

# Right Sizing Healthcare-Associated Infection Prevention Measures for Critical Access Hospitals



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# Objectives

- Describe the features of critical access hospitals (CAHs)
- Describe challenges to infection control in CAHs
- Review keys to eliminating healthcare-associated infections
- Apply principles of elimination to CAHs

# Critical Access Hospitals

- 1,320 certified CAHs in US (Sep 2010)
- Benefits
  - *Cost plus 1% reimbursement for Medicare*
  - Focus on community needs
  - Flexible staffing and services
  - Capital improvement costs included in allowable costs for determining Medicare reimbursement
  - Access to Flex Program grant monies (rural networks of care, quality improvement, emergency services)

# Critical Access Hospital Requirements

- Distance
  - Over 35 mile distance from another hospital, or
  - 15 miles from another hospital in mountainous terrain or areas with only secondary roads
- Annual average length of stay of 96 hours or less for acute care patients
- Maximum of 25 acute care inpatient beds
- Must provide 24-hour emergency room services with medical staff \*on-site or on-call (within 30 minutes, 60 minutes if frontier)
- *State specific licensure and/or certification requirements*

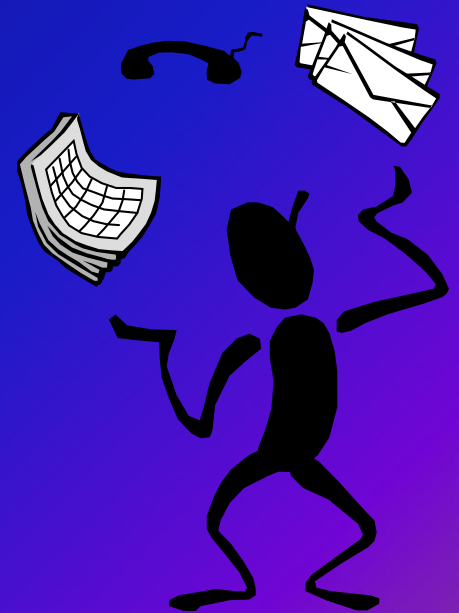
# Challenges

- Difficult to recruit providers to rural settings
  - Staffing shortages
  - Use of agency personnel
- Staff wear multiple hats so in-depth training on any particular topic is difficult
- Importance of maintaining average LOS <96 hours
- Specialty care not available

# Infection Prevention and Control

# Challenges for Infection Prevention and Control in CAHs

- Multiple hat syndrome
  - Quality, risk management, wound care, DON
- Limited opportunities for training
  - Expense
  - Travel restrictions
- Overwhelm
  - Multidisciplinary nature of profession



