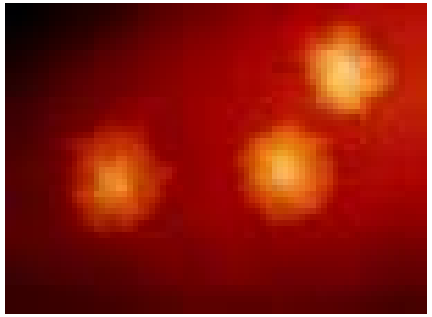
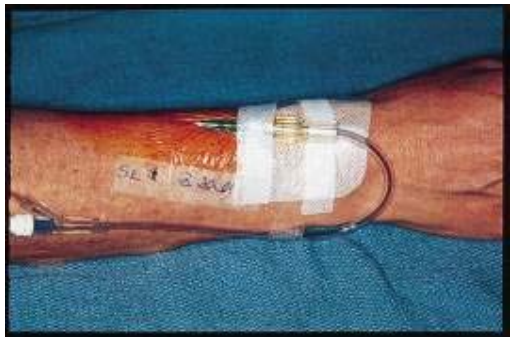
AHC Media

September 12, 2016

Safe Infection Practices & IV Push Guidelines: Compliance with CDC and CMS Standards





Speaker

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- sdill1@columbus.rr.com (Call, No email questions)

Objectives

- Detail the 10 practices, appropriate for both inpatient and outpatient settings, on the CDC Injection Safety Checklist.
- Explain why every hospital should institute a policy specific to safe injection practices.
- Explain new and revised standards, regulations, and laws put forth by CMS, TJC and the federal government.
- Evaluate compliance requirements and penalties.

You Don’t Want One of These from CMS

Introduction and Hospital Acquired Conditions (HACs)

Infection Control

- The CDC says there are 1.7 million healthcare infection (HAI) in America every year
- There are 75,000 deaths in American hospitals every year
- CMS gets 50 million dollar grant to enforce infection control standards and HHS a billion so surveyors are more knowledgeable now
- Leadership need to make sure there is adequate staffing and resources to prevent and manage infections
- Healthcare-Associated Infections (HAIs) are one of the top ten leading causes of death in the US1 www.cdc.gov/ncidod/dhqp/hai.html

Watch This Video on Preventing HAI

U.S. Department of Health & Human Services

HHS.gov

www.hhs.gov/ash/initiatives/hai/training/

Email Updates Font Size

HHS Home > ASH Home > Initiatives > Healthcare-Associated Infections > Training

- ASH Home
- Key Personnel
- Regional Health Administrators
- Initiatives
  - Viral Hepatitis
  - Tobacco Control and Prevention
  - Healthcare-Associated Infections
    - Action Plan
    - National Targets and Metrics
    - Projects
    - Steering Committee
    - Events

Partnering to Heal:

TEAMING UP AGAINST HEALTHCARE-ASSOCIATED INFECTIONS

Partnering to Heal is a computer-based, video-simulation training program on infection control practices for clinicians, health professional students, and patient advocates.

The training highlights effective communication about infection control practices and ideas for creating a "culture of safety" in healthcare institutions to keep patients from getting sicker. Users assume the identity of the following five main characters and make decisions about preventing healthcare-associated infections (HAIs):

A Physician, Nathan Green, Director of a Hospital Post -op Unit, ready to start new prevention efforts in the unit;

A Registered Nurse, Dena Gray, working to learn effective communications skills that could make the difference for her patients;

Healthcare-Associated Infections HAI

- 32 percent of all healthcare-associated infection are urinary tract infections
- 22 percent are surgical site infections
- 15 percent are pneumonia (lung infections)
- 14 percent are bloodstream infections
- CMS has Hospital acquired conditions (HACs) in which there is no additional payment

Source: CDC website at http://www.cdc.gov/ncidod/dhqp/hai.html

See the 2009 CDC document called Prevention and Control of Catheter-Associated Urinary Tract Infections (UTI) at http://www.cdc.gov/ncidod/dhqp/dpac_uti_pc.html

CDC also has CAUTI Guideline Fast Facts at http://www.cdc.gov/hicpac/CAUTI_fastFacts.html#1

CDC Home

Centers for Disease Control and Prevention
CDC 24/7: Saving Lives. Protecting People.™

SEARCH

A-Z Index A B C D E F G H I J K L M N O P Q R S T U V W X Y Z #

Healthcare-associated Infections (HAIs)

www.cdc.gov/HAI/burden.html

Healthcare-associated Infections

- ▶HAIs: The Burden
- Monitoring HAIs
- Types of Infections
- Diseases and Organisms
- Preventing HAIs
- Map: HAI Prevention Activities
- Research
- Patient Safety
- Outpatient Settings
- Long-term Care Settings
- Laboratory Resources
- Outbreak and Patient Notifications
- Widgets, Buttons and Badges
- Multistate Meningitis Outbreak

Related Links

- Antibiotic / Antimicrobial Resistance
- Dialysis Safety
- Dialysis BSI Prevention Collaborative

Healthcare-associated Infections

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The Burden

Healthcare-associated infections (HAIs) are infections that patients acquire during the course of receiving healthcare treatment for other conditions. These infections related to medical care can be devastating and even deadly. As the nation's health protection agency, CDC is committed to helping all Americans receive the best and safest care when they receive healthcare services.

CDC strives to understand how HAIs happen and to develop appropriate interventions. HAIs are an important public health problem. Approximately 1 out of every 20 hospitalized patients will contract an HAI.

The following documents provide information about the problem of HAIs in the United States.

The Direct Medical Costs of Healthcare-associated Infections in U.S. Hospitals and the Benefits of Prevention [PDF - 835 KB]
This report uses results from the published medical and economic literature to provide a range of estimates for the annual direct medical hospital cost of treating HAIs in the United States.

Estimating Healthcare-associated Infections and Deaths in U.S. Hospitals, 2002. Public Health Reports [PDF - 241 KB]
In 2002, the estimated number of HAIs in U.S. hospitals, adjusted to include federal facilities, was approximately 1.7 million: 33,269 HAIs among newborns in high-risk nurseries; 19,059 among newborns in well-baby nurseries; 417,946 among adults and children in intensive care units (ICUs); and 1,266,851 among adults and children outside of ICUs.

Visit NHSN Data & Statistics for more reports and information.

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Contact Us:

Centers for Disease Control and Prevention
1600 Clifton Rd
Atlanta, GA 30333

800-CDC-INFO
(800-232-4636)
TTY: (888) 232-6348
Contact CDC-INFO

CMS Hospital Acquired Conditions

- CMS has no additional payment for these HACs or never events
- Studies show hugh cost to hospitals
- Vascular catheter-associated infection
- Surgical site infection such as mediastinitis after coronary artery bypass graft surgery
- Catheter-associated urinary tract infections
- Surgical-site infections following certain orthopedic procedures (repair, replacement or fusion of joints)

CMS Website on Hospital Acquired Conditions

Home | About CMS | Newsroom | FAQs | Archive | Share Help Print

CMS.gov
Centers for Medicare & Medicaid Services

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Medicare | Medicaid/CHIP | Medicare-Medicaid Coordination | Private Insurance | Innovation Center | Regulations & Guidance | Research, Statistics, Data & Systems | Outreach & Education

Home > Medicare > Hospital-Acquired Conditions (Present on Admission Indicator) > Hospital-Acquired Conditions

Hospital-Acquired Conditions (Present on Admission Indicator)

- Statute Regulations Program Instructions
- HAC Regulations and Notices
- Affected Hospitals
- Reporting
- Coding
- Hospital-Acquired Conditions
- ICD-10-CM/PCS HACs List
- Educational Resources

Hospital-Acquired Conditions

Section 5001(c) of Deficit Reduction Act of 2005 requires the Secretary to identify conditions that are: (a) high cost or high volume or both, (b) result in the assignment of a case to a DRG that has a higher payment when present as a secondary diagnosis, and (c) could reasonably have been prevented through the application of evidence-based guidelines.

On July 31, 2008, in the Inpatient Prospective Payment System (IPPS) Fiscal Year (FY) 2009 Final Rule, CMS included 10 categories of conditions that were selected for the HAC payment provision. Payment implications began October 1, 2008, for these Hospital Acquired Conditions. The IPPS FY 2009 Final Rule is available in the **Statute/Regulations/Program Instructions** section, accessible through the navigation menu at left.

These 14 categories of HACs listed below include the new HACs from the IPPS FY 2013 Final Rule which are Surgical Site Infection Following Cardiac Implantable Electronic Device (CIED) and Iatrogenic Pneumothorax with Venous Catheterization. For FY 2014 and FY 2015, there are no additional HACs added:

- Foreign Object Retained After Surgery
- Air Embolism
- Blood Incompatibility
- Stage III and IV Pressure Ulcers
- Falls and Trauma
  - Fractures
  - Dislocations
  - Intracranial Injuries
  - Crushing Injuries
  - Burn

www.cms.gov/medicare/medicare-fee-for-service-payment/hospitalacqcond/hospital-acquired_conditions.html

CMS Hospital CoPs on IVs and Blood Transfusion

CMS Memo Addresses IV Medication

- CMS (Center for Medicare and Medicaid Services) has CoPs that every hospital that receives M/M reimbursement must follow
- CoPs stands for the Conditions of Participation
- Hospital must follow these for all patients and not just Medicare and Medicaid patients
- CMS Tag 409 discusses IV medication and blood products
- Surveyor will make sure right IV is hanging and it is infusing at the correct rate
- Hospitals should be familiar and ensure compliance with the CMS hospital CoP manual

The Conditions of Participation (CoPs)

- Regulations first published in 1986
  - Manual updated more frequently now
  - Many changes since 1986
- First regulations are published in the **Federal Register** then CMS publishes the **Interpretive Guidelines** and some have **survey procedures** [2]
  - Hospitals should check these websites once a month for changes

[1]www.gpoaccess.gov/fr/index.html [2]www.cms.hhs.gov/SurveyCertificationGenInfo/PMSR/list.asp

Location of CMS Hospital CoP Manuals

Medicare State Operations Manual

Appendix

Email questions to CMS at hospitalscg@cms.hhs.gov

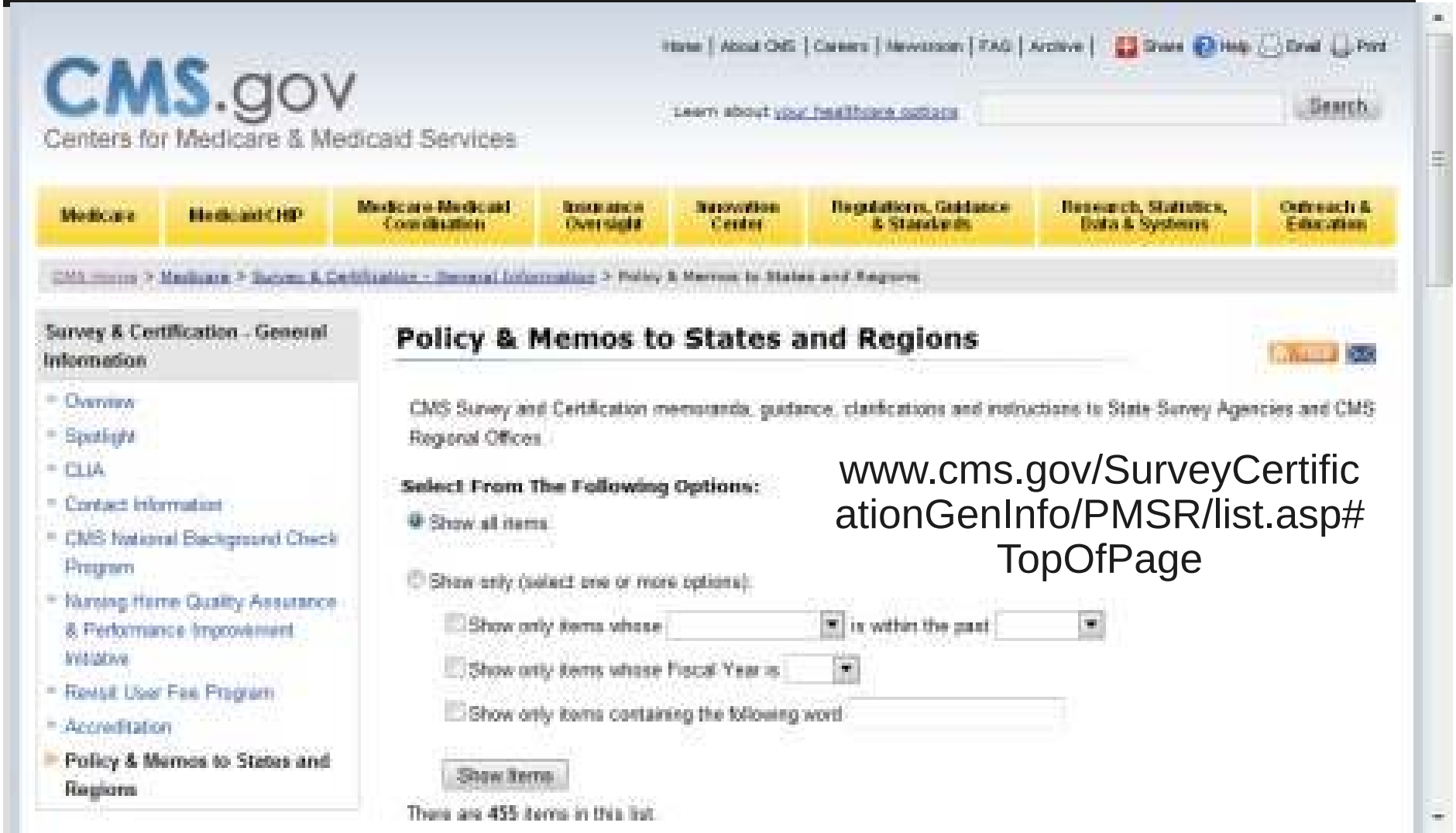
- Each Appendix is a separate file that can be accessed directly from the SOM Appendices Table of Contents, as applicable.
- The appendices are in PDF format, which is the format generally used in the IOM to display files. Click on the red button in the 'Download' column to see any available file in PDF.
- To return to this page after opening a PDF file on your desktop, use the browser "back" button. This is because closing the file usually will also close most browsers

CMS Hospital CoP Manuals address

www.cms.hhs.gov/manuals/downloads/som107_Appendixtoc.pdf

App. No.	Description	PDF File
A	Hospitals	2,185 KB
AA	Psychiatric Hospitals	606 KB

CMS Survey and Certification Website



www.cms.gov/SurveyCertificationGenInfo/PMSR/list.asp#TopOfPage

Policy & Memos to States and Regions

CMS Survey and Certification memoranda, guidance, clarifications and instructions to State Survey Agencies and CMS Regional Offices.

Show entries: 10

Filter On:

Title	Memo #	Posting Date	Fiscal Year
Access to Statements of Deficiencies (CMS-2567) on the Web for Skilled Nursing Facilities, Nursing Facilities, Hospitals,& Critical Access Hospitals	13–21- ALL	2013-03-22	2013
AHRQ Common Formats - Information for Hospitals and State Survey Agencies (SAs) - Comprehensive Patient Safety Reporting Using AHRQ Common Formats	13-19-HOSPITALS	2013-03-15	2013
Guidance for Hospitals, Critical Access Hospitals (CAHs) and Ambulatory Surgical Centers (ASCs) Related to Various Rules Reducing Provider/Supplier Burden	13-20-Acute Care	2013-03-15	2013
Luer Misconnection Adverse Events	13-14-ALL	2013-03-08	2013
Physician Delegation of Tasks in Skilled Nursing Facilities (SNFs) and Nursing Facilities (NFs)	13-15-NH	2013-03-08	2013
F tag 155– Advance Directives- Revised Advance Copy	13-16-NH	2013-03-08	2013
F tag 322—Naso-Gastric Tubes - Revised Advance Copy	13-17-NH	2013-03-08	2013
Revised Roll-Out of the New End Stage Renal Disease (ESRD) Core Survey Process	13-18-ESRD	2013-03-08	2013
Notice -Ninth Opportunity National Background Check Program Funding	13-12- NH	2013-03-01	2013
Information Only: New Dining Standards of Practice Resources are Available Now	13-13-NH	2013-03-01	2013

Blood Transfusions and IVs 409

- Standard: Blood transfusions and IV medications must be administered with state law and MS bylaws
- Use to require special training for this and there was a long list of things that nurses had to be trained on
- CMS eliminated the regulations mandating training for non-physicians who administer IV medication and blood and blood products
  - CMS says because this training is already standard practice
  - Must follow your P&P and state scope of practice

Blood and IV Medication Training

- Must still follow **state law requirements**
  - In some states an LPN can not hang blood
  - Or the LPN can not push certain IV medications in some states
  - Must show they are competent
- Must still have approved **Medical Staff Policies** and Procedures in place
- Staff must follow these which have most of the things that were previously required

Staff Must be Competent

- However, there must be evidence that staff is competent in:
- Maintaining fluid and electrolyte balance
- Venipuncture technique
- Blood transfusions: blood components, process to verify right blood for the right patient, transfusion reactions and how to report transfusion reactions, how to monitor the patient with blood including frequency, and hospital P&P and nationally recognized standards of practice

Incident Reports 410

- Standard: There must be procedure for reporting transfusion reactions, adverse drug reactions (ADRs) and errors in administration of drugs
- See tag 508 which was amended 5-13-2011 in the pharmacy section which affects nursing
- Survey procedure
  - Request procedure for reporting
  - They may review the incident reports or other documentation through QAPI program

A-0410

(Rev.)

