

HAI Peer Learning Network – Peer Sharing Event

Topic:

CLABSI Prevention

Nov. 28, 2017





Reminders



- For best sound quality, dial in at 1-800-791-2345 and enter code 11076
- Mute your phone during the presentation
- Don't put the call on hold
- Please use the chat box to ask questions!

MHA HAI Program Offerings





Peer Learning Network



ASP/MDRO Collaborative



NHSN User Group



CHAIN Fall Conference & Award



Additional support

- Convenes the 4th Tuesday of each month
- Rotating topics (SSI, CAUTI, CLABSI, VAE) & cross-cutting adaptive techniques
- Focus on best practices and implementation science
- Formal & informal sharing, resource review, peer discussion/polling

Peer Learning Network

HAI Learning Network Contacts



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Polling Question

- Which aspect of CLABSI is your highest priority?
 - Patient & family education
 - Insertion practices
 - Access/maintenance practices
 - Performance improvement monitoring
 - Staff education

Agenda

- Welcome
- Hospital Highlights
 - CentraCare St. Cloud Hospital
 - Mayo Clinic, Rochester
- Resource review
- MHA HAI Updates
- Wrap up

Journey to Zero CLABSIs

presented to HAI Peer Learning Network

Tuesday, November 28, 2017
Presented by:

Melissa Fradette, MSN, RN, CCRN Ellen Simonson, RN, MPH, CIC





St. Cloud Hospital Re-Designated a Magnet Hospital September 2013 for the third time First Magnet Designation June 2004

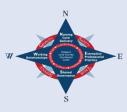


St. Cloud Hospital - 489 beds

Part of CentraCare Health
Magnet Designated – 3 times consecutively
Level II Trauma Center
One of 50 Top Cardiovascular Hospitals® by Truven
100 Top Hospitals (ten-time honoree) by Truven

Intensive Care Unit - 28 beds

Admit Medical, Surgical, Trauma, and Neuro critical care patients







CLABSI Prevention Strategies

Central Line Insertion Bundle

- Central Line Cart
- Central Line Insertion Checklist
- Evaluation of Need

Central Line Maintenance Bundle

- Scrubbing the Hub
- Minimization of Line Accesses
- Chlorhexidine Dressings and Bathing
- Dressing Maintenance
- Line Patency
- Evaluation of Continued Need
- Annual Education and Competency



SCH ICU's CLABSI Story

- FY13
 - 1 CLABSI 15 Days to Infection
- FY14
 - 3 CLABSIs -> 10 Days to Infection
 - Evidence suggests CLABSIs
 acquired > 10 days from insertion
 are related to maintenance
 practices; CHG bathing targeted
 at maintenance related CLABSIs

- FY15
 - 3 CLABSIs < 10 Days to Infection</p>
 - CHG bathing implemented 11/18/14
 (2 of 3 CLABSIs after implementation)
- FY16
 - 3 CLABSIs < 10 Days to Infection
- FY17 No CLABSIs



Data Review

- January 2014 to August 2015 8 ICU-acquired CLABSI
- Review of events by IPC Nurse and ICU Nurse Clinician revealed:
 - One positive and one negative blood culture in 5 CLABSIs (63%)
 - 3 of the 5 (60%) positive cultures were drawn from central lines
- Literature review completed venipuncture only blood cultures due to a high incidence of false positives from luminal biofilm

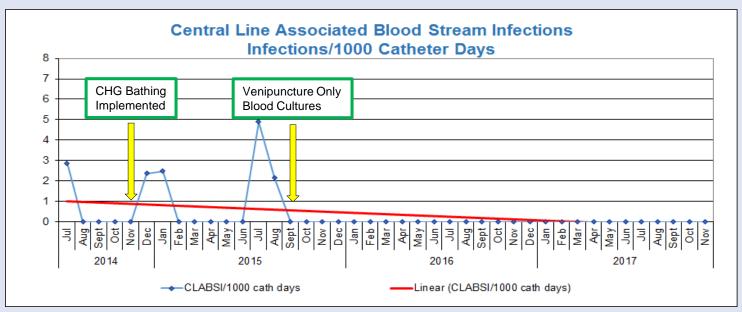


Practice Change

- Findings reviewed with ICU Medical Director, Laboratory Services, and ICU Nurse Practice Committee – Supported and approved venipuncture only blood cultures
- In September 2015, venipuncture only blood cultures implemented in ICU – No CLABSIs since
 - As of November 14, it has been 809 days since the last ICU-acquired CLABSI
- In March 2016, practice spread throughout St. Cloud Hospital and CentraCare Health – 20% reduction in CLABSIs



Outcomes







Questions?