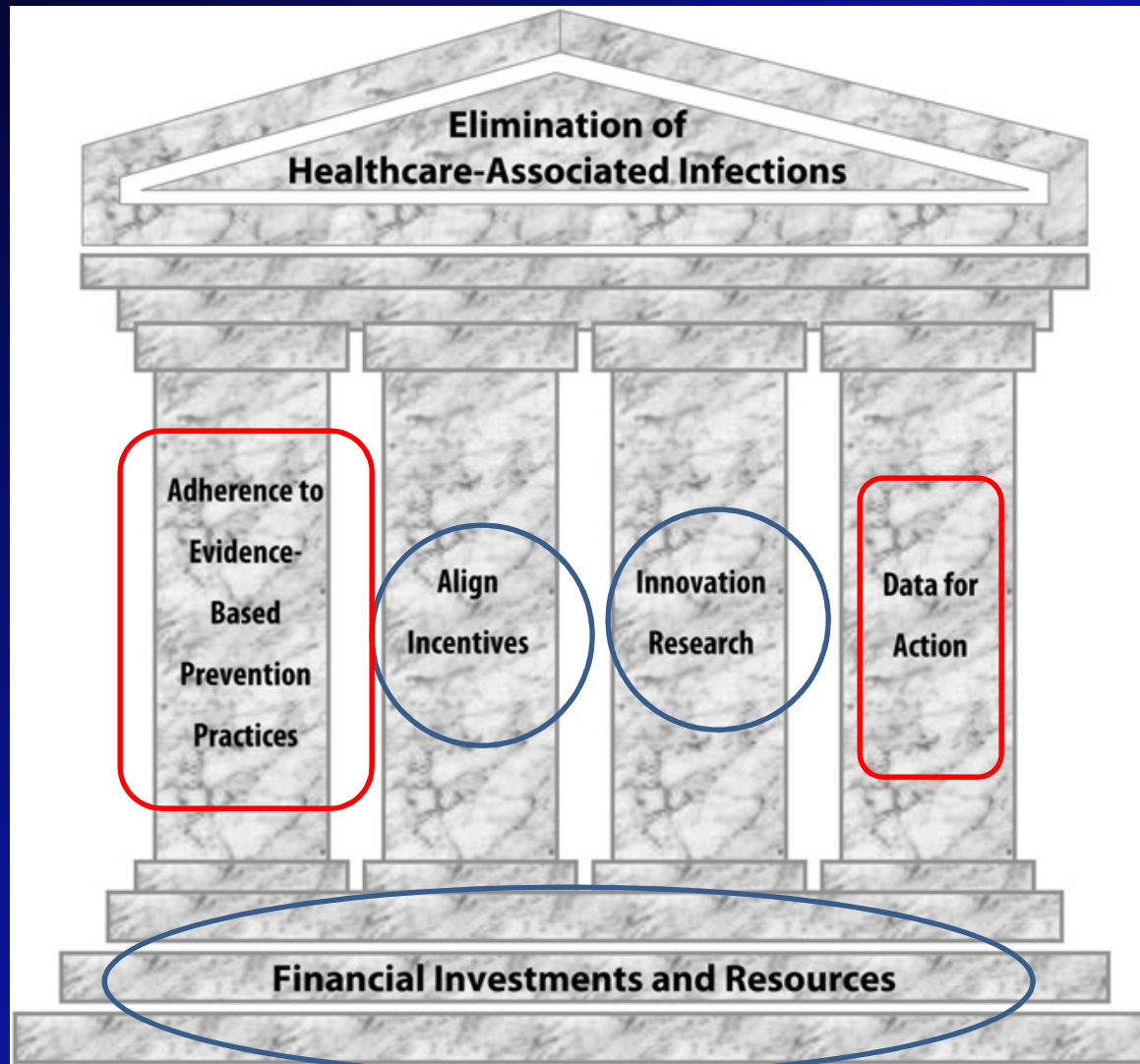
# Keys for the Elimination of Healthcare-Associated Infections National

- A foundation of political will and financial resources
- Align incentives
- **Data for action\***
- **Improved implementation of existing best practices\***
- Address gaps in knowledge

\* State specific activities

Federal  
Activities

State  
Activities



From: Cardo D, et. al., Moving toward elimination of healthcare-associated infections: A call to action; *Infect Cont Hosp Epidemiol* 31(11): 1101-1105, Nov 2010

# Facility Specific Comprehensive HAI Prevention

- Early identification and control of transmission through isolation or other measures
  - Sharing information
  - Resolving practice differences
- Adherence to evidence based prevention practices
- Hand hygiene
  - Unit based teams
  - Clear targets
- Environmental sanitation
  - Standardize P&P
  - Competencies
- Antibiotic stewardship
  - Laboratory, pharmacy and ID specialist roles

# Adherence to Evidence Based Practices

- Guidelines
- Compendium
- Checklists
- Improvement Collaboratives



**ON THE CUSP:  
STOP HAI**

*A national implementation of the  
Comprehensive Unit-based  
Safety Program to eliminate  
health care acquired infections*

# Risk Assessment

- What procedures are performed?
  - Insertion of central lines, other vascular access devices, urinary catheters
  - Surgical procedures
- What data do we have to prioritize activities?
  - Infection rates, hand hygiene compliance, MDRO patients, cleaning practices, etc.
- In what clinical areas do we know we need improvement?

