

Isolation Precautions Guideline Workgroup

Co-Chairs: Michael Lin, MD, MPH and Sharon Wright, MD, MPH

HICPAC, November 2, 2023

Disclaimer

- The findings and conclusions herein are **draft** and have not been formally disseminated by the Centers for Disease Control and Prevention and should not be construed to represent any agency determination or policy.

Acknowledgments

Isolation Precautions Guideline Workgroup Members: Michael Lin (Co-Chair), Sharon Wright (Co-Chair), Hilary Babcock, Elaine Dekker, Judith Guzman-Cottrill, Anurag Malani, JoAnne Reifsnnyder, Mark Russi, Connie Steed, Julie Trivedi, Deborah Yokoe

CDC Support

Workgroup DFO: Mike Bell; **CDC/DHQP/NIOSH Technical Staff:** Abigail Carlson, Marie de Perio, Ryan Fagan, Alex Kallen, David Kuhar, Fernanda Lessa, Devon Okasako-Schmucker, Melissa Schaefer, Christine So (Contractor), Matt Stuckey, Erin Stone, David Weissman, plus pathogen-specific subject matter experts; **CDC/DHQP Support Staff:** Sydnee Byrd (Contractor), Laura Wells (Contractor)

Other acknowledgements

HICPAC long-term care workgroup; experts from NIOSH and external organizations

Agenda

- Overview
- Review of Part 1 of draft guideline and recommendations, with discussion
 - Section A: Overview of Transmission of Infectious Agents
 - Section B: Fundamental Elements Needed to Prevent Transmission of Infectious Agents in Healthcare Settings
 - Section C: Precautions to Prevent Transmission of Infectious Agents

Disclaimer: The findings and conclusions herein are draft and have not been formally disseminated by the Centers for Disease Control and Prevention and should not be construed to represent any agency determination or policy.

Overview

- Today we present the first draft (Part 1) of an update to the 2007 Isolation Precautions Guidelines to HICPAC for consideration.
 - Portions of this two-day meeting will be dedicated to detailed discussion and review of the guidelines. If ready, HICPAC members will vote at the conclusion of this two-day meeting on whether the draft guideline is ready for CDC review followed by 60-day public comment period via Federal Register.
 - Comments received during the 60-day public review period will inform draft guideline revision by HICPAC and CDC, which will occur before any future HICPAC consideration of the draft guideline for a final meeting discussion and vote in 2024 (projected).

Disclaimer: The findings and conclusions herein are draft and have not been formally disseminated by the Centers for Disease Control and Prevention and should not be construed to represent any agency determination or policy.

Key Points from 2024 Guideline

- **Updates the conceptual framework** for pathogen transmission, including the recognition of a continuum of pathogen transmission by air, rather than an outdated dichotomy of “droplet” versus “airborne” transmission.
- Proposes new categories for transmission-based precautions, including a new category for transmission through the air called **Special Air Precautions**, which is expected to increase the use of NIOSH-approved[®] fit-tested N95 (or higher-level) respirators during responses to pandemic or emerging respiratory viruses.
- The 2024 Guideline **does not provide any pathogen-specific guidance**. Pathogen-specific guidance will be addressed in a future Part 2.