Hospital Highlight

Hospital Highlight – Mayo Clinic, Rochester

Presenters:

- Priya Sampathkumar, MD, FIDSA, FSHEA
 - Associate Professor of Medicine
 - Division of Infectious Diseases
- Jean Barth, MPH, RN, CIC
 - Director of Infection Prevention and Control



MAYO'S APPROACH

PROJECT GOAL

Reduce and maintain central line associated blood stream infections (CLABSIs) at less than the Value Base Purchasing (VBP) achievement threshold.

PROJECT SCOPE

Who: All inpatients in Rochester MN

What: Central Lines, Arterial Lines, Midline Catheters

includes line selection, insertion and maintenance of lines

COUNTER MEASURE

While being more diligent in line assessment and removal, we do not want to increase line re-insertion rates.

DMAIC DESIGN





DEFINE

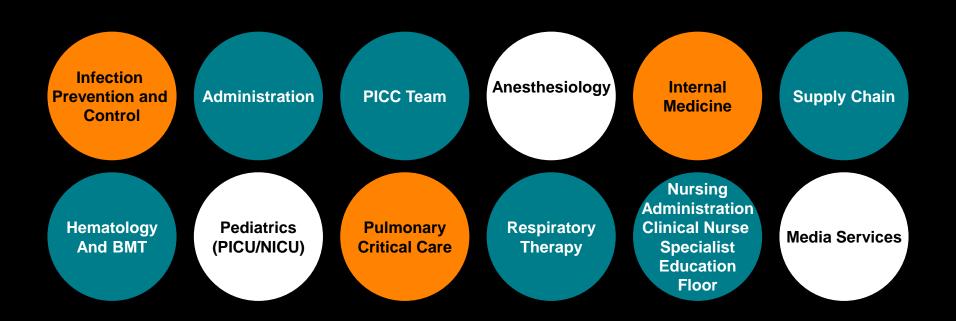
Develop Project Charter

Identify and Engage Stakeholders

Develop Project Timeline and Milestones

Form Workgroups

IDENTIFY AND ENGAGE STAKEHOLDERS



IDENTIFY CENTRAL LINE LIFE CYCLE

SELECT THE RIGHT LINE

INSERT LINE CORRECTLY

MAINTAIN LINE

REMOVE LINE WHEN NO LONGER NEEDED

FORM WORKGROUPS

LINE SELECTION/ ORDERING

INSERTION

MAINTENANCE AND ACCESSING

ASSESSMENT AND REMOVAL

DMAIC DESIGN





MEASURE

Quality Tools Utilized

- Surveys
- Process mapping
- Direct observations
- Chart audits
- Interviews & focus groups
 - Affinity diagrams
 - Fishbone Diagrams
 - 5 Whys
- Plan Do Study Act (PDSA's)