# Measurement

- Process vs outcome measures
  - Adherence to evidence based practices
  - vs
  - Healthcare-associated infection rates
- Checklists
  - Maintenance
    - vs
  - Insertion

**We access port-a-cath and PICC lines for blood draws and to give IV fluids and medications. Do we need to complete a central line bundle checklist if we are merely accessing these central lines?**

**We're confused....**

# **Adherence to Evidence-Based Prevention Practices**

**Prevention of Central Line or Catheter Associated  
Bloodstream Infection (CLABSI/CABSI)**

# Central Line Insertion Bundle

- Hand hygiene
- Maximum sterile barrier precautions upon insertion
- Chlorhexidine skin antisepsis
- Optimal catheter site selection: subclavian vein for non-tunneled CVCs
- Daily review of line necessity with prompt removal when no longer needed

# Central Line Maintenance Bundle

- Dressing changes
- Replacement of IV administration sets
- Hang time for parenteral fluids
- Maintenance of catheter ports
  - Catheter hub cleansing
- Prevent catheter related thrombus
- Removal of unnecessary lines

# Evidence to support practice

- **CDC Guidelines for the Prevention of Intravascular Catheter-Related Infections, 2011**
- SHEA/IDSA: Strategies to Prevent Central Line–Associated Bloodstream Infections in Acute Care Hospitals, Oct. 2008
- APIC CLABSI Elimination Guide – 2009
- Infusion Nursing Standards of Practice - 2011
- ONS Access Device Guidelines - 2010

# SAVE That Line!

## **SCRUPULOUS HAND HYGIENE**

Before and after contact with vascular access device and prior to insertion

## **ASEPTIC TECHNIQUE**

During catheter insertion and care

## **VIGOROUS FRICTION TO HUBS**

Vigorous friction with alcohol wherever you "make or break a connection" to give medications, flush, or change tubing & injection port or add on device

## **ENSURE PATENCY**

Flush with adequate amount of saline or heparinized saline to maintain patency, per institution policy. If there is a lack of blood return, use lytic protocol to restore patency.



# **Adherence to Evidence-Based Prevention Practices**

**Prevention of Catheter Associated Urinary  
Tract Infection (CAUTI)**

# Why CA-UTI?

- Most common hospital-acquired infection: 40% of all HAIs
  - > 1 million cases annually (hospitals & nursing homes)
- 12-25% of all hospitalized patients receive a urinary catheter
  - Half of these found to not have valid indication
- Increased length of stay 0.5 – 1 day
- Estimated cost per case of CA-UTI ranges from \$500-\$3,000

# Evidence-Based Guidelines

- APIC CA-UTI Elimination Guide

[www.apic.org/CAUTIGuide](http://www.apic.org/CAUTIGuide)

- SHEA-IDSA Compendium

<http://www.shea-online.org/about/compendium.cfm>

- CDC Guideline

[http://www.cdc.gov/ncidod/dhqp/gl\\_catheter\\_assoc.html#](http://www.cdc.gov/ncidod/dhqp/gl_catheter_assoc.html#)

# Evidence of Success

- Numerous published studies reporting reductions in CA-UTI rates of 48-81%
  - Use of reminders
  - Nurse-driven protocols
  - Reduction in duration of catheter days

*“The duration of catheterization is the most important risk factor for development of infection.”*

*SHEA-IDSA Compendium, October 2008*

# Preventing CA-UTI

1. Avoid unnecessary urinary catheters
2. Insert using aseptic technique
3. Maintain catheters based on recommended guidelines (daily care)
4. Review catheter necessity daily and remove promptly

# 1. Avoid unnecessary urinary catheters

- Studies:
  - 21% of catheters not indicated at insertion
  - 41-58% in place found to be unnecessary
- Catheters
  - Are uncomfortable for patients
  - Decrease mobility, which may impair recovery and contribute to other complications (e.g., pressure ulcers, deep vein thrombosis)

Saint S, Lipsky BA. Preventing catheter-related bacteriuria: Should we? Can we? How? *Arch Intern Med.* 1999 Apr 26;159(8):800-808.

Jain P, Parada JP, David A, Smith LG. Overuse of the indwelling urinary tract catheter in hospitalized medical patients. *Arch Intern Med.* 1995;155:1425-1429.