§482.23(c)(5) - There must be a hospital procedure for reporting transfusion reactions, adverse drug reactions, and errors in administration of drugs.

Interpretive Guidelines §482.23(c)(5)

Adverse drug reactions and drug administration errors

There is a similar but more detailed and prescriptive requirement concerning internal hospital reporting of adverse drug reactions, drug administration errors and incompatibilities under the Pharmaceutical Services CoP at §482.25(b)(6). Therefore, it is not necessary for hospitals to establish a different procedure in the case of adverse drug reactions and drug administration errors for such events when nurses administer drugs or transfusions. Consult the guidance for §482.25(b)(6) to see what must be reported, to whom, and in what timeframe. Failure to make required reports concerning adverse drug reactions and errors in administration of drugs should be cited under §482.23(c)(5) when the drug was administered by a nurse, as well as under §482.25(b)(6).

Transfusion reactions

Transfusion reactions can occur during or after a blood transfusion. A patient's immune system recognizes the foreign blood product and attempts to destroy the transfused cells. Incompatible blood products are typically the cause of transfusion reactions. Symptoms may include back pain, bloody urine, hives, chills, fainting, dizziness, fever, flank pain, and skin flushing. More serious complications may include acute kidney failure, anemia, respiratory distress, shock and even death.

Transfusion reactions are serious and can be life-threatening. The hospital must have policies and procedures in place for the internal reporting of transfusion reactions. The policies must

Transfusion Reactions, ADEs, Drug Errors

- Establish a procedure in the case of ADEs and drug errors when nurses administer drugs or transfusions
- Refers back to tag 508 regarding reporting these into the PI system
  - Often done on an incident report
- Transfusion reactions can be serious and life threatening
  - Discussed the symptoms of a transfusion reaction: chills, hives, back pain, bloody urine, dizziness, fever, flank pain, skin flushing, kidney failure, anemia, shock, respiratory failure or death

Transfusion Reactions

- Must have P&P to ensure transfusion reactions are reported
- Must be reported immediately to practitioner
- Must be documented in the chart
- Must be reported to the PI program
- Surveyor is suppose to look at the hospital P&P and internal reports of transfusion reactions
- Will ask to see any incident reports

CMS Three Worksheets Discharge Planning, Infection Control and QAPI

CMS Hospital Worksheets History

- Memo discusses surveyor worksheets for hospitals by CMS during a hospital survey
- Addresses discharge planning, infection control, and QAPI (performance improvement)
  - Had 3 pilots before finalizing
  - Discharge planning one will be revised in 2016 when proposed discharge planning standards are final
- Final ones issued November 26, 2014
- Infection control worksheet has a section on safe injection practices that every hospital should be following

Third Revised Worksheets

DEPARTMENT OF HEALTH & HUMAN SERVICES
Centers for Medicare & Medicaid Services
7500 Security Boulevard, Mail Stop C2-21-16
Baltimore, Maryland 21244-1850

Center for Clinical Standards and Quality/ Survey & Certification Group

REF: S&C: 13-03-Hospital

www.cms.gov/SurveyCertificationGenInfo/PMSR/list.asp#TopOfPage

DATE: **November 9, 2012**

TO: State Survey Agency Directors

FROM: Director
Survey & Certification Group

SUBJECT: Patient Safety Initiative FY 2013 Pilot Phase – Revised Draft Surveyor Worksheets

Memorandum Summary

- *Patient Safety Initiative*: The Centers for Medicare & Medicaid Services (CMS) is continuing to test revised surveyor worksheets for assessing compliance with three hospital Conditions of Participation (CoPs): Quality Assessment and Performance Improvement (QAPI), Infection Control, and Discharge Planning. We are focusing on compliance with these CoPs as a means to reduce hospital-acquired conditions (HACs), including healthcare associated infections (HAIs), and preventable readmissions.
- *Draft Worksheets Made Public:* Via this memorandum we are making the revised draft worksheets publicly available. As was the case previously, there may be additional revisions to the worksheets at the end of FY 2013.

Patient Safety Initiative Pilot Phase

The Survey & Certification Group (SCG) Patient Safety Initiative is continuing to pilot test three revised surveyor worksheets designed to help surveyors assess compliance with the hospital CoPs for QAPI, infection control, and discharge planning. In S&C-12-01 released October 14, 2011 and in S&C-12-32 released May 18, 2012, we made available to the public copies of the initial and revised draft surveyor worksheets. These worksheets were used during the pre-test and pilot phases of the SCG initiative, from September 2011 through September 2012.

Centers for Medicare & Medicaid Services

Hospital Infection Control Worksheet

Name of State Agency: _____

Instructions: The following is a list of items that must be assessed during the on-site survey, in order to determine compliance with the Infection Control Condition of Participation. Items are to be assessed by a combination of observation, interviews with hospital staff, patients and their family/support persons, review of medical records, and a review of any necessary infection control program documentation. **During the survey, observations or concerns may prompt the surveyor to request and review specific hospital policies and procedures. Surveyors are expected to use their judgment and review only those documents necessary to investigate their concern(s) or to validate their observations.**

The interviews should be performed with the most appropriate staff person(s) for the items of interest, as well as with patients, family members, and support persons.

Hospital Characteristics

1. Hospital name: _____
2. CMS Certification Number (CCN): ☐☐☐☐☐☐
3. Date of site visit:

☐☐ / ☐☐ / ☐☐☐☐ to ☐☐ / ☐☐ / ☐☐☐☐

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Safe Injection Practices and Sharps Safety

Section 2.B. Injection Practices and Sharps Safety (Medications and Infusates)

Elements to be assessed		Surveyor Notes		Surveyor Notes
Injections are given and sharps safety is managed in a manner consistent with hospital infection control policies and procedures to maximize the prevention of infection a communicable disease including the following:				
Note: If possible, questions in this section should be assessed through observation in two separate patient care areas or settings of the hospital.			◯ Second observation not available (If selec questions 2.B.1 – 2.B.15 RIGHT column will b blocked)	
2.B.1 Injections are prepared using aseptic technique in an area that has been cleaned and is free of contamination (e.g., visible blood, or body fluids).	◯ Yes ◯ No ◯ Unable to observe		◯ Yes ◯ No ◯ Unable to observe	
2.B.2 Needles are used for only one patient.	◯ Yes ◯ No ◯ Unable to observe		◯ Yes ◯ No ◯ Unable to observe	
2.B.3 Syringes are used for only one patient (this includes manufactured prefilled syringes).	◯ Yes ◯ No ◯ Unable to observe		◯ Yes ◯ No ◯ Unable to observe	
2.B.4 Insulin pens are used for only one patient.	◯ Yes ◯ No ◯ Unable to observe		◯ Yes ◯ No ◯ Unable to observe	
2.B.5 The rubber septum on all medication vials, whether unopened or previously accessed, is disinfected with alcohol	◯ Yes		◯ Yes	

Injection Practices & Sharps Safety

- Next section is on safe injection practices and sharps safety and want two observations
  - This includes medications, saline, and other infusates
- Injections are given and sharps safety is managed in a manner consistent with IC P&P
  - CDC has standards on self injection practices
- Injections are prepared using aseptic technique
- One needle, one syringe for every patient and includes insulin pens
  - CMS memo on this and safe injection practices discussed previously

Injection Practices & Sharps Safety 2 B

- Injections prepared using aseptic technique in area cleaned and free of blood and bodily fluids (749)
- Is rubber septum disinfected with alcohol before piercing whether unopened or not? (749)
- Are single dose vials, single insulin pen, IV bags, IV tubing and connectors used on only one patient?
- Are multidose vials dated when opened and discarded in 28 days unless shorter time by manufacturer?
- Make sure expiration date is clear as per P&P (749)
- If multidose vial found in patient care area must be used on only one patient including OR and anesthesia carts

ISMP Guidelines on IV Push Medication

ISMP IV Push Medications Guidelines

- ISMP has published a 26 page document called "ISMP Safe Practice Guidelines for Adult IV Push Medications
- The document is organized into factors that increase the risk of IV push medications in adults,
  - Current practices with IV injectible medications
  - Developing consensus guidelines for adult IV push medication and
  - Safe practice guidelines
  - About 90% of all hospitalized patients have some form of infusion therapy

IV Push Medicine Guidelines

ISMP Safe Practice Guidelines for Adult IV Push Medications

A compilation of safe practices from the ISMP Adult IV Push Medication Safety Summit

Remember; CMS says you have to follow standards of care and specifically mentions the ISMP so surveyor can site you if you do not follow this.

Prepared by the Institute for Safe Medication Practices (ISMP)

ISMP
INSTITUTE FOR SAFE MEDICATION PRACTICES

IV Push Medications Guidelines

- Provide IV push medications in a ready to administer form
- Use only commercially available or pharmacy prepared prefilled syringes of IV solutions to flush and lock vascular access devices
- If available in a single dose vial then need to buy in single dose vial
- Aseptic technique should be used when preparing and administering IV medication
  - This includes hand hygiene before and after administration

IV Push Medications Guidelines

- The diaphragm on the vial should be disinfected even if newly opened
  - The top should be cleaned using friction and a sterile 70% isopropyl alcohol, ethyl alcohol, iodophor, or other approved antiseptic swab for at least ten seconds to it dr
- Medication from a glass ampules should be with a filter needle unless the specific drug precludes this
- Medication should only be diluted when recommended by the manufacturer or in accordance with evidence based practice or approved hospital policies

IV Push Medications Guidelines

- If IV push medication needs to be diluted or reconstituted these should be performed in a clean, uncluttered, and separate location
- Medication should not be withdrawn from a commercially available, cartridge type syringe into another syringe for administration
- It is also important that medication not be drawn up into the commercially prepared and prefilled 0.9% saline flushes
  - This are to flush an IV line and are not approved to use to dilute medication

3.6 Do NOT dilute or reconstitute IV push medications by drawing up the contents into a commercially-available, prefilled flush syringe of 0.9% sodium chloride.

Discussion: Commercially available prefilled syringes of saline and heparin are regulated by the US Food and Drug Administration as *devices*, not as medications. These devices have been approved for the flushing of vascular access devices, but have NOT been approved for the reconstitution, dilution, and/or subsequent administration of IV push medications. Such use would be considered "off label" and not how manufacturers intended these products to be used, nor have prefilled flush syringes been tested for product safety when used in this manner.

Warnings intended to limit the use of prefilled syringes for medication preparation and administration appear on some syringe barrels, clearly stating "IV flush only." Some manufacturers have also limited or removed the gradation markings on the prefilled flush syringes in order to prevent measurement of a secondary medication in the flush syringe. When prefilled syringes are used in an off-label manner, the practitioner and employer bear the legal liability for any adverse events occurring from this practice.[31]

The mislabeling that occurs when medications are added to a prefilled syringe and a secondary label is not applied creates significant risk for errors. In many cases, the manufacturer's label is permanently affixed to the syringe barrel and contains product codes and a barcode as well as specific information about the fluid and its volume. When another medication is added to this syringe, there is no adequate method to amend the manufacturer's label, without covering the current information.[31] Thus, the syringe frequently remains labeled as 0.9% sodium chloride, when it also contains the diluted or reconstituted medication.

Although this unsafe practice is widespread, and many who use it mistakenly believe the risk of an error is insignificant—a belief clearly reinforced during public comment regarding this guidance statement—summit participants arrived at a consensus that the practice must be eliminated.

3.7 When necessary to prepare more than one medication in a single syringe for IV push administration

IV Push Medications Guidelines

- Combination of more than one medication is a single syringe is seldom necessary and could result in unwanted changes in the medication
- Never use IV solution or mini bags as a common source to flush an IV as to dilute for more than one patient
- Label syringes of IVP medication unless prepared and immediately given with no break
- Administer IV push medication at rate recommended by manufacturer or supported by evidenced based practices and often given too fast

CMS Memo on Safe Injection Practices

CMS Memo on Safe Injection Practices

- June 15, 2012 CMS issues a 7 page memo on safe injection practices
- Discusses the safe use of single dose medication to prevent healthcare associated infections (HAI)
- Notes new exception which is important especially in medications shortages
- General rule is that single dose vial (SDV)can only be used on one patient
- Will allow SDV to be used on multiple patients if prepared by pharmacist under laminar hood following USP 797 guidelines

Single Dose Memo

DEPARTMENT OF HEALTH & HUMAN SERVICES
Centers for Medicare & Medicaid Services
7500 Security Boulevard, Mail Stop C2-21-16
Baltimore, Maryland 21244-1850

Office of Clinical Standards and Quality/Survey & Certification Group

Ref: S&C: 12-35-ALL

DATE: June 15, 2012

TO: State Survey Agency Directors

FROM: Director
Survey and Certification Group

SUBJECT: Safe Use of Single Dose/Single Use Medications to Prevent Healthcare-associated Infections

Memorandum Summary

- *Under certain conditions, it is permissible to repackage single-dose vials or single use vials (collectively referred to in this memorandum as "SDV's") into smaller doses, each intended for a single patient:* The United States Pharmacopeia (USP) has established standards for compounding which, to the extent such practices are also subject to regulation by the Food and Drug Administration (FDA), may also be recognized and enforced under §§501 and 502 of the Federal Food, Drug and Cosmetics Act (FDCA). These USP compounding standards include USP General Chapter 797, *Pharmaceutical Compounding - Sterile Preparations* ("USP <797>"). Under USP <797>, healthcare facilities may repackage SDV's into smaller doses, each intended for use with one patient. Among other things, these standards currently require that:
  - The facility doing the repackaging must use qualified, trained personnel to do so, under International Organization for Standardization (ISO) Class 5 air quality conditions within an ISO Class 7 buffer area. All entries into a SDV for purposes of repackaging under these conditions must be completed within 6 hours of the initial needle puncture.
  - All repackaged doses prepared under these conditions must be assigned and labeled with a beyond use date (BUD), based on an appropriate determination of contamination risk level in accordance with USP <797>, by the licensed healthcare professional supervising the repackaging process.
- *Administering drugs from one SDV to multiple patients without adhering to USP <797>*

CMS Memo on Safe Injection Practices

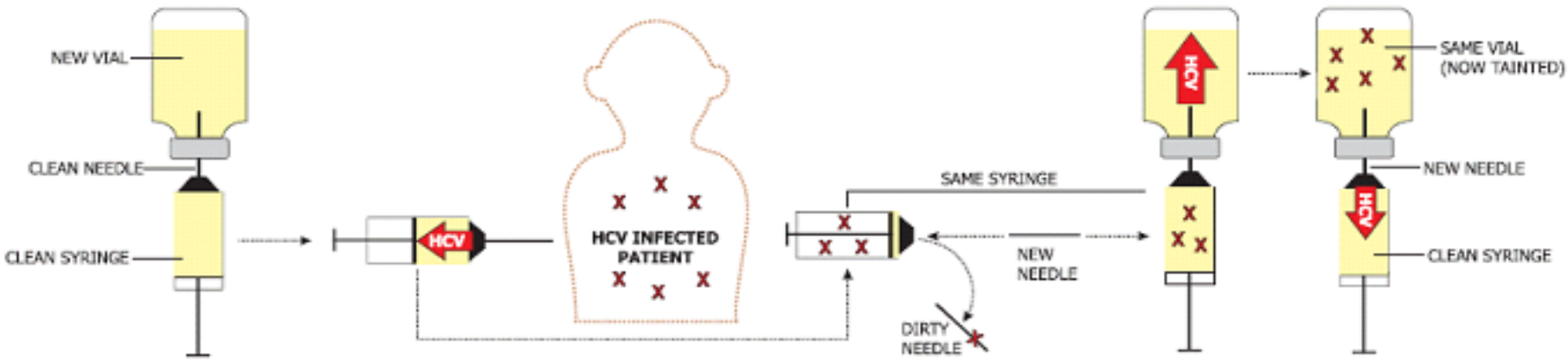
- All entries into a SDV for purposes of repackaging must be completed with 6 hours of the initial puncture in pharmacy following USP guidelines
- Only exception of when SDV can be used on multiple patients
- Otherwise using a single dose vial on multiple patients is a violation of CDC standards
- CMS will cite hospital under the hospital CoP infection control standards since must provide sanitary environment
  - Also includes ASCs, hospice, LTC, home health, CAH, dialysis, etc.

