Tennessee Department of Health Healthcare Associated Infection Activities: Using Data for Prevention

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Director, Healthcare Associated Infections and Antimicrobial Resistance Program, Tennessee Department of Health

HICPAC
November 4-5, 2010

Outline

- *ELC funded activities A, B, C*
- *EIP funded research*
- *Using Data for Prevention*

ARRA-ELC-HAI Activities: A

- *Activity A:*
  - *Multi-disciplinary advisory committee (MDAG)*
    - *Broad representation- across healthcare spectrum (acute care, LTAC, LTCF, dialysis; hospital leadership (C-suite, Hospital Association, IPs, APIC, microbiologist, informatics, consumers, third party payers*
    - *Last meeting: Nov 2, 2010*
      - *Surveillance working group*
      - *Timeline of expanding reporting requirements; input into surveillance*
  - *State HAI Action Plan (consistent with HHS Action Plan)*

TN HAI Reporting Requirements

- *CLABSI* *ICUs, SCA:*
  Acute care facilities, ADC≥25; all LTAC
- *SSI* *CBGB; CBGC; HPRO;*
  CARD in 7/2011, KPRO in 1/2012
- *MRSA* *LABID event BC only, FACWIDE-IN plus ED,*
  Acute care facilities, ADC≥25; all LTAC
- *C.diff* *LABID event, FACWIDE-IN plus ED,*
  Acute care facilities, ADC≥25; all LTAC

ARRA-ELC-HAI Activities: B

- Activity B: Surveillance
  - Training & support
    - Enrollment into NHSN, Protocol, Definitions
    - Tools: definition work-sheets; LabID event identification instructions using Excel 2003/2007
  - Face- to-face Regional Training (3 grand divisions)
  - Webinars
  - Statewide Monthly Conference Calls
  - HAI Online Workspace on NING network:
    - Facebook for HAI"
    - Posting documents, training materials, events,
    - Interactive discussions (subscribe/unsubscribe " targeted listserv")

Tennessee HAI Online Workspace

Healthcare Associated Infections in Tennessee

Main | Invite | My Page | Members | Discussion Forum | Events | Groups

Online workspace for collaboration across the state of Tennessee related to healthcare associated infections surveillance and prevention.

Latest Activity

Brynn Berger replied to Brynn Berger's discussion 'Observation Days Question'
October 27

Margaret Mitchell Chambers replied to Brynn Berger's discussion 'Observation Days Question'
October 27

Brynn Berger replied to Brynn Berger's discussion 'Observation Days Question'
October 27

Margaret Mitchell Chambers replied to Brynn Berger's discussion 'Observation Days Question'
October 26

Members

+ Invite More | View All

Groups

- NHSN TRAINING-TDH — 35 members
- Infection Control Resour... — 24 members
- Performance Improveme — 7 members
- TN State HAI Calls — 32 members
- CDI Prevention Collabora... — 14 members
- Information Technology — 8 members
- Emerging Infections Prog... — 17 members
- CLABSI Surveillance — 34 members
- SSI Surveillance — 34 members
- MRSA/CDI Surveillance — 44 members

+ Add a Group | View All

Events

November 15 Monday — **NHSN State User Call with Dr. Kainer**
November 15, 2010 from 10am to 11am - State of Tennessee

December 20 Monday — **NHSN State User Call with Dr. Kainer**
December 20, 2010 from 10am to 11am - State of Tennessee

+ Add an Event | View All

Forum

Observation Days Question 4 Replies
Q&A regarding patients on observation status
Started by Brynn Berger. Last reply by Brynn Berger Oct 27.

HAI Definition Checklists
The HAI team has broken down the NHSN HAI definitions into simplified checklists, which are posted under the "Infection Control Resources" group. Please feel free to try them out and give us feedbac...
Started by Brynn Berger Oct 14.

CMS final rule: inpatient prospective payment system (IPPS)
The U.S. Centers for Medicare and Medicaid Services released its final rule for the FY 2011 Hospital Inpatient Prospective Payment System (IPPS) on Friday, July 30. The final rule includes the report...
Started by Marion Kainer Aug 12.

CLABSI report July 2008-June 2009 1 Reply
The State HAI report can be accessed at the following URL
https://health.state.tn.us/Ceds/HAI/index.ht
Started by Marion Kainer. Last reply by Marion Kainer Aug 12.

+ Start Discussion | View All

Dana Jackson

Sign Out
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Badge

I'm a member of: Tennessee HAI Online Workspace

Get Badge

VASC – Arterial or Venous Infection

CDC ID:_____

DEFINITION: Arterial or venous infection must meet at least ONE of the following criteria:

- ☐ Criterion 1:
  - ☐ Patient has organisms cultured from
    - ☐ arteries
    - ☐ veins

    removed during a surgical operation

    AND
  - ☐ Choose ONE
    - ☐ blood culture not done
    - ☐ no organisms cultured from blood

- ☐ Criterion 2:
  - ☐ Patient has evidence of
    - ☐ arterial
    - ☐ venous infection

    seen during a
    - ☐ surgical operation
    - ☐ histopathologic examination

- ☐ Criterion 3:
  - ☐ Patient has at least ONE of the following signs or symptoms with no other recognized cause:
    - ☐ fever (>38°C)
    - ☐ pain
    - ☐ erythema
    - ☐ heat at involved vascular site

    AND
  - ☐ more than 15 colonies cultured from intravascular cannula tip using semiquantitative culture method

ARRA-ELC-HAI Activities: B

- *Activity B: Surveillance (cont'd)*
  - *Validation to ensure data quality*
    - *Numerator data*
      - *Identification of infections/events ?*
        Misclassification: CLABSI ascribe Candida BSI as 2º to pneumonia, but not meet NHSN definition of PNEU
      - *Risk stratification data– (e.g., wound class, ASA score, duration of surgery)*
      - *Depth of infection (SSI)*
    - *Denominator data*
      - *Electronic vs. manual (electronic tends to inflate denominator data)*
      - *Billing status can be problematic: observation days on inpatient locations*
    - *Mapping of locations (e.g., ICUs)*

    - *Combination of methods: internal & external (on-site validation)*
    - *Resource intensive- but extremely important*
    - *Incorporate lessons learned into future training/ webinars/ conference call/ feedback to CDC*

ARRA-ELC-HAI Activities: B

- B: Surveillance (cont'd)
  - Decrease data collection burden
    - Maximize use of existing electronic data sources
    - Report to NHSN using CDA
    - Report to Public Health: electronic laboratory result (ELR) reporting
    - AIM: Have 40 facilities reporting ELR/ LabID event data to public health/NHSN by December 2011
    - Extract procedure data out of operating room software to import into NHSN

ARRA-ELC-HAI Activities: C

- *C: Prevention Collaborative*
  - *TCPS*
  - *Q-Source*
  - *TIPQC*
  - *East TN Quality Alliance*

  - *CLABSI- adult/pediatric*
  - *CLABSI- NICU*
  - *SSI- SCIP*
  - *MRSA*
  - *C. difficile*

ARRA-EIP-HAI Activities

- *Point Prevalence Study*
  - *Completed phase II*
  - *Phase III in 2011*
- *Denominator simplification study*
- *Dialysis BSI surveillance*
  - *Protocol development*
- *?? Regional Intervention to Decrease MDRO: Chlorhexidine bathing in LTCF*

Using Data for Prevention

Acknowledgement:

CDC: DHQP

Key Partners in Tennessee

TENNESSEE
DEPARTMENT OF
HEALTH

QSource

TIPQC

TENNESSEE CENTER FOR
Patient
Safety

APIC

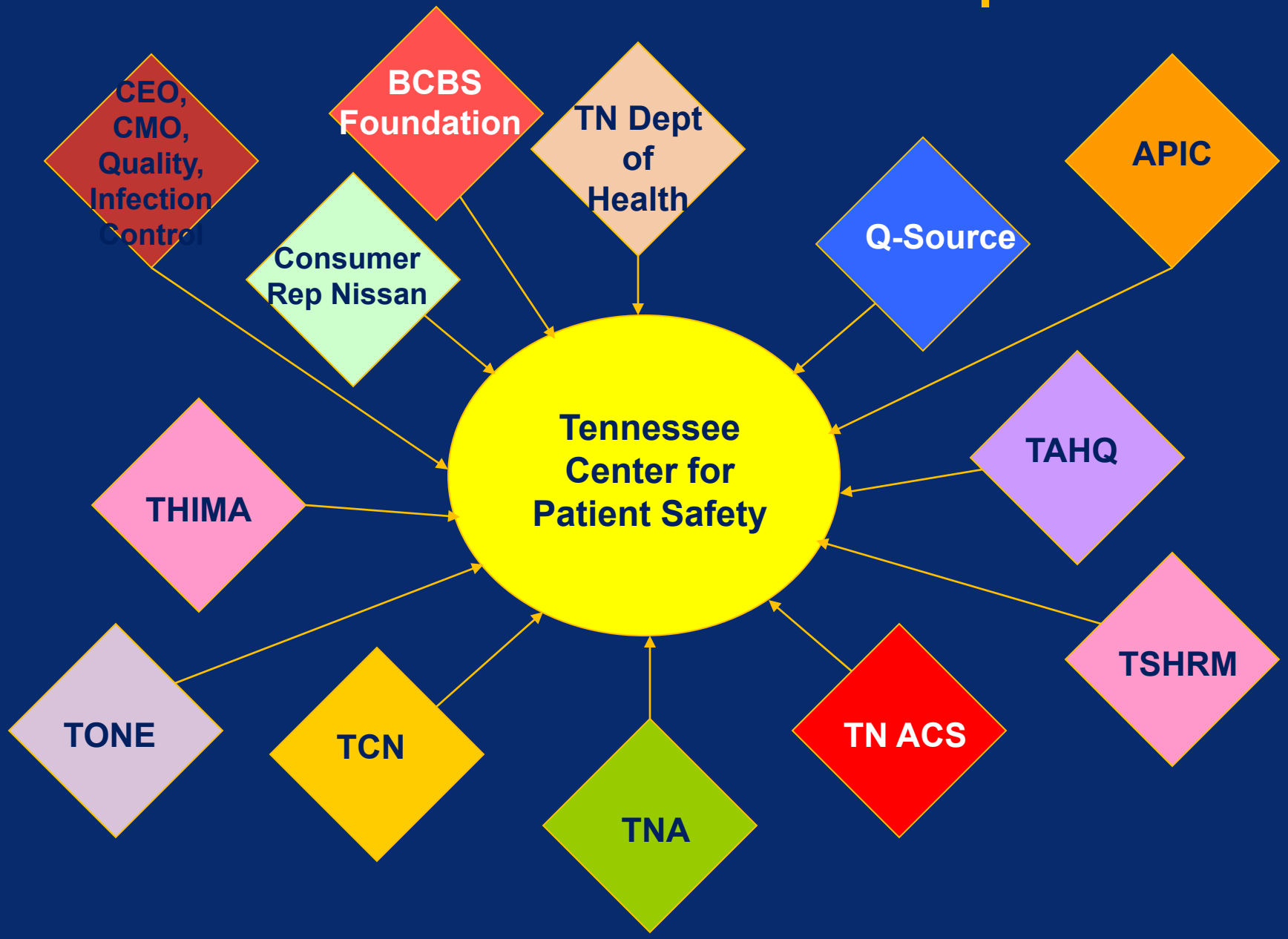
THA
TENNESSEE HOSPITAL ASSOCIATION

of Tennessee
plans for better health. plans for a better life.

