# Local and Tribal Health Department Infection Prevention Pilot Program Workbook

Section 4: Surveillance and Epidemiologic Investigations

WISCONSIN DEPARTMENT of HEALTH SERVICES

Wisconsin Healthcare-Associated Infections Prevention Program

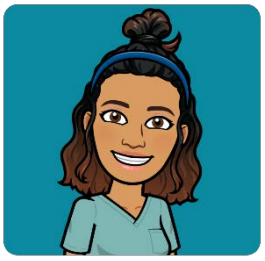
P-03373C (11/2023)

# How to Use this Workbook

The Local and Tribal Health Department (LTHD) Healthcare-Associated Infection (HAI) and Infection Prevention Training Program covers a variety of topics and experiences to increase basic healthcare-associated infection and infection prevention and control (IPC) knowledge. Each section of the program has a corresponding workbook with self-paced learning activities and links to additional resources to help supplement your learning. Each workbook includes a list of learning objectives for the section, a tentative meeting and presentation schedule, and self-paced learning activities.

The scenarios and questions included in this workbook are for your own learning and will not be graded. They are intended to supplement group activities and underscore key points in the provided resources. Be prepared to discuss questions, concepts, and scenarios introduced in the self-paced learning sections of this workbook with your regional infection preventionist (IP) or other participants during various follow up activities.

### Meet Izzy



Throughout the program, you will follow Izzy, an infection preventionist (IP) at a nursing home, as she encounters IPC scenarios at her facility. Using what you learn in each section, you will help Izzy make decisions that reduce the risk of spreading HAIs in her facility.

# Section 4 Objectives

By the end of this section, participants will be able to:

- List the types of device-associated HAIs.
- Understand how to mitigate the risks associated with indwelling devices.
- Define an outbreak.
- Define clinical and surveillance infections.

# Week 1 Activities

### Activity 1: CLABSIs, CAUTIs, and VAP – Oh my! 1 hour

1. Read through the CDC (Centers for Disease Control and Prevention) Central Line-Associated Bloodstream Infections: Resources for Patients and Healthcare Providers webpage and review the CLABSI Prevention Checklist.

    a. Why are central lines more likely to cause series infections?

    b. Why is subclavian the preferred location of a central line compared to femoral?

    c. Describe what health care providers can do to prevent CLABSI?

2. Read through the CDC Catheter-associated Urinary Tract Infections (CAUTI) webpage, and review the frequently asked questions about CAUTIs.

    a. True or false: UTIs are the most common type of HAI reported to the National Healthcare Safety Network (NHSN).

    b. What is the most important risk factor for developing a CAUTI?

    c. List three strategies that can help reduce the risk of CAUTI.

3. Read through the CDC Ventilator-associated Pneumonia (VAP) webpage and frequently asked questions.

    a. How do ventilator-associated pneumonia (VAP) infections occur?

**b.** Describe three steps health care providers can take to prevent VAP.

## Activity 2: 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.

- What are two types of audits that Izzy the IP can do to prevent transmission to others within the facility? Hint: Use CDC Appendix A to help answer this question.

## Activity 3: Surveillance and data collection systems 30 minutes

Review the "About NHSN" webpage for a basic understanding of what NHSN is and how it is used.

**a.** Other than providing data on HAIs, what else can NHSN be used for?

**b.** What types of facilities can use NHSN?

**c.** Which care settings report the most data to NHSN?

## Activity 4: NHSN presentation 1 hour

Attend the NHSN presentation from the HAI Prevention Program's Surveillance Coordinator on December 14.

**a.** Health care facilities can utilize the surveillance criteria within NHSN for what purpose(s)? List all that apply.

a) To help guide the care of patients with health care-associated infections
b) To identify and track health care-associated infections
c) To determine what precautions health care workers should follow when caring for a patient or resident with a health care-associated infection
d) To help guide a health care facility's infection prevention and control efforts

**b.** What does the SIR compare?

**c.** What does an SIR greater than 1 indicate? What does an SIR less than 1 indicate?

# Week 2 Activities

## Activity 1: What should Manuel do? 30 minutes

Step into Manuel's shoes and take care of patients in post-operative care. Complete the "Partnering to Heal" simulation.

**a.** What was the outcome of your decisions as Manuel?

**b.** What type of choices led to that outcome?

**c.** Was there anything that surprised you or that was new to you?

## Activity 2: Introduction to surveillance 30 minutes

Review the "Surveillance" section of the IP Starter Kit.

**a.** Define surveillance in your own words.

**b.** True or false: Surveillance data can be used to ensure facilities are complying with federal and state mandates as well as mandatory reporting requirements.

