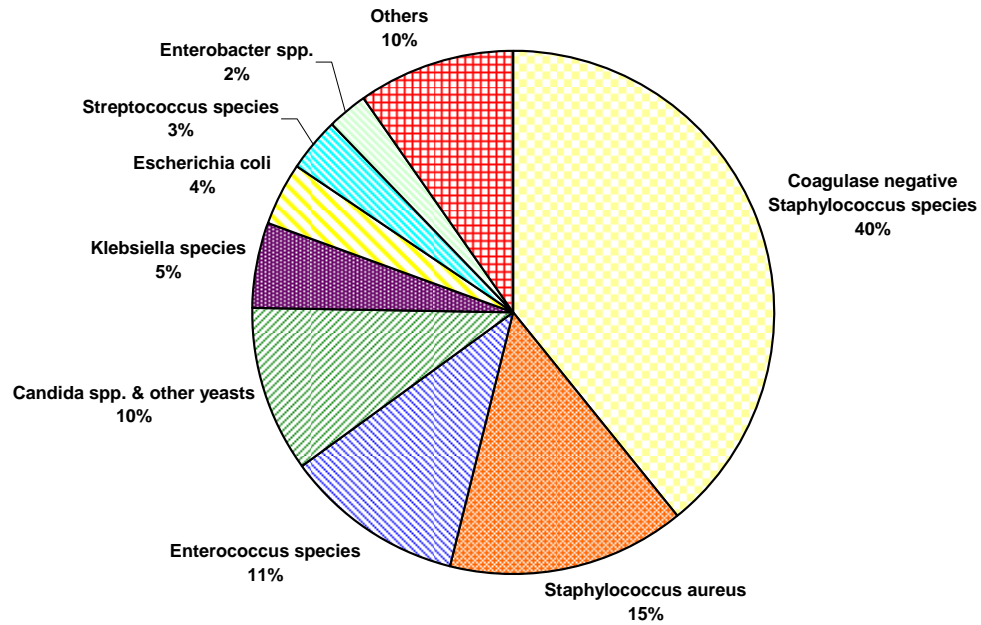


Table 15: Pooled Means and Key Percentile Distributions of Central Line-Associated Bloodstream Infection (CLABSI) Rates in Level III Neonatal ICUs
[Reportable period: 07/01/2008 - 06/30/2009]

Birth weight category	Central Line Associated Blood Stream Infection				Percentile				
	No. of facilities	No. of CLABSI	Central line-DAYS	Pooled mean*	10%	25%	50% (MEDIAN)	75%	90%
≤750 grams	7	35	5140	6.8	0	0	4	11	11
751-1000 grams	7	17	4088	4.2	0	0	4	6	6
1001-1500 grams	7	13	4863	2.7	0	0	2	5	7
1501-2500 grams	7	13	3696	3.5	0	0	1	4	5
>2500 grams	7	6	3508	1.7	0	0	0	1	2

Data reported as of June 28, 2010

CLABSI = Central Line-Associated Bloodstream Infection

*per 1000 central line days

Table 16: Pooled Means and Key Percentile Distributions of Central Line-Associated Bloodstream Infection (CLABSI) Rates in Level II/III Neonatal ICUs
[Reportable period: 07/01/2008 - 06/30/2009]

Birth weight category	Central Line Associated Blood Stream Infection				Percentile				
	No. of facilities	No. of CLABSI	Central line-DAYS	Pooled mean*	10%	25%	50% (MEDIAN)	75%	90%
≤750 grams	19	16	2700	5.9	0	0	1	5	10
751-1000 grams	19	10	2672	3.7	0	0	1	6	24
1001-1500 grams	19	10	3614	2.8	0	0	0	0	3
1501-2500 grams	19	7	3076	2.3	0	0	0	0	3
>2500 grams	19	4	1584	2.5	0	0	0	0	4

Data reported as of June 28, 2010

CLABSI = Central Line-Associated Bloodstream Infection

*per 1000 central line days

Table 17: Pooled Means and Key Percentile Distributions of Umbilical Catheter-Associated Bloodstream Infection (UCABSI) Rates in Level III Neonatal ICUs [Reportable period: 07/01/2008 - 06/30/2009]

Birth weight category	Umbilical Catheter Associated Blood Stream Infection				Percentile				
	No. of facilities	No. of UCABSI	Umbilical Catheter-DAYS	Pooled mean*	10%	25%	50% (MEDIAN)	75%	90%
≤750 grams	7	4	1500	2.7	0	0	0	4	5
751-1000 grams	7	3	1196	2.5	0	0	0	3	7
1001-1500 grams	7	2	1528	1.3	0	0	0	0	9
1501-2500 grams	7	1	1709	0.6	0	0	0	0	2
>2500 grams	7	0	2291	0.0	0	0	0	0	0

Data reported as of June 28, 2010

UCABSI = Umbilical Catheter-Associated Bloodstream Infection

*per 1000 central line days

Table 18: Pooled Means and Key Percentile Distributions of Umbilical Catheter-Associated Bloodstream Infection (UCABSI) Rates in Level II/III Neonatal ICUs [Reportable period: 07/01/2008 - 06/30/2009]

Birth weight category	Umbilical Catheter Associated Blood Stream Infection				Percentile				
	No. of facilities	No. of UCABSI	Umbilical Catheter-DAYS	Pooled mean*	10%	25%	50% (MEDIAN)	75%	90%
≤750 grams	19	12	1151	10.4	0	0	3	14	43
751-1000 grams	19	1	1066	0.9	0	0	0	0	0
1001-1500 grams	19	3	1464	2.0	0	0	0	0	6
1501-2500 grams	19	4	1881	2.1	0	0	0	0	9
>2500 grams	19	0	2833	0.0	0	0	0	0	0