An initiative of the Tennessee Hospital Association

Making Safe Quality Care the Top Priority

Collaboration and Partnership



TENNESSEE CENTER FOR Patient Safety

THA TENNESSEE HOSPITAL ASSOCIATION

Hospital Collaborative on Infections

- *119 hospitals participated*
  - *represents 91% of all admissions and 88% of all staffed beds*

Collaborative Model

- **Peter Pronovost, M.D.** *Faculty and Coach*

- **Johns Hopkins Model of Unit-based safety teams**

- **Strategies**
  - *Statewide Conferences*
  - *Regional Networking Meetings*
  - *Conference Calls with faculty experts*
  - *Toolkits and Resources*

- **Website**
  www.tnpatientsafety.com

Collaborative to Reduce Healthcare Acquired Infections Statewide

- **Key Interventions:**
  - *Measure Culture using AHRQ survey*
  - *Implement Comprehensive Unit-Based Safety Program (CUSP)*
  - *Eliminate Bloodstream Infections (BSI) Through the BSI Bundle*
  - *Reduction in Healthcare-Acquired MRSA*
  - *Reduction in Surgical Complications by Implementing the Surgical Care Improvement Project Measures (SCIP)*

Demonstration: Monthly Data Feedback

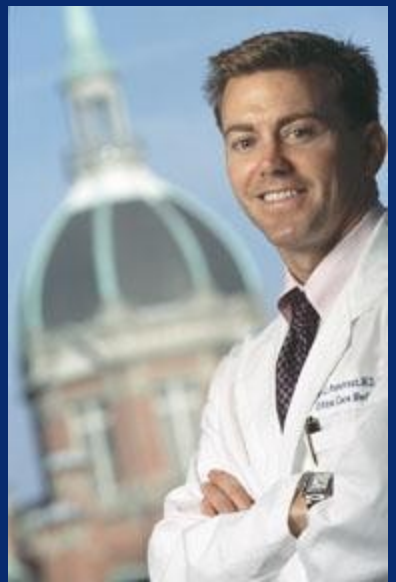
Hospital→NHSN→TDH→TCPS→Hospital

Lessons Learned from Hopkins: Creating a Safety System requires building a Culture of Safety

Shared Accountability over Autonomy

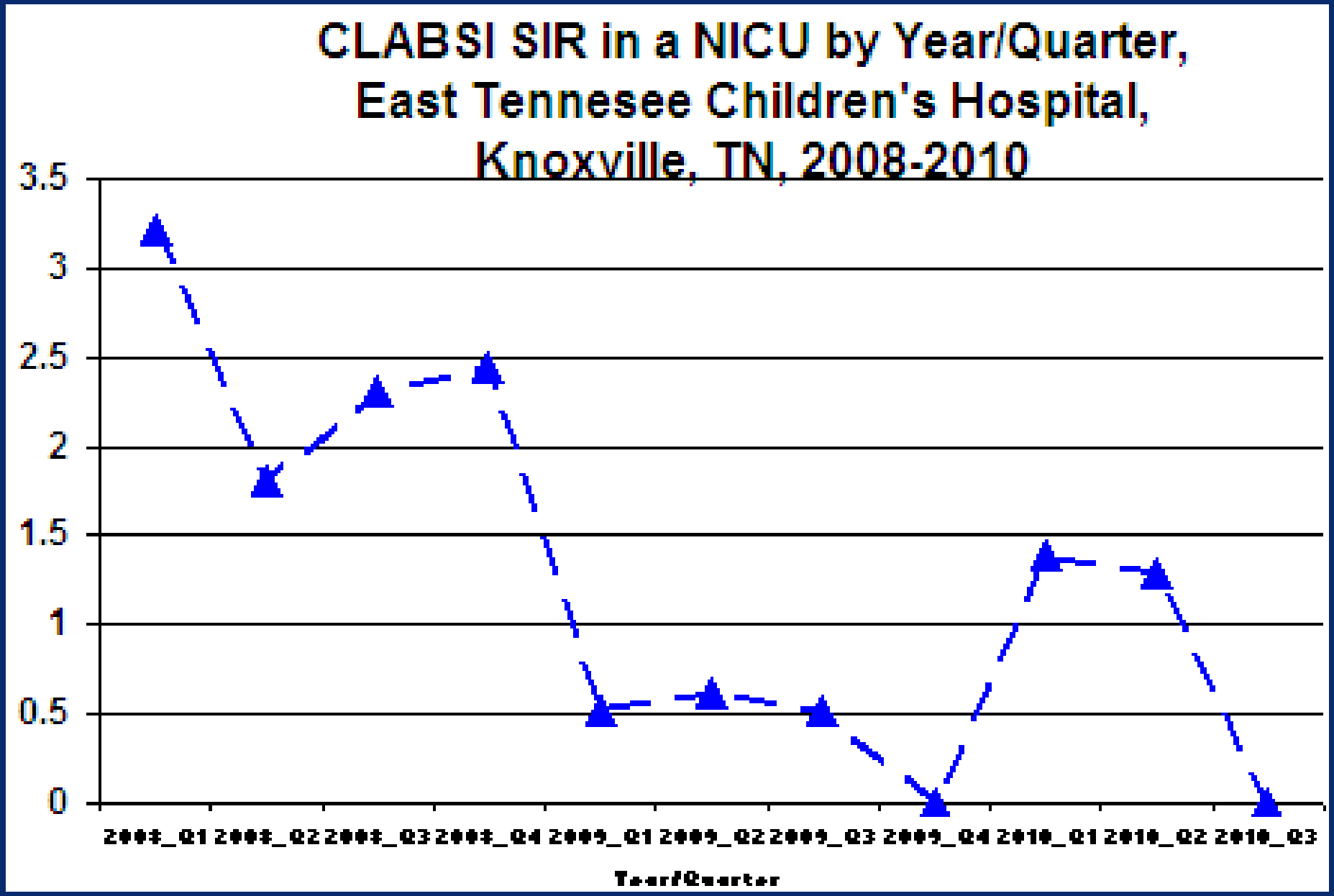
- *Technical*
  - *Knowledge based*
  - *Scientific*
  - *Clear Answers*
- *Adaptive*
  - *Requires a change of value, beliefs or attitudes*
  - *Behavior based*

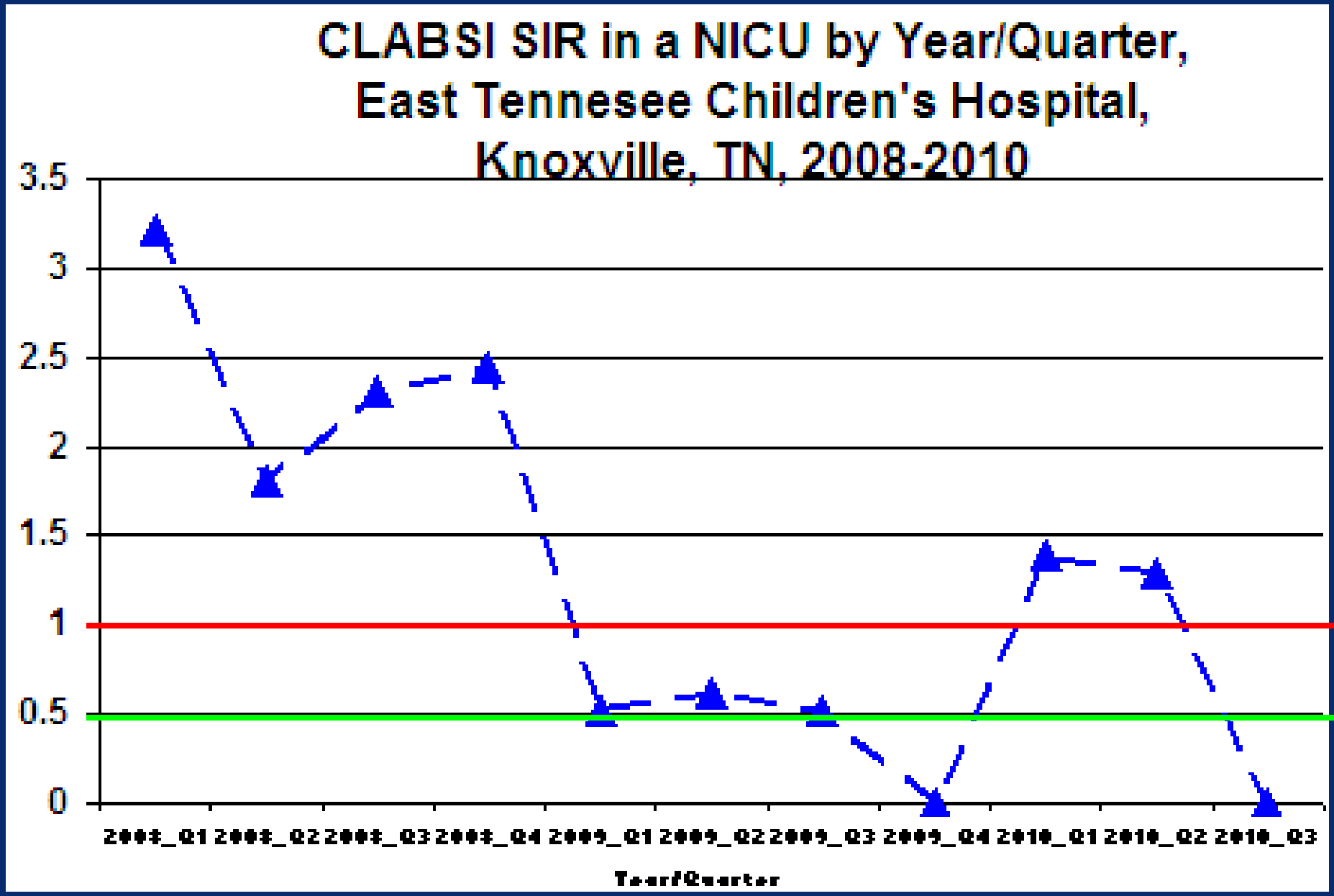
JOHNS HOPKINS
MEDICINE
QUALITY AND SAFETY RESEARCH GROUP



CLABSI Reduction in a NICU

Using Local Data Showing HAI Prevention Success to Encourage Regional Prevention Effort