CMS Memo on Safe Injection Practices

- Bottom line is you can not use a single dose vial on multiple patients
  - If they make it in a single dose vial then you need to buy in a single dose vial
  - If multiple dose only then use on only one patient, mark the vial that it expires in 28 days and do not take into patient room or OR
- CMS requires hospitals to follow nationally recognized standards of care like the CDC guidelines
- SDV typically lack an antimicrobial preservative
  - Once the vial is entered the contents can support the growth of microorganisms
- The vials must have a beyond use date (BUD) and storage conditions on the label

Unsafe Injection Practices and Disease Transmission

Reuse of syringes combined with the use of single-dose vials for multiple patients undergoing anesthesia can transmit infectious diseases. The syringe does not have to be used on multiple patients for this to occur.



1. A clean syringe and needle are used to draw the sedative from a new vial.

2. It is then administered to a patient who has been previously infected with hepatitis C virus (HCV). Backflow into the syringe contaminates the syringe with HCV.

3. The needle is replaced, but the syringe is reused to draw additional sedative from the same vial for the same patient, contaminating the vial with HCV.

4. A clean needle and syringe are used for a second patient, but the contaminated vial is reused. Subsequent patients are now at risk for infection.

Source: www.**southernnevadahealthdistrict**.org

CDC

Not All Vials Are Created Equal

SINGLE-DOSE OR MULTI-DOSE?

NOT ALL VIALS ARE CREATED EQUAL.

Dozens of recent outbreaks have been associated with reuse of single-dose vials and misuse of multiple-dose vials. As a result of these incidents, patients have suffered significant harms, including death. CDC and the One & Only Campaign urge healthcare providers to recognize the differences between single-dose and multiple-dose vials and to understand appropriate use of each container type.

This information can literally save a life.

1 ONE NEEDLE, ONE SYRINGE, ONLY ONE TIME.

Safe Injection Practices Coalition
www.ONEandONLYcampaign.org

ONEANDONLYCAMPAIGN.ORG

DO YOU PROVIDE TREATMENT FOR PATIENTS WITH CANCER?

PROTECT YOUR PATIENTS, YOURSELF, AND YOUR BUSINESS

Since 2002, at least nine serious infectious disease outbreaks have occurred in cancer clinics. These outbreaks involved unsafe injection practices, including the reuse of syringes. As a result, hundreds of patients became infected and thousands more required notification and testing for bloodborne pathogens.

REMEMBER! WHEN PREPARING MEDICATIONS AND INJECTIONS...

NEVER reuse these items:

Needles or syringes that have been used for any purpose

Vials with "single-dose vial" printed on the label

Saline bags

Intravenous tubing

ALWAYS follow aseptic technique* when:

Preparing any medication

Disinfecting a vial's septum

Accessing a central line

Injecting any medications

*Aseptic technique is used by health care workers to prevent the contamination of clean areas, equipment, and sterile medications. This will help prevent the spread of infection. Please refer to CDC's Basic Infection Control and Prevention Plan for Outpatient Oncology Settings for more information.

LEARN MORE ABOUT WAYS YOU CAN KEEP YOUR PATIENTS

10 CDC Safe Injection Practices Standards

- Member Roster
- Charter
- Event Calendar
- Methodology Guideline
- Projects in Progress
- Publications
  - 2011 Guidelines for the Prevention of Intravascular Catheter-Related Infections
  - 2011 Norovirus Guidelines
  - 2008 Disinfection & Sterilization Guideline
  - **Guideline for Isolation Precautions 2007**
    - Executive Summary
    - Part I: Review of Scientific Data Regarding Transmission of Infectious Agents in Healthcare Settings
    - Part II: Fundamental elements needed to prevent transmission

Recommend 39 Tweet 1 Share

2007 Guideline for Isolation Precautions: Preventing Transmission of Infectious Agents in Healthcare Settings

Download the complete PDF version Guideline for Isolation Precautions: Preventing Transmission of Infectious Agents in Healthcare Settings 2007 PDF (3.80 MB / 225 pages)

Jane D. Siegel, MD; Emily Rhinehart, RN MPH CIC; Marguerite Jackson, PhD ; Linda Chiarello, RN MS; the Healthcare Infection Control Practices Advisory Committee

Acknowledgement: The authors and HICPAC gratefully acknowledge Dr. Larry Strausbaugh for his many contributions and valued guidance in the preparation of this guideline.

Suggested citation: Siegel JD, Rhinehart E, Jackson M, Chiarello L, and the Healthcare Infection Control Practices Advisory Committee, 2007 Guideline for Isolation Precautions: Preventing Transmission of Infectious Agents in Healthcare Settings

Healthcare Infection Control Practices

www.cdc.gov/hicpac/2007IP/2007isolationPrecautions.html

Partnership for Patients Resources

Partnership for Patients Resources

- National patient safety efforts saved 87,000 lives and nearly $20 billion in costs
  - HHS 12/1/2015 at http://www.hhs.gov/about/news/2015/12/01/national-patient-safety-efforts-save-lives-and-costs.html
- Included resources on how to reduce central line-associated blood stream infections (CLABSI)
- Was an public-private initiative to reduce infections and improve patient safety in the US
- Helped by the hospital engagement networks (HENS) hospitals in coordination with CMS

CMS Partnership for Patients Resources

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PARTNERSHIP FOR PATIENTS

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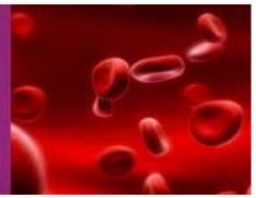
Resources

http://innovation.cms.gov/initiatives/partnership-for-patients/index.html

Central Line-Associated Blood Stream Infections (CLABSI)

http://partnershipforpatients.cms.gov



The information contained in these resources does not necessarily reflect the views of the Partnership for Patients, the Centers for Medicare and Medicaid Services, The United States Department of Health and Human Services, nor the United States government.

Title	Description
Guidelines for the Prevention of Intravascular Catheter-Related Infections, 2011 (U.S. Department of Health & Human Services, Centers for Disease Control and Prevention [CDC])	CDC guidelines for healthcare personnel who insert intravascular catheters and for persons responsible for surveillance and control of infections in hospital, outpatient, and home care settings.

Resources CAUTI, CLABSI, VAP

- About the Partnership
- Where Partnerships are in action
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- Resources
  - Archived Materials
- Contact us

Resources

Resources from the Partnership for Patients

Hospital acquired conditions

A hospital acquired condition can be defined as a condition that is high cost or high volume or both, that results in the assignment of a case to a Medicare Severity-Diagnosis Related Group (MS-DRG) that has a higher payment when present as a secondary diagnosis, and could reasonably have been prevented through the application of evidence-based guidelines. The resources below provide further information about hospital acquired conditions:

- Adverse drug events
- Catheter-Associated Urinary Tract Infection (CAUTI)
- Central Line-Associated Blood Stream Infections (CLABSI)
- Injuries and falls from immobility
- Obstetrical adverse events
- Pressure ulcers
- Surgical site infections
- Venous Thromboembolism (VTE)
- Ventilator Associated Pneumonia (VAP)

Title	Description
Guidelines for the Prevention of Intravascular Catheter-Related Infections, 2011 (U.S. Department of Health & Human Services, Centers for Disease Control and Prevention [CDC]) [PDF, 1.02MB]	CDC guidelines for healthcare personnel who insert intravascular catheters and for persons responsible for surveillance and control of infections in hospital, outpatient, and home care settings.
"Stop BSI" (On the Cusp: Stop HAI)	A Web site with tools and resources to help hospital associations and hospital units implement the Comprehensive Unit-based Safety Program (CUSP) and reduce central line-associated blood stream infections (CLABSI).
"How-to Guide: Prevent Central Line-Associated Bloodstream Infection (Pediatric Supplement)" (Institute for Healthcare Improvement [IHI])	This guide is specifically tailored for pediatrics; it describes key evidence-based care components for preventing central line-associated bloodstream infections, explains how to implement these interventions, and recommends measures to gauge improvement.
Strategies to Prevent Central Line –Associated Bloodstream Infections in Acute Care Hospitals (Society for Healthcare Epidemiology of America [SHEA])	SHEA/IDEA practice recommendations for the prevention of CLABSI.
"FAQs About Catheter Associated Bloodstream Infections" (CDC) [PDF, 190KB]	A fact sheet for patients in English.
"Preguntas Frecuentes: Infecciones Sanguíneas Asociadas al Catéter Intravenoso" (CDC) [PDF, 207KB]	A fact sheet for patients in Spanish.
"Central Line-Associated Bloodstream Infections: Resources for Patients and Healthcare Providers" (CDC)	CDC Web site hosting a variety of resources for patients and providers, including fact sheets, guidelines, audio education for patients, and more.
"State Has Implemented a CLABSI	CDC Web site identifying state contacts for CLABSI initiatives

"Strategies to Prevent Central Line-Associated Bloodstream Infections in Acute Care Hospitals" (U.S. Department of Health & Human Services, Agency for Healthcare Research and Quality [AHRQ])	AHRQ National Guideline Clearinghouse Guideline Summary for children and adults in acute care hospitals with indwelling central venous catheters, including tunneled, implanted, cuffed, noncuffed, and dialysis catheters.
"Patient Guides on Healthcare-Associated Infections" (SHEA)	Large print patient guides in English and Spanish for CLABSI, CAUTI, SSI, MRSA, VAP, Clostridium Difficile, and VRE.
"Patient Guides on Healthcare-Associated Infections: Patient Guides Translations" (SHEA)	Large print patient guides in Arabic, Polish and Spanish for CLABSI, CAUTI, SSI, MRSA, VAP, Clostridium Difficile, and VRE (VAP is not available in Arabic).
"Central Line Associated Bloodstream Infection (CLABSI) Prevention" (Children's Hospitals and Clinics of Minnesota)	An education sheet for parents of a child whose doctor has recommended the insertion of a central venous catheter (or central line).
"How-to Guide: Prevent Central Line-Associated Bloodstream Infection" (IHI)	This how-to guide describes key evidence-based care components of the Institute for Healthcare Improvement (IHI) Central Line Bundle (which has been linked to prevention of central line-associated bloodstream infections), describes how to implement these interventions, and recommends measures to gauge improvement.
Guide to the Elimination of Catheter-Related Bloodstream Infections (Association for Professionals in Infection Control) [PDF, 603KB]	Guide from the Association for Professionals in Infection Control and Epidemiology (APIC).
"On the Cusp: Stop BSI, The Role of Technology In CLABSI Prevention" (Johns Hopkins Medicine)	A video presentation from the Johns Hopkins Quality and Safety Research Group on how to approach the use of technology in CLABSI prevention.

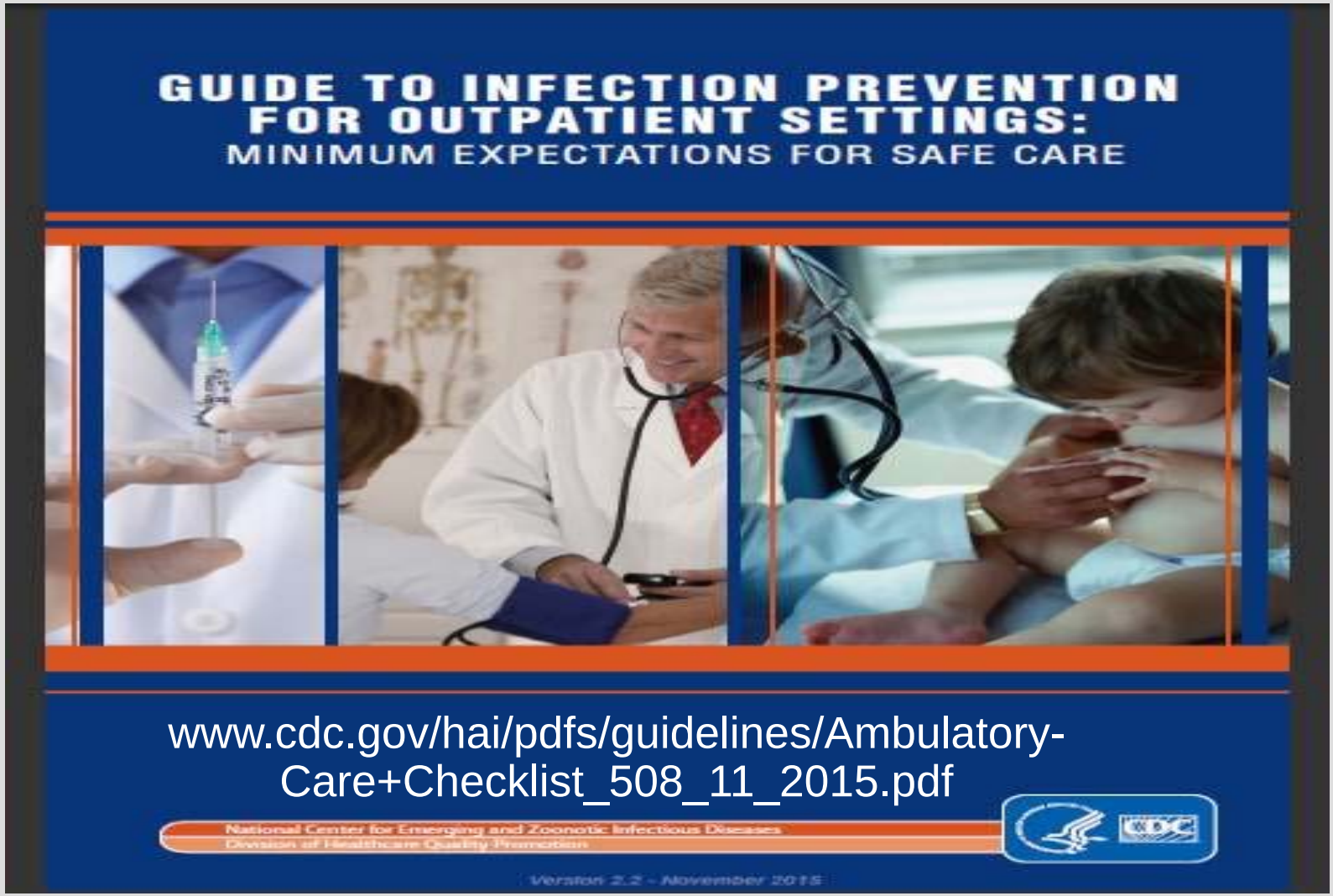
Guide to Infection Prevention for Outpatient Settings

Minimal Expectations for Safe Care and Checklist

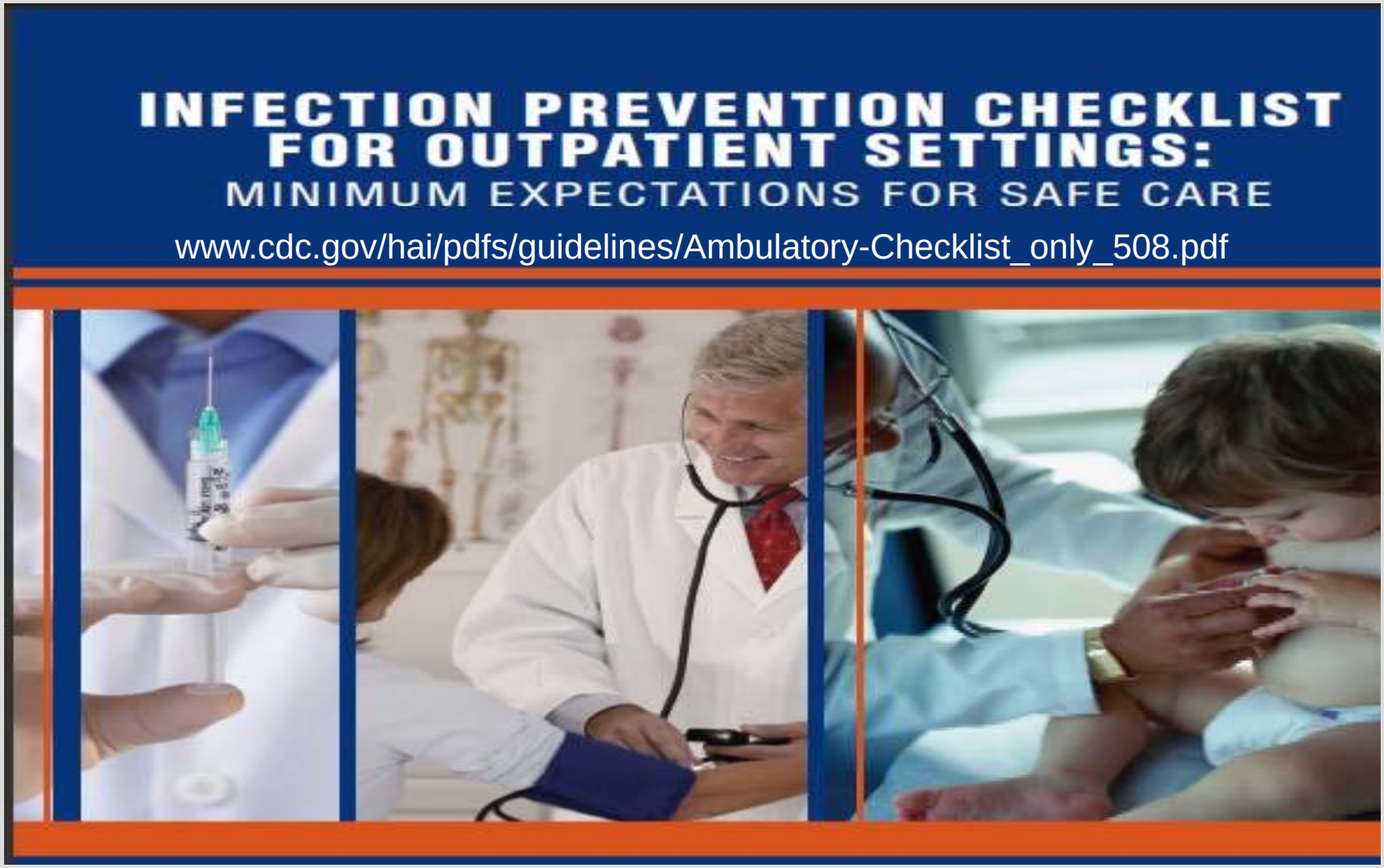
CDC Outpatient Guides

- The CDC has a 42 page guide on infection control for the outpatient settings;
  - Minimum expectation for safe care along with the checklist
  - Evidenced based guidelines
- These documents were published in November of 2015
- In the June 16, 2016 Federal Register, CMS said that they would expect hospitals to consider the impact of their outpatient units and to specifically look at these two documents

Minimum Expectation for Safe Care 2015



Infection Prevention Checklist 2015



Consistent with 30 Page IC Assessment Tool

Infection Control Assessment Tool for Acute Care Hospitals

This tool is intended to assist in the assessment of infection control programs and practices in acute care hospitals. If feasible, direct observations of infection control practices are encouraged. To facilitate the assessment, health departments are encouraged to share this tool with hospitals in advance of their visit.