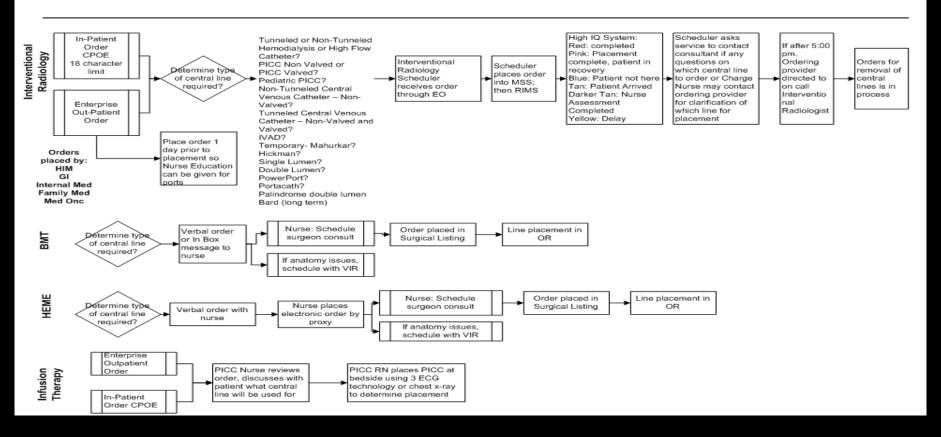


EXAMPLE - PROCESS MAPPING Line Maintenance

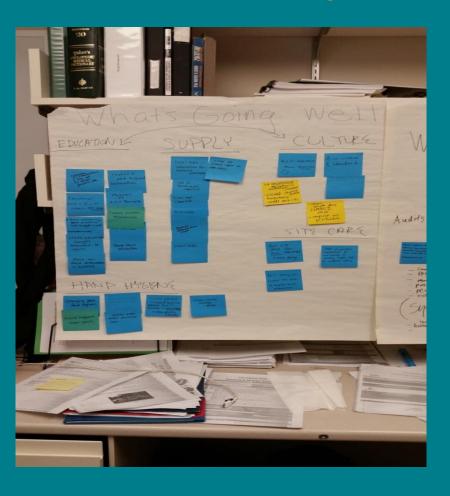


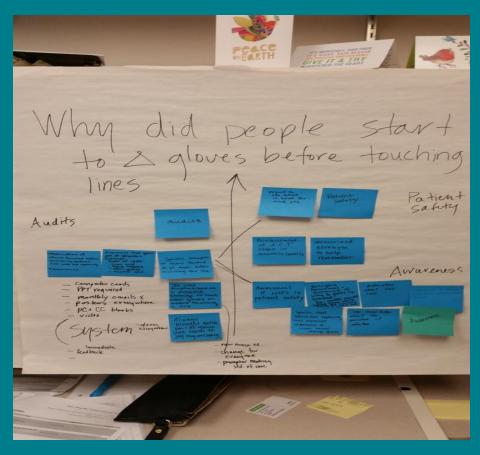
EXAMPLE - PROCESS MAPPING Central Line Ordering

Central Line Ordering Process



EXAMPLE – 5 Whys & Root Cause Analysis





EXAMPLE OF FINDINGS FROM ANALYSIS

LINE SELECTION AND ORDERING	INSERTION	LINE MAINTENANCE AND ACCESSING	LINE ASSESSMENT AND REMOVAL
 Midlines underutilized Potential for reduction of triple lumens 	 Insertion was done well overall Variation in supplies Procedure interruptions 	 Hand hygiene issues Dressing disruption Variation in supplies Procedure interruptions 	 Needs assessment performed inconsistently Lines left in longer then ideal Formal policy and procedure does not exist



Procedure in Progress Please Do Not Enter

DMAIC DESIGN

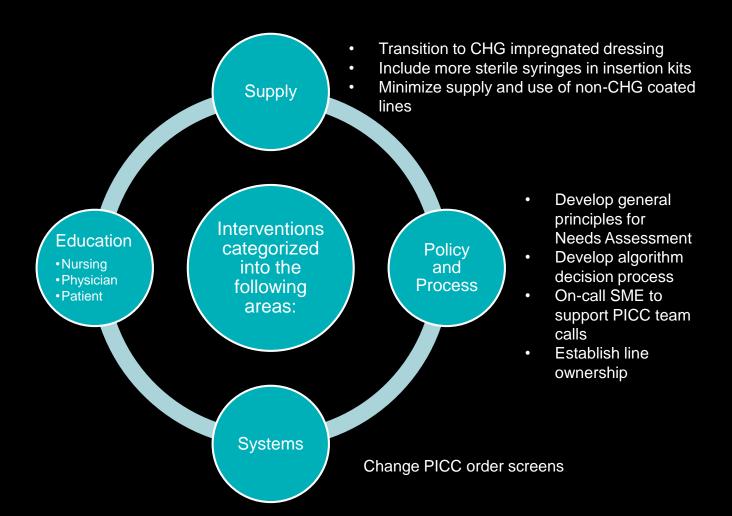




Improve

Developed CLABSI Bundles of education by audience:

