

# Long-Term Care and Skilled Nursing Facility Infection Prevention and Control Manual

This manual is intended to guide individuals working in infection prevention and control in Florida-based long-term care facilities. It was created by a team of experts at the University of Florida as part of a collaborative project with the Florida Department of Health. The project was designed to provide support and education in infection prevention and control for Florida’s nursing homes and long-term care facilities.

*“This manual aims to expand the existing knowledge in infection control to support our long-term care partners in delivering safe and effective services to their residents.”*

For more information about the project, please visit the [website](#).

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## Introduction

The demand for older adult care is growing as healthcare shifts from acute care hospitals to post-acute settings. Most Americans over age 65 are expected to need long-term care facilities and services at some point in their lives<sup>1</sup>. Keeping residents of long-term care facilities medically, physically, and emotionally safe requires expertise from numerous clinicians, staff, and administrators. Infection prevention and control (IPC) are at the forefront of safety. This manual provides best practices in IPC and serves as a resource for those caring for residents of long-term care facilities.

Each chapter of this manual focuses on specific areas of IPC, each written by a team of experts to guide individuals working in long-term care. Specifically, the introduction provides background information and definitions. Regulatory guidelines provide needed information to adapt to new diseases and outbreaks (Chapter 1). Understanding infection control principles is necessary for all members of the IPC care team (Chapter 2). The continued emergence of new pathogens and the associated treatment creates challenges for infection preventionists (Chapters 3 and 4). Prevention, identification, and control of COVID-19 infections remain a concern for long-term care facilities (Chapter 5). Behavioral change is often needed to prevent infection successfully; helpful techniques to promote and sustain behavioral changes are provided (Chapter 6). Last, links to many IPC resources will ensure employees have the breadth of knowledge to create and maintain a culture of infection safety.

## Infection Rates in Long-Term Care Facilities

With the increased demand for long-term care services comes the increased need to prevent and control infections. It is estimated that over 3 million Americans receive care in U.S. nursing homes (NHs) and skilled nursing facilities (SNFs) each year, and nearly one million reside in assisted living facilities (ALFs). Data on infections in long-term care facilities (LTCFs) are limited, but the medical literature estimates:

- One to three million serious infections occur every year in LTCFs.
- Infections include urinary tract infections, diarrheal diseases, antibiotic-resistant staph infections, and many others.
- Infections are a significant cause of hospitalization and death. As many as 380,000 people die of infections in LTCFs every year.

Eliminating infections, many of which are preventable is a significant way to improve care and decrease costs. The Center for Disease Control and Prevention's (CDC) National Healthcare Safety Network (NHSN) provides LTCFs with a customized system to track infections in a streamlined and systematic way. When facilities track infections, they can identify problems and track progress toward stopping infections. On the national level, data entered in NHSN gauges progress toward national Healthcare-Associated Infections (HAI) goals.<sup>8</sup>

*For additional information, refer to *The National Healthcare Safety Network (NHSN) Long Term Care Facility Component Tracking Infections in Long-term Care Facilities Manual 2020*: <https://www.cdc.gov/nhsn/pdfs/ltc/lcf-manual-508.pdf>.*

LTCFs have historically been plagued with high HAIs rates. Studies show that HAI rates among elderly residents ranged from 1.8–15.5 infections per 1,000 days in LTCFs vs. 0.95–13 infections per 1,000 days reported in an acute care setting. The CDC reports that approximately 388,000 people die yearly in LTCFs because of these infections.<sup>1</sup>

There are two main drivers of the infection rates in LTCFs. First, aging populations are more at risk for infection. This is due to various factors, including the general frailty of advancing age, the complexity of having multiple chronic conditions, prolonged stays in healthcare settings, and overexposure to antibiotics. This overexposure to antibiotics places them at risk for antibiotic-resistant bacteria and infections, as well as *Clostridioides difficile* (*C. diff*) gastroenteritis.<sup>1</sup>

Second, infection prevention and control (IPC) programs in LTCFs are typically less robust than those in acute care programs. LTCFs experience a general lack of resources, including inadequate funding, challenges in hiring and retaining skilled staff, and a need for more infection control research in these settings. These limited resources directly impact the ability to develop and maintain quality infection prevention and control programs within LTCFs.<sup>1</sup>

## **Long-term Care Defined**

Long-term care facilities (LTCF) provide skilled nursing care and personal care services to people who cannot live independently.<sup>2</sup> “Long-term care facility” includes a nursing home, assisted living facility, adult family-care home, board and care facility, or other similar residential adult care facility.<sup>3</sup>

### *Skilled Nursing Facility Defined*

Nursing homes, or skilled nursing facilities (SNF), provide a wide range of health and personal care services. Social Security statutes §§1819(a) and 1919(a) define a “Skilled nursing facility” as an institution (or a distinct part of an institution) that is primarily engaged in providing skilled nursing care and related services for residents who require medical or nursing care, or rehabilitation services for the rehabilitation of injured, disabled, or sick persons, and is not primarily for the care and treatment of mental diseases. These services typically include skilled nursing care, 24-hour supervision, three meals daily, and assistance with everyday activities. Rehabilitation services, such as physical, occupational, and speech therapy, are available.<sup>4</sup>

A "Nursing facility" (NF) is an institution (or a distinct part of an institution) that is primarily engaged in providing skilled nursing care and related services for residents who require medical or nursing care, rehabilitation services for the rehabilitation of injured, disabled, or sick persons, or regularly, health-related care and services to individuals who because of their mental or physical condition require care and services (above the level of room and board) which can be made available to them only through institutional facilities and is not primarily for the care and treatment of mental diseases. If a provider does not meet one of these definitions, it cannot be certified for participation in Medicare and/or Medicaid programs.<sup>5</sup>

### *Assisted Living Facility Defined*

An assisted living facility (ALF) is designed to provide personal care services in the least restrictive and most home-like environment. These facilities can range in size from one resident to several hundred. They may offer various personal and nursing services to meet an individual's needs.

Facilities are licensed to provide routine personal care services under a "Standard" license or more specific services under the authority of "Specialty" licenses. ALFs meeting the requirements for a Standard license may also qualify for specialty licenses. The purpose of "Specialty Licenses" is to allow individuals to "age in place" in familiar surroundings that can adequately and safely meet their continuing healthcare needs.<sup>6</sup>

### *Adult Family Care Home Defined*

The Adult Family Care Home is a residential home that provides personal care services to individuals requiring assistance. The provider must live in the home and offer personal services for up to 5 residents.<sup>7</sup>

The Florida Agency for Health Care Administration (ACHA) requires all licensees providing residential or inpatient services to use an Agency approved database for reporting their emergency status, planning, or operations. The Agency approved database for reporting this information is the Health Facility Reporting System (HFRS).<sup>7</sup>

### *Residential Care Homes Defined*

Board and care homes, also called residential care facilities or group homes, are small private facilities, usually with 20 or fewer residents. Rooms may be private or shared. Residents receive personal care and meals and have staff available around the clock. Nursing and medical care usually are not provided on-site.<sup>3</sup>

### *Continuing Care Retirement Communities Defined*

Continuing care retirement communities (CCRCs), also called life care communities, offer different service levels in one location. Many offer independent housing (houses or apartments), assisted living, and skilled nursing care, all on one campus. Healthcare services and recreation programs are also provided.

In a CCRC, where you live depends on the level of service you need. People who can no longer live independently move to the assisted living facility or sometimes receive home care in their independent living unit. If necessary, they can enter the CCRCs nursing home.<sup>3</sup>

The field of long-term care is complex. There are numerous facility types and a variety of services provided. The topics covered in this manual are relevant to all individuals working in IPC; however, some chapters may be more applicable depending on the facility type and services provided.

# Chapter 1: Regulatory Guidance

## *Learning Objectives:*

1. *Understand the Centers for Medicare & Medicaid Services (CMS) requirements for long-term care facilities (LTCFs).*
2. *Know the Centers for Disease Control and Prevention (CDC) guidelines for long-term care facilities (LTCFs).*
3. *Be knowledgeable about the State of Florida and Florida Agency for Healthcare Administration (AHCA) regulations for long-term care facilities (LTCFs).*
4. *List the U.S. Occupational Health and Safety Administration regulations for healthcare workers.*

Understanding the difference and application between regulations and guidelines is a critical component of infection prevention practice. Guidelines are developed by experts in the field based on clinical evidence and designed to guide clinical practice. Regulations are required by state or federal law to be followed and may dictate compliance with guidelines. In the absence of regulation, following published guidelines for practice is recommended.<sup>9</sup> This chapter first defines CMS requirements for LTCFs and then provides numerous resources from the CDC, the State of Florida, and the US Occupational Health and Safety Administration.

## **Section 1: CMS Requirements for Long-Term Care Facilities (LTCFs)**

Through the Affordable Care Act (ACA) and the Improving Medicare Post-Acute Care Transformation Act (IMPACT) of 2014, CMS has revised its requirements for LTCFs that receive its funding.

These requirements are:

1. The facility must *designate one or more individuals as infection preventionists (IPs)* responsible for the infection prevention and control program (IPCP). IPs must meet three requirements.
  - They must have primary professional training in nursing, medical technology, microbiology, epidemiology, or a related field.
  - They must be qualified by education, training, experience, or certification.
  - IPs must have dedicated time to meet the objectives outlined in the facility's IPCP.
2. The facility must *have a system in place* for the prevention; identification; recording; reporting; investigation, and control of communicable diseases; healthcare-acquired infections, and foodborne infections. Further, accepted national standards should be used.

3. IPs must *establish ongoing surveillance systems* to collect, analyze, interpret, and share infection data to reduce morbidity and mortality and improve health.
4. An *antimicrobial stewardship program (ASP)* must be established that includes antibiotic use protocols and a system for monitoring antibiotic use.
5. There must be a forum for oversight since data should never be collected for data collecting. A quarterly *Quality Assurance and Performance Improvement (QAPI) committee* oversight and provide data collection.
6. There must be *sanitary management* of linens, including handling, storing, processing and transport.
7. The facility must *conduct an annual review of IPCP* and update it as national standards and guidelines change.
8. The facility must *implement process surveillance*, which is the routine monitoring of compliance with various infection control practices. Examples include monitoring of hand hygiene, isolation practices, use of personal protective equipment (PPE), injection safety, point-of-care testing, linen management, and cleaning and disinfection products and practices.

Data should be collected and reported along with the hospital-associated infection (HAI) rates in QAPI committee meetings. Action taken in response to the data must be documented. An action might include staff education or evaluation of new products. Remember: “Not documented = not done.”<sup>1</sup>

CMS Long-Term Care regulations at 42 CFR 483.65 (Tag F441) Infection Control requires that each “facility establish and maintain an infection control program designed to provide a safe, sanitary, and comfortable environment and to help prevent the development and transmission of disease and infection.” The regulation for immunization complements this existing infection control regulation in the areas of prevention of the development and transmission of disease.<sup>10</sup>

The regulations require that the facility has written standards, policies, and procedures based on recognized evidence-based guidelines.

These include, but are not limited to:

1. *Hand hygiene* includes the need for the facility to have readily accessible sinks and alcohol-based hand rubs in appropriate areas, including resident care areas and food and medication preparation areas.

“Hand hygiene” refers to a general term that applies to hand washing, antiseptic handwash, and alcohol-based hand rub.<sup>11</sup>

- [Clean Hands Count: Prevent and Control Infections -](https://www.cms.gov/files/document/hand-hygiene-initiative-overview.pdf)  
<https://www.cms.gov/files/document/hand-hygiene-initiative-overview.pdf>



<https://www.cms.gov/files/document/hand-hygiene-initiative-faqs.pdf>

Guidelines recommended by CDC for hand hygiene in healthcare settings can be found in Section 3 of this chapter.

2. *Standard and transmission-based isolation precautions*, including how and when to use each precaution.

LTCFs are required to have an effective IPCP program to control the spread of infections and/or outbreaks. Communication of transmission-based precautions to all healthcare personnel and compliance of personnel with requirements is essential. Pertinent signage (i.e., isolation precautions) and verbal reporting between staff can enhance compliance with transmission-based precautions and help minimize the transmission of infections within the facility.<sup>12</sup>

- CMS Manual System, Transmission-based precautions -  
<https://www.cms.gov/Regulations-and-Guidance/Guidance/Transmittals/downloads/R54SOMA.pdf>

A communication process for the interfacility transfer of residents infected or colonized with communicable diseases or other epidemiologically important organisms should be established.

- Infection Control Transfer Form -  
<https://www.cdc.gov/hai/pdfs/toolkits/Interfacility-IC-Transfer-Form-508.pdf>.

Resident room assignments must be communicated effectively, including infection status and the likelihood of transmission. For a resident with a communicable disease, isolation practices must be the least restrictive given the circumstances.

- State Operations Manual Appendix PP - Guidance to Surveyors for Long Term Care Facilities (483.70 (e) Infection Control Policies and Procedures) -  
<https://www.cms.gov/medicare/provider-enrollment-and-certification/guidanceforlawsandregulations/downloads/appendix-pp-state-operations-manual.pdf>

3. *Personal protective equipment (PPE)*, including selection, donning and doffing.

“Personal protective equipment” (PPE) refers to protective items or garments worn to protect the body or clothing from hazards that can cause injury.<sup>13</sup>

Guidelines set by the U.S. Occupational Health and Safety Administration can be found in Section 3 of this chapter.

4. *Cleaning and disinfection* of environmental surfaces and shared resident care equipment should be done to provide a clean and sanitary environment and reduce the risk of pathogen transmission.

- Clinical Standards and Quality- [https://www.cms.gov/medicare/provider-enrollment-and-certification/surveycertificationgeninfo/downloads/scletter12\\_01.pdf](https://www.cms.gov/medicare/provider-enrollment-and-certification/surveycertificationgeninfo/downloads/scletter12_01.pdf)
5. *Staff education and competency assessment* to ensure compliance with infection control practice.
- CMS Instruction Manual for Nursing Home Staff Competency – <https://www.cms.gov/Medicare/Provider-Enrollment-and-Certification/SurveyCertificationGenInfo/Downloads/CMPRP-Toolkit-1-Instruction-Manual.pdf>
  - Nursing Home Staff Competency For Registered Nurse (RN) and Licensed Practical/Vocational Nurse (LPN/LVN) - <https://www.cms.gov/Medicare/Provider-Enrollment-and-Certification/SurveyCertificationGenInfo/Downloads/CMPRP-Toolkit-1-Nurse-Assessment-Electronic.pdf>
6. *Infection control education* for residents and family members, including hand hygiene and cough etiquette.<sup>1</sup>
- APIC Patient Education on Infection Prevention - <https://infectionpreventionandyou.org/protect-your-patients/educate-your-patients-on-infection-prevention/>
  - CDC Isolation Precautions - <https://www.cdc.gov/infectioncontrol/guidelines/isolation/index.html>

To increase patient safety, clinical quality, and community health, the Centers for Medicare & Medicaid Services also require Quality Innovation Organizations (QIO) under Sections 1152-1154 of the Social Security Act. There are two types of QIOs, Beneficiary and Family Centered Care (BFCC)-QIOs and Quality Innovation Network (QIN)-QIOs.

BFCC-QIOs assist Medicare beneficiaries in ensuring their right to high-quality health care by managing complaints and completing quality-of-care reviews. QIN-QIOs mandate a collaborative initiative of Medicare beneficiaries, healthcare providers, and communities to implement data-driven efforts focused on healthcare safety, access, and quality of care at the local level.

In Florida, the regional QIN-QIO is Alliant Health Solutions. While not a regulatory organization, Alliant offers free services to improve healthcare quality and outcomes, including infection prevention expertise.

- CMS Quality Innovation Organizations - <https://qioprogram.org/>
- Alliant Health Solutions - <https://quality.allianthealth.org/>

## Section 2: Centers for Disease Control and Prevention (CDC) resources for Long-Term Care Facilities (LTCFs)

State health departments also provide resources to assist healthcare personnel with preventing infections in nursing homes, assisted living facilities, and other long-term care facilities.<sup>14</sup> The CDC offers numerous resources to reduce occupational exposure to infectious diseases for healthcare workers. Links to resources for antibiotic stewardship and occupational health are provided in this section.

### 1. Antibiotic Stewardship

- [Antimicrobial Stewardship Program Toolkit for Long-term Care Facilities](#) (Minnesota)
- [Coalition for the Prevention of Medical Errors](#) (Massachusetts)

### 2. CDC Guidelines for Healthcare Workers' risk for occupational exposure to infectious diseases

- [Hand Hygiene in Healthcare Settings](https://www.cdc.gov/handhygiene/) - <https://www.cdc.gov/handhygiene/>
- [Guide to Infection Prevention for Outpatient Settings: Minimum Expectations for Safe Care](https://www.cdc.gov/hai/settings/outpatient/outpatient-care-guidelines.html) - <https://www.cdc.gov/hai/settings/outpatient/outpatient-care-guidelines.html>
- [Occupational Infection Prevention and Control: Education and Training](https://www.cdc.gov/infectioncontrol/guidelines/healthcare-personnel/index.html) - <https://www.cdc.gov/infectioncontrol/guidelines/healthcare-personnel/index.html>
- [Infection Control: Guideline for Disinfection and Sterilization in Healthcare Facilities](https://www.cdc.gov/infectioncontrol/guidelines/disinfection/index.html) - <https://www.cdc.gov/infectioncontrol/guidelines/disinfection/index.html>
- [Isolation Precautions](https://www.cdc.gov/infectioncontrol/guidelines/isolation/index.html) - <https://www.cdc.gov/infectioncontrol/guidelines/isolation/index.html>
- [Multidrug-Resistant Organisms \(MDROs\) Management](https://www.cdc.gov/infectioncontrol/guidelines/mdro/index.html) - <https://www.cdc.gov/infectioncontrol/guidelines/mdro/index.html>
- [Guidelines for Environmental Infection Control in Health-Care Facilities \(2003\)](#) - [Guidelines for Environmental Infection Control in Health-Care Facilities \(cdc.gov\)](#)
- [Guideline for Infection Control in Health Care Personnel \(1998\)](https://www.cdc.gov/hicpac/pdf/InfectControl98.pdf) - <https://www.cdc.gov/hicpac/pdf/InfectControl98.pdf>

*Note: this document continues to be updated; for more information, click [here](#) to read the updates.*

- [SHEA/IDSA/APIC Practice Recommendation: Strategies to prevent healthcare-associated infections through hand hygiene: 2022 Update -SHEA/IDSA/APIC Practice Recommendation: Strategies to prevent healthcare-associated infections through hand hygiene: 2022 Update | Infection Control & Hospital Epidemiology | Cambridge Core](#)

3. *CDC’s National Institute for Occupational Safety and Health (NIOSH)*

- [Healthcare Workers: Prevention Controls - https://www.cdc.gov/niosh/topics/healthcare/prevention.html](https://www.cdc.gov/niosh/topics/healthcare/prevention.html)
- [Healthcare Workers: Infectious Agents - https://www.cdc.gov/niosh/topics/healthcare/infectious.html](https://www.cdc.gov/niosh/topics/healthcare/infectious.html)

### **Section 3: State of Florida & the Florida Agency for Health Care Administration (AHCA)**

The Florida Department of Health (FDOH) provides online infection control training through its Health Care-Associated Infections Prevention Program, which can be found at: [Infection Control Training | Florida Department of Health \(floridahealth.gov\)](#)

The 2022 Florida Statutes, Title XXIX PUBLIC HEALTH, Chapter 400 - NURSING HOMES AND RELATED HEALTH CARE FACILITIES provides definitions for services and activities of LTCFs. Specifically,

Part II Nursing Homes - “Facility” means any institution, building, residence, private home, or another place, whether operated for profit or not, including a place operated by a county or municipality, which undertakes through its ownership or management to provide for a period exceeding 24-hour nursing care, personal care, or custodial care for three or more persons not related to the owner or manager by blood or marriage, who because of illness, physical infirmity, or advanced age require such services, but does not include any place providing care and treatment primarily for the acutely ill. A facility offering services for fewer than three persons is within the meaning of this definition if it holds itself out to the public to be an establishment that regularly provides such services.

400.062 License required; fee; disposition. (1) The requirements of part II of chapter 408 apply to the provision of services that require licensure pursuant to this part and part II of chapter 408 and entities licensed by or applying for such licensure from the Agency for Health Care Administration pursuant to this part. A license issued by the agency is required to operate a nursing home in this state.

“The Legislature further finds that to be eligible to receive an allotment of funds authorized and appropriated under the federal Older Americans Act. The state must establish and operate an Office of State Long-Term Care Ombudsman, to be headed by the State Long-Term Care Ombudsman, and carry out a long-term care ombudsman program.”<sup>15</sup>

The Florida Agency for Health Care Administration (AHCA) was statutorily created by Florida Statutes, Title IV Executive Branch, Chapter 20 Organizational Structure. AHCA provides additional state-based information for LTCFs. This is available through the following website:

- Long-Term Care Services Unit <https://ahca.myflorida.com/health-care-policy-and-oversight/bureau-of-health-facility-regulation/long-term-care-services-unit>
- Nursing homes - <https://ahca.myflorida.com/health-care-policy-and-oversight/bureau-of-health-facility-regulation/long-term-care-services-unit/nursing-homes>

#### **Section 4: U.S. Occupational Health and Safety Administration**

The US Occupational Health and Safety Administration (OHSA) provides LTCFs with standards related to healthcare workers' protection from infectious agent transmission. For more information, refer to the following regulations:

- Bloodborne Pathogens standard (29 CFR 1910.1030)  
protection from exposures to blood and body fluids that may contain bloodborne infectious agents
  - <https://www.osha.gov/bloodborne-pathogens/standards>
- Personal Protective Equipment standard (29 CFR 1910.132)
  - <https://www.osha.gov/laws-regs/regulations/standardnumber/1910/1910.132>
- Respiratory Protection standard (29 CFR 1910.134)  
Protection when exposed to contact, droplet, and airborne transmissible infectious agents
  - <https://www.osha.gov/laws-regs/regulations/standardnumber/1910/1910.134>
- TB compliance directive  
Protection against exposure to TB through enforcement of current OSHA standards and the General Duty Clause of the OSH Act
  - <https://www.osha.gov/tuberculosis/standards>

## Introduction and Chapter 1 Resources

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## Chapter 2: Infection Control Principles

### *Learning Objectives:*

1. *Explain the purpose and application of standard precautions in long-term care settings.*
2. *List transmission-based precautions that are used in long-term care settings.*
3. *Describe the guidelines and skills needed to prevent healthcare-associated infections in long-term care settings.*
4. *Describe the principles of infection control as it relates to outbreak management in long-term care settings.*

Long-term care settings present unique circumstances and challenges to infection control. The residents are typically older adults with multiple chronic conditions. Many age-related changes predispose residents to increased risks for infection. Knowing infection control principles in these settings is especially important to ensure the best quality of care, the safest environment, and the highest likelihood of maintaining health in this special population. This chapter provides foundational knowledge on standard precautions and transmission-based precautions, healthcare-associated infections, and outbreak management.