**c.** Match the following key terms to the appropriate definition:

| | | |
|---|---|---|
| | Outbreak | a. A measure of frequency of an event in a defined population. |
| | Incidence rate | b. An increase over the expected occurrence of an event. |
| | Infection rate | c. A method of collecting data, analyzing intervention effectiveness by reviewing data, and taking appropriate action to reduce risks. |
| | Standardized infection ratio (SIR) | d. A measure of new cases arising in a population over a given period of time. |
| | Surveillance | e. A risk-adjusted summary measure used to track HAIs over time in NHSN. |

## Activity 3: Wastewater surveillance 1 hour

1. Read the CDC webpage on how wastewater surveillance works. Then read the overview on how public health interprets and uses wastewater surveillance data.

    a. Explain why the wastewater from a community with high tourism might provide less stable or reliable infection trend data.

    b. What can low virus in wastewater indicate?

    c. True or false: Presenting concentration data, rather than trend classifications, allows us to compare across different sewersheds.

2. Review the DHS webpage on the Wisconsin Wastewater Monitoring Program.

    a. List three ways wastewater monitoring can help improve public health.

    b. Describe the current SARS-CoV-2 concentration in your area. Note: If your exact city, township, or jurisdiction is not listed, select the nearest location listed.

## Activity 4: Wisconsin Clinical Laboratory Network 45 minutes

Listen to the presentation on the Wisconsin Clinical Laboratory Network (WCLN) from Erin Bowles, WCLN Coordinator.

    a. What did you learn from the presentation?

**b.** What concepts or ideas could you bring back to your LTHD?

## Activity 5: Disease reporting

30 minutes

Visit the DHS "Disease Reporting" webpage and review Wisconsin's communicable disease reporting requirements.

**a.** True or false: Cases of *Candida auris (C. auris)* must be reported as a category I communicable disease.

**b.** Name any category II communicable disease or notifiable condition in which a source investigation by local or state health department if needed.

**c.** Which communicable diseases or notifiable conditions have you worked with in your role?

# Week 3

No activities are assigned for Week 3 of Section 4. Meetings and activities will resume starting on Week 4.

# Week 4 Activities

### Activity 1: MDRO reporting and follow-up 30 minutes

Watch the second half of the "MDROs in Wisconsin" presentation (starting at minute 24:20) to learn about MDRO reporting and follow up.

**a.** Which organisms became reportable in Wisconsin as of July 1, 2022? And which reportable condition category do they fall under?

**b.** How does the LTHD get notified about a positive MDRO case that requires follow up?

**c.** What is the purpose of follow-up?

**d.** True or false: Colonization screening is an important part of MDRO follow-up.

### Activity 2: Reportable MDROs in Wisconsin 30 minutes

**1.** In previous sections you briefly reviewed the "Reportable MDROs" webpage. In this section, we'd like you to do a more thorough review of this page to learn more about the specific response to MDROs in Wisconsin.

**a.** True or false: The Wisconsin State Laboratory of Hygiene (WSLH) conducts confirmatory testing to identify reportable MDROs.

**b.** How does WSLH notify state and local public health of confirmed or probable cases in Wisconsin?

**2.** At the bottom of this page, there is a section that contains resources for LTHDs. An important guidance document to be familiar with is the *Wisconsin Protocol for LTHDs: WEDSS Surveillance and Response for Targeted MDROs,* P-03263 (PDF).

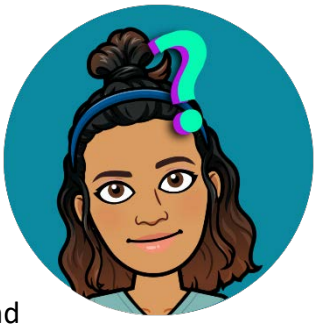
**a.** Are you familiar with this document? Have you referred to it before?

**b.** Which organisms does this document cover?

**c.** True or false: *C. auris* has the same response procedure as CP-CRE, CP-CRAB, and CP-CRPA.

**d.** What are the steps of the general case investigation for targeted MDROs?

## Activity 3: Outbreak in a nursing home 30 minutes



Read the fictional scenario on an outbreak of carbapenemase-producing carbapenem-resistant *Acinetobacter baumannii* (CP-CRAB) detected in a nursing home below. Use the DHS *Wisconsin Protocol for LTHDs: WEDSS Surveillance and Response for Targeted MDROs*, P03263 (PDF) to help you answer the questions that follow.

**Scenario:** On May 2, a resident at a nursing home with a pre-existing diabetic foot ulcer began to develop redness and swelling around the wound bed. In addition, malodorous, tan-colored drainage that was unable to be contained to its normal dressing was observed. Under direction from Izzy, the IP, a nurse at the nursing home collected two wound cultures. They were sent to the clinical lab for testing.

On May 5, the two cultures obtained from the resident's wounds were positive for CRAB. The isolates were sent to WSLH for further carbapenemase testing.

**a.** Upon receiving this result, what precautions should the infected resident be placed on while awaiting the final lab result from WSLH?

