The background of the entire page is a photograph of a healthcare worker in a clinical setting. The worker is wearing a blue surgical gown, a blue face mask, and blue gloves. They are focused on a task, possibly a procedure, with their hands visible in the foreground. The image is overlaid with a semi-transparent blue filter. The text is white, providing a high contrast against the blue background.

Healthcare-Associated Infections (HAIs)/Antimicrobial Resistance (AR) Competency Training Workbook

A customizable tool to help local health department staff expand their HAI/AR knowledge, skills, and abilities and maximize program capacity and impact.

A u g u s t 2 7 , 2 0 2 4

NACCHO

National Association of County & City Health Officials



Prepared by: The National Association of County and City Health Officials (NACCHO) and WE Public Health, LLC

Copyediting and Design by: Oak Ridge Associated Universities (ORAU) - Health Communications and Social Marketing.

Purpose: To build LHD staff competency and equip them with the knowledge, skills, abilities, processes, and resources necessary to effectively prevent, respond to, and monitor HAI/AR in their jurisdictions.

Intended User: LHD HAI/AR program leads, LHD staff with beginner level competency performing HAI/AR roles and responsibilities, LHD staff with intermediate or expert level competency performing HAI/AR roles and responsibilities.

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Acknowledgments

This publication is supported by the Division of Healthcare Quality Promotion at the Centers for Disease Control and Prevention (CDC) of the U.S. Department of Health and Human Services (HHS). The contents are those of the author(s) and do not necessarily represent the official views of, nor an endorsement, by CDC/HHS, or the U.S. Government.

This workbook was created thanks to the invaluable contributions of countless LHDs dedicated to HAI/AR efforts in their communities. Through feedback during conferences and active participation in NACCHO learning communities, LHD staff—who are charting the course for leadership in HAI/AR prevention and response—have generously shared their practices and insights.

NACCHO staff are deeply grateful for your unwavering generosity, expertise, and commitment to helping us develop tools that serve you best. Your efforts are instrumental, and we extend our heartfelt thanks for your support and collaboration.



Overview

Introduction

Healthcare-associated infections (HAIs) are among the leading causes of preventable deaths in the United States. The surge in antimicrobial resistance (AR) magnifies the challenges posed by HAIs and the COVID-19 pandemic intensified these issues. Your local health department (LHD) is pivotal in the battle against HAI/AR and its success depends on employing your expertise to collect and analyze data to identify outbreaks, investigate reportable diseases, coordinate communications across multiple health facilities, and curb the spread of infections in both community and healthcare settings.

Background

The National Association of County and City Health Officials (NACCHO) is dedicated to empowering LHD leaders by providing cutting-edge subject matter expertise and essential resources to develop robust public health policies, programs, and services, ensuring that communities are safeguarded from disease.

In 2022, NACCHO enlisted WE Public Health, LLC, to conduct a comprehensive landscape analysis to explore the current roles and responsibilities of the LHD workforce in mitigating and preventing HAI/AR, identify the education and training needs of the LHD workforce, and develop strategies to fortify relationships between LHDs and clinical healthcare partners. The findings revealed that LHDs play many critical roles in HAI/AR prevention and response. They build vital relationships with healthcare facilities and partners, serve as subject matter experts advising on best practices, provide essential education and guidance on infection prevention and control, and analyze data to inform outbreak responses.

While many of the necessary competencies for supporting HAI/AR programs are embedded within major public health frameworks—such as the 10 Essential Public Health Services, the Public Health Accreditation Standards for LHDs, the Core Competencies for Public Health Professionals, and the Strategic Skills for Public Health—they are scattered across these frameworks and lack some crucial elements, like health equity.

Intended Purpose

Based on these findings, NACCHO collaborated with WE Public Health to develop a tool to build LHD staff competency and equip them with the knowledge, skills, abilities, processes, and resources necessary to effectively prevent, respond to, and monitor HAI/AR in their jurisdictions. The resulting competency training workbook offers intended users a rich repository of relevant information, training, and resources, significantly expanding your LHD's capacity to combat HAI/AR. The workbook also unifies essential HAI/AR competencies into one comprehensive resource and addresses gaps in existing frameworks with the inclusion of a dedicated section on health equity.



Intended Audiences and Recommended Use

The workbook is intended to support three distinct audience groups and recommended uses described in Table 1.

Table 1. Intended Audiences and Recommended Use

LHD HAI/AR program leadership	Adapt the workbook to meet the unique needs of your LHD's HAI/AR program prior to sharing with LHD staff.
Early-career or transitioning LHD staff with limited knowledge of or experience performing HAI/AR responsibilities	Complete the workbook to help you perform your HAI/AR responsibilities.
Intermediate or expert level LHD staff with advanced knowledge or experience performing HAI/AR responsibilities	Review fundamentals you may have forgotten or upskill on new information you may be unaware of.

Workbook Feedback

If you adapt the workbook to better serve your unique capacity building needs, please consider adding your version to our repository of HAI/AR resources and help other LHD staff. You can share any edits you made or stories of how this workbook has been used by emailing us at infectiousdiseases@naccho.org.



How to Use This Workbook

We strongly encourage you to personalize and adapt the workbook to align with your unique HAI/AR capacity building needs. There are also numerous opportunities to add your training, resources, and tools as appropriate throughout the workbook. This workbook can inform job descriptions and competencies, staff training plans, and LHD HAI/AR program development.

HAI/AR Worksheet

The workbook starts with a worksheet that provides staff with an overview of your LHD's HAI/AR program.












HAI/AR 101

The brief HAI/AR 101 section includes a list of resources early-career or transitioning public health professionals can review to build their foundational knowledge in HAI/AR.

HAI/AR Competency Domains

The workbook is divided into 11 domains, each covering a HAI/AR competency topic. Domain topics were developed using the findings from [HAI and AR: Opportunities for Local Health Departments in Prevention and Response: A Landscape Analysis](#), and represent areas of work for LHD staff. Each domain section provides users with information and resources to build knowledge, skills, and abilities. The domains listed in Table 2 are interrelated, but each can be reviewed individually in any order.

Table 2. HAI/AR Competency Domains

	Domain 1. Infection Prevention & Control Operations		Domain 7. Health Equity
	Domain 2. Collaboration, Coordination, & Partnerships		Domain 8. Program & Budget Management
	Domain 3. Surveillance		Domain 9. Laboratory Diagnostics
	Domain 4. Data & Informatics		Domain 10. Antimicrobial Stewardship
	Domain 5. Outbreaks & Investigation		Domain 11. Leadership
	Domain 6. Education & Communication		



HAI/AR Domain Format

The domain sections are broken out into five main activities.

- **Activity 1. Review Domain Overview** – Domain sections begin with an overview explaining why the domain is essential, followed by a list of key competencies necessary to succeed in the domain.
- **Activity 2. Complete the Pre-Assessment** – Next, you'll complete a pre-assessment designed to rate your level of agreement about competency statements applicable to the domain. The pre-assessments are not meant to test your knowledge but can help illuminate specific competencies you may want to focus on within each domain.
- **Activity 3. Review Roles and Competencies** – Following the pre-assessment, you will be introduced to recommended LHD roles and staff competencies applicable to the domain.
 - **LHD roles** describe the HAI/AR functions and activities they either lead or coordinate with partners to perform.
 - **Staff competencies** are the knowledge, skills, and actions staff take to fulfill their LHD's HAI/AR roles and responsibilities. In some cases, the roles and competencies overlap or are very similar.
- **Activity 4. Take Action** – The take action step has a wealth of training, resources, and tools to help LHD staff learn more about the domain. Each resource is freely available online from the CDC, APIC, CSTE, and more. Use these resources to expand your knowledge, skills, and capacity for HAI/AR activities.
- **Activity 5. Complete the Post-Assessment** – Before advancing to the next domain, there is a post-assessment that provides an opportunity to reflect on how your competency in the domain has changed after working through the activities.

Appendices and Other Resources

At the end of the workbook, you'll find several appendices with tools and resources to support you as you perform your HAI/AR responsibilities. LHDs are welcome to adapt and incorporate these materials into their standard operating procedures, training plans, or reference documents.

Completing Fillable Spaces in the Workbook

Using Adobe Acrobat Reader, you can use the annotation and drawing markup toolbar by selecting the "Fill in form fields" tool and then "Type text". For additional help using Adobe Acrobat Reader, visit the [Adobe Support Center](#).

HAI/AR PROGRAM WORKSHEET

INSTRUCTIONS:

- **LHD HAI/AR program leadership** - Complete the following worksheet prior to sending the workbook to your LHD staff.
- **Early-career or transitioning LHD staff** - Work with your LHD HAI/AR program lead to complete the following worksheet to learn more about your LHD's HAI/AR program.

LHD Information

LHD Name:	
LHD Location (<i>Address, City, State, Zip</i>)	

LHD HAI/AR Program Information

Does your LHD currently conduct HAI/AR activities?	<input type="checkbox"/> Yes <input type="checkbox"/> No
If yes, describe your LHD's capacity in HAI/AR:	

LHD HAI/AR Program Leads

Department/Title	Name	Phone Number	Email

HAI/AR Subject Matter Experts

Department/Title	Name	Phone Number	Email

Your HAI/AR Responsibilities

Describe your LHD HAI/AR program title or role:
Describe your LHD HAI/AR program responsibilities:



HAI/AR 101

If you're just starting your career or transitioning into a role with HAI/AR responsibilities, you may need to build your baseline knowledge in this area. There are several resources that can help guide you before you continue through the workbook. Learn more about HAI/AR by completing the competency tasks below and checking them off when completed.

Task	Complete?
Take HAI/AR prevention courses through the CDC's STRIVE Infection Control Training .	<input type="checkbox"/>
Learn about the different types of healthcare-associated infections on the CDC's website.	<input type="checkbox"/>
Access the APIC Text Online .	<input type="checkbox"/>
Visit the NACCHO Website and NACCHO University for trainings, webinar recordings, LHD HAI/AR stories, and resources.	<input type="checkbox"/>



Domain 1: Infection Prevention & Control Operations

Activity 1.1 Review Domain Overview

Healthcare-associated infections (HAI) and antimicrobial-resistant (AR) organisms pose a significant risk to patients of all ages. They complicate hospital care, increase healthcare costs, extend the length of stay, and place other patients at risk for infection. This is especially true for AR organism infections because they are more challenging to treat. As a result, LHDs partner with healthcare facilities, long-term care facilities (LTCFs), and other stakeholders to identify HAI/AR cases and prevent the emergence of and control the spread of new cases.

Health departments and healthcare facilities conduct various infection prevention and control activities. When HAI/AR cases occur, healthcare providers are often responsible for reporting that data to the appropriate health department. The health department uses these data to identify HAI/AR priorities, flag outbreaks, and mitigate further spread.

To support this responsibility, LHD staff may conduct surveillance, calculate infection risk, and implement infection prevention interventions to mitigate risk to the healthcare facilities within your jurisdiction. Read on to learn more about how LHD staff can carry out infection prevention and control activities.

Domain 1. Competencies

- Surveillance
- Infection prevention and control practices
- Critical thinking



Activity 1.2 Complete the Pre-Assessment

Before accessing material in this domain, please rate your level of agreement for each of the following statements.

Competency Statement	Agreement Level				
I can describe what infection prevention and control entails.	<input type="checkbox"/> Strongly disagree	<input type="checkbox"/> Disagree	<input type="checkbox"/> Neither agree or disagree	<input type="checkbox"/> Agree	<input type="checkbox"/> Strongly agree
I am knowledgeable about infection prevention interventions and precautions for my LHD's HAI/AR priorities.	<input type="checkbox"/> Strongly disagree	<input type="checkbox"/> Disagree	<input type="checkbox"/> Neither agree or disagree	<input type="checkbox"/> Agree	<input type="checkbox"/> Strongly agree
I know who has the skills within our LHD to assist healthcare providers with ICAR, tele-ICAR, and other assessments.	<input type="checkbox"/> Strongly disagree	<input type="checkbox"/> Disagree	<input type="checkbox"/> Neither agree or disagree	<input type="checkbox"/> Agree	<input type="checkbox"/> Strongly agree
I can effectively communicate with key stakeholders about ongoing HAI/AR outbreaks, investigations, and other important information.	<input type="checkbox"/> Strongly disagree	<input type="checkbox"/> Disagree	<input type="checkbox"/> Neither agree or disagree	<input type="checkbox"/> Agree	<input type="checkbox"/> Strongly agree
I understand how my responsibilities support my LHD's role in HAI/AR prevention and control.	<input type="checkbox"/> Strongly disagree	<input type="checkbox"/> Disagree	<input type="checkbox"/> Neither agree or disagree	<input type="checkbox"/> Agree	<input type="checkbox"/> Strongly agree



Activity 1.3 Review Health Department Roles & Staff Competencies

Fulfilling infection prevention and control responsibilities in your LHD requires numerous skills, including surveillance, data collection and analysis, communication of findings, and collaboration with stakeholders to identify, prioritize, and implement mitigation measures. As a result, the LHD roles and staff competencies in this domain may mirror those in other domains. Recommended LHD roles and staff competencies for this domain are listed below.

LHD Role 1a. Increase local public health staff capacity, expertise, and confidence in conducting HAI/AR activities in alignment with the overall state HAI/AR program strategy.

Staying up-to-date on infection prevention and control best practices provides insight into the most effective ways to mitigate transmission of HAI/AR in your jurisdiction.

Competencies for LHD HAI/AR program leaders and experts:

- Survey staff to inquire about their knowledge, skills, abilities, and perceptions conducting HAI/AR activities and to identify gaps to be addressed.
- Identify or establish internal SMEs with certifications and advanced training.
- Develop peer learning networks.
- Serve as the primary point of contact for HAI outbreaks and/or HAI/AR activities.
- Serve as the HAI/AR lead who regularly participates in facility engagement, including but not limited to assisting with ICAR and tele-ICAR assessments.

Competencies for new LHD HAI/AR staff:

- Complete required and ad-hoc training available on infection prevention and control practices.

LHD Role 1b. Increase local public health awareness of the latest HAI/AR guidance, data, programs, and policies that impact your community.

Since HAI/AR infection prevention and control guidance changes based on community needs, advances in medicine, and evolving pathogens, the LHD's role in this area also includes sharing new and changing information with key stakeholders.

Competencies for new LHD HAI/AR staff:

- Identify LHD knowledge gaps in HAI/AR policies and guidance.
- Engage with your state's HAI/AR program and other key partners to examine and identify existing HAI/AR policies, such as state and local HAI/AR reporting requirements.
- Use local information and data on infections, outbreaks, AR, and antibiotic use to guide activities and responses to HAI/AR threats



LHD Role 1c. Use proactive approaches to conduct surveillance, identify infection risks, and implement infection prevention and control interventions to mitigate risks.

Monitoring HAI/AR infection prevention and control activities shouldn't be a reactive process for LHDs. They should proactively conduct these activities to keep people in their jurisdictions safe and healthy by mitigating HAI/AR risk.

Competencies for new LHD HAI/AR staff:

- Design surveillance systems using the principles of ethics, diversity, equity, inclusion, accessibility (DEIA), and justice.
- Interpret results from data analysis.
- Conduct surveillance activities such as
 - Reviewing surveillance data needs
 - Assessing existing surveillance data and systems
 - Collecting, analyzing, evaluating, and communicating surveillance data
- Analyze data generated from surveillance, investigations, studies, programs, etc.
- Apply evidence-based interventions and control measures, considering DEIA and specific community needs.
- Establish knowledge of requirements for specific areas
- Conduct observational analysis of HAI/AR practices.
- Communicate observational analysis findings, identify improvement recommendations, and implement appropriate action plans.
- Implement isolation precautions.
- Educate healthcare workers, LHD staff, patients, and caregivers about infection prevention and control measures.
- Implement the infection prevention and control chain of command within your health department and within the healthcare facility.



Activity 1.4 Take Action

Now that you've learned about the recommended LHD roles and staff competencies, learn more about this domain by completing the tasks below. Use the Take Action Worksheet to record key information as you progress through each task.

Training Tasks

Complete the [Introduction to Infection Prevention and Control](#) training for novice infection prevention and control staff. (1 hour)

Take courses through [UNC-Chapel Hill's Statewide Program for Infection Control & Epidemiology](#).

Watch [Environmental Assessment: Long Term Care Facilities](#) to observe an ICAR. Reference [NACCHO's Environmental Rounds Worksheet for Infection Prevention Long Term Care Facility](#) while you watch. (1 hour)

Complete the [CDC's Project Firstline Training: Inside Infection Control](#) to build capacity in several infection prevention and control concepts. (2.5 hours)

Resource Review Tasks

Visit [NACCHO's Infection Prevention and Control Resource Library](#) to access resources that will help you expand your infection prevention and control capacity.

Maintain access to [APIC Text](#), which compiles the latest infection prevention and control guidelines, regulations, and standards of practice.

Visit [APIC's Topic-Specific Infection Prevention Page](#) for topic-specific infection prevention resources. Consider adding this to your LHD's HAI/AR program procedures and policies.

Consult [APIC's Observation Tools Library](#) for observation and ICAR tools for numerous healthcare settings.

Review [Heightening Awareness for the Infection Preventionist in the Behavioral Health Setting: Top Ten Key Points \(APIC\)](#) for considerations for addressing HAI/AR within behavioral health facilities. Note: This is best used by LHDs that work with behavioral health facilities in their jurisdiction.

Review information about infection prevention and control operations in dialysis facilities in [APIC's Implementation Guide for Infection Prevention and Control in Dialysis Settings](#).



Domain 1: Infection Prevention & Control Operations

Tool Review Tasks

Adapt the [ICAR Training Program & Checklist](#) to train new infection preventionists conducting ICARs and to guide the ICAR process.

Use the [CDC's Dialysis Safety page](#) to access dialysis safety audit tools and checklists.

Reference [NACCHO's Personal Protective Equipment \(PPE\) Audit Tool](#).

Additional Domain Tasks

Use the space below to include additional trainings, resources, and tools that will help increase competency in this domain.



TAKE ACTION WORKSHEET

Instructions: Use the spaces below to record key competency building information for this domain.

1. Describe how your LHD encourages staff to increase their competency (knowledge, skills, abilities) in HAI/AR.

2. Complete the following information for the most common types of HAI/AR.

Type	Spelled out HAI/AR name	Where they occur on the body	How to prevent them	Likely pathogens
CAUTI				
CLABSI				
SSI				
VAP				

3. Describe how staff are encouraged to implement proper hand hygiene to prevent HAI/AR infections.



4. Complete the following information about emerging and existing HAI/AR pathogens.

Pathogen	Disease mechanism	How it spreads	Infection prevention and control methods
Acinetobacter			
Aspergillus			
Burkholderia cepacia			
Candida auris			
Carbapenemase-producing organisms (CPO)			
Clostridioides difficile (C. diff)			
Clostridium sordellii			
Extended Spectrum Beta Lactamase (ESBL)-producing Enterobacterales			
Gram-negative bacteria			
Hepatitis			
HIV/AIDS			
Influenza			
Klebsiella			
Nontuberculous Mycobacteria (NTM)			



4. Complete the following information about emerging and existing HAI/AR pathogens.

Pathogen	Disease mechanism	How it spreads	Infection prevention and control methods
Norovirus			
Pseudomonas aeruginosa			
Serratia			
Staphylococcus aureus			



Activity 1.5 Complete the Post-Assessment

Now that you've completed the activities in this domain, please rate your level of agreement for each of the following statements. Reflect on how your competency has changed from the pre-assessment.

Competency Statement	Agreement Level				
I can describe what infection prevention and control entails.	<input type="checkbox"/> Strongly disagree	<input type="checkbox"/> Disagree	<input type="checkbox"/> Neither agree or disagree	<input type="checkbox"/> Agree	<input type="checkbox"/> Strongly agree
I am knowledgeable about infection prevention interventions and precautions for my LHD's HAI/AR priorities.	<input type="checkbox"/> Strongly disagree	<input type="checkbox"/> Disagree	<input type="checkbox"/> Neither agree or disagree	<input type="checkbox"/> Agree	<input type="checkbox"/> Strongly agree
I know who has the skills within our LHD to assist healthcare providers with ICAR, tele-ICAR, and other assessments.	<input type="checkbox"/> Strongly disagree	<input type="checkbox"/> Disagree	<input type="checkbox"/> Neither agree or disagree	<input type="checkbox"/> Agree	<input type="checkbox"/> Strongly agree
I can effectively communicate with key stakeholders about ongoing HAI/AR outbreaks, investigations, and other important information.	<input type="checkbox"/> Strongly disagree	<input type="checkbox"/> Disagree	<input type="checkbox"/> Neither agree or disagree	<input type="checkbox"/> Agree	<input type="checkbox"/> Strongly agree
I understand how my responsibilities support my LHD's role in HAI/AR prevention and control.	<input type="checkbox"/> Strongly disagree	<input type="checkbox"/> Disagree	<input type="checkbox"/> Neither agree or disagree	<input type="checkbox"/> Agree	<input type="checkbox"/> Strongly agree



Domain 2: Collaboration, Coordination, & Partnership

Activity 2.1 Review Domain Overview

Managing HAI/AR in a community should not happen in a silo. It requires cooperation and collaboration between many different stakeholders, including healthcare facilities; long-term care facilities; local, state, and regional health departments; and more.

LHDs are responsible for building and managing many of these relationships to facilitate the community's collaboration toward achieving common goals. How they develop programs and initiatives has a lasting impact on the communities they serve.

Collaborating and coordinating with essential partners to advance HAI/AR efforts within your jurisdiction can take many different forms:

- Leading an outbreak investigation in a healthcare facility.
- Surveilling cases of AR.
- Collecting data on HAI/AR trends.
- Developing and mobilizing a campaign to raise awareness of HAI/AR initiatives.
- Coordinating HAI/AR response in your jurisdiction, including forming and convening coalitions.