Overview

Section 1: Facility Demographics

Section 2: Infection Control Program and Infrastructure

Section 3: Direct Observation of Facility Practices (optional)

Section 4: Infection Control Guidelines and Other Resources

www.cdc.gov/hai/pdfs/IC/CDC_IC_Assessment_Tool_Hospital.pdf

Infection Control Domains for Gap Assessment

I. Infection Control Program and Infrastructure

II. Infection Control Training, Competency, and Implementation of Policies and Practices

- A. Hand Hygiene
- B. Personal Protective Equipment (PPE)
- C. Prevention of Catheter-associated Urinary Tract Infection (CAUTI)
- D. Prevention of Central Line-associated Bloodstream Infection (CLABSI)
- E. Prevention of Ventilator-associated Event (VAE)
- F. Injection Safety
- G. Prevention of Surgical Site Infection
- H. Prevention of *Clostridium difficile* Infection (CDI)
- I. Environmental Cleaning
- J. Device Reprocessing

III. Systems to Detect, Prevent, and Respond to Healthcare-Associated Infections and Multidrug-Resistant

Section 2: Infection Control Program and Infrastructure

I. Infection Control Program and Infrastructure		
Elements to be assessed	**Assessment**	**No**
1. Hospital provides fiscal and human resource support for maintaining the infection prevention and control program.	○ Yes ○ No	
2. The person(s) charged with directing the infection prevention and control program at the hospital is/are qualified and trained in infection control. Verify qualifications, which should include: (Check all that apply) ☐ Successful completion of initial and recertification exams developed by the Certification Board for Infection Control & Epidemiology (CIC) AND/OR ☐ Participation in infection control courses organized by recognized professional societies (e.g., APIC, SHEA)	○ Yes ○ No	
3. Infection prevention and control program performs an annual facility infection risk assessment that evaluates and prioritizes potential risks for infections, contamination, and exposures and the program's preparedness to eliminate or mitigate such risks. *Note: Example of Facility Infection Risk Assessment Report and Plan is available in Section 4.*	○ Yes ○ No	
4. Written infection control policies and procedures are available, current, and based on evidence-based guidelines (e.g., CDC/HICPAC), regulations, or standards. Verify the following: a. Respondent can describe the process for reviewing and updating policies (e.g., policies are dated and reviewed	○ Yes ○ No a. ○ Yes ○ No	

20 Page Assessment Tool for Outpatient

Infection Prevention and Control Assessment Tool for Outpatient Settings

This tool is intended to assist in the assessment of infection control programs and practices in outpatient settings. In order to complete the assessment, direct observation of infection control practices will be necessary. To facilitate the assessment, health departments are encouraged to share this tool with facilities in advance of their visit.

Overview

Section 1: Facility Demographics

Section 2: Infection Control Program and Infrastructure

Section 3: Direct Observation of Facility Practices

Section 4: Infection Control Guidelines and Other Resources

www.cdc.gov/hai/pdfs/IC/CDC_IC_Assessment_Tool_Outpatient.pdf

Infection Control Domains for Gap Assessment

I.	Infection Control Program and Infrastructure
II.	Infection Control Training and Competency
III.	Healthcare Personnel Safety
IV.	Surveillance and Disease Reporting
V.a/b.	Hand Hygiene
VI.a/b.	Personal Protective Equipment (PPE)
VII.a/b.	Injection Safety
VIII.a/b.	Respiratory Hygiene/Cough Etiquette
IX.a/b.	Point-of-Care Testing (if applicable)

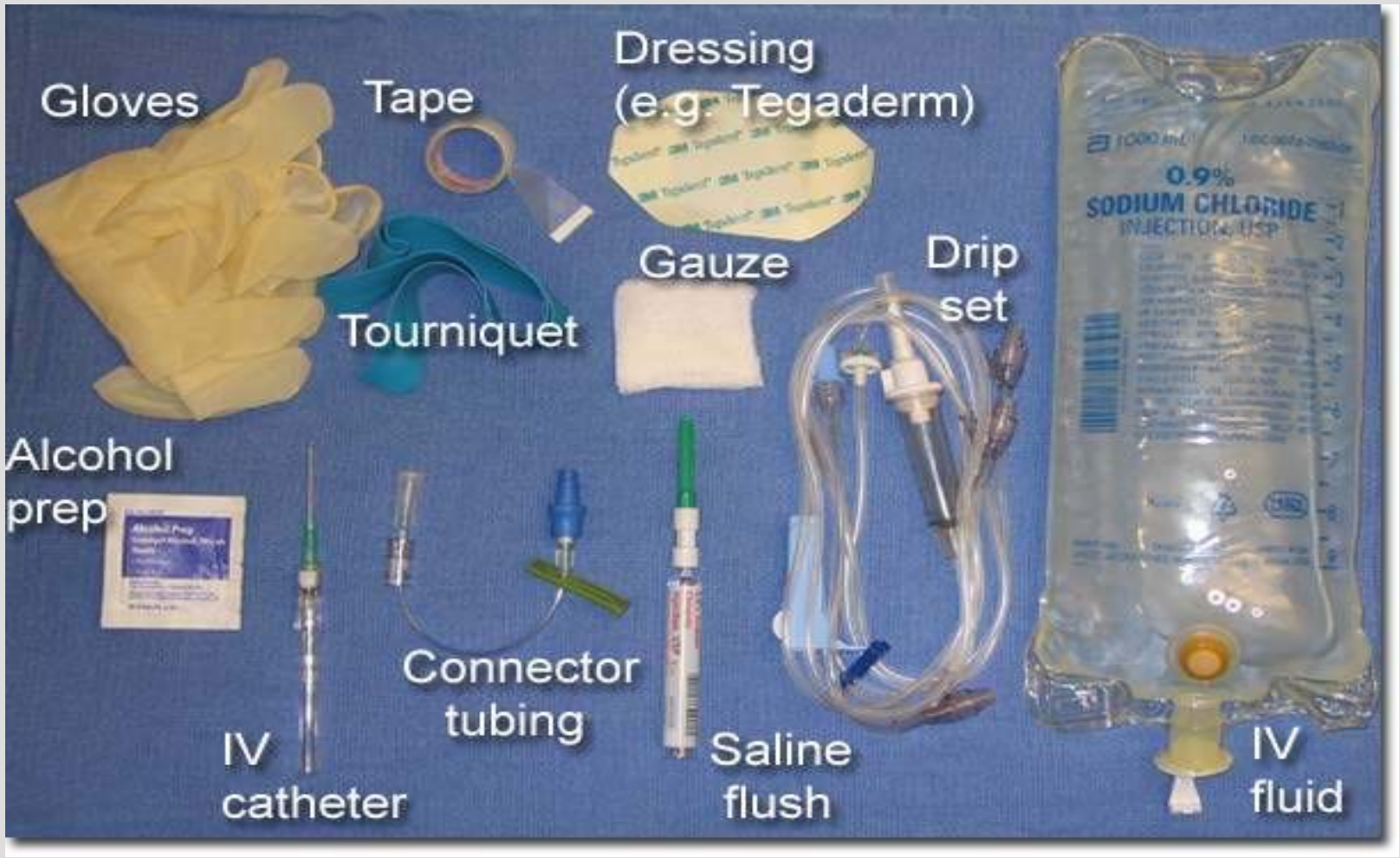
Section 2: Infection Control Program and Infrastructure

I. Infection Control Program and Infrastructure	
Elements to be assessed	**Assessment**
A. Written infection prevention policies and procedures are available, current, and based on evidence-based guidelines (e.g., CDC/HICPAC), regulations, or standards. *Note: Policies and procedures should be appropriate for the services provided by the facility and should extend beyond OSHA bloodborne pathogen training*	○ Yes ○ No
B. Infection prevention policies and procedures are re-assessed at least annually or according to state or federal requirements, and updated if appropriate.	○ Yes ○ No
C. At least one individual trained in infection prevention is employed by or regularly available (e.g., by contract) to manage the facility's infection control program. *Note: Examples of training may include: Successful completion of initial and/or recertification exams developed by the Certification Board for Infection Control & Epidemiology; participation in infection control courses organized by the state or recognized professional societies (e.g., APIC, SHEA).*	○ Yes ○ No
D. Facility has system for early detection and management of potentially infectious persons at initial points of patient encounter. *Note: System may include taking a travel and occupational history, as appropriate, and elements described under respiratory hygiene/cough etiquette.*	○ Yes ○ No

II. Infection Control Training and Competency

CDC Intravascular Guidelines

Where to Start?



Central Line Data

- There are 15 million central vascular catheter days per year in ICUs in the US
- Many studies done to address CRBSI (catheter related bloodstream infections)
- There are 80,000 CRBSI per year in ICUs
- There are 250,000 cases of BSIs for entire hospitals per year in the US
- Cost of these is significant
- Goal is to eliminate CRBSI from all areas

CDC Intravascular Guidelines

- The Center for Disease Control and Prevention (CDC) and Healthcare Infection Control Practices Advisory Committee (HICPAC) published the 2011 **Guidelines for the Prevention of Intravascular Catheter-Related Infections**
  - Updates the 2002 Guidelines
- These impact all nurses, physicians, and other healthcare providers who insert intravascular catheters
  - Also impacts infection preventionist and others responsible for surveillance and control of infections
  - Includes hospitals, outpatient and home health settings

Hospitals Must Follow CDC Guidelines

CDC Home

Centers for Disease Control and Prevention
CDC 24/7: Saving lives, protecting people, reducing health costs

www.cdc.gov/hicpac/BSI/BSI-guidelines-2011.html

SEARCH

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Healthcare Infection Control Practices Advisory Committee (HICPAC)

HICPAC

- About HICPAC
- Member Roster
- Charter
- Event Calendar
- Methodology Guideline
- Projects in Progress
- Publications
- **2011 Guidelines for the Prevention of Intravascular Catheter-Related Infections**
  - Table of Contents
  - Notice to Readers
  - Summary Of Recommendations
  - Patient Cleansing
  - Background Information

HICPAC > Publications

Text size: S M L XL

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Print page

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2011 Guidelines for the Prevention of Intravascular Catheter-Related Infections

Download the complete 2011 Guidelines for the Prevention of Intravascular Catheter-Related Infections [PDF - 1.05 MB]

Naomi P. O'Grady, M.D.[1], Mary Alexander, R.N.[2], Lillian A. Burns, M.T., M.P.H., C.I.C.[3], E. Patchen Dellinger, M.D.[4], Jeffery Garland, M.D., S.M.[5], Stephen O. Heard, M.D.[6], Pamela A. Lipsett, M.D.[7], Henry Masur, M.D.[1], Leonard A. Mermel, D.O., Sc.M.[8], Michele L. Pearson, M.D.[9], Issam I. Raad, M.D.[10], Adrienne Randolph, M.D., M.Sc.[11], Mark E. Rupp, M.D.[12], Sanjay Saint, M.D., M.P.H.[13] and the Healthcare Infection Control Practices Advisory Committee (HICPAC)[14].

1. Critical Care Medicine Department, National Institutes of Health, Bethesda, Maryland;
2. Infusion Nurses Society, Norwood, Massachusetts;
3. Staten Island University Hospital, Staten Island, New York;
8. Division of Infectious Diseases, Warren Alpert Medical School of Brown University and Rhode Island Hospital, Providence, Rhode Island;
9. Office of Infectious Diseases, CDC, Atlanta, Georgia;
10. Department of Infectious Diseases, MD Anderson Cancer Center, Houston, Texas;

Contact Us:

Centers for Disease Control and Prevention
1600 Clifton Rd
Atlanta, GA 30333

800-CDC-INFO
(800-232-4636)
TTY: (888) 232-6348
24 Hours/Every Day

cdcinfo@cdc.gov

www.cdc.gov/hicpac/pdf/guidelines/bsi-guidelines-2011.pdf

Guidelines for the Prevention of Intravascular Catheter-Related Infections, 2011

Naomi P. O'Grady, M.D.[1], Mary Alexander, R.N.[2], Lillian A. Burns, M.T., M.P.H., C.I.C.[3], E Patchen Dellinger, M.D.[4], Jeffery Garland, M.D., S.M.[5], Stephen O. Heard, M.D.[6], Pamela A. Lipsett, M.D.[7], Henry Masur, M.D.[1], Leonard A. Mermel, D.O., Sc.M.[8], Michele L. Pearson, M.D.[9], Issam I. Raad, M.D.[10], Adrienne Randolph, M.D., M.Sc.[11], Mark E. Rupp, M.D.[12], Sanjay Saint, M.D., M.P.H.[13] and the Healthcare Infection Control Practices Advisory Committee (HICPAC)[14].