### **Section 1: Standard Precautions in a Long-term Care Setting**

Standard precautions assume that all blood, bodily fluids, secretions, non-intact skin, and mucous membranes are potentially infectious. Standard Precautions are the foundation of infection control and include:

1. *Hand hygiene*
2. *Appropriate and effective use of personal protective equipment (PPE)*
3. *Safe needle and injection practices*
4. *Appropriate patient placement and transport*
5. *Cleaning and disinfection of surfaces and equipment*
6. *Safe laundry management*
7. *Environmental controls*

#### *Hand Hygiene*

Hand hygiene includes the appropriate selection of either alcohol-based hand rub (ABHR) or soap and water, following proper technique and frequency.

Alcohol-based hand rubs that contain at least 60% alcohol are the preferred method for most circumstances unless the hands are visibly soiled or contaminated. The proper technique for using alcohol-based hand rubs, as shown in Figure 1, is to apply the gel or foam to the palm of one hand, rub hands together to cover all surfaces of hands and fingers, and continue rubbing until all the gel or foam is absorbed – at least 20 seconds. Do not rinse your hands or dry hands afterward.



Figure 1: How to use Handrub?

# How to Handrub?

RUB HANDS FOR HAND HYGIENE! WASH HANDS WHEN VISIBLY SOILED

**⌚** Duration of the entire procedure: 20-30 seconds



Source: [https://cdn.who.int/media/docs/default-source/patient-safety/how-to-handrub-poster.pdf?sfvrsn=9d2f6e89\\_11](https://cdn.who.int/media/docs/default-source/patient-safety/how-to-handrub-poster.pdf?sfvrsn=9d2f6e89_11)

When using soap and water for hand hygiene, as shown in Figure 2, first wet your hands with clean water, apply soap, and lather the hands by rubbing them together for at least 20 seconds. Pay special attention to the areas between fingers and around/under fingernails. Next, rinse hands

under clean, running water. Use a dry paper towel to turn off the water. Dry with a clean towel, starting with the fingertips and moving toward the wrists.

Figure 2: How to Handwash?

# How to Handwash?

WASH HANDS WHEN VISIBLY SOILED! OTHERWISE, USE HANDRUB

**⌚** Duration of the entire procedure: 40-60 seconds



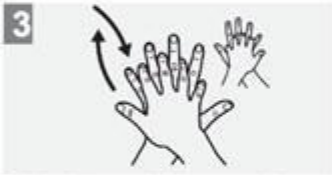
0 Wet hands with water;



1 Apply enough soap to cover all hand surfaces;



2 Rub hands palm to palm;



3 Right palm over left dorsum with interlaced fingers and vice versa;



4 Palm to palm with fingers interlaced;



5 Backs of fingers to opposing palms with fingers interlocked;



6 Rotational rubbing of left thumb clasped in right palm and vice versa;



7 Rotational rubbing, backwards and forwards with clasped fingers of right hand in left palm and vice versa;



8 Rinse hands with water;



9 Dry hands thoroughly with a single use towel;



10 Use towel to turn off faucet;



11 Your hands are now safe.

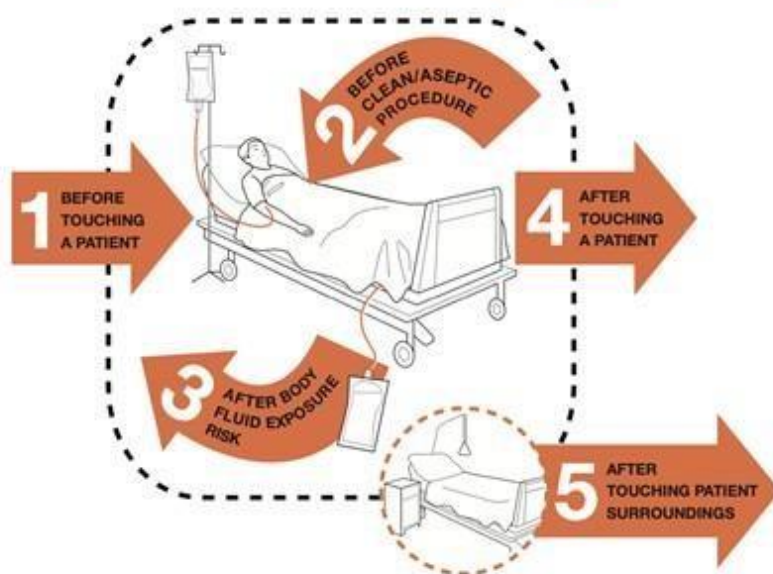
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It is recommended that healthcare professionals use alcohol-based hand rubs before and after all contact with patients or the patient environment, as Figure 3 shows. In addition, soap-and-water

hand hygiene is recommended for all healthcare providers when hands are visibly soiled, after contact with any blood or bodily fluids, before and after eating or preparing food, after using the bathroom, and after caring for patients with certain illnesses, including norovirus, *Cryptosporidium*, and *Clostridioides difficile* (*C. diff*).

**Figure 3: Hand Hygiene**

# Your 5 Moments for Hand Hygiene



<b>1</b>	<b>BEFORE TOUCHING A PATIENT</b>	<b>WHEN?</b> Clean your hands before touching a patient when approaching him/her.
		<b>WHY?</b> To protect the patient against harmful germs carried on your hands.
<b>2</b>	<b>BEFORE CLEAN/ASEPTIC PROCEDURE</b>	<b>WHEN?</b> Clean your hands immediately before performing a clean/aseptic procedure.
		<b>WHY?</b> To protect the patient against harmful germs, including the patient's skin, from entering his/her body.
<b>3</b>	<b>AFTER BODY FLUID EXPOSURE RISK</b>	<b>WHEN?</b> Clean your hands immediately after an exposure risk to body fluids (and after glove removal).
		<b>WHY?</b> To protect yourself and the health-care environment from harmful patient germs.
<b>4</b>	<b>AFTER TOUCHING A PATIENT</b>	<b>WHEN?</b> Clean your hands after touching a patient and her/his immediate surroundings, when leaving the patient's side.
		<b>WHY?</b> To protect yourself and the health-care environment from harmful patient germs.
<b>5</b>	<b>AFTER TOUCHING PATIENT SURROUNDINGS</b>	<b>WHEN?</b> Clean your hands after touching any object or furniture in the patient's immediate surroundings, when leaving – even if the patient has not been touched.
		<b>WHY?</b> To protect yourself and the health-care environment from harmful patient germs.



**World Health Organization**

**Patient Safety**

A World Alliance for Safer Health Care

**SAVE LIVES**

**Clean Your Hands**

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Source: [https://cdn.who.int/media/docs/default-source/integrated-health-services-\(ihs\)/infection-prevention-and-control/your-5-moments-for-hand-hygiene-poster.pdf?sfvrsn=83e2fb0e\\_16](https://cdn.who.int/media/docs/default-source/integrated-health-services-(ihs)/infection-prevention-and-control/your-5-moments-for-hand-hygiene-poster.pdf?sfvrsn=83e2fb0e_16)

### *Appropriate and Effective Use of Personal Protective Equipment (PPE)*

The appropriate and effective use of personal protective equipment includes selecting the proper equipment for each interaction or intervention, selecting the proper size and fit, appropriately putting on (donning) and removing (doffing) the PPE, and properly disposing of used PPE. Adequate PPE should always be available in the facility, and it should be kept close to resident care locations.

To follow standard precautions, the healthcare provider selects the appropriate PPE for the task being performed. This means using a combination of gloves, gowns, face masks, eye protection, and/or face shields. In addition, the healthcare provider should always use PPE when there is a high likelihood of encountering blood, urine, feces, saliva, nasal secretions, sputum, vomit, or breast milk during a resident interaction.

Selecting the proper size PPE and donning PPE correctly will ensure the best protection for healthcare workers. Hand hygiene should be performed before putting on PPE.

The proper sequence for donning PPE is as follows:

Step 1: Gown – Gowns should not be overly tight or overly loose and should be tied so that there are no gaps at the front of the gown.

Step 2: Mask or respirator – Surgical masks should be secured by tying both ties behind the head or by looping elastic ties over the ears, should be tightened to the nose bridge and should cover the nose and mouth to below the chin. Masks with face shields should cover the nose and mouth completely, with the shield extending up to the top of the employee's head. Separate face shields should cover the entire face from the forehead to the chin.

Step 3: Goggles or face shield – Eye protection or goggles should cover the employee's eyes completely.

Step 4: Gloves - Gloves should fit snugly on the hands and extend to cover the wrists.

Proper doffing of PPE is vital for protecting healthcare workers, as shown in Figure 5. Contaminated PPE should be removed before exiting the resident's room, except for facemasks, which should be worn until after exiting the room. It is most important to safely remove PPE without contaminating your clothing, skin, or mucous membranes with potentially infectious materials.

The proper sequence for doffing PPE is as follows:

Step 1: Gloves – using a gloved hand, remove the other glove by pulling from the palm area. Hold the removed glove in a gloved hand. Slide the fingers of the ungloved hand under the remaining glove at the wrist and peel off the second glove over the first glove. Discard.



Step 2: Goggles or face shield – Remove goggles or face shields from the back by lifting the headband or each piece. If the item is reusable, place it in a designated receptacle for reprocessing. Discard if not reusable.

Step 3: Gowns – Unfasten gown ties without touching the body, if possible. If not, grasp the gown in front and pull away from the neck and shoulders, breaking the ties. While removing, turn the gown inside out with a contaminated surface inside.

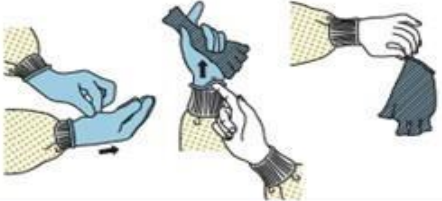
Step 4: Mask or respirator – Grasp the bottom ties or elastics of the mask, then the ones at the top, and remove them without touching the front of the mask. Discard.


**Figure 5: How to Safely Remove PPE**


**HOW TO SAFELY REMOVE PERSONAL PROTECTIVE EQUIPMENT (PPE)  
EXAMPLE 1**


There are a variety of ways to safely remove PPE without contaminating your clothing, skin, or mucous membranes with potentially infectious materials. Here is one example. **Remove all PPE before exiting the patient room** except a respirator, if worn. Remove the respirator **after** leaving the patient room and closing the door. Remove PPE in the following sequence:


- 1. GLOVES**

  - Outside of gloves are contaminated!
  - If your hands get contaminated during glove removal, immediately wash your hands or use an alcohol-based hand sanitizer
  - Using a gloved hand, grasp the palm area of the other gloved hand and peel off first glove
  - Hold removed glove in gloved hand
  - Slide fingers of ungloved hand under remaining glove at wrist and peel off second glove over first glove
  - Discard gloves in a waste container
- 2. GOGGLES OR FACE SHIELD**


  - Outside of goggles or face shield are contaminated!
  - If your hands get contaminated during goggle or face shield removal, immediately wash your hands or use an alcohol-based hand sanitizer
  - Remove goggles or face shield from the back by lifting head band or ear pieces
  - If the item is reusable, place in designated receptacle for reprocessing. Otherwise, discard in a waste container
- 3. GOWN**

  - Gown front and sleeves are contaminated!
  - If your hands get contaminated during gown removal, immediately wash your hands or use an alcohol-based hand sanitizer
  - Unfasten gown ties, taking care that sleeves don't contact your body when reaching for ties
  - Pull gown away from neck and shoulders, touching inside of gown only
  - Turn gown inside out
  - Fold or roll into a bundle and discard in a waste container
- 4. MASK OR RESPIRATOR**

  - Front of mask/respirator is contaminated — **DO NOT TOUCH!**
  - If your hands get contaminated during mask/respirator removal, immediately wash your hands or use an alcohol-based hand sanitizer
  - Grasp bottom ties or elastics of the mask/respirator, then the ones at the top, and remove without touching the front
  - Discard in a waste container
- 5. WASH HANDS OR USE AN ALCOHOL-BASED HAND SANITIZER IMMEDIATELY AFTER REMOVING ALL PPE**



**PERFORM HAND HYGIENE BETWEEN STEPS IF HANDS BECOME CONTAMINATED AND IMMEDIATELY AFTER REMOVING ALL PPE**



Source: <https://www.cdc.gov/hai/pdfs/ppe/ppe-sequence.pdf>

If hands become contaminated between steps, perform hand hygiene before continuing care. Wash hands or use an alcohol-based hand sanitizer immediately after removing all PPE.

### *Safe Needle and Injection Practices*

Proper technique during activities involving needles and injections is essential to reduce the risk of injury or infection to both residents and healthcare workers. For example, some needles have protective covers that deploy after use, but many do not.

Always wear gloves when performing resident care interventions that involve needles, like performing finger sticks or giving injectable medications. In addition, an aseptic technique is required for all injectable medication preparations and administrations, including the use of alcohol swabs to clean the tops of vials and to clean the residents' skin before administration.

For the prevention of accidental needle-stick injuries:

- Do not recap needles.
- Do not reuse needles.
- Whenever possible, use self-capping or safety needles.
- Do not dispose of needles anywhere other than in dedicated sharps containers.

More information and CDC's campaign on injection safety can be found below:

[CDC One and Only Campaign:](#)  
*One syringe/needle, one resident, one time.*

### *Appropriate Resident Placement and Transport*

Appropriate resident placement and transport decision-making are necessary to reduce the risk of transmitting infections in all long-term care settings. Residents may be infected or colonized with infectious organisms. When a resident is identified to be infected or colonized with an organism requiring transmission-based precautions, the resident may need to be moved to a different room or facility to reduce the risk of spreading the infection to others. It is essential to explain to the resident and the family why they are being moved into isolation. In addition, it is essential to clean and disinfect all surfaces the resident was in contact with immediately after moving them to mitigate the risk of the resident's roommate becoming infected.

Private rooms are the best way to prevent the spread of germs and infections. However, when private rooms are unavailable, residents confirmed to have the same infectious disease can be placed together in the same room – known as “cohorting.” If that is not possible, residents with infections may be placed with low-risk residents. More information on cohorting residents colonized or infected with multidrug-resistant organisms can be found in the MDRO Chapter of this manual.

### *Cleaning and Disinfection of Surfaces and Equipment*

The CDC provides guidance on cleaning and disinfection surfaces and equipment to maintain the healthiest and safest environment possible in long-term care facilities. All staff have a role in

cleaning and disinfecting and should receive training as part of their orientation activities. Cleaning removes dirt, dust, hair, and other particles. Cleaning can be done with various tools and should be done before disinfecting surfaces so the disinfectant can have full contact with the surface. Disinfecting removes or kills germs that cause (or spread) infectious diseases. Both patient care items and environmental surfaces should be cleaned and disinfected.

Based on the Spaulding classification system, patient care items are designated as *critical*, *semi-critical*, or *non-critical*. Critical patient care items carry a high risk of infection if they are contaminated with microbes. Examples of critical items are needles, indwelling urinary catheters, and intravenous catheters. That risk is high because these items are used to enter sterile tissue or the vascular system. These are items that must be purchased as pre-sterilized items or must be steam-sterilized, gas-sterilized, or chemical-liquid sterilized.

Semi-critical patient care items come into contact with non-intact skin or mucus membranes. Semi-critical items carry a lower risk of infection than critical items but can still cause harm if they are not cleaned and disinfected properly to remove all microorganisms; small numbers of bacterial spores are allowed. Examples of semi-critical items are electric razors, podiatry equipment, or dental equipment. These items must be cleaned carefully after use, and after that, they must undergo high-level disinfection with an FDA-approved high-level chemical disinfectant, or they may be sterilized as an alternative.

Noncritical patient care items come in contact with intact skin but not with mucus membranes. These items may still be a source of transmission of microbes but are not as high a risk as semi-critical and critical items. Examples of noncritical items are blood pressure cuffs, bedpans, and stethoscopes. These items may be cleaned where they are being used with a low-level disinfectant such as 70 to 90% ethyl or isopropyl alcohol.

Most environmental surfaces, like bed rails, bedside tables, furniture, door handles, etc., are noncritical surfaces and should be cleaned and disinfected with an FDA-approved disinfectant. Disinfecting products have contact time – or a specific length of time that the disinfectant needs to remain wet on the surface to be effective – and that information is listed on the container or the package insert. Some disinfectants are registered with the EPA as having claims against select microbes, like *C. auris*, *C. difficile*, and MRSA/VRE. In areas where a patient is known to be infected or colonized with any of these microbes, these disinfectants should be used. Healthcare workers should wear gloves while cleaning and change their gloves when moving from a contaminated surface to a clean one between resident rooms. [The US Environmental Protection Agency](#) is a reliable source of information.

Facilities should develop cleaning schedules that identify who is responsible for different types of cleaning, such as:

- The patient rooms.
- Patient care items, like blood pressure cuffs.
- Specialty equipment, like bedside monitors.
- Frequency of cleaning.
- The cleaning method (the products that should be used in the cleaning process).

- Detailed standard operating procedures for environmental cleaning of surfaces and noncritical equipment in patient care areas.

High-touch areas like toilets, sinks, doorknobs, counters, medical carts, tables, bed rails, phones, call lights, and personal care wipe packages should be cleaned and disinfected at least once a day. Low-touch surfaces should be cleaned on a scheduled basis, such as weekly, and when visibly soiled. In addition, resident rooms should undergo a deeper, terminal cleaning when a resident is discharged.

### *Safe Laundry Management*

Per AHCA regulations, laundry must be managed in a way that prevents the spread of infection. Laundry may include patient clothing, linens, blankets, towels, washcloths, and any other washable items. Regardless of the items, all laundry should be handled as if it is potentially contaminated. Linens from resident rooms should be changed regularly and laundered. Towels should not be used after being on the floors, and bed sheets should be changed if they are visibly soiled or have been on the resident's bed for one week.

Laundry should be placed in bags where it is used/collected and not carried uncontained to a bagging area. If laundry is contaminated with blood or body fluids, then it must be placed in a leak-resistant container. Laundry should not be sorted or rinsed in any open areas other than the place designated for that purpose. Laundry should be handled or agitated as little as possible to avoid contaminating surfaces, air, or people.

When transporting laundry, do not hold contaminated laundry or bags close to the body. Double bagging of laundry is only recommended if the bag is visibly contaminated or wet. Laundry from an isolation precaution room does not need to be double bagged. If possible, separate, designated carts should be used to transport clean and dirty laundry. If the same cart must be used for clean and dirty laundry, then the two types of laundry must never be transported together in the cart and the cart must be cleaned and disinfected after it is used for dirty laundry. When transporting clean linens, make sure that they are kept clean and free of dust and soil. Clean linens must always be stored separately from contaminated linens.

When washing laundry, the detergent and the water will work to remove many microbes from the items. Facilities should follow the laundry equipment manufacturer's instructions for use for cleaning laundry, including for selecting laundry detergents and additives, and for maintaining equipment. Staff should wear gloves when sorting laundry for washing and should wear gowns if contact with their own clothing is possible. The clean and dirty laundry areas should be separated, and work should be done in a sequence that prevents staff from contaminating clean laundry with dirty laundry. Facilities should follow the manufacturer's recommendations for laundry cycles, water temperatures, and any chemical detergents that may be used during the wash cycle. Temperature recommendations are as follows:

1. Hot water laundering is preferred if items are compatible with that method. Hot water laundering should be done at a temperature of 160°F (71°C) for 25 minutes.
2. For items that cannot be laundered in hot water, low-temperature laundering at 71 to 77°F (22 to 25°C) may be used, along with chlorine or oxygen-activated bleach if the



manufacturer's recommendations allow. Wet or damp laundry should never be left in a machine overnight because it may promote the growth of bacteria and/or mold.

### *Environmental Controls*

An environment that is easy to clean, free of extra materials or clutter, and well-ventilated will improve your infection prevention and control efforts. The floors should be hardwood, vinyl, laminate, or tile. These surfaces are much easier to clean and disinfect regularly. If carpeted floors are in your facility, it is essential to use a vacuum with a high-efficiency particulate absorbing (HEPA) filter and to have them steam cleaned on a routine basis or whenever they are visibly soiled. Spot-cleaning a carpet with disinfectant is appropriate for small spills only. Routinely clean and disinfect the furniture used by residents whenever it is visibly soiled. Disinfectants that are safe on upholstery and carpeting should be used routinely. Meanwhile, increase ventilation when using such products.

Private or common areas used for food preparation should be wiped with a disinfecting wipe before and after preparing food. Spills or loose food particles should be cleaned up immediately. Surfaces or equipment that raw meat is prepared on should be washed with dish soap or antibacterial soap immediately after use to avoid cross-contamination.

