



## **Standard Precautions**

### **Overview**

In the early 1990s, in wake of several attempts to address public and professional fears about blood borne infections, hospitals were faced with a number of competing guidelines, precautions, and enforcement standards for infection control. To address this problem, the Centers for Disease Control and Prevention (CDC) issued a comprehensive set of guidelines that were made up of a synthesis of former Universal Precautions, Body Substance Isolation, and several disease- specific isolation guidelines. The term “Universal Precautions” is now more appropriately used in reference to the 1991 OSHA blood borne pathogen standard.

### **Purpose**

The purpose of this course is to provide healthcare workers with an understanding of health care acquired infections, also known as “nosocomial infections” and Standard Precautions techniques used to prevent the spread of infection.

### **Introduction**

Approximately 5% of all patients admitted to an acute care hospital each year acquire an infection while hospitalized. Direct cost of these hospital-acquired infections has been estimated at four billion dollars, and about 3% of the infections result in death. Authorities agree that one-third of all these health care-acquired infections, known as “nosocomial infections,” could have been prevented, and guidelines for prevention are continually being revised and updated by the CDC. The term "health care-acquired infection" refers to an infection that is not present or incubating when a patient is admitted to the hospital, but instead is acquired after admission. The rate of incidence is highest for health care-acquired urinary tract infections, followed by surgical wound infections, lower respiratory tract infections, and cutaneous infections. Other types of health care-acquired infections include blood stream, reproductive, central vascular system, and gastro-intestinal tract infections. The rate of incidence varies, depending on the specific patient care unit. Nosocomial infections caused by gram positive bacteria continue to be a serious problem, especially staphylococci and streptococci species. In fact, staphylococcus aureus remains the single most common organism implicated in health care-acquired surgical wound infection. Staphylococcus aureus is present normally in the mucous membranes of the nose and on the skin, especially the hands. Streptococcus pyogenes is normally found in the nose and throat and is commonly implicated in wound infections. But health care-acquired infections caused by gram-negative bacteria have been increasing. Infections caused by members of the enterobacteria family, such as E. Coli and serratia, and the genus pseudomonas, now account for 60 to 65 percent of all health care-acquired infections.

### **The Chain of Infection**

The chain of infection serves as the conceptual framework for infection control efforts because it defines the circumstances necessary for transmission of infectious disease. The chain begins with the causative agent or pathogen. To cause an infection, the pathogen must have a reservoir or habitat which supports propagation of the species, a portal of exit from the reservoir, a mode of transmission to a host, a portal of entry into the new host's body, and a susceptible host.



### **Hand Hygiene**

Routine hand hygiene is considered the single most important preventive measure in reducing the risk of health care-acquired infection. Many of the resident skin microorganisms are not highly virulent and are not implicated in infections other than skin infections. However, some of these microorganisms can cause infections when invasive procedures allow pathogens to enter deep tissues. By contrast, the transient microorganisms on the hands of hospital personnel may be acquired from colonized or infected patients, and may cause health care-acquired infections. It is the removal of this population of pathogens that makes routine hand hygiene imperative. Indications for routine hand hygiene are: before and after using gloves, before performing invasive procedures, before taking care of particularly susceptible patients, before providing wound care and after any activity in which microbial contamination is likely to occur. This includes contact with mucous membranes, blood and body fluids, excretions or secretions, and after touching equipment and devices that are likely to be contaminated, such as a urinal or a bedpan. The most recent CDC guideline states that when hands are visibly dirty or contaminated, they should be washed with soap and water. The recommended technique is wetting the hands first, and then rubbing hands together with soap vigorously for at least 15 seconds, covering all surfaces of the hands and fingers, followed by thorough rinsing under a stream of warm water. Hands should be dried with a disposable towel, and a towel should be used to turn off the faucet. If hands are not visibly soiled, they should be decontaminated with an alcohol-based antiseptic agent. Gloves provide additional protection for the patient and for the healthcare professional. For example, sterile gloves need to be worn when performing invasive procedures. Non-sterile gloves are to be worn when your hands are likely to become contaminated with potentially infectious material such as blood and other body fluids or secretions. Remember that hand hygiene remains important both before and after gloved procedures. Perforation of the glove would permit contamination of the hands, and gloved hands provide a good environment for rapid microbial growth.

