

To: **HAI Advisory Committee**

From: **Alicia Cole**

Public Reporting & Education Subcommittee

Date: October 7, 2010

HAI and MRSA

Page Samples

History of Hospital-Acquired Infection Rate Data Collection

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Healthcare-Associated Infections (HAIs), are infections that patients can get after having medical or surgical treatments. These infections can happen when needles and tubes are inserted through a person's skin, which is the natural protection against bacteria and other organisms. Insertion of needles and devices provide a pathway for bacteria and other organisms to enter the blood stream and lungs. Patients in the intensive care unit (ICU) have the highest risk of HAIs because of the number of procedures they undergo and the seriousness of their health problems. HAIs can aggravate a patient's illness and lengthen their stay in the hospital. They also can be passed on to other individuals.

The **Guidance on Public Reporting of Healthcare-Associated Infections**, published by the Healthcare Infection Control Practices Advisory Committee in 2005, says that in hospitals alone, HAIs account for an estimated 2 million infections, 90,000 deaths, and \$4.5 billion dollars in extra healthcare costs each year. Hospitals and other healthcare facilities have policies and rules designed to minimize the occurrence of HAIs. Despite this, it is not possible to prevent all HAIs.

In 2004 the Missouri General Assembly passed a law requiring hospitals and ambulatory surgery centers (ASCs) to provide information to the Missouri Department of Health and Senior Services (DHSS) about HAIs in their facilities. Facilities are required to report central line-associated bloodstream (CLAB) infections, specific surgical site infections (SSIs), and ventilator-associated pneumonias (VAPs). The law also requires the DHSS to make this information available to the public.

Hospitals began reporting CLAB infections in July 2005. Each month hospitals report the number of CLAB infections in selected ICUs. Collection of data on SSIs from hospitals and ASCs began in January 2006. Reporting on VAPs has yet to begin. The DHSS and its advisory panel are researching the kind of data related to VAPs that would be both reliable and useful.

Facilities report CLAB infections by the type of ICU involved (medical/surgical, coronary, medical, surgical, pediatric, neonatal). Reporting by ICU allows for a fairer comparison between hospitals. It takes into account differences in the type of patients ICUs treat and the different risks for infection. SSIs are reported by procedure and the infection rates are adjusted to take into account differences in patient risk for infection due to factors such as the length of the surgery, the type of surgical wound for that procedure, and the patient's physical condition. Surgical procedures selected for SSI reporting are serious, are performed in a variety of facilities, and tend to be associated with HAIs. These procedures include abdominal hysterectomy, coronary artery bypass and hip repair procedures performed in hospitals, and breast and hernia procedures performed in ASCs.

This new information about HAIs gives consumers access to important information about healthcare facilities in their area and across the state. Of course this information should be only one of the pieces of information a consumer uses to choose a healthcare facility. Consumers should consider the experience of the facility staff, the advice of their physician, and all other factors that are unique to his or her situation, in addition to the infection data reported on this website. Facilities vary in the types of patients they treat, and a facility that treats severely ill patients will naturally be at higher risk for HAIs. We have used procedures recommended by the Centers for Disease Control and Prevention (CDC) to adjust the infection rates so consumers can get an even picture among facilities. However, when reviewing the numbers people should keep in mind that these procedures are not perfect. Also, viewers should note any comments and/or explanations provided by a facility regarding its data.

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Risk Factors and Risk Adjustment of Data

Risk

The definition of “risk” for surgical outcomes is focused primarily on the effect of a particular disease or co-morbidities on the physiologic integrity of the patient, asking such questions as, “Is a patient more likely to die, become disabled, or experience long-run sequelae than other patients?”