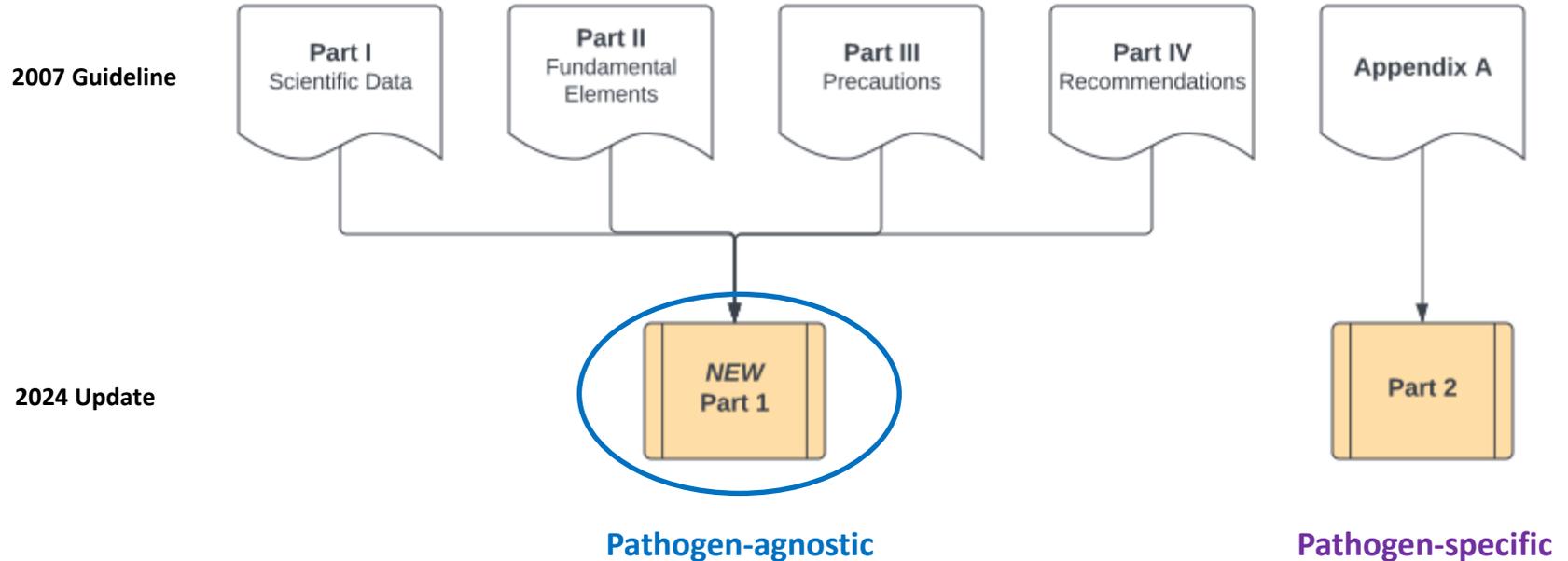
Disclaimer: The findings and conclusions herein are draft and have not been formally disseminated by the Centers for Disease Control and Prevention and should not be construed to represent any agency determination or policy.

Workgroup Goal Is Creation of Update to 2007 Isolation Precautions Guideline

- Draft guideline is intended to replace corresponding content in the 2007 Guideline
- Clearer and more concise language and formatting
- Recommendations largely address infection prevention strategies that frontline healthcare personnel (HCP) may implement at the point of care
- Intended to be applicable to all healthcare settings

Disclaimer: The findings and conclusions herein are draft and have not been formally disseminated by the Centers for Disease Control and Prevention and should not be construed to represent any agency determination or policy.

2024 Isolation Guideline Outline Structure



Disclaimer: The findings and conclusions herein are draft and have not been formally disseminated by the Centers for Disease Control and Prevention and should not be construed to represent any agency determination or policy.

2024 Outline: Key Sections with Recommendations

Section	Titles
Section A	Overview of Transmission of Pathogens in Healthcare Settings
Section B	Fundamental Elements Needed to Prevent Transmission of Infectious Agents in Healthcare Settings
	Hand Hygiene
	Personal Protective Equipment (PPE) for Healthcare Personnel: General Considerations; Gloves; Gowns; Masks; Respirators; Eye/Face Protection*
	Environmental Controls: Environmental Cleaning and Disinfection; Specialized Air Handling
Section C	Precautions to Prevent Transmission of Infectious Agents
	Standard Precautions*
	Transmission-based Precautions*
	Syndromic and Empiric Applications of Transmission-based Precautions*
	Use of Transmission-Based Precautions to Prevent Transmission by Touch*
	Use of Transmission-Based Precautions to Prevent Transmission through the Air*
	Source Control; Patient Placement; Transport of Patients*

Note: Headers with imbedded recommendations are highlighted in red and asterisk*

Section A

Overview of Transmission of Infectious Agents

Factors Affecting Transmissibility

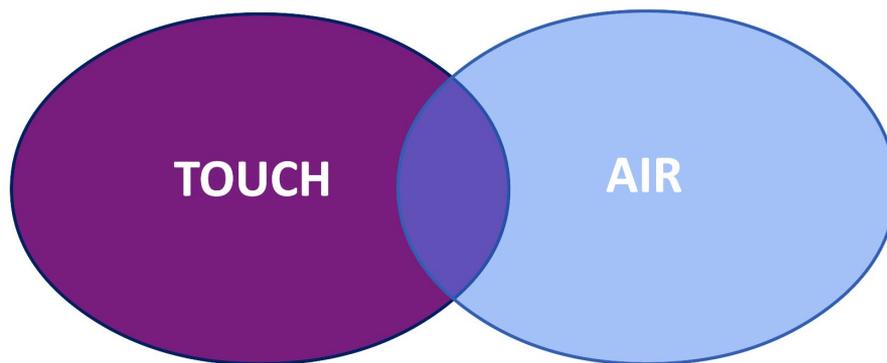
- Transmission occurs when an at-risk person acquires a pathogen from an infectious person. Transmission is determined by pathogen, environmental, and person factors at the time of event. While pathogen factors are often biologically intrinsic (e.g., the ability of a pathogen to remain viable during transit), environmental and person-specific factors may vary by location and over time. Environmental variables include air (e.g., temperature, humidity, ventilation) and surface (e.g., material, porosity) conditions. Factors that vary among infectious persons include pathogen load and shedding rate. Factors that vary among at-risk persons include host defense mechanisms that are non-immune-based (e.g., intact skin) and immune-based (e.g., pathogen-specific immunity from prior infection or vaccination).