Data reported as of June 28, 2010

UCABSI = Umbilical Catheter-Associated Bloodstream Infection

*per 1000 central line days

Table 19: Comparison of Tennessee and NHSN Central Line-Associated Bloodstream Infection (CLABSI) Rates in Level III Neonatal ICUs
[Reportable period: 07/01/2008 - 06/30/2009]

Birth Weight	TENNESSEE 7/2008-6/2009					NHSN 2006-2008				SIR AND 95% CONFIDENCE INTERVAL		
	No.	CLABSI	CL DAYS	POOLED MEAN*	MEDIAN RATE*	CLABSI	CL DAYS	POOLED MEAN*	MEDIAN RATE*	SIR	LOWER LIMIT	UPPER LIMIT
≤750 grams	7	35	5140	6.8	4.5	481	122272	3.9	3.2	1.7	1.2	2.4
751-1000 grams	7	17	4088	4.2	4.0	373	111293	3.4	2.5	1.2	0.7	2.0
1001-1500 grams	7	13	4863	2.7	1.6	276	112926	2.4	1.4	1.1	0.6	1.9
1501-2500 grams	7	13	3696	3.5	1.0	216	90384	2.4	0.7	1.5	0.8	2.5
>2500 grams	7	6	3508	1.7	0.0	157	82677	1.9	0.0	0.9	0.3	2.0
TOTAL	.	.	.	.	.	.	.	.	.	1.4	1.1	1.7

Data reported as of June 28, 2010

No. number of facilities

CL Days Central Line Days

SIR Standardized Infection Ratio (observed number/ statistically 'expected' number of CLABSI)

*per 1000 central line days

Red highlighting indicates rate for 2008-9 is significantly higher than National 2006-2008 rates

Blue highlighting indicates rate for 2008-9 is significantly lower than National 2006-2008 rates

Table 20: Comparison of Tennessee and NHSN Central Line-Associated Bloodstream Infection (CLABSI) Rates in Level II/III Neonatal ICUs
[Reportable period: 07/01/2008 - 06/30/2009]

Birth Weight	TENNESSEE 7/2008-6/2009					NHSN 2006-2008				SIR AND 95% CONFIDENCE INTERVAL		
	No.	CLABSI	CL DAYS	POOLED MEAN*	MEDIAN RATE*	CLABSI	CL DAYS	POOLED MEAN*	MEDIAN RATE*	SIR	LOWER LIMIT	UPPER LIMIT
≤750 grams	19	16	2700	5.9	1.3	250	60199	4.2	2.6	1.4	0.8	2.3
751-1000 grams	19	10	2672	3.7	1.0	159	49673	3.2	1.7	1.2	0.6	2.2
1001-1500 grams	19	10	3614	2.8	0.0	120	58893	2.0	0.6	1.4	0.7	2.5
1501-2500 grams	19	7	3076	2.3	0.0	65	43544	1.5	0.0	1.5	0.6	3.1
>2500 grams	19	4	1584	2.5	0.0	49	39669	1.2	0.0	2.0	0.6	5.2
TOTAL	.	.	.	.	.	.	.	.	.	1.4	1.0	1.9

Data reported as of June 28, 2010

No. number of facilities

CL Days Central Line Days

SIR Standardized Infection Ratio (observed number/ statistically 'expected' number of CLABSI)

** per1000 central line days*

Red highlighting indicates rate for 2008-9 is significantly higher than National 2006-2008 rates

Blue highlighting indicates rate for 2008-9 is significantly lower than National 2006-2008 rates

Table 21: Comparison of Tennessee and NHSN Umbilical Catheter-Associated Bloodstream Infection (UCABSI) Rates in Level III Neonatal ICUs
[Reportable period: 07/01/2008 - 06/30/2009]

Birth Weight	TENNESSEE 7/2008-6/2009					NHSN 2006-2008				SIR AND 95% CONFIDENCE INTERVAL		
	No.	UCABSI	UL DAYS	POOLED MEAN*	MEDIAN RATE*	CLABSI	UL DAYS	POOLED MEAN*	MEDIAN RATE*	SIR	LOWER LIMIT	UPPER LIMIT
≤750 grams	7	4	1500	2.7	0.0	129	32948	3.9	0.0	0.7	0.2	1.7
751-1000 grams	7	3	1196	2.5	0.0	75	29492	2.5	0.0	1.0	0.2	2.9
1001-1500 grams	7	2	1528	1.3	0.0	59	34379	1.7	0.0	0.8	0.1	2.8
1501-2500 grams	7	1	1709	0.6	0.0	28	32499	0.9	0.0	0.7	0.0	3.8
>2500 grams	7	0	2291	0.0	0.0	40	45568	0.9	0.0	0.0	0.0	1.8
TOTAL	.	.	.	.	.	.	.	.	.	0.7	0.3	1.2

Data reported as of June 28, 2010

No. number of facilities

UL Days Umbilical Catheter Line Days

SIR Standardized Infection Ratio (observed number/ statistically 'expected' number of CLABSI)

* per 1000 umbilical line days

Red highlighting indicates rate for 2008-9 is significantly higher than National 2006-2008 rates

Blue highlighting indicates rate for 2008-9 is significantly lower than National 2006-2008 rates