Examples of Dimensions of Risk

- Age
- Sex
- Race and ethnicity
- Acute clinical stability
- Principal diagnosis (“case mix”)
- Severity of principal diagnosis
- Extent and severity of comorbidities
- Physical functional status
- Psychological, cognitive, and psychosocial functioning
- Cultural and socioeconomic attributes and behaviors
- Health Status and quality of life
- Patient attitudes and preferences for outcomes

Risk Adjustment - Accounting for patient-related attributes, such as age, gender, or pre-existing conditions, so that comparison of health care measures among hospitals seeing different mixes of patients is as fair and meaningful as possible. The idea is to compare hospital performance using the same “standard patient mix” for each hospital, thus creating a level field for comparison. The standard mix is usually the patient mix of all hospitals combined.

Risk Adjusted Rate – The rate after mathematically taking into consideration the risk of complication of the patient and procedural risk factors. The risk adjustment process allows more accurate comparison of facilities.

The National Health Safety Network or NHSN risk index is the choice for risk-adjustment of publicly reported infection rates in California. It is a widely used, operation-specific, prospectively applied and validated method for risk adjustment.

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Who is The National Healthcare Safety Network (NHSN)?



The National Healthcare Safety Network (NHSN) is a reporting system started in 2005 as the successor to the U. S. Centers for Disease Control and Prevention (CDC)'s National Nosocomial Infections Surveillance (NNIS) program. Reporting through NHSN enables monitoring of healthcare-associated events and processes and integrates three CDC patient and healthcare personnel safety surveillance systems onto a single platform.

NHSN is a voluntary, secure, internet-based surveillance system 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 link below.

<http://www.cdc.gov/nhsn/about.html>

[Antimicrobial-Resistant Pathogens Associated With Healthcare-Associated Infections: Annual Summary of Data Reported to the NHSN at CDC, 2006–2007 \[PDF - 796KB\]](#)

Describes the scope and magnitude of select antimicrobial-resistant pathogens among infections reported to the device-and procedure-associated modules of the NHSN, *Infect Control Hosp Epidemiol* 2008; 29:996-1011

[Dialysis Surveillance Report: National Healthcare Safety Network \(NHSN\)—Data Summary for 2006 \[PDF - 214KB\]](#)

Thirty-two outpatient hemodialysis providers in the United States voluntarily reported 3699 adverse events to the Centers for Disease Control and Prevention (CDC) National Health-care Safety Network (NHSN) during 2006. *Seminars in Dialysis—Vol 21, No 1 (January–February) 2008 pp. 24–28*

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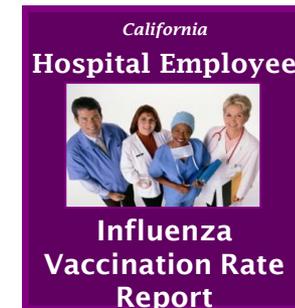
NHSN Guidance Specific to California Hospitals

Information for IPs

- [California Monthly NHSN Reporting Requirements](#)
- [CDPH Guide to Correctly Conferring Rights as of July 2010](#)
- [NHSN Set-up Guidelines](#)

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Medical Facility Infection Control and Prevention Act or Nile's Law

In 2008, Governor Arnold Schwarzenegger signed two important pieces of legislation that create a robust prevention and surveillance system over deadly hospital infections-fostering improvements within hospitals and providing consumers with important information about hospital infection rates. "These important measures will help save lives and health care dollars by reducing the number of infections that people are exposed to while staying in the hospital," Governor Schwarzenegger said.

[SB 1058](#) by Senator Elaine Alquist (D-San Jose) establishes the Medical Facility Infection Control and Prevention Act or "Nile's Law," which requires hospitals to develop more comprehensive policies and procedures to improve and ensure effective infection control practices. It also requires the Department of Public Health to establish a health care acquired infection program that will receive reports from hospitals on specified hospital-acquired infection rates. In addition, hospitals would be required to screen certain high-risk patients for Methicillin-Resistant Staphylococcus Aureus (MRSA) and to provide instructions regarding aftercare and precautions to prevent the spread of the infection to others.