CLABSI SIR in a NICU by Year/Quarter,
East Tennesee Children's Hospital,
Knoxville, TN, 2008-2010
3.5
3
2.5
2
1.5
1
0.5
0
2008_Q1
2008_Q2
2008_Q3
2008_Q4
2009_Q1
2009_Q2
2009_Q3
2009_Q4
2010_Q1
2010_Q2
2010_Q3
Year/Quarter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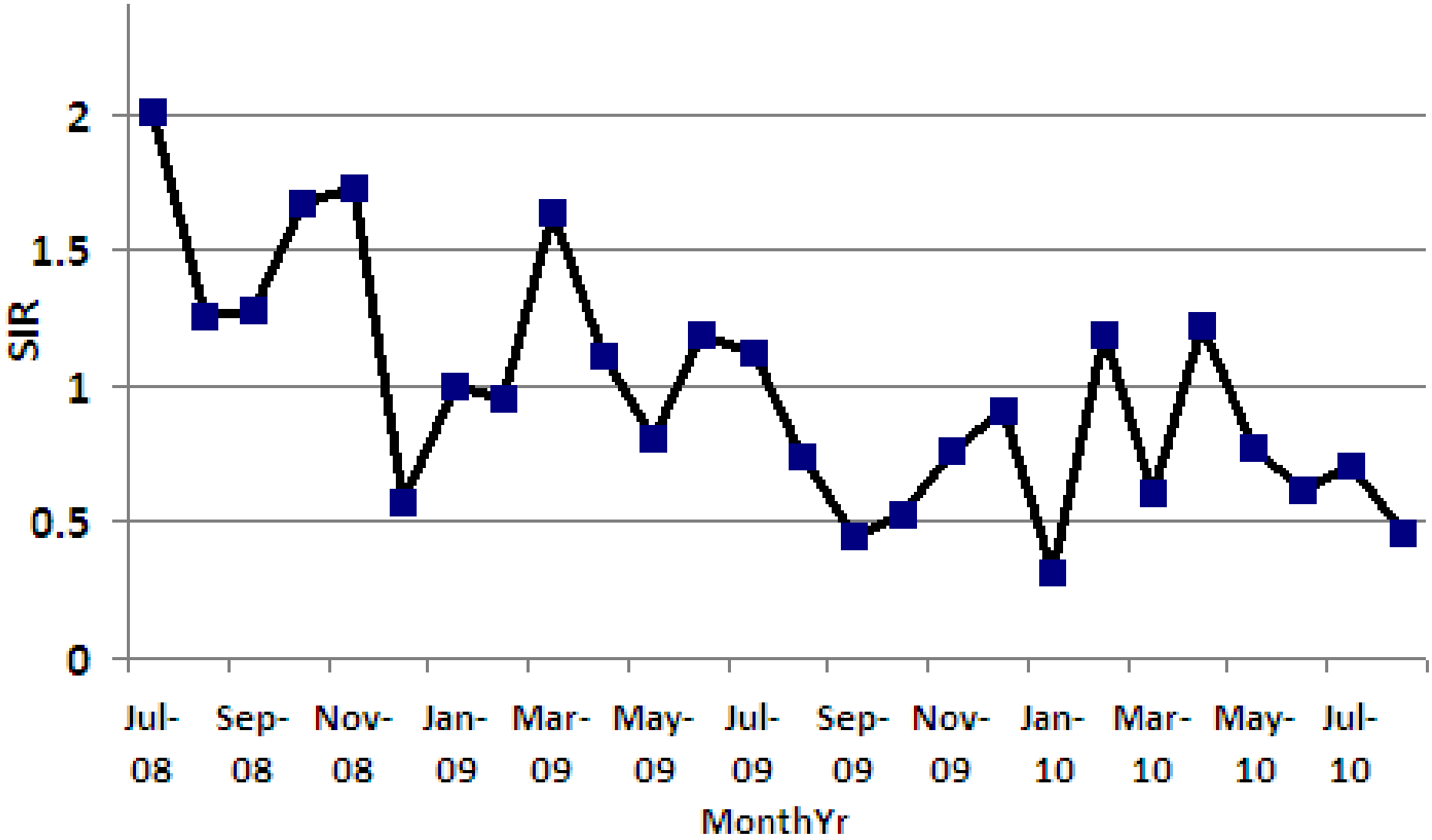
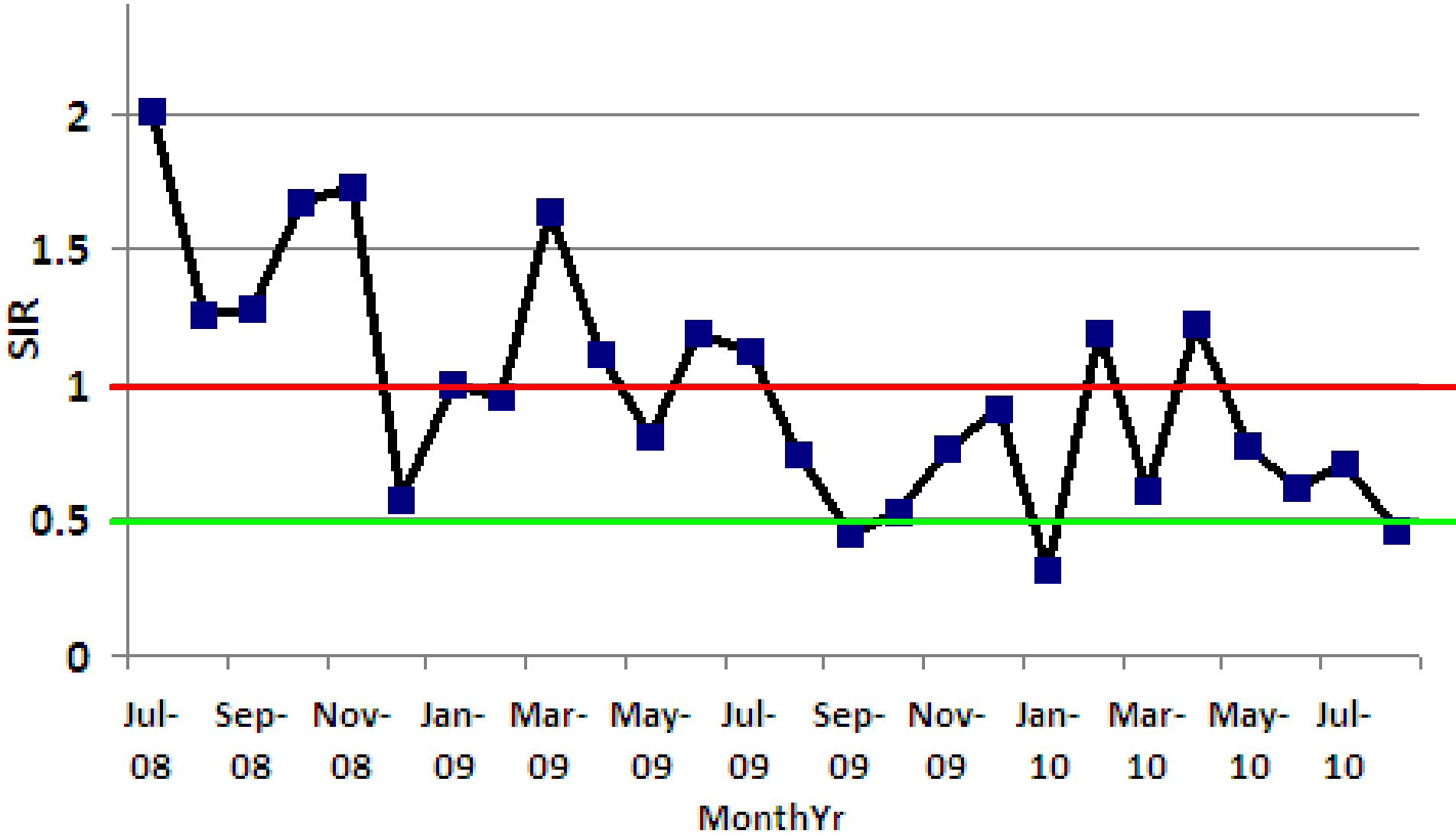
1
0.5
0
2008_Q1
2008_Q2
2008_Q3
2008_Q4
2009_Q1
2009_Q2
2009_Q3
2009_Q4
2010_Q1
2010_Q2
2010_Q3
Year/Quarter

Tennessee Initiative for Perinatal Quality Care

NICU CLABSI SIR, TN: 7/08-7/10



NICU CLABSI SIR, TN: 7/08-7/10



FIRST STATE-SPECIFIC HEALTHCARE-ASSOCIATED INFECTIONS SUMMARY DATA REPORT

CDC's National Healthcare Safety Network (NHSN)

January – June, 2009

National Center for Emerging and Zoonotic Infectious Diseases
Division of Healthcare Quality Promotion

CLABSIs in Adult & Pediatric ICUs

Table 2. State-specific Standardized Infection Ratios (SIRs) for States Using NHSN to Comply With a Legislative Mandate* to Report Central Line-Associated Bloodstream Infections to the State Health Department: January 2009 – June 2009.

State	No. of Facilities Reporting	Observed	Predicted	SIR	95% CI for SIR Lower	95% CI for SIR Upper
Colorado	50	64	94.25	0.68	0.52	0.87
Connecticut §	30	65	69.46	0.94	0.72	1.19
Delaware	8	20	33.84	0.59	0.36	0.91
Illinois	140	301	333.46	0.90	0.80	1.01
Maryland §	48	234	179.95	1.30	1.14	1.48
Massachusetts	70	124	211.44	0.59	0.49	0.70
New Hampshire	24	13	22.93	0.57	0.34	0.90
New Jersey	72	183	222.97	0.82	0.71	0.95
New York §	182	604	610.22	0.99	0.91	1.07
Oklahoma	48	59	118.95	0.50	0.38	0.64
Oregon	37	50	82.21	0.61	0.45	0.80
Pennsylvania	204	818	1,176.83	0.70	0.65	0.74
South Carolina §	63	183	158.11	1.16	1.00	1.34
Tennessee §	72	282	245.99	1.15	1.02	1.29
Vermont	8	3	10.99	0.27	0.07	0.71
Virginia	76	161	193.81	0.83	0.71	0.97
Washington	62	86	148.07	0.58	0.47	0.72
US-all	1,538	4,615	5,618.75	0.82	0.80	0.85

Graphic Representation of SIR†

* Presence of mandate to report CLABSIs to the state health department using NHSN as of June 30, 2009

† Solid diamonds=SIR <1.0, solid X=SIR >1.0, open circle=SIR not different than 1.0

§ State health department self-reported the completion of any validation study of NHSN data (studies conducted on 2008 data).

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Connecticut §	30	65	69.46	0.94	0.72	1.19	
Delaware	8	20	33.84	0.59	0.36	0.91	
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Oklahoma	48	59	118.95	0.50	0.38	0.64	
Oregon	37	50	82.21	0.61	0.45	0.80	
Pennsylvania	204	818	1,176.83	0.70	0.65	0.74	
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† Solid diamonds=SIR <1.0, solid X=SIR >1.0, open circle=SIR not different than 1.0
§ State health department self-reported the completion of any validation study of NHSN data (studies conducted on 2008 data).