As you read about collaboration, coordination, and partnership, you'll learn more about how your responsibilities may contribute to the LHD's role in this domain.

Domain 2 Competencies

- Teamwork
- Interpersonal communication
- Collaboration
- Earning buy-in
- Coordination



Activity 2.2 Complete the Pre-Assessment

Before accessing material in this domain, please rate your level of agreement for each of the following statements.

Competency Statement	Agreement Level				
I can describe the knowledge, skills, and abilities needed to build relationships and collaborate with partner organizations to support my LHD's HAI/AR priorities.	<input type="checkbox"/> Strongly disagree	<input type="checkbox"/> Disagree	<input type="checkbox"/> Neither agree or disagree	<input type="checkbox"/> Agree	<input type="checkbox"/> Strongly agree
I understand the value partner collaboration and coordination has on my LHD's HAI/AR activities.	<input type="checkbox"/> Strongly disagree	<input type="checkbox"/> Disagree	<input type="checkbox"/> Neither agree or disagree	<input type="checkbox"/> Agree	<input type="checkbox"/> Strongly agree
I am comfortable leveraging interpersonal communication skills to build relationships and collaborate with partners in support of my LHD's HAI/AR priorities.	<input type="checkbox"/> Strongly disagree	<input type="checkbox"/> Disagree	<input type="checkbox"/> Neither agree or disagree	<input type="checkbox"/> Agree	<input type="checkbox"/> Strongly agree
I know which community partners my LHD regularly collaborates with on HAI/AR activities.	<input type="checkbox"/> Strongly disagree	<input type="checkbox"/> Disagree	<input type="checkbox"/> Neither agree or disagree	<input type="checkbox"/> Agree	<input type="checkbox"/> Strongly agree
I understand my responsibilities focused on partner collaboration and coordination in support of my LHD's HAI/AR priorities.	<input type="checkbox"/> Strongly disagree	<input type="checkbox"/> Disagree	<input type="checkbox"/> Neither agree or disagree	<input type="checkbox"/> Agree	<input type="checkbox"/> Strongly agree



Activity 2.3 Review Health Department Roles & Staff Competencies

Regardless of your LHD's capacity to prevent, respond to, and monitor HAI/AR threats, it will have a role supporting collaboration, coordination, and partnership activities in your jurisdiction during outbreak responses. The extent to which your LHD conducts these activities depends on how these responsibilities are divided among local, regional, and state health departments in your area. Example roles that LHDs may have in this domain are listed below (2a-2c). Be sure to confirm which roles your LHD is responsible for.

LHD Role 2a. Become recognized local experts experienced in presenting to community, state, national, and/or international audiences on HAI/AR topics.

Community members and stakeholders in your jurisdiction look to the LHD for guidance in dealing with HAIs and AR—and staff need the expertise to position the department as a trusted authority.

Competencies for new LHD HAI/AR staff:

- Develop a personal plan to gain comfort with communicating with large audiences.
- Ensure LHD representation on existing coalitions.
- Consider opportunities to present at conferences and identify gaps in previous presentations as opportunities to contribute.
- Provide input for patient safety and quality initiatives.
- Serve as a role model and coach to both novice and experienced IPs.
- Provide input to accrediting bodies and other stakeholders regarding the development of standards, measures, and metrics.
- Provide expertise, guidance, collaboration, and consultation to individuals and multidisciplinary teams regarding routine IPC risk assessments.

LHD Role 2b. Collaborate with community health organizations and local and state public health officials.

HAI/AR activities are a community-wide effort. Surveillance, investigations, and other activities can only happen by collaborating with partners to assist with these efforts. Building and maintaining partnerships with healthcare providers, long-term care facilities, and other stakeholders help ensure HAI/AR cases are handled appropriately and community risk is monitored.

Competencies for new LHD HAI/AR staff:

- Establish and maintain bidirectional relationships to improve community health and resilience.
- Collaborate with community members, organizations, and other stakeholders to support public health activities.
- Share power and ownership with community members and others.
- Engage with the state HAI/AR program to determine priorities, state and local roles, and responsibilities when working together and maintain coordination between the LHD and the state.



LHD Role 2c. Support patients, families, administration, committees, healthcare providers, and ancillary staff in infection prevention, control, and epidemiology.

Collaborating with healthcare partners and community members is a bidirectional relationship that helps the LHD conduct HAI/AR activities. However, there are also opportunities to support these stakeholders with their priorities and goals.

Competencies for new LHD HAI/AR staff:

- Facilitate trainings for patients, families, administration, committees, healthcare providers, and ancillary staff.
- Create patient and family education materials.
- Participate in and create community or collective stakeholder-related efforts, including facilitating training for ancillary staff (e.g., environmental services, food services, etc.).



Activity 2.4 Take Action

Now that you've learned about the recommended LHD roles and staff competencies, learn more about this domain by completing the tasks below. Use the Take Action Worksheet to record key information as you progress through each task.

Training Tasks

Improve your interpersonal communication skills with this course: [Improving Your Communication Skills](#).

Resource Review Tasks

Review [Chapter 3: Planning and Preparation](#) of The CORHA Principles and Practices for Healthcare Outbreak Response to read about how to plan and prepare for communicating with stakeholders in the context of a HAI/AR pathogen outbreak.

Schedule an introductory meeting with your State's HAI/AR program lead.

Identify local and regional healthcare coalitions and/or emergency preparedness groups. Ensure the health department regularly engages with these groups.

Introduce yourself to your local [APIC Chapter](#) to build relationships with HAI/AR experts in your region.

Tool Review Tasks

Read through the CDC's [Strengthening Partner Networks for Healthcare-associated Infections and Antibiotic Resistance](#) tool. Use the Success Framework for HAI/AR Partner Networks.

Use the [CDC's Dialysis Safety page](#) to access dialysis safety audit tools and checklists.

Additional Domain Tasks

Use the space below to include additional trainings, resources, and tools that will help increase competency in this domain.



TAKE ACTION WORKSHEET

Instructions: Use the spaces below to record key competency building information for this domain.

1. Describe the types of healthcare facilities your LHD's HAI/AR program partners with.

Healthcare facility partner name	Partner's HAI/AR roles and responsibilities

2. Complete a list of healthcare facilities your LHD partners with or provides HAI/AR services to.

Partner name	Primary contact	Phone number	Email address	HAI/AR services

3. Describe the ways you will partner with state officials to accomplish your HAI/AR responsibilities.

--

4. Identify the LHD processes in place to facilitate communication and collaboration with state officials.

--



Activity 2.5 Complete the Post-Assessment

Now that you've completed the activities in this domain, please rate your level of agreement for each of the following statements. Reflect on how your competency has changed from the pre-assessment.

Competency Statement	Agreement Level				
I can describe the knowledge, skills, and abilities needed to build relationships and collaborate with partner organizations to support my LHD's HAI/AR priorities.	<input type="checkbox"/> Strongly disagree	<input type="checkbox"/> Disagree	<input type="checkbox"/> Neither agree or disagree	<input type="checkbox"/> Agree	<input type="checkbox"/> Strongly agree
I understand the value partner collaboration and coordination has on my LHD's HAI/AR activities.	<input type="checkbox"/> Strongly disagree	<input type="checkbox"/> Disagree	<input type="checkbox"/> Neither agree or disagree	<input type="checkbox"/> Agree	<input type="checkbox"/> Strongly agree
I am comfortable leveraging interpersonal communication skills to build relationships and collaborate with partners in support of my LHD's HAI/AR priorities.	<input type="checkbox"/> Strongly disagree	<input type="checkbox"/> Disagree	<input type="checkbox"/> Neither agree or disagree	<input type="checkbox"/> Agree	<input type="checkbox"/> Strongly agree
I know which community partners my LHD regularly collaborates with on HAI/AR activities.	<input type="checkbox"/> Strongly disagree	<input type="checkbox"/> Disagree	<input type="checkbox"/> Neither agree or disagree	<input type="checkbox"/> Agree	<input type="checkbox"/> Strongly agree
I understand my responsibilities focused on partner collaboration and coordination in support of my LHD's HAI/AR priorities.	<input type="checkbox"/> Strongly disagree	<input type="checkbox"/> Disagree	<input type="checkbox"/> Neither agree or disagree	<input type="checkbox"/> Agree	<input type="checkbox"/> Strongly agree



Domain 3: Surveillance

Activity 3.1 Review Domain Overview

Your health department conducts HAI/AR surveillance to gain insight into HAI/AR incidence and prevalence within your jurisdiction and inform decisions regarding prevention, policy, and research. It's a continuous effort that happens in concert with healthcare providers, long-term care facilities, and other community partners. The collection and interpretation of these data allow for the early identification of emergent MDROs and HAI outbreaks.

Raw epidemiological HAI/AR data can only tell so much of the story. Health department staff must analyze, interpret, and model the data to understand HAI/AR trends in their jurisdiction clearly. That means staff may need to build competency in collecting that data, analyzing it using digital tools, and sharing findings as appropriate. You can learn more about these activities and develop your competency as you work through this domain.

Domain 3 Competencies

- Data analysis
- Statistical methods
- Data visualization
- Communication
- Collaboration
- Relationship building



Activity 3.2 Complete the Pre-Assessment

Before accessing material in this domain, please rate your level of agreement for each of the following statements.

Competency Statement	Agreement Level				
I can perform HAI/AR surveillance activities with ease or direct these responsibilities to the appropriate staff member(s).	<input type="checkbox"/> Strongly disagree	<input type="checkbox"/> Disagree	<input type="checkbox"/> Neither agree or disagree	<input type="checkbox"/> Agree	<input type="checkbox"/> Strongly agree
I can apply epidemiologic principles and statistical methods to HAI/AR surveillance or direct these responsibilities to the appropriate staff member(s).	<input type="checkbox"/> Strongly disagree	<input type="checkbox"/> Disagree	<input type="checkbox"/> Neither agree or disagree	<input type="checkbox"/> Agree	<input type="checkbox"/> Strongly agree
Using HAI/AR surveillance data, I can identify risk factors, develop prevention and control strategies, and analyze trends or direct these responsibilities to the appropriate staff member(s).	<input type="checkbox"/> Strongly disagree	<input type="checkbox"/> Disagree	<input type="checkbox"/> Neither agree or disagree	<input type="checkbox"/> Agree	<input type="checkbox"/> Strongly agree
I can analyze and visualize HAI/AR surveillance data using statistical software and other digital tools or direct these responsibilities to the appropriate staff member(s).	<input type="checkbox"/> Strongly disagree	<input type="checkbox"/> Disagree	<input type="checkbox"/> Neither agree or disagree	<input type="checkbox"/> Agree	<input type="checkbox"/> Strongly agree
I understand how my responsibilities support my LHD's HAI/AR surveillance activities.	<input type="checkbox"/> Strongly disagree	<input type="checkbox"/> Disagree	<input type="checkbox"/> Neither agree or disagree	<input type="checkbox"/> Agree	<input type="checkbox"/> Strongly agree



Activity 3.3 Review Health Department Roles & Staff Competencies

Surveilling your jurisdiction for HAIs, AR, and emerging pathogens is instrumental in enabling the LHD, local healthcare providers, and other stakeholders to proactively assess the risk for and onset of outbreaks. Information obtained from data analyses allows for determining the effectiveness of ongoing infection prevention and control strategies and identifying opportunities for improvement. Here are the roles the health department might play in these efforts and the competencies staff need to support these efforts.

LHD Role 3a. Develop, implement, and maintain surveillance strategies for HAI within the health department's jurisdiction.

Your health department is responsible for creating and conducting surveillance for emerging HAI/AR pathogens in your jurisdiction. They also have to monitor these activities closely to ensure the infection prevention and control strategies in place remain effective and sustainable.

Competencies for new LHD HAI/AR staff:

- Conduct surveillance activities, including reviewing and assessing existing data systems and collecting, analyzing, evaluating, and communicating findings.
- Describe systems, policies, and events impacting public health.
- Apply public health informatics in using epidemiologic data, information, and knowledge, including data collection, processing, analysis, and dissemination.
- Augment surveillance skills with familiarity with analytical computer programs or productive collaboration with colleagues with these skills.

3b. Use a systematic approach to monitor the effectiveness of prevention and control strategies consistent with the organization's goals and objectives.

Infection prevention and control strategies for HAIs and AR pathogens vary based on their transmission mode. You are tasked with ensuring surveillance activities remain in line with your LHD's HAI/AR program goals and objectives.

Competencies for new LHD HAI/AR staff:

- To identify target populations, apply epidemiologic principles and statistical methods, including risk stratification and benchmarking.
- Determine risk factors.
- Design evidence-based prevention and control strategies.
- Analyze trends.
- Evaluate processes.



Activity 3.4 Take Action

Now that you've learned about the recommended LHD roles and staff competencies, learn more about this domain by completing the tasks below. Use the Take Action Worksheet to record key information as you progress through each task.

Training Tasks

Complete the [Introduction to Public Health Surveillance](#) training. Note: this training is most appropriate for staff assuming surveillance activities for the first time. (90 minutes)

Resource Review Tasks

Identify which surveillance data are available within your jurisdiction, who collects and maintains them, and how the LHD can access them.

Understand the frequency at which surveillance data is updated in your jurisdiction.

Identify state HAI/AR program staff to contact for questions related to surveillance of HAI/ARs in your jurisdiction.

Determine important partners and methods of data sharing for surveillance activities.

Additional Domain Tasks

Use the space below to include additional trainings, resources, and tools that will help increase competency in this domain.



TAKE ACTION WORKSHEET

Instructions: Use the spaces below to record key competency building information for this domain.

1. Describe your responsibilities coordinating with partners in your jurisdiction and/or region to conduct HAI/AR surveillance activities.

2. Identify how often HAI/AR surveillance data is updated in your jurisdiction.

3. Where is HAI/AR surveillance data housed? Do you have access to this data?

4. Identify state HAI/AR program staff you can contact for questions about HAI/AR surveillance data.

Staff name	Phone number	Email address



Activity 3.5 Complete the Post-Assessment

Now that you've completed the activities in this domain, please rate your level of agreement for each of the following statements. Reflect on how your competency has changed from the pre-assessment.

Competency Statement	Agreement Level				
I can perform HAI/AR surveillance activities with ease or direct these responsibilities to the appropriate staff member(s).	<input type="checkbox"/> Strongly disagree	<input type="checkbox"/> Disagree	<input type="checkbox"/> Neither agree or disagree	<input type="checkbox"/> Agree	<input type="checkbox"/> Strongly agree
I can apply epidemiologic principles and statistical methods to HAI/AR surveillance or direct these responsibilities to the appropriate staff member(s).	<input type="checkbox"/> Strongly disagree	<input type="checkbox"/> Disagree	<input type="checkbox"/> Neither agree or disagree	<input type="checkbox"/> Agree	<input type="checkbox"/> Strongly agree
Using HAI/AR surveillance data, I can identify risk factors, develop prevention and control strategies, and analyze trends or direct these responsibilities to the appropriate staff member(s).	<input type="checkbox"/> Strongly disagree	<input type="checkbox"/> Disagree	<input type="checkbox"/> Neither agree or disagree	<input type="checkbox"/> Agree	<input type="checkbox"/> Strongly agree
I can analyze and visualize HAI/AR surveillance data using statistical software and other digital tools or direct these responsibilities to the appropriate staff member(s).	<input type="checkbox"/> Strongly disagree	<input type="checkbox"/> Disagree	<input type="checkbox"/> Neither agree or disagree	<input type="checkbox"/> Agree	<input type="checkbox"/> Strongly agree
I understand how my responsibilities support my LHD's HAI/AR surveillance activities.	<input type="checkbox"/> Strongly disagree	<input type="checkbox"/> Disagree	<input type="checkbox"/> Neither agree or disagree	<input type="checkbox"/> Agree	<input type="checkbox"/> Strongly agree



Domain 4: Data & Informatics

Activity 4.1 Review Domain Overview

Facilitating and coordinating an effective HAI/AR program requires much data and informatics. Professionals responsible for HAI/AR in healthcare settings, health departments, and other organizations use data and leverage informatics to collect and analyze surveillance data. This data helps them identify outbreaks of HAIs, establish trends, target prevention efforts, and support policy development.

Multiple tools, including electronic databases, statistical software, and spreadsheets, can assist with these activities. Learning how to use these tools to interpret data and inform decisions about HAI/AR is the foundation of this domain.

Read on to learn LHDs' roles in these activities and the staff competencies you may need to support them.

Domain 4 Competencies

- Electronic database management skills
- Statistical software proficiency
- Spreadsheet proficiency
- Project management
- Strategic and tactical thinking
- Strong data literacy



Activity 4.2 Complete the Pre-Assessment

Before accessing material in this domain, please rate your level of agreement for each of the following statements.

Competency Statement	Agreement Level				
I know how to use data to inform my HAI/AR responsibilities.	<input type="checkbox"/> Strongly disagree	<input type="checkbox"/> Disagree	<input type="checkbox"/> Neither agree or disagree	<input type="checkbox"/> Agree	<input type="checkbox"/> Strongly agree
I know how to use databases to store, manage, analyze, and report data from multiple sources.	<input type="checkbox"/> Strongly disagree	<input type="checkbox"/> Disagree	<input type="checkbox"/> Neither agree or disagree	<input type="checkbox"/> Agree	<input type="checkbox"/> Strongly agree
I understand my responsibilities pertaining to the use of statistical software to analyze and visualize data.	<input type="checkbox"/> Strongly disagree	<input type="checkbox"/> Disagree	<input type="checkbox"/> Neither agree or disagree	<input type="checkbox"/> Agree	<input type="checkbox"/> Strongly agree
I know who's responsible for interpreting and communicating HAI/AR data in my LHD.	<input type="checkbox"/> Strongly disagree	<input type="checkbox"/> Disagree	<input type="checkbox"/> Neither agree or disagree	<input type="checkbox"/> Agree	<input type="checkbox"/> Strongly agree
I understand how my responsibilities support my LHD's role in the collection, analysis, and communication of HAI/AR data.	<input type="checkbox"/> Strongly disagree	<input type="checkbox"/> Disagree	<input type="checkbox"/> Neither agree or disagree	<input type="checkbox"/> Agree	<input type="checkbox"/> Strongly agree



Activity 4.3 Review Health Department Roles & Staff Competencies

Managing data and informatics helps LHDs support most of the other domains in this workbook. This is largely because LHDs use data to inform decision-making, develop HAI/AR infection prevention and control policies, and many other activities. Read on to learn what the recommended LHD's roles and staff competencies are for this domain.

LHD Role 4a. Implement infection prevention activities using available data to tailor and focus efforts

Infection prevention and control activities are fluid. They can change at a moment's notice based on the rate of spread and severity of HAI/AR cases. Collecting and analyzing data about HAI/AR cases helps LHD staff, healthcare providers, and other stakeholders make decisions to prevent and contain outbreaks.

Competencies for LHD HAI/AR program leaders and experts:

- Discuss HAI/AR prevention activities with your state's HAI/AR program, including HAI/AR data, reports, and prevention goals.
- Competencies for new LHD HAI/AR staff:
- Access data through electronic health records, state surveillance data systems, GIS mapping, and targeted outreach campaigns if available.
- Review available data regarding surveillance trends and outbreaks to prioritize intervention efforts in collaboration with your state's HAI/AR program.
- Analyze surveillance data to identify trends across facilities within your jurisdiction and leverage available HAI/AR data to intervene.
- Promote the implementation of research findings into evidence-based practices.

LHD role 4b. Increase the local public health community's awareness of recent HAI/AR guidance, data, programs, and policies.

Guidance, data, programming, and policies for HAI/AR are updated continuously based on advancements in science, medicine, and medical technology. The LHD works to ensure the people in your jurisdiction are abreast of these changes as they happen.

Competencies for new LHD HAI/AR staff:

- Identify necessary steps for accessing HAI/AR data sources at the local level.
- Increase awareness of the processes in place for accessing HAI/AR data, such as the CDC's National Healthcare Safety Network (NHSN) or other county-level data.
- Understand HAI/AR reporting policies and procedures for different types of healthcare facilities.
- Understand which guidelines and standards should inform daily clinical practice, how evidence should be adopted as an accepted practice, and how to apply research in your HAI/AR responsibilities.



LHD Role 4c. Use strategies to adopt and integrate evidence-based health interventions and change practice patterns within specific settings.

Infection prevention and control activities are fluid. They can change at a moment's notice based on the rate of spread and severity of HAI/AR cases. Collecting and analyzing data about HAI/AR cases helps LHD staff, healthcare providers, and other stakeholders make decisions to prevent and contain outbreaks.

Competencies for LHD HAI/AR program leaders and experts:

- Discuss HAI/AR prevention activities with your state's HAI/AR program, including HAI/AR data, reports, and prevention goals.
- Competencies for new LHD HAI/AR staff:
- Access data through electronic health records, state surveillance data systems, GIS mapping, and targeted outreach campaigns if available.
- Review available data regarding surveillance trends and outbreaks to prioritize intervention efforts in collaboration with your state's HAI/AR program.
- Analyze surveillance data to identify trends across facilities within your jurisdiction and leverage available HAI/AR data to intervene.
- Promote the implementation of research findings into evidence-based practices.

LHD Role 4d. Increase the local public health community's awareness of recent HAI/AR guidance, data, programs, and policies.

Guidance, data, programming, and policies for HAI/AR are updated continuously based on advancements in science, medicine, and medical technology. The LHD works to ensure the people in your jurisdiction are abreast of these changes as they happen.

