

Eliminating Catheter Associated Urinary Tract Infection (CAUTI)

A System's Approach

Dana Rohman, RN, BSN, CPN
LeAnn Dudley Vela, RN, MSN, CCRN
Kristin Mattingly, RN, BSN
Meg Simmons, RN, BSN



Children's Hospital of San Antonio™



CHRISTUS SANTA ROSA HEALTH SYSTEM

Purpose

Eliminating CAUTI: A System's Approach

To improve patient care outcomes and decrease unnecessary costs related to catheter associated urinary tract infection

To demonstrate that the Children's Hospital of San Antonio is committed to excellence in pediatric care.



Children's Hospital of San Antonio™

 CHRISTUS SANTA ROSA HEALTH SYSTEM

Background and Significance

Eliminating CAUTI: A System's Approach

The Centers for Disease Control and Prevention (CDC) estimate that roughly 2 million healthcare-associated infections (HAI) occur each year.

CAUTI infections are the most common type of HAI.

Complications associated with CAUTI result in increased length of stay (LOS), patient dissatisfaction, excess cost and mortality.

Increased evidence of inappropriate urinary catheter use in hospitalized patients.

During fiscal year 2013, the CAUTI rate at the Children's Hospital of San Antonio measured 5.4 (number of infections per 1,000 foley catheter days).

When compared to the National Healthcare Safety Network (NHSN) mean rate of 2.2 for that time period, the number of infections was unacceptably high.



Children's Hospital of San Antonio™



CHRISTUS SANTA ROSA HEALTH SYSTEM

Methodology

Eliminating CAUTI: A System's Approach

Review of infection control data for prior fiscal year related to CAUTI in order to identify common themes and current standard of practice.	Audit of foley insertion and maintenance activities conducted by a third-party vendor.
Literature review related to best practices for CAUTI prevention in the pediatric population (literature lacking – most information was based on research and quality improvement efforts in the adult population).	Aim for project identified based on NHSN recommendations for CAUTI mean infection rates. Areas of Focus: Selection of Foley (latex vs. silicone) Insertion Maintenance practices
CAUTI Prevention Bundle developed and implemented through staff education.	Quantifiable measures selected for audit of bundle compliance.
Organizational Policy review and revision.	



Children's Hospital of San Antonio™

 CHRISTUS SANTA ROSA HEALTH SYSTEM



CAUTI Prevention

Eliminating CAUTI: A System's Approach

CAUTI Prevention Bundle

Meticulous, frequent hand washing by all caregivers

Avoid unnecessary placement of urinary catheters

Insert urinary catheters using aseptic technique (silicone catheters in the pediatric population)

Maintenance

Review urinary catheter necessity daily for prompt removal

Proper documentation

Communication during hand off procedures and rounds

Quantifiable Measures for Bundle Compliance

Foley bag is labeled with date of insertion

Foley discontinued 2 days after surgery

Foley discontinued 7 days after insertion (non-surgical patients)

Foley care completed a minimum of once every 12 hours using disposable bath wipes and documented in patient record

Foley bag emptied every shift and no more than ½ full

Drainage bag emptied prior to transport



Goals

Eliminating CAUTI: A System's Approach

Based on the high incidence of CAUTI infections in the PICU during the prior fiscal year, the team selected the following goals:

CAUTI Rate for FY2013 5.4

- ✓ Meet or Exceed the NHSN mean rate of 3.1 for fiscal year 2014
(rate is based on number of infections per 1,000 urinary catheter days)
- ✓ 100% compliance of bundle parameters



Results

Eliminating CAUTI: A System's Approach

Goal	Pre Implementation		Post Implementation	
CAUTI Rate	FY2013	5.4	FY2014	1.2
Urinary Catheter Care Documentation	n/a		84% compliance	
Insertion date labeled on collection bag	n/a		87% compliance	
Indwelling catheter discontinued 2 days after surgery	n/a		93% compliance	
Indwelling catheter discontinued after 7 days (non-surgical patients)	n/a		99% compliance	



Conclusions

Eliminating CAUTI: A System's Approach

Key Reasons for Success

CH of SA supports a philosophy of continuous quality improvement.

Commitment demonstrated by nursing leadership, making CAUTI prevention a priority focus.

Multidisciplinary team empowered front line associates to impact change focusing on patient safety.

Achieving and sustaining reductions in CAUTI rates combined best clinical practice with a culture of change.

Quantifiable measures for bundle compliance audited in real time to support a learning environment and maintain forward momentum.

Purpose

To improve patient care outcomes and decrease unnecessary costs related to catheter-associated urinary tract infection, and to demonstrate that the Children's Hospital of San Antonio (CH of SA) is committed to excellence in pediatric care.

Background and Significance

The Centers for Disease Control and Prevention (CDC) estimate that roughly 2 million healthcare-associated infections (HAIs) occur each year.

CAUTI infections are the most common type of HAI.

Complications associated with CAUTI result in increased length of stay (LOS), patient dissatisfaction, excess cost, and mortality.

Increased evidence of inappropriate urinary catheter use in hospitalized patients.

Commitment to Quality

During fiscal year 2013, the CAUTI rate at the Children's Hospital of San Antonio measured 5.4 (number of infections per 1,000 urinary catheter days).

When compared to the National Healthcare Safety Network (NHSN) mean rate of 2.2 for that time period, the number of infections was unacceptably high.