### **Aseptic Technique**

The application of aseptic techniques in the performance of invasive procedures is another important responsibility in reducing the risk of transmitting microorganisms to the patient. Asepsis is defined as the absence of any infectious agents. Aseptic technique creates a barrier against transmission of microorganisms through the use of sterile instruments and supplies and the application of specific principles of asepsis.

### **Standard Precautions**

Standard Precautions synthesizes the major features of earlier recommendations and applies them to all patients receiving care in hospitals, regardless of their diagnosis or presumed infection status. Standard Precautions apply to: Blood, all body fluids, secretions, and excretions except sweat, regardless of whether or not they contain visible blood, non-intact skin and mucous membranes. Standard Precautions are designed to reduce the risk of transmission of microorganisms from both recognized and unrecognized sources of infection in hospitals. Observing Standard Precautions will satisfy OSHA's Universal Precautions regulation, provided that all other provisions of the OSHA regulation are met. Since patient examination and medical history cannot reliably identify every patient with blood borne pathogens, Standard Precautions apply to all patients. You must assume all patients are carrying blood borne pathogens such as HIV or hepatitis B or C. Transmission of blood borne pathogens takes place by



parenteral, mucous membrane, or non-intact skin exposure to blood and other body substances. You must take precautions whenever contact is likely with blood, mucous membranes, non-intact skin or any body substance except sweat. The risk of infection can be minimized if all healthcare workers use the following Standard Precautions guidelines.

### **Recommendations**

Before reviewing HICPAC's Standard Precaution guidelines below, remember that the guidelines are limited to the topic of isolation precautions. Therefore, they must be supplemented by hospital policies and procedures for other aspects of infection and environmental control, occupational health, administrative and legal issues, and other issues beyond the scope of this guideline.

#### **A. Hand washing**

(1) Wash hands after touching blood, body fluids, secretions, excretions, and contaminated items, whether or not gloves are worn. Wash hands immediately after gloves are removed, between patient contacts, and when otherwise indicated to avoid transfer of microorganisms to other patients or environments. It may be necessary to wash hands between tasks and procedures on the same patient to prevent cross-contamination of different body sites.

(2) Use a plain (non-antimicrobial soap) for routine hand washing.

(3) Use an antimicrobial agent or a waterless antiseptic agent for specific circumstances (e.g., control of outbreaks or hyper endemic infections), as defined by the infection control program.

#### **B. Gloves**

Wear gloves (clean, non-sterile gloves are adequate) when touching blood, body fluids, secretions, excretions, and contaminated items. Put on clean gloves just before touching mucous membranes and non-intact skin. Change gloves between tasks and procedures on the same patient after contact with material that may contain a high concentration of microorganisms. Remove gloves promptly after use, before touching non-contaminated items and environmental surfaces, and before going to another patient, and wash hands immediately to avoid transfer of microorganisms to other patients or environments.

#### **C. Patient-Care Equipment**

Handle used patient-care equipment soiled with blood, body fluids, secretions, and excretions in a manner that prevents skin and mucous membrane exposures, contamination of clothing, and transfer of microorganisms to other patients and environments. Ensure that reusable equipment is not used for the care of another patient until it has been cleaned and reprocessed appropriately. Ensure that single items are discarded properly.

#### **D. Environmental Control**

Ensure that the hospital has adequate procedures for the routine care, cleaning, and disinfection of environmental surfaces, beds, bedrails, bedside equipment, and other frequently touched surfaces, and ensure that these procedures are being followed.

#### **E. Linen**

Handle, transport, and process used linen soiled with blood, body fluids, secretions, and excretions in a manner that prevents skin and mucous membrane exposures and contamination of clothing and that avoids transfer of microorganisms to other patients and environments or other alternatives.



### **Conclusion**

Infection control in the hospital is a responsibility of every healthcare professional. This program has reviewed basic principles underlying infection control measures and has demonstrated specific guidelines for standard precautions and post-exposure prophylaxis. Conscientious application of these principles and effective communication about the presence of infectious disease are essential to your hospital's effort to protect patients, staff, and others in the acute care environment.