Significance of Transmission

- Transmission can result in colonization or infection. Based on the health impact that a pathogen is expected to have on an individual or the community, some pathogens are recognized as requiring intensive efforts to prevent transmission, while others may not rise to that level. Less intensive effort might be indicated when outcomes are not usually severe, the population has a high degree of immunity, and effective therapeutics and vaccines are available. The boundaries describing those categories require risk assessment and can vary by setting and population at risk.

Transmission Pathways

- In the healthcare setting, pathogen transmission pathways can be grouped into two broad categories: pathogens that spread via the air, and pathogens that spread via touch.
- Pathogens generally spread via a major pathway, though multiple pathways might contribute to spread. Pathogen transmission epidemiology is informed by observing patterns of infection spread.



Transmission Via Air

- Pathogens can transmit via air over short distances through direct splash or spray of the pathogen onto a part of the body (e.g., spray from a sneeze landing on a person's eyes or mouth) or variably across ranges of distance and time via suspended infectious particles. Pathogens suspended in the air cause infection via inhalation and deposition along the respiratory tract, anywhere from the nasal or oral passages to the lungs.
- Historically, the infection prevention community has categorized transmission of respiratory pathogens as 'droplet' or 'airborne.'
 - While these epidemiologic terms reflect observed patterns of short versus long distance transmission respectively, the terms do not explicitly describe a continuum of respiratory pathogen transmission through in the air.

Disclaimer: The findings and conclusions herein are draft and have not been formally disseminated by the Centers for Disease Control and Prevention and should not be construed to represent any agency determination or policy.

Transmission Via Air (cont.)

- Pathogens that spread via the air preferentially transmit over short distances, due to greater concentrations of infectious particles in the air near an infectious person.
- However, each pathogen has a signature pattern of observed transmission that extends variably across short-to-long distances and over time, reflecting unique characteristics such as pathogen viability while suspended in the air and the required dose for causing an infection in a susceptible person.
- Pathogens that remain infectious for a long time while suspended in the air (e.g., *M. tuberculosis*, measles virus, and varicella virus) are capable of causing infections over long distances, such as across a large part of a building or healthcare facility.

Transmission Via Touch

- Transmission via touch occurs through physical contact with the pathogen.
- Transmission in healthcare settings can occur via intact skin, non-intact skin (including percutaneous routes such as needlestick injury), or mucous membranes of the face and gastrointestinal tract.
- Transmission by touch can involve intermediary reservoirs such as people, surfaces, or equipment that facilitate spread.

Approach to Transmission-Based Precaution Recommendations

Disclaimer: The findings and conclusions herein are draft and have not been formally disseminated by the Centers for Disease Control and Prevention and should not be construed to represent any agency determination or policy.

- Recommendations for Transmission-Based Precautions are based on evaluation of clinical epidemiologic studies in healthcare settings.
- Evidence reviews in this guideline focus on clinical studies with infection outcomes because such studies compare prevention strategies in the context of feasibility, user adherence, and implementation within a hierarchy of controls (e.g., engineering, administrative, and personal protective equipment controls) available in the healthcare setting to reduce risk of infection.
- The methodology and evidence reviews informing recommendations in this guideline are available in this guideline's Appendix. Recommendations in this guideline largely address infection prevention strategies available to frontline healthcare personnel (HCP) at the point of care.

Discussion



Recommendation Formulation and Categorization (from Appendix)

Recommendation Formulation

- The authors conducted a thorough review of the recommendations contained in the 2007 Guideline. This review identified recommendations from the 2007 Guideline that remained relevant in 2023; these recommendations were carried forward as **Standard Practice** and are noted as such in the 2024 update. The authors additionally identified gaps in the 2007 Guideline that required the development of new recommendations.