Hallways should be free of clutter or unused equipment to reduce dust accumulation. Care should be taken with plants and flowers to avoid introducing insects or fungi into the facility. The CDC makes the following recommendations:

- Limiting flower and plant care to staff with no direct patient contact,
- Advising healthcare staff to wear gloves when handling plants,
- Washing hands after handling plants,
- Changing vase water every 2 days and discharging the water into a sink outside the immediate patient environment
- Cleaning and disinfecting vases after use.

Adequate ventilation – providing outside air – is necessary for a healthy environment. Your facility is equipped with a Heating, Ventilation, and Air Conditioning (HVAC) system that should have been commissioned, a process that ensures all the systems are installed and operate as they are designed before occupancy. Recommissioning an existing building can ensure the continued operation of building systems and identify potential issues. In addition, building systems should be maintained following the manufacturer's guidelines. An example of this would be replacing filters periodically.

Additional steps can also be taken to improve the environment's overall health:

- Check the Minimum Efficiency Reporting Value (MERV) rating of the filters used in the HVAC systems. There are recommended ratings for different occupancy needs. Higher ratings indicate a better ability to capture smaller airborne particles.
- A MERV rating of 13 or more is more efficient at capturing small particles than a lower MERV.

- Allowing outside air into your facility by opening windows or doors can be beneficial whenever possible and safe. However, windows should not be opened if there is a potential for exhaust fumes to enter the room, if open windows will affect the room pressure balance and interfere with the desired air movement (i.e., clean-to-less-clean).
- Portable air purification devices can improve the air quality within individual rooms.
- Personal comfort systems (PCSs) (e.g., box or ceiling fans) can also be used. However, please pay attention to using PCSs to ensure they do not interfere with the desired air movement (i.e., clean-to-less-clean).
- Exhaust fans should be used in areas where food is prepared.
- Box fans can be placed at windows and used as exhaust fans where appropriate.

[The American Society for Health Care Engineering](#) provides guidance on air filtration, while the [CDC provided environmental guidelines](#) for infection control.

## **Section 2: Transmission-Based Precautions in a Long-term Care Setting**

[Transmission-based precautions](#) are used when a resident has a suspected or known infection with a specific microbe (bacteria, viruses, or fungi) that is resistant to antimicrobials or could reasonably cause an outbreak in your facility. These precautions are based on the way the microbe is known to be transmitted. Transmission-based precautions are also known as “isolation precautions.”

The routes of transmission are typically separated into:

- Contact
- Droplet
- Airborne

The prevention and control of these communicable diseases necessitate the use of special safeguards and knowledge about transmission routes. This is of the utmost importance to protect healthcare workers, other residents, and visitors from subsequent infections. Residents with a known or suspected multi-drug resistant organism (MDRO) and residents with an infection that could reasonably cause an outbreak should be isolated. More information on transmission-based precautions for some MDROs can be found in the MDRO Chapter of the manual.

Additionally, if your staff is unsure of what is causing the infection, it is recommended that transmission-based precautions are used empirically until the cause is identified. For example, a patient with diarrhea should be placed on contact precautions while the cause of diarrhea (infection versus medication) is being determined. Consider using transmission-based precautions on a case-by-case basis when providing direct personal care. For example, if a resident cannot maintain clean hands, clothes, or equipment or is new to the facility, the safest choice may be to use gowns and gloves.

Residents with MDROs should be kept from a room with a resident dependent on staff for daily activities. For example, a resident with an MDRO should not be moved to a room with a resident who has an indwelling urinary catheter, an IV catheter, or an open wound. Residents with a known or suspected MDRO should have dedicated equipment that is not used on other residents. That equipment should be cleaned and disinfected regularly to ensure the safety of the healthcare workers.

Whenever possible, it is vital to limit the need and frequency of transporting the resident with an MDRO into other areas of the facility. When a resident with an MDRO needs to be transported, the staff transporting them should be covered with the appropriate PPE (i.e., masks, gowns, gloves, and shoe covers). The resident being transported should be covered with a gown; if the organism is airborne, they should also wear a mask.

It is essential to communicate the need for transmission-based precautions with the resident and the resident's family to ensure they are not confused or upset by the additional safety requirements. It is vital to post signage outside the resident's room, notifying staff and visitors of the type of isolation and any additional safety measures needed. Visitors should be educated about safe interactions with the resident and correct PPE use and handwashing techniques.

#### *Contact Precautions*

Contact transmission of microbes can be direct or indirect. Direct contact can occur from touching a resident's body or bodily fluids (blood, sputum, or stool). Healthcare staff can then expose themselves to the microbe through touch or transmit it directly to others. Indirect contact can occur from touching a contaminated surface (also called a fomite) and ingesting or transmitting the microbe. Bloodborne pathogens are also transmitted through contact with infected blood or bodily fluids, either through a break in the skin (e.g., a needle stick injury) or through contact with the eyes, nose, or mouth.

The easiest and best way to avoid spreading microbes through this route is to use standard precautions, specifically by doing high-quality hand hygiene and wearing gloves. In addition, residents should be instructed on how to wash their hands effectively, if possible. Residents on contact isolation precautions should be placed in private rooms if possible. If that is not possible, a space of at least 3 feet between resident beds is advised. See the MDRO section for recommendations on cohorting for specific MDROs.

Gowns should be used by staff and visitors when providing direct patient care. Equipment should be cleaned and disinfected before and after use. All wounds should be covered with a clean and intact bandage. Urine, stool, sputum, or wound drainage should be contained. For patients with known or suspected *C. diff* infections, washing hands with soap and water is required to kill the spores.

Information on diseases and conditions that require contact precautions can be found in the CDC's [Type and Duration of Precautions Recommended for Selected Infections and Conditions](#).

### *Droplet Precautions*

Large respiratory particles can travel short distances (up to 6 feet) on droplets of fluids. Microbes can travel on these droplets after sneezing, coughing, and talking. In addition, droplets can enter a person's body through the nose and mouth.

The best way to avoid spreading microbes through this route is to wear a mask, gown, and gloves. Residents who are put on droplet precautions should be placed in private rooms if possible. If that is not possible, a space of at least 3 feet between resident beds is advised.

Information on diseases and conditions that require droplet precautions can be found in the CDC's [Type and Duration of Precautions Recommended for Selected Infections and Conditions](#).

All staff and visitors should wear masks in the resident's room for the entire interaction. Residents on droplet precautions should remain in their rooms, and if they must leave their rooms, they must always wear a mask.

### *Airborne Isolation Precautions*

Some respiratory viruses and bacteria can stay suspended in the air for long periods and can be transmitted to others who inhale them. Airborne isolation precautions are used for these types of infections, including active Tuberculosis infection and Measles. Airborne isolation precautions are rarely used in long-term care facilities since most facilities must be equipped to manage these types of patients. However, certain long-term care facilities can house residents on airborne isolation precautions if they have airborne infection isolation (negative air pressure) rooms and an N95 respirator fit-test program or have power air purifying respirators (PAPR).

The best way to avoid spreading microbes through this route is to wear a respirator or N95 mask in addition to using standard precautions. Respirators and N95 masks should be used only by healthcare workers who have undergone respiratory fit testing.

Residents on airborne isolation precautions must be placed in a private room, called an airborne infection isolation room (AIIR), equipped with negative pressure ventilation. If that is not possible, the resident should be promptly placed in a private room and asked to wear a surgical mask while awaiting transfer to a facility equipped with AIIRs.

Information on diseases and conditions that require airborne isolation precautions can be found in the CDC's [Type and Duration of Precautions Recommended for Selected Infections and Conditions](#).

Care must be taken to protect healthcare workers who are not immune to vaccine-preventable airborne infections such as Measles (rubeola), and they should not care for patients with those diseases.

All staff and visitors must wear respiratory protection while in the resident's room for the entire interaction. Care should be clustered so that care providers enter the room only when necessary. Residents on airborne isolation precautions should remain in their rooms, and if they must leave their rooms, they must always wear a mask. If your facility is not equipped to maintain airborne

isolation precautions, explaining why they are being transferred to the resident and their family is essential.

#### *Environmental Controls for Airborne Isolation Precautions*

In addition to standard precautions and specialty PPE, environmental controls are necessary to contain airborne infectious material. The American Institute of Architects/Facility Guidelines Institute (AIA/FGI) has produced standards for AIIRs. These standards include:

- Monitored negative pressure relative to the surrounding area.
- 12 air exchanges per hour for new construction and renovation.
- 6 air exchanges per hour for existing facilities.
- Air exhausted directly to the outside, **or**
- Air recirculated through HEPA filtration before return.

### **Section 3: Guidelines for the Prevention of Healthcare-associated Infections**

To prevent healthcare-associated infections (nosocomial infections) in residents of long-term care facilities, some special skills and considerations are required for certain circumstances. For example, some residents of long-term care facilities need more advanced medical treatments requiring the use of, indwelling urinary catheters, intravascular catheters and infusion ports, dialysis catheters, lumbar puncture procedures, or advanced airways (i.e., tracheostomies). These invasive devices and procedures can be conduits for microbes to enter the body and cause infection, therefore facilities need to ensure the implementation of best practices for the prevention of infections.

Caregivers providing care for residents with indwelling or invasive devices, must receive proper training in aseptic and sterile techniques and demonstrate competence in insertion and maintenance techniques. The aseptic technique is a method of using practices and procedures to prevent microbial contamination, for example, while inserting a Foley catheter, while sterile technique is a practice for maintaining the sterility of an item, like placing a sterile surgical instrument on a sterile field in order to not contaminate it. Your facility should periodically assess the knowledge and adherence to guidelines for all personnel involved in initiating and managing these therapies.

The following guidelines and recommendations should guide your facility because elderly and immunocompromised residents are at a higher-than-normal risk for catheter-associated urinary tract infections, catheter-related bloodstream infections, pneumonia, and mortality.

#### *Urinary Catheters*

The prevention of urinary tract infections in residents with indwelling urinary catheters has been the focus of initiatives in healthcare for the past 40 years. The CDC Guidelines for Prevention of Catheter-Associated Urinary Tract Infections (CAUTI) have been updated and revised over the years based on research and evidence. In addition, SHEA/IDSA/APIC have recently released a 2022 update of their [Strategies to Prevent Catheter-associated Urinary Tract Infections in Acute-care Hospitals](#).

Appropriate indications for indwelling catheters are:

- To manage acute urinary retention or bladder outlet obstruction.
- To measure precise urinary output in critically ill patients.
- For residents who require prolonged immobilization.
- To manage incontinence in cases where healing of open sacral or perineal wounds is needed.
- To improve comfort for end-of-life care if needed.

Inappropriate uses of indwelling catheters are:

- To substitute for nursing care in residents with incontinence.
- To obtain urine for culture or other diagnostic tests when the resident can voluntarily empty their bladder.

Alternatives to indwelling catheters are:

- External catheters (condom catheters) in cooperative male patients without urinary retention or obstruction.
- Intermittent catheterization with straight catheters.

#### *Proper Techniques for Urinary Catheter Insertion*

Only healthcare workers who are properly trained and licensed to do so are qualified to insert urinary catheters. Hand hygiene should be performed before and after inserting or manipulating the catheter device or site. In long-term care facilities, the insertion of an indwelling urinary catheter or intermittent catheterization using a straight catheter should be performed with sterile equipment using an aseptic technique. Use a sterile, sealed catheter insertion kit if possible. Sealed indicates two things here: *unopened*, and a *closed system* (catheter, tubing and collection bag are already connected during manufacture). If that is not possible, the individual supplies should be sterile for the procedure. The smallest bore catheter possible should be used to minimize bladder, neck, and urethral trauma.

The catheter tubing should be secured to the resident's leg using a leg strap for an indwelling catheter. The collection bag should be hung below the level of the bladder and in a position that prevents kinking of the tubing (avoid hanging loops that allow draining of urine from the tubing back into the bladder) or tension on the tubing. The drainage system should always remain closed, and the catheter should be removed and replaced immediately if there is any disconnection or leakage. The drainage bag should be emptied at least every 8 hours.

*Note: The same catheter should never be removed and reinserted. In female patients, if there is a question of proper placement, the catheter should be removed, and a new sterile catheter should be inserted until urine flow is visualized.*

Routine hygiene (such as cleansing the metal surface during daily bathing or showering) is recommended to prevent CAUTI in residents. Routine systemic antimicrobials, periurethral antiseptic cleaners, and antiseptic or antimicrobial solutions in the urinary drainage bag are **not** recommended to prevent CAUTI in residents. Bladder irrigation is **not** recommended unless the obstruction is anticipated or present (e.g., bleeding).

Sterile specimens for culture can be collected from the sampling port on the catheter after cleaning the port with a disinfectant or alcohol wipe. Non-sterile urine specimens for analysis other than culture can be collected directly from the drainage bag.

Surveillance of the incidence and prevalence of CAUTI in your facility should be considered part of the quality assurance and quality improvement programs. CAUTI surveillance should include the number of CAUTI per 1,000 catheter days, the number of bloodstream infections secondary to CAUTI per 1000 catheter days, and the catheter utilization ratio (urinary catheter days/patient days) x 100.

#### *Intravascular Catheters, Dialysis Access and Infusion Ports*

The prevention of infections from intravascular catheters and infusion ports in residents has been the focus of initiatives in healthcare for over 20 years. As a result, the [SHEA/IDSA/APIC Practice Recommendation](#) have been updated and revised based on research and evidence.

There are various types of intravascular catheters, and the appropriate selection of a catheter and site is of the utmost importance. Generally, the intravascular catheters used in long-term care facilities are peripheral venous catheters, midline catheters, dialysis catheters, peripherally inserted central catheter (PICC) lines, and implantable infusion ports.

Appropriate interventions for intravenous catheters are:

- Assess the insertion site daily by visual inspection and palpation through the dressing.
- Clean all access ports with a disinfectant wipe or alcohol wipe before each use (“Scrub the hub”).
- Replace catheter site dressing if the dressing becomes damp, loosened, or visibly soiled.
- Change dressings at least every 7 days for transparent dressings or every 2 days for gauze dressings.
- Replace transparent dressings used on tunneled or implanted CVAD sites no more than once per week (unless the dressing is soiled or loose) until the insertion site has healed.
- Discontinue peripheral intravascular catheters if signs of phlebitis, infection, or a malfunctioning catheter.
- Promptly remove any catheter that is no longer essential.

### *Proper Techniques for Intravenous Catheter Insertion*

Registered and licensed practical nurses are qualified to insert peripheral intravenous catheters (PIV). Hand hygiene should be performed before and after the insertion, replacement, access, repair, or dressing of any intravascular catheter. Nurses should use universal precautions when inserting PIV and should prep the skin site with 70% alcohol, tincture of iodine, an iodophor or chlorhexidine gluconate. Take care not to touch the site after skin prep when inserting the IV to avoid contaminating it. The PIV site should be covered with either sterile gauze or sterile, transparent, semipermeable dressing.

### *Central Venous Access Devices (CVAD)*

Physicians, physician assistants, and nurse practitioners and some nurses having a separate and unique certification (e.g., for PICC line insertion) are all qualified to insert central venous access devices (CVADs). Healthcare workers should perform hand hygiene, use the proper skin prep, and use maximal sterile barrier precautions when inserting a CVAD. Proper skin prep means preparing clean skin with a >0.5% chlorhexidine preparation with alcohol before CVAD and peripheral arterial catheter insertion, and during dressing changes. If there is a contraindication to chlorhexidine, tincture of iodine, an iodophor, or 70% alcohol can be used as alternatives. Maximal sterile barrier precautions include the use of a cap, mask, sterile gown, sterile gloves, and a sterile full body drape for the insertion of CVADs, dialysis access, PICCs, or guidewire exchanges.

Hemodialysis and continuous ambulatory peritoneal dialysis (CAPD) access sites are more common in long-term care settings than in other healthcare settings. As a result, they require special attention regarding [infection prevention and control](#).

Some hemodialysis access devices called vascular access catheters are placed in the groin, upper chest, or neck. Other access devices called fistulas and grafts are placed in the upper extremities. Continuous ambulatory peritoneal dialysis access sites are in the abdomen. From an infection prevention and control perspective, access sites in the abdomen, groin, or neck are more difficult to maintain than those in the upper chest or upper extremities.

The subclavian or intrajugular sites are the preferred sites for the placement of a hemodialysis catheter. Avoid the femoral site if possible. To avoid subclavian vein stenosis, avoid using the subclavian site in residents with advanced kidney disease. For permanent dialysis access, a fistula or graft is necessary for residents with chronic renal failure.

*Note: The same peripheral or central catheter should **never** be removed and reinserted.*

Whenever possible, a suture less securement device should be used to reduce the risk of infection for all intravascular catheters. A sterile, transparent, semipermeable dressing should cover the catheter site. The dressing should be replaced if it becomes damp, loosened, or visibly soiled. The catheter site should not be submerged in water.

Using antibiotic ointment or cream on insertion sites in residents is **not** recommended. Using systemic antimicrobials routinely to reduce the risk of catheter-related infections in residents is



**not** recommended. In addition, the use of anticoagulant therapy routinely to reduce the risk of catheter-related infections in residents is **not** recommended.

Chlorhexidine-impregnated dressings are recommended to reduce the risk of catheter-related bloodstream infections for short-term, non-tunneled central venous catheters.

#### *Accessing Intravascular Catheters*

For the safety of healthcare workers and residents, needleless systems should be used as often as possible. However, infusion ports are often accessed using needles, so special care should be taken to reduce the risk of needle-stick injuries and transmission of potentially infectious materials.

Staff providing care or interventions using intravascular catheters should wear clean gloves. In addition, all ports and access sites should be cleaned with alcohol wipes before being accessed.

Intravascular catheters should not be used to draw blood for blood cultures because of the possibility of contamination.

#### *Replacement of Intravascular Catheters and Tubing*

There is no need to replace peripheral catheters more frequently than every 3 - 4 days to reduce the risk of infection or phlebitis.

Midline catheters should only be replaced when there is a specific indication.

CVADs and PICC lines should only be replaced when there is a specific indication but should not be replaced based on fever alone.

Administration tubing used for receiving blood, blood products, or fat emulsions should be replaced within 24 hours of receiving the infusion.

Administration tubing used for all other intravenous fluids and medications should be replaced every 5 – 7 days.

#### *Surveillance*

Surveillance of the incidence and prevalence of central line-related infections in your facility should be considered part of the quality assurance and quality improvement programs. The surveillance should include the number of central line-related infections per 1,000 central line days, the number of bloodstream infections secondary to intravenous catheters per 1,000 catheter days, and the catheter utilization ratio (intravenous catheter days/patient days) x 100.

Similarly, surveillance of the incidence and prevalence of hemodialysis catheter-related infections in your facility should be considered part of the quality assurance and quality improvement programs. The surveillance should include the number of hemodialysis catheter-related infections per 1,000 catheter days, the number of bloodstream infections secondary to hemodialysis catheters per 1,000 catheter days, and the hemodialysis catheter utilization ratio (intravenous catheter days/patient days) x 100. Similarly, the incidence and prevalence of

bloodstream infections related to hemodialysis through fistulae and grafts should be considered part of the quality assurance and quality improvement programs.

The incidence and prevalence of peritonitis related to continuous ambulatory peritoneal dialysis should also be considered as part of the quality assurance and quality improvement programs. The information needed for thorough surveillance includes the number of CAPD-related peritonitis diagnoses in your facility each quarter, laboratory data (peritoneal fluid culture results), antibiotics and other treatments are given, and the disposition of those residents.

### *Advanced Airways*

In long-term care facilities, pneumonia is the first or second-most common infection acquired by residents, accounting for almost half of all nursing-home-related infections.

Residents of nursing homes and other long-term care facilities are at a higher risk for severe illness due to age, immunocompromised status, and/or comorbid conditions. Healthcare workers, residents, and family members over the age of 65 should receive education on the importance of the pneumococcal vaccine. While not required, the pneumococcal vaccine can mitigate the effects of the infection and drastically improve the chances of survival for this population.

There are three types of advanced airways: nasotracheal, endotracheal, and tracheal. In general, the advanced airways that are used in long-term care facilities are tracheal, called tracheostomies. However, there may also be instances wherein residents would have nasotracheal or endotracheal tubes for interim periods. These advanced airways are placed by physicians, physician assistants, or nurse practitioners.

There is an increased risk of nursing-home-associated pneumonia (NHAP) in residents of long-term care facilities because there is a higher percentage of people with associated risk factors. The associated risk factors are a depressed level of consciousness, difficulty swallowing due to neurologic or esophageal disorders, tracheostomies, naso- or orogastric tubes for gastric decompression or feeding, and enteral feeding tubes.

To reduce the risk of aspiration in residents at your facility, please review the best practices for prevention of HAP.

Best practices for prevention of HAP include the following:

- Place the resident in a semi-upright position by elevating the head of their bed to 30° - 45°.
- Perform frequent toothbrushing and mouth-swabbing with an antiseptic agent.
- Perform frequent sterile suctioning in residents with higher-than-normal nasal or oral secretions.
- Use sterile disposable equipment on only one resident, one time only.
- Properly clean and disinfect all reusable equipment used in respiratory care (nebulizers, endotracheal tubes, bronchoscopes, and spirometers).
- Use sterile water for rinsing off residual liquid chemical disinfectant from respiratory devices that have been disinfected for reuse.

- Ensure ventilator tubing is kept below the level of the advanced airway to prevent condensation in the tubing from traveling back down into the lungs.

#### *Proper Techniques for Advanced Airway Care*

Hand hygiene should be performed before and after insertion, replacement, suctioning, repair, or dressing of an advanced airway. Nasotracheal, endotracheal, and tracheal suctioning should be performed using clean gloves and sterile equipment. The area around the nose, mouth, or trachea should be inspected for debris daily and cleaned with sterile saline-soaked gauze or swabs.