Table 22: Comparison of Tennessee and NHSN Umbilical Catheter-Associated Bloodstream Infection (UCABSI) Rates in Level II/III Neonatal ICUs
[Reportable period: 07/01/2008 - 06/30/2009]

Birth Weight	TENNESSEE 7/2008-6/2009					NHSN 2006-2008				SIR AND 95% CONFIDENCE INTERVAL		
	No.	UCABSI	UL DAYS	POOLED MEAN*	MEDIAN RATE*	CLABSI	UL DAYS	POOLED MEAN*	MEDIAN RATE*	SIR	LOWER LIMIT	UPPER LIMIT
≤750 grams	19	12	1151	10.4	3.2	98	17084	5.7	4.0	1.8	0.9	3.2
751-1000 grams	19	1	1066	0.9	0.0	51	16128	3.2	0.0	0.3	0.0	1.7
1001-1500 grams	19	3	1464	2.0	0.0	33	19459	1.7	0.0	1.2	0.2	3.5
1501-2500 grams	19	4	1881	2.1	0.0	19	18724	1.0	0.0	2.1	0.6	5.4
>2500 grams	19	0	2833	0.0	0.0	26	25890	1.0	0.0	0.0	0.0	1.3
TOTAL	.	.	.	.	.	.	.	.	.	1.2	0.7	1.8

Data reported as of June 28, 2010

No. number of facilities

UL Days Umbilical Catheter Line Days

SIR Standardized Infection Ratio (observed number/ statistically 'expected' number of CLABSI)

**per 1000 umbilical line days*

Red highlighting indicates rate for 2008-9 is significantly higher than National 2006-2008 rates

Blue highlighting indicates rate for 2008-9 is significantly lower than National 2006-2008 rates

Table 23: Central Line- and Umbilical Catheter-Associated Bloodstream Infection (CLABSI/UCABSI) Rates and Standardized Infection Ratios by NICU Type and Grand Division, Tennessee [Reportable period: 07/01/2008 - 06/30/2009]

Critical Care Unit	EAST							MIDDLE							WEST						
	No.	CLABSI	CL DAYS	POOLED MEAN*	SIR	Lower Limit	Upper Limit	No.	CLABSI	CL DAYS	POOLED MEAN*	SIR	Lower Limit	Upper Limit	No.	CLABSI	CL DAYS	POOLED MEAN*	SIR	Lower Limit	Upper Limit
Neonatal ICU Level III	1	7	3946	1.8	0.8	0.3	1.6	2	51	15261	3.3	1.3	1.0	1.8	4	36	10312	3.5	1.2	0.9	1.7
Neonatal ICU Level II/III	7	49	14449	3.4	1.4	1.0	1.9	7	0	2364	0.0	0.0	0.0	1.1	5	18	5228	3.4	1.4	0.8	2.2
TOTAL	.	.	.	.	1.3	1.0	1.7	.	.	.	.	1.2	0.9	1.6	.	.	.	.	1.3	1.0	1.7

Data reported as of June 28, 2010

No. number of facilities; CL Days Central Line Days (central line catheter and umbilical catheter combined)

SIR Standardized Infection Ratio (observed number/ statistically 'expected' number of CLABSI)

In this table, "CLABSI" includes both central line- and umbilical catheter-associated BSIs

*per 1000 line days

Red highlighting indicates rate for 2008-9 is significantly higher than National 2006-2008 rates

Blue highlighting indicates rate for 2008-9 is significantly lower than National 2006-2008 rates

Table 24: Microorganisms Identified in Central Line- and Umbilical Catheter-Associated Bloodstream Infections (CLABSIs/UCABSIs), Neonatal Intensive Care Units [Reportable Period: 07/01/2008 - 06/30/2009] [number of organisms: 174; number of events: 161]

Microorganism	Number Isolates	Percent
Coagulase-negative <i>Staphylococcus</i> species	68	39.1
<i>Staphylococcus aureus</i>	26	14.9
Methicillin-resistant <i>S. aureus</i> (MRSA) only (% of total positive isolates)	15	(8.6)
<i>Enterococcus</i> species (no VRE reported)	19	10.9
Candida species & other yeasts	18	10.3
<i>Candida albicans</i> only (% of total positive isolates)	5	(2.9)
<i>Klebsiella</i> species	9	5.2
<i>Escherichia coli</i>	7	4.0
<i>Streptococcus</i> species	6	3.4
<i>Enterobacter</i> species	4	2.3
<i>Pseudomonas aeruginosa</i>	3	1.7
<i>Serratia</i> species	3	1.7
<i>Micrococcus</i> species	2	1.1
<i>Proteus</i> species	2	1.1
<i>Morganella</i> species	1	0.6
<i>Bacillus</i> species unspecified	1	0.6
Other pathogens	5	2.9

Data reported as of June 28, 2010

Total number of isolates= 174; Total number of CLABSI/UCABSI events= 161;