All 5 States with SIR >0.90 had conducted validation

Key Percentiles

State	No. of Facilities Reporting	SIR	95% CI for SIR Lower	95% CI for SIR Upper	Facility-Specific SIRs at Key Percentiles* 10%	25%	Median (50%)	75%	90%
Colorado	50	0.68	0.52	0.87	0.00	0.00	0.00	0.71	1.25
Connecticut §	30	0.94	0.72	1.19	0.00	0.00	0.78	1.81	3.31
Illinois	140	0.90	0.80	1.01	0.00	0.00	0.36	0.98	2.29
Maryland §	48	1.30	1.14	1.48	0.00	0.15	0.71	1.58	2.88
Massachusetts	70	0.59	0.49	0.70	0.00	0.00	0.00	0.81	1.80
New Hampshire	24	0.57	0.34	0.90	0.00	0.00	0.00	0.56	1.22
New Jersey	72	0.82	0.71	0.95	0.00	0.00	0.40	1.06	1.89
New York §	182	0.99	0.91	1.07	0.00	0.00	0.58	1.43	2.30
Oklahoma	48	0.50	0.38	0.64	0.00	0.00	0.00	0.25	1.30
Oregon	37	0.61	0.45	0.80	0.00	0.00	0.00	0.74	2.38
Pennsylvania	204	0.70	0.65	0.74	0.00	0.00	0.30	0.90	1.70
South Carolina §	63	1.16	1.00	1.34	0.00	0.00	0.70	1.85	2.64
Tennessee §	72	1.15	1.02	1.29	0.00	0.00	0.45	1.33	1.69
Virginia	76	0.83	0.71	0.97	0.00	0.00	0.48	1.30	2.82
Washington	62	0.58	0.47	0.72	0.00	0.00	0.00	0.66	1.09
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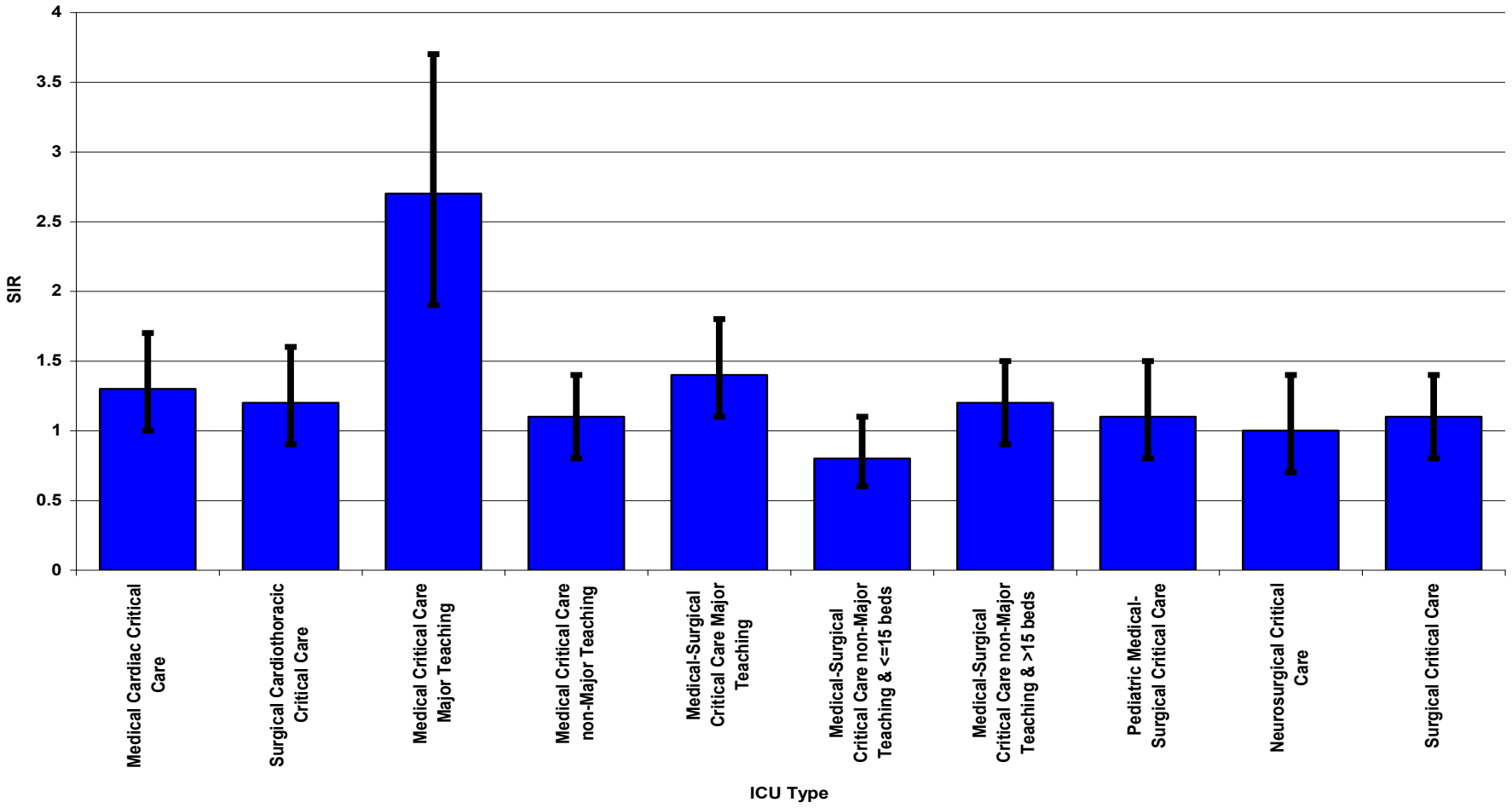
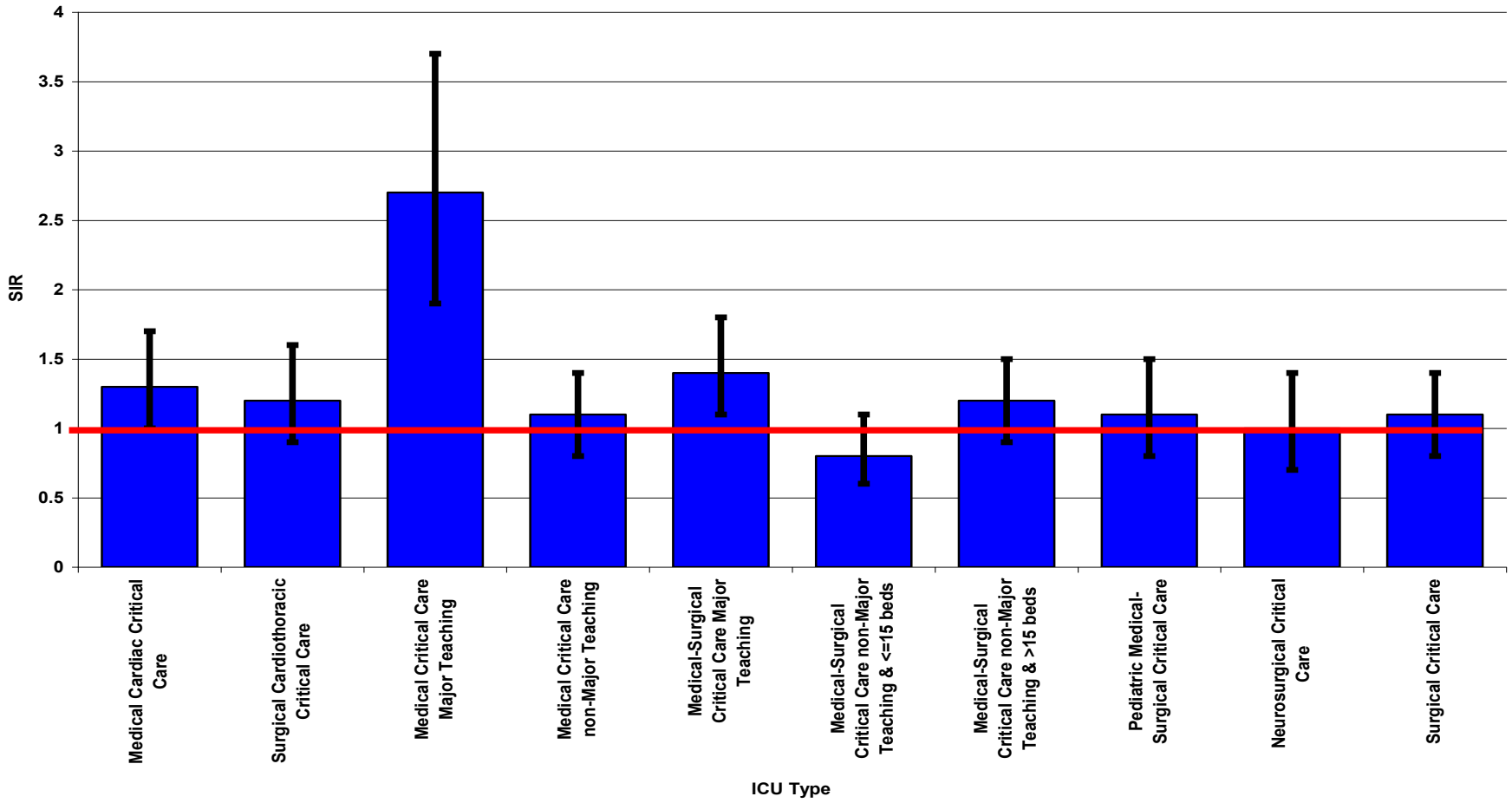
Maryland §	48	1.30	1.14	1.48	0.00	0.15	0.71	1.58	2.88
Massachusetts	70	0.59	0.49	0.70	0.00	0.00	0.00	0.81	1.80
New Hampshire	24	0.57	0.34	0.90	0.00	0.00	0.00	0.56	1.22
New Jersey	72	0.82	0.71	0.95	0.00	0.00	0.40	1.06	1.89
New York §	182	0.99	0.91	1.07	0.00	0.00	0.58	1.43	2.30
Oklahoma	48	0.50	0.38	0.64	0.00	0.00	0.00	0.25	1.30
Oregon	37	0.61	0.45	0.80	0.00	0.00	0.00	0.74	2.38
Pennsylvania	204	0.70	0.65	0.74	0.00	0.00	0.30	0.90	1.70
South Carolina §	63	1.16	1.00	1.34	0.00	0.00	0.70	1.85	2.64
Tennessee §	72	1.15	1.02	1.29	0.00	0.00	0.45	1.33	1.69
Virginia	76	0.83	0.71	0.97	0.00	0.00	0.48	1.30	2.82
Washington	62	0.58	0.47	0.72	0.00	0.00	0.00	0.66	1.09
US-all	1,538	0.82	0.80	0.85	0.00	0.00	0.29	1.01	1.97

Digging Down…

SIR of CLABSI by ICU Type: Tennessee, 7/2008-6/2009.



SIR of CLABSI by ICU Type: Tennessee, 7/2008-6/2009.