Using antibiotic ointment or cream on tracheostomy sites in residents is not recommended. In addition, systemic antimicrobials routinely to reduce the risk of NHAP in residents with advanced airways is not recommended.

#### *Surveillance*

The incidence and prevalence of pneumonia in your facility should be considered part of the quality assurance and quality improvement programs. The information needed for thorough surveillance includes the number of residents with advanced airways per quarter, the number of advanced airway-related pneumonia diagnoses per quarter, laboratory data (sputum culture results), antibiotics and other treatments given, and the disposition of those residents.

### **Section 4: Outbreak Management in a Long-term Care Setting**

The quick identification of clusters of infections is a critical component to minimizing the severity of outbreaks in long-term care facilities. Each infectious disease has a threshold for an “outbreak” in a population, and a single case of an unusual microbe may be considered an outbreak. An outbreak occurs when more than the expected number of cases of one infectious disease in a population or facility occur at a given time. Residents of long-term care facilities are especially vulnerable to outbreaks because of their age and comorbid conditions. [Florida Rule 64D-3.029](#) requires that practitioners report to the Florida Department of Health “Outbreaks of any disease, any case, a cluster of cases, or exposure to an infectious or non-infectious disease, condition, or agent found in the general community or any defined setting (e.g., hospital, school, other institution) not listed that is of urgent public health significance.”

The most frequent outbreaks in long-term care settings in the past several years have been respiratory and gastrointestinal illnesses.

Contaminated hands, gloves, or medical equipment can spread disease rapidly. Any lapses in standard precautions can increase the risk of spreading diseases among residents. Any staff sick with respiratory or gastrointestinal symptoms should stay or go home.

Empiric or preventative, transmission-based precautions should be implemented if the facility does not know the cause of a cluster of similar illnesses. In addition, extra attention should be paid to cleaning and disinfection of patient care areas to prevent further transmission of infection. Environmental culturing is not generally recommended because negative results may not mean that a suspected microbe or location is not the cause of infection, and positive results may not be epidemiologically linked to the infection.

Some foodborne illnesses are severe, so special attention should be paid to identifying if gastrointestinal illnesses could result from eating contaminated foods or deficiencies in the facility's food preparation area. In addition, several foodborne illnesses must be reported to the local health departments.

## Chapter 2 Resources

### Section 1: Standard Precautions in a Long-term Care Setting

1. [AHRQ - A Unit Guide to Infection Prevention for Long-Term Care Staff](#)
2. [SHEA/IDSA/APIC Practice Recommendation: Strategies to prevent healthcare-associated infections through hand hygiene: 2022 Update](#)
3. [Sequence for Putting on Personal Protective Equipment \(PPE\) \(2020\)](#)
4. [Guideline for Disinfection and Sterilization in Healthcare Facilities \(2008\)](#)
5. [Guidelines for Environmental Infection Control in Health-Care Facilities \(2003\)](#)
6. [Recommendations for Ventilation in Buildings \(2021\)](#)
7. [ASHRAE Filtration/Disinfection \(2021\)](#)
8. [Antimicrobial Products Registered with EPA For Claims Against Common Pathogens](#)
9. [The American Society for Health Care Engineering: Air Filtration](#)
10. [CDC Guidelines for Environmental Infection Control in Health-Care Facilities \(2019\)](#)

### Section 2: Transmission-Based Precautions in a Long-term Care Setting

1. [AHRQ - A Unit Guide To Infection Prevention for Long-Term Care Staff](#)
2. [Guideline for Isolation Precautions: Preventing Transmission of Infectious Agents in Healthcare Settings \(2007\)](#)
3. [Recommendations for Ventilation in Buildings \(2021\)](#)
4. [ASHRAE Filtration/Disinfection \(2021\)](#)
5. [Type and Duration of Precautions Recommended for Selected Infections and Conditions.](#)

### Section 3: Guidelines for the Prevention of Healthcare-associated Infections

1. [Guideline for Prevention of Catheter-Associated Urinary Tract Infections \(2009\)](#)
2. [Guidelines for the Prevention of Intravascular Catheter-Related Infections \(2011\)](#)
3. [Guidelines for Preventing Health-Care-Associated Pneumonia \(2003\)](#)
4. [Strategies to prevent ventilator-associated pneumonia, ventilator-associated events, and nonventilator hospital-acquired pneumonia in acute-care hospitals: 2022 Update](#)
5. [Strategies to prevent central line-associated bloodstream infections in acute-care hospitals: 2022 Update](#)
6. [Strategies to Prevent Catheter-associated Urinary Tract Infections in Acute-care Hospitals.](#)

### Section 4: Outbreak Management in a Long-term Care Setting

1. [Reportable Diseases/Conditions in Florida: Florida Rule 64D-3.029](#)

## Chapter 3: Multidrug-Resistant Organism (MDRO) Prevention and Control

### *Learning Objectives*

1. Describe the significance of multidrug-resistant organisms (MDROs)
2. Discuss how to prevent and control the spread of MDROs in skilled nursing facilities.
3. Apply Enhanced Barrier Precautions for specific MDROs

Multidrug-resistant organisms (MDRO) in skilled nursing facilities are a significant concern. [A regional study](#) published in 2019 showed that 65% of nursing home residents and 80% of long-term acute care residents were colonized with MDROs. Transmission of MDROs in these facilities contributes significantly to the morbidity and mortality of patients, so prevention and control of transmission are essential to reducing the burden of illness and the associated costs.

### **Section 1: Significance of Multidrug-Resistant Organisms (MDROs)**

[Transmission-based precautions](#) are frequently used to prevent the transmission of MDROs and other pathogens. These transmission-based precautions are based on how an organism is spread to patients, which may be by contact (contact precautions), large respiratory drops when a patient coughs or sneezes (droplet precautions), or through the air (airborne precautions). Patients are put on these precautions if they are known to be infected or colonized with an MDRO or other organism that is a concern for transmission in the facility.

Recently, the CDC recommended Enhanced Barrier Precautions (EBP) as an intervention or precautions for residents who are known to be colonized or infected with an MDRO (in situations where contact precautions do not apply) or are at higher risk of acquiring an MDRO. (EBP; see also <https://www.cdc.gov/hai/containment/faqs.html>). EBP includes wearing a gown and gloves during high-contact patient care activities for patients with wounds or indwelling medical devices such as central venous lines or Foley catheters. Some examples the CDC provides of high-contact patient care activities are:

- Dressing
- Bathing/showering
- Transferring
- Providing hygiene
- Changing linens
- Changing briefs or assisting with toileting
- Device care or use: central line, urinary catheter, feeding tube, tracheostomy/ventilator
- Wound care: any skin opening requiring a dressing

Unlike patients on contact, droplet, or airborne precautions, patients who need EBP are not limited to their rooms and may participate in activities. Therefore, these patients and visitors do not need to wear gowns and gloves in the facility.

As shown in Table 1, [Personal protective equipment \(PPE\)](#) such as gowns, gloves, facemasks, and eye protection should be available and easy to access for healthcare workers entering a patient room. A summary of PPE use and room restriction is provided in Table 1. The most convenient location for PPE is outside the patient’s room on a cart or in a wall-mounted isolation station. PPE should be donned (e.g., put on) before entering the patient’s room and doffed (e.g., removed) when leaving the patient’s room. Facilities should [post information](#) for healthcare workers on correctly don and doff PPE.

**Table 1: Summary of Personal Protective Equipment (PPE) Use and Room Restrictions in Nursing Homes**

**Table: Summary of Personal Protective Equipment (PPE) Use and Room Restriction When Caring for Residents in Nursing Homes:**  
 Accessible version: <https://www.cdc.gov/hai/containment/PPE-Nursing-Homes.html>

Precautions	Applies to	PPE used for these situations	Required PPE	Room restriction
<b>Standard Precautions</b>	All residents	Any potential exposure to: <ul style="list-style-type: none"> <li>• Blood</li> <li>• Body fluids</li> <li>• Mucous membranes</li> <li>• Non-intact skin</li> <li>• Potentially contaminated environmental surfaces or equipment</li> </ul>	Depending on anticipated exposure: gloves, gown, facemask or eye protection (Change PPE before caring for another resident)	None
<b>Enhanced Barrier Precautions</b>	All residents with <i>any of the following</i> : <ul style="list-style-type: none"> <li>• Infection or colonization with an MDRO when Contact Precautions do not otherwise apply</li> <li>• Wounds and/or indwelling medical devices (e.g., central line, urinary catheter, feeding tube, tracheostomy/ventilator) regardless of MDRO colonization status</li> </ul>	During high-contact resident care activities: <ul style="list-style-type: none"> <li>• Dressing</li> <li>• Bathing/showering</li> <li>• Transferring</li> <li>• Providing hygiene</li> <li>• Changing linens</li> <li>• Changing briefs or assisting with toileting</li> <li>• Device care or use: central line, urinary catheter, feeding tube, tracheostomy/ventilator</li> <li>• Wound care: any skin opening requiring a dressing</li> </ul>	Gloves and gown prior to the high-contact care activity  (Change PPE before caring for another resident) (Face protection may also be needed if performing activity with risk of splash or spray)	None
<b>Contact Precautions</b>	All residents infected or colonized with a MDRO in any of the following situations: <ul style="list-style-type: none"> <li>• Presence of acute diarrhea, draining wounds or other sites of secretions or excretions that are unable to be covered or contained</li> <li>• For a limited time period, as determined in consultation with public health authorities, on units or in facilities during the investigation of a suspected or confirmed MDRO outbreak</li> <li>• When otherwise directed by public health authorities</li> </ul> All residents who have another infection (e.g., <i>C. difficile</i> , norovirus, scabies) or condition for which Contact Precautions is recommended in Appendix A (Type and Duration of Precautions Recommended for Selected Infections and Conditions) of the CDC Guideline for Isolation Precautions.	Any room entry	Gloves and gown (Don before room entry, doff before room exit; change before caring for another resident) (Face protection may also be needed if performing activity with risk of splash or spray)	Yes, except for medically necessary care

Source: <https://www.cdc.gov/hai/pdfs/containment/PPE-Nursing-Homes-Table-H.pdf>

## Section 2: Prevent and Control the spread of MDROs in Skilled Nursing Facilities

Besides transmission-based precautions, another method of preventing and controlling the spread of MDROs is ensuring that all healthcare providers, patients, and visitors are performing hand hygiene correctly. Both soap and water hand washing sinks and alcohol-based hand rub stations should be available and easily accessible to encourage frequent hand hygiene.

Proper cleaning and disinfection of common areas, patient rooms and bed spaces, and patient care equipment are also critical to help prevent the spread of MDROs. Some organisms, such as *C. diff*, and *Candida auris*, require special considerations for cleaning and disinfection, which are indicated in Table 2 and under the individual MRDO headers below. Some common mistakes made in the cleaning and disinfection process that may contribute to the spread of MDROs are:

- Failing to clean high-touch surfaces in the patient rooms, as well as in common areas.
- Failing to apply a systemic approach to cleaning, such as cleaning from top-down and from clean to dirty.
- Failing to follow manufacturer's instructions for use, such as not wetting cloths with enough disinfectant product to make surfaces visibly damp for the correct contact time specified by the product's instructions (often 10 minutes but may be shorter depending on the product).
- Failing to clean surfaces to remove organic material (like blood, dirt, and fecal matter) before disinfecting.
- Diluting cleaning and disinfectant products that are not supposed to be diluted (refer to product instructions for use).
- Incorrectly diluting cleaning and disinfectant products that are supposed to be diluted (refer to product instructions for use).
- Using cleaning solutions in buckets for too long. Cleaning solutions get contaminated and should be replaced frequently to avoid spreading that contamination.
- Double dipping cleaning cloths into portable containers used for storing cleaning products (this can contaminate the cleaner).
- Failing to replace and launder reusable cleaning cloths and mop heads frequently (use fresh mops/floor cloths, cleaning cloths, and mopping solutions for every cleaning session).

Some MDROs of significance in long-term care and skilled nursing facilities are listed below, with information about the organism, transmission, isolation precautions, hand hygiene, cleaning, testing, and antimicrobial stewardship.



**Table 2 - Strategies for the Prevention of MDRO Transmission**

<b>MDRO</b>	<b>Transmission-based precautions</b>	<b>Duration of precautions</b>	<b>Hand Hygiene</b>	<b>Cleaning</b>
<i>Clostridioides difficile</i> ( <i>C. difficile</i> )	Contact Precautions	Until at least 48 hours after diarrhea has resolved and treatment course has been completed	ABHR or soap and water before patient care; Soap and water after patient care or contact with the patient's environment	Use an EPA-registered sporicidal product
Methicillin-resistant <i>Staphylococcus aureus</i> (MRSA)	Contact Precautions if diarrhea, uncontained secretions or excretions, or ongoing transmission related to patient (Droplet precautions for MRSA pneumonia); otherwise use Enhanced Barrier Precautions.	Maintain Enhanced Barrier Precautions for the duration of the patient's stay in the facility	ABHR or soap and water	Use an EPA-registered product with claims against MRSA and/or VRE
Vancomycin-resistant Enterococci (VRE)	Contact Precautions if diarrhea, uncontained secretions or excretions, or ongoing transmission related to patient; otherwise use	Maintain Enhanced Barrier Precautions for the duration of the patient's stay in the facility	ABHR or soap and water	Use an EPA-registered product with claims against MRSA and/or VRE

	Enhanced Barrier Precautions.			
Carbapenem Resistant Organisms (CRO)/Carbapenem-resistant Enterobacterales (CRE)	Contact Precautions if diarrhea, uncontained secretions or excretions, or ongoing transmission related to patient; otherwise use Enhanced Barrier Precautions.	Maintain Enhanced Barrier Precautions for the duration of the patient's stay in the facility	ABHR or soap and water	Use an EPA-registered disinfectant
Extended-spectrum beta-lactamase-producing bacteria (ESBL)	Contact Precautions if diarrhea, uncontained secretions or excretions, or ongoing transmission related to patient; otherwise use Enhanced Barrier Precautions.	Maintain Enhanced Barrier Precautions for the duration of the patient's stay in the facility	ABHR or soap and water	Use an EPA-registered disinfectant
<i>Candida auris</i> ( <i>C. auris</i> )	Contact Precautions if diarrhea, uncontained secretions or excretions, or ongoing transmission related to patient; otherwise use	Maintain Enhanced Barrier Precautions for the duration of the patient's stay in the facility	ABHR or soap and water	Use an EPA-registered product with claims against <i>Candida auris</i>

	Enhanced Barrier Precautions.			
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[Clostridioides difficile \(C. diff\)](#)

- a. *About – Clostridioides difficile*, formerly known as *Clostridium difficile* as (*C. diff*), is a bacterium that can cause diarrhea and colitis. *C. diff* is a spore-forming bacterium that can produce a protective covering around itself when environmental conditions do not allow it to grow actively. *C. diff* spores can live outside the body for long periods, and the spore cover can protect the bacterium against heat, ultraviolet (UV) light, and even alcohol-based hand rubs. However, the spores can become active when a person swallows them, especially if the individual is being treated with antibiotics, which can cause diarrhea and colitis.
- b. *Transmission – C. diff* is transmitted when a person ingests the spores. This can happen when they touch an object contaminated with *C. diff* and get the bacteria on their hands. Then they might swallow the bacteria if they don't wash their hands before touching their food. This type of transmission is called the fecal-oral route because the bacteria are transmitted from one person's feces to another person's mouth.
- c. *Isolation Precautions – Patients or residents with active or suspected C. difficile infection (CDI) should be placed on **Contact precautions**, with an appropriate sign placed outside the patient room in an easily visible location, until at least 48 hours after diarrhea has resolved and treatment course has been completed* (<https://www.cdc.gov/cdiff/clinicians/cdi-prevention-strategies.html>). Patients with CDI should not share a room with any other patients because of the risk of transmitting *C. diff* to other patients or residents. Facilities should consider asking visitors to gown and gloves when visiting a patient with CDI to prevent the spread to common areas. Patients should remain in their rooms except for medically necessary care and should not visit common areas or other patients.
  - 1. If a single room is unavailable, cohort two patients with CDI in the same room. If cohorting of two CDI patients is not possible, then cohort the CDI patient with one at low risk of acquiring CDI and utilize a personal bedside commode for the CDI patient.
  - 2. The patient or resident should have dedicated equipment whenever possible (glucometer, thermometer, blood pressure cuff, etc.). In addition, any shared equipment brought into the room should be cleaned and disinfected per the manufacturer's recommendations and with [an EPA-registered disinfectant with claims against C. difficile](#) upon leaving the room.

3. Patients with CDI should bathe or shower daily with soap and water.
- d. *Hand Hygiene* - Anyone having contact with the patient or with any objects in the patient's room must wash their hands thoroughly with soap and water as they leave the room. Alcohol-based hand rubs are ineffective against *C. diff*, so they can only be used upon entering the room.
- e. *Cleaning* - *C. diff* can live in the environment for long periods, so it is critical to ensure that a room that has a patient or resident with active CDI is cleaned and disinfected with an [EPA-approved sporicidal product](#) (EPA List K agent). That product should be used for daily cleaning and terminal cleaning. Daily cleaning and disinfection should focus on high-touch surfaces (such as bed rails, doorknobs, tables, call buttons, TV remote, and phone), and cleaning should proceed from areas of lower soiling (patient bed space) to higher soiling (bathroom).
- f. *Testing* – Initial testing should be performed using either an individual PCR assay or an antigen assay as part of a 2-step testing process. PCR assays are highly sensitive and specific and should only be used in patients who are symptomatic and with clinical suspicion of CDI. PCR testing after treatment as a ‘test of cure’ or testing in asymptomatic patients is not recommended as it can lead to over diagnosis and treatment.
- g. *Antibiotic Stewardship* – In a patient diagnosed with CDI, antibiotics being used to treat other infections should be carefully evaluated and stopped unless necessary. Avoid usage of antibiotics subsequently unless needed. In addition, certain antibiotic classes – fluoroquinolones and 3rd, 4th generation cephalosporins should be avoided.

#### [Methicillin-resistant \*Staphylococcus aureus\* \(MRSA\)](#)

- a. *About* – Methicillin-resistant *Staphylococcus aureus* (MRSA) is a Gram-positive bacterium that can cause bloodstream infections, pneumonia, and skin infections, among others. MRSA can be found on the skin, especially the nostrils, axillae, and skin folds of the groin of people infected or colonized with the bacterium.
- b. *Transmission* - MRSA can be spread through contact with healthcare workers with the bacterium on their hands or clothing or with contaminated objects like equipment or high-touch surfaces in the patient's room.
- c. *Isolation Precautions* – Per the CDC and the Florida Department of Health HAI program, patients who are infected or colonized with MRSA may be placed on **Enhanced Barrier Precautions** unless they have acute diarrhea, draining wounds or other sites of secretions or excretions that are unable to be covered or contained, or if there is evidence that the patient is associated with ongoing transmission of MRSA in the facility (see Table 3 at end of section). If any or all of those exceptions apply to a patient, then they should be placed on **Contact Precautions** until they meet the criteria for Enhanced Barrier Precautions. Patients with MRSA pneumonia should be placed on **Droplet Precautions**,

which can be resolved to Contact Precautions or Enhanced Barrier Precautions, depending on which type of precautions the patient meets criteria for, once the pneumonia has been appropriately treated.

A patient who is on **Contact Precautions** or **Droplet Precautions** with MRSA should not share a room with any other patients. If a single room is unavailable, two patients with MRSA may be cohorted in the same room. If an MRSA patient must be placed in a shared room with a non MRSA patient, then the CDC recommends that [the following practices](#) be put in place to avoid transmission:

- Maintain separation of at least 3 feet between beds.
- Use privacy curtains to limit direct contact.
- Clean and disinfect as if each bed area were a different room.
  - For example: clean and disinfect any shared or reusable equipment: change mop heads, cleaning cloths, and other cleaning equipment between bed areas.
- Clean and disinfect environmental surfaces on a more frequent schedule.
- Have healthcare personnel change personal protective equipment (if worn), including gloves, and perform hand hygiene before and after interaction with each roommate.

The patient or resident should have dedicated equipment whenever possible (glucometer, blood pressure cuff, etc.). Any shared equipment brought into the room should be cleaned and disinfected per the manufacturer's recommendations upon leaving the room. Facilities should consider asking visitors to gown and glove when visiting a patient who is on Contact Precautions or Droplet Precautions for MRSA to prevent the spread to common areas. Patients should remain in their rooms except for medically necessary care and should not visit common areas or other patients. Contact Precautions are meant to be time-limited precautions and may be changed to Enhanced Barrier Precautions if there are no draining wounds or uncontained/uncovered secretions or excretions and/or there is no evidence of ongoing transmission of MRSA related to the patient.

A patient with MRSA who is on **Enhanced Barrier Precautions** does not need to be in a private room, is not restricted to their room, and may participate in group activities. The patient does not need dedicated equipment. Visitors to a patient on Enhanced Barrier Precautions do not need to wear a gown and gloves. **Enhanced Barrier Precautions** that are put in place for MRSA infection or colonization are recommended for the duration of the patient's stay in the facility.

- d. *Hand Hygiene* – Good hand hygiene is critical to prevent the spread of MRSA. Healthcare workers' hands may become contaminated after touching the patient or any items in the patient's room, so it is essential to clean hands thoroughly upon leaving the room. In addition, MRSA is not resistant to alcohol-based hand rubs so those, as well as soap and water, may be used for hand hygiene.
- e. *Cleaning* – Clean and disinfect the patient room as well as any patient care equipment with an [EPA-registered hospital disinfectant with a label claim against Methicillin-](#)

[resistant Staphylococcus aureus \(MRSA\)](#). Daily cleaning and disinfection should focus on high-touch surfaces (such as bed rails, doorknobs, tables, call buttons, TV remotes, and phones).