Competencies for new LHD HAI/AR staff:

- Identify necessary steps for accessing HAI/AR data sources at the local level.
- Increase awareness of the processes in place for accessing HAI/AR data, such as the CDC's National Healthcare Safety Network (NHSN) or other county-level data.
- Understand HAI/AR reporting policies and procedures for different types of healthcare facilities.
- Understand which guidelines and standards should inform daily clinical practice, how evidence should be adopted as an accepted practice, and how to apply research in your HAI/AR responsibilities.

LHD Role 4e. Use strategies to adopt and integrate evidence-based health interventions and change practice patterns within specific settings.

Research studies help public health and healthcare professionals identify new evidence-based health interventions. As the latest findings are released, you may choose to implement them as you perform your HAI/AR responsibilities.



Competencies for new LHD HAI/AR staff:

- Identify current frameworks for integrating evidence-based interventions and existing evidence-based interventions that the LHD could utilize.
- Critically assess content, validity, and reliability.
- Implement the very best research into the LHD's practices.
- Use standardized frameworks (e.g., [Precede-Proceed](#) or [Intervention Mapping](#)) to use evidence in practice successfully.
- Consider standardized frameworks when evaluating or designing an implementation study.
- Monitor neighboring regions and other local and regional health departments for successful interventions.

LHD Role 4f. Assesses community health status using data & informatics.

LHD's collect data during HAI/AR case surveillance and investigation. Analyzing this data can paint a picture of the community's health status and inform public health decisions.

Competencies for new LHD HAI/AR staff:

- Collect, analyze, manage, and use quantitative and qualitative data.
- Apply public health informatics in using data, information, and knowledge.
- Manage information systems to promote data collection, processing, and analysis effectiveness and security.
- Leverage data inputs to help identify HAIs and other reportable infection prevention data.
- Communicate results through automated reporting.
- Perform due diligence in the implementation and ongoing validation of surveillance technology.
- Keep pace with technology improvement and anticipate ways to harness programs across the continuum of care and for historically relevant data within a system.

LHD Role 4g. Use and leverage systems to input, analyze, extract, and manage data to support and drive data integrity, process streamlining, innovative infection prevention and control practices, and positive patient outcomes.

Many different kinds of statistical software and other digital tools help LHDs analyze and manage data, which can be leveraged for various HAI/AR activities. This data can help LHDs support their partner's HAI/AR objectives, such as helping healthcare providers improve patient outcomes and adopting evolving infection prevention and control practices.

Competencies for new LHD HAI/AR staff:

- Identify and monitor electronic medical records and data-sharing systems.
- Create data management processes for the IPC program.
- Transform raw data into usable information.



- Understand the gaps in the interpretation and use of data to ensure meaningfulness and accuracy.
- Keep abreast of current technologies available to streamline the surveillance process.
- Validate, store, protect, and correctly process infection-related data to ensure accessibility, reliability, and timeliness.
- Visualize data using charts, graphs, etc., to facilitate the identification of patterns, trends, and correlations.
- Incorporate and tailor data visualization methods when disseminating infection prevention and control data to end users.
- Update data regularly and make it available to community stakeholders for analysis.

LHD Role 4h. Analyze, interpret, and use AR surveillance data for comprehensive surveillance.

Many LHDs monitor AR, requiring frequent surveillance, data analysis, and interpretation.

Competencies for new LHD HAI/AR staff:

- Maintain or consider a plan for accessing specific data and when LHD response is warranted.
- Maintain competency in new techniques and technologies for the analysis, interpretation, and application of AR surveillance data.
- Provide direct technical assistance that enables healthcare facilities to report clinical and epidemiological data directly to the appropriate health department.



Activity 4.4 Take Action

Now that you've learned about the recommended LHD roles and staff competencies, learn more about this domain by completing the tasks below. Use the Take Action Worksheet to record key information as you progress through each task.

Training Tasks

Complete the [Data Interpretation for Public Health Professionals Training](#) to understand how to interpret public health data. (1.5 hours)

Complete the following NHSN trainings:

- [Webinar: Data Utilization for LHDs](#) (1 hour)
- [Antimicrobial Use and Resistance Data](#) (1 hour)
- [MDRO and CDI LabID Event Training](#) (1.25 hours)
- [Procedure-Associated Module Training](#) (1.5 hours)

Resource Review Tasks

Determine if and how you should be able to access the [CDC's National Healthcare Safety Network \(NHSN\)](#).

Reference [FAQs on Data Use Agreements for Health Departments](#) to develop data use agreements with healthcare facilities within your jurisdiction.

Tool Review Tasks

Access the [Council of State and Territorial Epidemiologists' HAI Data Analysis & Presentation Standardization Toolkit](#) to learn strategies for tailoring HAI reports to your audience. Note: This is best suited for LHDs with advanced HAI/AR capacity.

Additional Domain Tasks

Use the space below to include additional trainings, resources, and tools that will help increase competency in this domain.



TAKE ACTION WORKSHEET

Instructions: Use the spaces below to record key competency building information for this domain.

1. What data is available within the LHD from healthcare facilities in your jurisdiction, laboratories, health information exchange(s), and your state's health department?

2. How robust is the data management system used by the LHD?

a. What gaps exist in the data management systems utilized by the LHD?

b. How might data management protocols be strengthened and streamlined?

3. To what extent are data communications and reporting developed by the LHD meeting the needs of the LHD and healthcare facility staff?



Activity 4.5 Complete the Post-Assessment

Now that you've completed the activities in this domain, please rate your level of agreement for each of the following statements. Reflect on how your competency has changed from the pre-assessment.

Competency Statement	Agreement Level				
I know how to use data to inform my HAI/AR responsibilities.	<input type="checkbox"/> Strongly disagree	<input type="checkbox"/> Disagree	<input type="checkbox"/> Neither agree or disagree	<input type="checkbox"/> Agree	<input type="checkbox"/> Strongly agree
I know how to use databases to store, manage, analyze, and report data from multiple sources.	<input type="checkbox"/> Strongly disagree	<input type="checkbox"/> Disagree	<input type="checkbox"/> Neither agree or disagree	<input type="checkbox"/> Agree	<input type="checkbox"/> Strongly agree
I understand my responsibilities pertaining to the use of statistical software to analyze and visualize data.	<input type="checkbox"/> Strongly disagree	<input type="checkbox"/> Disagree	<input type="checkbox"/> Neither agree or disagree	<input type="checkbox"/> Agree	<input type="checkbox"/> Strongly agree
I know who's responsible for interpreting and communicating HAI/AR data in my LHD.	<input type="checkbox"/> Strongly disagree	<input type="checkbox"/> Disagree	<input type="checkbox"/> Neither agree or disagree	<input type="checkbox"/> Agree	<input type="checkbox"/> Strongly agree
I understand how my responsibilities support my LHD's role in the collection, analysis, and communication of HAI/AR data.	<input type="checkbox"/> Strongly disagree	<input type="checkbox"/> Disagree	<input type="checkbox"/> Neither agree or disagree	<input type="checkbox"/> Agree	<input type="checkbox"/> Strongly agree



Domain 5: Outbreaks & Investigation

Activity 5.1 Review Domain Overview

LHD staff may be called to investigate infections and outbreaks in healthcare and community settings. This requires determining case definitions, gathering surveillance data, and identifying infection risk factors. These competencies allow LHD staff to identify mitigation activities, recommend strategies for implementation and sustainment, and monitor compliance practices.

Read on to learn more about health department roles in this domain and to access tools and resources that build competency in these areas.

Domain 5 Competencies:

- Critical thinking
- Data analysis
- Data collection & analysis



Activity 5.2 Complete the Pre-Assessment

Before accessing material in this domain, please rate your level of agreement for each of the following statements.

Competency Statement	Agreement Level				
I understand my role in identifying an outbreak and conducting an investigation.	<input type="checkbox"/> Strongly disagree	<input type="checkbox"/> Disagree	<input type="checkbox"/> Neither agree or disagree	<input type="checkbox"/> Agree	<input type="checkbox"/> Strongly agree
I know how my LHD develops and updates healthcare preparedness and response plans in accordance with HAI/AR priorities.	<input type="checkbox"/> Strongly disagree	<input type="checkbox"/> Disagree	<input type="checkbox"/> Neither agree or disagree	<input type="checkbox"/> Agree	<input type="checkbox"/> Strongly agree
I understand my LHD's policies and procedures to coordinate a team for HAI/AR outbreak and response efforts.	<input type="checkbox"/> Strongly disagree	<input type="checkbox"/> Disagree	<input type="checkbox"/> Neither agree or disagree	<input type="checkbox"/> Agree	<input type="checkbox"/> Strongly agree
I know who's responsible for collecting and analyzing qualitative and quantitative data to inform HAI/AR outbreak investigations in my LHD.	<input type="checkbox"/> Strongly disagree	<input type="checkbox"/> Disagree	<input type="checkbox"/> Neither agree or disagree	<input type="checkbox"/> Agree	<input type="checkbox"/> Strongly agree
I understand how my responsibilities support my LHD's role in outbreaks and investigations related to HAI/AR.	<input type="checkbox"/> Strongly disagree	<input type="checkbox"/> Disagree	<input type="checkbox"/> Neither agree or disagree	<input type="checkbox"/> Agree	<input type="checkbox"/> Strongly agree



Activity 5.3 Review Health Department Roles & Staff Competencies

When there is an outbreak in a healthcare setting, the LHD takes immediate action, collaborating with healthcare providers and other stakeholders to investigate the pathogen, assess risk, and mitigate its spread. Read on to learn what the recommended LHD roles and staff competencies are for this domain.

LHD Role 5a. Develop and/or update local healthcare preparedness and response plans to include capacity for responding to HAI/AR threats and outbreaks.

Developing policies and procedures for HAI/AR threats and outbreaks helps LHDs better manage these situations. These policies and procedures should outline what the LHD and community partners are responsible for and designate staff to monitor and execute HAI/AR activities.

Competencies for new LHD HAI/AR staff:

- Engage with your state HAI/AR program and key preparedness stakeholders to inform local preparedness activities.
- Discuss the role of local public health in addressing healthcare outbreak response when collaborating with the state HAI/AR program, including plans for notification, activation, activation levels, response, resource allocation and training, and communication pathways.
- Routinely engage with state HAI/AR or Public Health Emergency Preparedness programs to align preparedness and response strategies and policies and identify elements related to HAI/AR activities.
- Conduct literature reviews.

LHD Role 5b. Implement HAI/AR outbreak and response strategies using data to identify appropriate participation in local, regional, and statewide approaches.

Real-time data should inform decisions and responses during the HAI/AR outbreak. The LHD's role is to use that data to help determine which outbreak and investigation activities are necessary at the local, regional, and state levels.

Competencies for new LHD HAI/AR staff:

- Familiarize LHD staff with [CORHA Principles and Practices for Outbreak Response](#).
- Develop a communications plan to notify patients of adverse events (*CORHA Resources and Products*)
- Develop or use a tracking system and protocols to actively monitor outbreak response activities. ([CORHA Principles and Practices for Outbreak Response](#))
- Disseminate health alerts, staff notifications, and other messages to internal and external audiences.
- Confirm outbreaks using data.
- Communicate pertinent outbreak information with the media to keep the community informed.
- Notify critical partners about the investigation.
- Establish and refine case definition and case-finding methodology.



LHD Role 5c. Implement infection prevention activities using available data to tailor and focus efforts.

HAI/AR outbreak data is crucial for implementing appropriate interventions. As stakeholders learn more about the outbreak, they can make informed decisions to mitigate risk and transmission as much as possible.

Competencies for new LHD HAI/AR staff:

- Investigate risk factors that affect the health of a community.
- Understand the content in CDC's Infection Control Assessment and Response (ICAR) tools.
- Contact the state health department or nearby LHDs conducting ICAR activities for career shadowing opportunities.
- Conduct ICAR assessments at facilities in your jurisdiction to systematically assess a healthcare facility's infection prevention and control practices and guide quality improvement activities.
- Conduct HAI/AR investigations and interviews while accommodating the needs of the population.
- Identify the case definition for the HAI/AR outbreak.
- Prepare line lists and epidemic curves.
- Observe implicated healthcare activities.
- Sample the environment and devices, if indicated.
- Collect, analyze, manage, and use quantitative and qualitative data.



Activity 5.4 Take Action

Now that you've learned about the recommended LHD roles and staff competencies, learn more about this domain by completing the tasks below. Use the Take Action Worksheet to record key information as you progress through each task.

Training Tasks

Take this [Introduction to Outbreak Investigation](#) course through TRAIN. (1 hour)

Advance your skills and capacity in outbreaks and investigations through this TRAIN course: [CSTE Emergency Preparedness and Response Training for Public Health Epidemiologists](#). (2.5 hours)

Resource Review Tasks

Review [CORHA Principles and Practices for Healthcare Outbreak Response](#), paying particular attention to [Chapter 2: Fundamental Concepts](#) and [Chapter 5: Investigation & Control](#).

Schedule a meeting with the emergency preparedness professionals in your jurisdiction that need to be involved in an HAI/AR outbreak response, as appropriate, and/or join your local healthcare coalition.

Access courses, tools, and resources for ICAR and IPC through the CDC: [Infection Control Assessment and Response \(ICAR\) Tool for General Infection Prevention and Control \(IPC\) Across Settings](#).

Tool Review Tasks

Use or adapt the [Example Line List and Data Collection Tool](#) for a HAI line list.

Use or adapt the [Sample Infection Control Survey for Residential Care](#) to record responses when you contact numerous facilities in a jurisdiction during a widespread outbreak.

Additional Domain Tasks

Use the space below to include additional trainings, resources, and tools that will help increase competency in this domain.



TAKE ACTION WORKSHEET

Instructions: Use the spaces below to record key competency building information for this domain.

1. What are the key roles in the LHD's standard operating procedures for conducting a HAI/AR outbreak investigation?

- a. What are healthcare facilities within the jurisdiction responsible for during an outbreak?
- b. How does the LHD coordinate with healthcare facilities?
- c. Under what circumstances do you reach out to a regional or state subject matter expert?

2. How does the LHD adjust HAI/AR outbreak response based on data collected during the outbreak investigation and implement changes in HAI/AR outbreak interventions and investigations based on data?

- a. What type of data is used to inform what specimens need to be collected?
- b. What type of data is used to inform infection control recommendations?



Activity 5.5 Complete the Post-Assessment

Now that you've completed the activities in this domain, please rate your level of agreement for each of the following statements. Reflect on how your competency has changed from the pre-assessment.

Competency Statement	Agreement Level				
I understand my role in identifying an outbreak and conducting an investigation.	<input type="checkbox"/> Strongly disagree	<input type="checkbox"/> Disagree	<input type="checkbox"/> Neither agree or disagree	<input type="checkbox"/> Agree	<input type="checkbox"/> Strongly agree
I know how my LHD develops and updates healthcare preparedness and response plans in accordance with HAI/AR priorities.	<input type="checkbox"/> Strongly disagree	<input type="checkbox"/> Disagree	<input type="checkbox"/> Neither agree or disagree	<input type="checkbox"/> Agree	<input type="checkbox"/> Strongly agree
I understand my LHD's policies and procedures to coordinate a team for HAI/AR outbreak and response efforts.	<input type="checkbox"/> Strongly disagree	<input type="checkbox"/> Disagree	<input type="checkbox"/> Neither agree or disagree	<input type="checkbox"/> Agree	<input type="checkbox"/> Strongly agree
I know who's responsible for collecting and analyzing qualitative and quantitative data to inform HAI/AR outbreak investigations in my LHD.	<input type="checkbox"/> Strongly disagree	<input type="checkbox"/> Disagree	<input type="checkbox"/> Neither agree or disagree	<input type="checkbox"/> Agree	<input type="checkbox"/> Strongly agree
I understand how my responsibilities support my LHD's role in outbreaks and investigations related to HAI/AR.	<input type="checkbox"/> Strongly disagree	<input type="checkbox"/> Disagree	<input type="checkbox"/> Neither agree or disagree	<input type="checkbox"/> Agree	<input type="checkbox"/> Strongly agree



Domain 6: Health Education & Communication

Activity 6.1 Review Domain Overview

Health education and communication practices support most LHD activities and responsibilities, including those related to HAI/AR. Several different audiences benefit from HAI/AR education opportunities, including healthcare providers, patients, caregivers, and other community stakeholders. LHD staff may be tasked with providing a variety of health education and communication services on topics such as:

- Infection prevention and control principles
- HAI/AR pathogens, risks and precautions, and disease processes
- Changes in HAI/AR priorities

The instructional design and teaching of these concepts varies depending on your audience. To be an effective educator and communicator, you'll need to tailor the content and delivery methods you use for each audience. In this domain, you'll learn how to build your health education and communication competency to support your LHD's HAI/AR priorities.

Domain 6 Competencies:

- Communication
- Curriculum development
- Evaluation
- Assessment
- Program Development and Planning



Activity 6.2 Complete the Pre-Assessment

Before accessing material in this domain, please rate your level of agreement for each of the following statements.

Competency Statement	Agreement Level				
I know who is responsible for designing and facilitating HAI/AR communication programs and educational trainings in my LHD.	<input type="checkbox"/> Strongly disagree	<input type="checkbox"/> Disagree	<input type="checkbox"/> Neither agree or disagree	<input type="checkbox"/> Agree	<input type="checkbox"/> Strongly agree
I know where to find professional educational opportunities to expand my HAI/AR knowledge and skills.	<input type="checkbox"/> Strongly disagree	<input type="checkbox"/> Disagree	<input type="checkbox"/> Neither agree or disagree	<input type="checkbox"/> Agree	<input type="checkbox"/> Strongly agree
I understand the importance of tailoring education and communication content and delivery methods for different audiences, such as healthcare providers, patients, colleagues, and others.	<input type="checkbox"/> Strongly disagree	<input type="checkbox"/> Disagree	<input type="checkbox"/> Neither agree or disagree	<input type="checkbox"/> Agree	<input type="checkbox"/> Strongly agree
I know where to find information about best practices for communicating and teaching IPC guidance and education to others.	<input type="checkbox"/> Strongly disagree	<input type="checkbox"/> Disagree	<input type="checkbox"/> Neither agree or disagree	<input type="checkbox"/> Agree	<input type="checkbox"/> Strongly agree
I understand how my responsibilities support my LHD's HAI/AR program priorities.	<input type="checkbox"/> Strongly disagree	<input type="checkbox"/> Disagree	<input type="checkbox"/> Neither agree or disagree	<input type="checkbox"/> Agree	<input type="checkbox"/> Strongly agree



Activity 6.3 Review Health Department Roles & Staff Competencies

Your LHD providing professional education opportunities for LHD staff and public health professionals in your jurisdiction is crucial for successfully carrying out HAI/AR activities. However, you must take advantage of these opportunities presented to you. Read on to learn what the recommended LHD roles and staff competencies are for this domain.

LHD Role 6a. Become a resource and catalyst for change for healthcare providers, ancillary staff, patients, families, and the general public.

LHDs provide oversight and resources to community partners and other stakeholders to help facilitate HAI/AR activities. Practical communication skills help LHD staff achieve buy-in from stakeholders and ensure they understand necessary policies and procedures.

Competencies for new LHD HAI/AR staff:

- Be knowledgeable of the foundations of IPC, including the process for identifying an infectious disease and how to prevent and control the transmission of infectious agents.
- Anticipate potential barriers to effective communication.
- Tailor communication content and delivery methods to your audience.
- Persuade and influence others.
- Utilize internal PIO and marketing when communicating with the community
- Offer brief education and training targeted to the community using social media and other mediums to build trust and knowledge.
- Create awareness campaigns.
- Develop an HAI/AR team or program to ensure staff are adequately trained to support a variety of HAI/AR activities.

LHD Role 6b. Leverage existing training to increase LHD staff awareness of different modalities to communicate about infection prevention and control and provide education (i.e., role play, simulation activities, case studies, and sample scripts).

Effective professional education opportunities in health education and communication aren't limited to new courses and workshops. Existing trainings are a great resource for LHD staff, especially when they're in the form of self-paced courses and webinar recordings.

Competencies for new LHD HAI/AR staff:

- Understand core adult learning principles and stay abreast of new teaching methods and technologies.
- Facilitate accessible communication among individuals, groups, and organizations.
- Assess the educational needs of staff, patients, students, and visitors on infection prevention and control topics.
- Develop and deliver interactive education sessions and materials.



Domain 6. Education & Communication

- Ensure learning opportunities you deliver are memorable, meaningful, and motivating.
- Solicit feedback on trainings to gauge their impact and success in achieving desired outcomes.
- Leverage and adapt existing trainings (e.g., Project Firstline, NACCHO HAI Resources) on IPC practices.
- Understand and be able to apply health and risk communication theories and principles.
- Be able to develop communication strategies.
- Communicate with internal and external audiences.
- Respond to information, misinformation, and disinformation.



Activity 6.4 Take Action

Now that you've learned about the recommended LHD roles and staff competencies, learn more about this domain by completing the tasks below. Use the Take Action Worksheet to record key information as you progress through each task.

Training Tasks

Take courses through [CDC's Project Firstline](#) to understand infection prevention and control basics.

Complete this course on [How to Teach Adults: Strategies for Creating Meaningful Learning Experiences](#) to learn best practices in teaching adult learners. (1 hour)

Complete this course on [Communication Skills for Successful Healthcare Team Relationships](#) to learn or refresh skills in relationship-building with healthcare facility staff. (1 hour)

Resource Review Tasks

Review [Chapter 8: Notification and Communication](#) of [CORHA Principles and Practices for Outbreak Response](#) to learn who, what, how, and when to notify and communicate information related to HAI outbreaks.