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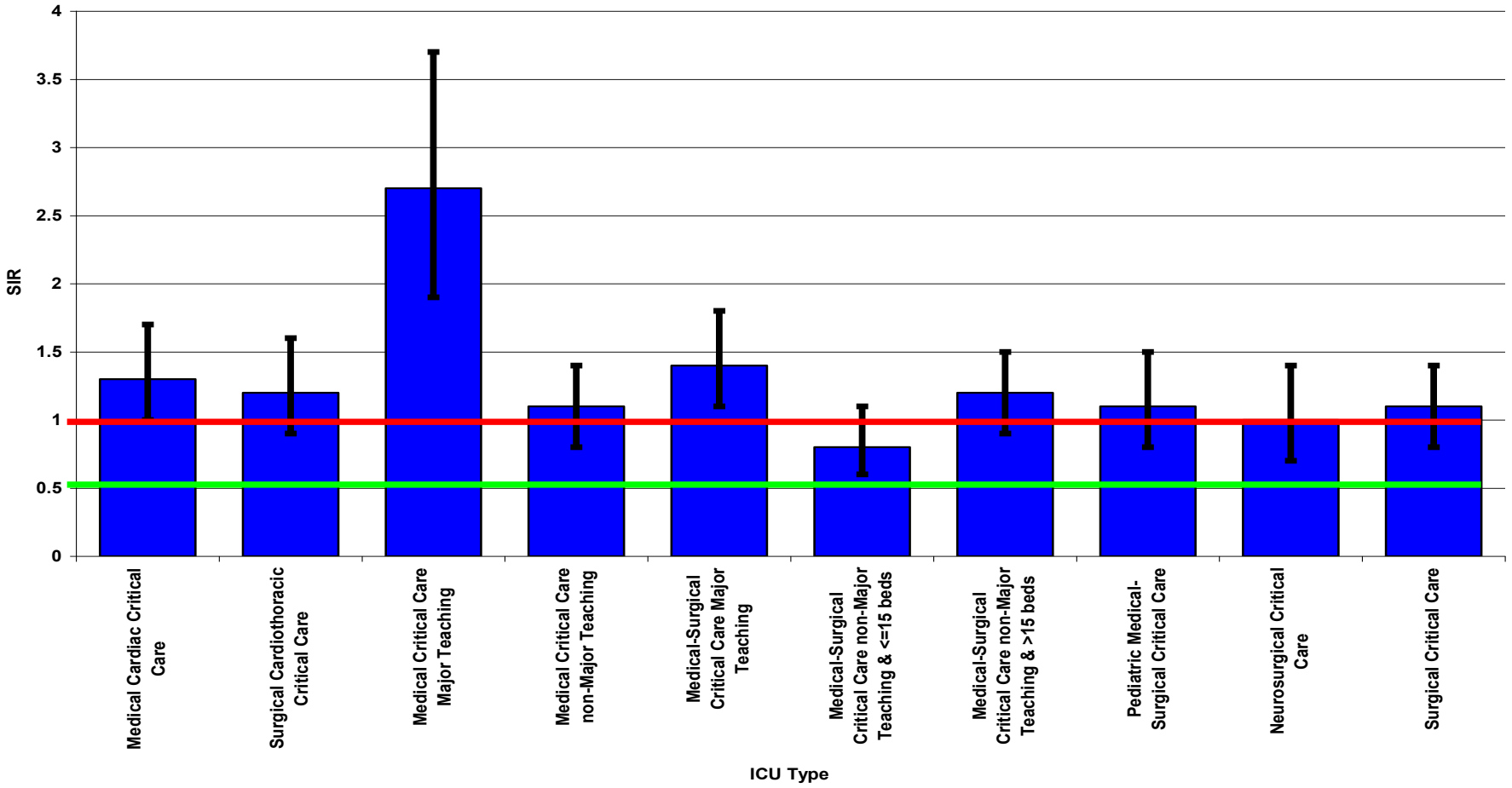
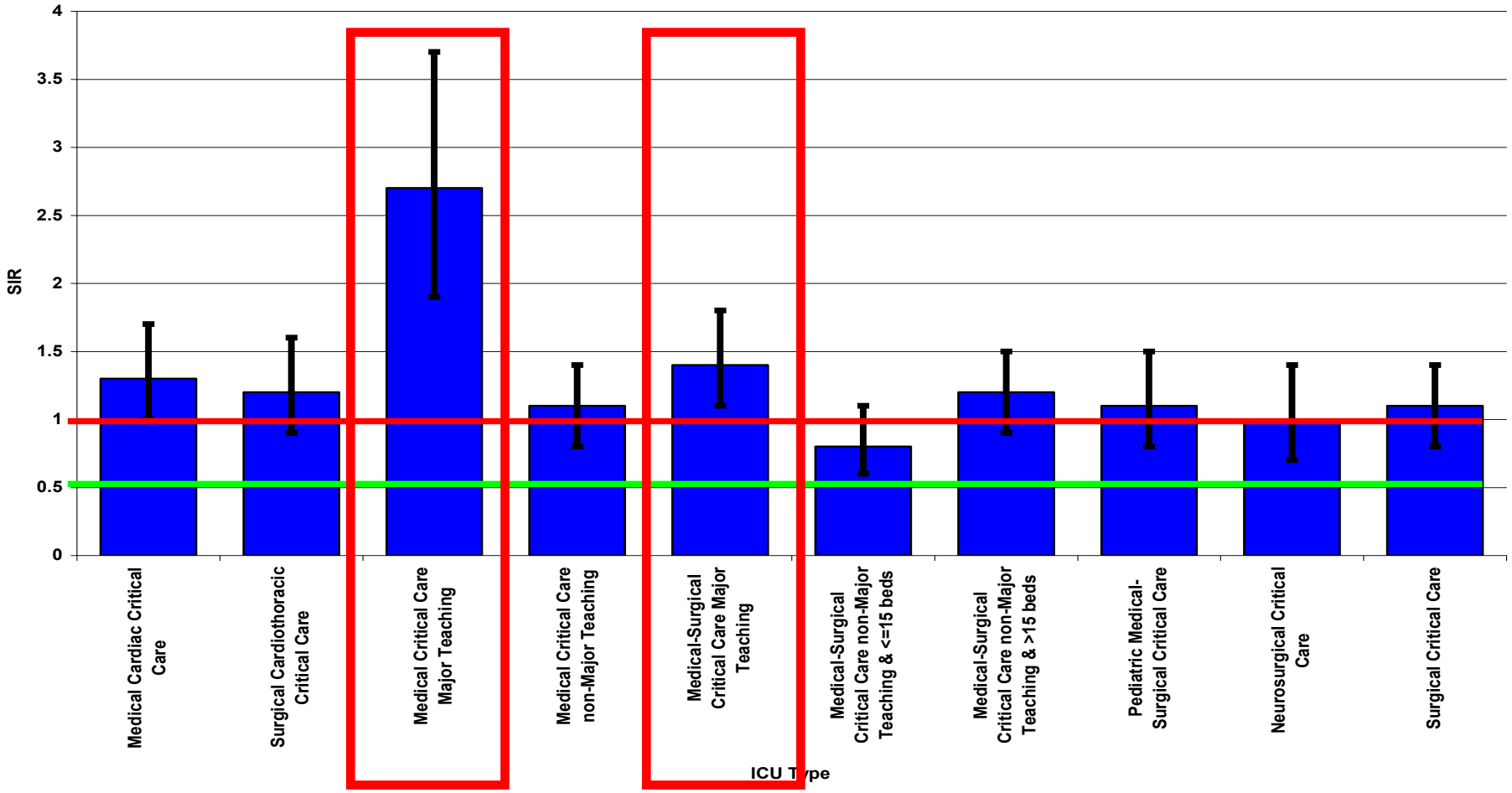
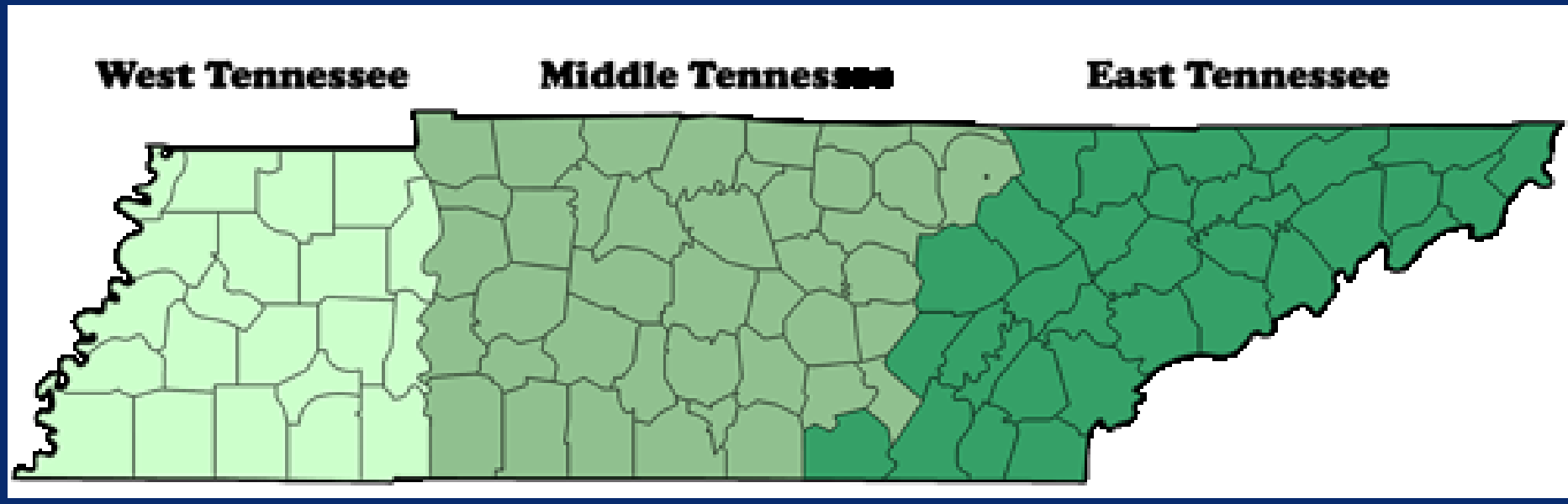


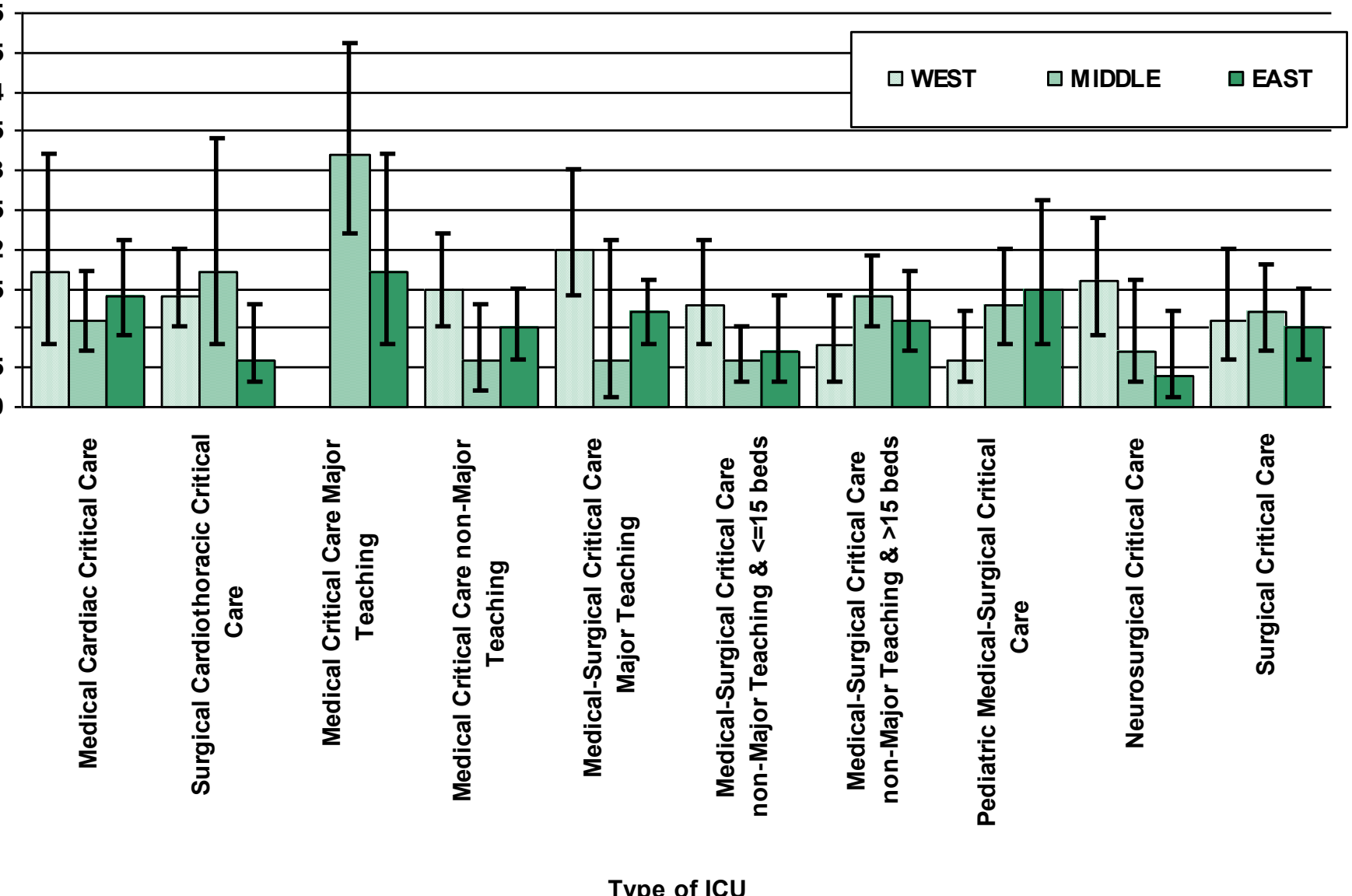
SIR of CLABSI by ICU Type: Tennessee, 7/2008-6/2009.