- f. *Testing* – Some facilities may screen patients upon admission or at regular intervals for colonization with MRSA.

#### [Vancomycin-Resistant Enterococci \(VRE\)](#)

- a. *About* – Enterococci bacteria can be found in the human intestinal tract and the female genital tract. Enterococci that are resistant to vancomycin are termed vancomycin-resistant Enterococci (VRE). VRE can cause urinary tract, bloodstream, or wound infections. Patients at highest risk for VRE infection are those who have been treated with vancomycin for an extended period, those who are or recently have been critically ill, those who have had surgical procedures, those who have invasive medical devices such as central venous lines or urinary catheters, and those who have compromised immune systems.
- b. *Transmission* - VRE can be spread through contact with healthcare workers with the bacterium on their hands or clothing or with contaminated objects like equipment or high-touch surfaces in the patient’s room.
- c. *Isolation Precautions* – Per the CDC and the Florida Department of Health HAI program, patients who are infected or colonized with VRE may be placed on **Enhanced Barrier Precautions** unless they have draining wounds or other sites of secretions or excretions that are unable to be covered or contained, or if there is evidence that the patient is associated with ongoing transmission of VRE in the facility (see Table 3 at the end of section). If either or both of those exceptions apply to a patient, then they should be placed on **Contact Precautions** until they meet the criteria for Enhanced Barrier Precautions.

A patient who is on **Contact Precautions** with VRE should not share a room with any other patients. Two patients with VRE may be cohorted in the same room if a single room is unavailable. If a VRE patient must be placed in a shared room with a non-VRE patient, then the CDC recommends that the [following practices](#) be put in place to avoid transmission:

- Maintain separation of at least 3 feet between beds.
- Use privacy curtains to limit direct contact.
- Clean and disinfect as if each bed area were a different room.
  - For example: clean and disinfect any shared or reusable equipment: change mop heads, cleaning cloths, and other cleaning equipment between bed areas.
- Clean and disinfect environmental surfaces on a more frequent schedule.
- Have healthcare personnel change personal protective equipment (if worn), including gloves, and perform hand hygiene before and after interaction with each roommate.

The patient or resident should have dedicated equipment whenever possible (glucometer, blood pressure cuff, etc.). Any shared equipment brought into the room should be cleaned and disinfected per the manufacturer's recommendations upon leaving the room. Facilities should consider asking visitors to gown and glove when visiting a patient who is on Contact Precautions for VRE to prevent the spread to common areas. Patients should remain in their rooms except for medically necessary care and should not visit common areas or other patients. Contact Precautions are meant to be time-limited precautions and may be changed to Enhanced Barrier Precautions if there are no draining wounds or uncontained/uncovered secretions or excretions and/or there is no evidence of ongoing transmission of VRE related to the patient.

A patient with VRE who is on **Enhanced Barrier Precautions** does not need to be in a private room, is not restricted to their room, and may participate in group activities. The patient does not need dedicated equipment. Visitors to a patient on Enhanced Barrier Precautions do not need to wear a gown and gloves. **Enhanced Barrier Precautions** that are put in place for VRE infection or colonization are recommended for the duration of the patient's stay in the facility.

- d. *Hand Hygiene* - Good hand hygiene is critical to prevent the spread of VRE. Healthcare workers' hands may become contaminated after touching the patient or any items in the patient's room, so it is essential to clean hands thoroughly upon leaving the room. In addition, VRE is not resistant to alcohol-based hand rubs, so soap and water may be used for hand hygiene.
- e. *Cleaning* - Clean and disinfect the patient room as well as any patient care equipment with an [EPA-registered hospital disinfectant with a label claim against Vancomycin-resistant Enterococcus faecalis/faecium \(VRE\)](#).
- f. *Testing* - Some facilities may screen patients upon admission or at regular intervals for colonization with VRE.

#### Carbapenem Resistant Organisms (CRO)/Carbapenem-resistant Enterobacterales (CRE) –

- a. *About* – CRO/CRE are bacteria that are resistant to carbapenem antibiotics. Patients may be infected or colonized with CRO/CRE, which can be detected in the stool. CRE/CRO can cause infections almost anywhere, including urinary tract infections, bloodstream infections, ventilator-associated infections, and intra-abdominal abscesses.
- b. *Transmission* – CRO/CRE can be spread through contact with healthcare workers with the bacterium on their hands or clothing or with contaminated objects like equipment or high-touch surfaces in the patient's room. Sinks, sink drains/traps, and faucets may also serve as sources of transmission of CRO/CRE. To prevent transmission from the environment:
  - Sinks should be cleaned regularly.
  - Patient care belongings should not be stored on sinks

- In-room sinks should not be used for the disposal of clinical waste
- c. *Isolation Precautions* - Per the CDC and the Florida Department of Health HAI program, patients who are infected or colonized with CRO/CRE may be placed on **Enhanced Barrier Precautions** unless they have draining wounds or other sites of secretions or excretions that are unable to be covered or contained, or if there is evidence that the patient is associated with ongoing transmission of CRO/CRE in the facility (see Table 3 at end of section). If either or both of those exceptions apply to a patient, then they should be placed on **Contact Precautions** until they meet the criteria for Enhanced Barrier Precautions.

A patient who is on **Contact Precautions** with CRO/CRE should not share a room with any other patients. If a single room is unavailable, two patients with CRO/CRE may be cohorted in the same room. If a CRO/CRE patient must be placed in a shared room with a non-CRO/CRE patient, then the CDC recommends that the [following practices](#) be put in place to avoid transmission:

- Maintain separation of at least 3 feet between beds.
- Use privacy curtains to limit direct contact.
- Clean and disinfect as if each bed area were a different room.
  - For example: clean and disinfect any shared or reusable equipment: change mop heads, cleaning cloths, and other cleaning equipment between bed areas.
- Clean and disinfect environmental surfaces on a more frequent schedule.
- Have healthcare personnel change personal protective equipment (if worn), including gloves, and perform hand hygiene before and after interaction with each roommate.

The patient or resident should have dedicated equipment whenever possible (glucometer, blood pressure cuff, etc.). Any shared equipment brought into the room should be cleaned and disinfected per the manufacturer's recommendations upon leaving the room. Facilities should consider asking visitors to gown and glove when visiting a patient who is on Contact Precautions for CRO/CRE to prevent the spread to common areas. Patients should remain in their rooms except for medically necessary care and should not visit common areas or other patients. Contact Precautions are meant to be time-limited precautions and may be changed to Enhanced Barrier Precautions if there are no draining wounds or uncontained/uncovered secretions or excretions and/or there is no evidence of ongoing transmission of CRO/CRE related to the patient.

A patient with CRO/CRE who is on **Enhanced Barrier Precautions** does not need to be in a private room, is not restricted to their room, and may participate in group activities. The patient does not need dedicated equipment. Visitors to a patient on Enhanced Barrier Precautions do not need to wear a gown and gloves. **Enhanced Barrier Precautions** that are put in place for CRO/CRE infection or colonization are recommended for the duration of the patient's stay in the facility.



- d. *Hand Hygiene* - Good hand hygiene is critical to prevent the spread of CRO/CRE. Healthcare workers' hands may become contaminated after touching the patient or any items in the patient's room, so it is essential to clean hands thoroughly upon leaving the room. In addition, CRO/CRE not resistant to alcohol-based hand rubs so those, as well as soap and water, may be used for hand hygiene.
- e. *Cleaning* – In addition to cleaning and disinfecting high-touch surfaces with an EPA-approved disinfectant, special attention should be paid to cleaning sinks, sink drains, and faucets.
- f. *Testing* – Urine cultures and sputum cultures should only be obtained in a patient with concerning local symptoms (UTI: dysuria, lower abdominal pain, flank pain; Pneumonia: productive sputum, dyspnea, increased work of breathing) and systemic symptoms (fever) where applicable. Superficial wound swabs should be avoided in patients with known colonization.

#### Extended-spectrum beta-lactamase-producing bacteria (ESBL)

- a. *About* – ESBL, or extended-spectrum beta-lactamase, refers to Enterobacterales bacteria that can be resistant to beta-lactamases like penicillin and cephalosporins. ESBL-producing bacteria are the most common bacteria in the gastrointestinal tract. Some examples of bacteria that may develop this type of resistance include *Escherichia coli* and *Klebsiella pneumoniae*. ESBL-producing bacteria are most frequently associated with urinary tract infections but can cause many infections, including wound and bloodstream infections. In addition, patients with ESBL infections typically need to be treated with carbapenem antibiotics, which raises concern for those bacteria to develop carbapenem resistance. Therefore, it is essential to prevent the spread of ESBL-producing bacteria.
- b. *Transmission* – ESBL-producing bacteria can be spread through contact with healthcare workers who have the bacterium on their hands or clothing or with contaminated objects like equipment or high-touch surfaces in the patient's room.
- c. *Isolation Precautions* - Per the CDC and the Florida Department of Health HAI program, patients who are infected or colonized with ESBL may be placed on **Enhanced Barrier Precautions** unless they have draining wounds or other sites of secretions or excretions that are unable to be covered or contained, or if there is evidence that the patient is associated with ongoing transmission of ESBL in the facility (see Table 3 at the end of section). If either or both of those exceptions apply to a patient, they should be placed on **Contact Precautions** until they meet the criteria for Enhanced Barrier Precautions. Patients with MRSA pneumonia should be placed on **Droplet Precautions**, which can be resolved to Contact Precautions or Enhanced Barrier Precautions, depending on which type of precautions the patient meets the criteria for, once pneumonia has been appropriately treated.

A patient who is on **Contact Precautions** or **Droplet Precautions** with ESBL should be placed in a single room or cohorted with another ESBL-positive patient. If that is not possible, the patient may share with a non-ESBL patient but should not be placed in the same room as a patient with an indwelling medical device or open wound. The patient or resident should have dedicated equipment whenever possible (glucometer, blood pressure cuff, etc.). Any shared equipment brought into the room should be cleaned and disinfected per the manufacturer's recommendations upon leaving the room. Facilities should consider asking visitors to gown and glove when visiting a patient who is on Contact Precautions for ESBL to prevent the spread to common areas. Patients should remain in their rooms except for medically necessary care and should not visit common areas or other patients. Contact Precautions are meant to be time-limited precautions and may be changed to Enhanced Barrier Precautions if there are no draining wounds or uncontained/uncovered secretions or excretions and/or there is no evidence of ongoing transmission of ESBL related to the patient.

A patient with ESBL who is on **Enhanced Barrier Precautions** does not need to be in a private room, is not restricted to their room, and may participate in group activities. The patient does not need dedicated equipment. Visitors to a patient on Enhanced Barrier Precautions do not need to wear a gown and gloves. **Enhanced Barrier Precautions** that are put in place for ESBL infection or colonization are recommended for the duration of the patient's stay in the facility.

- d. *Hand Hygiene* – Good hand hygiene is critical to prevent the spread of ESBL-producing bacteria. Healthcare workers' hands may become contaminated after touching the patient or any items in the patient's room, so it is essential to clean hands thoroughly upon leaving the room. In addition, ESBL-producing bacteria are not resistant to alcohol-based hand rubs so those, as well as soap and water, may be used for hand hygiene.
- e. *Cleaning* – Clean and disinfect the patient room as well as any patient care equipment with an EPA-registered disinfectant. Daily cleaning and disinfection should focus on high-touch surfaces (such as bed rails, doorknobs, tables, call buttons, TV remotes, and phones).
- f. *Testing* – Urine cultures and sputum cultures should only be obtained in a patient with concerning local symptoms (UTI: dysuria, lower abdominal pain, flank pain; Pneumonia: productive sputum, dyspnea, increased work of breathing) and systemic symptoms (fever) where applicable. Superficial wound swabs should be avoided in patients with known colonization.

#### *Candida auris* (*C. auris*)

- a. *About* – *Candida auris*, or *C. auris*, is a drug resistant emerging yeast (a fungal disease) of concern for skilled nursing and long-term care facilities. *C. auris* may be resistant to many different types of anti-fungal treatment, is hard to identify in the lab, and can cause outbreaks. These challenges make it especially important to take all precautions possible to prevent the spread of *C. auris* in healthcare settings. Patients can carry *C. auris* on

their skin without having symptoms, and then it can be spread to other patients through contact with healthcare workers' hands, contaminated equipment, or the patient room. You can view the CDC's [Candida auris infection prevention fact sheet](#) for important information about this microbe.

- b. *Transmission* – *C. auris* can be spread via contact with unwashed hands or through contaminated objects like equipment or high-touch surfaces in the patient's room.
- c. *Isolation Precautions*– Per the CDC and the Florida Department of Health HAI program, patients who are infected or colonized with *C. auris* may be placed on **Enhanced Barrier Precautions** unless they have diarrhea, draining wounds or other sites of secretions or excretions that are unable to be covered or contained, or if there is evidence that the patient is associated with ongoing transmission of *C. auris* in the facility (see Table 3 at end of section). If either or both of those exceptions apply to a patient, then they should be placed on **Contact Precautions** until they meet the criteria for Enhanced Barrier Precautions.

If possible, patients with *C. auris* should not share a room with any other patients. If a single room is unavailable, two patients with *C. auris* may be cohorted in the same room. If a *C. auris* patient must be placed in a shared room with a non *C. auris* patient, then the CDC recommends that the [following practices](#) be put in place to avoid transmission:

- Maintain separation of at least 3 feet between beds.
- Use privacy curtains to limit direct contact.
- Clean and disinfect as if each bed area were a different room.
  - For example: clean and disinfect any shared or reusable equipment: change mop heads, cleaning cloths, and other cleaning equipment between bed areas.
- Clean and disinfect environmental surfaces on a more frequent schedule.
- Have healthcare personnel change personal protective equipment (if worn), including gloves, and perform hand hygiene before and after interaction with each roommate.”

A patient who is on **Contact Precautions** with *C. auris* should have dedicated equipment whenever possible (glucometer, blood pressure cuff, etc.). Any shared equipment brought into the room should be cleaned and disinfected per the manufacturer's recommendations upon leaving the room. Facilities should consider asking visitors to gown and glove when visiting a patient who is on Contact Precautions for *C. auris* to prevent the spread to common areas. Patients should remain in their rooms except for medically necessary care and should not visit common areas or other patients. Contact Precautions are meant to be time-limited precautions and may be changed to Enhanced Barrier Precautions if there are no draining wounds or uncontained/uncovered secretions or excretions and/or there is no evidence of ongoing transmission of *C. auris* related to the patient.

A patient with *C. auris* who is on **Enhanced Barrier Precautions** does not need to be in a private room, is not restricted to their room, and may participate in group activities. The patient does not need dedicated equipment. Visitors to a patient on Enhanced Barrier Precautions do not need to wear a gown and gloves. **Enhanced Barrier Precautions** that are put in place for *C. auris* infection or colonization are recommended for the duration of the patient's stay in the facility.


- d. *Hand Hygiene* – Good hand hygiene is critical to prevent the spread of *C. auris*. Healthcare workers' hands may become contaminated after touching the patient or any items in the patient's room, so it is essential to clean hands thoroughly upon leaving the room. In addition, *C. auris* is not resistant to alcohol-based hand rubs so those, as well as soap and water, may be used for hand hygiene.
- e. *Cleaning* – *C. auris* can persist in the hospital environment. Hence, it is critical to do thorough daily cleaning (at minimum) and terminal cleaning of any *C. auris* patient rooms and other areas where they receive care. In addition, *C. auris* may be resistant to some ordinary hospital cleaners/disinfectants, so it is critical to use a product listed in the EPA's [Antimicrobial Products Registered with EPA for Claims against \*Candida auris\*](#) document.
- f. *Testing* – Per the CDC, follow-up testing for *C. auris* is not recommended as patients can remain colonized for an extended period, and a negative follow-up test may not accurately indicate that the patient is no longer carrying *C. auris*. See the Reassessment of Colonization section of the [CDC Infection Prevention and Control for \*Candida auris\*](#) document for more details on testing. Facilities should partner with the Florida Department of Health's Healthcare Associated Infections Prevention Program to help prevent and control the spread of *C. auris*. Close healthcare contacts of a *C. auris* patient should be screened for colonization with *C. auris*. The CDC recommends screening these contacts in their [Screening for \*Candida auris\* Colonization](#) document.

**Table 3 - Colonization Screening and Isolation Guidance for Multidrug-Resistant Organisms (MDROs) in Long-Term Care Settings**

Colonization Screening and Isolation Guidance for Multidrug-Resistant Organisms (MDROs) in Long-Term Care Settings		
Organism	Contact Precautions Discontinuation Criteria	Comments
<b>Candida auris</b> ( <i>C. auris</i> )	<ul style="list-style-type: none"> <li>The Centers for Disease Control and Prevention (CDC) currently recommends continuing contact precautions (CP) or enhanced barrier precautions (EBP), depending on the situation, for the entire duration of the patient's stay in the facility.</li> <li>CDC does not recommend routine reassessments for <i>C. auris</i> colonization.</li> <li>Reassessment of colonization may be considered in consultation with the Florida Department of Health.</li> <li>Reassessment should not be performed for 3 months after last positive result for <i>C. auris</i>.<sup>3</sup></li> </ul>	Evidence suggests that patients remain colonized for many months, perhaps indefinitely even after acute infection (if present) has been treated and resolves. <sup>2</sup>
<b>Multidrug-Resistant Enterobacteriaceae (MDR-E) and Carbapenemase-Producing Organisms (CPOs)</b>	When there is no evidence of: <ul style="list-style-type: none"> <li>Ongoing transmission,</li> <li>Acute diarrhea, or</li> <li>Draining wounds or other sites of secretions/excretions that are unable to be covered or contained.<sup>5,6</sup></li> </ul>	For ill residents (e.g., dependent on health care personnel for health care and activities of daily living, ventilator-dependent, etc.) and for residents whose infected secretions or drainage cannot be contained, use CP or EBP, depending on the situation, in addition to standard precautions. <sup>4</sup>
<b>Vancomycin-Resistant Enterococci (VRE)</b>	When there is no evidence of: <ul style="list-style-type: none"> <li>Ongoing transmission, or</li> <li>Draining wounds or other sites of secretions/excretions that are unable to be covered or contained.<sup>5,6</sup></li> </ul>	For ill residents (e.g., dependent on health care personnel for health care and activities of daily living, ventilator-dependent, etc.) and for residents whose infected secretions or drainage cannot be contained, use CP or EBP, depending on the situation, in addition to standard precautions. <sup>4</sup>
<b>Methicillin-Resistant Staphylococcus aureus (MRSA)</b>	When there is no evidence of: <ul style="list-style-type: none"> <li>Ongoing transmission, or</li> <li>Draining wounds or other sites of secretions/excretions that are unable to be covered or contained.<sup>5,6</sup></li> </ul>	For ill residents (e.g., dependent on health care personnel for health care and activities of daily living, ventilator-dependent, etc.) and for residents whose infected secretions or drainage cannot be contained, use CP or EBP, depending on the situation, in addition to standard precautions. <sup>4</sup>
<b>Clostridioides difficile</b> ( <i>C. diff</i> )	<ul style="list-style-type: none"> <li>48 hours after resolution of diarrhea.<sup>1,3</sup></li> </ul>	<p>The presence of acute diarrhea due to <i>C. diff</i> infections can increase the risk of transmission due to health care personnel hand contamination.<sup>1,3</sup></p> <p>Place residents with suspected <i>C. diff</i> and more than three (3) diarrheal stools in presumptive CP while awaiting test results.<sup>1,3</sup></p>

<sup>1</sup>Clostridium difficile Infection and Pseudomonas Colitis, APIC Test, test.apic.org/topic/health-care-associated-pathogens-and-diseases/clostridium-difficile-infection-and-pseudomonas-colitis  
<sup>2</sup>Infection Prevention and Control for Candida auris | Candida auris | Fungal Diseases | CDC, Centers for Disease Control and Prevention, www.cdc.gov/fungal/candida-auris/candida-infection-control.html  
<sup>3</sup>Long-Term Care, APIC test, test.apic.org/topic/infection-prevention-for-practice-settings-and-services-specific-to-patient-care-areas/long-term-care  
<sup>4</sup>Multidrug-resistant Organisms (MDRO) Management | Summary of Recommendations | LTCF | www.cdc.gov/infectioncontrol/guidelines/mdro/index.html  
<sup>5</sup>Smith, Philip W, et al. "SAPIC/APIC Sublineage: Infection Prevention and Control in the Long-Term Care Facility, July 2008." Infection Control and Hospital Epidemiology, U.S. National Library of Medicine, Sept. 2008, ncbi.nlm.nih.gov/pmc/articles/PMC2284907/  
<sup>6</sup>Type and Duration of Precautions Recommended for Selected Infections and Conditions | Multidrug-resistant organisms (MDROs) Infection or Colonization | CDC, Centers for Disease Control and Prevention, www.cdc.gov/infectioncontrol/guidelines/isolation/appendix/type-duration-precautions.html

If you have additional questions, please contact the Florida Department of Health Health Care-Associated Infection Prevention Program at (e) HAI\_Program@FLHealth.gov (p) 850-245-4401

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Source: [https://www.floridahealth.gov/diseases-and-conditions/health-care-associated-infections/ documents/colonization-screening-isolation-guidance-mdro.pdf](https://www.floridahealth.gov/diseases-and-conditions/health-care-associated-infections/documents/colonization-screening-isolation-guidance-mdro.pdf)



## Chapter 3 Resources

### Section 1: Significance of Multidrug-Resistant Organisms (MDROs)

1. [The SHIELD Orange County Project: Multidrug-resistant Organism Prevalence in 21 Nursing Homes and Long-term Acute Care Facilities in Southern California](#)
2. [CDC: Type and Duration of Precautions](#)
3. [CDC: Sequence for donning and doffing PPE](#)

### Section 2: Prevent and Control the spread of MDROs in Skilled Nursing Facilities

1. [CDC's Guideline for Isolation Precautions: Preventing Transmission of Infectious Agents in Healthcare Settings \(2007\)](#)
2. [The SHIELD Orange County Project: Multidrug-resistant Organism Prevalence in 21 Nursing Homes and Long-term Acute Care Facilities in Southern California](#)
3. [Enhanced Barrier Precautions](#)
4. [CDC's CDI Infection Strategies](#)
5. [EPA-registered hospital disinfectant with a label claim against Methicillin-resistant Staphylococcus aureus \(MRSA\)](#)
6. [Antimicrobial Products Registered with EPA for Claims against \*Candida auris\*](#)
7. [CDC Infection Prevention and Control for \*Candida auris\*](#)
8. [Screening for \*Candida auris\* Colonization](#)

## Chapter 4: Principles of Antibiotic Stewardship

### *Learning Objectives*

1. *Know the CDC core elements for antimicrobial stewardship in NHs.*
2. *Understand the stepwise approach to implementing antimicrobial stewardship programs (ASP).*
3. *Understand the stepwise approach to monitoring and sustaining antimicrobial stewardship programs (ASP).*

It is estimated that there are 1.13-2.68 million infections yearly in NHs in the US.<sup>1</sup> Studies have shown that 40–75% of antibiotics prescribed in NHs may be unnecessary or inappropriate.<sup>2,3</sup> The potentially harmful consequences of using antibiotics in older, frail, and vulnerable patients include the risk of diarrheal severe infections from *Clostridium difficile*, increased adverse drug events and drug interactions, and colonization and infection with antibiotic-resistant organisms.