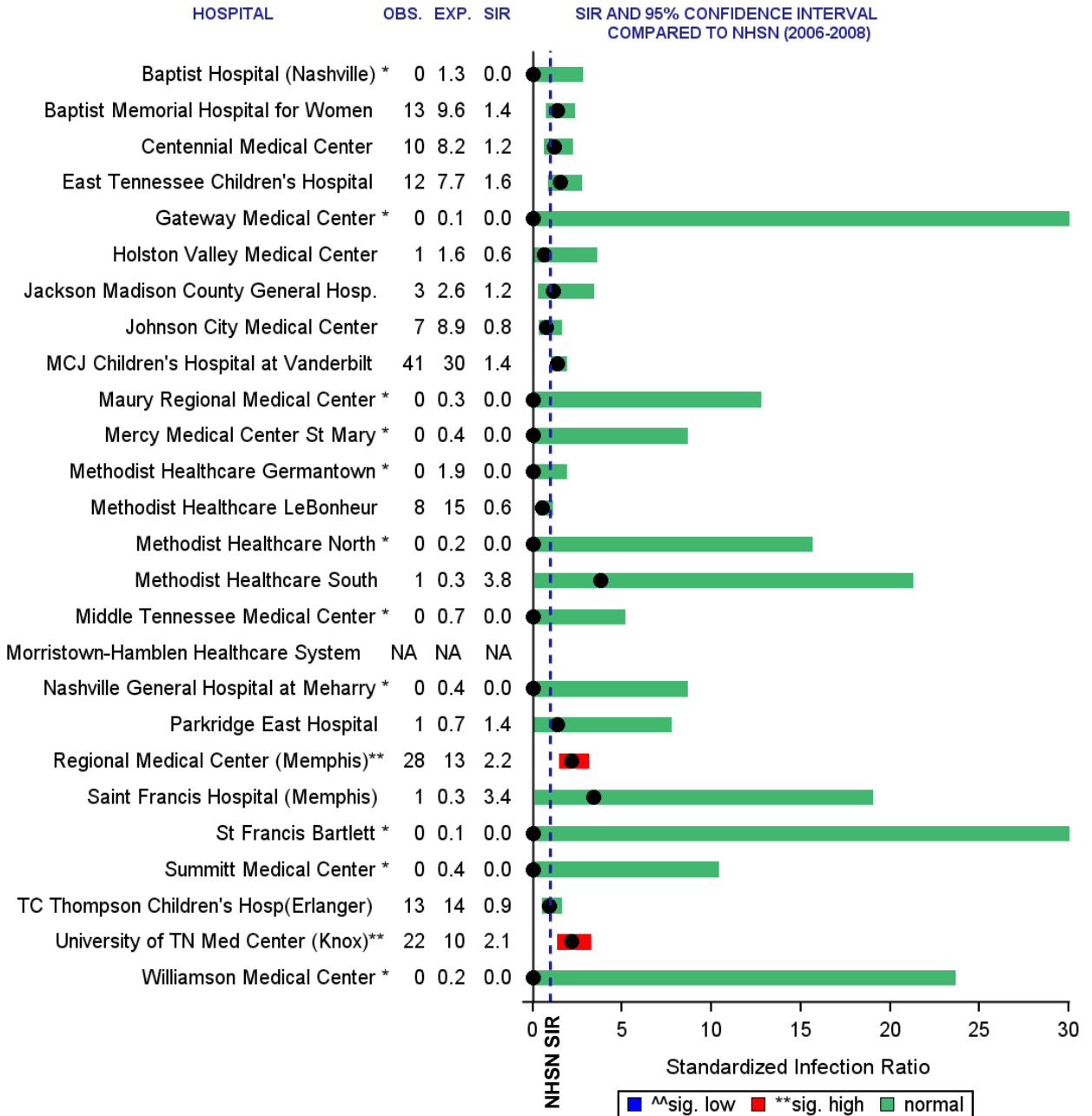
Other pathogens = Gram-negative cocci unspecified, *Pantoea* other, Coagulase-positive *Staphylococcus*, *Stenotrophomonas maltophilia*

VRE = vancomycin-resistant enterococci

MRSA = methicillin-resistant *Staphylococcus aureus*

Figure 33: Summary Measure for CLABSIs/UCABSIs in Neonatal Critical Care Units, One Standardized Infection Ratio (SIR) per Facility. Tennessee, 7/2008-6/2009

Central Line- and Umbilical Catheter-Associated Blood Stream Infection [CLABSIs/UCABSIs] Standardized Infection Ratio [SIR]
Tennessee (Reportable period: 07/01/2008 - 06/30/2009)



Data Reported from neonatal ICUs as of June 28, 2010.
 Obs. = observed number of CLABSIs/UCABSIs
 Exp. = statistically 'expected' number of CLABSIs/UCABSIs, based on NHSN data
 SIR = Standardized Infection Ratio (observed number / statistically 'expected' number of CLABSIs/UCABSIs)
 NA = data not shown for an entire hospital with <50 central line days
 ** significantly higher than NHSN (2006-2008)
 ^^ significantly lower than NHSN (2006-2008)
 * Zero infection, but not statistically significant

**Table 25: Measures of Central Line- and Umbilical Catheter-Associated Bloodstream Infections (CLABSIs/UCABSIs) in Level III Neonatal ICUs, Birth Weight \leq 750 grams
[Reportable period: 07/01/2008 - 06/30/2009]**

Hospital	INCIDENCE DENSITY RATE (LINE DAYS)				DEVICE UTILIZATION		INCIDENCE DENSITY RATE (INPATIENT DAYS)	
	RATE*	Lower Limit	Upper limit	TN %ile	DU(%)	TN %ile	INPATIENT DAYS	RATE**
Centennial Medical Center	7.9	2.9	17.2	86	33	14	2332	2.6
Johnson City Medical Center	3.2	0.4	11.4	57	65	86	969	2.1
MCJ Children's Hospital at Vanderbilt	7.1	4.0	11.7	71	58	57	3624	4.1
Methodist Healthcare Germantown	0.0	0.0	14.5	14	33	14	774	0.0
Methodist Healthcare LeBonheur	1.7	0.2	6.1	43	73	100	1624	1.2
Methodist Healthcare North	NA	NA	NA	NA	63	71	64	0.0
Regional Medical Center (Memphis)	8.5	4.6	14.2	100	50	43	3275	4.3