Where in Tennessee?



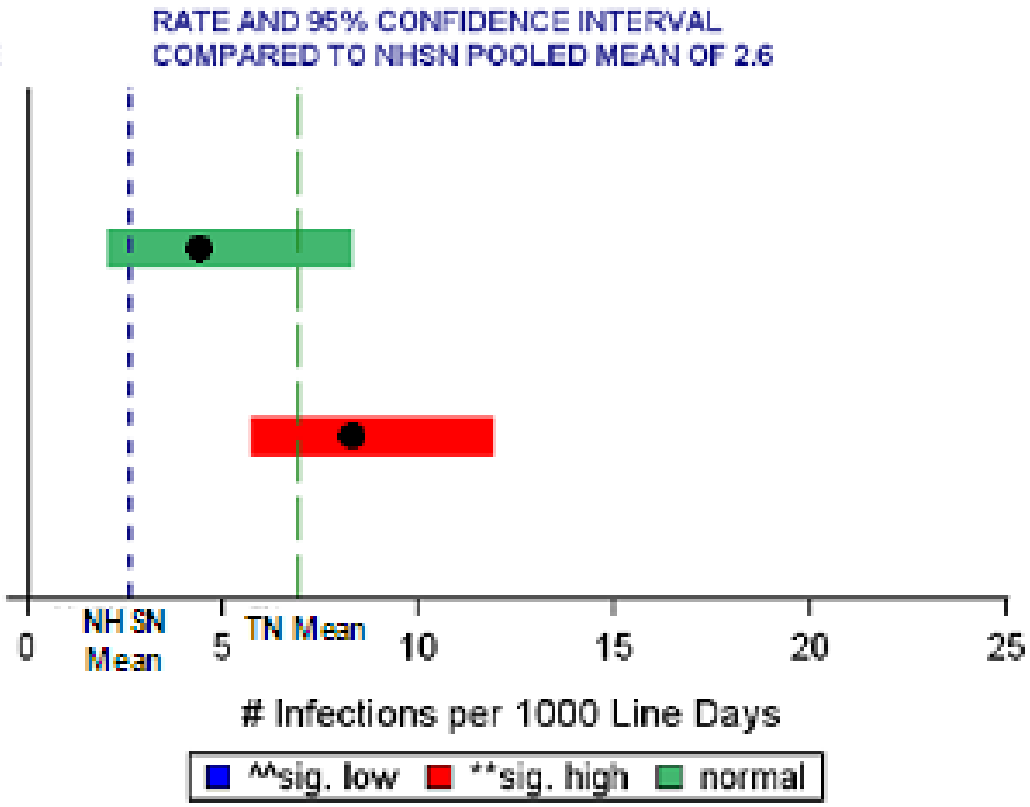
CLABSI SIR by ICU Type and Grand Division.TN: 7/2008-6/2009



CLABSI: Medical Critical Care Unit

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

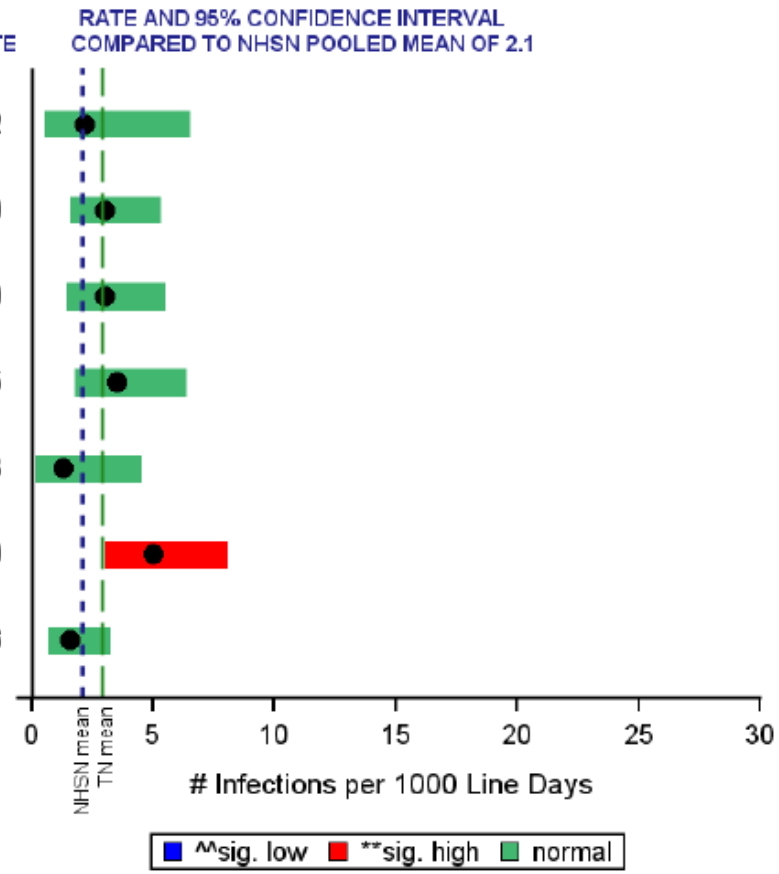
HOSPITAL	# CLABSI	# CLDAYS	RATE
[redacted]	9	2060	4.4
[redacted]	31	3715	8.3



CLABSIs: Med-Surg ICUs in Maj. Teaching

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

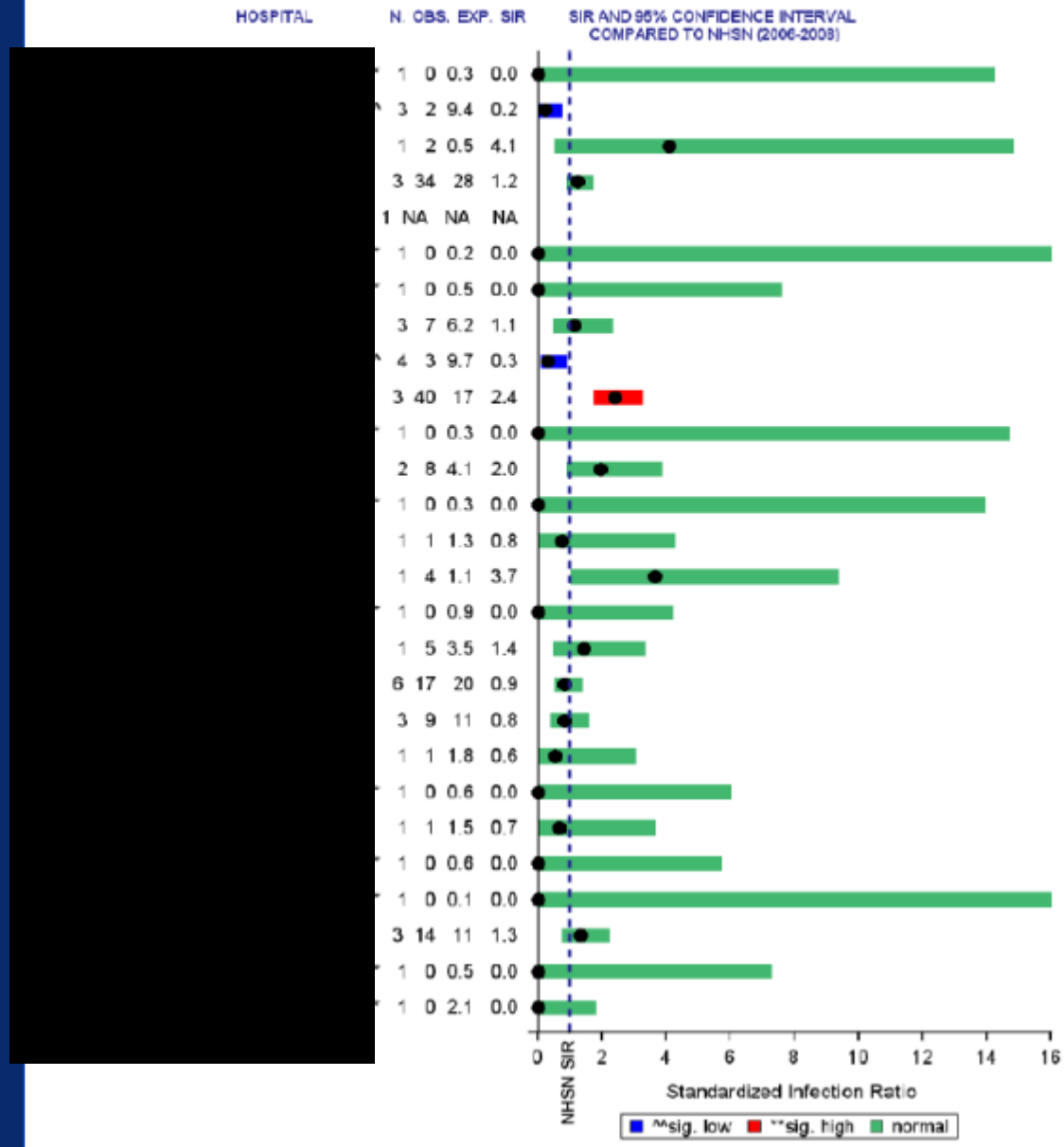
HOSPITAL	# CLABSI	# CLDAYS	RATE
[redacted]	3	1350	2.2
[redacted]	12	3979	3.0
[redacted]	10	3365	3.0
[redacted]	11	3116	3.5
[redacted]	2	1596	1.3
[redacted]	17	3375	5.0
[redacted]	7	4474	1.6



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 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 29, 2010.