# Indications for Indwelling Urinary Catheters

Based on expert guidelines and published literature:

- Perioperative use for selected surgical procedures
- Urine output monitoring in critically ill patients
- Management of acute urinary retention and urinary obstruction
- Assistance in pressure ulcer healing for incontinent patients
- As an exception, at patient request to improve comfort (SHEA-IDSA) or for comfort during end-of-life care (CDC)

# Avoidance Strategies

- External condom catheters for appropriate male patients
- Intermittent catheterization multiple times per day
- Assessing urinary retention with bladder ultrasound

## Changes to Avoid Unnecessary Catheters

- Develop criteria for appropriate insertion and verify prior to every insertion
- Empower nurses to contact physicians before insertion if criteria are not met
- Use a checklist of criteria – include this with the insertion kits
- Determine where most catheters are inserted (probably the ED) and start there

## 2. Insert urinary catheters using aseptic technique

- Utilize appropriate hand hygiene practice.
- Insert catheters using aseptic technique and sterile equipment, specifically using:
  - gloves, a drape, and sponges;
  - sterile or antiseptic solution for cleaning the urethral meatus; and
  - single-use packet of sterile lubricant jelly for insertion.
- Use as small a catheter as possible that is consistent with proper drainage, to minimize urethral trauma.

### 3. Maintain catheters based on recommended guidelines

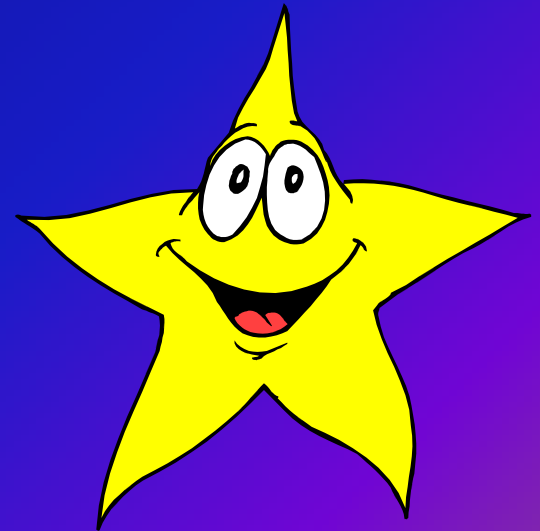
- Maintain a sterile, continuously closed drainage system.
- Keep catheter properly secured to prevent movement and urethral traction.
- Keep collection bag below the level of the bladder at all times.
- Maintain unobstructed urine flow.
- Empty collection bag regularly, using a separate collecting container for each patient, and avoid allowing the draining spigot to touch the collecting container.
- Maintain meatal care with routine hygiene (bathing).

## 4. Daily review of necessity with prompt removal

- Determine need for continuation
- Remove if not indicated
- Possible strategies:
  - Nursing assessments at every shift, with requirement to contact physician if criteria are not met
  - Nursing protocols for removal of urinary catheters based on criteria
  - Automatic stop orders for 48 to 72 hours after insertion, continuation only when indication is documented in renewal order
  - Reminders in patient records requiring physicians to document indication for continuation of catheter

# Get the catheters out!

\* or don't put them in to begin with!