Review and adapt the DuPage HAI/AR provider education tools/resources:

- [Do you need antibiotics flyer](#)
- [Antibiotic brochure](#)
- [LTC clinician education sheet](#)
- [LTC brochure](#)
- [UTI protocol](#)

Refer healthcare staff to [CDC's Project Firstline](#) for trainings on specific infection prevention and control topics.

Tool Review Tasks

Incorporate this [Hand Hygiene Observer Training Competency Test](#) into educational activities you design and facilitate with healthcare workers.

Share this [Cleaning and Disinfection Educational Tool](#) with healthcare facilities.

Consider using and sharing APIC posters for healthcare facilities to educate staff and the public about HAI/AR concepts and best practices.

Additional Domain Tasks

Use the space below to include additional trainings, resources, and tools that will help increase competency in this domain.



TAKE ACTION WORKSHEET

Instructions: Use the spaces below to record key competency building information for this domain.

1. Describe some ways you can tailor your educational workshops and trainings to different audiences.

2. Identify the adult education principles and delivery methods you will apply to teach different audiences.

3. List the principles of effective communication.

4. Describe the principles of effective communication that you need to strengthen.

a. What steps will you take to strengthen these principles?



Activity 6.5 Complete the Post-Assessment

Now that you've completed the activities in this domain, please rate your level of agreement for each of the following statements. Reflect on how your competency has changed from the pre-assessment.

Competency Statement	Agreement Level				
I know who is responsible for designing and facilitating HAI/AR communication programs and educational trainings in my LHD.	<input type="checkbox"/> Strongly disagree	<input type="checkbox"/> Disagree	<input type="checkbox"/> Neither agree or disagree	<input type="checkbox"/> Agree	<input type="checkbox"/> Strongly agree
I know where to find professional educational opportunities to expand my HAI/AR knowledge and skills.	<input type="checkbox"/> Strongly disagree	<input type="checkbox"/> Disagree	<input type="checkbox"/> Neither agree or disagree	<input type="checkbox"/> Agree	<input type="checkbox"/> Strongly agree
I understand the importance of tailoring education and communication content and delivery methods for different audiences, such as healthcare providers, patients, colleagues, and others.	<input type="checkbox"/> Strongly disagree	<input type="checkbox"/> Disagree	<input type="checkbox"/> Neither agree or disagree	<input type="checkbox"/> Agree	<input type="checkbox"/> Strongly agree
I know where to find information about best practices for communicating and teaching IPC guidance and education to others.	<input type="checkbox"/> Strongly disagree	<input type="checkbox"/> Disagree	<input type="checkbox"/> Neither agree or disagree	<input type="checkbox"/> Agree	<input type="checkbox"/> Strongly agree
I understand how my responsibilities support my LHD's HAI/AR program priorities.	<input type="checkbox"/> Strongly disagree	<input type="checkbox"/> Disagree	<input type="checkbox"/> Neither agree or disagree	<input type="checkbox"/> Agree	<input type="checkbox"/> Strongly agree



Domain 7: Health Equity

Activity 7.1 Review Domain Overview

Health equity is defined by CDC as “the state in which everyone has a fair and just opportunity to achieve their highest level of health.” When working towards health equity, it is essential that LHD staff consider addressing historical and contemporary injustices, overcoming barriers to healthcare access, and eliminating preventable health disparities.

Health equity efforts require recognizing systemic and structural elements that contribute to health inequities across populations based on social determinants of health (SDOH). The CDC defines SDOH as “non-medical factors that influence health outcomes.”

When health equity is prioritized, everyone benefits.

Domain 7 Competencies:

- Social justice mindset
- Advocacy
- Self-awareness
- Growth mindset



Activity 7.2 Complete the Pre-Assessment

Before accessing material in this domain, please rate your level of agreement for each of the following statements.

Competency Statement	Agreement Level				
I know why conducting HAI/AR activities with a health equity focus is essential.	Strongly disagree	Disagree	Neither agree or disagree	Agree	Strongly agree
	<input type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>
I understand how cultural differences, implicit and explicit biases, socioeconomic status, and other factors influence health outcomes.	<input type="checkbox"/> Strongly disagree	<input type="checkbox"/> Disagree	<input type="checkbox"/> Neither agree or disagree	Agree	Strongly agree
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I know my LHD's policies for diversity, equity, and inclusion.	Strongly disagree	Disagree	Neither agree or disagree	Agree	Strongly agree
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I understand how my job responsibilities support my LHD's HAI/AR program and focus on health equity.	Strongly disagree	Disagree	Neither agree or disagree	Agree	Strongly agree



Activity 7.3 Review Health Department Roles & Staff Competencies

Health equity programs and activities account for a community member's unique characteristics, needs, and preferences to ensure every person is aware and has access to the resources, tools, and information necessary to achieve optimal health. This may include tailoring communication activities to best serve specific audiences, incorporating language justice practices, using quantitative and qualitative data to identify access gaps, and incorporating community-engaged approaches to support HAI/AR program activities. Read on to learn what the recommended LHD roles and staff competencies are for this domain.

LHD Role 7a. Assess health equity in the jurisdiction of the local health department (LHD).

A health equity needs assessment may help you identify historically marginalized populations experiencing greater burdens of HAI/AR, the community-based organizations serving these populations and/or engaging in health equity work. Once the assessment is complete, the LHD will better understand gaps and opportunities to improve health equity in the jurisdiction.

Competencies for new LHD HAI/AR staff:

- If your LHD conducts community health assessments, promote the inclusion of HAI/AR and equity questions into the assessment.
- Establish or serve on a health equity committee or task force within your LHD.
- Help align priorities of an existing health equity committee to incorporate HAI/AR activities.
- Identify common social determinants of health - the nonmedical factors that influence HAI/AR - and define ways to address them.
- Identify all publicly available data sources and information that can demonstrate where health inequities are greatest.

LHD Role 7b. Increase local public health awareness of the latest HAI/AR guidance, data, programs, and policies that impact the community.

SDOH, such as poverty, unequal access to nutritious food, safe spaces for physical activity, and healthcare, contribute to health inequities. The LHD's role is to share about programs and resources to help address SDOH (e.g., financial assistance, food services, transportation for healthcare, etc.).

Competencies for new LHD HAI/AR staff:

- Demonstrate commitment to achieving and sustaining a diverse, inclusive, and competent public health workforce.
- Ensure that all populations within the jurisdiction are engaged in planning local and state HAI/AR program strategies.
- Implement organizational policies, programs, and services to improve health equity and promote social and environmental justice.



- Advocate for health equity, as well as social and environmental justice.
- Invite community members to participate on advisory boards, committees, or coalitions.
- Solicit feedback from community members.

LHD Role 7c. Support HAI/AR activities that promote health equity and are aligned with state health equity priorities.

Promoting health equity in your jurisdiction can help your LHD improve HAI/AR outcomes.

Competencies for new LHD HAI/AR staff:

- Recognize and understand the diversity of individuals and populations in your jurisdiction.
- Reduce systemic and structural barriers that perpetuate health inequities.
- Discuss health equity goals with the state HAI/AR program for understanding and awareness.
- Collaborate with partners to align health equity approaches and maximize resources.
- Develop local-level HAI/AR health equity goals based on your jurisdiction's priority populations and surveillance data.
- Design surveillance systems using ethics, DEIA, and language justice principles.
- Apply principles of ethics, diversity, equity, inclusion, and justice.
- Apply evidence-based interventions and control measures, such as considering DEIA and the needs of intentionally marginalized communities within the community.
- Conduct investigations and interviews while accommodating the needs of the population.
- Engage in continuous self-reflection about one's biases.



Activity 7.4 Take Action

Now that you've learned about the recommended LHD roles and staff competencies, learn more about this domain by completing the tasks below. Use the Take Action Worksheet to record key information as you progress through each task.

Training Tasks

Complete NACCHO's [Roots of Health Inequity course](#).

Resource Review Tasks

Review this resource from the CDC: [CDC Prioritizes Health Equity Related to AR](#).

Review [Equitable Outbreak Response and Prevention in Healthcare Settings: A Comprehensive Guide for Local Health Departments](#).

Tool Review Tasks

Use the [CDC's AR & Patient Safety Portal](#) to analyze and visualize HAI/AR data for your jurisdiction, including demographic information.

Visit the [NACCHO website for Health Equity and Social Justice resources](#) and the [Infectious Disease webpage](#) for resources specific to integrating equity into HAI/AR.

Additional Domain Tasks

Use the space below to include additional trainings, resources, and tools that will help increase competency in this domain.



TAKE ACTION WORKSHEET

Instructions: Use the spaces below to record key competency building information for this domain.

1. Describe the steps you can take to integrate health equity principles while performing your HAI/AR responsibilities?

--

2. List the facilities in your jurisdiction that have been historically disinvested or marginalized due to race, ethnicity, language, or other factors.

Facility Name	Address	Notes (population served, rural/urban, number of beds)

3. List the facilities that are the most under-resourced (e.g., independent facilities serving low-income residents) in your jurisdiction.

Facility Name	Address	Notes

4. List the facilities that serve those with intersecting health risks (e.g., residential behavioral health facilities, dialysis facilities serving those with limited healthcare access)?

Facility Name	Address	Notes

5. Based on health equity principles and the facilities you've listed above, identify the top 3-5 facilities that you will prioritize supporting when performing your HAI/AR responsibilities.

--



Activity 7.5 Complete the Post-Assessment

Now that you've completed the activities in this domain, please rate your level of agreement for each of the following statements. Reflect on how your competency has changed from the pre-assessment.

Competency Statement	Agreement Level				
I know why conducting HAI/AR activities with a health equity focus is essential.	<input type="checkbox"/> Strongly disagree	<input type="checkbox"/> Disagree	<input type="checkbox"/> Neither agree or disagree	<input type="checkbox"/> Agree	<input type="checkbox"/> Strongly agree
I understand how cultural differences, implicit and explicit biases, socioeconomic status, and other factors influence health outcomes.	<input type="checkbox"/> Strongly disagree	<input type="checkbox"/> Disagree	<input type="checkbox"/> Neither agree or disagree	<input type="checkbox"/> Agree	<input type="checkbox"/> Strongly agree
I know my LHD's policies for diversity, equity, and inclusion.	<input type="checkbox"/> Strongly disagree	<input type="checkbox"/> Disagree	<input type="checkbox"/> Neither agree or disagree	<input type="checkbox"/> Agree	<input type="checkbox"/> Strongly agree
I understand how my job responsibilities support my LHD's HAI/AR program and focus on health equity.	<input type="checkbox"/> Strongly disagree	<input type="checkbox"/> Disagree	<input type="checkbox"/> Neither agree or disagree	<input type="checkbox"/> Agree	<input type="checkbox"/> Strongly agree



Domain 8: Program & Budget Management

Activity 8.1 Review Domain Overview

Public health program management involves the oversight, implementation, and evaluation of programs, services, staffing, resources, and budget. LHD staff are increasingly being asked to take on additional responsibilities to overcome staffing and resource shortages. Building your competency in this area can provide you with advanced job opportunities in support of your LHD's HAI/AR program.

Read on to learn more about the LHD roles and staff competencies recommended for this domain.

Domain 8 competencies:

- Fiscal responsibility
- Program evaluation
- People management
- Critical thinking
- Program development and implementation



Activity 8.2 Complete the Pre-Assessment

Before accessing material in this domain, please rate your level of agreement for each of the following statements.

Competency Statement	Agreement Level				
I understand my HAI/AR management responsibilities and can perform HAI/AR activities with ease.	<input type="checkbox"/> Strongly disagree	<input type="checkbox"/> Disagree	<input type="checkbox"/> Neither agree or disagree	<input type="checkbox"/> Agree	<input type="checkbox"/> Strongly agree
I know who manages budgets for my LHD's HAI/AR programs or activities.	<input type="checkbox"/> Strongly disagree	<input type="checkbox"/> Disagree	<input type="checkbox"/> Neither agree or disagree	<input type="checkbox"/> Agree	<input type="checkbox"/> Strongly agree
I understand my LHD's safety policies and procedures for HAI/AR programs.	<input type="checkbox"/> Strongly disagree	<input type="checkbox"/> Disagree	<input type="checkbox"/> Neither agree or disagree	<input type="checkbox"/> Agree	<input type="checkbox"/> Strongly agree
I know who is responsible for evaluating how effective a program is and making adjustments to ensure we meet our goals.	<input type="checkbox"/> Strongly disagree	<input type="checkbox"/> Disagree	<input type="checkbox"/> Neither agree or disagree	<input type="checkbox"/> Agree	<input type="checkbox"/> Strongly agree
I understand how my responsibilities support my LHD's HAI/AR program and budgetary needs.	<input type="checkbox"/> Strongly disagree	<input type="checkbox"/> Disagree	<input type="checkbox"/> Neither agree or disagree	<input type="checkbox"/> Agree	<input type="checkbox"/> Strongly agree



Activity 8.3 Review Health Department Roles & Staff Competencies

To succeed in HAI/AR, health departments must acquire new funding or allocate existing funding to support program activities. This requires competencies in program and budget management. Not all staff will have to play program or budget management roles, but most will eventually, so fundamental knowledge is essential.

LHD Role 8a. Oversee HAI/AR program in its entirety or participates in executing the program's mission and goals.

Program management in HAI/AR involves coordinating multiple components. It includes responsibility for protecting patients, providers, and other stakeholders from emerging HAI/AR pathogens in the healthcare setting and managing the people who carry out LHD activities within the program.

Competencies for new LHD HAI/AR staff:

- Protect patients, healthcare workers, visitors, and others in the healthcare environment as cost-effectively as possible.
- Systematically evaluate the effectiveness of HAI/AR program(s) and appropriateness to the practice setting.
- Manage staff, including recruitment, retention, and professional development of staff.
- Leverage epidemiological data to inform the development of policies, programs, services, and laws.
- Evaluate programs, policies, services, laws, and organizational performance.
- Engage in organizational strategic planning, such as strategic prioritization and developing research agendas and action plans.
- Manage programs and services.
- Engage with individuals and teams to achieve program and organizational goals.
- Facilitate collaboration among individuals, groups, and organizations.
- Employ emotional intelligence and situational awareness when collaborating with interdisciplinary colleagues.
- Develop and practice forecasting, strategic planning, analyzing scenarios, and consensus-building.
- Manage expectations and competing priorities.
- Flexibility and nimbleness with shifting priorities and circumstances.
- Team building skills.
- Systems perspective.

LHD Role 8b. Practice fiscal responsibility and accountability to optimize available resources and ensure the safety of patients and the community

Budget management is crucial to ensuring program sustainability because HAI/AR initiatives can be expensive. LHDs monitor their budgets and other resources closely to keep patients safe and hold the department and staff accountable for spending and allocation choices.



Competencies for new LHD HAI/AR staff:

- Manage operational and financial resources for epidemiologic activities.
- Engage in epidemiologic activities within the organization's budget, operational plan, and financial rules.
- Secure extramural funding through proposals, grant applications, vendor contracts, and proposal requests.
- Secure and manage human and financial resources.
- Effectively and efficiently manage budgets, resources, personnel, and programs.



Activity 8.4 Take Action

Now that you've learned about the recommended LHD roles and staff competencies, learn more about this domain by completing the tasks below. Use the Take Action Worksheet to record key information as you progress through each task.

Training Tasks

Complete this [Budget Planning and Management](#) course. (1 hour)

Complete [Building Expertise in Administration and Management](#) certificate program. (6 hours)

Resource Review Tasks

Consult with you fiscal staff and program leads to understand funding mechanisms that support HAI/AR efforts within the jurisdiction.

Additional Domain Tasks

Use the space below to include additional trainings, resources, and tools that will help increase competency in this domain.



TAKE ACTION WORKSHEET

Instructions: Use the spaces below to record key competency building information for this domain.

1. Record the month(s) your LHD builds and approves its HAI/AR budget for the year.

2. Describe your responsibilities in your LHD's HAI/AR budget process.

3. Describe the steps you take to manage HAI/AR staff and program activities.

4. Describe your process for securing funding for HAI/AR programs and activities.

5. Brainstorm ideas for how you can use team building to improve staff cohesion and encourage a positive work environment. Record them below.



Activity 8.5 Complete the Post-Assessment

Now that you've completed the activities in this domain, please rate your level of agreement for each of the following statements. Reflect on how your competency has changed from the pre-assessment.

Competency Statement	Agreement Level				
I understand my HAI/AR management responsibilities and can perform HAI/AR activities with ease.	<input type="checkbox"/> Strongly disagree	<input type="checkbox"/> Disagree	<input type="checkbox"/> Neither agree or disagree	<input type="checkbox"/> Agree	<input type="checkbox"/> Strongly agree
I know who manages budgets for my LHD's HAI/AR programs or activities.	<input type="checkbox"/> Strongly disagree	<input type="checkbox"/> Disagree	<input type="checkbox"/> Neither agree or disagree	<input type="checkbox"/> Agree	<input type="checkbox"/> Strongly agree
I understand my LHD's safety policies and procedures for HAI/AR programs.	<input type="checkbox"/> Strongly disagree	<input type="checkbox"/> Disagree	<input type="checkbox"/> Neither agree or disagree	<input type="checkbox"/> Agree	<input type="checkbox"/> Strongly agree
I know who is responsible for evaluating how effective a program is and making adjustments to ensure we meet our goals.	<input type="checkbox"/> Strongly disagree	<input type="checkbox"/> Disagree	<input type="checkbox"/> Neither agree or disagree	<input type="checkbox"/> Agree	<input type="checkbox"/> Strongly agree
I understand how my responsibilities support my LHD's HAI/AR program and budgetary needs.	<input type="checkbox"/> Strongly disagree	<input type="checkbox"/> Disagree	<input type="checkbox"/> Neither agree or disagree	<input type="checkbox"/> Agree	<input type="checkbox"/> Strongly agree



Domain 9: Laboratory Diagnostics

Activity 9.1 Review Domain Overview

When there's a suspected HAI/AR in a healthcare facility, LHDs may help coordinate laboratory diagnostics to confirm the diagnosis. This is completed with community partners, including healthcare providers and a diagnostic laboratory.

Your responsibilities supporting HAI/AR laboratory diagnostic activities may vary, including coordinating specimen collection and following up on testing results. Read on to learn more about the LHD roles and staff competencies recommended for this domain.

Domain 9 competencies:

- Coordination
- Data analysis
- Diagnostic methodologies
- Budget management
- Collaboration
- Communication



Activity 9.2 Complete the Pre-Assessment

Before accessing material in this domain, please rate your level of agreement for each of the following statements.

Competency Statement	Agreement Level				
I am aware of my LHD and diagnostic laboratory's policies and procedures related to specimen collection and testing.	<input type="checkbox"/> Strongly disagree	<input type="checkbox"/> Disagree	<input type="checkbox"/> Neither agree or disagree	<input type="checkbox"/> Agree	<input type="checkbox"/> Strongly agree
I know who interprets test results and communicates the findings to key stakeholders.	<input type="checkbox"/> Strongly disagree	<input type="checkbox"/> Disagree	<input type="checkbox"/> Neither agree or disagree	<input type="checkbox"/> Agree	<input type="checkbox"/> Strongly agree
I understand the steps necessary to enhance collaboration and coordination among my LHD, diagnostic laboratories, and other entities supporting laboratory diagnostics.	<input type="checkbox"/> Strongly disagree	<input type="checkbox"/> Disagree	<input type="checkbox"/> Neither agree or disagree	<input type="checkbox"/> Agree	<input type="checkbox"/> Strongly agree
I understand the financial aspects of diagnostic testing, including any budgetary constraints my LHD must adhere to.	<input type="checkbox"/> Strongly disagree	<input type="checkbox"/> Disagree	<input type="checkbox"/> Neither agree or disagree	<input type="checkbox"/> Agree	<input type="checkbox"/> Strongly agree
I understand how my responsibilities support my LHD's HAI/AR program and laboratory diagnostics activities.	<input type="checkbox"/> Strongly disagree	<input type="checkbox"/> Disagree	<input type="checkbox"/> Neither agree or disagree	<input type="checkbox"/> Agree	<input type="checkbox"/> Strongly agree



Activity 9.3 Review Health Department Roles & Staff Competencies

Due to HAI/AR prevention and response activities being informed by data, LHDs may have a responsibility to ensure that laboratory diagnostic procedures are conducted appropriately. This can include coordinating with laboratories within the jurisdiction, analyzing and interpreting test results, and other lab activities supporting HAI/AR. Read on to learn more about the LHD roles and staff competencies recommended for this domain.

LHD Role 9a. Ensure specimen collection occurs.

When a suspected HAI/AR case occurs, samples must be collected to rule pathogens in or out. Your LHD may help coordinate when and how this specimen is collected.

Competencies for new LHD HAI/AR staff:

- Interpret results from data analysis.
- Apply evidence-based interventions and control measures, considering DEIA and specific community needs.
- Facilitate informed consent processes for surveillance specimen collection.
- Conduct point prevalence studies to understand trends within facilities.

LHD Role 9b. Develop, review, and regularly update the process for follow-up on results.

After a specimen is collected for testing, it must be transported to a lab to conduct the test. An LHD may be responsible for following up to receive and communicate the test results to healthcare providers and other stakeholders.

Competencies for new LHD HAI/AR staff:

- Incorporate new diagnostic methodologies and results into surveillance systems to ensure reliable monitoring of HAIs.
- Educate front-line staff about new diagnostic test results and their relevance to IPC practices.
- Monitor the impact of diagnostic stewardship via HAI and AR data analysis.
- Incorporate financial considerations in the evaluation process.

LHD Role 9c. Ensure communication and coordination between healthcare facilities, labs, and state/regional public health labs.

Coordinating specimen collection, results analysis, and other laboratory diagnostics responsibilities requires cooperation between your LHD, healthcare facilities, and the laboratory.