1National Institutes of Health, Bethesda, Maryland
2Infusion Nurses Society, Norwood, Massachusetts
3Greenich Hospital, Greenwich, Connecticut
4University of Washington, Seattle, Washington
5Wheaton Franciscan Healthcare-St Joseph, Milwaukee, Wisconsin
6University of Massachusetts Medical School, Worcester, Massachusetts
7Johns Hopkins University School of Medicine, Baltimore, Maryland
8Warren Alpert Medical School of Brown University and Rhode Island Hospital, Providence, Rhode Island
9Office of Infectious Diseases, CDC, Atlanta, Georgia
10MD Anderson Cancer Center, Houston, Texas
11The Children's Hospital, Boston, Massachusetts
12University of Nebraska Medical Center, Omaha, Nebraska
13Ann Arbor VA Medical Center and University of Michigan, Ann Arbor, Michigan

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CDC Intravascular Guidelines Implementation

- 83 page document
  - “Guidelines for the Prevention of Intravascular Catheter-Related Infections, ”
- Hospitals need to implement these guidelines into their education and training program
- Hospitals need to revise policies and procedures to reflect these guidelines
- Hospitals should incorporate these into their PI program to ensure compliance
- Make sure staff are familiar with these guidelines

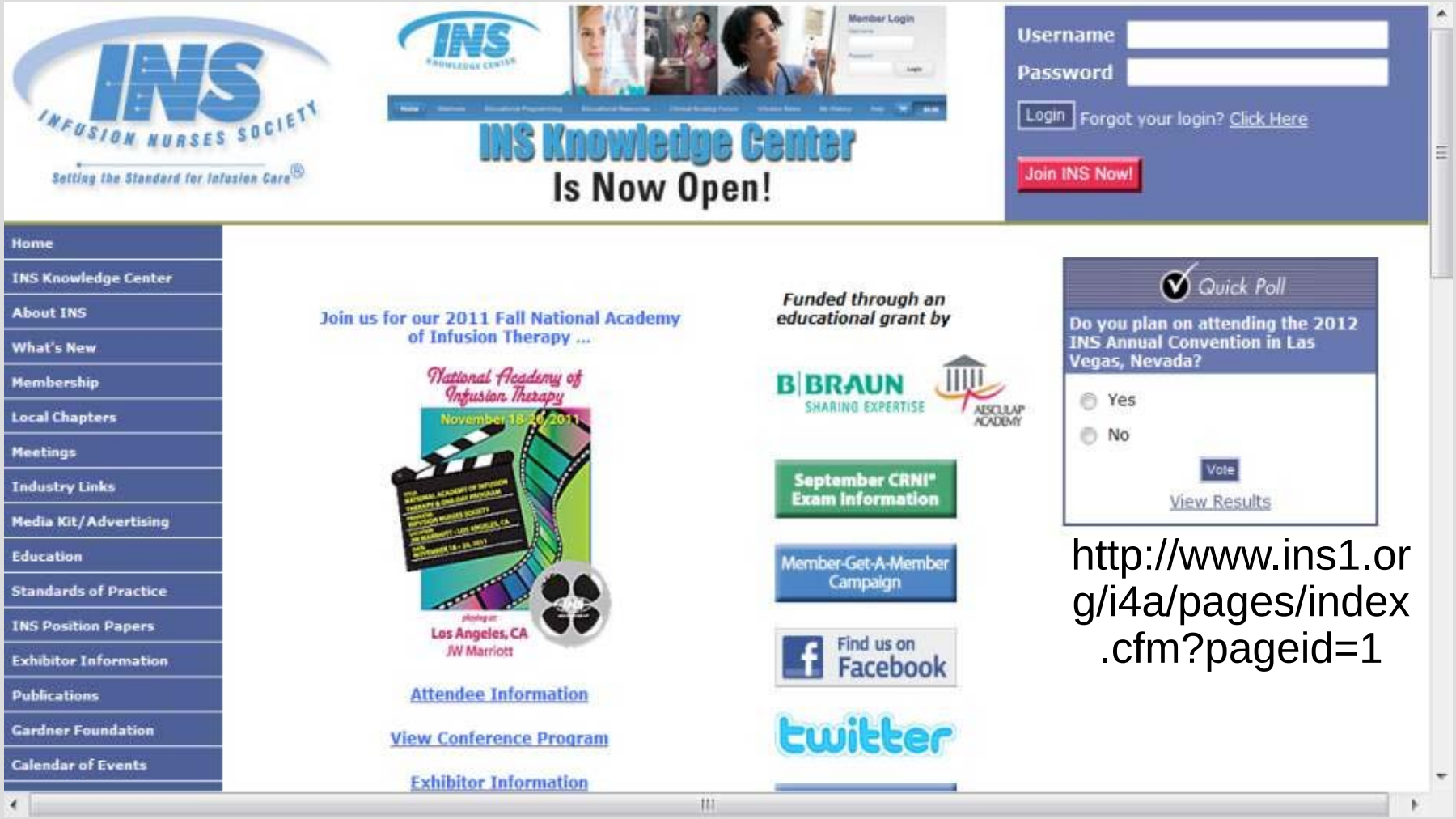
CDC Intravascular Guidelines

- Guidelines prepared by a group of many professional organizations
  - Lead by the Society of Critical Care Medicine (SCCM)
  - Participation by many including IDSA, SIS, ACCP, ATS, SHEA, ONS, AAP, APIC, INS Infusion Nurses Society), ASPEN etc.
- Intended to provide evidenced-based recommendations for preventing intravascular catheter-related infections
- Each one is categorized by the basis of existing scientific data

Working Group in Collaboration

- Infectious Diseases Society of America (IDSA), Society for Healthcare Epidemiology of America (SHEA), Surgical Infection Society (SIS), American College of Chest Physicians (ACCP), American Thoracic Society (ATS), American Society of Critical Care Anesthesiologists (ASCCA), Association for Professionals in Infection Control and Epidemiology (APIC), Infusion Nurses Society (INS), Oncology Nursing Society (ONS), American Society for Parenteral and Enteral Nutrition (ASPEN), Society of Interventional Radiology (SIR), American Academy of Pediatrics (AAP), Pediatric Infectious Diseases Society (PIDS), and the Healthcare Infection Control Practices Advisory Committee (HICPAC) of the Centers for Disease Control and Prevention (CDC)

Infusion Nurses Society



http://www.ins1.org/i4a/pages/index.cfm?pageid=1

Infusion Nursing Standards of Practice

INS
INFUSION NURSES SOCIETY
Setting the Standard for Infusion Care®

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Standards of Practice

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Strength of the Body of Evidence

Purchase *Infusion Nursing Standards of Practice* from the INS Store.

Infusion Nursing Standards of Practice (2011)

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APIC *Spreading knowledge. Preventing infection.*

Association for Professionals in Infection Control and Epidemiology

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Road to Zero CLABSI

APIC >> FAST FORWARD

The Road to Zero CLABSIs

A new APIC study uncovers barriers to hospital adoption of best practices.

BY JANIENE B. TORCH
APIC ASSOCIATE DIRECTOR OF COMMUNICATIONS

Central line-associated bloodstream infections (CLABSIs) are one of the most costly and deadly infections transmitted in healthcare facilities. In the U.S., an estimated 80,000 patients develop CLABSIs each year, and about 30,000 die from them, accounting for roughly a third of the 99,000 deaths that occur each year from HAIs. The average cost of care for a patient with this type of infection can exceed $30,000, costing the U.S. healthcare system more than $2 billion annually.

A new APIC study released during the APIC 2010 Annual Conference uncovered barriers to hospital adoption of best practices to prevent CLABSIs, and

others, members of the Infusion Nurses Society and the Association for Vascular Access.

Numerous presentations, posters, abstracts and symposia at the

at the conference, discussed the barriers of CLABSI prevention and the pragmatic steps IPs can take to reduce them. He also used the opportunity to announce the new "I Believe in Zero CLABSIs" campaign, which was created to mobilize IPs to prove that prevention is possible.

The "I Believe in Zero CLABSIs" campaign is based on the Michigan Hospital Association Keystone Project led by Dr. Pronovost. By implementing a simple five-point checklist for inserting a central line, his project reduced the incidence of CLABSIs by two-

as the lead clinical advisor and moderated the APIC expert roundtable entitled "Ending Catheter-Related Bloodstream Infections," in collaboration with the Association for Vascular Access and the Infusion Nurses Society. The roundtable, held during APIC 2010, was supported by an unrestricted educational grant from Bard Access Systems.

The roundtable addressed barriers to preventing CLABSIs and identified ways that healthcare facilities can overcome them. Speakers included: Jerome Granato, MD, MBA, Allegheny General Hospital, Pittsburgh,

APIC Zero CLABSI Program

APIC "I Believe in Zero CLABSIs"

MEET THE EXPERTS | ABOUT THE PROJECT | RESOURCES | COMMUNITY |

APIC AVA INS INFUSION NURSES SOCIETY BARD Access Systems

As a healthcare professional, you recognize the importance of preventing healthcare-associated infections (HAIs) and keeping your patients safe. Yet, even with advances in modern-day medicine, HAIs persist. Central line-associated bloodstream infections (CLABSIs) have high patient mortality and high financial costs.

The good news: Scientific evidence demonstrates — time and again — that CLABSIs ***are*** preventable!

Why are CLABSIs so prevalent and how can they be prevented?

This "I Believe in Zero CLABSIs" website was created to be a comprehensive, multidisciplinary resource to discuss and answer questions about CLABSIs while providing resources and answers.

Here you will find information on the root causes of CLABSIs and the tools you need to address this devastating — and

Prevent Central Line Infections

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CHICAGO JOURNALS

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Full Text Summary Media

See Marschall et al. (2008; 29S1:S22–S30)

Supplement Article: SHEA/IDSA Practice Recommendation

Strategies to Prevent Central Line–Associated Bloodstream Infections in Acute Care Hospitals

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CDC Reducing Bloodstream Infections

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Centers for Disease Control and Prevention

CDC 24/7: Saving Lives. Protecting People. Saving Money Through Prevention.

SEARCH

A-Z Index A B C D E F G H I J K L M N O P Q R S T U V W X Y Z #

Vital Signs

www.cdc.gov/vitalsigns/HAI/index.html

- Vital Signs
- Colorectal Cancer - NEW!
- About Vital Signs
- Vital Signs Social Media
- Fact Sheet PDF Downloads
- Past Vital Signs Issues
  - Making Food Safer to Eat
  - Asthma in the US
  - Preventing Teen Pregnancy in the US
  - Making Health Care Safer
    - Latest Findings
    - Who's at Risk?
    - U.S. State Info
    - What Can Be Done
    - Social Media
  - High Blood Pressure and Cholesterol
  - Adult Seat Belt Use

Vital Signs > Past Vital Signs Issues

Making Health Care Safer

Reducing bloodstream Infections

CDC Vitalsigns™

Pages in this Issue

1. Introduction
2. Latest Findings
3. Who's at Risk?
4. U.S. State Information
5. What Can Be Done
6. Social Media

A central line is a tube that a doctor usually places in a large vein of a patient's neck or chest to give important medical treatment. When not put in correctly or kept clean, central lines can become a freeway for germs to enter the body and cause serious bloodstream infections. These infections can be deadly. Of patients who get a bloodstream infection from having a central line, up to 1 in 4 die. Bloodstream infections in patients with central lines are largely preventable when healthcare providers use CDC-recommended infection

Text size: S M L XL

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NHSN
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A-Z Index A B C D E F G H I J K L M N O P Q R S T U V W X Y Z #

National Healthcare Safety Network (NHSN)

www.cdc.gov/nhsn/index.html

CDC's National Healthcare Safety Network is the nation's most widely used healthcare-associated infection tracking system. NHSN provides facilities, states, regions, and the nation with data needed to identify problem areas, measure progress of prevention efforts, and ultimately eliminate healthcare-associated infections.

In addition, NHSN allows healthcare facilities to track blood safety errors and important healthcare process measures such as healthcare personnel influenza vaccine status and infection control adherence rates.

New Research
REDUCE MRSA Trial: Simple steps slash infection rates
Learn More»
1 2 3

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NHSN Login
Tips for navigating the new NHSN website [PDF - 1.6 MB]

About NHSN
CDC's NHSN is the largest HAI reporting system in the U.S.

Data & Reports
See national and state reports using NHSN data

Guidelines and Recommendations
Review CDC HAI prevention guidelines

New to NHSN? Enroll Facility Here.
For first time facility enrollment.

Reporting & Surveillance Resources for Enrolled Facilities
Training, protocols, forms, support materials, analysis resources, and FAQs

Group Users
View resources for group users here.

Webinar Registration

The NHSN Biovigilance Component Team will be conducting a training webinar for the Hemovigilance Module.
Date: August 29, 2013
Time: 2:00 – 3:00 pm
Registration deadline August 28, 2013
Go to registration »

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Categorization Recommendations

- Category IA (Best)
  - Strongly recommended for implementation and strongly supported by well-designed experimental, clinical, or epidemiologic studies
- Category IB
- Strongly recommended for implementation and supported by some experimental, clinical, or epidemiologic studies and a strong theoretical rationale; or an accepted practice (e.g., aseptic technique) supported by limited evidence.

Categorization Recommendations

- Category IC
  - Required by state or federal regulations, rules, or standards
- Category II
  - Suggested for implementation and supported by suggestive clinical or epidemiologic studies or a theoretical rationale
  - Unresolved issue. Represents an unresolved issue for which evidence is insufficient or no consensus regarding efficacy exists

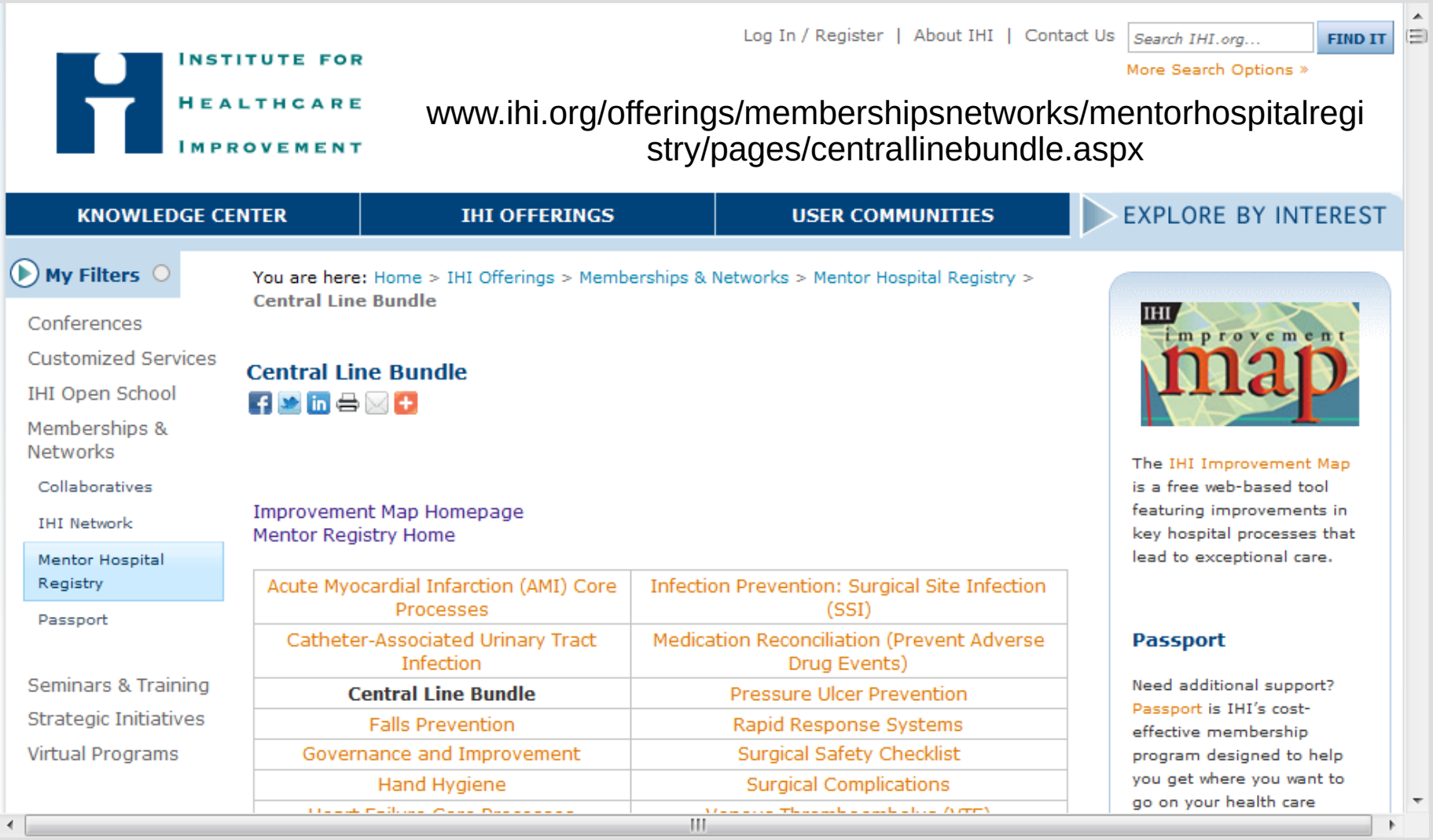
CDC 5 Major Areas of Emphasis

- 1 Educate and train healthcare personnel who insert and maintain catheters
- 2 Use maximal sterile barrier precautions during central venous catheter insertion
- 3 Use a >0.5% chlorhexidine skin preparation with alcohol for antisepsis
- 4 Avoid routine replacement of central venous catheters as a strategy to prevent infection

CDC 5 Major Areas of Emphasis

- 5 Use antiseptic/antibiotic impregnated short-term central venous catheters and chlorhexidine impregnated sponge dressings if the rate of infection is not decreasing despite adherence to other strategies
  - i.e., education and training, maximal sterile barrier precautions and
  - >0.5% chlorhexidine preparations with alcohol for skin antisepsis
- IHI initiated the central line bundle and use of checklist has reduced central line infections