Here is one of the safety improvements provided by the law:

If a patient tests positive for MRSA, the attending physician shall inform the patient or the patient's representative immediately or as soon as practically possible, and prior to discharge, the hospital must provide oral or written instruction to the patient regarding aftercare and precautions to prevent the spread of the infection to others. The law has retesting provisions for patients who show increased risk of invasive MRSA infections; however, those provisions are not effective until January 1, 2011.

http://www.cdph.ca.gov/services/boards/Documents/SB1058chaptered09_25_08.pdf

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Improved Patient Safety Mandated By Law

A look at SB158

Curbing hospital infections will save health care dollars by reducing patients' length of stay and readmissions, as well as minimizing avoidable deaths and illnesses. "Improving patient safety within hospitals and arming consumers with information about hospital infection rates will better protect Californians and improve the overall quality of health care," said Governor Schwarzenegger upon signing Senate Bill 158 into law.

SB 158 by Senator Dean Florez (D-Shafter) expands upon the current responsibilities of the existing California Department of Public Health's (CDPH) Healthcare Associated Infections Advisory Committee. The bill requires general acute care hospitals, acute psychiatric hospitals, special hospitals and skilled nursing facilities to establish plans to improve patient safety. This bill also contains detailed training requirements for hospital infection control committee chairs, clinicians, and all licensed and non-licensed hospital staff.

Each patient safety plan shall, at a minimum, establish:

A patient safety committee.

A reporting system for patient safety events.

A process for facility staff to conduct thorough analyses including but not limited to, root cause analyses, on reported patient safety events.

A reporting process that supports and encourages a culture of safety and reporting patient safety events.

A process for providing ongoing patient safety training for facility personnel and health care practitioners.

A definition of a patient safety event, which shall include, but not be limited to, all adverse events or potential adverse events that are determined to be preventable and health-care-associated infections, as defined by the National Healthcare Safety Network or the Healthcare Associated Infection Advisory Committee (HAI-AC), that are determined to be preventable.

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Creation of an HAI Advisory Committee and the start of Reporting

A look at SB 739

Senate Bill 739 (Speier) required California to address problems with infections associated with hospitals and other health care facilities. The law required CDPH to appoint an HAI Advisory Committee to make recommendations on the use of national guidelines and public reporting measures for hospital-based infectious disease surveillance, prevention and control.

Per SB 739 on January 1, 2008, all general acute care hospitals began reporting to the California Department of Public Health (CDPH) the following process measures:

- 1) central line insertion practices,
- 2) influenza vaccination of employees and patients, and
- 3) surgical antimicrobial prophylaxis.

SB 739 also required each hospital to submit data on implemented process measures to the National Healthcare Safety Network (NHSN) of the Centers for Disease Control and Prevention (CDC), or to any other scientifically valid national HAI reporting system based upon the recommendation of the CDC. At present there is no national HAI reporting system other than the NHSN. To comply with these reporting requirements, the California Healthcare-Associated Infections Advisory Committee (HAI-AC) has recommended the use of the National Health and Safety Network (NHSN) reporting software. In concurrence with this recommendation, the CDPH Licensing and Certification Program now requires that all general acute care hospitals use NHSN for reporting to CDPH the SB 739 mandated measures that are available through NHSN.

NHSN is a reporting system started in 2005 as the successor to the U. S. Centers for Disease Control and Prevention (CDC)'s National Nosocomial Infections Surveillance (NNIS) program. Reporting through NHSN enables monitoring of healthcare-associated events and processes and integrates three CDC patient and healthcare personnel safety surveillance systems onto a single internet platform.

http://www.leginfo.ca.gov/pub/05-06/bill/sen/sb_0701-0750/sb_739_bill_20060928_chaptered.pdf

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Guidelines for Infection Control in Health Care Personnel, 1998

This guideline updates and replaces the previous edition of the Centers for Disease Control and Prevention (CDC) "Guideline for Infection Control in Hospital Personnel," published in 1983. The revised guideline, designed to provide methods for reducing the transmission of infections from patients to health care personnel and from personnel to patients, also provides an overview of the evidence for recommendations considered prudent by consensus of the Hospital Infection Control Practices Advisory Committee members.