Data reported as of June 28, 2010

* per 1000 line days

** per 1000 inpatient days

TN%ile percentile in TN

DU(%) device utilization(%)

NA not reported due to central line days <50

NA* not available because of no inpatient days

Red highlighting indicates rate for 2008-9 is significantly higher than the National 2006-2008 rate of 3.9 BSIs/1000 line days

Blue highlighting indicates rate for 2008-9 is significantly lower than the National 2006-2008 rate of 3.9 BSIs/1000 line days

Table 26: Measures of Central Line- and Umbilical Catheter-Associated Bloodstream Infections (CLABSIs/UCABSIs) in Level III Neonatal ICUs, Birth Weight 751-1000 grams [Reportable period: 07/01/2008 - 06/30/2009]

Hospital	INCIDENCE DENSITY RATE (LINE DAYS)				DEVICE UTILIZATION		INCIDENCE DENSITY RATE (INPATIENT DAYS)	
	RATE*	Lower Limit	Upper limit	TN %ile	DU(%)	TN %ile	INPATIENT DAYS	RATE**
Centennial Medical Center	4.0	0.5	14.3	86	27	29	1856	1.1
Johnson City Medical Center	2.8	0.3	10.2	57	53	71	1324	1.5
MCJ Children's Hospital at Vanderbilt	3.9	1.7	7.7	71	52	57	3935	2.0
Methodist Healthcare Germantown	0.0	0.0	23.6	14	26	14	608	0.0
Methodist Healthcare LeBonheur	1.4	0.0	7.8	43	66	100	1081	0.9
Methodist Healthcare North	NA	NA	NA	NA	62	86	13	0.0
Regional Medical Center (Memphis)	6.1	2.4	12.5	100	34	43	3400	2.1

Data reported as of June 28, 2010

* per 1000 central line days

** per 1000 inpatient days

TN%ile percentile in TN

DU(%) device utilization(%)

NA not reported due to central line days <50

NA* not available because of no inpatient days

Red highlighting indicates rate for 2008-9 is significantly higher than the National 2006-2008 rate of 3.2 BSIs/1000 line days

Blue highlighting indicates rate for 2008-9 is significantly lower than the National 2006-2008 rate of 3.2 BSIs/1000 line days

Table 27: Measures of Central Line- and Umbilical Catheter-Associated Bloodstream Infections (CLABSIs/UCABSIs) in Level III Neonatal ICUs, Birth Weight 1001-1500 grams [Reportable period: 07/01/2008 - 06/30/2009]

Hospital	INCIDENCE DENSITY RATE (LINE DAYS)				DEVICE UTILIZATION		INCIDENCE DENSITY RATE (INPATIENT DAYS)	
	RATE*	Lower Limit	Upper limit	TN %ile	DU(%)	TN %ile	INPATIENT DAYS	RATE**
Centennial Medical Center	1.0	0.0	5.4	43	28	57	3712	0.3
Johnson City Medical Center	3.1	0.6	9.1	86	48	71	2019	1.5
MCJ Children's Hospital at Vanderbilt	1.3	0.3	3.9	71	48	71	4707	0.6
Methodist Healthcare Germantown	0.0	0.0	22.8	14	11	14	1417	0.0
Methodist Healthcare LeBonheur	1.0	0.0	5.5	57	81	100	1243	0.8
Methodist Healthcare North	NA	NA	NA	NA	17	29	130	0.0
Regional Medical Center (Memphis)	7.2	2.9	14.9	100	21	43	4540	1.5

Data reported as of June 28, 2010

* per 1000 central line days

** per 1000 inpatient days

TN%ile percentile in TN

DU(%) device utilization(%)

NA not reported due to central line days <50

NA* not available because of no inpatient days

Red highlighting indicates rate for 2008-9 is significantly **higher** than the National 2006-2008 rate of 2.3 BSIs/1000 line days

Blue highlighting indicates rate for 2008-9 is significantly **lower** than the National 2006-2008 rate of 2.3 BSIs/1000 line days

**Table 28: Measures of Central Line- and Umbilical Catheter-Associated Bloodstream Infection
(CLABSIs/UCABSIs) in Level III Neonatal ICUs,
Birth Weight 1501-2500 grams
[Reportable period: 07/01/2008 - 06/30/2009]**

Hospital	INCIDENCE DENSITY RATE (LINE DAYS)				DEVICE UTILIZATION		INCIDENCE DENSITY RATE (INPATIENT DAYS)	
	RATE*	Lower Limit	Upper limit	TN %ile	DU(%)	TN %ile	INPATIENT DAYS	RATE**
Centennial Medical Center	1.4	0.0	7.7	71	15	57	4851	0.2
Johnson City Medical Center	0.0	0.0	4.3	14	32	71	2656	0.0
MCJ Children's Hospital at Vanderbilt	4.5	2.2	8.0	100	41	86	6031	1.8
Methodist Healthcare Germantown	0.0	0.0	53.5	14	4	14	1584	0.0
Methodist Healthcare LeBonheur	1.9	0.2	6.8	86	58	100	1833	1.1
Methodist Healthcare North	NA	NA	NA	NA	7	43	71	0.0
Regional Medical Center (Memphis)	0.0	0.0	16.6	14	5	29	4213	0.0