# **Surgical Site Infections**

Adherence to Evidence-Based  
Practices

# Surgical Site Infection Prevention

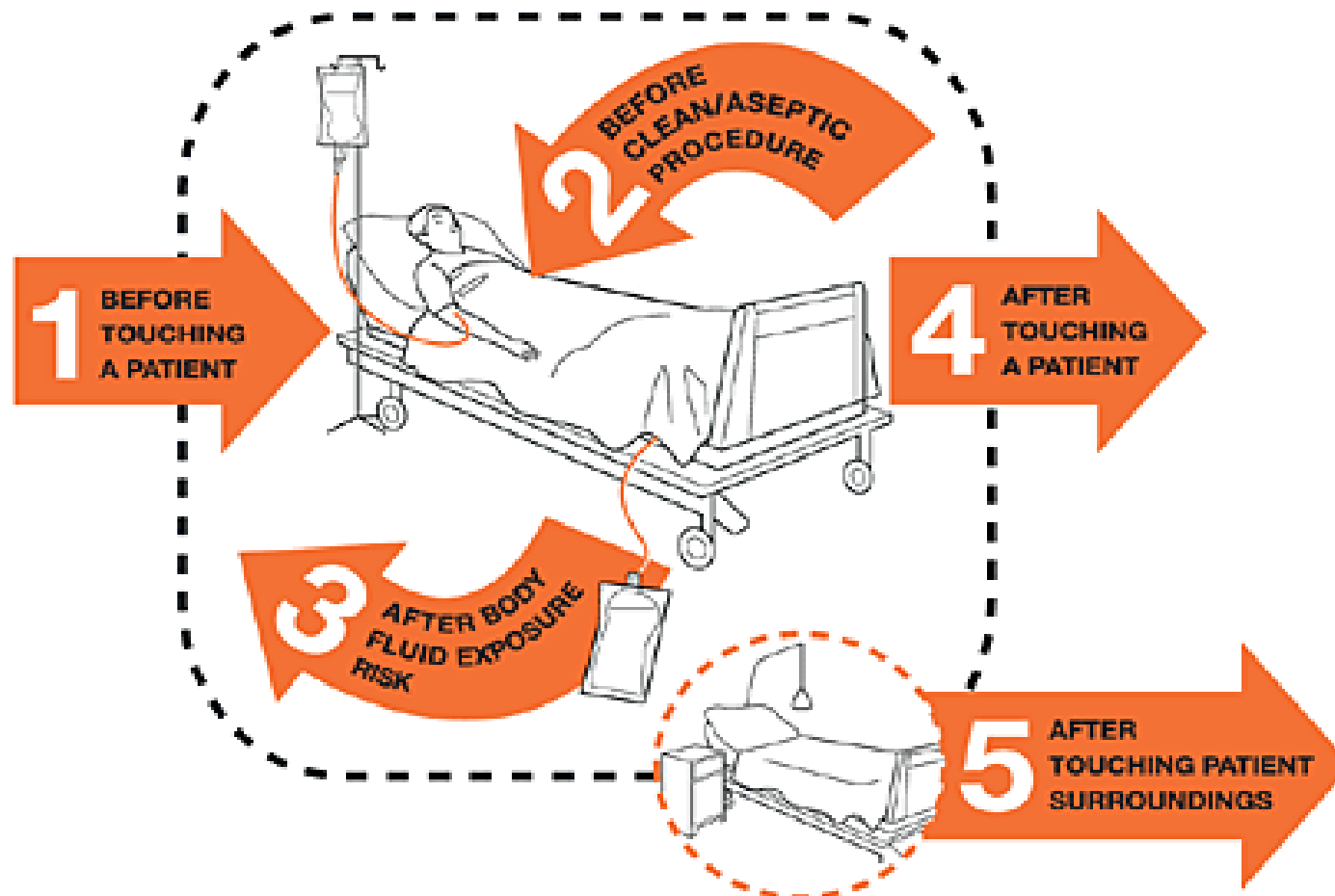
SSI PREVENTION PRACTICES CHECKLIST	Responsibility				Doing	Policy #
	Surgeon	Surgical Staff	S/P/O Staff	ICP		
<b>CDC Guidelines for the Prevention of Surgical Site Infections - 1999 - Category I Recommendations</b>						
<b>PREPARATION OF THE PATIENT</b>						
Whenever possible, identify and treat all infections remote to the surgical site before elective operation and postpone elective operations on patient with remote site infections until the infection has resolved. (e.g., UTI)	X					
Do not remove hair preoperatively unless the hair at or around the incision site will interfere with the operation.		X				
If hair is removed, remove immediately before the operation, preferably with electric clippers.		X				

# Hand Hygiene



*Washing hands saves lives.*

# My 5 moments for HAND HYGIENE



# Environmental Sanitation



# Environmental Services as Driver for HAI Reduction

- Survival of organisms in the environment
- High touch items
  - Bedrails, bedside tables, call buttons
- Standardize process
  - Room cleaning checklist
  - Room cleaning assessment