- Nursing
- Physician
- Patient



DMAIC DESIGN





CONTROL - MAINTAIN GAINS

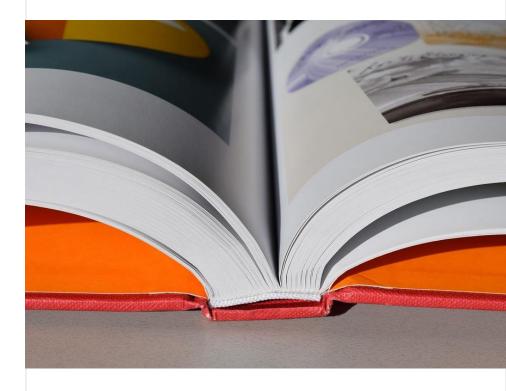
STRATEGY	TASKS
 Develop control plan Practice good change management Identify and empower operational owners Ongoing Metrics 	 Develop a map and cadence for ongoing system checks Identify indicators/red flags that warrant a review of an issue Who is responsible to initiate? Continued education and communication







Resource Review



New additions to HAI resources!

CENTRAL LINE-ASSOCIATED BLOODSTREAM INFECTIONS (CLABSI)

Central line-associated bloodstream infections (CLABSI) are serious infections that can result in longer hospital stays, increased costs and increased risk of death. These infections are among the most deadly types of healthcare-associated infections with a mortality rate of 12 percent to 25 percent. Experts estimate that the average cost of care for a patient with CLABSI is \$45,000 with an estimated \$2 billion annual cost to the U.S. health care system.

Great strides have been made in U.S. hospitals to prevent CLABSI in the intensive care unit (ICU) with the use of proper techniques to insert and manage the central line. There is room to strengthen CLABSI prevention outside of the ICU, however. The Centers for Disease Control and Prevention estimate that 32 percent of CLABSI in hospitals occur outside of the ICU.

Download the CLABSI road map.

The CLABSI road map covers central line insertion, maintenance and monitoring, and is intended to be used in all patient care areas in acute care hospitals. The CLABSI toolkit below is a collection of supporting documents, resources and tools to assist hospitals in implementing the bundle.

For more information, contact the MHA quality and patient safety team.

CLABSI toolkit

- Checking CLABSI patient education
- Checking CLABSI staff education rounding tool
- · Hennepin County Medical Center prevention tool kit
- Hennepin County Medical Center central line policy
- · Hennepin County Medical Center central line insertion checklist
- · Hennepin County Medical Center RCA tool
- Hennepin County Medical Center daily checks for leaders tool
- · Hennepin County Medical Center change in 48 hours sticker



http://www.mnhospitals.org/quality-patient-safety/quality-patient-safety-initiatives/health-care-associated-infections/central-line-associated-bloodstream-infections-clabsi

CVC Care and Maintenance Processes

- The Joint Commission CVC Maintenance Bundles
- The Joint Commission Daily Central Line
 Maintenance Checklist Template
- IPRO Central Line Maintenance Bundle
- AHRQ Central Line Maintenance Audit Form