Data reported as of June 28, 2010

** per 1000 central line days*

*** per 1000 inpatient days*

TN%ile percentile in TN

DU(%) device utilization(%)

NA not reported due to central line days <50

NA not available because of no inpatient days*

Red highlighting indicates rate for 2008-9 is significantly higher than the National 2006-2008 rate of 2.0 BSIs/1000 line days

Blue highlighting indicates rate for 2008-9 is significantly lower than the National 2006-2008 rate of 2.0 BSIs/1000 line days

Table 29: Measures of Central Line- and Umbilical Catheter-Associated Bloodstream Infections (CLABSIs/UCABSIs) in Level III Neonatal ICUs, Birth Weight >2500 grams [Reportable period: 07/01/2008 - 06/30/2009]

Hospital	INCIDENCE DENSITY RATE (LINE DAYS)				DEVICE UTILIZATION		INCIDENCE DENSITY RATE (INPATIENT DAYS)	
	RATE*	Lower Limit	Upper limit	TN %ile	DU(%)	TN %ile	INPATIENT DAYS	RATE**
Centennial Medical Center	0.0	0.0	8.2	14	18	57	2532	0.0
Johnson City Medical Center	0.0	0.0	4.7	14	36	71	2169	0.0
MCJ Children's Hospital at Vanderbilt	1.4	0.4	3.5	100	52	86	5629	0.7
Methodist Healthcare Germantown	NA	NA	NA	NA	6	29	673	0.0
Methodist Healthcare LeBonheur	1.4	0.2	4.9	86	55	100	2664	0.8
Methodist Healthcare North	NA	NA	NA	NA	6	29	62	0.0
Regional Medical Center (Memphis)	0.0	0.0	36.5	14	3	14	3114	0.0

Data reported as of June 28, 2010

** per 1000 central line days*

*** per 1000 inpatient days*

TN%ile percentile in TN

DU(%) device utilization(%)

NA not reported due to central line days <50

NA not available because of no inpatient days*

Red highlighting indicates rate for 2008-9 is significantly higher than the National 2006-2008 rate of 1.5 BSIs/1000 line days

Blue highlighting indicates rate for 2008-9 is significantly lower than the National 2006-2008 rate of 1.5 BSIs/1000 line days

Table 30: Measures of Central Line- and Umbilical Catheter-Associated Bloodstream Infections (CLABSIs/UCABSIs) in Level II/III Neonatal ICUs, Birth Weight ≤750 grams [Reportable period: 07/01/2008 - 06/30/2009]

Hospital	INCIDENCE DENSITY RATE (LINE DAYS)				DEVICE UTILIZATION		INCIDENCE DENSITY RATE (INPATIENT DAYS)	
	RATE*	Lower Limit	Upper limit	TN %ile	DU(%)	TN %ile	INPATIENT DAYS	RATE**
Baptist Hospital (Nashville)	0.0	0.0	40.5	10	17	18	548	0.0
Baptist Memorial Hospital for Women	3.5	0.4	12.7	50	63	91	899	2.2
East Tennessee Children's Hospital	6.9	1.9	17.6	80	45	36	1299	3.1
Gateway Medical Center	NA	NA	NA	NA	NA*	NA*	0	NA*
Holston Valley Medical Center	0.0	0.0	51.2	10	49	55	146	0.0
Jackson Madison County General Hosp.	5.8	0.1	32.2	70	95	100	182	5.5
Maury Regional Medical Center	NA	NA	NA	NA	0	9	18	0.0
Mercy Medical Center St Mary	NA	NA	NA	NA	NA*	NA*	0	NA*
Methodist Healthcare South	NA	NA	NA	NA	42	27	57	0.0
Middle Tennessee Medical Center	NA	NA	NA	NA	NA*	NA*	0	NA*
Morristown-Hamblen Healthcare System	NA	NA	NA	NA	NA*	NA*	0	NA*
Nashville General Hospital at Meharry	NA	NA	NA	NA	50	64	2	0.0
Parkridge East Hospital	NA	NA	NA	NA	52	73	50	20.0
Saint Francis Hospital (Memphis)	NA	NA	NA	NA	NA*	NA*	0	NA*
St Francis Bartlett	NA	NA	NA	NA	NA*	NA*	0	NA*
Summitt Medical Center	NA	NA	NA	NA	NA*	NA*	0	NA*
TC Thompson Children's Hosp (Erlanger)	4.7	1.9	9.7	60	54	82	2773	2.5
University of TN Med Center (Knox)	15.8	8.4	27.1	90	47	45	1749	7.4
Williamson Medical Center	NA	NA	NA	NA	NA*	NA*	0	NA*

Data reported as of June 28, 2010

* per 1000 central line days

** per 1000 inpatient days

TN%ile percentile in TN

DU(%) device utilization(%)

NA not reported due to central line days <50

NA* not available because of no inpatient days

Red highlighting indicates rate for 2008-9 is significantly higher than the National 2006-2008 rate of 4.5 BSIs/1000 line days

Blue highlighting indicates rate for 2008-9 is significantly lower than the National 2006-2008 rate of 4.5 BSIs/1000 line days

Table 31: Measures of Central Line- and Umbilical Catheter-Associated Bloodstream Infections (CLABSIs/UCABSIs) in Level II/III Neonatal ICUs, Birth Weight 751-1000 grams [Reportable period: 07/01/2008 - 06/30/2009]