# Participate in Antimicrobial Stewardship

- Core Components
  - Prospective audit with intervention and feedback
  - Formulary restriction and pre-authorization
- Supplementary components
  - Education
  - Multi-disciplinary teams
  - Guidelines and clinical pathways\*
  - Antimicrobial order forms
  - De-escalation of therapy\*
  - Dose optimization
  - Computer surveillance and decision support
  - Monitoring process and outcome measures

# Other Topics of Importance

# MDROs and Other “Buggers”

- MDROs
  - MRSA
  - VRE – vancomycin resistant enterococcus
  - ESBL - extended spectrum beta-lactamase producers
  - CRE / CRKP – carbapenemase resistant enterobacteriaceae
  - *Acinetobacter baumannii*
- *Clostridium difficile*
- GI viruses, e.g., Norovirus



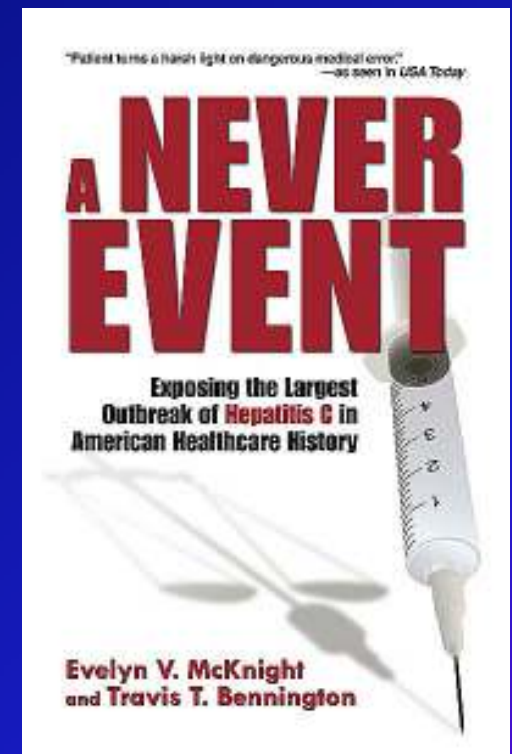
# MDROs and Transitions of Care

- Identify sources of MDROs
  - Tertiary care centers
  - Long term care
  - Long term acute care
- Target activities
- Communication mechanisms
  - Transfer documentation

# An Outbreak of Hepatitis C Virus Infections among Outpatients at a Hematology/Oncology Clinic

Alexandre Macedo de Oliveira, MD, MSc; Kathryn L. White, RN, BSN; Dennis P. Leschinsky, BS; Brady D. Beecham, BS; Sara M. Vogt, PhD; Ronald L. Moolenaar, MD, MPH; Joseph F. Perz, DrPH; and Thomas J. Safranek, MD

Macedo de Oliveira et al., *Annals of Internal Medicine*, 2005, 142:898-902



# Growing Concern

- CDC and state and local health departments have investigated an increasing number of outbreaks
  - Unsafe injection practices
  - Other breaches in basic infection control
  - Detection is haphazard
- Outbreaks are occurring across the healthcare spectrum
  - Ambulatory, home and long-term care settings
    - Infection control programs and oversight

# Safe Injection Practices



- Never administer medications from the same syringe to more than one patient, even if the needle is changed
- Do not enter a vial with a used syringe or needle
- Medications packaged as single-use vials never be used for more than one patient
- Medications packaged as multi-use vials be assigned to a single patient whenever possible
- Bags or bottles of intravenous solution not be used as a common source of supply for more than one patient
- Absolute adherence to proper infection control practices be maintained during the preparation and administration of injected medications

# Summary



- Focus on practices that pertain to your facility
  - Maintenance of central lines
  - Insertion and maintenance of foley catheters
  - Prevention of surgical site infections
- Standardize
  - Adhere to evidence based practices
  - Use NHSN surveillance definitions, even if not using NHSN for data collection/reporting  
([http://www.cdc.gov/nhsn/PDFs/pscManual/17pscNosInfDef\\_current.pdf](http://www.cdc.gov/nhsn/PDFs/pscManual/17pscNosInfDef_current.pdf))
- Keep it simple
  - national initiatives for larger facilities must be “right sized”
- Community based infection prevention



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