Methodology

The Plan Do Study Act (PDSA) methodology was implemented through a multidisciplinary team.

Children's Hospital of San Antonio

"Eliminating CAUTI"

A System's Approach

Dana Rohman, RN, BSN, CPN
LeAnn Dudley Vela, RN, MSN, CCRN
Kristin Mattingly, RN, BSN
Meg Simmons, RN, BSN

CAUTI Prevention

PDSA Actions

Review of infection control data for prior fiscal year related to CAUTI in order to identify common themes and current standard of practice.

Audit of urinary catheter insertion and maintenance activities conducted by a third-party vendor.

Literature review related to best practices for CAUTI prevention in the pediatric population ... (Literature lacking – most information based on research and quality improvement efforts in the adult population).

Aim for project identified based on NHSN recommendations for CAUTI mean infection rates.

Area of Focus:
Selection of Foley (Latex vs. Silicone) Insertion
Maintenance practices

CAUTI Prevention Bundle developed and implemented through staff education.

Organizational policy review and revision.

Quantifiable measures selected for audit of bundle compliance

Goals

Based on the high incidence of CAUTI infection in the PICU during FY2013, the team selected the following goals:

Meet or exceed the NHSN mean rate of 3.1 for FY2014

100% compliance of quantifiable measures in the prevention bundle

CAUTI Prevention Bundle

Meticulous, frequent hand washing by all caregivers

Avoid unnecessary placement of urinary catheters

Insert urinary catheters using aseptic technique (silicone catheters in the pediatric population)

Maintenance

Review urinary catheter necessity daily for prompt removal

Proper documentation

Communication related to urinary catheter during hand off procedures and rounds

Quantifiable Measures for Bundle Compliance

(1) Urinary catheter bag is labeled with date of insertion

(2) Urinary catheter is discontinued 2 days after surgery

(3) Urinary catheter is discontinued 7 days after insertion (non-surgical patients)

(4) Foley care is completed a minimum of once every 12 hours using disposable bath wipes and documented in the patient record

Urinary catheter bag emptied every shift and no more than ½ full

Drainage bag emptied prior to transport

Results

Goal	PRE Bundle	POST Bundle
CAUTI Rate	FY 2013 5.4	FY2014 1.2
(1)	n/a	87% Compliance
(2)	n/a	93% Compliance
(3)	n/a	99% Compliance
(4)	n/a	84% Compliance

Conclusions

Key Reasons for SUCCESS:

CH of SA supports a philosophy of continuous quality improvement.

Commitment is demonstrated by nursing leadership, making CAUTI prevention a priority focus.

Multidisciplinary team empowered front line associates to impact change focusing on patient safety.

Achieving and sustaining reductions in CAUTI rates combined best clinical practice with a culture of change.

Quantifiable measures for bundle compliance audited in real time support a learning environment and maintain forward momentum.



Children's Hospital of San Antonio™

CHRISTUS SANTA ROSA HEALTH SYSTEM



References

Eliminating CAUTI: A System's Approach

Agency for Healthcare Research and Quality. (2014).

<http://psnet.ahrq.gov/primer.aspx?primerID=5>

Cardo, D. (2014). *NHSN: Tracking prevention, protecting patients* [PowerPoint slides].

Retrieved from www.cdc.gov/nhsn/PDFs/training/training-ChangingPurposes.pdf

Centers for Disease Control and Prevention. (2014). *Catheter-associated urinary tract infection (CAUTI) event*. Retrieved from Centers for Disease Control and Prevention, National Healthcare Safety Network:

www.cdc.gov/nhsn/pdfs/pscmanual/7pscCAUTICurrent.pdf

Children's Hospital of San Antonio. (n.d.). www.chofsa.org/quality-catheter

Dudeck, M. A., Horan, T. C., Peterson, K. D., Allen-Bridson, K., Morrell, G., Anttila, A., ...

Edwards, J. R. (2013). National healthcare safety network report, data summary for 2011, device-associated module. *American Journal of Infection Control*, 41, 286-300.

<http://dx.doi.org/10.1016/j.ajic.2013.01.002>



References

Eliminating CAUTI: A System's Approach

Dudeck, M. A., Horan, T. C., Peterson, K. D., Allen-Bridson, K., Morrell, G., Pollock, D. A., & Edwards, J. R. (2011). National healthcare safety network (NHSN) report, data summary for 2010, device-associated module. *American Journal of Infection Control*, 37, 798-816.

<http://dx.doi.org/10.1016/j.ajic.2011.10.001>

Gould, C. V., Umscheid, C. A., Agarwal, R. K., Kuntz, G., Pegues, D. A., & the Healthcare Infection Control Practices Advisory Committee (HICPAC) (2010). Guideline for prevention of catheter-associated urinary tract infections 2009. *Infection Control and Hospital Epidemiology*, 31(4), 319-326. <http://dx.doi.org/10.1086/651091>

Institute for Healthcare Improvement. (n.d.)

www.ihc.org/resources/Pages/Tools/PlanDoStudyActWorksheet.aspx

Scott, R. D. (2009). *The direct medical costs of healthcare-associated infections in U.S. hospitals and the benefits of prevention*. Retrieved from Centers for Disease Control and Prevention: http://www.cdc.gov/hai/pdfs/hai/scott_costpaper.pdf