Hospital	INCIDENCE DENSITY RATE (LINE DAYS)				DEVICE UTILIZATION		INCIDENCE DENSITY RATE (INPATIENT DAYS)	
	RATE*	Lower Limit	Upper limit	TN %ile	DU(%)	TN %ile	INPATIENT DAYS	RATE**
Baptist Hospital (Nashville)	0.0	0.0	38.8	8	9	15	1046	0.0
Baptist Memorial Hospital for Women	5.3	1.7	12.4	92	49	85	1933	2.6
East Tennessee Children's Hospital	4.9	1.0	14.4	83	46	77	1325	2.3
Gateway Medical Center	NA	NA	NA	NA	NA*	NA*	0	NA*
Holston Valley Medical Center	0.0	0.0	25.8	8	39	62	367	0.0
Jackson Madison County General Hosp.	3.1	0.1	17.4	75	54	92	593	1.7
Maury Regional Medical Center	NA	NA	NA	NA	0	8	25	0.0
Mercy Medical Center St Mary	NA	NA	NA	NA	34	38	138	0.0
Methodist Healthcare South	NA	NA	NA	NA	41	69	58	17.2
Middle Tennessee Medical Center	NA	NA	NA	NA	NA*	NA*	0	NA*
Morristown-Hamblen Healthcare System	NA	NA	NA	NA	NA*	NA*	0	NA*
Nashville General Hospital at Meharry	NA	NA	NA	NA	NA*	NA*	0	NA*
Parkridge East Hospital	0.0	0.0	31.8	8	27	23	427	0.0
Saint Francis Hospital (Memphis)	NA	NA	NA	NA	38	54	21	0.0
St Francis Bartlett	NA	NA	NA	NA	NA*	NA*	0	NA*
Summitt Medical Center	NA	NA	NA	NA	100	100	1	0.0
TC Thompson Children's Hosp (Erlanger)	0.0	0.0	4.4	8	29	31	2908	0.0
University of TN Med Center (Knox)	1.7	0.0	9.3	67	34	38	1759	0.6
Williamson Medical Center	NA	NA	NA	NA	NA*	NA*	0	NA*

Data reported as of June 28, 2010

* per 1000 central line days

** per 1000 inpatient days

TN%ile percentile in TN

DU(%) device utilization(%)

NA not reported due to central line days <50

NA* not available because of no inpatient days

Red highlighting indicates rate for 2008-9 is significantly higher than the National 2006-2008 rate of 3.2 BSIs/1000 line days

Blue highlighting indicates rate for 2008-9 is significantly lower than the National 2006-2008 rate of 3.2 BSIs/1000 line days

Table 32: Measures of Central Line- and Umbilical Catheter-Associated Bloodstream Infections (CLABSIs/UCABSIs) in Level II/III Neonatal ICUs, Birth Weight 1001-1500 grams [Reportable period: 07/01/2008 - 06/30/2009]

Hospital	INCIDENCE DENSITY RATE (LINE DAYS)				DEVICE UTILIZATION		INCIDENCE DENSITY RATE (INPATIENT DAYS)	
	RATE*	Lower Limit	Upper limit	TN %ile	DU(%)	TN %ile	INPATIENT DAYS	RATE**
Baptist Hospital (Nashville)	0.0	0.0	29.5	6	22	47	569	0.0
Baptist Memorial Hospital for Women	3.1	0.8	7.9	88	46	88	2829	1.4
East Tennessee Children's Hospital	0.0	0.0	7.7	6	22	47	2185	0.0
Gateway Medical Center	NA	NA	NA	NA	0	6	282	0.0
Holston Valley Medical Center	0.0	0.0	26.5	6	31	65	444	0.0
Jackson Madison County General Hosp.	3.7	0.1	20.6	94	16	24	1655	0.6
Maury Regional Medical Center	0.0	0.0	50.5	6	18	29	413	0.0
Mercy Medical Center St Mary	NA	NA	NA	NA	32	71	50	0.0
Methodist Healthcare South	NA	NA	NA	NA	11	12	287	0.0
Middle Tennessee Medical Center	NA	NA	NA	NA	NA*	NA*	0	NA*
Morristown-Hamblen Healthcare System	NA	NA	NA	NA	NA*	NA*	0	NA*
Nashville General Hospital at Meharry	0.0	0.0	56.8	6	66	94	98	0.0
Parkridge East Hospital	0.0	0.0	57.6	6	20	41	323	0.0
Saint Francis Hospital (Memphis)	0.0	0.0	47.9	6	18	29	421	0.0
St Francis Bartlett	NA	NA	NA	NA	12	18	239	0.0
Summitt Medical Center	0.0	0.0	52.7	6	96	100	73	0.0
TC Thompson Children's Hosp (Erlanger)	1.5	0.2	5.3	82	34	82	3967	0.5
University of TN Med Center (Knox)	6.2	2.3	13.4	100	33	76	2952	2.0
Williamson Medical Center	NA	NA	NA	NA	30	59	20	0.0

Data reported as of June 28, 2010

* per 1000 central line days

** per 1000 inpatient days

TN%ile percentile in TN

DU(%) device utilization(%)

NA not reported due to central line days <50

NA* not available because of no inpatient days

Red highlighting indicates rate for 2008-9 is significantly higher than the National 2006-2008 rate of 2.0 BSIs/1000 line days

Blue highlighting indicates rate for 2008-9 is significantly lower than the National 2006-2008 rate of 2.0 BSIs/1000 line days

Table 33: Measures of Central Line- and Umbilical Catheter-Associated Bloodstream Infections (CLABSIs/UCABSIs) in Level II/III Neonatal ICUs, Birth Weight 1501-2500 grams [Reportable period: 07/01/2008 - 06/30/2009]