IHI Central Line Resources www.ihi.org



Central Line Check List

Procedural Checklist		
Safety Practice	***YES***	***YES*** *(After Reminder)*
Before procedure, *did the provider:*		
➢ **PERFORM** PROCEDURAL PAUSE		
Perform patient ID X 2	☐	☐
Announce the procedure to be performed	☐	☐
Mark / assess site	☐	☐
Position patient correctly for procedure	☐	☐
Assemble equipment / verify supplies	☐	☐
Utilize relevent douments (chart / forms)	☐	☐
Order follow-up Radiology images (PRN)	☐	☐
➢ **Cleanse hands?** *(ASK, if unsure)*	☐	☐
➢ **Prep procedure site with ChloraPrep?** **30 seconds for dry site* ***2 minutes for moist site (esp. femoral)*	☐	☐
➢ **Use large drape to cover patient in sterile fashion?**	☐	☐
During procedure, did the provider:		
➢ **Wear sterile gloves during catheter insertion?**	☐	☐
➢ **Wear hat, mask, and sterile gown?**	☐	☐
➢ **Maintain sterile field?**	☐	☐
➢ **Use ultrasound/Sonasite if apropriate?**	☐	☐
➢ **Did assisting physician follow the same precautions?** (hand washing, mask, gloves, gown)	☐	☐
➢ **Did all staff and patient in the room wear a mask?**	☐	☐
After the procedure:		
➢ **Was sterile technique maintained when applying dressing?**		
➢ **Was dressing dated?**		

Name of Intensivist: _____

Name of Procedure MD _____

Name of Assisting MD _____

CDC Intravascular Guidelines Includes

- Education, training and staffing recommendations
- How to select the catheter and site including peripheral and midline catheters
- Use of central line catheters
- Hand hygiene and aseptic technique
- Maximal sterile barrier precautions

CDC Intravascular Guidelines Includes

- How to prep the skin
- Catheter site dressings
- How to cleanse skin daily
- How to secure the catheter
- Antimicrobial impregnated catheters and cuffs
- Use of antibiotic ointment at hemodialysis catheter
- Systemic antibiotic usage

CDC Intravascular Guidelines Includes

- Antibiotic lock prophylaxis and catheter flushes
- Anticoagulants
- Replacing catheters
- A-lines
- Replacement of administration sets
- Needleless intravascular catheter systems
- PI

Terminology

- CDC says terminology used to define different types of catheters is confusing
- May clinicians use different aspects of the catheter for informal reference
  - Long verses short
  - Type of vessel it is in like peripheral venous, central venous, or arterial
  - Its pathway from skin to vessel such as tunneled or untunneled
  - Site of insertion such as subclavian, femoral, internal jugular, peripheral and PICC

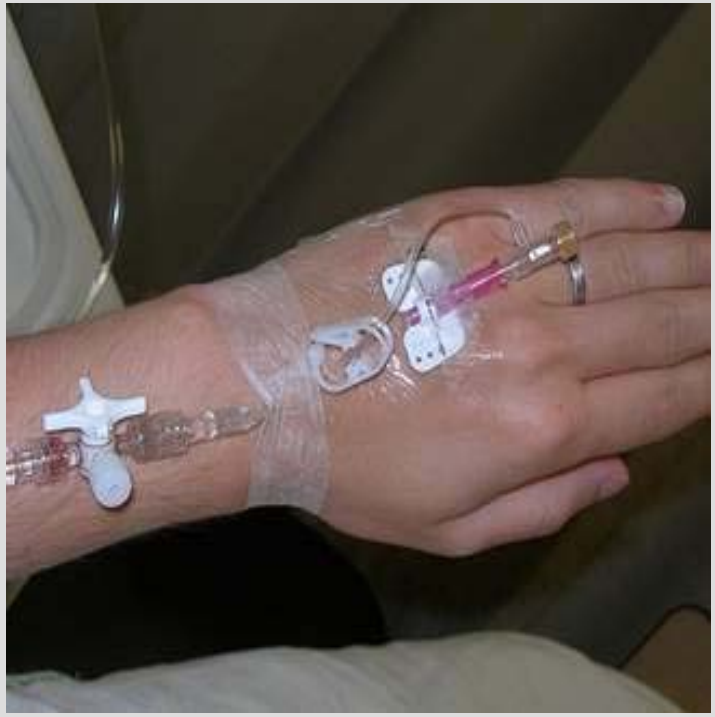
Terminology

- Terms used to describe intravascular catheter-related infections are also confusing
  - Catheter-related bloodstream infection (CRBSI) and central line–associated bloodstream infection (CLABSI) are often used interchangeably even though the meanings differ
- CRBSI is a clinical definition and requires specific lab testing to identify the catheter as the source of the BSI
  - CDC NHSN defines a CLABSI has a primary BSI in a patient that had a central line within the 48-hour period before the development of the BSI and is not bloodstream related to an infection at another site

Table 1. Catheters used for venous and arterial access.

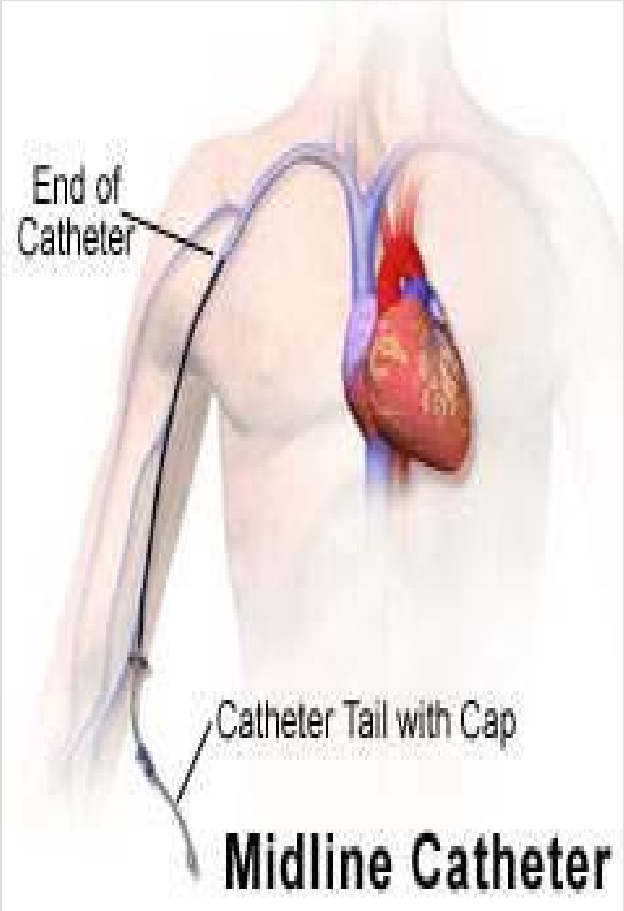
Catheter type	Entry Site	Length	Comments
Peripheral venous catheters	Usually inserted in veins of forearm or hand	<3 inches	Phlebitis with prolonged use; rarely associated with bloodstream infection
Peripheral arterial catheters	Usually inserted in radial artery; can be placed in femoral, axillary, brachial, posterior tibial arteries	<3 inches	Low infection risk; rarely associated with bloodstream infection
Midline catheters	Inserted via the antecubital fossa into the proximal basilic or cephalic veins; does not enter central veins, peripheral catheters	3 to 8 inches	Anaphylactoid reactions have been reported with catheters made of elastomeric hydrogel; lower rates of phlebitis than short peripheral catheters
Nontunneled central venous catheters	Percutaneously inserted into central veins (subclavian, internal jugular, or femoral)	≥8 cm depending on patient size	Account for majority of CRBSI
Pulmonary artery catheters	Inserted through a Teflon® introducer in a central vein (subclavian, internal jugular, or femoral)	≥30 cm depending on patient size	Usually heparin bonded; similar rates of bloodstream infection a CVCs; subclavian site preferred to reduce infection risk
Peripherally inserted central venous catheters (PICC)	Inserted into basilic, cephalic, or brachial veins and enter the superior vena cava	≥20 cm depending on patient size	Lower rate of infection than nontunneled CVCs
Tunneled central	Implanted into subclavian, internal	≥8 cm depending on	Cuff inhibits migration of

Peripheral IV Catheters



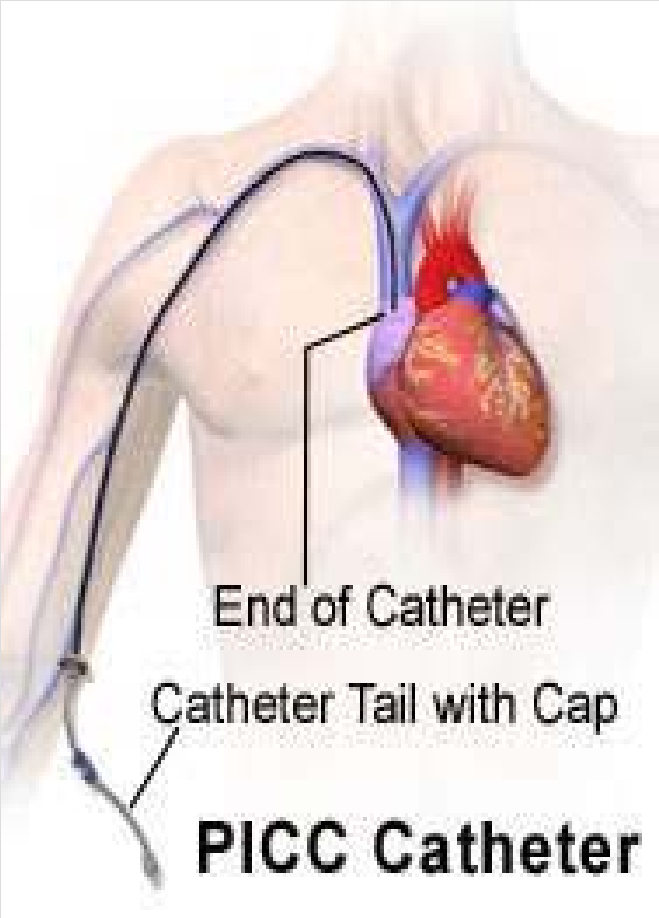
- A description of catheters discussed in the guidelines
- Usually a 1 to 3 inches catheter placed in a vein
- Often in hand or arm
- Most commonly one inserted by RNs
- Called also peripheral venous catheter (PVC) or peripheral venous line

Midline Catheter



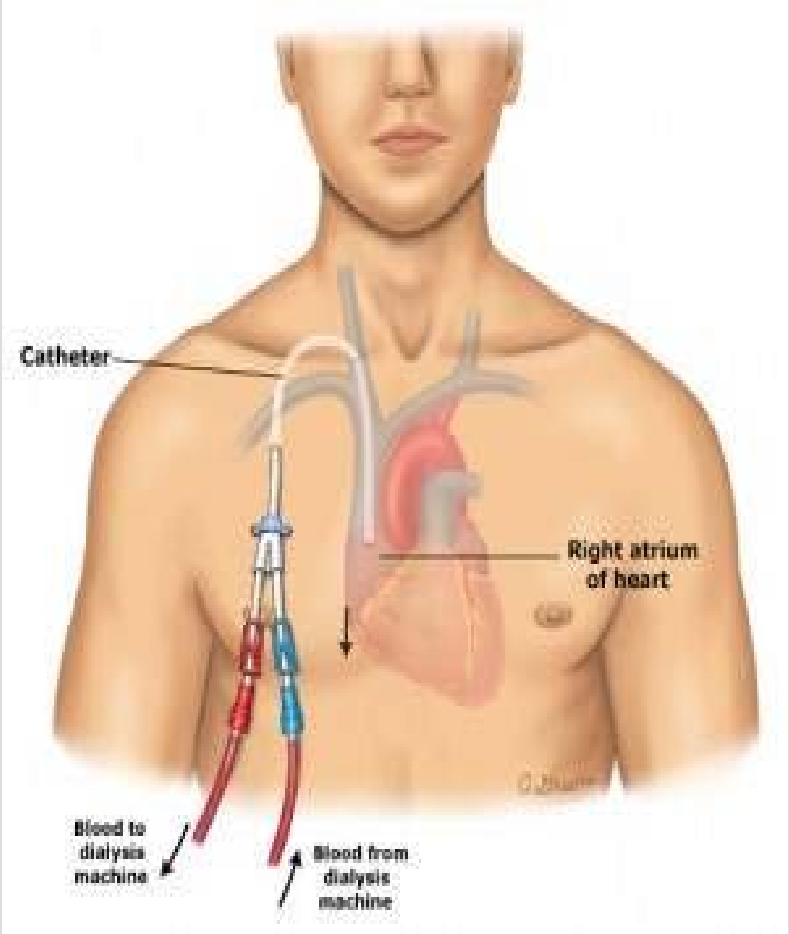
- Catheter is placed in the vein in the upper arm or anticubital area and ends below auxillary area
- Between 3 to 10 inches long and typically 8
- So shorter than a PICC line
- For long term IV therapy
  - Also referred to as long-line, halfway, midline, extended periperheral, PIC or peripherally inserted catheter

PICC Lines



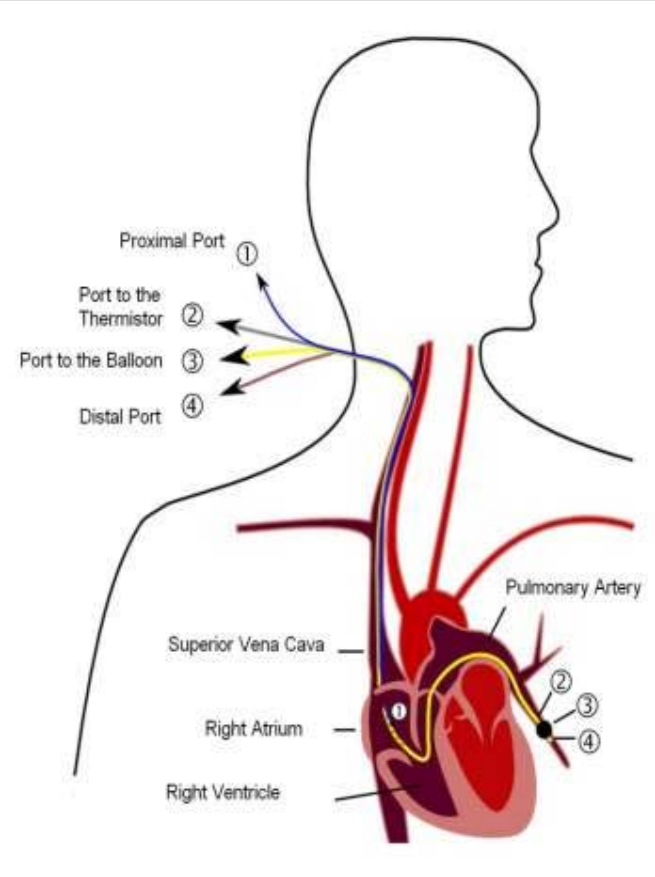
- Peripherally inserted central catheter or PICC line for short
- Placed into the vein in the patient's arm and guided into the larger vein that leads to the heart
- Also called a central venous catheter or CVC

Central Venous Catheter or CVC



- Also called central venous line or central venous access catheter or CVC
- Catheter placed in a large vein in the neck (jugular vein), chest (subclavian vein), or groin (femoral)

Pulmonary Artery Catheter



- Insertion of catheter into the pulmonary artery
- For diagnostic purposes such as to detect heart failure or sepsis, monitor therapy, monitor effects of medication
- Often referred to as Swan-Ganz catheter

Tunneled Catheter

- Is a type of catheter that is surgically inserted into a vein in the neck or chest and passed under the skin
- Only the end of the catheter is brought through the skin
- Groshong, Broviac, and Hickman catheters are examples
- Used for central venous access

Implanted Port

- A port is similar to tunneled catheter but left entirely under the skin
- Surgically implanted
- Accessed via non-coring Huber needles

Select the Site Peripheral and Midline Catheter

- Use upper extremity (arms) for catheter insertion in adults
  - Replace one in lower extremities ASAP
- Use upper or lower extremities for children
  - Can use scalp in neonates or young infants
- Avoid steel needles for fluids and medications that might cause tissue necrosis if extravasation occurs
- Select the catheter on basis of intended purpose and how long it will be in, known complication (phlebitis and infiltration) and experience of operator

Select the Site Peripheral and Midline Catheter

- If will use more than 6 days, use a PICC line or midline catheter
- Palpate the catheter insertion site daily through the dressing to see if any tenderness or by inspection if transparent dressing is used
  - Do not remove gauze or opaque dressing if no signs of infection
  - If tender then remove and inspect visually
- Remove peripheral venous catheter if signs of infection, malfunctioning or phlebitis
  - Tender, warm, red or palpable venous cord

Phlebitis scale

The Infusion Nurses Standards of Practice recommends that a phlebitis scale be used to rate phlebitis according to the signs and symptoms present. Below is the scale that the Infusion Nurses Society has designed for use when determining the severity of phlebitis.