In light of the growing need for infection prevention and control in NHs, the Centers for Medicare and Medicaid Services (CMS) revised the Requirements for Participation for NHs through a phased implementation plan: by November 2016, all NHs must have an infection prevention and control program in place; by November 2017, an ASP in place; and by November 2019, a trained infection preventionist in place.<sup>4</sup> A study by Agarwal and colleagues evaluated antibiotic use rates and intensity of NH ASPs between 2013 and 2017 following revised CMS requirements. The intensity of ASPs was measured by the number of reported policies in place based on the CDC core elements for antimicrobial stewardship in NHs. The results of this study were remarkable. There was a statistically significant decrease in antibiotic use, with 45% of the decline attributable to strengthening the antimicrobial stewardship program.

### **Section 1: The Core Elements of Antimicrobial Stewardship for NHs**

The CDC has developed Core Elements of Hospital Antibiotic Stewardship in NHs (Table 1). These elements highlight areas to focus on when implementing or expanding ASPs. As with any antimicrobial stewardship initiative, the goal is to improve antibiotic use, which is expected to reduce adverse events, prevent the emergence of resistance, and lead to better outcomes for residents in this setting.

NH antibiotic stewardship activities should, at a minimum, include seven essential elements:

1. *Leadership commitment* through demonstration of a facility's support of safe and appropriate antibiotic use.
2. *Accountability* through identification of leaders responsible for promoting and overseeing stewardship activities.
3. *Drug expertise* in antibiotic use and stewardship is available for the facility.

4. *Action* to implement the recommended policies or practices to improve use, such as requiring an "antibiotic time-out" or review for all new antibiotic prescriptions.
5. *Tracking* measures of antibiotic use practices and outcomes.
6. *Reporting* data on antibiotic prescribing and appropriateness of use to facility staff.
7. *Education* for clinicians, nursing staff, residents, and families about antibiotic resistance and opportunities for improving use.

**Table 1. CDC Core Elements for Antibiotic Stewardship in Nursing Homes**

<b>Core Element</b>	<b>Examples of activities meeting this area</b>
<b>Leadership</b>	<ul style="list-style-type: none"> <li>● Write statements in support of improving antibiotic use to be shared with staff, residents, and families</li> <li>● Include stewardship-related duties in position descriptions for the medical director, clinical nurse lead, or pharmacists in the facility</li> </ul>
<b>Accountability</b>	<ul style="list-style-type: none"> <li>● Empower the medical director to set standards and oversee adherence to antibiotic practices for all clinical providers delivering care</li> <li>● Engage the consultant pharmacist in supporting antibiotic stewardship oversight through quality assurance activities such as medication regimen</li> </ul>
<b>Drug Expertise</b>	<ul style="list-style-type: none"> <li>● Work with a consultant pharmacist who has specialized in infectious diseases or antimicrobial stewardship training</li> <li>● Partner with antibiotic stewardship program leads at hospitals within your referral network</li> </ul>
<b>Action</b>	<ul style="list-style-type: none"> <li>● Policies that support optimal antibiotic use</li> <li>● Broad interventions to improve antibiotic use</li> </ul>
<b>Tracking</b>	<ul style="list-style-type: none"> <li>● Tracking how and why antibiotics are prescribed</li> <li>● Tracking how often and how many antibiotics are prescribed</li> </ul>
<b>Reporting</b>	<ul style="list-style-type: none"> <li>● Report antibiotic susceptibility patterns in the facility</li> <li>● Provide personalized feedback on antibiotic prescribing patterns</li> </ul>
<b>Education</b>	<ul style="list-style-type: none"> <li>● Develop newsletters, flyers, pocket-guides, etc. on antibiotic use</li> <li>● Provide feedback on prescribing practices to providers</li> </ul>

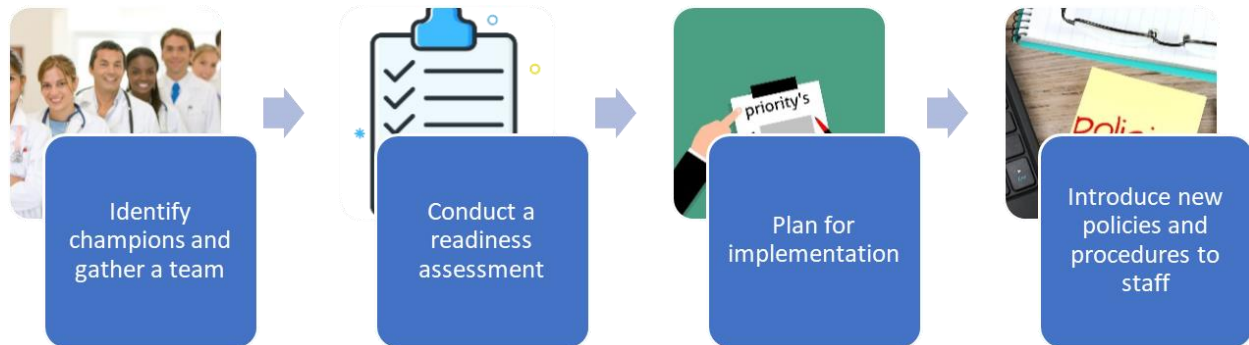
A checklist of Core Elements of Antimicrobial Stewardship in NHs can be found at: <https://www.cdc.gov/antibiotic-use/core-elements/pdfs/core-elements-antibiotic-stewardship-checklist-508.pdf> . This checklist can be used to take an inventory of current policies and procedures in place and create a plan for expansion of stewardship practice.



## Section 2: Implementing ASPs

The Agency for Healthcare Research and Quality (AHRQ) has a toolkit that lays out the implementation, maintenance, and sustainability of ASPs.<sup>5</sup> The steps in implementing ASPs are described below (Figure 1.).

**Figure 1. Steps in the Implementation of ASPs**



Source: Tools/resources specific to each step can be found on the AHRQ webpage:  
<https://www.ahrq.gov/nhguide/toolkits/implement-monitor-sustain-program/toolkit1-start-program.html>.

### A. Gather a team

1. Choose members to serve on the ASP team.
  - Should include individuals with different responsibilities in the nursing home, such as the charge nurse, director of nursing, medical director, infection prevention, and information technology (if electronic medical records are in use).
2. Familiarize the team with antimicrobial stewardship.
  - Educate the team on the goals and objectives of antimicrobial stewardship.
3. Appoint two champions to promote the importance of an antimicrobial stewardship program in the nursing home.
  - These champions should have the following qualities:
    - Basic knowledge of antibiotics
    - An interest in playing a leadership role in the nursing home
    - The respect of their peers
    - An understanding of how to be a good team player
    - An understanding of the importance of improving antibiotic use in nursing homes.

4. Assign initial roles and responsibilities.
  - Assign initial roles and responsibilities. Suggested roles include champions, stewardship staff, and monitoring staff.

*B. Conduct a readiness assessment*

- The readiness assessment tool will assess if leadership supports stewardship efforts, if stewardship champions have been identified, if the staff has been trained if the site has funding/resources to support stewardship efforts, etc.

*C. Plan for implementation*

- The antimicrobial stewardship program team should develop a timeline, responsibilities, a budget, and a schedule for team meetings. In addition, the team must consider the nursing home's unique characteristics, needs, and resources and specific items—such as costs for supplies and staff time—that will be needed to carry out the antimicrobial stewardship program. For instance, can existing resources and workflows be adapted to meet the program's needs, or will new materials or procedures be needed?

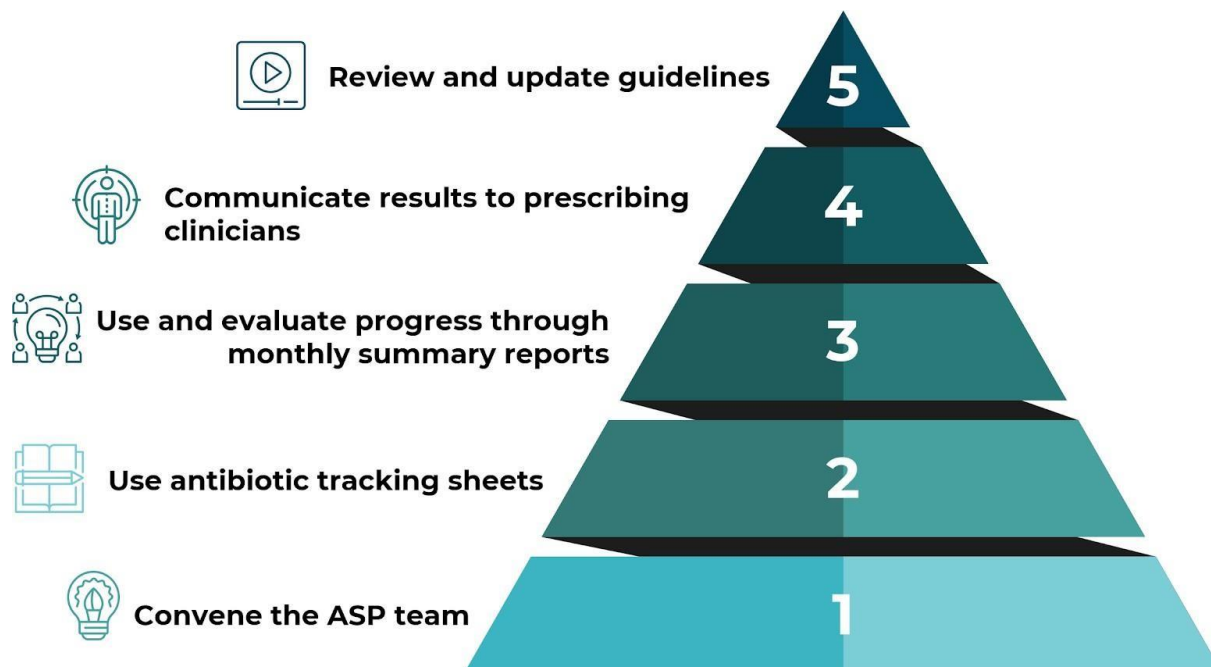
*D. Introduce new policies and procedures to staff*

- Communicate the new procedures to staff in a clear, easy-to-understand manner. Include information about the timeline for implementing the program and include a copy of the policies or procedures. Depending on the scope of the new procedures, training for staff and prescribing clinicians may also be needed.

## Section 3: Monitoring and Sustaining ASPs

The steps in the monitoring and sustainability of ASPs are described below (Figure 2.). In addition, tools/resources specific to each step can be found on the AHRQ webpage: <https://www.ahrq.gov/nhguide/toolkits/implement-monitor-sustain-program/toolkit1-start-program.html>

**Figure 2. Steps in Monitoring and Sustaining ASPs**



Source: Tools/resources specific to each step can be found on the AHRQ webpage: <https://www.ahrq.gov/nhguide/toolkits/implement-monitor-sustain-program/toolkit1-start-program.html>

### *A. Convene a meeting with the ASP team*

- The ASP team should discuss how and what to monitor. Provide a suggested list of topics for the ASP team to discuss areas to prioritize and how to monitor best.

### *B. Use the antibiotic use tracking sheet*

- The tracking sheet helps to bring together lab data, radiographic findings, antibiotics, prescribers, indications for therapy, etc. If some of this information is being collected in infection control logs and medical charts, identify a method to blend this tracking sheet into existing practices. Data can be collected on a weekly or monthly basis and can be used to create monthly, quarterly or annual cumulative reports. By bringing the data together in one tool, the Tracking Sheet

allows the antimicrobial stewardship program team to see trends and patterns in infections and antibiotic use that might not be noticed otherwise.

*C. Use and evaluate progress through monthly summary reports*

- The ability to see a month-to-month report will allow ASPs to track trends and measure progress toward a specific goal. Monitoring changes through this reporting strategy will allow the ASP to identify where action may be needed to improve the use of antibiotics.

*D. Communicate results to prescribing clinicians*

- Information from the monthly summary reports should be shared with prescribing clinicians as appropriate. The ASP team should discuss the information and the best way to share it. This report must be accurate, so this form should be used only if the nursing home consistently and systematically collects the information needed to create the report. If the nursing home uses a computer system to track this information, providing this type of report may be something the antimicrobial stewardship program team can do easily. If the nursing home is collecting this information manually, adequate staff time must be available for creating this type of report.

*E. Review and update guidelines*

- Check annually to see whether the guidelines regarding antibiotic use (e.g., indications for urinary tract infections) have changed.

## Chapter 4 References and Resources

1. Agarwal M, Estrada LV, Gracner T, Dick AW, Stone PW. Nursing Home Antibiotic Stewardship Policy and Antibiotics Use: 2013-2017. J Am Med Dir Assoc. 2022 Mar;23(3):482-487.
2. Lim CJ, Kong DCM, Stuart RL. Reducing inappropriate antibiotic prescribing in the residential care setting: current perspectives. Clin Interv Aging. 2014 Jan; 9:165-77. PMID: 24477218.
3. Nicolle LE, Bentley D, Garibaldi R, et al. Antimicrobial use in long-term care facilities. Infect Control Hosp Epidemiol 2000 Aug; 21(8):537–45. PMID: 10968724.
4. Agarwal M, Dick AW, Sorbero M, et al. Changes in US Nursing Home Infection Prevention and Control Programs From 2014 to 2018. J Am Med Dir Assoc. 2020 Jan;21(1):97-103
5. <https://www.ahrq.gov/nhguide/toolkits/implement-monitor-sustain-program/toolkit1-start-program.html>

### Section 1: The Core Elements of Antimicrobial Stewardship for NHs

1. [CDC Core Elements of Antimicrobial Stewardship for Nursing Homes](#)

### Section 2: Implementing ASPs

1. [Agency for Healthcare Research and Quality](#)
2. [Implementing an Antibiotic Stewardship Program: Guidelines by the Infectious Diseases Society of America and the Society for Healthcare Epidemiology of America](#)

### Section 3: Monitoring and Sustaining ASPs

1. [The Joint Commission: Antimicrobial Stewardship Resources](#)
2. [Centers for Medicare & Medicaid Services](#)

## Chapter 5: COVID-19 Prevention and Control

### *Learning Objectives:*

1. *Identify the recommended routine infection prevention and control practices in long-term care settings during the COVID-19 pandemic.*
2. *Describe the recommended infection prevention and control practices when caring for a resident with a suspected or confirmed SARS-CoV-2 infection.*

While the COVID-19 pandemic is frequently evolving, there are resources for your facility to remain updated with the recommendations and practices to keep staff and residents as safe as possible. CDC COVID-19 transmission levels in the community will guide your facility's decision to test all residents upon admission, so it is also essential for infection control specialists to keep themselves informed about what is happening outside of the facilities. Local and state health departments are valuable sources of current information.

### **Section 1: Routine COVID-19 Infection Prevention Practices**

All healthcare workers, residents, and families must understand the importance of receiving the [COVID-19 vaccine series and boosters](#). Residents of nursing homes and other long-term care facilities are at a higher risk for severe illness due to their age and comorbid conditions. The COVID-19 vaccine can mitigate the infection's effects and drastically improve these populations' chances of survival.

Each facility should have visual alerts posted strategically (on entry doors, waiting areas, elevators, and cafeterias) about the current COVID-19 infection prevention and control recommendations.

#### *Source Control*

With the end of the public health emergency on May 11, 2023, the CDC is no longer using their [COVID-19 Transmission Levels](#) to recommend when [infection control interventions](#) should be implemented. The [CDC recommends](#) that facilities that still have access to SARS-CoV-2 community incidence use that data to guide local infection control recommendations at the previous level, which was at a community incidence  $\geq$  to 100 cases per 100,000 population. For facilities that do not have access to community incidence, the CDC has not yet developed other metrics to guide infection control recommendations. Therefore, facilities will need to identify sources of COVID-19 transmission that are available to them and develop a plan that uses those sources to determine when to implement infection control guidelines. Potential sources include [New Hospitalization Admission Rates per 100,000 in the Past Week](#), the [Weekly US Map: Influenza Summary Update](#) from ILINet, the Respiratory Virus Hospitalization Surveillance Network [RESP-NET Interactive Dashboard](#), the [National Emergency Department Visits for COVID-19, Influenza, and Respiratory Syncytial Virus](#), and [COVID-19: Wastewater Surveillance](#). Facilities may want to use internal metrics as well, such as the number of employees reporting COVID-19 infections or symptoms of ILI.

One method of preventing the spread of SARS-CoV-2, the virus that causes COVID-19, is to use source control. This means using a respirator (such as an N95 or KN95) or a well-fitting facemask for anyone entering the facility to reduce the risk of asymptomatic or pre-symptomatic transmission. Facemasks should be readily available to visitors when they enter the facility. Facilities should use the metrics listed above plus any additional helpful metrics to determine when source control should be implemented.

However, source control using a well-fitting facemask is recommended for anyone who:

- Has an active respiratory infection – not necessarily confirmed to have COVID-19.
- Has been exposed to someone with a SARS-CoV-2 infection (source control should be used for 10 days after the exposure).

- Lives or works on a unit or area of the facility experiencing a SARS-CoV-2 outbreak (source control should continue until no new cases have been identified for 14 days).
- Or has otherwise been instructed by public health authorities to do so.

Facilities should also consider at what level visitors and others entering the facility should be screened for any symptoms of COVID-19, asked if they have had a positive viral test for SARS-CoV-2, and asked if they have been in close contact with anyone who has had a positive test for SARS-CoV-2. When screening is in place, anyone who meets one or more of these criteria should defer non-urgent in-person visitation until they have met the criteria to end isolation. The CDC provides a calculator to help determine how long isolation should last:

<https://www.cdc.gov/coronavirus/2019-ncov/your-health/isolation.html/>.

### *Testing Recommendations*

There are [two types of tests for COVID-19](#). One is an antigen test, often called a rapid or at-home antigen test, which anyone can perform. An antigen test detects part of the SARS-CoV-2 virus, typically a protein outside the virus. It is recommended that all long-term care facilities have rapid antigen tests available for use. Antigen tests are easy to administer and will provide results quickly, usually in 30 minutes or less. However, the antigen test may only sometimes detect a SARS-CoV-2 infection because there may need to be more virus in the nose or throat to give a positive result, even if the person being tested does have COVID-19. The other test is a nucleic acid amplification test (NAAT), such as RT-PCR, which can be performed in various healthcare settings. The NAAT test looks for part of the SARS-CoV-2 nucleic acid (mRNA) and then makes copies of it so that it is enough for the test to detect it. The NAAT test is the gold standard for COVID-19 because it correctly identifies a positive case of COVID-19. However, sometimes, such as after a recent infection, a NAAT test should not be used because it may detect mRNA left over from the infection, even if the person can no longer transmit SARS-CoV-2 to others.

Pre-admission testing is at the facility's discretion but is recommended by the CDC. The preferred method of testing is NAAT. If antigen testing is used instead of NAAT, patients should be tested thrice, each 48 hours apart. In addition, newly admitted residents should be encouraged to wear a well-fitting facemask for 10 days after admission.

Any staff members or residents with mild symptoms of COVID-19, regardless of vaccination status, should receive a viral test for SARS-CoV-2 as soon as possible.

Any staff members or residents who have been in close contact with someone with a SARS-CoV-2 infection should have a series of three viral tests for SARS-CoV-2. The preferred method of testing is NAAT. If antigen testing is used instead of NAAT, patients should be tested thrice, each 48 hours apart. The first test is recommended 24 hours after exposure. If negative, repeat the test in another 48 hours. If negative again, repeat the test in another 48 hours. For example, if exposure day is “day 0,” these tests should be performed on “day 1,” “day 3,” and “day 5.”



## **Section 2: COVID-19 Infection Prevention and Control in Cases of Suspected or Confirmed Infection**

When caring for a resident with suspected or confirmed SARS-CoV-2 infection, it is essential to adhere to the following recommendations from the CDC. Visitors should be discouraged from visiting residents who are infectious, but facilities should adhere to their local, state, or federal regulations related to visitation when developing their visitation guidelines. Alternative interactions, such as video calling on cell phones or tablets, should be encouraged.

### *Transmission-based precautions or isolation precautions*

Transmission-based precautions for COVID-19 are Standard Precautions plus an N95 or PAPR, gown, gloves, and eye protection. In addition, empiric or preventative, transmission-based precautions should be implemented for patients with symptoms of COVID-19 (even before a positive test result) and for asymptomatic patients who have had close contact with someone with a SARS-CoV-2 infection.