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]
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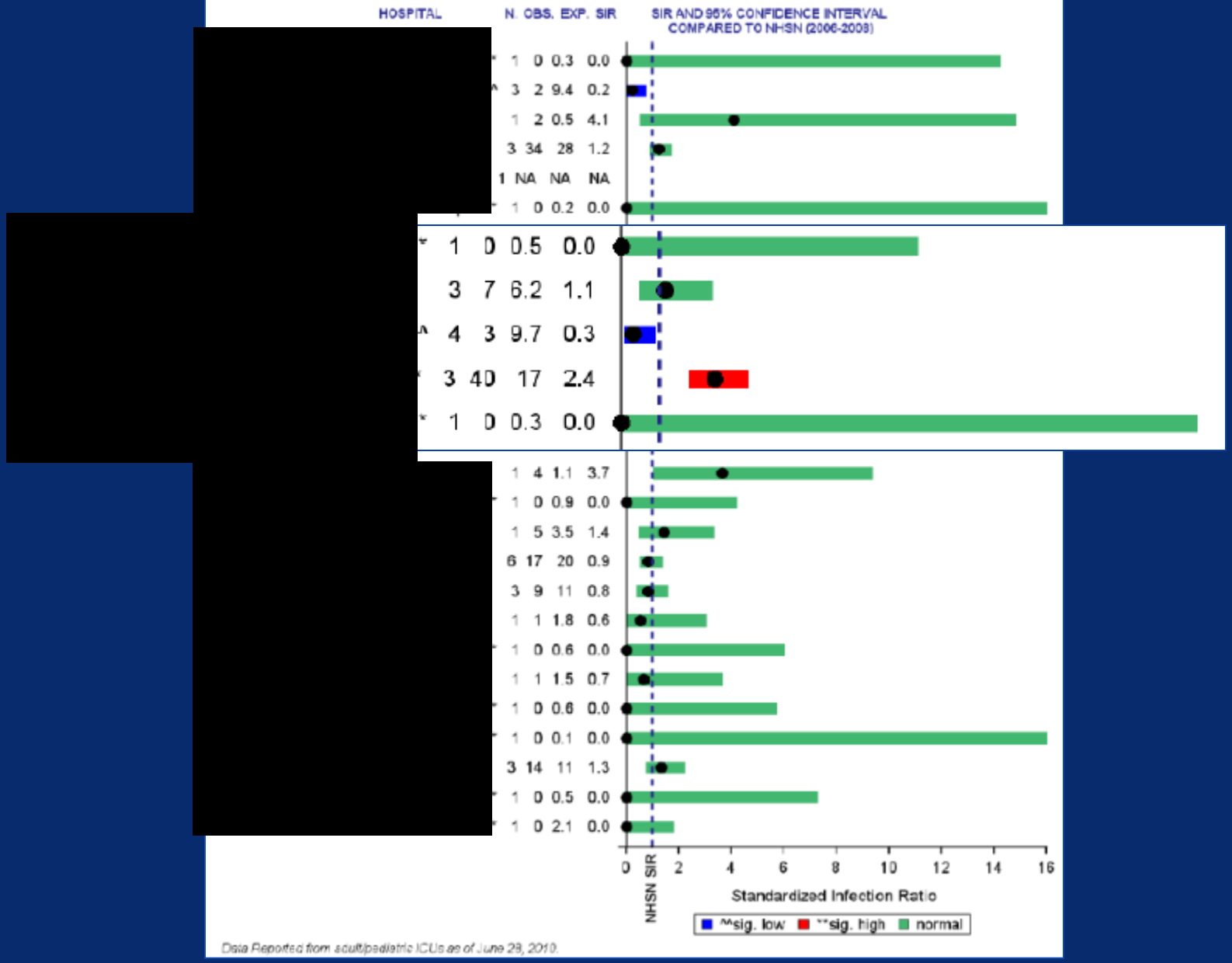


Data Reported from adult/pediatric ICUs as of June 29, 2010.

Special Attention by :
TDH & THA

Map of TN Facilities Selected for Validation

Red pin = Facility to undergo NICU validation only

Green pin = Facility to undergo adult/pediatric validation only

Blue pin = Facility to undergo both NICU and adult/ped validation

THA Board Aim adopted December 2009

Vision: Healthier Safer Tennessee

Aim: Zero Preventable Harm

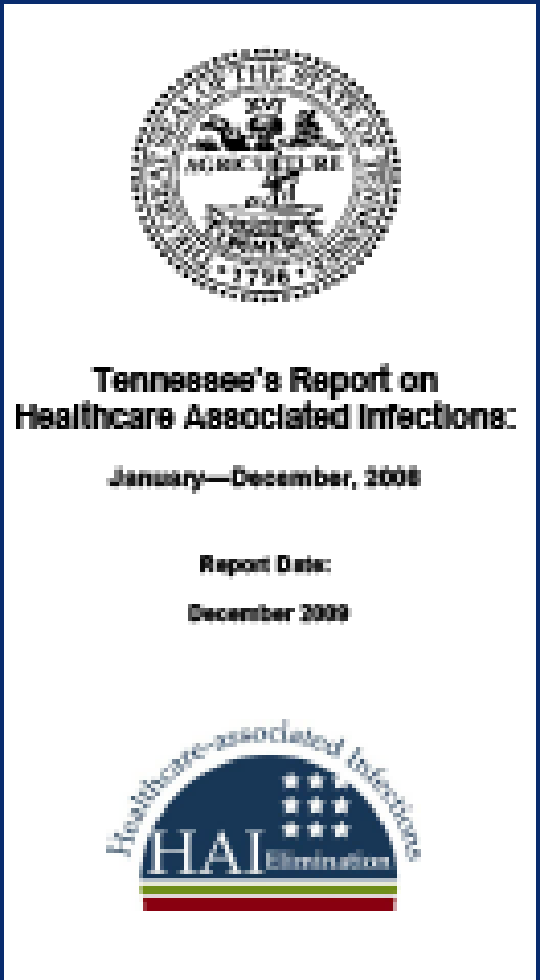
Targets:

- **Zero Infections within 3 years**
- **Top quartile performance on public measures**

Publication of HAI Report in TN

December, 2009

http://health.state.tn.us/Ceds/HAI/index.htm



Tennessee's Report on
Healthcare Associated Infections:

January—December, 2008

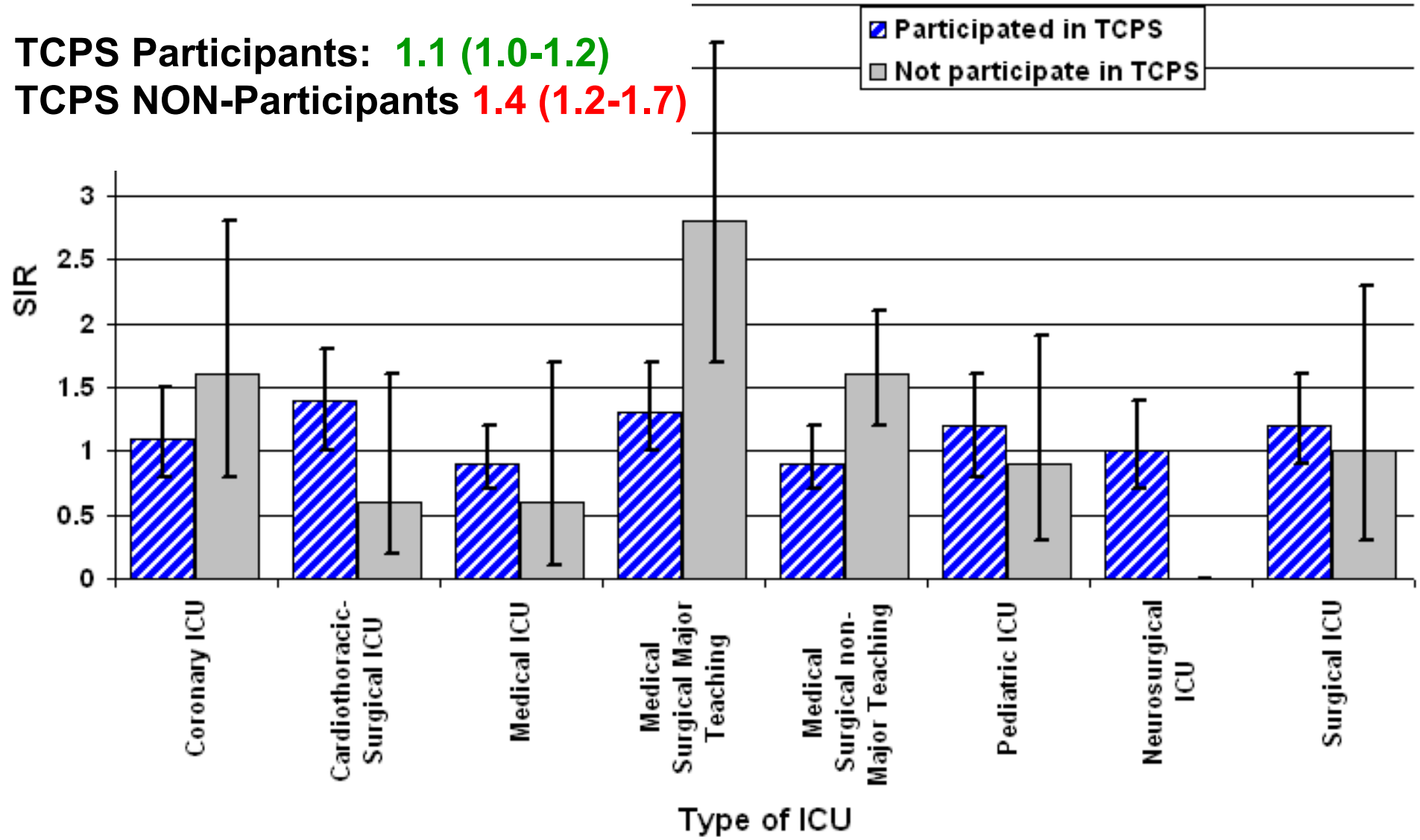
Report Date:

December 2009

Healthcare-associated Infections
HAI Elimination

CLABSI SIR & TCPS Participation

TCPS Participants: 1.1 (1.0-1.2)
TCPS NON-Participants 1.4 (1.2-1.7)