Blood Cultures Contamination: Background & Scope

- Blood culture: gold standard for detection of bacteremia
- Contamination of blood cultures (i.e., false-positive) is common
 - Occurs from the introduction of organisms outside the bloodstream (e.g., skin or environmental contaminants)
 - Estimated that 20-50% of all positive blood cultures are contaminated [1]
 - Reported contamination rates in hospitals vary widely (0.6% to 12.5%), highest in ED [1]
- Number of hospital stays for septicemia more than doubled from 2000-2009 [2]
- Negative consequences associated with false-positive blood cultures:
 - Interference with clinical decision-making
 - Unnecessary antibiotic use, increased pharmacy costs
 - Additional laboratory tests, increased lab costs
 - Infection control considerations (e.g., isolation)
 - Increased length of hospital stay
 - Infection surveillance estimates hospital, public health
- 1. Snyder S, Favoretto A, Baetz R. Effectiveness of practices to reduce blood culture contamination: A Laboratory Medicine Best Practices systematic review and meta-analysis. Clin Biochem. 2012;45:999-1011.
- 2. Hall MJ, Williams SN, Defrances CJ, Golosinskiy A. Inpatient care for septicemia or sepsis: a challenge for patients and hospitals. NCHS Data Brief. 2011:1-8.

Strategies for Reducing Blood Culture Contamination

- Strategies for reducing blood culture contamination:
 - Trained phlebotomy/blood culture teams
 - Blood culture kits / prepackaged prep kits
 - Source of culture (catheter, vein)
 - Use of sterile gloves, aseptic technique
 - Skin preparation
 - Needle exchange systems
 - Culture bottle preparation
 - Initial specimen diversion devices
 - Appropriate blood culture testing/utilization
- Microbiology reports useful (Do some units, services have higher contamination rates vs others?)

Blood Culture Collection Recommendations

- Maintain blood culture contamination rate <3% [1,2]
- Where available, phlebotomy team should draw the blood samples for culture [3]
- Skin preparation for percutaneously drawn blood samples should be carefully done with either alcohol or tincture of iodine or alcoholic chlorhexidine (>0.5%), rather than povidone-iodine; allow adequate skin contact and drying time to mitigate blood culture contamination [3]
- If a blood sample is obtained through a catheter, clean the catheter hub with either alcohol or tincture of iodine or alcoholic chlorhexidine (>0.5%) and allow adequate drying time to mitigate blood culture contamination (A-I). [3]
- For suspected CRBSI, paired blood samples drawn from the catheter and from a peripheral vein should be cultured before initiation of antimicrobial therapy, and the bottles should be appropriately marked to reflect the site from which the cultures were obtained [3]
- If a blood sample for culture cannot be drawn from a peripheral vein, it is recommended that ≥2 blood samples should be obtained through different catheter lumens. It is unclear whether blood samples for culture should be obtained through all catheter lumens in such circumstances [3]
 - 1. Clinical and Laboratory Standards Institute. Principles and Procedures for Blood Cultures: Approved Guideline. CLSI document M47-A. Wayne PA: Clinical and Laboratory Standards Institute, 2007.
 - 2. Baron EJ, Weinstein MP, Dunne WM Jr, et al. Cumitech 1C, blood cultures IV. Washington, D.C: ASM Press; 2005.
 - 2. Mermel LA, Allon M, Bouza E, et al. Clinical Practice Guidelines for the Diagnosis and Management of Intravascular Catheter-Related Infection: 2009 Update by the Infectious Diseases Society of America. Clinical Infectious Diseases. 2009;49(1):1-45. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4039170/pdf/nihms579455.pdf

One Hospital's Attempt to Decrease BC Contamination (and CLABSI): Venipuncture Blood Culture Policy

INFECTION CONTROL AND HOSPITAL EPIDEMIOLOGY OCTOBER 2013, VOL. 34, NO. 10

ORIGINAL ARTICLE

Obtaining Blood Cultures by Venipuncture versus from Central Lines: Impact on Blood Culture Contamination Rates and Potential Effect on Central Line–Associated Bloodstream Infection Reporting

John M. Boyce, MD;^{1,2} Jacqueline Nadeau, M(ASCP);³ Diane Dumigan, RN;¹ Debra Miller, RN, CMSRN;⁴ Cindy Dubowsky, MS;⁵ Lenore Reilly, RN, MS;⁴ Carla V. Hannon, RN, MS⁴

Infect Control Hosp Epidemiol. 2013;34(10):1042-1047 http://www.jstor.org/stable/10.1086/673142

Overview of Study

Background:

