# Local and Tribal Health Department Healthcare-Associated Infection (HAI) and Infection Prevention Training Workbook

Workbook 2: Prevention and Control of Infectious Agents

WISCONSIN DEPARTMENT of HEALTH SERVICES

Wisconsin Healthcare-Associated Infections Prevention Program

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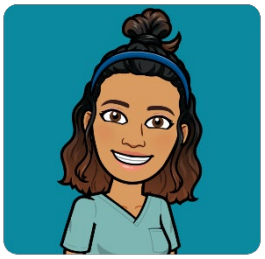
# How to Use this Workbook

This workbook covers a number of topics in a variety of different formats to help local and Tribal health departments (LTHDs) increase their knowledge on HAIs and infection prevention and control practices. The scenarios and questions included in this workbook are intended to enhance your own, self-paced learning. Each workbook includes a list of learning objectives, self-paced learning activities, links to additional helpful resources related to a given topic, and an answer key.

### Meet Izzy



Throughout the program, you will follow Izzy, a communicable disease investigator at her local health department in charge of all things infection control. Using what you learn in each section, you will help Izzy provide infection control consultation and assistance to those in her jurisdiction.

# Workbook 2 Objectives

By the end of this workbook, you will be able to:

- Describe how germs can spread in health care settings.
- Identify the types of isolation precautions.
- Identify which type of precaution is most appropriate for specific diseases.
- Identify appropriate personal protective equipment (PPE) for each type of precaution.
- Differentiate when alcohol-based hand rub (ABHR) is appropriate versus soap and water for hand hygiene.

# Workbook 2 Activities

## Activity 1: Sources of infection 1 hour

1. Review the CDC (Centers for Disease Control and Prevention) webpage: Infection Control Basics.

    a. Name three sources of germs in a health care setting.

    b. Describe four ways that germs can be transmitted in a health care setting?

2. Review the CDC's Introduction to Epidemiology Chain of Infection Components webpage.

    a. What is a portal of exit? What is a portal of entry?

    b. True or false: Direct transmission refers to the transfer of infectious agent from a reservoir to a host by suspended air particles, vehicles, or vectors.

    c. What is the final link in the chain of infection?

3. Review the Association for Professionals in Infection Control and Epidemiology (APIC) Break the Chain of Infection factsheet.

    a. What are three modes of transmission?

    b. Related to infection control, what are three ways you can break the chain of infection?

## Activity 2: Recommended precautions 2 hours

There are many different ways that germs can spread and cause infections. For example, germs can spread through contact, sprays and splashes, and inhalation. This is why following precautions appropriate to a specified infection or condition is important in preventing transmission in a health care setting.

There are three sets of recommended precautions to prevent spread of infections.

- **Standard precautions** are used for all patients, residents, clients, and staff regardless of what you know or do not know about them. All care is to be provided using standard precautions.

They are the minimum expectation. Employees can go beyond those expectations, but not below. Standard precautions help keep health care workers, patients and residents, and those in the environment safe.

- **Transmission-based precautions**, also referred to as isolation precautions, are practices used in addition to standard precautions for added protection based on the suspected or identified pathogen. They prevent transmission of infection from person-to-person via staff, shared environments, medical equipment, or other devices.
- **Enhanced barrier precautions** involve the use of gown and gloves during high-contact care activities in order to reduce transmission of multidrug-resistant organisms (MDROs) in nursing homes.

Browse the following CDC webpages on standard and transmission-based precautions and enhanced barrier precautions. These are also helpful resources to bookmark and reference if you receive questions from colleagues or health care partners.

- Standard Precautions for All Patient Care webpage: See additional information on elements of standard precautions. This page can also serve as a great resource for you as you continue to assist facilities in your jurisdiction in infection prevention and control topic areas.
- Transmission-Based Precautions webpage: Learn about the different types of precautions, including contact, droplet, and airborne. This page also provides the appropriate room placements, PPE use, cleaning and disinfection methods for each precaution, and proper signage.
- Implementation of Personal Protective Equipment (PPE) Use in Nursing Homes to Prevent the Spread of Multidrug-resistant Organisms (MDROs): See key points regarding the use of enhanced barrier precautions in nursing homes.
- Clinical Syndromes or Conditions Warranting Empiric Transmission-Based Precautions in Addition to Standard Precautions: Find information on the different types of diseases or conditions require different types of precautions.
- Type and Duration of Precautions Recommended for Selected Infections and Conditions: Use this resource to see recommendations for the type and duration of precautions for many more infections and conditions.

1. **Scenario:** Izzy gets a call from Riverview Nursing Home regarding a few residents who are experiencing watery diarrhea and abdominal pain for the past three days. Use the resources listed above to help you answer the following questions.

   a. The nursing home tells Izzy that the staff who are helping with toileting and changing briefs are following standard precautions. But Izzy wonders if additional precautions are necessary. Which of the resources listed above will help Izzy determine what type of transmission-based precautions, if any, staff in the facility should take when caring for symptomatic residents?