For more information or to read the full guidelines, click the link below:

<http://www.cdc.gov/ncidod/dhqp/pdf/guidelines/InfectControl98.pdf>

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 Influenza Vaccination Rate Reporting Laws
 Influenza Related All Facilities Letters (AFL)

CDPH Immunization Branch
 CA Influenza Surveillance Project
 CA Hospital-Associated Infections Advisory Committee
 History of Vaccination/Declination Rate Data Collection

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Healthcare Associated Infections (HAI) Program

The Healthcare Associated Infections (HAI) Program is one of three programs in the [Center for Healthcare Quality](#) of the [California Department of Public Health](#). The Program is responsible for the surveillance and prevention of infections in California's general acute care hospitals as mandated by Senate Bills 739, 1058, and 158. The Program was authorized in December 2009.

HAI's are the most common complication of hospital care and are listed among the top ten leading causes of death in the United States. It is estimated that each year there are more than 240,000 infections, 13,500 deaths, and \$3.1 billion dollars in excess healthcare costs in acute care hospitals alone. Based on this data it is estimated that approximately 240,000 patients develop infections in California hospitals each year at an annual cost of about \$600 million.

With the assistance of a grant from the American Recovery and Reimbursement Act (ARRA) of 2009, Program staff are actively involved in assisting hospitals in infection surveillance, prevention and reporting procedures. The HAI Program is advised by a committee of healthcare professionals and public advocates from throughout California who recommend methods for publicly reporting cases of hospital acquired infections and process measures for preventing the spread of HAI's based on national guidelines.

Program Information

- [Mission Statement, Core Values, Goals](#)
- [HAI Program Plan \(PDF, New Window\)](#)
- [HAI Program History](#)
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Resources for Infection Prevention Programs

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Consumer Guide to Infection Prevention

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- [Consumer Guide to Understanding the Data](#)

The Healthcare Associated Infections Advisory Committee

- [HAI Advisory Committee](#)

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- [Infections and Infection Control Guidelines \(PDF, New Window\)](#)



Healthcare Associated Infections (HAI) Program -- Contact Us

We are located at:

Healthcare Associated Infections Program
California Department of Public Health
Center for Healthcare Quality
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What is MRSA?

Methicillin-resistant *Staphylococcus Aureus* (MRSA) is a type of staph bacteria that is resistant to certain antibiotics called beta-lactams. These antibiotics include methicillin and other more common antibiotics such as oxacillin, penicillin, and amoxicillin.

In the community, most MRSA infections are skin infections. More severe or potentially life-threatening MRSA infections occur most frequently among patients in healthcare settings. While 25% to 30% of people are colonized* in the nose with staph, less than 2% are colonized with MRSA (Gorwitz RJ et al. Journal of Infectious Diseases. 2008;197:1226-34.).

*Colonized:

When a person carries the organism/bacteria but shows no clinical signs or symptoms of infection. For *Staph aureus* the most common body site colonized is the nose.

Resources:

<http://www.cdc.gov/mrsa/index.html>

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MRSA Statistics

The following is a summary of the data presented in the article "[Invasive Methicillin-Resistant *Staphylococcus aureus* Infections in the United States](#)" [PDF - 9 pages] published in the *Journal of the American Medical Association* 2007;298(15):1763-1771.

The estimated number of people developing a serious MRSA infection (i.e., invasive) in 2005 was about 94,360; this is higher than estimates using other methods.

Approximately 18,650 persons died during a hospital stay related to these serious MRSA infections.

Serious MRSA disease is still predominantly related to exposures to healthcare delivery:

About 85% of all invasive MRSA infections were associated with healthcare, and of those, about two-thirds occurred outside of the hospital, while about one third occurred during hospitalization.

About 14% of all the infections occurred in persons without obvious exposures to healthcare.