Domain 9: Laboratory Diagnostics

Competencies for new LHD HAI/AR staff:

- Participate in collaborative efforts to decide which new diagnostics are needed, how they will be used and interpreted, and cost implications and tradeoffs.
- Work with front-line staff to develop testing protocols, including consent, proper specimen collection, storage, and transportation techniques.
- Develop audit systems and use data compliance monitoring to drive improvements in diagnostic stewardship.
- Collaborate with laboratory and radiology to ensure ongoing self-education of novel diagnostic technologies being used at the facility.



Activity 9.4 Take Action

Now that you've learned about the recommended LHD roles and staff competencies, learn more about this domain by completing the tasks below. Use the Take Action Worksheet to record key information as you progress through each task.

Training Tasks

Complete the [Public Health 101 Series - Introduction to Public Health Laboratories](#) training. (20 minutes)

Resource Review Tasks

Review [How Labs Work Together | CDC](#) to understand the roles of healthcare and public health laboratories.

Reference [CORHA Principles and Practices for Healthcare Outbreak Response](#), paying particular attention to [Chapter 6: Laboratory Best Practices](#).

Tool Review Tasks

Access the [CDC's AR Laboratory Network](#) page to locate labs equipped for AR testing. It's also a great place to use other tools and resources related to AR.

Additional Domain Tasks

Use the space below to include additional trainings, resources, and tools that will help increase competency in this domain.



TAKE ACTION WORKSHEET

Instructions: Use the spaces below to record key competency building information for this domain.

1. Describe the role your LHD plays in HAI/AR specimen collection.

2. Describe the proper protocols for how HAI/AR specimens are supposed to be stored.

3. Record the information below for three primary laboratories of where you send HAI/AR specimens after they've been collected.

Laboratory name	Address	Point of contact name	Phone number

4. List the platform(s) used by your LHD staff to access specimen testing results in your jurisdiction.

5. Does the lab(s) processing specimens send results to the state communicable disease reporting system and/or health information exchange? (Yes/No)

6. Record the contact information for individuals you can discuss lab results with at three primary healthcare facilities.

Facility name	Address	Point of contact name	Phone number



Activity 9.5 Complete the Post-Assessment

Now that you've completed the activities in this domain, please rate your level of agreement for each of the following statements. Reflect on how your competency has changed from the pre-assessment.

Competency Statement	Agreement Level				
I am aware of my LHD and diagnostic laboratory's policies and procedures related to specimen collection and testing.	<input type="checkbox"/> Strongly disagree	<input type="checkbox"/> Disagree	<input type="checkbox"/> Neither agree or disagree	<input type="checkbox"/> Agree	<input type="checkbox"/> Strongly agree
I know who interprets test results and communicates the findings to key stakeholders.	<input type="checkbox"/> Strongly disagree	<input type="checkbox"/> Disagree	<input type="checkbox"/> Neither agree or disagree	<input type="checkbox"/> Agree	<input type="checkbox"/> Strongly agree
I understand the steps necessary to enhance collaboration and coordination among my LHD, diagnostic laboratories, and other entities supporting laboratory diagnostics.	<input type="checkbox"/> Strongly disagree	<input type="checkbox"/> Disagree	<input type="checkbox"/> Neither agree or disagree	<input type="checkbox"/> Agree	<input type="checkbox"/> Strongly agree
I understand the financial aspects of diagnostic testing, including any budgetary constraints my LHD must adhere to.	<input type="checkbox"/> Strongly disagree	<input type="checkbox"/> Disagree	<input type="checkbox"/> Neither agree or disagree	<input type="checkbox"/> Agree	<input type="checkbox"/> Strongly agree
I understand how my responsibilities support my LHD's HAI/AR program and laboratory diagnostics activities.	<input type="checkbox"/> Strongly disagree	<input type="checkbox"/> Disagree	<input type="checkbox"/> Neither agree or disagree	<input type="checkbox"/> Agree	<input type="checkbox"/> Strongly agree



Domain 10: Antimicrobial Stewardship

Activity 10.1 Review Domain Overview

Bacteria are becoming increasingly antibiotic-resistant, making it more difficult to treat common and previously easily treatable illnesses. This phenomenon is called antimicrobial resistance (AR). AR is accelerated by inappropriately prescribing and using antibiotics for illnesses other than specified. Some of the most common scenarios that play into this issue are:

1. Healthcare providers prescribing antibiotics for viral infections that cannot be treated with them.
2. Patients taking their antibiotics for fewer days and/or doses than prescribed.
3. Treating colonization, not infection.
4. Patients accessing antibiotics from others/outside the US.
5. Healthcare providers prescribing with limited regional resistance information for empirical prescriptions.

The result is that bacteria can learn how to become resistant to antibiotics. Under these circumstances, health departments and healthcare providers mitigate AR through antimicrobial stewardship.

The World Health Organization defines antimicrobial stewardship as "a systematic approach to educate and support healthcare professionals to follow evidence-based guidelines for prescribing and administering antimicrobials." Antimicrobial stewardship programs take many shapes and forms. Still, their overarching goals remain consistent: addressing inappropriate practices for prescribing antibiotics, encouraging people to take medications as prescribed by their doctor, and combating AR overall.

Health departments play a vital role in these activities by providing general support and guidance to healthcare providers. If they have access to AR data in their jurisdiction, they can also partner with healthcare providers to track cases of AR.

Read on to learn more about the LHD roles and staff competencies recommended for this domain.



Domain 10: Antimicrobial Stewardship, Cont.

Domain 10 competencies:

- Epidemiology
- Interpersonal relationship building
- Program development and implementation
- Surveillance
- Data analysis



Activity 10.2 Complete the Pre-Assessment

Before accessing material in this domain, please rate your level of agreement for each of the following statements.

Competency Statement	Agreement Level				
I understand what antibiotic resistance is.	<input type="checkbox"/> Strongly disagree	<input type="checkbox"/> Disagree	<input type="checkbox"/> Neither agree or disagree	<input type="checkbox"/> Agree	<input type="checkbox"/> Strongly agree
I am comfortable with my responsibilities related to the antimicrobial stewardship activities at my LHD.	<input type="checkbox"/> Strongly disagree	<input type="checkbox"/> Disagree	<input type="checkbox"/> Neither agree or disagree	<input type="checkbox"/> Agree	<input type="checkbox"/> Strongly agree
I understand my responsibilities to support my LHD's role in monitoring and surveillance of multidrug-resistant organisms (MDRO).	<input type="checkbox"/> Strongly disagree	<input type="checkbox"/> Disagree	<input type="checkbox"/> Neither agree or disagree	<input type="checkbox"/> Agree	<input type="checkbox"/> Strongly agree
I know where to learn about priority MDROs in my community.	<input type="checkbox"/> Strongly disagree	<input type="checkbox"/> Disagree	<input type="checkbox"/> Neither agree or disagree	<input type="checkbox"/> Agree	<input type="checkbox"/> Strongly agree
I know who's responsible for coordinating specimen collection, reporting results, and communicating with the laboratories and healthcare providers in my jurisdiction.	<input type="checkbox"/> Strongly disagree	<input type="checkbox"/> Disagree	<input type="checkbox"/> Neither agree or disagree	<input type="checkbox"/> Agree	<input type="checkbox"/> Strongly agree



Activity 10.3 Review Health Department Roles & Staff Competencies

Both state and local health departments perform antimicrobial stewardship activities. The roles and competencies below encompass antimicrobial stewardship activities that should be happening within a jurisdiction. If other entities are responsible for any of these roles, make a note of it in the margins. You may still benefit from learning how these organizations handle their responsibilities and how your LHD may facilitate their efforts.

LHD Role 10a. Conduct a needs assessment and/or gap analysis to identify priorities for the LHD's jurisdiction.

Antimicrobial stewardship looks different in every jurisdiction. Before developing and successfully implementing an antimicrobial stewardship program, an LHD needs to assess its jurisdiction's HAI/AR priorities.

Competencies for new LHD HAI/AR staff:

- Locate and review data to establish benchmark metrics for HAI/AR and antimicrobial prescribing practices.
- Evaluate data to identify:
 - Opportunities for improvement related to prescribing practices.
 - Providers/facilities with high HAI/AR rates.
- Demographic and health data related to HAI/AR to determine trends regarding social determinants of health and equity
- Evaluate healthcare workers' knowledge related to HAI/AR, including long-term care facility staff.
- Engage community stakeholders and solicit feedback to assess awareness and knowledge of HAI/AR.
- Assess provider knowledge related to AR and its implications for prescribing.
- Facilitate the development of a regional antibiogram and disseminate it to providers so they have an accurate representation of local resistance rates.

LHD Role 10b. Cultivate close relationships with local healthcare providers and laboratories.

Practicing antimicrobial stewardship is a community-wide effort. No one organization can do it all alone. As a result, you'll find that LHDs need to develop close relationships with local healthcare providers and laboratories.

Competencies for new LHD HAI/AR staff:

- Discuss LHD roles and responsibilities for antimicrobial stewardship activities with the state HAI/AR program.
- Develop a survey or feedback loop to encourage collaboration and continuous improvement.
- Identify and establish routine communication with the state health department's Antibiotic Stewardship lead.



- Facilitate open communication and AR surveillance data exchanges.
- Create regular meetings or communication portals, allowing real-time communication.
- Gather relevant feedback from healthcare providers and laboratories within the jurisdiction on AR surveillance criteria and specifications to state and regional decision-makers.
- Work with the Antibiotic Stewardship Coordinator at the state HAI/AR program to identify and engage local partners that need additional support to improve the implementation of antimicrobial stewardship.
- Host joint workshops or trainings.

LHD Role 10c. Support local healthcare providers, acute care hospitals, skilled nursing facilities, and laboratories.

Much of the work in AR happens in collaboration with other stakeholders, and getting that work done requires both requesting support and providing support. During HAI/AR activities, the LHD may need to assist healthcare providers and laboratories with data collection, analysis, and other activities.

LHD Role 10d. Maintain a plan for accessing AR surveillance and epidemiological investigation data and sharing it if/when appropriate.

LHDs frequently manage antimicrobial stewardship resistance data. When LHDs do not maintain this duty, regional and/or state health departments fulfill this role.

Competencies for new LHD HAI/AR staff:

- Obtain or verify access to AR surveillance data to drive appropriate control and prevention efforts.
- Assist local healthcare providers and laboratories in accessing AR data.
- Monitor reporting and update AR surveillance and epidemiological investigation data:
 - As part of the LHD's role in antimicrobial stewardship.
 - To propose hypotheses or contribute to local research.
 - Monitor changes in healthcare or healthcare practices that may change risks for acquisition or transmission.
- Provide (or plan to provide) partner [KS1] access to data:
 - used to monitor the epidemiology, epidemiologic trends, and spread of AR pathogens over time and place
 - that measures the burden of infection with AR pathogens
 - that identify populations at high risk for AR pathogens
 - when AR cases and/or clusters are recognized, including epidemiological investigations and laboratory surveillance
 - from cumulative antibiograms at the facility and local levels
- Issue alerts for identified AR pathogens with rare and novel resistance mechanisms.



LHD Role 10e. Use data to expand LHD HAI/AR infection prevention efforts, outbreak responses, and stewardship activities to prioritize and implement actions that positively impact health equity.

Whether your LHD already has an HAI/AR program or is in the process of building capacity in this area, it's essential to assess how your HAI/AR program is performing. Establishing and evaluating program performance entails gathering and analyzing data to identify LHD priorities and health equity.

Competencies for new LHD HAI/AR staff:

- Promote compliance with infection prevention strategies.
- Identify and detect multidrug-resistant organisms (MDROs).
- Assist with early organism and infected patient identification.
- Analyze antibiograms and antibiotic use.
- Collect and analyze surveillance data regarding treatment for contaminated urine specimens and asymptomatic bacteriuria.
- Report surveillance trends over time.
- Implement antibiotic stewardship activities using data to tailor and focus efforts.



Activity 10.4 Take Action

Now that you've learned about the recommended LHD roles and staff competencies, learn more about this domain by completing the tasks below. Use the Take Action Worksheet to record key information as you progress through each task.

Training Tasks

Complete [CDC's Antibiotic Use and Prescribing](#) training. (up to 30 minutes)

Complete the [CDC Antimicrobial Stewardship Training Plan](#) and review annually for new and updated courses. (1 hour per module)

Learn about MDRO colonization and how to conduct colonization screening to prevent the spread of these organisms in healthcare facilities in [Combating the Multidrug-resistant Organisms Together](#). (1 hour training)

Resource Review Tasks

Review [Roles and Responsibilities of Public Health Agencies for Surveillance of AR](#).

Consider sharing information about [Antibiotic Awareness Week](#) within your jurisdiction.

Consider sharing [Antibiotic Stewardship Commitment Poster](#) with healthcare providers within your jurisdiction.

Learn the [components of successful antibiotic stewardship](#) programs using the CDC's Core Elements of Antibiotic Stewardship for Health Departments. Courses, tools, and other resources are also available there.

Tool Review Tasks

Adapt page 9 of [DCHAI Prevention Assessment](#) to perform AR assessments in healthcare facilities.

Adapt the AR antibiotic use assessment tools for LTCFs: [STIVE Pre-Test Evaluation](#) & [STRIVE HAI Evaluation Scoring Rubric](#)

Use this [Antibiogram Template](#) to understand antibiotic resistance within LTCFs.

Reference the tools within the [AHRO The Nursing Home Antibiogram Program Toolkit](#) and check with your state health department's Antibiotic Stewardship program for a state-specific antibiogram toolkit.

Additional Domain Tasks

Use the space below to include additional trainings, resources, and tools that will help increase competency in this domain.



TAKE ACTION WORKSHEET

Instructions: Use the spaces below to record key competency building information for this domain.

1. What is the LHD's AR stewardship capacity? How do you support these activities in your role?

2. List the top five multidrug-resistant organisms (MDROs) that are a priority for your LHD.

- 1.
- 2.
- 3.
- 4.
- 5.

3. What are the surveillance trends for these MDROs in your jurisdiction over the last three years?

4. How have MDRO surveillance trends influenced the LHD's plans for antimicrobial stewardship activities in the upcoming month, quarter, and/or year?

5. Record the information below for key stakeholders your LHD collaborates with to conduct antimicrobial stewardship activities.

Facility name	Staff name	Phone number	Email address



Activity 10.5 Complete the Post-Assessment

Now that you've completed the activities in this domain, please rate your level of agreement for each of the following statements. Reflect on how your competency has changed from the pre-assessment.

Competency Statement	Agreement Level				
I understand what antibiotic resistance is.	<input type="checkbox"/> Strongly disagree	<input type="checkbox"/> Disagree	<input type="checkbox"/> Neither agree or disagree	<input type="checkbox"/> Agree	<input type="checkbox"/> Strongly agree
I am comfortable with my responsibilities related to the antimicrobial stewardship activities at my LHD.	<input type="checkbox"/> Strongly disagree	<input type="checkbox"/> Disagree	<input type="checkbox"/> Neither agree or disagree	<input type="checkbox"/> Agree	<input type="checkbox"/> Strongly agree
I understand my responsibilities to support my LHD's role in monitoring and surveillance of multidrug-resistant organisms (MDRO).	<input type="checkbox"/> Strongly disagree	<input type="checkbox"/> Disagree	<input type="checkbox"/> Neither agree or disagree	<input type="checkbox"/> Agree	<input type="checkbox"/> Strongly agree
I know where to learn about priority MDROs in my community.	<input type="checkbox"/> Strongly disagree	<input type="checkbox"/> Disagree	<input type="checkbox"/> Neither agree or disagree	<input type="checkbox"/> Agree	<input type="checkbox"/> Strongly agree
I know who's responsible for coordinating specimen collection, reporting results, and communicating with the laboratories and healthcare providers in my jurisdiction.	<input type="checkbox"/> Strongly disagree	<input type="checkbox"/> Disagree	<input type="checkbox"/> Neither agree or disagree	<input type="checkbox"/> Agree	<input type="checkbox"/> Strongly agree



Domain 11: Leadership

Activity 11.1 Review Domain Overview

Senior LHD staff help lead HAI/AR activities, both in everyday operations and in times of urgent need. Their skill and experience put them in a unique position to mentor and guide staff toward departmental goals.

Building the skills to lead in this space takes time and intentionality. Leadership involves subject matter expertise, clear communication, critical thinking, analytical skills, and so much more. Effective leaders provide program and jurisdictional leadership in HAI/AR by achieving cross-sector alignment and managing workforce development. They also leverage their position in the community to work across healthcare facilities to facilitate responses to HAIs and emerging multidrug-resistant organisms (MDROs) and halt their transmission.

There are two prominent health department roles for HAI/AR leadership: serving as leaders and champions for HAI/AR activities and advocating for public health in the context of HAI/AR. This domain will help staff explore these roles in more depth while also building competency in support of them.

Domain 11 competencies:

- Critical thinking
- Team building
- Persuasion
- Innovation
- Integrity



Activity 11.2 Complete the Pre-Assessment

Before accessing material in this domain, please rate your level of agreement for each of the following statements.

Competency Statement	Agreement Level				
I know how to motivate my team to carry out HAI/AR activities.	<input type="checkbox"/> Strongly disagree	<input type="checkbox"/> Disagree	<input type="checkbox"/> Neither agree or disagree	<input type="checkbox"/> Agree	<input type="checkbox"/> Strongly agree
I can persuade key staff, partners, and other stakeholders to work toward common goals related to HAI/AR.	<input type="checkbox"/> Strongly disagree	<input type="checkbox"/> Disagree	<input type="checkbox"/> Neither agree or disagree	<input type="checkbox"/> Agree	<input type="checkbox"/> Strongly agree
I'm comfortable being an advocate who engages policymakers, politicians, and the community to improve public health infrastructure and HAI/AR efforts.	<input type="checkbox"/> Strongly disagree	<input type="checkbox"/> Disagree	<input type="checkbox"/> Neither agree or disagree	<input type="checkbox"/> Agree	<input type="checkbox"/> Strongly agree
I can lead my LHD through the lens of our mission and vision and through periods of organizational change.	<input type="checkbox"/> Strongly disagree	<input type="checkbox"/> Disagree	<input type="checkbox"/> Neither agree or disagree	<input type="checkbox"/> Agree	<input type="checkbox"/> Strongly agree
I am comfortable serving as a recognized leader and subject matter expert in HAI/AR.	<input type="checkbox"/> Strongly disagree	<input type="checkbox"/> Disagree	<input type="checkbox"/> Neither agree or disagree	<input type="checkbox"/> Agree	<input type="checkbox"/> Strongly agree



Activity 11.3 Review Health Department Roles & Staff Competencies

Strong leadership propels LHDs' missions, visions, and goals forward in their jurisdictions. Leaders in HAI/AR should have considerable expertise in each of the domains in this workbook to mentor, advise, and encourage staff that support HAI/AR activities. The health department roles and staff competencies in this domain may help guide HAI/AR leaders and build capacity in early career professionals to take on leadership roles in the future.

11a. Serve as leaders, mentors, and role models for colleagues, institutions, and professional organizations.

Experienced HAI/AR staff are an excellent resource for those still navigating this space. Early career staff benefit immensely from mentorship from these individuals, which helps build their capacity to support LHD activities.

Competencies for new LHD HAI/AR program leaders or experts:

- Use principles of influence, leadership, and change management.
- Work collaboratively with others and provide direction when necessary.
- Readily share knowledge and expertise.
- Contribute to the development of less-experienced healthcare providers through education and mentorship.
- Collaborate with colleagues and provide education about the global scope of IPC activities.
- Apply the organization's vision and program goals in all epidemiologic activities.
- Engage in change management.
- Engage in performance management of self and other team members.
- Manage workforce development.
- Create opportunities to achieve cross-sector alignment.
- Respond to emerging needs.
- Manage organizational change

11b. Advocates for public health (PH Core Competencies 8.8.)

Your health departments' public health policy influence extends beyond the jurisdiction they serve to the region, state, or the entire country. This may involve health department leaders spearheading lobbying efforts at the local and federal levels.

Competencies for new LHD HAI/AR program leaders or experts:

- Engage politicians, policymakers, and the public to support public health infrastructure.
- Address facilitators and barriers impacting the delivery of the [10 Essential Public Health Services](#).
- Collaborate with colleagues to educate and influence policymaking bodies and the public.
- Recognize the importance of research and evaluate and apply research findings to practice settings.



Activity 11.4 Take Action

Now that you've learned about the recommended LHD roles and staff competencies, learn more about this domain by completing the tasks below. Use the Take Action Worksheet to record key information as you progress through each task.

Training Tasks

Complete the [Adaptive Leadership: Strategies for Public Health](#) training. (1 hour)

Complete the [Becoming the Health Strategist: Putting Your Skills into Action](#) training. (1 hour)

Resource Review Tasks

Read and apply [ASTHO's Eight Ways Health Department Leaders Can Support Effective HAI/AR Programs](#).

Additional Domain Tasks

Use the space below to include additional trainings, resources, and tools that will help increase competency in this domain.



TAKE ACTION WORKSHEET

Instructions: Use the spaces below to record key competency building information for this domain.

1. Describe how you incorporate HAI/AR efforts into community health improvement plans and accreditation.

2. List the local HAI/AR and IPC champions at healthcare facilities or labs in the jurisdiction.

Name	Title	Phone number	Email address



Activity 11.5 Complete the Post-Assessment

Now that you've completed the activities in this domain, please rate your level of agreement for each of the following statements. Reflect on how your competency has changed from the pre-assessment.