- Blood cultures obtained from catheters have a higher contamination rate compared to cultures obtained via venipuncture
- Better aseptic technique for obtaining blood samples for culture could lower the number of reportable CLABSI cases
- Goal: implement strategies to minimize number of blood samples drawn from catheters
- Objective: evaluate impact of reducing the use of catheter-drawn blood samples for culture on blood culture contamination rates and its possible contribution to reducing number of reportable CLABSIs
- Results: combination of measures resulted in a progressive and sustained reduction in blood culture contamination rate from 1.6% to 0.5% for all hospital units (excluding ED, NICU)

Implementation

- Policy: recommended drawing blood samples for culture by venipuncture whenever possible and avoiding the use of catheter-drawn blood samples unless absolutely necessary
 - Physicians required to obtain permission from hospital epidemiologist to have blood samples drawn for culture from central catheters unless patient was febrile and neutropenic or required hemodialysis
- Education: new policy; reeducated about aseptic technique and skin antiseptic application time and dry time required
- Procedure: nursing wrote procedure designed to minimize contamination of blood specimens drawn from central catheters when phlebotomists or IV team unable to obtain by venipuncture
 - Two nurse-procedure: one obtained specimens, one monitored procedure using checklist
- Standardized supplies: nursing developed a special kit (Table 1 in article)

Implementation (cont.)

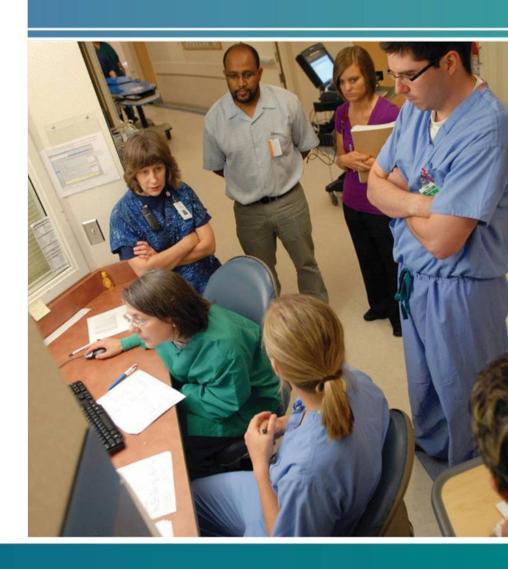
- Communication: memo sent by Chief Medical Officer to all medical staff
- Leveraged EHR and incorporated into workflow: At the time blood samples were obtained for culture, physicians prompted to enter whether the blood was drawn from a central line or from other sites (peripheral vein or A-line)
 - If a blood sample could not be obtained by venipuncture, then the protocol required that the order be cancelled and a new order placed for blood culture samples to be drawn from a catheter
- Tracked compliance: micro lab developed a monthly report:
 - Number of blood culture samples drawn on all hospital units
 - Proportion of blood cultures with samples drawn from central lines vs other sites
 - Presented to the CLABSI committee

Study Results

- Impact of implementing venipuncture policy:
 - Significantly reduced the proportion blood culture specimens drawn from central lines (from 10.9% to 0.4%)
 - Blood culture contamination rate decreased from 1.6% to 0.5%
 - Requiring permission from hospital epidemiologist to draw blood culture specimens from catheter served as a significant barrier to physicians ordering cultures of blood specimens drawn from catheters
 - Limiting number of blood culture specimens obtained from central lines contributed to reducing blood culture contamination rate



MHA HAI Updates





Surgical Site Infection (SSI) Roadmap

MHA's road maps provide hospitals and health systems with evidence-based recommendations and standards for the development of topic-specific prevention and quality improvement programs, and are intended to align process improvements with outcome data. Road maps reflect published literature and guidance from relevant professional organizations and regulatory agencies, as well as identified proven practices. MHA quality and patient safety committees provide expert quidance and oversight to the various road maps.