Although the rates of disease varied between the geographically diverse sites participating in the surveillance, overall rates of disease were consistently highest among older persons (age >65), Blacks, and males.

Evaluation of the pathogens causing these infections confirmed that most of the strains associated with these serious MRSA infections were caused by strains traditionally associated with healthcare. However, the strains traditionally associated with transmission in the community are now being identified in healthcare.

More Statistics:

[S. aureus and MRSA Surveillance Summary](#)

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***S. aureus* and MRSA Surveillance Summary**

In 2005, there were an estimated 478,000 hospitalizations with a diagnosis of *S. aureus* infection in U.S. hospitals. Of these approximately 278,000 hospitalizations were related to MRSA. This includes people admitted to the hospital for treatment of an infection that was acquired or occurred outside the hospital. ([Klein E et al. *Emerging Infectious Diseases*. 2007;13:1840-6.](#))

In Hospitals

The proportion of healthcare-associated staphylococcal infections that are due to MRSA has been increasing: 2% of *S. aureus* infections in U.S. intensive-care units were MRSA in 1974, 22% in 1995, and 64% in 2004. ([Klevens RM et al. *Clinical Infectious Diseases* 2006;42:389-91](#))

More recent evaluations have documented a stabilization of this trend, with only 56% of device-associated infections with *S. aureus* reported as MRSA in 2006-2007 (Hidron AI et al. *Infect Control Hosp Epidemiol* 2008;29:996-1011)

The most recent estimates of the incidence of healthcare-associated infections with MRSA show decreases in these infections in the U.S.

Incidence of MRSA central line-associated bloodstream infections reported from hundreds of different intensive care units have decreased 50-70% between 2001 and 2007 (Burton D, et. al *JAMA*. 2009;301(7):727-736)

A separate system tracking MRSA bloodstream infections from all types of hospitalized patients demonstrated a 34% decrease in incidence of these infections among hospitalized patients between 2005 and 2008 (Kallen A, et. al., *JAMA*, 2010 in press).

Invasive Infections

In 2005, about 94,000 persons developed their first invasive (i.e., serious) MRSA infection, of which approximately 19,000 died. Of these infections, about 86% are healthcare-associated and 14% are community-associated. (Klevens et al. *Journal of the American Medical Association* 2007;[298\(15\):1763-1771](#) [[PDF 229KB/9 pages](#)])

National estimates of the number of invasive MRSA infections are [performed yearly](#).

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Prevention of MRSA Infections in Healthcare Settings

Basic infection control practices are key to the prevention and control of MRSA in healthcare settings. This page explains the key practices and other steps which will aid in preventing MRSA infections and the spread of MRSA. If an outbreak has occurred please contact your facility's infection preventionist or your local/state health department.

Standard Precautions, excerpted from the *Guideline for Isolation Precautions: Preventing Transmission of Infectious Agents in Healthcare Settings 2007*, should control the spread of MRSA in most instances. Standard Precautions should be used for all patient care.

<http://www.cdc.gov/mrsa/prevent/healthcare/precautions.html#standard>

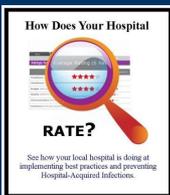
Contact Precautions

CDC recommends contact precautions for MRSA. Further recommendations can be found in the guideline [Management of Multidrug-Resistant Organisms in Healthcare Settings, 2006](#)

Visitors of Infected Patients

When visiting MRSA patients, individuals should follow the facility's visitor policies. Casual contact—such as kissing, hugging, and touching—is usually acceptable. Visitors should avoid touching catheters or wound sites and should wash their hands before leaving an infected person's room.

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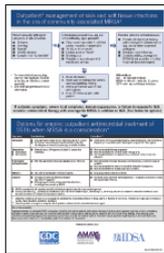
Information for Healthcare Professionals Treating MRSA Skin Infections

Incision and drainage constitutes the primary therapy for these purulent skin infections. Empiric antimicrobial coverage for MRSA may be warranted in addition to incision and drainage based on clinical assessment (e.g., presence of systemic symptoms, severe local symptoms, immune suppression, extremes of patient age, infections in a difficult to drain area, or lack of response to incision and drainage alone).