Hospital	INCIDENCE DENSITY RATE (LINE DAYS)				DEVICE UTILIZATION		INCIDENCE DENSITY RATE (INPATIENT DAYS)	
	RATE*	Lower Limit	Upper limit	TN %ile	DU(%)	TN %ile	INPATIENT DAYS	RATE**
Baptist Hospital (Nashville)	0.0	0.0	33.8	6	13	56	866	0.0
Baptist Memorial Hospital for Women	1.4	0.0	7.7	72	23	78	3077	0.3
East Tennessee Children's Hospital	4.4	1.2	11.2	94	25	83	3706	1.1
Gateway Medical Center	0.0	0.0	50.5	6	7	28	1079	0.0
Holston Valley Medical Center	3.9	0.1	21.6	89	18	72	1428	0.7
Jackson Madison County General Hosp.	0.0	0.0	38.0	6	3	11	3549	0.0
Maury Regional Medical Center	0.0	0.0	38.8	6	11	44	884	0.0
Mercy Medical Center St Mary	0.0	0.0	31.3	6	12	50	1022	0.0
Methodist Healthcare South	NA	NA	NA	NA	2	6	459	0.0
Middle Tennessee Medical Center	NA	NA	NA	NA	NA*	NA*	0	NA*
Morristown-Hamblen Healthcare System	NA	NA	NA	NA	5	17	91	0.0
Nashville General Hospital at Meharry	0.0	0.0	28.8	6	34	94	376	0.0
Parkridge East Hospital	0.0	0.0	62.5	6	6	22	997	0.0
Saint Francis Hospital (Memphis)	12.3	0.3	68.8	100	9	33	888	1.1
St Francis Bartlett	NA	NA	NA	NA	10	39	451	0.0
Summitt Medical Center	0.0	0.0	29.3	6	72	100	174	0.0
TC Thompson Children's Hosp (Erlanger)	2.6	0.3	9.4	83	16	67	4715	0.4
University of TN Med Center (Knox)	1.5	0.2	5.6	78	27	89	4791	0.4
Williamson Medical Center	0.0	0.0	61.5	6	13	56	472	0.0

Data reported as of June 28, 2010

* per 1000 central line days

** per 1000 inpatient days

TN%ile percentile in TN

DU(%) device utilization(%)

NA not reported due to central line days <50

NA* not available because of no inpatient days

Red highlighting indicates rate for 2008-9 is significantly higher than the National 2006-2008 rate of 1.3 BSIs/1000 line days

Blue highlighting indicates rate for 2008-9 is significantly lower than the National 2006-2008 rate of 1.3 BSIs/1000 line days

Table 34: Measures of Central Line- and Umbilical Catheter-Associated Bloodstream Infections (CLABSIs/UCABSIs) in Level II/III Neonatal ICUs, Birth weight >2500 grams [Reportable period: 07/01/2008 - 06/30/2009]

Hospital	INCIDENCE DENSITY RATE (LINE DAYS)				DEVICE UTILIZATION		INCIDENCE DENSITY RATE (INPATIENT DAYS)	
	RATE*	Lower Limit	Upper limit	TN %ile	DU(%)	TN %ile	INPATIENT DAYS	RATE**
Baptist Hospital (Nashville)	0.0	0.0	19.4	5	38	95	496	0.0
Baptist Memorial Hospital for Women	2.7	0.1	14.9	95	30	89	1269	0.8
East Tennessee Children's Hospital	1.1	0.0	5.9	89	28	79	3298	0.3
Gateway Medical Center	NA	NA	NA	NA	6	21	703	0.0
Holston Valley Medical Center	0.0	0.0	23.2	5	18	53	868	0.0
Jackson Madison County General Hosp.	0.0	0.0	57.6	5	4	11	1580	0.0
Maury Regional Medical Center	NA	NA	NA	NA	10	37	381	0.0
Mercy Medical Center St Mary	0.0	0.0	47.9	5	9	32	857	0.0
Methodist Healthcare South	NA	NA	NA	NA	5	16	196	0.0
Middle Tennessee Medical Center	0.0	0.0	5.2	5	20	58	3555	0.0
Morristown-Hamblen Healthcare System	NA	NA	NA	NA	10	37	99	0.0
Nashville General Hospital at Meharry	0.0	0.0	45.0	5	29	84	285	0.0
Parkridge East Hospital	NA	NA	NA	NA	6	21	591	0.0
Saint Francis Hospital (Memphis)	0.0	0.0	68.3	5	10	37	556	0.0
St Francis Bartlett	NA	NA	NA	NA	2	5	364	0.0
Summitt Medical Center	0.0	0.0	38.0	5	69	100	140	0.0
TC Thompson Children's Hosp (Erlanger)	2.7	0.3	9.9	100	26	68	2788	0.7
University of TN Med Center (Knox)	0.0	0.0	5.2	5	26	68	2716	0.0
Williamson Medical Center	0.0	0.0	43.9	5	23	63	363	0.0

Data reported as of June 28, 2010

* per 1000 central line days

** per 1000 inpatient days

TN%ile percentile in TN

DU(%) device utilization(%)

NA not reported due to central line days <50

NA* not available because of no inpatient days

Red highlighting indicates rate for 2008-9 is significantly higher than the National 2006-2008 rate of 1.1 BSIs/1000 line days

Blue highlighting indicates rate for 2008-9 is significantly lower than the National 2006-2008 rate of 1.1 BSIs/1000 line days