Core Infection Prevention and Control Practices for Safe Healthcare Delivery in All Settings

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Introduction

- Infection prevention and control practices is essential to providing safe and high quality patient care across all settings where healthcare is delivered
- I intend to present a core set of infection prevention and control practices that are required in all healthcare settings, regardless of the type of healthcare provided.
- The practices outlined in this presentation are intended to serve as a standard reference and reduce the need to repeatedly evaluate practices that are considered basic and accepted as standards of medical care. Attendess should consult the full texts of CDC healthcare infection control guidelines for background, rationale, and related infection prevention recommendations for more comprehensive information. I will provide a reference page

Government Control Organizations

- CDC

Center for Disease

Control

- OSHA

Occupation and Health Safety Association

State and local government workersarenot regulated by OSHA

Scope (out patient focus)

- The core practices presented should be implemented in all settings where healthcare is delivered. These venues include both inpatient settings (e.g., acute, long-term care) and outpatient settings (e.g., clinics, urgent care, ambulatory surgical centers, imaging centers, dialysis centers, physical therapy and rehabilitation centers, alternative medicine clinics). In addition, these practices apply to healthcare delivered in settings other than traditional healthcare facilities, such as homes, assisted living communities, pharmacies, and health fairs.
- Healthcare personnel (HCP) referred to in this presentation include all paid and unpaid persons serving in healthcare settings who have the potential for direct or indirect exposure to patients or infectious materials, including body substances, contaminated medical supplies, devices, and equipment; contaminated environmental surfaces; or contaminated air.

How Infections Spread

Germs are a part of everyday life and are found in our air, soil, water, and in and on our bodies. Some germs are helpful, others are harmful. Many germs live in and on our bodies without causing harm and some even help us to stay healthy. Only a small portion of germs are known to cause infection.

How Do Infections Occur?

An infection occurs when germs enter the body, increase in number, and cause a reaction of the body.

Three things are necessary for an infection to occur:

Source: Places where infectious agents (germs) live (e.g., sinks, surfaces, human skin)

Susceptible Person with a way for germs to enter the body

Transmission: a way germs are moved to the susceptible person

Source

A Source is an infectious agent or germ and refers to a virus, bacteria, or other microbe.

In healthcare settings, germs are found in many places. People are one source of germs including:

Patients

Healthcare workers

Visitors and household members

People can be sick with symptoms of an infection or colonized with germs (not have symptoms of an infection but able to pass the germs to others).

Germs are also found in the healthcare environment.

Examples of environmental sources of germs include:

Dry surfaces in patient care areas (e.g., bed rails, medical equipment, countertops, and tables)

Wet surfaces, moist environments, and biofilms (e.g., cooling towers, faucets and sinks, and equipment such as ventilators)

Indwelling medical devices (e.g., catheters and IV lines)

Dust or decaying debris (e.g., construction dust or wet materials from water leaks)

Susceptible Person

- A susceptible person is someone who is not vaccinated or otherwise immune, or a person with a weakened immune system who has a way for the germs to enter the body. For an infection to occur, germs must enter a susceptible person's body and invade tissues, multiply, and cause a reaction.
- Devices like IV catheters and surgical incisions can provide an entryway, whereas a healthy immune system helps fight infection.
- When patients are sick and receive medical treatment in healthcare facilities, the following factors can increase their susceptibility to infection.

Susceptible Person Continued

- Patients in healthcare who have underlying medical conditions such as diabetes, cancer, and organ transplantation are at increased risk for infection because often these illnesses decrease the immune system's ability to fight infection.
- Certain medications used to treat medical conditions, such as antibiotics, steroids, and certain cancer fighting medications increase the risk of some types of infections.
- Lifesaving medical treatments and procedures used in healthcare such as urinary catheters, tubes, and surgery increase the risk of infection by providing additional ways that germs can enter the body.
- Recognizing the factors that increase patients' susceptibility to infection allows providers to recognize risks and perform basic infection prevention measures to prevent infection from occurring.
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Infection Control Basics

Infection Control Basics
There are 2 tiers of recommended precautions to prevent the spread of infections in healthcare settings:

Standard Precautions

Transmission-Based Precaution

Standard Precautions for All Patient Care

Standard Precautions are used for all patient care. They're based on a risk assessment and make use of common sense practices and personal protective equipment use that protect healthcare providers from infection and prevent the spread of infection from patient to patient

Transmission

- Transmission refers to the way germs are moved to the susceptible person.
- Germs don’t move themselves. Germs depend on people, the environment, and/or medical equipment to move in healthcare settings.
- There are a few general ways that germs travel in healthcare settings – through contact (i.e., touching), sprays and splashes, inhalation, and sharps injuries (i.e., when someone is accidentally stuck with a used needle or sharp instrument).