Phlebitis Scale

Grade	Clinical Criteria
0	No Symptoms
1	Erythema at access site with or without pain
2	Pain at access site with erythema and/or oedema
3	Pain at access site with erythema and/or oedema Streak formation Palpable venous cord
4	Pain at access site with erythema and/or oedema Streak formation Palpable venous cord > 1 inch in length Purulent drainag

Central Venous Catheters CVC

- Weigh the risks and benefits of inserting a CVC
  - Risks include pneumothorax, subclavian artery puncture, subclavian vein laceration, subclavian vein stenosis, hemothorax, thrombosis, air embolism, and catheter misplacement
- Use subclavian site rather than jugular or femoral in adult patients
  - To minimize infection risk for nontunneled CVC placement
- Avoid femoral vein for central venous access in adults

IHI Central Line Bundle www.ihi.org

v05
10/01/2008

Getting Started Kit:
Prevent Central Line Infections

How-to Guide

A national initiative led by IHI, the 5 Million Lives Campaign aims to dramatically improve the quality of American health care by protecting patients from five million incidents of medical harm between December 2006 and December 2008. The How-to Guides associated with this Campaign are designed to share best practice knowledge on areas of

AHRQ Central Line Insertion Checklist

AHRQ Agency for Healthcare Research and Quality

Advancing Excellence in Health Care

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You Are Here: AHRQ Home > Quality & Patient Safety > Medical Errors and Patient Safety > Central Line Insertion Care Team Checklist

Central Line Insertion Care Team Checklist

Clinicians can take steps to prevent central line-associated infections. This checklist from Johns Hopkins Medicine provides critical steps that have been shown to reduce these infections. It also stresses the need to document any deviations from the checklist.

A print version of this document from The Johns Hopkins Hospital Interdisciplinary Clinical Practice Manual is available at http://www.hopkinsmedicine.org/bin/y/j/IFC035_APP_C.pdf. (PDF Help).

Central Line Insertion Care Team Checklist

www.ahrq.gov/qual/clichklist.htm

Patient Name _____
Hx # _____
Unit _____
Date/Time _____

A minimum of 5 supervised successful procedures in both the chest and femoral sites is required (10 total). If a physician successfully performs the 5 supervised lines in one site, they are independent for that site only. A total of 3 supervised re-wires is required prior to performing a rewire independently.

Supervisor Role: 2nd-year resident and above (approved for line placement).

Assistant Role: RN, ClinTech, MD, NP, PA (responsible for completing checklist).

If there is a deviation in any of the critical steps, **immediately notify the operator and stop the procedure until corrected**. If a correction is required, make a check mark in the "Yes with reminder" column and note what correction was made in the comment space, if applicable. Uncorrected deviations and complications of line placement are to be reported. Contact the Attending if any item on the checklist is not adhered to or with any concerns. Please return completed form to the designated person in your area.

Before the procedure, did the operator:

Critical Steps	Yes	Yes With Reminder	Report Completed for	Comments:

Critical Steps	Yes	Yes With Reminder	Report Completed for Procedure Deviation?	Comments:
Obtain informed consent?				
Obtain supervision if needed (see roles above)?				N/A [ ]
Perform a time-out/briefing?				
Confirm hand washing/sanitizing immediately prior?				
Operator(s):cap, mask, sterile gown/gloves, eye protection?				
Supervisor: cap, mask, sterile gown/gloves, eye protection?				N/A [ ]
Assistant: cap, mask, isolation gown, and gloves, eye protection (if at risk for entering sterile field, use sterile gown and gloves)?				
Properly position to prevent air embolism? For Chest/EJ: Trendelenburg (HOB <0 degrees) For Femoral: supine				
Sterilize procedure site (chlorhexidine)?				
Allow site to dry?				
Use sterile technique to drape from head to toe?				
Utilize local anesthetic and/or sedation?				N/A [ ]

During the procedure, did the operator:

Critical Steps	Yes	Yes With Reminder	Report Completed for Procedure Deviation?	Comments:
Maintain a sterile field?				
Monitor that lumens were not cut?				N/A [ ]
Clamp any ports not used during insertion (to avoid air embolism, clamp all but distal port)?				N/A [ ]
Obtain qualified second operator after 3 unsuccessful sticks (except if emergent)?				N/A [ ]
Aspirate blood from each lumen (to avoid air embolism and ensure intravascular placement)?				
Transduce CVP or estimate CVP by fluid column (to avoid arterial placement)?				N/A for fluoroscopy procedures [ ]

CMS Reporting Requirement

- Hospitals that accept Medicare and Medicaid patients report their central line associated blood stream infections
- To the CDC National Healthcare Safety Network (NHSN)
- Then released to hospital compare website
- Includes reporting of lab confirmed cases among adult, pediatric, and neonatal intensive care patients

Reporting Hospital CLABSIs to CDC

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www.cdc.gov/nhsn/

CDC A-Z INDEX

National Healthcare Safety Network (NHSN)

CDC's National Healthcare Safety Network is the nation's most widely used healthcare-associated infection tracking system. NHSN provides facilities, states, regions, and the nation with data needed to identify problem areas, measure progress of prevention efforts, and ultimately eliminate healthcare-associated infections.

In addition, NHSN allows healthcare facilities to track blood safety errors and important healthcare process measures such as healthcare personnel influenza vaccine status and infection control adherence rates.

NHSN Reporting
CDC and CMS Issue Joint Reminder on NHSN Reporting

BSI - Surveillance for Bloodstream Infections

Central Line-Associated Bloodstream Infection (CLABSI) and non-central line-associated Bloodstream Infection

- Training
- Protocols
- Forms
- Support Materials
- Analysis Resources
- FAQs

More >

UTI - Surveillance for Urinary Tract Infections

Catheter-Associated Urinary Tract Infection (CAUTI) and non-catheter-associated Urinary Tract Infection (UTI) and Other Urinary System Infection (USI)

- Training
- Protocols
- Forms
- Support Materials
- Analysis Resources

AUR - Surveillance for Antimicrobial Use and Antimicrobial Resistance Options

- Training
- Protocols
- Forms
- Support Materials
- Analysis Resources
- FAQs

More >

MDRO/C.Diff - Surveillance for C. difficile, MRSA, and other Drug-resistant Infections

- Training

Surveillance for Central Line Insertion Practices

CLIP -Surveillance for Central Line Insertion Practices Adherence

- Training
- Protocols
- Forms
- Support Materials
- Analysis Resources
- FAQs

More ›

http://www.cdc.gov/nhsn/acute-care-hospital/clip/index.html

Surveillance for CLABSI

National Healthcare Safety Network (NHSN)

Tracking Infections in Acute Care Hospitals/Facilities

NHSN is the HAI surveillance gold standard. The system (and its predecessors) started years ago helping a few hundred healthcare facilities; today, more than 11,000 healthcare facilities use NHSN as the cornerstone of their HAI elimination strategies. Specifically, facilities use NHSN to:

- Access NHSN enrollment requirements for CMS Hospital Inpatient Quality Reporting Program,
- Obtain baseline HAI rates,
- Compare rates to CDC's national data,
- Participate in state or national HAI prevention collaboratives,
- Devise and implement HAI elimination strategies,
- Evaluate immediate and long-term results of elimination efforts,
- Refocus efforts as needed, or advance to different areas.

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- Training
- Protocols
- Forms
- Support Materials
- Analysis Resources
- FAQs

CAUTI - Surveillance for Catheter-associated Urinary Tract Infections
- Training
- Protocols
- Forms
- Support Materials
- Analysis Resources
- FAQs

CMS NHSN
Requirements
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CLIP - Surveillance for Central Line Insertion Practices Adherence
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- Protocols
- Forms
- Support Materials
- Analysis Resources
- FAQs

SSI - Surveillance for Surgical Site Infections
- Training
- Protocols
- Forms
- Support Materials
- Analysis Resources
- FAQs

Clinical Document Architecture CDA

Contact NHSN:

Centers for Disease Control and Prevention
National Healthcare Safety Network
MS-A24
1600 Clifton Rd
Atlanta, GA 30333

MDRO/CDI - Surveillance for *C. difficile*, MRSA, and Other Drug-Resistant Infections

AUR - Surveillance for Antimicrobial Use and Antimicrobial Resistance Option

Central Venous Catheters CVC

- No recommendation can be made for a preferred site of insertion to minimize infection risk for a tunneled CVC
  - Dialysis perm cath and port-a-cath for chemotherapy is an example of a tunneled catheter
  - Hickman, Groshong and Broviac are tunneled catheters
- Avoid the subclavian site in hemodialysis patients and those with advance kidney disease to avoid subclavian vein stenosis

Central Venous Catheters CVC

- Use a fistula or graft in patients with chronic renal failure instead of a CVC for permanent access for dialysis
- Use ultrasound (U/S) to place central line when available to reduce the number of attempts and complications
  - Only use if fully trained

Central Venous Catheters CVC

- Use a CVC with the minimum number of ports or lumens
- No recommendation can be made regarding the use of a designated lumen for parenteral nutrition
- Promptly remove any intravascular catheter that is no longer needed
- When adherence to aseptic technique cannot be ensured replace the catheter as soon as possible
  - Catheters inserted during a medical emergency so replace within 48 hours

Hand Hygiene and Aseptic Technique

- Perform hand hygiene before and after palpating catheter insertion sites
- Perform hand hygiene before and after inserting, replacing, accessing, repairing, or dressing the intravascular catheter
  - Either by washing hand with soap and water or using alcohol-based hand rub
- Maintain aseptic technique for the insertion and care of intravascular catheters

Hand Hygiene and Aseptic Technique

- Wear clean gloves, rather than sterile gloves, for the insertion of peripheral intravascular catheters
- Sterile gloves should be worn for the insertion of arterial, central, and midline catheters
- Use new sterile gloves before handling the new catheter when guidewire exchanges are performed
- Wear either clean or sterile gloves when changing the dressing on intravascular catheters

Maximal Sterile Barrier Precautions

- Use maximal sterile barrier precautions for the insertion of CVCs, PICCs, or guidewire exchange
  - Including the use of a cap, mask, sterile gown, sterile gloves, and a sterile full body drape
- Use a sterile sleeve to protect pulmonary artery catheters during insertion

Skin Preparation

- Prepare clean skin with an antiseptic before peripheral venous catheter insertion
  - 70% alcohol, tincture of iodine, or alcoholic chlorahexidine gluconate solution
- Prepare clean skin with a >0.5% chlorahexidine preparation with alcohol
  - Before central venous catheter and peripheral arterial catheter insertion
  - During dressing changes

Skin Preparation

- No comparison has been made between using chlorhexidine preparations with alcohol and povidone-iodine in alcohol to prepare clean skin
- No recommendation can be made for the safety or efficacy of chlorhexidine in infants aged <2 months.
- Antiseptics should be allowed to dry according to the manufacturer's recommendation prior to placing the catheter

Catheter Site Dressing Regimens

- Use either sterile gauze or sterile, transparent, semipermeable dressing to cover the catheter site
- If the patient is diaphoretic or if the site is bleeding or oozing, use a gauze dressing until this is resolved
- Replace catheter site dressing if the dressing becomes damp, loosened, or visibly soiled
- Do not use topical antibiotic ointment or creams on insertion sites because of their potential to promote fungal infections and antimicrobial resistance
  - Except for dialysis catheters

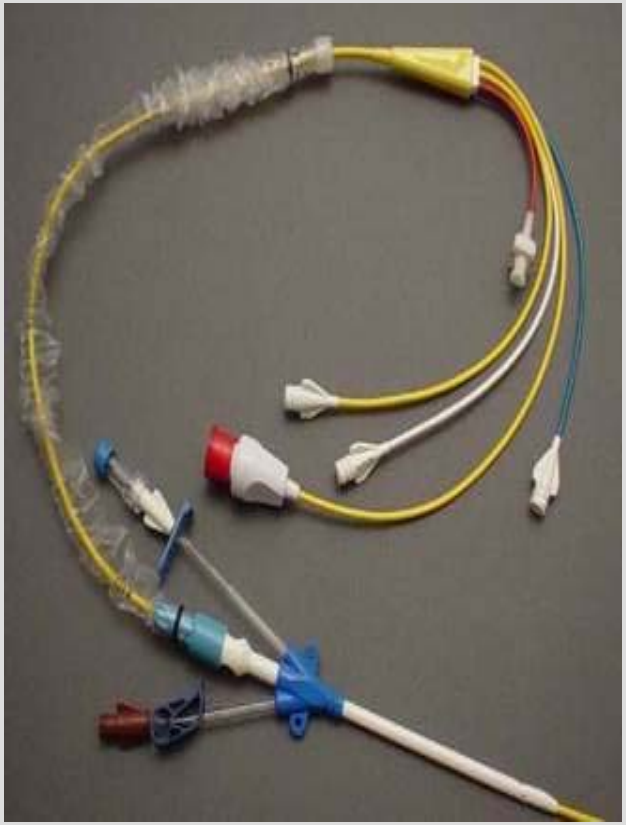
Catheter Site Dressing Regimens

- Do not submerge the catheter or catheter site in water
  - Showering should be permitted if precautions can be taken to reduce the likelihood of introducing organisms into the catheter
  - If the catheter and connecting device are protected with an impermeable cover during the shower
- Replace dressings used on short-term CVC sites every 2 days for gauze dressings

Catheter Site Dressing Regimens

- Replace dressings used on short-term CVC sites at least every 7 days for transparent dressings
  - Except in those pediatric patients in which the risk for dislodging the catheter may outweigh the benefit of changing the dressing
- Replace transparent dressings used on tunneled or implanted CVC sites no more than once per week until the insertion site has healed
  - Unless the dressing is soiled or loose

Catheter Site Dressing Regimens



- No recommendation can be made regarding the necessity for any dressing on well-healed exit sites of long-term cuffed and tunneled CVCs
- Ensure that catheter site care is compatible with the catheter material
- Use a sterile sleeve for all pulmonary artery catheters

Catheter Site Dressing Regimens

- Use a chlorhexidine-impregnated sponge (like Biopatch) dressing for temporary short-term catheters in patients older than 2 months of age if the CLABSI
- If rate is not decreasing despite adherence to basic prevention measures
- Including education and training
- And Using chlorhexidine for skin antisepsis

Catheter Site Dressing Regimens

- No recommendation is made for other types of chlorhexidine dressings
- Encourage patients to report any changes in their catheter site or any new discomfort to their provider
- Monitor the catheter sites visually when changing the dressing or by palpation through an intact dressing on a regular basis
  - Remove dressing and inspect if tenderness at the site or fever without an obvious source

Patient Cleansing

- Use a 2% chlorhexidine wash for daily skin cleansing to reduce CRBSI
- Decreases bacterial flora on skin

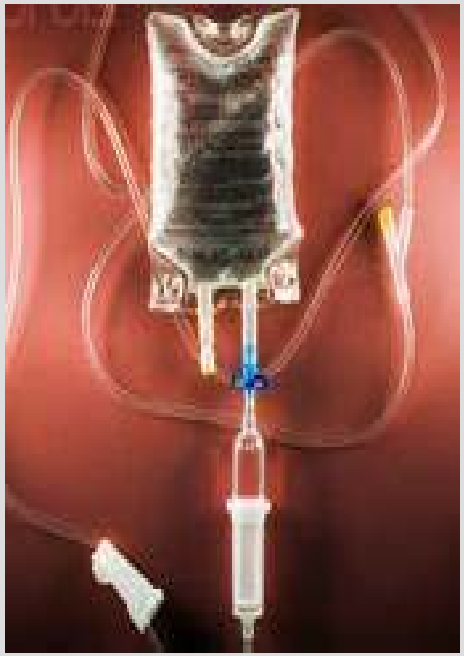
Catheter Stabilization/Securement Device

- Use a sutureless securement device to reduce the risk of infection for intravascular catheters
  - Tape free evidenced based catheter securing device
  - One article states reduces rate of phlebitis by 80%
  - Reduces unscheduled restarts by 76%

Antimicrobial Impregnated Catheters & Cuffs

- Use an antibiotic impregnated catheter if expected to be in more that five days
- And rate is not decreasing after strategies done
  - Education of staff who insert and maintain catheter
  - Use of maximal sterile barrier precautions
  - Use of a >0.5% chlorhexidine preparation with alcohol for skin antisepsis during CVC insertion
- Catheter impregnated with chlorhexidine/silver sulfadiazine or minocycline/rifampin

Systemic Antibiotic Prophylaxis



- Do not administer systemic antimicrobial prophylaxis routinely
- Before insertion or during use of an intravascular catheter to prevent catheter colonization or CRBSI

Antibiotic/Antiseptic Ointments

- Use povidone iodine antiseptic ointment or bacitracin/gramicidin/ polymyxin B ointment at the hemodialysis catheter exit site
- After catheter insertion and
- At the end of each dialysis session
- Only if this ointment does not interact with the material of the hemodialysis catheter per manufacturer’s recommendation

Anticoagulants

- Do not routinely use anticoagulant therapy to reduce the risk of catheter-related infection in general patient populations

Replacement of Peripheral & Midline Catheters

- There is no need to replace peripheral catheters more frequently than every 72-96 hours to reduce risk of infection and phlebitis in adults
- No recommendation is made regarding replacement of peripheral catheters in adults only when clinically indicated
- Replace peripheral catheters in children only when clinically indicated
- Replace midline catheters only when there is a specific indication

Replacement of CVCs Including PICCs and Hemodialysis Catheters

- Do not routinely replace CVCs, PICCs, hemodialysis catheters, or pulmonary artery catheters to prevent catheter-related infections
- Do not remove CVCs or PICCs on the basis of fever alone
  - Use clinical judgment if infection elsewhere or non-infectious cause for fever
- Do not use guidewire exchanges routinely for non-tunneled catheters to prevent infection

Replacement of CVCs Including PICCs and Hemodialysis Catheters

- Do not use guide wire exchanges to replace a non-tunneled catheter suspected of infection
- Use a guidewire exchange to replace a malfunctioning non-tunneled catheter if no evidence of infection is present
- Use new sterile gloves before handling the new catheter when guide wire exchanges are performed

Replacement of Administration Sets

- Replace administration sets that are continuously used, including secondary sets and add-on devices, no more frequently than at 96-hour intervals, but at least every 7 days
  - In patients not receiving blood, blood products or fat emulsions as these are changed within 24 hours of starting the infusion
- No recommendation can be made regarding the frequency for replacing intermittently used administration sets or length of time a needle is used to access implanted port
- Change tubing to administer propofol infusions every 6 to 12 hours

Needleless Intravascular Catheter Systems

- Change the needleless components at least as frequently as the administration set
- There is no benefit to changing these more frequently than every 72 hours
- Change needleless connectors no more frequently than every 72 hours or according to manufacturers' recommendations

Needleless Intravascular Catheter Systems

- Ensure that all components of the system are compatible to minimize leaks and breaks in the system
- Minimize contamination risk by scrubbing the access port with an appropriate antiseptic and accessing the port only with sterile devices
  - Chlorhexidine, povidone iodine, an iodophor, or 70% alcohol
- Use a needleless system to access IV tubing
- When needleless systems are used, a split septum valve may be preferred over some mechanical valves due to increased risk of infection with the mechanical valves

Scrub the Hub Campaign

Rub-a-Dub-Dub: Scrub the Hub

Here's how you can prevent Catheter Line Associated Bacteremia (CLAB) in your patient!