Private rooms are the best way to prevent the spread of SARS-CoV-2. When private rooms are unavailable, residents confirmed to have this infection can be cohorted together in the same room.

Transmission-based precautions may be discontinued if the resident with a suspected COVID-19 infection has a negative result from at least one NAAT. However, if there is a high clinical suspicion that a SARS-CoV-2 infection exists, transmission-based precautions should be kept until a second NAAT is negative. If an antigen test is used instead of NAAT, then a NAAT or second antigen test should be administered 48 hours later to confirm that result.

Residents in close contact with someone with confirmed COVID-19 should wear source control (a well-fitting mask) for 10 days after that exposure and undergo SARS Co-V-2 testing as described in the testing recommendations section. In general, transmission-based precautions are not necessary for residents who have had close contact with someone with a SARS-CoV-2 infection, but they should be considered for patients who:

- Are unable to be tested or wear a mask for 10 days following exposure,
- Are moderately or severely immunocompromised,
- Reside in a unit with others who are moderately or severely immunocompromised,
- Reside in a unit experiencing ongoing SARS-CoV-2 transmission that is not controlled with initial interventions.

The discontinuation of transmission-based precautions for residents with confirmed SARS-CoV-2 infection depends on their illness severity. If they have recovered, but symptoms return, they should be placed back on transmission-based precautions unless an alternative diagnosis is made. Discontinuation of transmission-based precautions are as follows:

- Asymptomatic illness: at least 10 days since the first positive viral test.

- Mild-to-moderate illness: symptoms have improved at least 10 days since symptoms first appeared and at least 24 hours without fevers or fever-reducing medications.
- Severe to critical illness: at least 10 days and up to 20 days since symptoms first appeared **and** at least 24 hours without fevers or fever-reducing medications **and** symptoms have improved.

Note: Moderately-to-severely immunocompromised residents may remain contagious beyond 20 days after symptom onset or, for those who were asymptomatic throughout their infection, the date of their first positive viral test and transmission-based precautions should not be prematurely discontinued.

### *Special procedures*

Procedures that generate aerosols should be performed cautiously or avoided if an appropriate alternative exists. These procedures include respiratory suctioning, intubation or extubation, sputum induction, airway management with non-invasive or manual ventilation, bronchoscopy, dental care, or any other activity that induces coughing or sneezing.

### *Environmental Controls*

If possible, residents with suspected or confirmed SARS-CoV-2 infection should be given dedicated medical equipment. Non-dedicated, non-disposable medical equipment should be cleaned and disinfected before use on any other resident.

Routine cleaning and disinfection procedures with hospital-grade disinfectant for frequently touched surfaces and objects are appropriate for SARS-CoV-2 in healthcare settings. Laundry, food service utensils, and medical waste should be managed following routine procedures. Suppose a resident with suspected or known SARS-CoV-2 infection has been discharged or transferred. In that case, staff and other personnel should not enter a vacated room without the recommended PPE until the air in the room has been adequately exchanged in the ventilation system. After that time has passed, the room should undergo a terminal cleaning and disinfecting process before allowing another resident to use it.

Adequate ventilation and clean air prevent and control infectious droplets and airborne viruses. In addition to a well-maintained HVAC system and allowing outside air to circulate, high-efficiency particulate air (HEPA) fans or filtration systems can enhance air cleaning. They can filter out infectious droplets and airborne viruses. These can be portable or installed in high-risk areas like nursing stations or areas inhabited by people with COVID-19 and/or a higher risk of getting COVID-19. Additionally, when other options are limited, ultraviolet germicidal irradiation (UVGI) is a supplemental treatment for inactive SARS-CoV-2. These ultraviolet systems can be installed near the ceiling or within the air ducts of the HVAC system.

### *Reporting*

Long-term care facilities and nursing homes should stay connected and follow reporting requirements of the Florida Department of Health and their local health departments. Any facility certified by the Centers for Medicare & Medicaid Services (CMS) should be familiar with the

COVID-19 reporting requirements. SARS-CoV-2 data should be reported to the local and state health department based on their notification requirements. Additionally, positive cases should be reported to the National Healthcare Safety Network (NHSN) Long-term Care Facility (LTCF) COVID-19 Module.

## Chapter 5 Resources

### Section 1: Routine COVID-19 Infection Prevention Practices

1. [Interim Infection Prevention and Control Recommendations for Healthcare Personnel During the Coronavirus Disease 2019 \(COVID-19\) Pandemic](#)

### Section 2: COVID-19 Infection Prevention and Control in Cases of Suspected or Confirmed Infection

1. [Interim Infection Prevention and Control Recommendations for Healthcare Personnel During the Coronavirus Disease 2019 \(COVID-19\) Pandemic](#)

## Chapter 6: Behavior Change Theory

### *Learning Objectives*

1. *Understand the Transtheoretical Model (TTM)*
2. *Know the principles of Motivational Interviewing (MI)*
3. *Discuss the application of TTM and MI to employees at long-term care facilities*

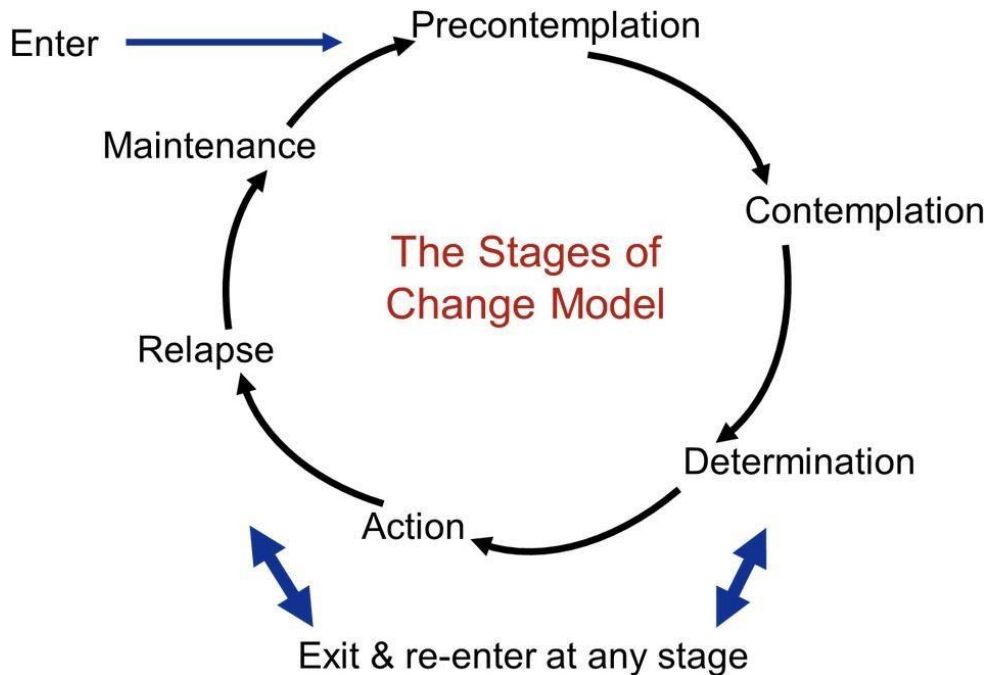
Behavioral change theories aim to explain the complex factors influencing human behavior change. Theories include environmental and personal characteristics influencing an individual's readiness and willingness to change. Understanding factors associated with behavioral change is essential in implementing and sustaining improved infection prevention and control performance. This chapter focuses on two specific behavioral change models that can guide infection preventionists seeking to change behaviors among long-term care employees.

Behavioral change models provide a process-oriented and diagnostic approach to understanding the psychological factors that explain or predict a specific behavior.<sup>1</sup> The transtheoretical model of change (TTM) and motivational interviewing (MI) are detailed in this chapter because they have been applied to public health issues like health promotion, disease prevention, and similar topics.<sup>2</sup> For example, TTM was shown to improve hand hygiene through tailored interventions to predict and motivate individual movement across the pathway to change.<sup>3</sup> MI has also proved effective in promoting hand hygiene among nursing personnel.<sup>4</sup> Understanding the positive impact behavioral change theories have had on past studies creates a strong premise as to why and how it can be applied to long-term care employees. Examples of these are detailed throughout this chapter.

### **Section 1: The Transtheoretical Model of Change**

The transtheoretical model of change (TTM) views behavior changes as an intentional process that unfolds over time and involves progression through six stages of change.<sup>5</sup> It is sometimes referred to as the stages of change model. The stages include pre-contemplation (not ready), contemplation (getting ready), preparation (ready), action (implementing change), maintenance (6 months or more of sustained behavior change), and the final stage, which isn't always included is relapsed (going back to the old habits). Application of TTM involves the assessment of an individual to determine their current stage, then setting realistic goals to move them forward in one or more stages.<sup>6</sup> TTM is best viewed as a cycle rather than a linear process because individuals may move backward before fully committing to the next stage (Figure 1).

**Figure 1: The Transtheoretical Model / Stages of Change Model**



Source: [https://sphweb.bumc.bu.edu/otlt/mph-modules/sb/behavioralchangetheories/BehavioralChangeTheories\\_print.html](https://sphweb.bumc.bu.edu/otlt/mph-modules/sb/behavioralchangetheories/BehavioralChangeTheories_print.html)

### *How to apply TTM<sup>7,8</sup>*

To better understand the application of TTM, an example using physical activity is provided. In this example, we are evaluating JP's readiness for change. JP is a 63-year-old male who has been sedentary most of his life. However, during a recent doctor's visit, JP was diagnosed with obesity and high blood pressure. His physician recommended that he change his behavior to include 30 minutes of physical activity most days of the week and a heart-healthy diet. To better understand if JP is ready to implement the recommended physical activity and heart-healthy diet, we will apply the TTM.

The first step is to determine JP's current stage for change. This is done by asking a series of questions described below. All questions do not necessarily need to be asked. For example, suppose JP does not understand why he needs to participate in physical activity or change his eating habits but is only thinking about it because his doctor said so. In that case, you know JP is in the precontemplation stage. So let's start with questioning JP.

1. Are you ready to start participating in physical activity and implement some dietary changes (pre-contemplation)?

2. Have you thought about what physical activity and a heart-healthy diet will do for you (contemplation)?
3. Are you planning on conducting any physical activity or modifying your eating habits (preparation)?
4. Are you currently participating in any physical activity, or have you adopted any new healthy eating habits (action)?
  - a. If yes, how long (maintenance)
5. Did you recently participate in physical activity, eat a heart-healthy diet, and stop (relapse)?

Each stage of the TTM corresponds to a certain level of intervention.

**Precontemplation:** When someone sees the ‘pros’ outweigh the ‘cons’ of bad habits/choices.

- Example: JP thinks exercise and eating healthy are good for him but doesn’t believe he has the stamina to exercise or that he can eat affordably or have foods that taste good. He does not see the benefits outweighing the drawbacks of money and taste.

Moving out of the precontemplation stage: Requires one to look within and realize the consequences of their actions. For JP, this may involve understanding how his health impacts his loved one.

**Contemplation:** When an individual realizes the consequences of their actions and is thinking about changing.

- Example: JP realizes that not exercising regularly and eating unhealthily can lead to obesity and diabetes, cardiovascular disease, and early death, but he lacks the confidence or knowledge to act.

Moving out of the contemplation stage: Requires identifying things that are holding you back and getting to a point where you feel ready to move forward. For example, JP may need to carve out time from his daily schedule or acknowledge his need for more knowledge on healthy eating.

**Preparation:** When someone is fully ready to move forward and make behavior changes.

- Example: JP makes a food plan, buys healthy foods, and purchases a gym membership.

Moving out of the preparation stage: Research possible upcoming obstacles, find people to help you stay on track, and create alternative plans in case the original action plan doesn’t work. Finding a workout buddy or researching how to eat healthy at some of JP’s favorite restaurants would help him move out of the preparation stage.

**Action:** Implementing the new behavior change(s).

- Example: JP begins eating healthy, goes to the gym, follows a food plan, goes to a support group/has support friends that check in on his progress.

Moving out of the action stage: Reinforce the positive health behaviors and continue to engage in the positive health behavior changes. JP may track his weight loss progress or share his exercise routine on his social media page.

**Maintenance:** When the positive health behavior changes have been successful for at least six months. People in this stage feel more confident in sticking to new behaviors.

- Example: JP has been eating healthy and exercising for 6+ months and feels confident about continuing and not going back to their old habits.

**Relapse:** When someone falls back into their old habits.

Moving out of the relapse stage: Evaluating what triggered going back to these old habits and using processes of change to reevaluate which stage one is in, then taking steps to move forward again. JP may relapse due to holidays or illness but recognizing the step back, and re-committing to his new habits will put him back on the road to success. It may require him to share his commitment with family and friends for accountability or read his prior social media posts sharing his success for new levels of encouragement.

*How to move individuals forward through the TTM stages of change*<sup>8,9</sup>

After determining which behavior stage an individual is in, the next step is to set goals and adopt change processes to help the individual move from one stage to another. Processes of change are used as people apply cognitive, affective, and evaluative processes to move someone from one stage to the next. They are either cognitive (thinking) or behavioral (action). Cognitive is sometimes referred to as experimental. The cognitive/experiential process involves consciousness-raising, dramatic relief, environmental reevaluation, self-reevaluation, and social liberation. The behavioral processes include counterconditioning, helping relationships, reinforcement management, self-liberation, and stimulus control. Many of these processes can be used in multiple stages and in various ways to support individuals as they move through the TTM stages. These processes are listed in the table below, with example statements to change smoking behavior.



**Table 1 – Processes of Change<sup>9</sup>**

Process of Change	
Self-reevaluation	This involves an individual reconsidering their self-image (e.g., the self-image as a smoker vs. the self-image as a role model).
Environmental reevaluation	This involves an individual's consideration of the impact of their behavior on others (e.g., when a smoker considers the impact of secondhand smoke on others' health).
Counterconditioning	This occurs when an individual substitutes a healthier behavior for the problem behavior (e.g., using a nicotine patch instead of smoking a cigarette).
Consciousness raising	This involves an individual's increased awareness of the causes, effects, and solutions for the problem behavior (e.g., understanding the social situations that lead them to smoke a cigarette).
Self-liberation	This occurs when an individual commits to change through their own willpower (e.g., the commitment to stop smoking, no matter the urges to do so).
Helping relationships	This involves support from an individual's network of family, friends, colleagues, and so on (e.g., social support to do another behavior instead of smoking a cigarette).
Contingency management	This occurs when an individual creates or becomes aware of consequences of a problem behavior (e.g., implementing a monetary "fine" to pay to a family member if they smoke a cigarette).
Stimulus control	This occurs when an individual removes cues that trigger the problem behavior and/or adds cues to trigger the new, healthier behavior (e.g., removing any cigarette cartons from the home).
Social liberation	This occurs when there are external policies that limit the ability to enact the problem behavior (e.g., policies that make it illegal to smoke in a restaurant).

*Which process of change to use in each stage?*<sup>8</sup>

The change process varies based on the TTM stage (pre-contemplation, contemplation, preparation, action, maintenance), the situation, and the employee. However, there are specific processes that better align with different phases.

For individuals in the precontemplation, contemplation, or preparation stage, the following process of change techniques are most beneficial:

- Consciousness Raising
- Environmental Liberation
- Self-Reevaluation

Example: Refer to JP (described above), and let's assume JP is in the contemplation stage of changing his behavior to include physical activity and healthy eating. Using the process of consciousness-raising, we would discuss the health risks of obesity and high blood pressure and ensure JP understood the benefits of physical activity, including mitigating health risks. Alternatively (or in addition), we could use environmental liberation by asking JP to consider the impact of his health on his family. Perhaps his ability to engage in activities is limited, his family depends on his well-being, or he wants to ensure that JP is a part of their lives for decades to come. Last, using the process of self-reevaluation, we would encourage JP to visualize himself as a physically active and healthy man.

Action and Maintenance:

- Self-Liberation
- Helping Relationships
- Counterconditioning
- Stimulus Control

Example: Assume JP (described above) is in the maintenance stage of his new physical activity behavior change. Using the process of self-liberation, we would encourage and support JP's willpower to engage in physical activity for 30 minutes most days of the week. In addition, we could use the process of helping relationships by encouraging JP to engage with others in physical activity and to have a workout buddy to whom he is accountable. Finally, counterconditioning could be coupled with stimulus control by asking JP to consider triggers that encourage the new behavior. For example, exercising every morning or walking the dog every evening would allow JP to substitute this new behavior and create a stimulus control.

### *Transtheoretical Model Resources*

For additional information on TTM, two resources are provided.

The first is a written lecture on TTM, which also includes additional concepts such as 1) the Health Belief Model and the theory of planned behavior, 2) the elements of "perceived behavioral control," 3) the elements of Social Norms Theory, 4) key constructs of Social Cognitive Theory, etc.

[Transtheoretical Model \(Stages of Change\) Lecture Notes](#)

The second resource provides additional examples of using the TTM stages and processes of change to move individuals from one stage to another.

[Transtheoretical Model of Behavior Change with Examples](#)

## Section 2: Motivational Interviewing

Motivational interviewing (MI) is another behavioral change model that can motivate individuals to make the necessary behavior changes. MI is a framework developed by Miller and Rollnick (1991) originally intended as a ‘client-centered, directive therapeutic style to enhance readiness for change by helping clients explore and resolve ambivalence’ first applied in clinical psychology.<sup>10,11</sup> Two main phases are involved with MI. Phase 1 includes building a therapeutic rapport and commitment, while phase 2 involves facilitating the movement through decisional analysis and behavior change. It has been used extensively in health care since its development. Rollnick et al. (2010) found MI to improve the doctor-patient relationship by using a guiding style to engage with patients, discover their strengths and goals, evoke their motivations for change, and promote decision-making autonomy.<sup>12</sup> MI is often used with the interviewer as the healthcare worker and the interviewee as the patient.<sup>13</sup> However, it applies to an infection preventionist who seeks to change employee behavior.

The practice of MI has four guiding principles, resist, understand, listen, and empower.<sup>12</sup> These principles are often called the mnemonic ‘RULE’ (Figure 3). To resist means to avoid the righting reflex; that is, do not tell the individual what to do. The goal is for them to identify actions independently and not based on what the interviewer shares as the right thing to do. Understanding requires the interviewer to determine the values and assumptions of the individual. By understanding how they think about the behavior, the interviewer can better understand the individual's motivations to (or not to) change behavior. The third principle is to listen with empathy. It is not easy for individuals to change their behavior, and it is essential that the interviewer fully understand the challenges and barriers from the individual's perspective. Ideas and actions for behavioral change should emerge from the individual's values and motivations. The interviewer can provide guidance, but this needs to be based on the individual's circumstances and perceptions of motivation and barriers. Last, empowering the individual requires the interviewee to support the individual through encouragement and affirmation. Ideally, individuals develop ideas for action, success, and sustainability. The interviewer serves to help these ideas become a reality.

Figure 3: Motivational Interviewing RULE <sup>14</sup>



Source: <http://coping.us/motivationalinterviewing/overviewofmi.html>

#### *Communication techniques for motivational interviewing*

Motivational interviewing requires the interviewer to use a breadth of techniques to get the interviewee to talk about behavioral change. The interviewer has the challenge of moving the client's talk from resistance or excuses to action and commitment. To do so, two commonly used skills are discussed here: OARS and Readiness Rulers.

OARS, a mnemonic for **O**pen Ended Questions, **A**ffirmations, **R**eflections, and **S**ummaries, is a technique that supports and strengthens the positive change conversation (Figure 4). <sup>15</sup>

**Figure 4: Motivational Interviewing OARS Acronym**

<b>O</b>	<b>Open-ended</b> questions allow individuals to give more information, including their feelings, attitudes, and understanding.
<b>A</b>	<b>Affirmations</b> to help overcome self-sabotaging or negative thoughts.
<b>R</b>	<b>Reflections</b> as a way to express ambivalence.
<b>S</b>	<b>Summarize</b> to let interviewees know that they were being heard.

Source: [17 Motivational Interviewing Questions and Skills \(positivepsychology.com\)](https://www.positivepsychology.com/17-motivational-interviewing-questions-and-skills/)

**Open-ended questions** allow the interviewer to discover more about the interviewee's perspective and motivation for changing certain behaviors. It also aids in building a stronger relationship between both parties.

- Example: What have you tried previously to make a difference?

**Affirming** involves recognizing and commenting on the interviewee's strengths and abilities. It builds rapport and allows one to acknowledge and validate a patient/interviewee's emotions.

- Example: 'Sounds like this is challenging. No wonder you feel overwhelmed.'

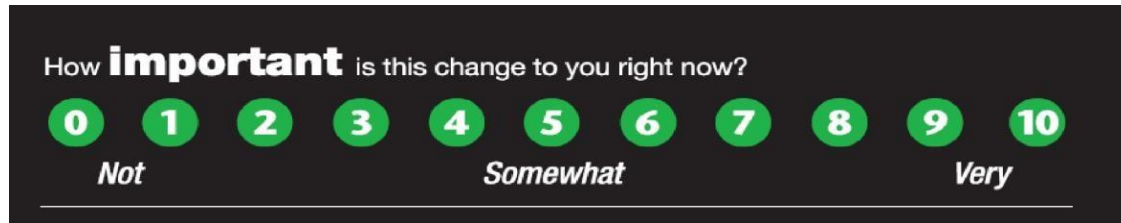
**Reflective listening** requires the interviewer to summarize and repeat, in their own words, what the client/interviewee has shared. This allows the interviewer to continue discussing while building engagement with the individual. Reflective listening also allows interviewers to clarify things and statements from the client.

- Example: 'What I hear you say is...'