**b.** What type of transmission-based precautions (contact, droplet, or airborne), if any, should the staff caring for symptomatic residents implement prior to providing care?

**c.** What type of PPE, if any, should be used?

2. **Scenario:** Izzy is helping Clear Bluff Nursing Home prepare to admit a new resident who is currently having symptoms of respiratory infection. Testing is currently underway to identify the potential pathogen causing the infection. Use the resources listed above to help you answer the following questions.

   **a.** The director of nursing calls Izzy and asks her what transmission-based precautions, if any, should be used when the resident is admitted. What should Izzy tell the director of nursing?

   **b.** The director of nursing then asks what type of PPE should be used. What should Izzy tell her?

   **c.** Testing confirms the resident has RSV. What precaution(s) should be utilized?

   **d.** According to Type and Duration of Precautions Recommended for Selected Infections and Conditions, how long should the resident remain on precautions?

3. **Scenario:** Izzy is working closely with Sunny Vale Nursing Home to implement enhanced barrier precautions (EBPs) at their facility. A resident has recently tested positive during screening for colonization with carbapenemase-producing Carbapenem-resistant *Acinetobacter baumannii* (CP-CRAB), a multidrug-resistant organism (MDRO). Staff at the facility ask Izzy the following questions. (**Hint:** Refer to the Implementation of Personal Protective Equipment (PPE) Use in Nursing Homes to Prevent the Spread of Multidrug-resistant Organisms (MDROs) guidance document and accompanying frequently asked questions for help.)

   **a.** Should the resident be placed on EBPs?

   **b.** Should the resident be placed in a single-person room because of his colonization status? Why or why not?

**c.** The resident's roommate currently uses an indwelling catheter. Should the roommate also be placed on EBPs?

**d.** How long should the resident remain on EBPs?

**e.** During which types of activities or situations should PPE be used when caring for the resident?

## Activity 3: Personal protective equipment 1 hour

1. Review DHS's personal protective equipment (PPE) webpage to learn more about the types of PPE and when they should be worn.

    **a.** PPE protects against exposure from _____, _____, and _____.

2. Complete the "Choosing the Right PPE for COVID-19" and "Choosing the Right PPE Throughout Your Workday" interactive activities (10 minutes).

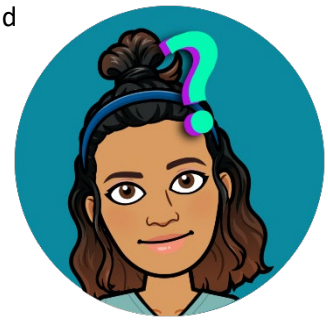
## Activity 4: Hand hygiene 1 hour and 15 minutes

1. Take the CDC hand hygiene interactive education course (30 minutes).

2. Review the fact sheet on moments for hand hygiene from the World Health Organization (WHO).
    **a.** List all moments for hand hygiene.

## Activity 5: The *C. difficile* scenario 30 minutes

Watch the video, "*C.diff* – How it Spreads, Symptoms & Prevention," then read the following situation and answer the corresponding questions.



**a.** Situation: A nursing home resident develops multiple episodes of loose stool during a nurse's shift.

- Fill in the blank: The resident should be placed on _____ precautions.

- True or false: It is not necessary for visitors to take precautions while visiting the resident in the nursing home.

- What else should be done as part of outbreak response?

**b.** Situation: The resident's stool was sent to the lab for testing. It was confirmed that the resident has an active *C. difficile* infection.

- How long should the resident be placed on precautions? Hint: Use CDC Appendix A to help answer this question.

## Activity 6: Employee health relationship with infection prevention 30 minutes

Watch North Carolina's Statewide Program for Infection Control and Epidemiology (SPICE) video (15 minutes) for an overview of the relationship between infection preventionists and employee health.

**a.** What strategies can you think of that would help prevent a culture of presenteeism in a workplace, especially in health care?

**b.** Name a few examples of infection prevention measures and programs that may be implemented by employee health programs to protect patients and health care workers.

**c.** Employee heath and infection prevention roles often overlap or are even one in the same. Reflect on your experience either working with an employee health colleague or you yourself doing in employee health job responsibilities. How did you work together? What are some examples of things that you worked on?

## Activity 7: Exposure response

15 minutes

Review the CDC webpage, "Management of Potentially infectious Exposure and Illnesses."

**a.** What are ways in which health care personnel (HCP) can be exposed to potentially infectious material?

**b.** What are some factors to consider when identifying whether an exposure occurred?

**c.** How does the idea of "presenteeism" affect exposure and illness management?

**d.** What is an example of a federal requirement for exposure and illness management?

**e.** True or false: Performing testing is sometimes a part of the exposure response and management process.

## Activity 8: Immunization programs

15 minutes

Review the CDC Infection Control in Healthcare Personnel Immunization Program and vaccine information for adults webpages.