Make sure you thoroughly scrub the injection port with alcohol before injecting IV medications.

Don't forget to "Scrub the Hub."

BJC HealthCare™

Performance Improvement

Central Line Bundle Checklist

	Met	Not Met
1. Catheter Cart Available		
2. Hand Washing (For all personnel)		
3. Maximum Barrier Precautions		
a. Cap (physician/assistant)		
b. Mask (all personnel and patient)		
c. Sterile Gown (physician/nurse)		
d. Sterile Gloves (physician/nurse)		
e. Sterile Full Body Drape		
4. Skin Antisepsis		
a. ChloraPrep scrub		

Signature:_____ Department:_____

Please place on front of chart- IV Therapy will collect during roun

- Use hospital-specific or collaborative-based performance improvement initiatives in which multifaceted strategies are "bundled" together
- to improve compliance with evidence-based recommended practices

Other Recommendations

- Includes recommendations for:
  - Umbilical catheters
  - Peripheral Arterial Catheters
  - And Pressure Monitoring Devices for Adult and Pediatric Patients

Epidemiology

- Most common pathogen for BSI is coagulase-negative staphylococci, Staphylococcus aureus, enterococci, and Candida
- Gram negative bacilli accounted for 19% and 21% of CLABSI reported to the CDC
  - Antibiotic resistance is a problem especially in ICU with 50% of staph is MRSA
- Rate of BSI influenced by bed size, severity and type of illness
  - Third degree burn versus cardiac surgery
  - Influenced by the conditions under which the catheter was place

Strategies to Prevent Catheter Infections

- Educate all personnel on indications for intravascular catheter use, proper procedure on how to insert, and infection control to prevent infections
- Designate only trained staff who demonstrate competence for insertion and maintenance of peripheral and central line catheters
  - Periodically assess their knowledge
- Ensure appropriate staffing levels in ICU and studies suggest higher number of infections with pool nurses or inadequate staffing

Strategies to Prevent Catheter Infections

- IV teams have been shown to reduce infections
- Insertion and maintenance by inexperienced staff increases rate for catheter colonization and CRBSI
- It is important for staff to know about the CDC guidelines
- Site influences the rate of infection
- Infusion of parenteral nutritional fluids with continuous IV fat emulsions, and length of ICU stay before catheter insertion, have all increased patients' risk for phlebitis

Strategies to Prevent Catheter Infections

- Femoral catheters have a high rate of infection so avoid when possible
  - Are associated with a higher rate of DVT especially in obese patients
  - Except for children who use of femoral has low incidence
  - Subclavian is best site for adults
- Use of ultrasound decreases complications and the number of attempts
- Place catheters away from open wounds

Strategies to Prevent Catheter Infections

- Teflon or polyurethane catheters have fewer infections than polyvinyl chloride or polyethylene
- Steel needles have rate of infection as Teflon catheters but they are complicated by infiltrations
- Hand hygiene important before insertion
- Use maximal sterile barrier precautions for CVC, PICCs or guidewire exchange
  - Cap, mask, sterile gown, sterile gloves, and full body drape
- Use sterile sleeve to protect artery catheters during insertion

Strategies to Prevent Catheter Infections

- Need to prep skin with >0.5% chlorhexidine preparation with alcohol before central venous catheter and peripheral arterial catheter insertion and during dressing changes
- Chlorhexidine preparation reduced the risk of catheter related infection by 49% relative to povidone iodine (page 332)
  - This would result in a 1.6% decrease in the incidence of CRBSI, a 0.23% decrease in the incidence of death, and a savings of $113 per catheter used
  - Chlorhexidine has become a standard antiseptic for skin preparation for peripheral IVs also

Strategies to Prevent Catheter Infections

- Transparent, semi-permeable polyurethane dressings permit continuous visual inspection of the catheter site and require less frequent changes than do standard gauze and tape dressings
- No difference in infection rate from transparent or gauze dressing
- Transparent dressings can be safely left on peripheral venous catheters for the duration of catheter insertion without increasing the risk for thrombophlebitis

Strategies to Prevent Catheter Infections

- Chlorhexidine impregnated sponge dressings have been used to reduce the risk of CRBSI in adults
- Daily cleansing of ICU patients with a 2% chlorhexidine impregnated washcloth may be a simple, effective strategy to decrease the rate of primary BSIs
  - Patients less likely to acquire a BSI than if bathed with soap and water
- Catheter securement devices reduce the risk of infection
  - Also reduce phlebitis and catheter migration and dislodgement

Strategies to Prevent Catheter Infections

- Catheters coated with antibiotic reduce catheter infections
- Second generation catheters coat internal surface extending into the extension set and hubs and reduced colonization but not difference in CRBSI
- Chlorhexidine/silver sulfadiazine catheters are more expensive than standard catheters
  - One study found that using these can save $68 to $391 per catheter in settings where the risk for CRBSI is high
  - Good in burn, ICU and neutropenic patients where risk of infection exceeds 3.3 per 1,000 catheter days

Strategies to Prevent Catheter Infections

- Use povidone iodine antiseptic ointment or bacitracin/ gramicidin/polymyxin B ointment at the hemodialysis catheter exit site after catheter insertion and at the end of each dialysis session
  - Only if does not interact with catheter as per manufacturers recommendations
- Nasal carriers of S. aureus are more likely to experience a CRBSI than non-colonized persons
- Use prophylactic antimicrobial lock solution in patients with long term catheters who have a history of multiple CRBSI despite optimal maximal adherence to aseptic technique

Strategies to Prevent Catheter Infections

- Catheter lock is a technique by which an antimicrobial solution is used to fill a catheter lumen and then allowed to dwell for a period of time while the catheter is idle
- Shortly after insertion, intravascular catheters are coated with a conditioning film, consisting of fibrin, plasma proteins, and cellular elements, such as platelets and red blood cells
- Microbes interact with the conditioning film, resulting in colonization of the catheter
- There is a close association between thrombosis of central venous catheters and infection

Strategies to Prevent Catheter Infections

- There is no need to replace peripheral catheters more frequently than every 72–96 hours to reduce risk of infection and phlebitis in adults
- Studies of short peripheral venous catheters indicate that the incidence of thrombophlebitis and bacterial colonization of catheters increases when catheters are left in place >72 hours
- However, rates of phlebitis are not substantially different in peripheral catheters left in place 72 hours compared with 96 hours

Strategies to Prevent Catheter Infections

- Midline catheters have lower rate of infection than peripheral catheters
- Replacing administration sets no more frequently than 72–96 hours after initiation of use is safe and cost-effective
- When a fluid that enhances microbial growth is infused more frequent changes of administration sets are indicated as these products have been identified as independent risk factors for CRBSI
  - e.g., Fat emulsions and blood products

Strategies to Prevent Catheter Infections

- Stopcocks used for injection of medications, administration of IV infusions, and collection of blood samples represent a potential portal of entry for microorganisms
- Stopcocks should be capped when not being used
- Closed catheter access systems are associated with fewer CRBSIs than open systems and should be used preferentially
- "Piggyback" systems (secondary intermittent infusions delivered through a port on a primary infusion set) are used as an alternative to stopcocks

The End! Questions???

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APIC's Targeting Zero Campaign

- Targeting zero is the philosophy that every hospital should be working toward a goal of zero HAIs
- While not all HAIs are preventable, APIC believes we should strive for the goal of elimination and strive for zero infections
- Association for Professionals in Infection Control and Epidemiology (APIC) put together many resources to help hospitals to start to meet this goal
- Prompt investigation of HAIs of greatest concern to the hospital (like MRSA, CDiff surgical site infections, catheter associated UTIs)
- Needed because of our declining arsenal of antibiotics to treat infections

Infection Control

- NHSN replaces the CDCs National Nosocomial Infection Surveillance system (NNIS)
  - Was considered the gold standard for tracking HAI for more than 30 years
  - Designed to help hospitals better manage episodes of HAI such as MRSA and VRE
  - Used by the VA hospitals
- Enroll on-line for HAI surveillance and many other resources[1]

[1]http://www.cdc.gov/ncidod/dhqp/nhsn.html

www.cdc.gov/nhsn/

CDC Home

Centers for Disease Control and Prevention

Your Online Source for Credible Health Information

SEARCH

A-Z Index A B C D E F G H I J K L M N O P Q R S T U V W X Y Z #

National Healthcare Safety Network (NHSN)

The National Healthcare Safety Network (NHSN) is a voluntary, secure, internet-based surveillance system that integrates and expands legacy patient and healthcare personnel safety surveillance systems managed by the Division of Healthcare Quality Promotion (DHQP) at CDC. NHSN also includes a new component for hospitals to monitor adverse reactions and incidents associated with receipt of blood and blood products. Enrollment is open to all types of healthcare facilities in the United States, including acute care hospitals, long term acute care hospitals, psychiatric hospitals, rehabilitation hospitals, outpatient dialysis centers, ambulatory surgery centers, and long term care facilities. For more information, click on the topics below.

Replay

Biovigilance Component

NHSN Biovigilance Component GO»

MDRO

HAI: Recovery Act

Biovigilance »

Text size: S M L XL

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FLU.GOV

Know what to do about the flu.

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Topics

About NHSN
Overview, Purposes, Confidentiality statement, How data are used, External Peer Review report...

Enrollment Requirements
Eligibility, Required Training, Reporting & System Requirements, Security, Begin Enrollment...

Data & Statistics

States with Facilities Using NHSN (total-2646)

Get email updates

To receive email updates about

National Healthcare Safety Network (NHSN)

Webcast training lectures

These training sessions are available for those who need to fulfill the training requirements of the NHSN, or for those who need a refresher on a particular topic.

The NHSN requires that each of its users is thoroughly trained before enrolling in or using the system. The training requirements differ depending on the role of the NHSN user.

On This Page

- Enrollment
- Data Entry, Surveillance, Analysis
- Patient Safety Component
- Healthcare Personnel Safety Component
- Biovigilance Component

Enrollment

- NHSN Enrollment & Facility Start-up
  Required for: All new NHSN Facility Administrators
- Overview of NHSN, Device-associated module (CLABSI, VAP, CAUTI)
  Audience: All NHSN users including Facility Administrators and Group Administrators.
- Conferring Rights to Groups
  Audience: Group Users, Facility administrators already joined to a group or interested in joining a group and conferring rights
- Confer Rights to Group How-to Guide
  Audience: Group Users, Facility administrators already joined to a group or interested in joining a group and conferring rights

Get email updates

To receive email updates about NHSN, enter your email address:

What's this? Submit

Contact NHSN:

Centers for Disease Control and Prevention
National Healthcare Safety Network
MS-A24
1600 Clifton Rd

LabID Event Reporting
Prevention Process & Active Surveillance Testing Outcome Measures
C. difficile Infection Surveillance & *C. difficile* LabID Event Reporting
HRIIV Module
Blood & Body Fluids Exposure Module
Hemovigilance Module Overview
Enrollment for Facility New to NHSN
Enrolling an Existing NHSN Facility into Biovigilance and Facility Set up
Hemovigilance Incident Reporting
Groups in Biovigilance
Adverse Reaction Data Collection and

Patient Safety Component

- **Device-associated**
  - Device-associated module (CLABSI, VAP, CAUTI)
    (Fisrt half includes Overview of NHSN)
    Audience: All NHSN users including Facility Administrators and Group Administrators.
- **Procedure-associated**
  - NHSN Central Line Insertion Practices(CLIP) Training Course
    Audience: All NHSN users including Facility Administrators and Group Administrators.
  - Procedure-associated module (SSI, PPP), Medication-associated module
    Audience: All NHSN users including Facility Administrators and Group Administrators.
- Specific Event Criteria Training
  Audience: All NHSN users including Facility Administrators and Group Administrators.
- **MDRO and CDAD**
  - MDRO Infection Surveillance Training
    Audience: All NHSN users including Facility Administrators and Group Administrators.
  - LabID Event Reporting Training
    Audience: All NHSN users including Facility Administrators and Group Administrators.
  - Prevention Process and Active Surveillance Testing

Information for Patients on Vascular Access

RadiologyInfo.org

The radiology information resource for patients

Developed jointly by: RSNA Radiological Society of North America; ACR American College of Radiology

Home | Procedures A-Z | Test/Treatment | Body Part/System | Patient Group | Images/Videos | En Español

www.radiologyinfo.org/en/info.cfm?PG=vasc_access

search term:

Search

Patient Safety >

Glossary of Terms >

Professions in Radiology >

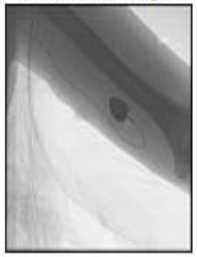
Current Radiology News

Pediatric-specific content (more...)

Vascular Access Procedures

- What are Vascular Access Procedures?
- What are some common uses of the procedure?
- How should I prepare?
- What does the equipment look like?
- How is the procedure performed?
- What will I experience during the procedure?
- Who interprets the results and how do I get them?
- What are the benefits vs. risks?
- What are the limitations of Vascular Access Procedures?

Click to view larger



What are Vascular Access Procedures?

A vascular access procedure involves the insertion of a flexible thin plastic tube, or catheter, into a blood vessel to provide a painless way of drawing blood or delivering drugs and nutrients into a patient's bloodstream over a period of weeks, months or even years.

A simple intravenous (IV) line is effective for short-term use, but is not suitable for long-term use. When an IV line is necessary for a longer period of time and/or a more secure venous access is necessary, a special catheter, called

Resources

- Center for Disease Control and Prevention (CDC) 2011 Guidelines for the Prevention of Intravascular Catheter-Related Infections are available at http://www.cdc.gov/hicpac/BSI/BSI-guidelines-2011.html
- Infusion Nurses Society at www.ins1.org which is recognized as the global authority in infusion therapy
- UK has resources on IV therapy and venous access at www.ivteam.com and see www.ivaccess.com for list of IV irritants and vesicants

CMS Memo

- Clarifies the section regarding requirements for nursing related to blood transfusions and IV medication
  - Must administer both in accordance with state law and must have approved MS policies and procedures
  - CMS requires staff to be educated on both of these
- Requires immediate reporting of medication errors, adverse events, and incompatibilities
  - Will update Appendix A but check final language when published
  - Does not apply to CAH

This presentation is intended solely to provide general information and does not constitute legal advice. Attendance at the presentation or later review of these printed materials does not create an attorney-client relationship with the presenter(s). You should not take any action based upon any information in this presentation without first consulting legal counsel familiar with your particular circumstances.

Thanks for attending!

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