Recommendation Categorization

- New recommendations also were categorized as **Standard Practice** if they met any of the following criteria:
 - Are consistent with recommendations in current CDC guidelines or guidance (e.g., the [Core Infection Prevention and Control Practices for Safe Healthcare Delivery in All Settings](#)).
 - Are consistent with current federal regulations.
 - Are consistent with manufacturer instructions for use (e.g., recommendations to follow instructions for proper use or reprocessing).
- New recommendations not categorized as Standard Practice were categorized as **Expert Opinion**, with supporting peer-reviewed literature where available.

Disclaimer: The findings and conclusions herein are draft and have not been formally disseminated by the Centers for Disease Control and Prevention and should not be construed to represent any agency determination or policy.

Section B

Fundamental Elements Needed to Prevent Transmission of Infectious Agents in Healthcare Settings

Section B: Overview

- Section B describes the fundamental elements of infection prevention available to frontline healthcare personnel (HCP) in healthcare settings, with a focus on personal protective equipment (PPE). Other important elements such as hand hygiene and environmental controls are highlighted, with details referred to other existing guidelines.
- The use of PPE falls within a [hierarchy of controls](#) designed to reduce risk of illness or injury for both infectious and non-infectious exposures in the workplace.
- The hierarchy of controls, in preferred order of action based on general effectiveness, has five components.

Section B: Overview

Hierarchy of Controls Components

- **Elimination** (remove or prevent entry of the pathogen into a facility, e.g., using virtual instead of in-person visits to manage some potentially infectious patients)
- **Substitution** (although generally not applied to infectious pathogens, refers to substituting a more hazardous agent with a less hazardous form, e.g., substituting toxigenic *C. difficile* with non-toxigenic *C. difficile*)
- **Engineering Controls** (isolate, capture, and reduce levels of pathogen in the environment, e.g., improving ventilation)
- **Administrative Controls** (work policies and procedures that prevent pathogen exposure and disease, e.g., vaccination of HCP)
- **Personal Protective Equipment (PPE)** (PPE used to prevent pathogen exposure and spread)

Disclaimer: The findings and conclusions herein are draft and have not been formally disseminated by the Centers for Disease Control and Prevention and should not be construed to represent any agency determination or policy.

Section B: Overview (cont.)

- PPE is last in the hierarchy because it relies on the user to determine appropriate use (e.g., time, situation) and to use PPE correctly, depends on availability at the point of care, and depends on PPE to function properly. Other components may be more reliable in reducing risk when applied and maintained at the facility level (e.g., ventilation).

Hand Hygiene

- Hand hygiene is a foundational component of infection prevention and control. Routine use of alcohol-based hand sanitizer — and handwashing with soap and water when hands are visibly soiled or when otherwise indicated — prevents transmission of potential pathogens to patients, personnel, and environmental surfaces from hands that are soiled or transiently colonized. Detailed recommendations for hand hygiene are addressed in the [CDC Guideline for Hand Hygiene in Health-Care Settings](#).

Personal Protective Equipment (PPE) for Healthcare Personnel (HCP)

General Considerations: Recommendations

1. HCP must be trained and demonstrate competency in the selection, putting on, use, removal, and disposal of PPE. (*Standard Practice*)
2. Employers in healthcare settings are required to provide readily available PPE to healthcare personnel (HCP), ideally at or near likely points of use. (*Standard Practice*)
3. Sizing and models should be chosen to accommodate the needs of the local workforce. (*Standard Practice*)

Personal Protective Equipment (PPE) for HCP: *Glove Recommendations*

Indications

1. Non-sterile gloves are indicated in any of the following situations: (1) any anticipated contact with body fluids or infectious material, (2) touching mucous membranes or non-intact skin, (3) handling soiled items such as used wound dressings, and (4) as indicated by Transmission-Based Precautions. Activities that do not meet these criteria do not require gloves. (*Standard Practice*)

Personal Protective Equipment (PPE) for HCP: *Glove Recommendations (cont.)*

Use

2. HCP should perform hand hygiene prior to reaching into a box of non-sterile exam gloves and putting on gloves, to reduce the risk of contaminating both the remaining gloves in the box and the gloves being put on. (*Expert Opinion*)
3. During care of a single patient, gloves should be changed after a task or procedure if contact occurs with potentially infectious material (e.g., if moving from a dirty task to a clean task). (*Standard Practice*)
4. Remove gloves if torn or soiled, and before caring for another patient. (*Standard Practice*)
5. Hand hygiene should be performed immediately after removing gloves, because pathogens on used gloves can contaminate hands during glove removal. (*Standard Practice*)
6. HCP should not practice extended glove use in place of hand hygiene. (*Standard Practice*)