Competency Statement	Agreement Level				
I know how to motivate my team to carry out HAI/AR activities.	<input type="checkbox"/> Strongly disagree	<input type="checkbox"/> Disagree	<input type="checkbox"/> Neither agree or disagree	<input type="checkbox"/> Agree	<input type="checkbox"/> Strongly agree
I can persuade key staff, partners, and other stakeholders to work toward common goals related to HAI/AR.	<input type="checkbox"/> Strongly disagree	<input type="checkbox"/> Disagree	<input type="checkbox"/> Neither agree or disagree	<input type="checkbox"/> Agree	<input type="checkbox"/> Strongly agree
I'm comfortable being an advocate who engages policymakers, politicians, and the community to improve public health infrastructure and HAI/AR efforts.	<input type="checkbox"/> Strongly disagree	<input type="checkbox"/> Disagree	<input type="checkbox"/> Neither agree or disagree	<input type="checkbox"/> Agree	<input type="checkbox"/> Strongly agree
I can lead my LHD through the lens of our mission and vision and through periods of organizational change.	<input type="checkbox"/> Strongly disagree	<input type="checkbox"/> Disagree	<input type="checkbox"/> Neither agree or disagree	<input type="checkbox"/> Agree	<input type="checkbox"/> Strongly agree
I am comfortable serving as a recognized leader and subject matter expert in HAI/AR.	<input type="checkbox"/> Strongly disagree	<input type="checkbox"/> Disagree	<input type="checkbox"/> Neither agree or disagree	<input type="checkbox"/> Agree	<input type="checkbox"/> Strongly agree



Appendices & Other Resources

Appendix A: Summary of HAI/AR Roles and Competencies

The LHD roles and competencies in this workbook were developed using the following sources: [CDC LHD HAI/AR Strategy](#), [Council of State and Territorial Epidemiologists \(CSTE\) Applied Epidemiology Competencies](#), [Association for Professionals in Infection Control and Epidemiology \(APIC\) Infection Preventionist Competencies and Professional Standards](#), the [Core Competencies for Public Health Professionals](#), and [CDC CSTE AR Roles and Responsibilities](#) where relevant.

Below is a list of all roles and competencies, including the reference source for each. Competencies without an explicit reference to an existing competency set are based upon a literature review and [a landscape analysis](#) of the HAI/AR work LHD staff are already doing.

Domain 1: Infection Prevention & Control Operations

1a. Increase local public health staff capacity, expertise, and confidence to conduct HAI/AR activities in alignment with the overall state HAI/AR program strategy. ([CDC LHD HAI/AR Strategy Objective 2.1](#))

- Survey staff inquiring about their feelings about conducting HAI/AR activities to identify gaps to be addressed.
- Identify or establish internal SMEs with certifications and advanced training.
- Institute peer learning networks.
- Serve as the primary point of contact for HAI outbreaks and/or HAI/AR activities. ([CDC LHD HAI/AR Strategy Objective 2.1](#))
- Serve as the HAI/AR lead who regularly participates in facility engagement, including but not limited to assisting with ICAR and tele-ICAR assessments. ([CDC LHD HAI/AR Strategy Objective 2.1](#))

1b. Increase local public health awareness of the latest HAI/AR guidance, data, programs, and policies that impact your community. ([CDC LHD HAI/AR Strategy Objective 2.2](#))

- Identify LHD knowledge gaps in HAI/AR policies and guidance. ([CDC LHD HAI/AR Strategy Objective 2.2](#))
- Engage with your state's HAI/AR program and other key partners to examine and identify existing HAI/AR policies, such as state and local HAI/AR reporting requirements. ([CDC LHD HAI/AR Strategy Objective 2.2](#))
- Use local information and data on infections, outbreaks, AR, and antibiotic use to guide activities and responses to HAI/AR threats. ([CDC LHD HAI/AR Strategy Objective 2.2](#))

1c. Use proactive approaches to conduct surveillance, identify infection risks, and implement infection prevention and control interventions to mitigate risks. ([APIC IPC Operations](#))

- Design surveillance systems using the principles of ethics, DEIA, and justice. ([CSTE Applied Epidemiology Data Analytics and Assessment Skills 1.3](#))



- Interpret results from data analysis. ([CSTE Applied Epidemiology Data Analytics and Assessment Skills 1.8](#))
- Conduct surveillance activities ([CSTE Applied Epidemiology Data Analytics and Assessment Skills 1.4](#)), such as:
 - Reviewing surveillance data needs
 - Assessing existing surveillance data and systems
 - Collecting, analyzing, evaluating, and communicating surveillance data
- Analyze data generated from surveillance, investigations, studies, programs, etc. ([CSTE Applied Epidemiology Data Analytics and Assessment Skills 1.7](#))
- Apply evidence-based interventions and control measures, considering DEIA and specific community needs. ([CSTE Applied Epidemiology Data Analytics and Assessment Skills 1.9](#))
- Have knowledge of requirements for particular areas and practices being observed. ([APIC IPC Operations - IPC Rounding](#))
- Communicate findings and implement and sustain appropriate action plans. ([APIC IPC Operations - IPC Rounding](#))
- Implement isolation precautions.
- Educate healthcare workers, LHD staff, patients, and caregivers about infection prevention and control measures.
- Abide by the chain of command within your health department and the healthcare facility for infection prevention and control.

Domain 2: Collaboration, Coordination, & Partnerships

2a. Become recognized local experts experienced in presenting to community, state, national, and/or international audiences on HAI/AR topics.

- Develop a personal plan to gain comfort with communicating with large audiences.
- Ensure LHD representation on existing coalitions.
- Consider opportunities to present at conferences and identify gaps in previous presentations as opportunities to contribute.
- Provide input for patient safety and quality initiatives. ([APIC Professional Standard Collaboration/Consultation](#))
- Serve as a role model and coach to both novice and experienced IPs. ([APIC Professional Standard Collaboration/Consultation](#))
- Provide input to accrediting bodies and other stakeholders regarding the development of standards, measures, and metrics. ([APIC Professional Standard Collaboration/Consultation](#))
- Provide expertise, guidance, collaboration, and consultation to individuals and multidisciplinary teams regarding routine IPC risk assessments. ([APIC Professional Standard Collaboration/Consultation](#))

2b. Collaborate with community health organizations and local and state public health officials. ([APIC Professional Standard Collaboration/Consultation](#))

- Establish and maintain bidirectional relationships to improve community health and resilience. ([CSTE Applied Epidemiology Community Partnership Skills 4.2](#) & [Core Competencies for Public Health Professionals Community Partnership Skills 5.4](#))



- Collaborate with community members, organizations, and other stakeholders to support public health activities. ([CSTE Applied Epidemiology Public Health Science Skills 2.2](#) & [Core Competencies for Public Health Professionals Community Partnership Skills 5.4](#))
- Share power and ownership with community members and others. ([Core Competencies for Public Health Professionals Community Partnership Skills 5.5](#))
- Engage with the state HAI/AR program to determine priorities, state and local roles, and responsibilities when working together and maintain coordination between the LHD and the state. ([CDC LHD HAI/AR Strategy Objective 1.1](#))

2c. Support patients, families, administration, committees, healthcare providers, and ancillary staff in infection prevention, control, and epidemiology. ([APIC Professional Standard Collaboration/Consultation](#))

- Facilitate trainings for patients, families, administration, committees, healthcare providers, and ancillary staff.
- Create patient and family education materials.
- Participate in and create community or collective stakeholder-related efforts, including facilitating training for ancillary staff (e.g., environmental services, food services, etc.).

Domain 3: Surveillance

3a. Develop, implement, and maintain surveillance strategies for HAI within the health department's jurisdiction.

- Conduct surveillance activities that include reviewing and assessing existing data systems and collecting, analyzing, evaluating, and communicating findings. ([CSTE Applied Epidemiology Data Analytics and Assessment Skills 1.4](#))
- Describe systems, policies, and events impacting public health. ([Core Competencies for Public Health Professionals Public Health Science Skills 6.1](#))
- Apply public health informatics in using epidemiologic data, information, and knowledge, including data collection, processing, analysis, and dissemination.
- Augment surveillance skills with familiarity with analytical computer programs or productive collaboration with colleagues with these skills. ([APIC IPC Operations - Epidemiology and Surveillance](#))

3b. Use a systematic approach to monitor the effectiveness of prevention and control strategies consistent with the organization's goals and objectives. ([APIC Professional Standard Surveillance/Epidemiology](#))

- Apply epidemiologic principles and statistical methods, including risk stratification and benchmarking, to identify target populations. ([APIC Professional Standard Surveillance/Epidemiology](#))
- Determine risk factors. ([APIC Professional Standard Surveillance/Epidemiology](#))
- Design evidence-based prevention and control strategies. ([APIC Professional Standard Surveillance/Epidemiology](#))
- Analyze trends. ([APIC Professional Standard Surveillance/Epidemiology](#))
- Evaluate processes. ([APIC Professional Standard Surveillance/Epidemiology](#))
- Manage, analyze, and interpret data from surveillance, investigations, studies, programs, and other data. ([CSTE Applied Epidemiology Data Analytics and Assessment Skills 1.6, 1.7, 1.8](#))
- Share data and work with partners based on data.
- Implement infection prevention activities using available data to tailor and focus efforts. ([CDC LHD HAI/AR Strategy Objective 3.2](#))



- Use a systematic approach to monitor the effectiveness of prevention and control strategies consistent with the organization's goals and objectives. ([APIC Professional Standard Surveillance/Epidemiology](#))

Domain 4: Data & Informatics

4a. Implement infection prevention activities using available data to tailor and focus efforts

- Discuss HAI/AR prevention activities with your state's HAI/AR program, including HAI/AR data, reports, and prevention goals. ([CDC LHD HAI/AR Strategy Objective 3.2](#))
- Access data through electronic health records, state surveillance data systems, GIS mapping, and targeted outreach campaigns if available.
- Review available data regarding surveillance trends and outbreaks to prioritize intervention efforts in collaboration with your state's HAI/AR program. ([CDC LHD HAI/AR Strategy Objective 3.2](#))
- Analyze surveillance data to identify trends across facilities within your jurisdiction and leverage available HAI/AR data to intervene. ([CDC LHD HAI/AR Strategy Objective 3.2](#))
- Promote the implementation of research findings into evidence-based practices. ([APIC Research - Implementation and Dissemination Science](#))

4b. Increase awareness of recent HAI/AR guidance, data, programs, and policies among the local public health community

- Identify necessary steps for accessing HAI/AR data sources at the local level. ([CDC LHD HAI/AR Strategy Objective 2.2](#))
- Ensure LHD staff awareness of the processes in place for accessing HAI/AR data, such as the CDC's National Healthcare Safety Network (NHSN) or other county-level data. ([CDC LHD HAI/AR Strategy Objective 2.2](#))
- Clarify and communicate HAI/AR reporting policies and procedures for different types of healthcare facilities. ([CDC LHD HAI/AR Strategy Objective 2.2](#))
- Identify which guidelines and standards should inform daily clinical practice, how evidence should be accepted, and how to apply research. ([APIC Research - Implementation and Dissemination Science](#))

4c. Use strategies to adopt and integrate evidence-based health interventions and change practice patterns within specific settings ([APIC Research - Implementation and Dissemination Science](#))

- Identify current frameworks for integrating evidence-based interventions and existing evidence-based interventions that the LHD could use.
- Critically assess content, validity, and reliability. ([APIC Research - Evaluation and Research](#))
- Implement the very best research into the LHD's practices. ([APIC Research - Evaluation and Research](#))
- Use standardized frameworks (e.g., [Precede-Proceed](#) or [Intervention mapping](#)) to implement evidence into practice successfully. ([APIC Research - Implementation and Dissemination Science](#))
- Consider standardized frameworks when evaluating or designing an implementation study. ([APIC Research - Implementation and Dissemination Science](#))
- Monitor neighboring regions and other local and regional health departments for successful interventions.

4d. Assesses community health status using data & informatics. ([Core Competencies for Public Health Professionals Data Analytics and Assessment Skills 1.8](#))



- Collect, analyze, manage, and use quantitative and qualitative data. ([Core Competencies for Public Health Professionals Data Analytics and Assessment Skills 1.3, 1.4, 1.5, 1.6](#))
- Apply public health informatics in using data, information, and knowledge. ([Core Competencies for Public Health Professionals Data Analytics and Assessment Skills 1.7](#) & [CSTE Applied Epidemiology Public Health Science Skills 2.3](#))
- Manage information systems to promote effectiveness and security of data collection, processing, and analysis ([CSTE Applied Epidemiology Public Health Science Skills 2.4](#))
- Leverage data inputs to help identify HAIs and other reportable infection prevention data. ([APIC IPC Informatics - Surveillance Technology](#))
- Communicate results through automated reporting. ([APIC IPC Informatics - Surveillance Technology](#))
- Perform due diligence in the implementation and ongoing validation of surveillance technology. ([APIC IPC Informatics - Surveillance Technology](#))
- Keep pace with technology improvement and anticipate ways to harness programs across the continuum of care and for historically relevant data within a system. ([APIC IPC Informatics - Surveillance Technology](#))

4e. Use and leverage systems to input, analyze, extract, and manage data to support and drive data integrity, process streamlining, innovative infection prevention and control practices, and positive patient outcomes. ([APIC IPC Informatics](#))

- Identify and monitor electronic medical records and data-sharing systems.
- Create data management processes for the IPC program. ([APIC IPC Informatics - Data Management, Analysis, and Visualization](#))
- Transform raw data into usable information. ([APIC IPC Informatics - Data Management, Analysis, and Visualization](#))
- Understand the gaps in the interpretation and use of data to ensure meaningfulness and accuracy. ([APIC IPC Informatics - Data Management, Analysis, and Visualization](#))
- Keep abreast of current technologies available to streamline the surveillance process. ([APIC IPC Informatics - Data Management, Analysis, and Visualization](#))
- Validate, store, protect, and correctly process infection-related data to ensure accessibility, reliability, and timeliness. ([APIC IPC Informatics - Data Management, Analysis, and Visualization](#))
- Visualize data using charts, graphs, etc., to facilitate the identification of patterns, trends, and correlations. ([APIC IPC Informatics - Data Management, Analysis, and Visualization](#))
- Incorporate and tailor data visualization methods when disseminating infection prevention and control data to end users. ([APIC IPC Informatics - Data Management, Analysis, and Visualization](#))
- Update data regularly and make it available to community stakeholders for analysis.

4f. Analyze, interpret, and use AR surveillance data for comprehensive surveillance.

- Maintain or consider a plan for accessing specific data and when LHD response is warranted. ([Roles and Responsibilities of Public Health Agencies for Surveillance of Antimicrobial Resistance](#))
- Maintain capacity for analysis, interpretation, and use of AR surveillance data. ([Roles and Responsibilities of Public Health Agencies for Surveillance of Antimicrobial Resistance](#))
- Provide direct technical assistance that enables healthcare facilities to report clinical and epidemiological data directly to the appropriate health department. ([Roles and Responsibilities of Public Health Agencies for Surveillance of Antimicrobial Resistance](#))



Domain 5: Outbreaks & Investigation

5a. Develop and/or update local healthcare preparedness and response plans to include capacity for responding to HAI/AR threats and outbreaks. ([CDC LHD HAI/AR Strategy Objective 2.4](#))

- Engage with your state HAI/AR program and key preparedness stakeholders as needed to inform local preparedness activities. ([CDC LHD HAI/AR Strategy Objective 2.4](#))
- Discuss the role of local public health in addressing healthcare outbreak response as part of collaborating with the state HAI/AR program, including plans for notification, activation, activation levels, response, resource allocation and training, and communication pathways. ([CDC LHD HAI/AR Strategy Objective 2.4](#))
- Routinely engage with state HAI/AR or Public Health Emergency Preparedness programs to align preparedness and response strategies and policies and identify elements related to HAI/AR activities. ([CDC LHD HAI/AR Strategy Objective 2.4](#))
- Conduct literature reviews. ([APIC IPC Operations - Outbreak Detection and Management](#))

5b. Implement HAI/AR outbreak and response strategies using data to identify appropriate participation in local, regional, and statewide approaches.

- Familiarize LHD staff with [CORHA Principles and Practices for Outbreak Response](#). ([CDC LHD HAI/AR Strategy Objective 3.1](#))
- Develop a communications plan to notify patients of adverse events (CORHA Resources and Products)
- Develop or use a tracking system and protocols to actively monitor outbreak response activities. ([CORHA Principles and Practices for Outbreak Response](#))
- Disseminate health alerts, staff notifications, and other messages to internal and external audiences. ([CSTE Applied Epidemiology Communication Skills 3.4](#))
- Confirm outbreaks using data. ([APIC IPC Operations - Outbreak Detection and Management](#))
- Communicate pertinent outbreak information with the media to keep the community informed.
- Notify key partners about investigation. ([APIC IPC Operations - Outbreak Detection and Management](#))
- Establish and refine case definition and case-finding methodology. ([APIC IPC Operations - Outbreak Detection and Management](#))

5c. Implement infection prevention activities using available data to tailor and focus efforts. (Objective 3.2)

- Investigate factors that affect the health of a community. ([CSTE Applied Epidemiology Data Analytics and Assessment Skills 1.5](#))
- Review the CDC's Infection Control Assessment and Response tools. ([CDC LHD HAI/AR Strategy Objective 3.2](#))
- Contact the state health department or nearby LHDs that already conduct ICARs for shadowing opportunities.
- Begin to conduct ICAR assessments at facilities in your jurisdiction to systematically assess a healthcare facility's IPC practices and guide quality improvement activities. ([CDC LHD HAI/AR Strategy Objective 3.2](#))
- Conduct ICAR assessments at facilities within your jurisdiction to systematically assess a healthcare facility's infection prevention and control practices and guide quality improvement activities. ([CDC LHD HAI/AR Strategy Objective 3.2](#))
- Conduct investigations and interviews while accommodating the needs of the population. ([CSTE Applied Epidemiology Communication Skills 3.5](#))



- Identify case definition. ([APIC IPC Operations - Outbreak Detection and Management](#))
- Prepare line lists and epidemic curves. ([APIC IPC Operations - Outbreak Detection and Management](#))
- Observe and preview implicated care activities. ([APIC IPC Operations - Outbreak Detection and Management](#))
- Sample the environment and devices, if indicated. ([APIC IPC Operations - Outbreak Detection and Management](#))
- Collect, analyze, manage, and use quantitative and qualitative data. ([Core Competencies for Public Health Professionals Data Analytics and Assessment Skills 1.3, 1.4, 1.5, 1.6](#))

Domain 6: Education & Communication

6a. Become a resource and catalyst for change for healthcare providers, ancillary staff, patients, families, and the general public. ([APIC Professional Standards - Education](#))

- Be knowledgeable and well-versed in the foundations of IPC, including identification of the infectious disease process and how to prevent and control the transmission of infectious agents. ([APIC Professional Standards - Education](#))
- Anticipate potential barriers to effective communication. ([APIC Leadership - Communication](#))
- Tailor communication methods to your audience. ([APIC Leadership - Communication](#))
- Persuade and influence others. ([APIC Leadership - Communication](#))
- Use internal PIO and/or marketing when communicating with the community
- Offer brief education and training targeted to the community using social media and other mediums to build trust and knowledge.
- Create awareness campaigns.
- Develop an HAI/AR team or program to train staff to adequately support various HAI/AR activities. ([CDC LHD HAI/AR Strategy Objective 2.1](#))

6b. Leverage existing trainings to increase LHD staff awareness on modalities used to deliver information, the types of facilities that LHD supports, and best practices for communicating infection prevention and control guidance and education (i.e., role play, simulation activities, case studies, and sample scripts trainings)

- Be familiar with core adult learning principles and stay abreast of teaching and learning design innovations. ([APIC IPC Operations - Education](#))
- Facilitate accessible communication among individuals, groups, and organizations. ([Core Competencies for Public Health Professionals Communication Skills 3.4](#) & [CSTE Applied Epidemiology Communication Skills 3.3](#))
- Assess infection prevention and control educational needs of staff, patients, students, and visitors. ([APIC IPC Operations - Education](#))
- Develop and deliver engaging education sessions or materials. ([APIC IPC Operations - Education](#))
- Ensure learning opportunities are memorable, meaningful, and motivating. ([APIC IPC Operations - Education](#))
- Solicit feedback on trainings to gauge their impact and success in achieving desired outcomes. ([APIC IPC Operations - Education](#))
- Leverage existing trainings (e.g., Project Firstline, NACCHO HAI Resources) to improve LHD staff awareness of IPC practices.



- Determine communication strategies. ([Core Competencies for Public Health Professionals Communication Skills 3.1](#))
- Apply principles of risk communication. ([CSTE Applied Epidemiology Communication Skills 3.2](#))
- Communicate with internal and external audiences. ([Core Competencies for Public Health Professionals Communication Skills 3.2](#))
- Respond to information, misinformation, and disinformation. ([Core Competencies for Public Health Professionals Communication Skills 3.3](#))

Domain 7: Health Equity

7a. Conduct a health equity needs assessment for the health department's jurisdiction.

- Establish a health equity committee or task force within the LHD.
- Participate and align priorities of an existing health equity committee to HAI/ AR.
- Identify common social determinants of health that influence HAI/AR and ways to address them.

7b. Increase local public health awareness of the latest HAI/AR guidance, data, programs, and policies that impact your community. ([CDC LHD HAI/AR Strategy Objective 2.2](#))

- Demonstrate commitment to achieving and sustaining a diverse, inclusive, and competent public health workforce. ([Core Competencies for Public Health Professionals Health Equity Skills 4.6](#))
- Ensure marginalized populations within the jurisdiction are engaged when planning local and state HAI/AR program strategies. ([CDC LHD HAI/AR Strategy Objective 2.2](#))
- Implement organizational policies, programs, and services to improve health equity and promote social and environmental justice. ([Core Competencies for Public Health Professionals Health Equity Skills 4.5](#))
- Implement organizational policies, programs, and services to achieve diversity, equity, inclusion, and justice. ([Core Competencies for Public Health Professionals Management and Finance Skills 7.7](#))
- Advocate for health equity, as well as social and environmental justice. ([Core Competencies for Public Health Professionals Health Equity Skills 4.7](#))
- Invite community members to participate on advisory boards, committees, or coalitions.
- Solicit feedback from community members.