**a.** List four elements of an effective immunization program.

**b.** What barriers to immunization for health care workers exist and what strategies would you implement to improve vaccination coverage in a health care facility?

**c.** Which vaccines are recommended for health care workers?

# Additional Resources

**The following are optional readings, articles, and other resources for information on the topics covered in Workbook 2.**

**Standard precautions**
CDC provides recommendations for the application of standard precautions for the care of all patients.

**Hand hygiene**

- Take the CDC Hand Hygiene, Glove Use, and Preventing Transmission of *C. difficile* training.
- Listen to the CDC Project Firstline hand hygiene video.

**Employee health**

- Read the commentary on required vaccinations for health care workers in the *Pharmacy and Therapeutics Journal*, volume 34, issue 11.
- Read the article from *Infection Control Today* on occupational health and its relationship with infection prevention.
- Read a literature review of presenteeism among health care workers in the *Brazilian Journal of Occupational Medicine*, volume 18, issue 1.

**Exposure response**
View the fact sheets on TB exposure response in health care settings:

- CDCs' TB Infection Control in Health-Care Settings factsheet.
- DHS' Tuberculosis Screening and Testing: Health Care Personnel (HCP) and Caregivers (including assisted living staff) fact sheet.

# Workbook Key

## Activity 1: Sources of infection

1. *(a.) People; dry surfaces (bed rains, medical equipment, countertops, tables); wet surfaces, moist environments, and biofilm; cooling towers, faucets, and sinks; indwelling medical devices (catheters and IVs); dust or decaying debris. (b.) Physical contact, sprays and splashes, inhalation, sharp injuries*
2. *(a.) Portal of exit = the path by which a pathogen leaves its host; Portal of entry = the manner in which a pathogen enters a susceptible host. (b.) False. (c.) Susceptible host.*
3. *(a.) Contact (direct and indirect); ingestion; inhalation. (b.) hand hygiene, personal protective equipment; cleaning, disinfection, and sterilization; infection prevention policies; control of aerosols and splatters; respiratory etiquette; waste disposal; isolation; removal of catheters and tubes; immunizations.*

## Activity 2. Recommended precautions

1. *(a.) Clinical Syndromes or Conditions Warranting Empiric Transmission-Based Precautions in Addition to Standard Precautions. (b.) Contact. (c.) Gloves and gown.*
2. *(a.) Until the etiologic agent is identified, empiric isolation precautions should be implemented. (b.) Respirator, gown, gloves, and eye protection. (c.) Contact. (d.) For the duration of the illness.*
3. *(a.) Yes. (b.) No. (c.) Yes. (d.) During high-contact care activities (dressing, bathing, transferring, etc.)*

## Activity 3. Personal protective equipment

*(a.) blood, body fluids, and other potentially infectious material.*

## Activity 4. Hand hygiene

*(a.) before touching a patient; before clean/aseptic procedure; after body fluid exposure risk; after touching a patient; after touching patient surroundings.*

## Activity 5. The *C. difficile* scenario

*(a.) Contact; false; send stool for lab testing. (b.) Monitor for adherence to PPE donning and doffing; monitor for hand hygiene being performed with soap and water rather than alcohol-based hand rub; monitor for cleaning and disinfection of the room being done with bleach rather than typical disinfectant.*

## Activity 6. Employee health relationship with infection prevention

*(a.) Flexible working hours; providing coverage; sick leave; manage workloads and expectations; wellness programs; communication. (b.) Immunization programs; respiratory protection programs; bloodborne pathogen programs.*

## Activity 7: Exposure response

*(a.) Through body fluids, contaminated medical devices, environmental surfaces, air. (b.) Where, when, and how the exposure occurred; the duration of exposure; whether PPE was worn or worn properly. (c.) Health care providers are more likely to report to work when sick. (d.) Sick leave; OSHA Bloodborne Pathogen Standards; Ryan White Act. (e.) True.*

## Activity 8. Immunization programs

*(a.) Prevent vaccine-preventable diseases among health care workers, prevent illness among patients and others, such as health care workers' families and household members, by reducing their risk of encountering infectious health care workers; adhere to ACIP immunization recommendations for health care workers and federal, state, and local requirements; reduce the need for, and costs related to reactive measures including postexposure prophylaxis, use of sick leave, and work restrictions; increase the efficacy of reporting health care workers immunization information internally as for performance measurement and quality improvement initiatives, and to external groups such as payors and public health agencies. (b.) Barriers–Fear of adverse events from vaccination; injection aversions; inconvenient access to vaccination; lack of perceived need for vaccination; lack of leadership support for vaccination. Strategies–leadership as role models; educational campaigns; free access; incentives.* (c.) *COVID-19; chickenpox (varicella); flu vaccine (influenza); hepatitis B; Meningococcal, MMR, Tdap or Td.*