Personal Protective Equipment (PPE) for HCP: *Glove Recommendation (cont.)*

Selection

7. Non-sterile gloves should be available in a range of sizes so that all users will be able to select a glove that fits comfortably without excess material that could impair function. (*Standard Practice*)

Personal Protective Equipment (PPE) for HCP: *Gown Recommendations*

Indications

1. Non-sterile gowns are indicated in any of the following situations: (1) when an activity is anticipated to contaminate HCP clothing through direct touch or splash, and (2) as indicated by Transmission-Based Precautions. (*Standard Practice*)

Use

2. Gowns should be worn to cover the individual's clothing with all fasteners secured. (*Standard Practice*)

Personal Protective Equipment (PPE) for HCP: *Mask Recommendations*

Indications

1. Masks are indicated in any of the following situations: (1) when an activity is anticipated to create splashes or spray to the face, (2) as source control, and (3) as indicated by Transmission-Based Precautions. (*Standard Practice*)

Personal Protective Equipment (PPE) for HCP: *Mask Recommendations (cont.)*

Use

2. Masks should not be reused as they can serve as a reservoir of infectious material if they become soiled during use. (*Standard Practice*)
3. Masks should be changed when soiled, damaged, or harder to breathe through. (*Standard Practice*)
4. Extended use is not practiced with masks except when used for source control, and then disposed of when removed or after use when caring for a patient on Transmission-Based Precautions. (*Standard Practice*)

Personal Protective Equipment (PPE) for HCP: *Mask Recommendation (cont.)*

Selection

5. A fluid resistant mask should be used in situations when splashes and sprays are anticipated. (*Standard Practice*)

Personal Protective Equipment (PPE) for HCP:

Mask Narrative

- Masks are devices worn over the nose and mouth that perform three primary functions: (1) block direct splashes to the mucous membranes of the nose and mouth, (2) contain exhaled respiratory secretions (source control), and (3) provide filtration of inhaled air.
- Masks include surgical masks, face masks (sometimes referred to as procedure masks), and [enhanced barrier face coverings](#).

Personal Protective Equipment (PPE) for HCP:

Mask Narrative (cont.)

- Among mask types, efficacy can vary depending on fit. Well-fitting masks refer to masks that fit closely against the face with minimal gaps, especially along the edges of the mask. A loose-fitting mask may block splashes from reaching the nose or mouth, but may not fully contain the secretions of the wearer or efficiently filter inhaled air. Well-fitting masks may include: any mask approved for use in healthcare that fits well without adjustment; masks with adjustments or modifications, such as knotted ear loops or mask fitters; and enhanced barrier face coverings.

Personal Protective Equipment (PPE) for HCP: *Respirator Recommendations*

Indications

1. Respirators are used as indicated by Transmission-Based Precautions. (*Standard Practice*)

Personal Protective Equipment (PPE) for HCP: *Respirator Recommendations (cont.)*

Use

2. A seal check should be performed each time an HCP puts on a fit-tested respirator to ensure that the respirator is properly seated on the face. (*Standard Practice*)
3. Single use disposable respirators should not be reused as they can serve as reservoir of infectious material if they become soiled during use. (*Standard Practice*)
4. Reusable respirators must be cleaned, disinfected, and dried between uses according to the manufacturer's instructions for use. (*Standard Practice*)

Personal Protective Equipment (PPE) for HCP: *Respirator Recommendations (cont.)*

Use (cont.)

5. Optimally, extended use is not practiced with single use respirators except when used for source control and then disposed of when removed or after use when caring for a patient on Transmission-Based Precautions. (*Standard Practice*)
6. Respirators should be changed when soiled, damaged, or harder to breathe through. (*Standard Practice*)

Selection

7. A fluid resistant respirator should be used in situations when splashes and sprays are anticipated. (*Standard Practice*)

Personal Protective Equipment (PPE) for HCP:

Respirator Narrative

- Respirators are devices worn over the nose and mouth that provide filtration of inhaled air. Respirators work by passing air delivered to the wearer through a filter with defined filtration efficacy. Respirators may perform two additional functions similar to masks: (1) block direct splashes to the mucous membranes of the nose and mouth (if fluid-resistant), and (2) contain exhaled respiratory secretions (source control), if the respirator is the type that filters exhaled air. In most situations, respirators can be worn in place of a mask, whenever a mask is indicated (See **Masks Recommendations: Indications**).