7c. Support HAI/AR activities that promote health equity aligned with state health equity priorities. ([CDC LHD HAI/AR Strategy Objective 3.4](#))

- Recognize the diversity of individuals and populations. ([Core Competencies for Public Health Professionals Health Equity Skills 4.3](#))
- Reduce systemic and structural barriers that perpetuate health inequities. ([Core Competencies for Public Health Professionals Health Equity Skills 4.4](#))
- Discuss health equity goals with the state HAI/AR program for understanding and awareness. ([CDC LHD HAI/AR Strategy Objective 3.4](#))
- Collaborate with partners to align health equity approaches for maximum impact. ([CDC LHD HAI/AR Strategy Objective 3.4](#))
- Develop local-level HAI/AR health equity goals based on priority populations and infection rates. ([CDC LHD HAI/AR Strategy Objective 3.4](#))
- Design surveillance systems using ethics, DEIA, and justice principles. ([CSTE Applied Epidemiology Data Analytics and Assessment Skills 1.3](#))



- Apply principles of ethics, diversity, equity, inclusion, and justice. ([Core Competencies for Public Health Professionals Health Equity Skills 4.1](#))
- Apply evidence-based interventions and control measures, such as considering DEIA and the needs of historically marginalized populations within the community. ([CSTE Applied Epidemiology Data Analytics and Assessment Skills 1.9](#))
- Conduct investigations and interviews while accommodating the needs of the population. ([CSTE Applied Epidemiology Communication Skills 3.5](#))
- Engage in continuous self-reflection about one's biases. ([Core Competencies for Public Health Professionals Health Equity Skills 4.2](#))

Domain 8: Program & Budget Management

8a. Oversees HAI/AR program in its entirety or participates in executing the program's mission and goals. ([APIC Professional Standards - Program Management](#))

- Protect patients, healthcare workers, visitors, and others in the healthcare environment cost-effectively, whenever possible. ([APIC Professional Standards - Program Management](#))
- Systematically evaluate the effectiveness of HAI/AR program(s) and appropriateness to the practice setting.
- Manage staff, including recruitment, retention, and professional development of staff. ([CSTE Applied Epidemiology Management and Finance Skills 5.5](#))
- Leverage epidemiological data to inform the development of policies, programs, services, and laws. ([CSTE Applied Epidemiology Policy Development and Program Planning Skills 7.1](#))
- Evaluate programs, policies, services, laws, and organizational performance. ([CSTE Applied Epidemiology Policy Development and Program Planning Skills 7.2](#))
- Engage in organizational strategic planning, such as strategic prioritization and development of research agendas and action plans. ([CSTE Applied Epidemiology Policy Development and Program Planning Skills 7.3](#))
- Manage programs and services. ([Core Competencies for Public Health Professionals Management and Finance Skills 7.8](#))
- Engage with individuals and teams to achieve program and organizational goals. ([Core Competencies for Public Health Professionals Management and Finance Skills 7.11](#))
- Facilitate collaboration among individuals, groups, and organizations. ([Core Competencies for Public Health Professionals Management and Finance Skills 7.12](#))
- Employ emotional intelligence and situational awareness when collaborating with interdisciplinary colleagues. ([APIC Leadership - Collaboration](#))
- Develop and practice forecasting, strategic planning, analyzing scenarios, and consensus-building. ([APIC Leadership - Program Management](#))
- Flexibility and nimbleness with shifting priorities and circumstances. ([APIC Leadership - Program Management](#))
- Team building skills. ([APIC Leadership - Program Management](#))
- Systems perspective. ([APIC Leadership - Program Management](#))
- Manage expectations and competing priorities. ([APIC Leadership - Program Management](#))

8b. Optimizes available resources and ensures the safety of patients and the community's safety by practicing in a fiscally responsible and accountable manner. ([APIC Professional Standard - Fiscal](#))



Responsibility)

- Manage operational and financial resources for epidemiologic activities. ([CSTE Applied Epidemiology Management and Finance Skills 5.2](#))
- Engage in epidemiologic activities within the organization's budget, operational plan, and financial rules. ([CSTE Applied Epidemiology Management and Finance Skills 5.3](#))
- Secure extramural funding through proposals, grant applications, vendor contracts, and proposal requests. ([CSTE Applied Epidemiology Management and Finance Skills 5.4](#))
- Secure and manage human and financial resources. ([Core Competencies for Public Health Professionals Management and Finance Skills 7.2, 7.3, 7.5, 7.6](#))
- Effectively and efficiently manage budgets, resources, personnel, and programs. ([APIC Leadership - Program Management](#))

Domain 9: Laboratory Diagnostics

9a. Ensure specimen collection occurs.

- Interpret results from data analysis. ([CSTE Applied Epidemiology Data Analytics and Assessment Skills 1.8](#))
- Apply evidence-based interventions and control measures, considering DEIA and specific community needs. ([CSTE Applied Epidemiology Data Analytics and Assessment Skills 1.9](#))
- Facilitate informed consent processes for surveillance specimen collection.
- Conduct point prevalence studies to understand trends within facilities.

9b. Develop, review, and regularly update the process for follow-up on results.

- Assure new diagnostic methodologies and results are incorporated into surveillance systems to ensure reliable monitoring of HAIs. ([APIC IPC Informatics - Diagnostic Testing Data and Techniques](#))
- Educate frontline staff about new diagnostic test results and their relevance to IPC practices. ([APIC IPC Informatics - Diagnostic Testing Data and Techniques](#))
- Monitor the impact of diagnostic stewardship via HAI and AR data analysis. ([APIC IPC Operations - Diagnostic Stewardship](#))
- Incorporate financial considerations in the evaluation process. ([APIC IPC Operations - Diagnostic Stewardship](#))

9c. Ensure communication and coordination between healthcare facilities, labs, and state/regional public health labs.

- Participate in collaborative efforts to decide which new diagnostics are needed, how they will be used and interpreted, and cost implications and tradeoffs. ([APIC IPC Operations - Diagnostic Stewardship](#))
- Work with frontline staff to develop protocols for testing, including consent, proper specimen collection, storage, and transportation techniques. ([APIC IPC Operations - Diagnostic Stewardship](#))
- Develop audit systems and data compliance monitoring to drive improvements in diagnostic stewardship. ([APIC IPC Operations - Diagnostic Stewardship](#))
- Collaborate with laboratory and radiology to ensure ongoing self-education of novel diagnostic technologies being used at the facility. ([APIC IPC Informatics - Diagnostic Testing Data and Techniques](#))

Domain 10: Antimicrobial Stewardship



10a. Conduct a needs assessment and/or gap analysis to identify priorities for the LHD's jurisdiction.

- Locate and review data to establish benchmark metrics for HAI/AR and antimicrobial prescribing practices.
- Evaluate data to identify:
 - Opportunities for improvement related to prescribing practices.
 - Providers/facilities with high HAI/AR rates.
 - Demographic and health data related to HAI/AR to determine trends regarding social determinants of health and equity
- Evaluate healthcare workers' knowledge related to HAI/AR, including long-term care facility staff.
- Engage community stakeholders and solicit feedback to assess awareness and knowledge of HAI/AR.
- Assess provider knowledge related to AR and its implications for prescribing.
- Facilitate the development of a regional antibiogram and disseminate it to providers so they have an accurate representation of local resistance rates.

10b. Cultivate close relationships with local healthcare providers and laboratories.

- Discuss LHD roles and responsibilities for antimicrobial stewardship activities with the state HAI/AR program.
- Develop a survey or feedback loop to encourage collaboration and continuous improvement.
- Identify and establish routine communication with the state health department's Antibiotic Stewardship lead.
- Facilitate open communication and AR surveillance data exchanges.
- Create regular meetings or communication portals, allowing real-time communication.
- Gather relevant feedback from healthcare providers and laboratories within the jurisdiction on AR surveillance criteria and specifications to state and regional decision-makers. ([Roles and Responsibilities of Public Health Agencies for Surveillance of Antimicrobial Resistance](#))
- Work with the Antibiotic Stewardship Coordinator at the state HAI/AR program to identify and engage local partners that need additional support to improve the implementation of antimicrobial stewardship.
- Host joint workshops or trainings.

10c. Support local healthcare providers, acute care hospitals, skilled nursing facilities, and laboratories.

- There are many different activities for which staff must be trained to provide support. Staff may be asked to provide support on the following ([Roles and Responsibilities of Public Health Agencies for Surveillance of AR](#) from the CSTE/CDC Task Force on Strengthening AR Surveillance):
- When and where healthcare providers and/or laboratories report AR or clinical and epidemiologic data directly to the LHD.
- To laboratories and healthcare facilities that provide specimens, including isolates and swabs, to the state and regional laboratories for AR surveillance.
- To enable AR surveillance.

10d. Maintain a plan for accessing AR surveillance and epidemiological investigation data and sharing it if/when appropriate. ([Roles and Responsibilities of Public Health Agencies for Surveillance of Antimicrobial Resistance](#))

- Gain access to AR surveillance data to drive appropriate control and prevention efforts.
- Assist local healthcare providers and laboratories in accessing AR data.



- Monitor reporting and update AR surveillance and epidemiological investigation data:
 - As part of the LHD's role in antimicrobial stewardship.
 - To propose hypotheses or contribute to local research.
 - To monitor changes in healthcare or healthcare practices that may have the potential to change risks for acquisition or transmission
- Provide or plan to provide access to data:
 - Used to monitor the epidemiology, epidemiologic trends, and spread of AR pathogens over time and place
 - That measures the burden of infection with AR pathogens
 - That identify populations at high risk for AR pathogens
 - When AR cases and/or clusters are recognized, including epidemiological investigations and laboratory surveillance
 - From cumulative antibiograms at the facility and local levels
- Issue alerts for identified AR pathogens with rare and novel resistance mechanisms.

10e. Use data to expand LHD HAI/AR infection prevention efforts, outbreak responses, and stewardship activities to prioritize and implement actions that positively impact health equity. ([CDC LHD HAI/AR Strategy Goal 3](#))

- Promote compliance with infection prevention strategies. ([APIC IPC Operations - Antimicrobial Stewardship](#))
- Identify and detect multidrug-resistant organisms (MDROs) in your local, regional, and state. ([APIC IPC Operations - Antimicrobial Stewardship](#))
- Assist with early organism and infected patient identification. ([APIC IPC Operations - Antimicrobial Stewardship](#))
- Analyze antibiograms and antibiotic use. ([APIC IPC Operations - Antimicrobial Stewardship](#))
- Collect and analyze surveillance data regarding treatment for contaminated urine specimens and asymptomatic bacteriuria. ([APIC IPC Operations - Antimicrobial Stewardship](#))
- Report surveillance trends over time. ([APIC IPC Operations - Antimicrobial Stewardship](#))
- Implement antibiotic stewardship activities using data to tailor and focus efforts. ([CDC LHD HAI/AR Strategy Objective 3.3](#))

Domain 11: Leadership

11a. Serve as leaders, mentors, and role models for colleagues, institutions, and professional organizations (i.e., APIC, SHEA). ([APIC Professional Standard - Leadership](#))

- Use principles of influence, leadership, and change management. ([APIC Professional Standard - Leadership](#))
- Work collaboratively with others and provide direction when necessary. ([APIC Professional Standard - Leadership](#))
- Readily share knowledge and expertise. ([APIC Professional Standard - Leadership](#))
- Contribute to the development of less-experienced healthcare providers through education and mentorship. ([APIC Professional Standard - Leadership](#))
- Collaborate with colleagues and provide education about the global scope of IPC activities. ([APIC Professional Standard - Leadership](#))



- Apply the organization's vision and program goals in all epidemiologic activities. ([CSTE Applied Epidemiology Leadership and Systems Thinking Skills 6.1](#))
- Engage in change management. ([CSTE Applied Epidemiology Leadership and Systems Thinking Skills 6.2](#))
- Engage in performance management of self and other team members. ([CSTE Applied Epidemiology Leadership and Systems Thinking Skills 6.3](#))
- Manage workforce development. ([CSTE Applied Epidemiology Leadership and Systems Thinking Skills 6.4](#))
- Create opportunities to achieve cross-sector alignment. ([Core Competencies for Public Health Professionals Leadership and Systems Thinking Skills 8.1](#))
- Respond to emerging needs. ([Core Competencies for Public Health Professionals Leadership and Systems Thinking Skills 8.5](#))
- Manage organizational change. ([Core Competencies for Public Health Professionals Leadership and Systems Thinking Skills 8.6](#))

11b. Advocates for public health ([Core Competencies for Public Health Professionals Leadership and Systems Thinking Skills 8.8](#))

- Engage politicians, policymakers, and the public to support public health infrastructure. ([Core Competencies for Public Health Professionals Leadership and Systems Thinking Skills 8.7](#))
- Address facilitators and barriers impacting the delivery of the [10 Essential Public Health Services](#). ([Core Competencies for Public Health Professionals Leadership and Systems Thinking Skills 8.3](#))
- Collaborate with colleagues to educate and influence policymaking bodies and the public. ([APIC Professional Standard - Leadership](#))
- Recognize the importance of research and critically evaluate and apply research findings to practice settings. ([APIC Professional Standard - Leadership](#))



Appendix B: Organizations, Memberships, and Resources for LHDs and Partners

The following are more general resources useful to LHDs but don't specifically address the topics in this guide. The chart below includes organizations, trainings, and newsletters that could be used as references for LHDs and partners.

Organizations

[Agency for Healthcare Research and Quality \(AHRQ\)](#)

[Association of Public Health Laboratories \(APHL\)](#)

[Association for Professionals in Infection Control and Epidemiology \(APIC\)](#)

[Association of State and Territorial Health Officials \(ASTHO\)](#)

[Centers for Disease Control and Prevention \(CDC\)](#)

[Council for Outbreak Response: HAI/AR \(CORHA\)](#)

[Council of State and Territorial Epidemiologists \(CSTE\)](#)

[Society for Healthcare Epidemiology of America \(SHEA\)](#)

Other resources (e.g., certifications, recommendations)

Organization Resources:

- [CDC Train](#)
- Certification Board of Infection Control & Epidemiology (CCBIC)
 - [CIC Exam](#) and [a-IPC Exam](#)
- [Compendium of Strategies to Prevent HAIs 2022](#)
- SHEA [LearningCE](#)
- [Project Firstline Infection Control Training | CDC](#)

State HAI Resources:

- [HAI Program Home \(ca.gov\)](#)
- [CDC-funded HAI/AR Programs](#)
- [North Carolina Statewide Program for Infection Control and Epidemiology \(NC SPICE\)](#)
- [Hospital-Acquired Infection \(HAI\) Rates in New York State Hospitals \(ny.gov\)](#)
- [Infection Control - fvhd.org](#)
- [LTC Facility Toolkit](#)

Newsletters

- [APIC Monthly Newsletter](#)
- [CORHA Monthly Newsletters](#)
- [National Safety Healthcare Network Newsletters](#)
- [SHEA Spotlight Newsletter](#)
- [Washington State Department of Health HAI/AR Newsletter](#)



Appendix C: CDC LHD HAI/AR Strategy Goals and Objectives by Level

Source: [CDC](#)

Goal 1: Grow and expand networks across state, regional, and local levels through increased LHD communication and collaboration within the public health sector and among public private sector partners.

Objective 1.1 Engage with the state HAI/AR program to determine priorities, state and local roles and responsibilities when working together, and to maintain coordination between the LHD and the state.

Level 1 Activities

These activities form the foundational competency for each objective; more suited for LHDs and staff with little to no experience leading HAI/AR activities.

- Discuss the state ELC HAI/AR workplan and priorities with the state HAI/AR program lead.
- Discuss how the state HAI/AR program has historically worked with the LHD or other LHDs within the state.
- Discuss state and local roles and responsibilities for HAI/AR activities and available funding for LHD.
- Establish a plan for regular ongoing communications between the LHD and the state HAI/AR program or other state or regional points of contact.
- Identify a process for regular information sharing between state HAI/AR program and LHD.
- Increase LHD's awareness of the key positions within the state HAI/AR program (see also Goal 2, Objective 2.1).

Level 2 Activities

These activities build upon level 1; may be more suited for LHDs with previous experience leading HAI/AR activities.

- Determine options, such as rotating membership, for LHD or regional representative(s) to participate in state HAI/AR program led workgroups, e.g., state HAI/AR advisory committee or other statewide HAI/AR coalitions.
- Define new activities and establish expectations from both state and local perspectives (e.g., how do we want to work together; what are our objectives; how will we measure success?).

Level 3 Activities

These activities build upon levels 1 and 2; may be more suited for LHDs with extensive experience leading HAI/AR activities.

- Develop a local or regional HAI/AR steering group or advisory committee with key partners (g., local boards of health, state HAI/AR program representatives, local Association for Professionals in Infection Control (APIC) chapters, local long-term care affiliates).
- Establish a communication cadence and pathway for keeping state HAI/AR program informed of local steering group activities and receiving feedback from the state.



Goal 1: Grow and expand networks across state, regional, and local levels through increased LHD communication and collaboration within the public health sector and among public private sector partners.

Objective 1.2: Grow and sustain relationships between healthcare and public health at the local level tailored to meet the LHD's, healthcare facilities', and providers' needs.

Level 1 Activities

These activities form the foundational competency for each objective; more suited for LHDs and staff with little to no experience leading HAI/AR activities.

- Coordinate with the state HAI/AR program to determine which healthcare settings, facilities, or providers are priorities for LHD support (e.g., based on cases, infection rates, outbreaks etc.) and for what purpose (see also Goal 2, Objective 2.2).
- Identify healthcare facilities within the jurisdiction, including but not limited to facilities that are licensed by the state and including those serving at-risk populations.
- Establish regular contact with healthcare facilities and providers.

Level 2 Activities

These activities build upon level 1; may be more suited for LHDs with previous experience leading HAI/AR activities.

- Develop and maintain local contact lists to include infection preventionists, Directors of Nursing, and representatives from key settings or provider types. First, check with the state HAI/AR program or licensing group to determine if these contact lists already exist.
- Coordinate "snowball introductions" by reaching out to existing contacts, such as infection preventionists, and asking to be introduced to other key facility staff, such as Directors of Nursing and environmental cleaning staff. Ensure coordination with the state HAI/AR program as well as other partners, such as state survey agencies, or Quality Improvement Networks-Quality Improvement Organizations (QIN-QIOs).
- When conducting outreach to newer healthcare partners, tangibly demonstrate the value of the public health department (e.g., provide relevant public health updates facilities should be aware of and/or share tools, resources, and guidance that address questions or challenges they have shared).
- Determine other partners and support that are being used by or available to facilities and providers for healthcare Infection Prevention and Control (IPC) and HAI/AR activities and training needs.
- Attend APIC chapter meetings or other annual meetings with healthcare providers.

Level 3 Activities

These activities build upon levels 1 and 2; may be more suited for LHDs with extensive experience leading HAI/AR activities.

- Regularly engage with facilities and providers to conduct proactive Infection Control Assessment and Response (ICAR) assessments and train facility staff on conducting self-audits and regular assessments of IPC.
- Facilitate collaboration between healthcare facilities that share patient populations to ensure communication of outbreaks in the area, such as hosting annual meetings for facilities.
- Develop and implement a plan for providing HAI/AR-related education to facilities.
- Identify and build partnerships with local healthcare organizations to raise awareness of Project Firstline materials and to disseminate information about healthcare-associated infections and infection control. Consider prioritizing partnerships with organizations that represent healthcare workers that are historically underserved (e.g., professions requiring lower levels of education, healthcare workers who speak English as a second language, healthcare workers from racial/ethnic minority groups, etc.).
- Explore partnerships with commercial laboratories.
- Establish outreach and communication to facility staff for introductions and orientation to HAI/AR surveillance, infection prevention, outbreak response, antibiotic stewardship, and other IPC activities.



Goal 1: Grow and expand networks across state, regional, and local levels through increased LHD communication and collaboration within the public health sector and among public private sector partners.

Objective 1.2: Grow and sustain relationships between healthcare and public health at the local level tailored to meet the LHD's, healthcare facilities', and providers' needs.

Level 1 Activities

These activities form the foundational competency for each objective; more suited for LHDs and staff with little to no experience leading HAI/AR activities.

Level 2 Activities

These activities build upon level 1; may be more suited for LHDs with previous experience leading HAI/AR activities.

Level 3 Activities

These activities build upon levels 1 and 2; may be more suited for LHDs with extensive experience leading HAI/AR activities.

- Create an "elevator speech" to explain the important role of the health department HAI/AR program to IPC officials in hospitals or healthcare facilities.
- Leverage any existing facility newsletters for broad communication with regional IPC partners.



Goal 1: Grow and expand networks across state, regional, and local levels through increased LHD communication and collaboration within the public health sector and among public private sector partners.

Objective 1.3: Engage public health, healthcare, academic, and community partners in growing the partnership network to prevent HAI/AR in all patient populations within the local jurisdiction.

Level 1 Activities

These activities form the foundational competency for each objective; more suited for LHDs and staff with little to no experience leading HAI/AR activities.