Antibiotic treatment, if indicated, should be guided by the susceptibility profile of the organism. Obtaining specimens for culture and susceptibility testing is useful to guide therapy, particularly for those with more severe infections and those who fail to respond adequately to initial management.

MRSA skin infections can develop into more serious infections. It is important to discuss a follow-up plan with your patients in case they develop systemic symptoms or worsening local symptoms, or if symptoms do not improve within 48 hours.

Additional Reading: Abscess Incision and Drainage Fitch ME, Manthey DE, McGinnis HD, Nicks BA, Pariyadath M. Abscess Incision and Drainage. NEJM Videos in Clinical Medicine;359:e20. November 8, 2007



Printable Poster, Flyer, and Pocket Card

[Outpatient Management of Skin and Soft Tissue Infections \(SSTIs\)](#) Downloadable and printable materials to assist clinicians evaluating and treating skin and soft tissue infections in the era of community- associated MRSA.

<http://www.cdc.gov/mrsa/treatment/outpatient-management.html>

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Distinguishing CA-MRSA from HA-MRSA *Based on Patient History*

Persons with MRSA infections that meet all of the following criteria likely have CA-MRSA infections:

Diagnosis of MRSA was made in the outpatient setting or by a culture positive for MRSA within 48 hours after admission to the hospital.

- No medical history of MRSA infection or colonization.
- No medical history in the past year of:
 - Hospitalization
 - Admission to a nursing home, skilled nursing facility, or hospice
 - Dialysis
 - Surgery
- No permanent indwelling catheters or medical devices that pass through the skin into the body.

Biological Differences of CA-MRSA and HA-MRSA

Recently recognized outbreaks of MRSA in community settings have been associated with strains that have some unique microbiologic and genetic properties compared with the traditional hospital-based MRSA strains, suggesting some biologic properties (e.g., virulence factors) may allow the community strains to spread more easily or cause more skin disease. Additional studies are underway to characterize and compare the biologic properties of HA-MRSA and CA-MRSA strains.

There are at least three different *S. aureus* strains in the United States that can cause CA-MRSA infections. CDC continues to work with state and local health departments to gather organisms and epidemiologic data from known cases to determine why certain groups of people get these infections.

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What is a Multidrug Resistant Organism?



What is an MDRO infection?

An MDRO is a strain of bacteria that is resistant to common antibiotics used to treat infections. Infections can vary, depending on the organism. MDROs can cause skin infections (boils, abscesses), urinary tract infections, blood stream infections, and pneumonia, and they can infect wounds, the respiratory tract and surgical sites.

Who can get an MDRO infection?

Anyone is susceptible to contracting an MDRO. You are more likely to get an MDRO infection if you have:

- Non-intact skin and skin-to-skin contact with a person with an MDRO
- Shared personal items with a person with an MDRO
- Poor personal hygiene
- An underlying medical condition, or
- Invasive procedures, devices, or repeated contact with the healthcare system

How are MDRO infections spread and how long do MDROs live in the environment?

Most MDRO infections are spread from person to person via skin-to-skin contact with people diagnosed with an MDRO or by using a shared personal item or environment contaminated with an MDRO. MDROs can live in the environment anywhere from 24 hours to a week, depending on the organism.

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What is a catheter-associated bloodstream infection?

A “central line” or “central catheter” is a tube that is placed into a patient’s large vein, usually in the neck, chest, arm, or groin. The catheter is often used to draw blood, or give fluids or medications. It may be left in place for several weeks. A bloodstream infection can occur when bacteria or other germs travel down a “central line” and enter the blood. If you develop a catheter-associated bloodstream infection you may become ill with fevers and chills or the skin around the catheter may become sore and red.