On May 11, the isolates tested positive for a carbapenemase resistance mechanism by molecular testing methods, making them carbapenemase-producing CRAB (CP-CRAB).

Meanwhile, in WEDSS, the LTHD is notified of the case as a suspected carbapenemase-producing organism (CPO).

**b.** Fill in the blank: According to BCD memo 2022-06, CP-CRAB is considered a category _____ level notifiable condition in the state of Wisconsin.

**c.** Fill in the blank: According to the *Wisconsin Protocol for LTHDs : WEDSS Surveillance and Response for Targeted MDROs*, for all confirmed cases of CP-CRAB, you would do the following:

1. Determine health care facility of origin and _____ exposures.

2. Call _____ for any facility where the patient or resident was admitted or resides.

3. Ensure that the patient or resident has been placed into proper precautions, based on the facility type and organism or mechanism:

- Hospitals: _____
- LTCF: _____

4. Consult with your HAI Program Regional Infection Preventionist with questions regarding the appropriate precautions for the situation.

An initial round of point prevalence screening (PPS) was done on May 15 on the unit where the resident with CP-CRAB resides and five additional residents were identified as colonized with CP-CRAB.

On June 1, Izzy and a regional IP from the Wisconsin HAI Prevention Program conducted an infection control assessment and response (ICAR) walkthrough to evaluate infection control policies and procedures at the nursing home. During the assessment, several infection control breaches were identified including:

- A wound care nurse was observed wearing one pair of gloves for all wound care procedures. However, the nurse performed hand hygiene on top of the gloves with alcohol-based hand sanitizer after each procedure.
- Wound care supplies were stored unwrapped near resident hand washing sinks.
- Environmental services used one cloth for cleaning all items in the resident room.
- Environmental services staff were observed using one cotton string mop for all assigned rooms throughout the shift.

- There wasn't a cleaning protocol for the shared tub room the residents of the unit used for showers.
- Hand hygiene was not consistently or correctly practiced between resident procedures.

Izzy and the regional IP provided immediate recommendations to the nursing home staff to address major infection control breaches identified during the assessment.

**d.** What are some recommendations Izzy should provide to the facility?

Outcome: After two subsequent negative monthly PPS rounds were obtained, the facility was considered to have "achieved containment" of the targeted MDRO outbreak. The local health department and the HAI Prevention Program collaborate with the facility on continued follow-up to ensure containment is maintained.

# Week 5 Activities

## Activity 1: Exposure response

30 minutes

1. 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. Finish the sentence: Effective management of exposures and illness includes _____.

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

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

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

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

2. Review CDC's "TB Screening and Testing of Health Care Personnel" webpage to learn more about TB screening in order to prevent exposures and to conduct TB testing if exposure occurs.

    a. Why is screening HCP for TB important?

    b. What does the baseline TB screening and testing for HCP include?

**c.** If HCP have a documented history of a prior TB test, do they need a repeat TB test at the time of screening?

**d.** True or false: Annual TB testing of HCP is recommended.

**e.** View the TB Risk Assessment. What factors put HCP at increased risk for TB?

**f.** Returning back to the main page, how is the TB risk assessment used to help interpret TB test results?

**g.** What needs to be done following a TB exposure?

**h.** What is the post-exposure testing protocol for HCP with a previous negative test?

**i.** What is the post-exposure testing protocol for HCP with a documented history of a positive TB test?

## Activity 2: Cluster of nontuberculous mycobacteria infections case study

2 hours 30 minutes

Review the CDC health outbreak response case study that was emailed to you with this workbook. You can answer each question within the emailed Word document. If time allows, please review and answer the questions prior to the our group meeting and be prepared to discuss.

**a.** Reflect on the case study and how you answered the questions. Was it easier than you thought? Was it harder? Were there things you wouldn't have considered? How could this be applicable to your role?

# Additional Resources

**The following are optional readings, articles, and other resources for information on the topics covered in Section 4.**

**Data collection systems**
See the CDC factsheet on NHSN.

**Disease reporting**
See the DHS *Reportable Communicable Disease Conditions in Wisconsin* reference guide.

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

- CDC 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.

**Health disparities and HAIs**
Read the CDC *Vital Signs* report which focuses on health disparities related to hemodialysis-associated *Staphylococcus aureus* (*S. aureus*) bloodstream infections among people receiving dialysis treatment for end-stage kidney disease.

**Wastewater surveillance**

- See the CDC factsheet on wastewater surveillance systems.
- See the CDC Morbidity and Mortality Weekly Report article on wastewater surveillance for tracking influenza and respiratory syncytial virus in Wisconsin.
- Review the U.S. National Academies of Sciences, Engineering, and Medicine's report on the value of and potential for using wastewater for surveillance beyond COVID-19.

**Notes, questions, and comments**