- Conduct an environmental scan to identify which additional local partners are working with people who live or work in settings that put them at increased risk of HAI/AR within the jurisdiction.
- Identify other partners working locally on HAI/AR and other patient safety issues (e.g., academic partners, long-term care associations, APIC chapter, boards of health, etc.)
- Discuss local partners' interactions with state HAI/AR program to align communication and partnership engagements, and to ensure priority patient populations are included in the local approach.

Level 2 Activities

These activities build upon level 1; may be more suited for LHDs with previous experience leading HAI/AR activities.

- Define shared goals, objectives, activities, roles, and responsibilities for partners (e.g., how do we want to work together to meet our shared goals?).
- Develop a communication plan for coordination between LHD, selected facilities, providers, and other key partners (e.g., regular calls, process for knowledge sharing, discussing urgent issues, etc.).
- Develop a plan for coordinating local partnership activities and engagements with the state HAI/AR program.
- Discuss with state HAI/AR program how HAI/AR activities and approaches are being tailored to meet the state's and the LHD's health equity goals.

Level 3 Activities

These activities build upon levels 1 and 2; may be more suited for LHDs with extensive experience leading HAI/AR activities.

- Discuss a plan to coordinate resources and funding opportunities with state HAI/AR program and other partners.
- Develop a sustainable communications plan for engaging with local partners that can adapt to changing environments and staff/personnel turnovers.
- Develop a plan with the local steering group or advisory committee to visit goals and priorities with network partners at least annually and align with state goals.
- Coordinate, or participate in, a regional approach with other LHDs to align goals and priorities in addressing the needs of priority populations across the state.



Goal 2: Build LHD operational capacity to conduct and promote sustainable HAI/AR infection prevention and control activities.

Objective 2.1: Increase local public health staff capacity, expertise, and confidence to conduct HAI/AR activities, in alignment with the overall state HAI/AR program strategy.

Level 1 Activities

These activities form the foundational competency for each objective; more suited for LHDs and staff with little to no experience leading HAI/AR activities.

- Designate at least one staff member who is the primary point of contact for HAI outbreaks and/or HAI/AR activities.
- Increase LHD awareness of key roles in the state HAI/AR program (see also Goal 1, Objective 1.1).
- Increase local jurisdiction's awareness of AR Lab Network activities in the state.
- Leverage existing trainings, such as Project Firstline, Nursing Home Infection Preventionist Training, and NACCHO HAI Resources, to improve health department staff awareness of IPC practices (refer the appendix of training resources for a list of available trainings).
- Identify regular touchpoints with the state HAI/AR coordinator for updates and knowledge sharing.
- Offer trainings that build foundational IPC skills for newer staff.
- Increase LHD staff awareness of the Core Competencies for Public Health Professionals.

Level 2 Activities

These activities build upon level 1; may be more suited for LHDs with previous experience leading HAI/AR activities.

- Define shared goals, objectives, activities, roles, and responsibilities for partners (e.g., how do we want to work together to meet our shared goals?).
- Develop a communication plan for coordination between LHD, selected facilities, providers, and other key partners (e.g., regular calls, process for knowledge sharing, discussing urgent issues, etc.).
- Develop a plan for coordinating local partnership activities and engagements with the state HAI/AR program.
- Discuss with state HAI/AR program how HAI/AR activities and approaches are being tailored to meet the state's and the LHD's health equity goals.

Level 3 Activities

These activities build upon levels 1 and 2; may be more suited for LHDs with extensive experience leading HAI/AR activities.

- Discuss a plan to coordinate resources and funding opportunities with state HAI/AR program and other partners.
- Develop a sustainable communications plan for engaging with local partners that can adapt to changing environments and staff/personnel turnovers.
- Develop a plan with the local steering group or advisory committee to visit goals and priorities with network partners at least annually and align with state goals.
- Coordinate, or participate in, a regional approach with other LHDs to align goals and priorities in addressing the needs of priority populations across the state.



Goal 2: Build LHD operational capacity to conduct and promote sustainable HAI/AR infection prevention and control activities.

Objective 2.2: Increase local public health awareness of the latest HAI/AR guidance, data, programs, and policies that impact their community.

Level 1 Activities

These activities form the foundational competency for each objective; more suited for LHDs and staff with little to no experience leading HAI/AR activities.

- Discuss and clarify state and local HAI/AR data sources with state HAI/AR program.
- Work to clarify and communicate HAI/AR reporting policies and procedures for the different types of healthcare facilities.
- Identify LHD knowledge gaps in HAI/AR policies and guidance.
- Ensure staff have solid understanding of the components of Project Firstline tools and materials.

Level 2 Activities

These activities build upon level 1; may be more suited for LHDs with previous experience leading HAI/AR activities.

- Engage with state HAI/AR program and other key partners (e.g., NACCHO, other LHDs within the state) to examine and identify existing HAI/AR policies, such as state and local requirements for HAI/AR reporting.
- Identify necessary steps for accessing HAI/AR data sources at the local level.
- Determine how available data are being used or could be used to meet the state's prevention and health equity goals, including identifying underserved or high-risk areas within the local jurisdiction.
- Engage with state HAI/AR program to ensure that communications about local data to facilities are coordinated across the local and state HAI/AR activities (see also Goal 1, Objective 1.1).

Level 3 Activities

These activities build upon levels 1 and 2; may be more suited for LHDs with extensive experience leading HAI/AR activities.

- Use local information and data on infections, outbreaks, antimicrobial resistance, and antibiotic use to guide activities and responses to HAI/AR threats.
- Ensure LHD staff awareness of the processes in place for accessing HAI/AR data, such as through NHSN or other county level data.
- Ensure that areas of high social vulnerability are included in the local and state HAI/AR program strategies.
- Establish regular communications and two-way knowledge sharing with partners that develop and implement policies (e.g., regulatory agencies, boards of health, etc.).



Goal 2: Build LHD operational capacity to conduct and promote sustainable HAI/AR infection prevention and control activities.

Objective 2.3: Increase interjurisdictional infrastructure and sustainability of local HAI/AR infection prevention and control activities, in alignment with the overall state or regional strategy.

Level 1 Activities

These activities form the foundational competency for each objective; more suited for LHDs and staff with little to no experience leading HAI/AR activities.

- Connect with bordering local jurisdictions for introductions, orientation to HAI/AR activities, and knowledge sharing.
- Identify existing local or regional structures such as regional emergency preparedness, regional healthcare coalitions, or other regional collaboratives.
- Develop a regular cadence for interjurisdictional situational awareness related to HAI/AR outbreaks or emerging issues.

Level 2 Activities

These activities build upon level 1; may be more suited for LHDs with previous experience leading HAI/AR activities.

- Communicate with healthcare systems that operate within the jurisdiction and neighboring jurisdictions at the system or administrative level (see also Goal 1, Objective 1.2).
- Identify opportunities for sharing resources, staffing, and funding opportunities that will support priorities around HAI/AR activities.
- Establish ongoing communications or workgroups for regional goal setting.
- Share interjurisdictional plans, goals, and knowledge with state HAI/AR program.
- Review the HAI/AR and Accreditation Crosswalk for Public Health Accreditation Board (PHAB) accreditation as the health department is considering or renewing accreditation.

Level 3 Activities

These activities build upon levels 1 and 2; may be more suited for LHDs with extensive experience leading HAI/AR activities.

- Discuss and develop a plan for resource sharing with key partners (e.g., multiple LHDs meet with state HAI/AR Advisory Committee for regional approaches to address priorities).
- Develop an ongoing communications plan for sharing and feedback on interjurisdictional information with state HAI/AR program.
- Consider using a social network analysis to determine where patient transfers between facilities are occurring and develop a plan for sharing resources and communication between those facilities.
- Work with the LHD quality improvement officer or program lead and use the HAI/AR and Accreditation Crosswalk as the health department is considering or renewing accreditation.



Goal 2: Build LHD operational capacity to conduct and promote sustainable HAI/AR infection prevention and control activities.

Objective 2.4: Develop and/or update local healthcare preparedness and response plans to have capacity for responding to emerging HAI/AR threats and outbreaks.

Level 1 Activities

These activities form the foundational competency for each objective; more suited for LHDs and staff with little to no experience leading HAI/AR activities.

- Review current local and state preparedness and response plans for elements related to infectious diseases, outbreak responses, and healthcare coordination.
- Meet with LHD preparedness staff regarding their local healthcare preparedness plans for infectious disease outbreaks.
- Discuss role of local public health for addressing healthcare outbreak responses as part of emergency preparedness with the state HAI/AR program.
- Review available preparedness and response resources, (e.g., CDC Public Health Emergency Preparedness Programs (PHEP), NACCHO, and Assistant Secretary for Preparedness and Response's (ASPR) Hospital Preparedness Programs (HPP).

Level 2 Activities

These activities build upon level 1; may be more suited for LHDs with previous experience leading HAI/AR activities.

- Engage with the state HAI/AR program and key preparedness or emergency management partners (e.g., healthcare coalitions) to inform local preparedness activities.
- Engage with local healthcare coalitions and emergency preparedness groups to ensure alignment of efforts and activities.
- Conduct healthcare emergency response trainings and tabletop exercises as part of the local or regional emergency preparedness and response plans.

Level 3 Activities

These activities build upon levels 1 and 2; may be more suited for LHDs with extensive experience leading HAI/AR activities.

- Regularly engage with state HAI/AR or Public Health Emergency Preparedness programs to align on preparedness and response strategies, policies, and identify elements related to HAI/AR activities.
- Develop an evaluation plan to monitor and track progress of preparedness and response activities.



Goal 3: Expand LHD HAI/AR infection prevention, outbreak response, and stewardship activities using data for action and prioritizing activities that increase impact on health equity.

Objective 3.1: Implement HAI/AR outbreak and response strategies using data to identify appropriate participation in local, regional, and statewide approaches.

Level 1 Activities

These activities form the foundational competency for each objective; more suited for LHDs and staff with little to no experience leading HAI/AR activities.

- Revisit roles and responsibilities with state HAI/AR program to improve understanding of case data, outbreak detection, response roles and activities.
- Identify how LHD will be informed of HAIs, multi-drug resistant organisms (MDROs), and other possible outbreaks.
- Identify the facilities and provider types for which prevention and outbreak support will be provided, in coordination with the state HAI/AR program.
- Familiarize LHD staff with the Council for Outbreak Response: Healthcare-Associated Infections and Antimicrobial-Resistant Pathogens (CORHA) Principles and Practices for Outbreak Response
- Subscribe to the CORHA newsletter for regular updates on HAI/AR outbreak activities.
- Familiarize LHD staff with Targeted Assessment Prevention (TAP) strategies through CDC trainings and resources, such as the Targeted Assessment for Prevention (TAP) Strategy, including the TAP Strategy Learning Series videos, the TAP Facility Assessment Deployment Packet [PDF – 5 Pages], and the TAP Strategy Gap Prioritization Worksheet.
- Increase local jurisdictions awareness of state AR Lab Coordinator.
- Increase local jurisdictions awareness of AR Lab Network activities in the state.

Level 2 Activities

These activities build upon level 1; may be more suited for LHDs with previous experience leading HAI/AR activities.

- Coordinate with the state HAI/AR program to review relevant HAI/AR data and reports.
- Coordinate with the state HAI/AR program on clear roles and responsibilities during outbreak response, including coordination and reporting expectations.
- Use available data sources to support facilities within the jurisdictions to target outbreaks, determine prevention program needs, and identify HAI/AR priorities and available resources.
- Facilitate frequent communication with affected facilities to share guidance and address needs during outbreak responses.
- Develop a communications plan for patient notification of adverse events (e.g., CORHA Resources and Products).
- Promote detection and reporting of HAIs, MDROs, and other possible outbreaks from facilities in coordination with local or state laboratories and clinical laboratories.

Level 3 Activities

These activities build upon levels 1 and 2; may be more suited for LHDs with extensive experience leading HAI/AR activities.

- Increase LHD utilization of the Interim Guidance for a Public Health Response to Contain Novel or Target Multidrug-Resistant Organisms (MDROs) [PDF – 16 Pages] and resources available from CORHA.
- Conduct trainings to facility staff and other health department staff on MDRO containment and other forms of healthcare outbreak responses.
- Develop an outbreak and response communication plan to include engagement with the media and public on disclosure. Refer to CDC's Patient Notification Toolkit for guidance and examples.
- Develop or use a tracking system and protocols for actively monitoring outbreak response activities. Refer to the CORHA Principles and Practices for Outbreak Response for guidance.
- Develop and disseminate standards for inter-facility patient transfers.
- Map ongoing cases of an outbreak to determine which facilities and regions were affected.
- Conduct a social networking analysis to identify patterns of patient transfers between healthcare systems and jurisdictions.
- Actively conduct prevention and response activities with facilities to do tabletop exercises, ICARs, Targeted Assessment for Prevention (TAP) Strategy reports, and education and outreach on preventing HAI/AR



Goal 3: Expand LHD HAI/AR infection prevention, outbreak response, and stewardship activities using data for action and prioritizing activities that increase impact on health equity.

Objective 3.1: Implement HAI/AR outbreak and response strategies using data to identify appropriate participation in local, regional, and statewide approaches.

Level 1 Activities

These activities form the foundational competency for each objective; more suited for LHDs and staff with little to no experience leading HAI/AR activities.

Level 2 Activities

These activities build upon level 1; may be more suited for LHDs with previous experience leading HAI/AR activities.

Level 3 Activities

These activities build upon levels 1 and 2; may be more suited for LHDs with extensive experience leading HAI/AR activities.

- infections and outbreaks (see Goal 1 for activities related to facility relationships).
- Conduct timely reporting of emerging HAI/AR threats and outbreaks.
- Promote infection control guidance to other groups (e.g., assisted living, adult homes, long-term acute care centers, community health centers, etc.).



Goal 3: Expand LHD HAI/AR infection prevention, outbreak response, and stewardship activities using data for action and prioritizing activities that increase impact on health equity.

Objective 3.2: Implement infection prevention activities using available data to tailor and focus efforts.

Level 1 Activities

These activities form the foundational competency for each objective; more suited for LHDs and staff with little to no experience leading HAI/AR activities.

- Discuss HAI/AR prevention activities with state HAI/AR program including HAI/AR data, reports, and prevention goals.
- Identify LHD roles and responsibilities as a component of the state's HAI/AR prevention activities and strategy.
- Review CDC's Infection Control Assessment and Response (ICAR) tools.

Level 2 Activities

These activities build upon level 1; may be more suited for LHDs with previous experience leading HAI/AR activities.

- Review available data to identify local outbreaks, surveillance trends and priority areas to focus prevention work, in coordination with state HAI/AR program.
- Identify prevention opportunities or collaboratives with state and local partners, in coordination with state HAI/AR program.
- Pursue training opportunities, such as shadowing the State HAI/AR program.
- Begin to conduct ICAR assessments at facilities in the jurisdiction to systematically assess a healthcare facility's IPC practices and guide quality improvement activities.
- Become familiar with NHSN data and how it is used in your state/jurisdiction, through communication with the state HAI/AR program or state NHSN lead if needed.

Level 3 Activities

These activities build upon levels 1 and 2; may be more suited for LHDs with extensive experience leading HAI/AR activities.

- If local data is available, analyze surveillance data for trends across facilities within jurisdiction and leverage available HAI/AR data to intervene. For example, if the LHD uses NHSN, regularly generate TAP reports to determine priority areas.
- If local data is available, conduct data validation to inform prevention and analysis of available NHSN data to identify HAI priority needs for external validation.
- In collaboration with partners and facilities, organize trainings in infection prevention and control for facility staff (e.g., tabletop exercises to establish protocols, programs to improve hand hygiene in LTCFs, practice in environmental cleaning and disinfection, etc.).
- Participate in local, regional, or state prevention collaboratives.
- Survey local healthcare facility HAI policies, programs, and staff to conduct facility capacity assessments.
- Establish and/or update data use agreements (DUAs) with NHSN, including but not limited to Antimicrobial Use and Antimicrobial Resistance (AU/AR) data reported by facilities.
- Share relevant local data to facilities and assist in developing facilities' skills in NHSN, such as through data entry.
- Conduct ICAR assessments at facilities within the jurisdiction to systematically assess a healthcare facility's IPC practices



Goal 3: Expand LHD HAI/AR infection prevention, outbreak response, and stewardship activities using data for action and prioritizing activities that increase impact on health equity.

Objective 3.2: Implement infection prevention activities using available data to tailor and focus efforts.

Level 1 Activities

These activities form the foundational competency for each objective; more suited for LHDs and staff with little to no experience leading HAI/AR activities.

Level 2 Activities

These activities build upon level 1; may be more suited for LHDs with previous experience leading HAI/AR activities.

Level 3 Activities

These activities build upon levels 1 and 2; may be more suited for LHDs with extensive experience leading HAI/AR activities.

- and guide quality improvement activities.
- Coordinate with state health department to leverage Project Firstline training to train frontline healthcare workers on infectious diseases and emerging threats.
- Partner with local academic institutions to educate and train rising healthcare workers on infection control, tailoring the Project Firstline curriculum to local threats that rising healthcare workers may be more likely to encounter. See Objective 2.1, Level 2 for more information about joining NACCHO's New Infection Prevention and Control Living Learning Network.



Goal 3: Expand LHD HAI/AR infection prevention, outbreak response, and stewardship activities using data for action and prioritizing activities that increase impact on health equity.

Objective 3.3: Implement antibiotic stewardship activities using data to tailor and focus efforts.

Level 1 Activities

These activities form the foundational competency for each objective; more suited for LHDs and staff with little to no experience leading HAI/AR activities.

- Discuss LHD roles and responsibilities for antimicrobial stewardship activities with state HAI/AR program.
- Increase awareness of stewardship tools and resources:
- CDC Core Elements of Antibiotic Stewardship
- Antibiotic Stewardship Implementation Framework for Health Departments [PDF – 2 Pages]
- Core Elements of Hospital Antibiotic Stewardship Programs.

Level 2 Activities

These activities build upon level 1; may be more suited for LHDs with previous experience leading HAI/AR activities.

- Designate a staff member who has responsibility for stewardship activities.
- Identify and establish routine communication with state health department's Antibiotic Stewardship Lead.
- Used CDC Core Elements of Antibiotic Stewardship, Antibiotic Stewardship Implementation Framework for Health Departments [PDF – 2 Pages], and Core Elements of Hospital Antibiotic Stewardship Programs to improve stewardship programs in facilities across the jurisdiction.
- Identify and facilitate appropriate training opportunities for facility staff and providers based on their settings, patients, and needs (training can be conducted in partnership with state HAI/AR program or other partners for cross-training, maximizing uptake, and awareness).
- Provide training to providers and facility staff on stewardship tools and resources:
- CDC Training on Antibiotic Stewardship
- CDC Core Elements of Antibiotic Stewardship
- NHSN Antimicrobial Use (AU) Option (if using NHSN)
- Collaborate with partners on a communications plan to reach providers, healthcare facilities, and organizations to share stewardship guidance and best practices.

Level 3 Activities

These activities build upon levels 1 and 2; may be more suited for LHDs with extensive experience leading HAI/AR activities.

- Work with the Antibiotic Stewardship Coordinator at the state HAI/AR program to identify and engage antibiotic stewards, clinicians, facilities, or health systems within the jurisdiction that need additional support to improve implementation of antibiotic stewardship Core Elements.
- Participate in stewardship collaboratives with key partners, such as academic institutions and facilities, to implement and evaluate evidence-based, local-level interventions informed by antibiotic use data in different healthcare settings.
- Leverage NHSN AUR/AS and other data such as CDC's Antibiotic Resistance & Patient Safety Portal, Medicaid data, etc. to track antibiotic use within the jurisdiction to inform and assess the implementation of focused stewardship interventions in different healthcare settings.
- Implement or promote local-level initiatives to increase adherence to appropriate prescribing practices.
- Enhance stewardship by connecting facilities to share data and effective stewardship methods.
- Provide feedback with peer comparison to prescribers (potential partners may include state Medicaid office or local health plans).
- In partnership with local health systems, support the dissemination of communication training modules to prescribers.



Goal 3: Expand LHD HAI/AR infection prevention, outbreak response, and stewardship activities using data for action and prioritizing activities that increase impact on health equity.

Objective 3.4: Support HAI/AR activities that promote health equity and are aligned with state health equity priorities.

Level 1 Activities

These activities form the foundational competency for each objective; more suited for LHDs and staff with little to no experience leading HAI/AR activities.

- Discuss health equity goals with state HAI/AR program for understanding and awareness.
- Identify how the state's HAI/AR-related health equity goals can best be addressed locally.

Level 2 Activities

These activities build upon level 1; may be more suited for LHDs with previous experience leading HAI/AR activities.

- Develop local-level HAI/AR health equity goals that are aligned with state equity goals based on priority populations, infection rates, and other factors.
- Provide local perspective on where health disparities exist in the community to inform and direct local and state HAI/AR activities.
- Increase awareness of partners' existing efforts to advance health equity in underserved populations.

Level 3 Activities

These activities build upon levels 1 and 2; may be more suited for LHDs with extensive experience leading HAI/AR activities.

- Promote Project Firstline materials with healthcare facilities to meet infection control and patient safety educational and training needs of diverse groups of healthcare personnel and patients.
- Collaborate with partners to align health equity approaches for maximum impact.
- Improve demographic or social determinants of health data collection and quality.
- Assess data sources for availability of equity-related variables that identify disparities (e.g., socioeconomic, insurance status, social vulnerability index, race/ethnicity, geographic, etc.), and incorporate in surveillance and analyses.
- Analyze data with a health equity lens.
- Work with the state health department on prevention projects focused specifically on health equity, which can include activities to better understand health disparities and health equity through collection, analysis, and reporting of data, paired with targeted prevention or response interventions to improve reach and benefit the population(s) or setting(s) identified as disproportionately affected or historically underserved.