Contact

- Contact moves germs by touch (example: MRSA or VRE). For example, healthcare provider hands become contaminated by touching germs present on medical equipment or high touch surfaces and then carry the germs on their hands and spread to a susceptible person when proper hand hygiene is not performed before touching the susceptible person.

Sprays and Splashes

- splashes occur when an infected person coughs or sneezes, creating droplets which carry germs short distances (within approximately 6 feet). These germs can land on a susceptible person's eyes, nose, or mouth and can cause infection (example: pertussis or meningitis).

Close Range Inhalation

- occurs when a droplet containing germs is small enough to breathe in but not durable over distance.

Inhalation

- occurs when germs are aerosolized in tiny particles that **survive on air currents over great distances** and time and reach a susceptible person. Airborne transmission can occur when infected patients cough, talk, or sneeze germs into the air (example: TB or measles), or when germs are aerosolized by medical equipment or by dust from a construction zone (example: Nontuberculous mycobacteria or aspergillus).

Sharps

- injuries can lead to infections (example: HIV, HBV, HCV) when bloodborne pathogens enter a person through a skin puncture by a used needle or sharp instrument.

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Standard Precaution Continued

- Perform Hand Hygiene
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- Use Personal Protective Equipment (PPE) whenever there is an expectation of possible exposure
- To infectious material.
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- Follow respiratory hygiene/ cough etiquette principles
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- Ensure appropriate patient placement(isolation precautions)
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- Properly handle and properly clean and disinfect patient care equipment and instruments/devices
- Clean and disinfect the enviornment appropriately
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- Handle textiles and laundry carefully
- Follow safe injection practices
- Wear a surgical mask whrn performing lumbar punctures
- Ensure healthcare worker safety including proper handling of needles and sharps

Environmental Infection Control Guidelines

- *Environmental Infection Control in Health-Care Facilities*, provides a comprehensive review of the scientific literature. Attention is given to engineering and infection-control concerns during construction, demolition, renovation, and repairs of health-care facilities. Use of an infection-control risk assessment is strongly supported before the start of these or any other activities expected to generate dust or water aerosols. Infection-control measures used to recover from catastrophic events (e.g., flooding, sewage spills, loss of electricity and ventilation, and disruption of the water supply) and the limited effects of environmental surfaces, laundry, plants, animals, medical wastes, cloth furnishings, and carpeting on disease transmission in healthcare facilities.

Disinfection & Sterilization

- The Guideline for Disinfection and Sterilization in Healthcare Facilities, 2008, presents evidence-based recommendations on the preferred methods for cleaning, disinfection and sterilization of patient-care medical devices and for cleaning and disinfecting the healthcare environment.

Disinfection

- maximum effectiveness from disinfection and sterilization results from first cleaning and removing organic and inorganic materials. The chemical disinfectants discussed for patient-care equipment include alcohols, glutaraldehyde, formaldehyde, hydrogen peroxide, iodophors, *ortho*-phthalaldehyde, peracetic acid, phenolics, quaternary ammonium compounds, and chlorine. The choice of disinfectant, concentration, and exposure time is based on the risk for infection associated with use of the equipment.

Sterilization Methods

- When properly used, these cleaning, disinfection, and sterilization processes can reduce the risk for infection associated with use of invasive and noninvasive medical and surgical devices. However, for these processes to be effective, health-care workers should adhere strictly to the cleaning, disinfection, and sterilization recommendation and to instructions on product labels.

Definition of Terms

- Sterilization
- Disinfection

Management of Multidrug-Resistant Organisms in Healthcare Settings

- Despite the volume of literature, an appropriate set of evidence-based control measures that can be universally applied in all healthcare settings has not been definitively established.
- Healthcare facilities must not accept ongoing MDRO outbreaks or high endemic rates as the status quo. With selection of infection control measures appropriate to their situation, all facilities *can achieve* the desired goal and reduce the MDRO burden substantially.
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Management

- General Clinic Policy

Written policy

For each department within the facility

i.e. Dental, Medical, Mental Health, Pharmacy

FQHC federal government funded

Native American Clinics federal funded

Becomes a issue when applying for Grant opportunities federal or other

Infectious Diseases

- *Acinetobacter*
- *Burkholderia cepacia*
- *Candida auris*
- *Clostridioides difficile*
- *Clostridium Sordellii*
- Enterobacterales (carbapenem-resistance)
- ESBL-producing Enterobacterales
- Gram-negative bacteria
- Hepatitis
- Human Immunodeficiency Virus (HIV/AIDS)
- Influenza
- *Klebsiella*
- Methicillin-resistant *Staphylococcus aureus* (MRSA)
- Nontuberculous Mycobacteria (NTM)
- Norovirus
- *Pseudomonas aeruginosa*
- *Staphylococcus aureus*
- Tuberculosis (TB)
- Vancomycin-intermediate *Staphylococcus aureus* and Vancomycin-resistant *Staphylococcus aureus*
- *Clostridioides difficile*
- *Covid-19*