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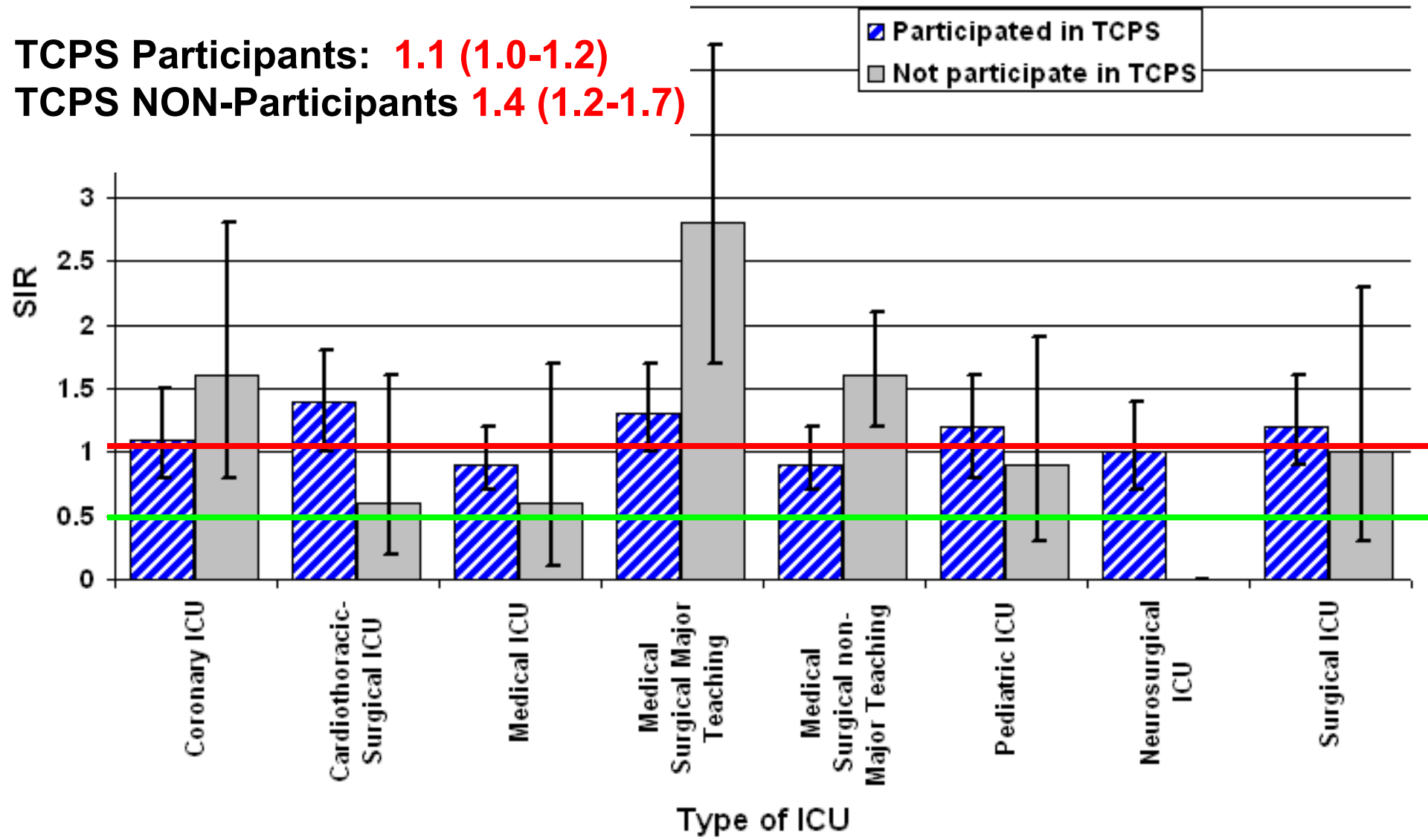
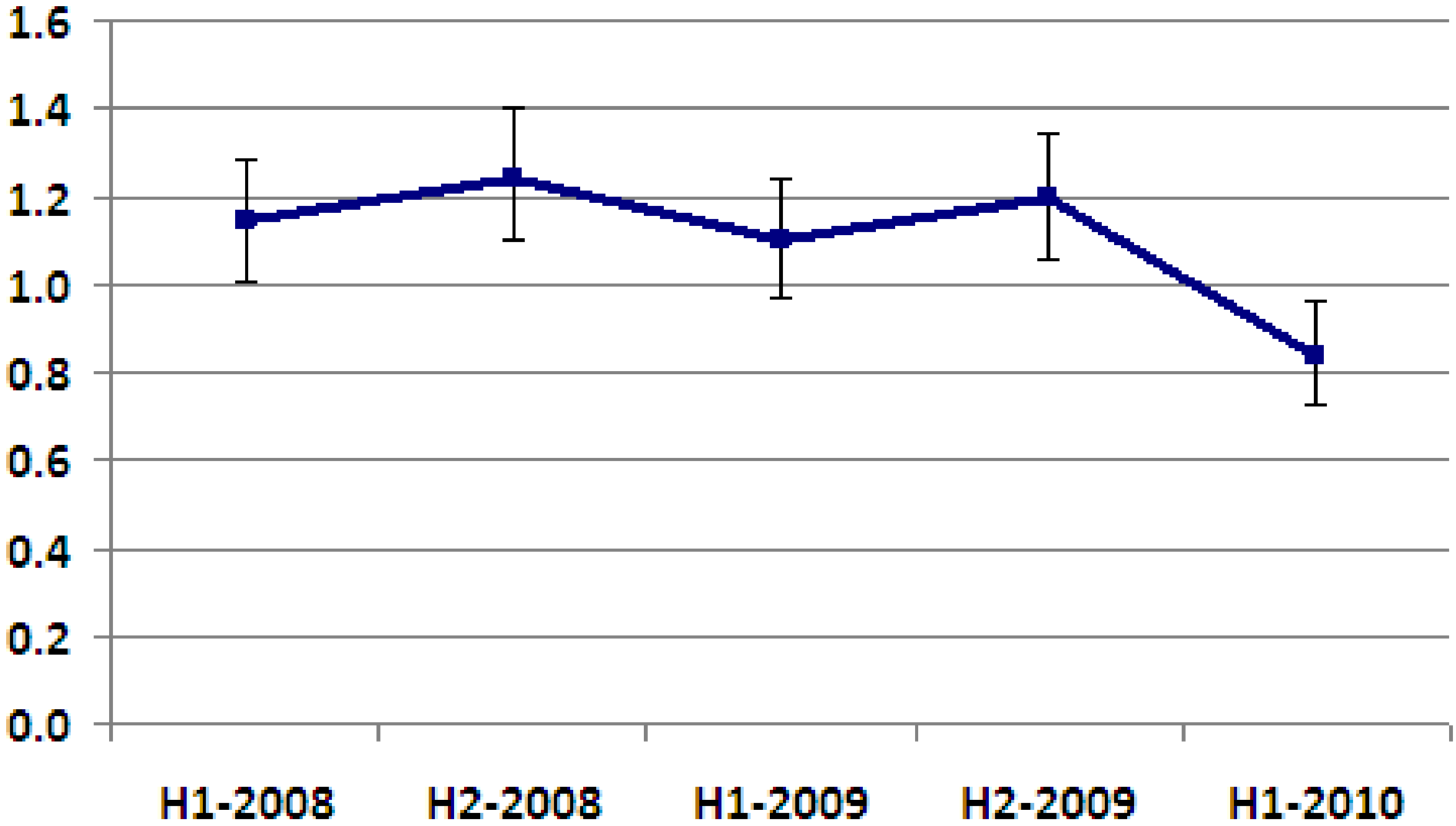
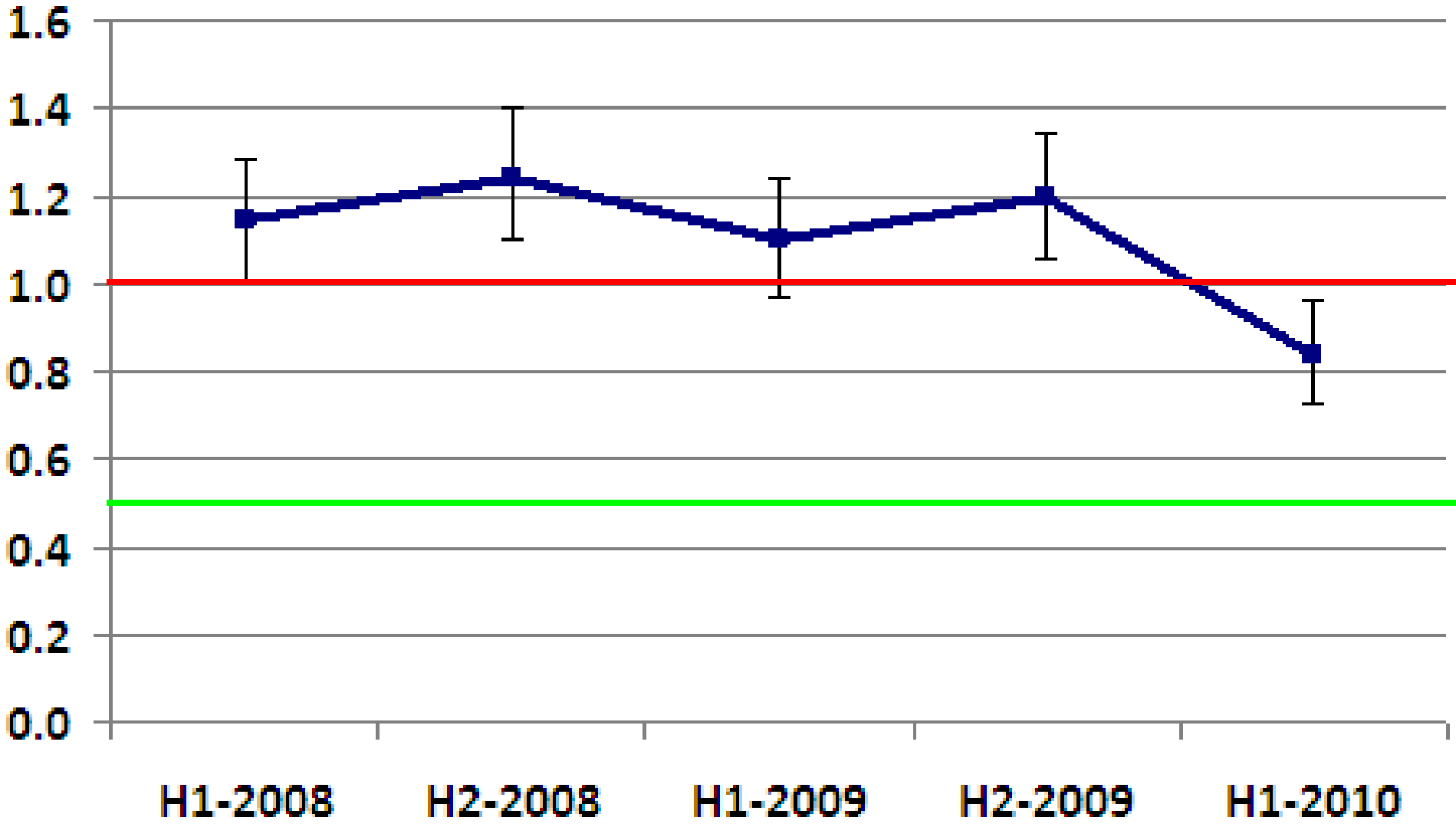


CLABSI SIR in TN: 2008-2010



CLABSI SIR in TN: 2008-2010



Tennessee Center for Patient Safety – Lessons Learned

- **Senior Leadership Active Involvement**
  - *Sr. Leader is assigned as active member of the unit based team*
  - *Clear message and goals – Harm is not tenable*
  - *Open Communication and Results are visible*
- **Medical Staff Actively Engaged as Champions**
- **Teams are unit-based with frontline staff leadership**
  - *Monthly team check-up tools used to monitor progress, identify and overcome barriers*
- **Shared accountability among all staff**

Tennessee Center for Patient Safety – Lessons Learned

- **Strategies to improve patient safety culture are critical to changing behavior**
  - *Safety Culture promotes open sharing of defects and focuses on system design*
- **Focus is on the patient not the numbers**
- **Data Publicly Reported gets attention**
- **Tremendous power in telling hospital stories**

THA Board Taskforce Recommendations

- **Set incremental targets for infection reductions on central lines, MRSA, SCIP**
- **THA board take ownership of meeting the aim and monitoring progress**
- **Outline roles and responsibilities of the THA board, CEO leaders, THA**
- **Establishing a culture for safety in each hospital is critical for success**

Tennessee Scorecard---TCPS Partners:

Aim: Zero Preventable Harm

Priority Target	Performance Measurements	2008 State Performance	2009 State Performance	*YTD Jan-Jul 2010 State Performance
Adult/Pediatric Central Line-Associated Bloodstream Infections (CLABSIs)	0 Patient Harm	488 Patients Harmed	475 Patients Harmed	201 Patients Harmed
Neonatal Central Line-Associated Bloodstream Infections (CLABSIs)	0 Patient Harm	137 Patients Harmed	89 Patients Harmed	44 Patients Harmed
Methicillin-resistant Staphylococcus aureus (MRSA) – Hospital Onset	0 Patient Harm	1,533 Patients Harmed	1,257 Patients Harmed	666 Patients Harmed
Surgical Care Improvement Project (SCIP) – CMS Process Measures	# of Measures with a Score ≥ 95%	1 of 9 Measures	2 of 9 Measures	7 of 10 Measures

Third Party Payers

- ***State employee Health Insurance RFP***

- ***Contracts with BlueCross BlueShield***
- ***Contracts with Cigna***

- ***"Participation in Prevention Collaborative is a requirement"***