**Summarizing** allows the interviewer to further reflect on the client's statements and allows the client to clarify any discrepancies in their story. In addition, summarizing paired with reflective listening allows clients to hear more about how they discuss changing their behavior.

Readiness rulers are a second motivational interviewing technique to help individuals recognize their importance and confidence in changing behavior. The key to using these rulers is to stay positive and empower the individual seeking to change their behavior. When considering the TTM, an individual in pre-contemplation is likely at the lower end of the ruler. Conversely, individuals in the action phase of the TTM are more likely to fall on the higher end of the ruler.

Figure 5: Motivational Interviewing Readiness Rulers <sup>16</sup>



Source: <https://case.edu/socialwork/centerforebp/sites/case.edu.centerforebp/files/2021-03/readinessruler.pdf>

Using the previous example, consider the **importance ruler** depicted in Figure 5. The interviewer would ask the individual, “on a scale of 0 to 10, how important is it for you to participate in physical activity?”

Let’s say the individual responds, “I would say I am at a 4.”

The interviewer should say, “Okay, this is somewhat important. Why didn’t you say you were a 1 or a 2? This question aims to elicit recognition from the individual that they see that behavior change is essential.

The individual would likely respond, “I didn’t say 2 or 3 because I know I need to do some exercise so that I can live longer.”

The interviewer might be tempted to ask, “Why aren’t you an 8, then?” This would be a mistake because it would get the individual to discuss why it isn’t that important. Instead, the interviewer should say, “I see that it is excellent that you see this as important to your overall health. What would it take for you to get to an 8 or 9 in terms of importance.”

The individual might say, “Well, I just don’t fully understand the relationship between being healthy and physical activity.”

As an interviewer, this would open the door to a conversation about providing more information, so the individual recognizes the importance of physical activity on overall health. Applying this technique might get the individual to move from precontemplation to contemplation on the TTM.

The same technique can be used for the **confidence ruler**, beginning with the question, “How confident are you that you could participate in physical activity regularly?”



The client might respond with, “*I would say I am at a 2.*”

Following the same technique as before, the interviewer would want to reinforce that the individual has some confidence (although minor) which should be presented positively. The interviewer would then ask the client “*why they didn’t say 0 or 1*”, followed by “*what would it take to get you a 4 or 5.*”

#### MI Examples Resources

For additional information on MI, two resources are provided. These articles define MI, explain types of MI questions and provide numerous example questions. These articles are written to prepare an individual to answer MI questions. However, they may be helpful for infection preventionist seeking more concrete examples of how to use MI.

[5 Motivational Interviewing Questions with Example Answers](#)

[38 Motivational Interviewing Example Questions and Answers](#)

### **Section 3: Behavioral Change Examples in a Healthcare Setting**

Health Catalyst provides two articles describing how TTM and MI can be applied in healthcare.

#### Application: Transtheoretical Model in Healthcare

**Precontemplation:** Employees do not see implementing infection control best practices as beneficial compared to the time to learn all of these and the hassle of ensuring they are implemented.

Moving through the precontemplation stage: *Use self-reevaluation as employees/facilities reconsider their self-image as role models to patients if they do/do not implement these infection control best practices.*

**Contemplation:** Employees see the benefit of these infection control best practices and are thinking about implementing them.

Moving through the contemplation stage: *Use environmental reevaluation to help the employees understand the impact of their behaviors and utilization of the infection control best practices on their patients and workforce.*

**Preparation:** The employees/facilities are ready to implement these best practices and make plans to do so.

Moving through the preparation stage: *Use consciousness-raising to help them learn about the importance of these practices and the benefits of implementing them.*

**Action:** The facilities and employees implement the new infection control best practices.

Moving through the action stage: *Use helping relationships by providing the employees support from the facility to implement these practices as well as from other employees to help the implementation be successful.*

Maintenance: When the employees/facilities have successfully implemented these practices for 6 or more months.

Moving through the maintenance stage: *Use reinforcement management to reinforce these infection prevention and control best practices and continue effectively implementing them.*

*Application: Motivational Interviewing Strategies in Healthcare*<sup>17</sup>

1. Ask questions to prompt a change talk.
  - Example: What are some things you can do to ensure you are following the best infection control practices?
2. Ask about the benefits and drawbacks of changing and staying the same.
  - Example: How will following these practices improve your ability to provide the best care for patients? How will not following these practices impact your patients and workplace?
3. Question the positives and negatives of the target health behavior.
  - Example: How will following the infection control best practices improve your ability to perform your job? What are the negative impacts of following these practices?
4. When the patient expresses change, the talk theme emerges and asks for more details.
  - Example: In what ways? Can you explain more about this?
5. Ask about a time before the patient enrolled in care management.
  - Example: How were things different before these infection control best practices were implemented?

## **Conclusion**

Behavioral change theories, including motivational interviewing and the transtheoretical model, are essential for implementing and sustaining change. Usually, these are applied to patients to improve negative health behaviors; however, this section overviewed the importance of TTM, and MI used on healthcare workers for improving practices, specifically infection control best practices. Despite this being a less studied topic, it is essential to note the success of these studies when using MI and TTM on healthcare workers and see the potential for change if applied to current long-term care facilities to improve infection control best practices. This chapter provides a brief overview of behavioral change theories like motivational interviewing and the transtheoretical model, providing examples and resources to be used.



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#### Section 1: The Transtheoretical Model of Change

1. [Transtheoretical Model \(Stages of Change\) Lecture Notes](#)
2. [Transtheoretical Model of Behavior Change with Examples](#)

#### Section 2: Motivational Interviewing

1. [5 Motivational Interviewing Questions with Example Answers](#)
2. [38 Motivational Interviewing Example Questions and Answers](#)

## Chapter 7: Infection Control Resources

### *Learning Objectives:*

1. *To identify key infection control resources.*

This chapter provides key infection control resources. Resources have been grouped for ease of identification.

### **Basic Principles of Infection Control & Prevention Resources**

- [Hand Hygiene](#)
- [Infection Control in Healthcare Personnel: Infrastructure and Routine Practices for Occupational Infection Prevention and Control Services \(2019\)](#)
- [AHRQ - A Unit Guide to Infection Prevention for Long-Term Care Staff](#)
- [SHEA/APIC Guideline: Infection prevention and control in the long-term care facility](#)
- [SHEA/IDSA/APIC Practice Recommendation: Strategies to prevent healthcare-associated infections through hand hygiene: 2022 Update](#)
- [Guidelines for Environmental Infection Control in Health-Care Facilities \(2003\)](#)
- [Immunization of Health-Care Personnel: Recommendations of the Advisory Committee on Immunization Practices \(ACIP\)](#)

### **Transmission-Based Precautions Resources**

- [Guideline for Isolation Precautions: Preventing Transmission of Infectious Agents in Healthcare Settings \(2007\)](#)
- [Epidemiology and Control of Selected Infections Transmitted Among Healthcare Personnel and Patients \(2021\)](#)
- [Consideration for the Use of Enhanced Barrier Precautions in Skilled Nursing Facilities](#)

### **Bloodborne-Pathogen Infection Prevention Resources**

- [Updated U.S. Public Health Service guidelines for the management of occupational exposures to HIV and recommendations for postexposure prophylaxis](#)
- [Updated CDC recommendations for the management of hepatitis B virus-infected healthcare providers and students](#)
- [CDC Guidance for Evaluating Health-Care Personnel for Hepatitis B Virus Protection and Administering Postexposure Management](#)
- [Testing and Clinical Management of Health Care Personnel Potentially Exposed to Hepatitis C Virus — CDC Guidance, United States, 2020](#)
- [CDC Infection Prevention and Control for \*Candida auris\*](#)

- f. [Screening for \*Candida auris\* Colonization](#)

## **Healthcare-acquired (Nosocomial) Infection Prevention Resources**

- a. [National Action Plan to Prevent Health Care-Associated Infections: Road Map to Elimination](#)
- b. [Strategies to prevent ventilator-associated pneumonia, ventilator-associated events, and nonventilator hospital-acquired pneumonia in acute-care hospitals: 2022 Update](#)
- c. [CDC Clinical Reminder: Spinal Injection Procedures \(2011\)](#)
- d. [Strategies to prevent central line-associated bloodstream infections in acute-care hospitals: 2022 Update](#)
- e. [Strategies to Prevent Catheter-associated Urinary Tract Infections in Acute-care Hospitals.](#)
- f. [Guideline for Prevention of Catheter-Associated Urinary Tract Infections \(2009\)](#)

## **Environmental Control Resources**

- a. [Guideline for Disinfection and Sterilization in Healthcare Facilities \(2008\)](#)
- b. [Appropriate Cleaning/Disinfection of Equipment and the Environment](#)
- c. [ASHRAE Filtration/Disinfection \(2021\)](#)
- d. [Recommendations for Ventilation in Buildings \(2021\)](#)
- e. [High Touch Surfaces](#)

## **COVID-19 Resources**

- a. [Promoting COVID-19 Vaccine in Long-term Care Settings](#)
- b. [Interim Infection Prevention and Control Recommendations for Healthcare Personnel During the Coronavirus Disease 2019 \(COVID-19\) Pandemic](#)
- c. [State of Florida preparedness checklist for Nursing Homes, Assisted Living Facilities, and Long-Term Care Facilities](#)
- d. [Coronavirus Disease 2019 \(COVID-19\) Preparedness Checklist for Nursing Homes and other Long-Term Care Settings](#)

## **Antibiotic Stewardship Resources**

- a. [Antibiotic Stewardship](#)
- b. [The Core Elements of Antibiotic Stewardship for Nursing Homes](#)
- c. [Optimizing Antibiotic Stewardship in Nursing Homes: A Narrative Review and Recommendations for Improvement](#)
- d. [Determine Whether It Is Necessary to Treat a Potential Infection with Antibiotics](#)

## Multidrug-Resistant Organism (MDRO) Resources

- a. [Management of Multidrug-Resistant Organisms in Healthcare Settings \(2006\)](#)
- b. [Implementation of Personal Protective Equipment \(PPE\) Use in Nursing Homes to Prevent Spread of Multidrug-resistant Organisms \(MDROs\)](#)
- c. [Multidrug-Resistant Organisms \(MDROs\) Toolkit for Long-Term Care Facilities](#)
- d. [Strategies to prevent Clostridioides difficile infections in acute-care hospitals: 2022 Update](#)
- e. [Interim Guidance for a Public Health Response to Contain Novel or Targeted Multidrug-resistant Organisms \(MDROs\)](#)
- f. [Early Identification and Containment of CDI](#)
- g. [Initial Actions to Prevent Spread of \*Candida auris\*](#)
- h. [Transfer Packet Patients with \*Candida auris\*](#)
- i. [\*Candida auris\*: Infection Control in Dialysis Setting](#)
- j. [Enhanced Barrier Precautions](#)
- k. [FDOH \*Candida auris\* Colonization Guidance](#)
- l. [High Touch Surfaces](#)

## Appendix: Acronym Resource Guide

Acronym	Name	Definition
ABHR	Alcohol-Based Hand Rub	An alcohol-containing preparation designed for application to the hands for reducing the number of viable microorganisms on the hands.
ACA	Affordable Care Act	The Patient Protection and Affordable Care Act, referred to as the Affordable Care Act or “ACA” for short, is the comprehensive health care reform law enacted in March 2010.
ACHA	The Florida Agency for Health Care Administration	The Florida Agency for Health Care Administration (AHCA) is the U.S. state of Florida's chief health policy and planning entity of Florida. The Florida Legislature created the Legislature as part of the Health Care Reform Act of 1992
AHRQ	Agency for Healthcare Research and Quality	Mission is to produce evidence to make health care safer, higher quality, more accessible, equitable, and affordable, and to work within the U.S. Department of Health and Human Services and with other partners to make sure that the evidence is understood and used.
AIA/FGI	American Institute of Architects/Facility Guidelines Institute	The American Institute of Architects (AIA) is a professional organization for architects in the United States. FGI is an independent, not-for-profit organization dedicated to developing guidance for the planning, design, and construction of hospitals, outpatient facilities, and residential health, care, and support facilities.

AIIR	Airborne Infection Isolation Room	It is a single-occupancy patient-care room used to isolate persons with a suspected or confirmed airborne infectious disease.
ALF	Assisted Living Facility	Assisted living is a residence for older people or people with disabilities who require help with some of the routines of daily living as well as access to medical care when needed.
ASP	Antimicrobial Stewardship Program	Antimicrobial stewardship is a coordinated program that promotes the appropriate use of antimicrobials (including antibiotics), improves patient outcomes, reduces microbial resistance, and decreases the spread of infections caused by multidrug-resistant organisms.
BFCC-QIO	Beneficiary and Family Centered Care- Quality Innovation Organizations	It reviews complaints and quality of care, and helped to improve the effectiveness, efficiency, economy and quality of services provided to people with Medicare. BFCC-QIOs provide services to help with complaints and quality of care reviews.
<i>C. auris</i>	<i>Candida auris</i>	<i>Candida auris</i> is an emerging fungus that presents a serious global health threat.
<i>C. diff</i>	<i>Clostridioides difficile</i>	<i>C. diff</i> (also known as <i>Clostridioides difficile</i> or <i>C. difficile</i> ) is a germ (bacterium) that causes diarrhea and colitis (an inflammation of the colon).
CAPD	Continuous Ambulatory Peritoneal Dialysis	It is a way of replacing your kidney function, if your kidneys have failed, by using the membrane covering your internal organs (the peritoneum).
CAUTI	Catheter-Associated Urinary Tract Infections	Catheter-associated urinary tract Infection, or CAUTI, is a

		urinary tract infection associated with urinary catheter use.
CCRC	Continuing Care Retirement Community	Also known as life care communities, they offer different service levels in one location. Many offers independent housing (houses or apartments), assisted living, and skilled nursing care, all on one campus. Healthcare services and recreation programs are also provided.
CDC	Centers for Disease Control and Prevention	A U.S. federal government agency whose mission is to protect public health by preventing and controlling disease, injury, and disability.
CDI	<i>C. difficile infection</i>	Inflammation of the colon is caused by the bacteria <i>Clostridium difficile</i> .
CMS	Centers for Medicare and Medicaid	The Centers for Medicare and Medicaid Services (CMS) provides health coverage to more than 100 million people through Medicare, Medicaid, the Children's Health Insurance Program, and the Health Insurance Marketplace.
CRO/CRE	Carbapenem Resistant Organisms /Carbapenem-resistant Enterobacterales	CRO are groups of bacteria (germs) that produce carbapenemases (chemicals). These chemicals can destroy antibiotics called carbapenems. This makes the bacteria resistant to the antibiotic. When Enterobacterales develop resistance to the group of antibiotics called carbapenems, the germs are called carbapenem-resistant Enterobacterales (CRE)
CVC	Central Venous Catheter	A central venous catheter is a thin, flexible tube that is inserted into a vein, usually



		below the right collarbone, and guided (threaded) into a large vein above the right side of the heart called the superior vena cava.
EBP	Enhance Barrier Precautions	They are an infection control intervention designed to reduce transmission of resistant organisms that employ targeted gown and glove use during high contact resident care activities.
EPA	Environmental Protection Agency	The Environmental Protection Agency is an independent executive agency of the United States federal government tasked with environmental protection matters.
ESBL	Extended-Spectrum Beta-Lactamase	They are enzymes that confer resistance to most beta-lactam antibiotics, including penicillin, cephalosporins, and the monobactam aztreonam.
FDOH	Florida Department of Health	The Florida Department of Health is responsible for protecting the public health and safety of the residents and visitors of the state of Florida. It is a cabinet-level agency of the state government, headed by a state surgeon general who reports to the governor.
HAI	Health Care-Associated Infections	They are infections people get while they are receiving health care for another condition. HAIs can happen in any health care facility, including hospitals, ambulatory surgical centers, end-stage renal disease facilities, and long-term care facilities.
HAP	Healthcare-Associated Pneumonia	It is defined as pneumonia that occurs 48 hours or more after admission, which was not incubating at the time of admission

HEPA Filter	High-efficiency particulate absorbing filter	This type of air filter can theoretically remove at least 99.97% of dust, pollen, mold, bacteria, and any airborne particles with a size of 0.3 microns ( $\mu\text{m}$ ).
HFRS	Health Facility Reporting System	A report of suspected abuse, neglect, mistreatment, and misappropriation of patient or resident property.
HVAC	Heating, Ventilation, and Air Conditioning	Heating, ventilation, and air conditioning is the use of various technologies to control the temperature, humidity, and purity of the air in an enclosed space.
IMPACT	Improving Medicare Post-Acute Care Transformation Act	The Improving Medicare Post-Acute Care Transformation Act of 2014 or IMPACT Act of 2014 is a bill that is intended to change and improve Medicare's post-acute care services and how they are reported.
IP	Infection Preventionist	They are professionals who make sure healthcare workers and patients are doing all the things they should to prevent infections.
IPCP	Infection Prevention and Control Program	The primary purpose of an Infection prevention and control program is to instruct staff on how to protect both themselves and residents from developing a healthcare-associated infection.
LTCF	Long-Term Care Facilities	They provide medical and personal support services to patients unable to live independently. "Long-term care facility" includes a nursing home, assisted living facility, adult family-care home, board and care facility, or any other similar residential adult care facility.

MDRO	Multidrug-Resistant Organisms	Microorganisms that are resistant to one or more classes of antimicrobial agents.
MERV	Minimum Efficiency Reporting Value	It reports a filter's ability to capture larger particles between 0.3 and 10 microns ( $\mu\text{m}$ ).
MI	Motivational Interviewing	Motivational Interviewing is a collaborative, goal-oriented method of communication with particular attention to the language of change. It is designed to strengthen an individual's motivation for and movement toward a specific goal by eliciting and exploring the person's own arguments for change.
MRSA	Methicillin-resistant <i>Staphylococcus aureus</i>	Methicillin-resistant <i>Staphylococcus aureus</i> (MRSA) is a cause of staph infection that is difficult to treat because of resistance to oxacillin.
NAAT	Nucleic Acid Amplification Test	A nucleic acid test is a technique used to detect a particular nucleic acid sequence and thus usually to detect and identify a particular species or subspecies of an organism, often a virus or bacterium that acts as a pathogen in blood, tissue, urine, etc.
NF	Nursing Facility	They are defined as an institution (or a distinct part of an institution) that is primarily engaged in providing skilled nursing care and related services for residents who require medical or nursing care, rehabilitation services for the rehabilitation of injured, disabled, or sick persons, or regularly, health-related care and services to individuals who because of their mental or physical condition require care

		and services (above the level of room and board) which can be made available to them only through institutional facilities and is not primarily for the care and treatment of mental diseases.
NH	Nursing Home	A nursing home is a facility for the residential care of elderly or disabled people. Nursing homes may also be referred to as care homes, skilled nursing facilities or long-term care facilities.
NHAP	Nursing-Home-Associated Pneumonia	It is defined as pneumonia occurring in a resident of a long-term care facility or nursing home.
NHSN	National Healthcare Safety Network	CDC's National Healthcare Safety Network is the nation's most widely used healthcare-associated infection tracking system.
OHSA	US Occupational Health and Safety Administration	The Occupational Safety and Health Administration is a large regulatory agency of the United States Department of Labor that originally had federal visitorial powers to inspect and examine workplaces.
PAPR	Powered Air Purifying Respirator	A powered air-purifying respirator is a type of respirator used to safeguard workers against contaminated air.
PCR	Polymerase Chain Reaction	The polymerase chain reaction is a method widely used to rapidly make millions to billions of copies of a specific DNA sample, allowing scientists to take a very small sample of DNA and amplify it to a large enough amount to study in detail.
PCS	Personal Comfort Systems	They are defined here as thermal systems that heat and cool individuals without

		affecting the environments of surrounding occupants, and that are under the individual's control.
PICC	Peripherally Inserted Central Catheter	A peripherally inserted central catheter (PICC), also called a PICC line, is a long, thin tube that's inserted through a vein in your arm and passed through to the larger veins near your heart.
PPE	Personal Protective Equipment	refers to protective items or garments worn to protect the body or clothing from hazards that can cause injury.
QAPI	Quality Assurance and Performance Improvement	It is the coordinated application of two mutually reinforcing aspects of a quality management system: Quality Assurance (QA) and Performance Improvement (PI). QAPI takes a systematic, comprehensive, and data-driven approach to maintaining and improving safety and quality in nursing homes while involving all nursing home caregivers in practical and creative problem solving.
QIN-QIO	Quality Innovation Network-Quality Innovation Organizations	It brings Medicare beneficiaries, providers, and communities together in data-driven initiatives that increase patient safety, make communities healthier, better coordinate post-hospital care, and improve clinical quality.
QIO	Quality Innovation Organizations	A group of health quality experts, clinicians, and consumers organized to improve the quality of care delivered to people with Medicare.
SNF	Skilled Nursing Facility	They are defined as an institution (or a distinct part of an institution) that is primarily

		engaged in providing skilled nursing care and related services for residents who require medical or nursing care or rehabilitation services for the rehabilitation of injured, disabled, or sick persons, and is not primarily for the care and treatment of mental diseases.
TTM	Transtheoretical Model of Change	The transtheoretical model proposes that health behavior change involves progress through six stages of change: precontemplation, contemplation, preparation, action, maintenance, and termination.
UTI	Urinary Tract Infection	They are common infections that happen when bacteria, often from the skin or rectum, enter the urethra, and infect the urinary tract.
UVGI	Ultraviolet Germicidal Irradiation	Ultraviolet germicidal irradiation is a disinfection method that uses short-wavelength ultraviolet light to kill or inactivate microorganisms by destroying nucleic acids and disrupting their DNA, leaving them unable to perform vital cellular functions.
VRE	Vancomycin-Resistant Enterococci	Vancomycin-resistant Enterococcus, or vancomycin-resistant enterococci, are bacterial strains of the genus Enterococcus that are resistant to the antibiotic vancomycin.