Each road map is tiered into for

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Minnesota Hospital Association

Central line-associated bloodstream infection (CLABSI) Roadmap

MHA's road maps provide hospitals and health systems with evidence-based recommendations and standards for the development of topic-specific prevention and quality improve programs, and are intended to align process improvements with outcome data. Road maps reflect published literature and guidance from relevant professional organizations and

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Minnesota Hospital Association

Ventilator-associated events (VAE) Ro

MHA's road maps provide hospitals and health systems with evidence-based recommendations and standards for the development of topic-specific prevention and quality impr Resources linked programs, and are intend implementation of

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Minnesota Hospital Association

Clostridium difficile (CDI) Roadmap

MHA's road maps provide hospitals and health systems with evidence-based recommendations and standards for the development of topic-specific prevention and quality improvement programs, and are intended to align process improvements with outcome data. Road maps reflect published literature and guidance from relevant professional organizations and regulatory agencies, as well as identified pro-

Each road map is tiered into fundamental

- Fundamental strategies should professional bodies and regulate
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consistently and there is evidend

Operational definitions are included to

Resources linked within the road map in implementation of best practices.

The CDI Roadmap includes best practice and/or confirmed CDI, cleaning and disint for CDI is critical for best practice implem significant diarrhea). Some patients may antibiotic use

Additionally, the Roadmap includes plant

Road map Road map quest sections answering no, p **FUNDAMENTAI** CDI surveillance (check each box if The facility's (diagnoses and CDI audit and leadership an



Road map

Minnesota Hospital Association

Catheter-associated urinary tract infection (CAUTI) Roadmap

HAI Road maps now

available in PDF and

in data portal!

MHA's road maps provide hospitals and health systems with evidence-based recommendations and standards for the development of topic-specific prevention and quality improvement programs, and are intended to align process improvements with outcome data. Road maps reflect published literature and guidance from relevant professional organizations and regulatory agencies, as well as identified proven practices. MHA quality and patient safety committees provide expert guidance and oversight to the various road maps.

Each road map is tiered into fundamental and advanced strategies:

- Fundamental strategies should be prioritized for implementation, and generally have a strong evidence base in published literature in addition to being supported by multiple professional bodies and regulatory agencies.
- Advanced strategies should be considered in addition to fundamental strategies when there is evidence the fundamental strategies are being implemented and adhered to consistently and there is evidence that rates are not decreasing and/or the pathogenesis (morbidity/mortality among patients) has changed.

Operational definitions are included to assist facility teams with road map auditing and identifying whether current work meets the intention behind each road map element.

Resources linked within the road map include journal articles, expert recommendations, electronic order sets and other pertinent tools which organizations need to assist in implementation of best practices.

answering no, please see next column for suggested resources) FUNDAMENTAL (check each box if "yes") The facility has a process in place to educate the patient about their urinary catheter [1]. - Education includes topics such as: symptoms of a urinary tract infection, catheter care, and what the patient can do to help prevent The facility has a process in place to educate patients being discharged

with an indwelling catheter in place.

understanding.

Road map questions (if not present at your hospital or

The patient has been educated on how to care for the catheter and

symptoms of infection using teach back method to ensure patient's

If specific road map element is missing, consider the following resources:

Consider the following examples of patient education when developing teaching materials:

- Centers for Disease Control <u>FAQs about CAUTI</u>
- Catheterout.org What Patients and Family Members Need to Know About the Risks Associated with Urinary Catheters

Consider the following examples when developing discharge education for patients:

- Intermountain Healthcare Foley Catheter: Home instructions
- The Ohio State University Home Care for Your Foley
- Catheter (Female)

Road Map Overview

Fundamental or advanced strategies to help with prioritization

Road map questions (if not present at your hospital or Road map If specific road map element is missing, consider answering no, please see next column for suggested resources) the following resources: sections **FUNDAMENTAI** Consider the following examples of patient education when (check each box if "yes") developing teaching materials: Patient & family education MHA Checking CLABSI patient education sheet The facility has a process in place to educate the patient/family about Centers for Disease Control fact sheet their central line [1.2]. The Ohio State University Wexner Medical Center CVC Include topics such as what a central line-associated bloodstream sterile dressing change patient education infection is, what the health care personnel (HCP) and prescribers are doing to prevent an infection, and what the patient can do to help The Institute for Healthcare Improvement (IHI) "Always use prevent an infection. teach back!" tools were developed to assist in confirming Encourage patients to report any new changes or discomfort in their patient understanding of care instructions. catheter site [3]. The facility has a process in place to educate patients being discharged with a central ine in place [1,2]. Topics include catheter care and symptoms of infection. Teach back methods can be utilized to ensure patient understanding. Operational Organized by definitions section to (what yes means) address Mapped resources with Line by line references specific Audit-style live links (active links at the end aspects of format for key of each document) care elements