[What are some of the things that hospitals are doing to prevent catheter-associated bloodstream infections?](#)

To prevent catheter-associated bloodstream infections doctors and nurses will:

- Choose a vein where the catheter can be safely inserted and where the risk for infection is small.
- Clean their hands with soap and water or an alcohol-based hand rub before putting in the catheter.
- Wear a mask, cap, sterile gown, and sterile gloves when putting in the catheter to keep it sterile. The patient will be covered with a sterile sheet.
- Clean the patient’s skin with an antiseptic cleanser before putting in the catheter.
- Clean their hands, wear gloves, and clean the catheter opening with an antiseptic solution before using the catheter to draw blood or give medications. Healthcare providers also clean their hands and wear gloves when changing the bandage that covers the area where the catheter enters the skin.
- Decide every day if the patient still needs to have the catheter. The catheter will be removed as soon as it is no longer needed.
- Carefully handle medications and fluids that are given through the catheter.

[What can I do to help prevent a catheter-associated bloodstream infection?](#)

- Ask your doctors and nurses to explain why you need the catheter and how long you will have it.

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What is a Central Line-Associated Bloodstream Infection (CLABSI)?

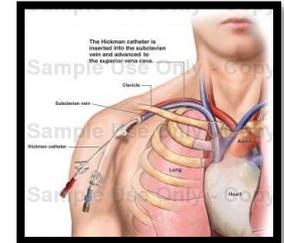
An estimated 248,000 bloodstream infections occur in U.S. hospitals each year. It is believed that a large proportion of these are associated with the presence of a central vascular catheter, though this is an area where more study is needed.

For the purposes of NHSN, such infections are termed central line-associated bloodstream infections (CLABSI). Bloodstream infections are usually serious infections typically causing a prolongation of hospital stay and increased cost and risk of mortality.

CLABSI can be prevented through proper management of the central line. These techniques are addressed in the CDC's Healthcare Infection Control Practices Advisory Committee (CDC/HIPAC) *Guidelines for the Prevention of Intravascular Catheter*

Central line: An intravascular catheter that terminates at or close to the heart or in one of the great vessels which is used for infusion, withdrawal of blood, or hemodynamic monitoring. The following are considered great vessels for the purpose of reporting central-line BSI and counting central-line days in the NHSN system: Aorta, pulmonary artery, superior vena cava, inferior vena cava, brachiocephalic veins, internal jugular veins, subclavian veins, external iliac veins, common iliac veins, common femoral veins, and in neonates, the umbilical artery/vein.

Infusion: The introduction of a solution through a blood vessel via a catheter lumen. This may include continuous infusions such as nutritional fluids or medications, or it may include intermittent infusions such as flushes or IV antimicrobial administration, or blood, in the case of transfusion or hemodialysis.



http://www.cdc.gov/nhsn/pdfs/pscmanual/4psc_clabscurrent.pdf



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CLABSI Background and Resources

Forty-eight percent of ICU patients have central venous catheters, accounting for about 15 million central venous catheter days per year in ICUs.

- There are approximately 5.3 CR-BSIs per 1,000 catheter-days in ICUs.
- The attributable mortality for CR-BSIs is approximately 18%. Thus, there are probably about 14,000 deaths annually due to CR-BSIs in ICUs. Some estimates have put this figure as high as 28,000 deaths per year.
- The Centers for Disease Control and Prevention (CDC) issued a guideline for prevention of CR-BSI in 2002.
- The Institute of Medicine has identified the prevention of nosocomial infections, including CR-BSI, as a priority area for national action.
- The Joint Commission on Accreditation of Healthcare Organizations (JCAHO) has included reducing the risk of health-care associated infections, including CR-BSI, in its 2005 National Patient Safety Goals.