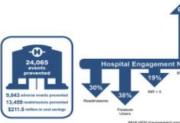
MN HOSPITALS QUALITY & PATIENT SAFETY POLICY & ADVOCACY EDUCATION NEWSROOM DATA & REPORTING



Minnesota hospitals continue progress in preventing patient harm



Minnesota hospitals and health systems have prevented more than 24,000 patients from being harmed and saved more than \$211 million as a result of a reduction in hospital-acquired conditions since 2011. Learn More



Quality & Patient Safety

- Quality & Patient Safety Initiatives
 - Antibiotic Stewardship
- Communicating Outcomes |
 - Delirium .
- Emergency Overhead Pages |

- Health Care-Associated Infections
- Catheter-Associated Urinary Tract Infections (CAUTI)
- Central Line-Associated Bloodstream Infections (CLABSI)
 - Clostridium Difficile
 - Surgical Site Infections
 - Ventilator-Associated Events |
 - Health Care Disparities .
 - Medication Safety
 - Obstetrics & Newborn 🔝
 - Patient & Family Engagement

Patient Handling .

INITIATIVES

Quality and patient safety is a top priority for Minnesota hospitals and they are focused on a number of areas to improve safety and

Antibiotic stewardship Delinium

quality:

Health care disparities Obstetrics & newborn Patient handling Pressure ulcers

Emergency overhead pages Health care-associated infections Medication safety Patient and family engagement Patient safety culture Readmissions

ery & procedures

Communicating outcomes

Road maps available on the MHA website!

e providers, state agencies

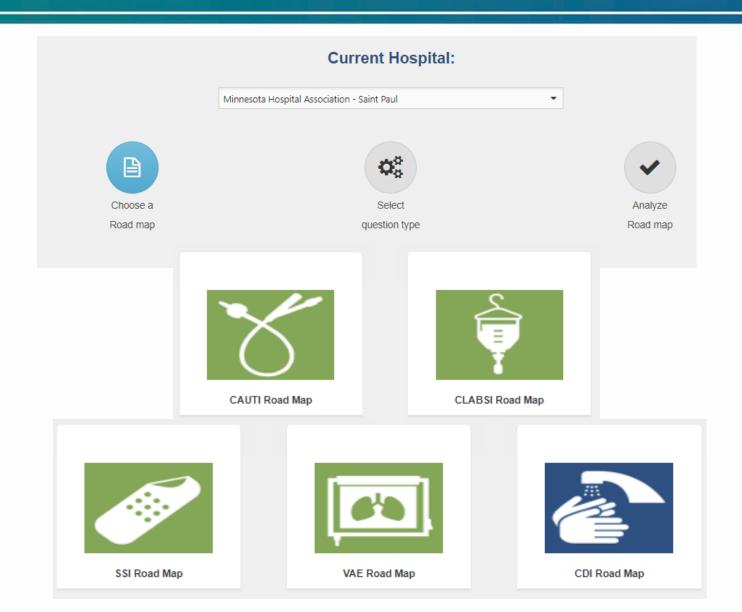
and others to develop comprehensive solutions to health care challenges and to work toward a coordinated approach across the continuum of care. See at a glance who they are and what roles they play in improving patient safety and quality





http://www.mnhospitals.org/quality-patient-safety

HAI road maps in the MHA Data Portal



Next HAI Peer Learning Network Event

NO HAI LN Event in December 2017

2018 HAI Learning Network Kickoff

Thursday, Jan. 23, 2018

1:00 - 2:00 pm

Registration link:

https://web.telspan.com/register/240mnhospitals/haijan18

Questions?



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