<http://www.ihi.org/NR/rdonlyres/6EC98A37-8B5E-4821-B0FE-DA1AB651D834/0/CentralLineInfectionsPtsandFam.pdf>

http://www.ihi.org/NR/rdonlyres/C377496B-2A87-44A3-A47C-C28EB33712B8/0/CentralLineInfectionsPtsandFam_Spanish_.pdf

<http://www.ihi.org/IHI/Topics/CriticalCare/IntensiveCare/Tools/CentralLineInsertionChecklist.htm>

<http://www.guideline.gov/content.aspx?id=13395>

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Hand Hygiene for Patients and Visitors

“Hand Washing is the single most important means of preventing the spread of infection” - CDC



- **80 percent of all infections are spread by dirty hands.**
- **Your hands become contaminated when you touch just about anything.**
 - 94% of money is contaminated, yet only 21% of people wash their hands after handling money.
 - 500 times more germs can live on office desks and telephones than on the typical public toilet seat.
 - Flu viruses can survive on surfaces up to 8 hours.
 - A sneeze may produce up to 40,000 contaminated droplets traveling a speed of more than 200 miles per hour. Those droplets can stay in the air for hours.
- **Soap and water kill most germs.**
- **If you don't have a tissue, cough or sneeze into your upper sleeve or elbow, not your hands.**
- **Wash your hands often with soap and warm water for 20 seconds. If soap and water are not available, use an alcohol-based hand rub.**

<http://www.cdc.gov/cleanhands/>

<http://www2c.cdc.gov/podcasts/player.asp?f=11072>

<http://www.cdc.gov/cdctv/handstogether/>

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Hand Hygiene in Healthcare Settings

Transmission of health-care--associated pathogens from one patient to another via the hands of HCWs requires the following sequence of events:



- Organisms present on the patient's skin, or that have been shed onto inanimate objects in close proximity to the patient, must be transferred to the hands of HCWs.
- These organisms must then be capable of surviving for at least several minutes on the hands of personnel.
- Next, handwashing or hand antisepsis by the worker must be inadequate or omitted entirely, or the agent used for hand hygiene must be inappropriate.
- Finally, the contaminated hands of the caregiver must come in direct contact with another patient, or with an inanimate object that will come into direct contact with the patient.

Health-care--associated pathogens can be recovered not only from infected or draining wounds, but also from frequently colonized areas of normal, intact patient skin.

<http://www.who.int/gpsc/5may/en/>

<http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5116a1.htm>

<http://www.apic.org/AM/AMTemplate.cfm?template=/CM/ContentDisplay.cfm&ContentID=9099>

http://www.shea-online.org/Assets/files/IHI_Hand_Hygiene.pdf

<http://www.ccforspatientsafety.org/common/pdfs/fpdf/presskit/PS-Solution9.pdf>

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What types of disease can good hand washing prevent?

Diseases spread through fecal-oral transmission. Infections which may be transmitted through this route include salmonellosis, shigellosis, hepatitis A, giardiasis, enterovirus, amebiasis, and campylobacteriosis. Because these diseases are spread through the ingestion of even the tiniest particles of fecal material, hand washing after using the toilet cannot be over-emphasized.

Diseases spread through indirect contact with respiratory secretions. Microorganisms which may be transmitted through this route include influenza, Streptococcus, respiratory syncytial virus (RSV) and the common cold. Because these diseases may be spread indirectly by hands contaminated by respiratory discharges of infected people, illness may be avoided by washing hands after coughing or sneezing and after shaking hands with an individual who has been coughing and sneezing.

Diseases may also be spread when hands are contaminated with urine, saliva or other moist body substances. Microorganisms which may be transmitted by one or more of these body substances include cytomegalovirus, typhoid, staphylococcal organisms, and Epstein-barr virus. These germs may be transmitted from person to person or indirectly by contamination of food or inanimate objects such as toys.

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This is just an example of what can be done **easily** and **inexpensively** with the existing CDPH Website.

All comments and suggestions welcome.

Thank you.

Alicia Cole

Consumer Advocate



Alliance for Safety Awareness for Patients