Personal Protective Equipment (PPE) for HCP: *Respirator Narrative (cont.)*

- It is important to limit the amount of inhaled air that comes from leaks around the respirator, because leaked air is not filtered. Filtration efficacy for fit-tested respirators is expected to be greater than that for masks. Factors that influence the decision to use a respirator instead of a mask include pathogen-associated morbidity and mortality from infection, the level of aerosols of infectious particles anticipated to be present, lack of effective treatment or vaccine, transmissibility of the pathogen, and situations in which the major mode of transmission has yet to be determined.
- A respirator's effectiveness is reduced if it is not worn correctly for the entire duration of exposure. Respirators that are uncomfortable or those that are expected to be used for long periods of time may provide challenges with HCP tolerability and compliance.

Disclaimer: The findings and conclusions herein are draft and have not been formally disseminated by the Centers for Disease Control and Prevention and should not be construed to represent any agency determination or policy.

Personal Protective Equipment (PPE) for HCP: *Eye/Face Protection Recommendations*

Indications

1. Eye/face protection is indicated in either of the following situations: (1) when an activity is anticipated to create splashes or spray of potentially infectious material to the face, and (2) as indicated by Transmission-Based Precautions. (*Standard Practice*)

Personal Protective Equipment (PPE) for HCP: *Eye/Face Protection Recommendation (cont.)*

Use

2. If reusable devices are used for eye and face protection, protocols must be in place for cleaning, disinfection, and drying between uses, per manufacturers' instructions for use. (*Standard Practice*)

Selection

3. The selection of eye and face protective equipment should consider the nature of the activity for which it will be used. (*Standard Practice*)

Environmental Controls: Environmental Cleaning and Disinfection — *Narrative*

- Environmental surfaces serve as reservoirs for some pathogens that transmit by touch. Routine and targeted cleaning of environmental surfaces, as indicated by the level of patient or HCP contact and degree of soiling, reduces the burden of environmental pathogens. EPA-registered disinfectants that have microbiocidal activity against likely pathogens on surfaces are used according to manufacturers' instructions. Refer to "[CDC Guidelines for Environmental Infection Control in Health-Care Facilities](#)" and "[CDC Guideline for Disinfection and Sterilization in Healthcare Facilities](#)" for details.

Specialized Air Handling: *Narrative*

- Airborne infection isolation rooms for containment of air in a designated space (AIIRs) are engineered to prevent flow of air from the room to other parts of the facility (e.g., into the hallway) through use of both negative pressure and 100% outside exhaust (or HEPA-filtered exhaust).
- In addition, these rooms often have a higher number of air changes per hour compared to standard patient rooms, which may provide a higher level of protection to others entering the room. Additional features of AIIRs are described in the [CDC Guidelines for Environmental Infection Control in Healthcare Facilities](#).

Specialized Air Handling: *Narrative (cont.)*

- Other environmental controls can be useful components of the layered approach to preventing transmission of infection through air. Although full discussion would be out of scope for the current document, it is important to recognize the importance of interventions such as [general ventilation](#) with sufficient delivery rates of clean air to dilute pathogens in air, local exhaust ventilation to capture pathogens at their source, and removal of infective pathogens from air such as by filtration through portable HEPA filters or by inactivation via ultraviolet germicidal irradiation. An advantage of these interventions is that they do not require individual compliance to be effective.

Discussion (cont.)

Disclaimer: The findings and conclusions herein are draft and have not been formally disseminated by the Centers for Disease Control and Prevention and should not be construed to represent any agency determination or policy.

Section C

Precautions to Prevent Transmission of Infectious Agents

Section C: Overview

- There are two tiers of precautions to prevent transmission of infectious agents, Standard Precautions and Transmission-Based Precautions. Standard Precautions apply to the care of all patients in all healthcare settings, regardless of the suspected or confirmed presence of an infectious pathogen. **Implementation of Standard Precautions is the primary strategy to prevent transmission of pathogens in healthcare settings.**

Section C: Overview (cont.)

- Transmission-Based Precautions apply to the care of patients with known or suspected infectious pathogens, which require additional control measures to effectively prevent transmission. Since a patient's infectious status often is not known at the time of initial encounter with healthcare personnel (HCP), Transmission-Based Precautions are used empirically, according to the clinical syndrome and the likely etiologic agents at the time, and then modified as needed when the pathogen is identified or a transmissible infectious etiology is ruled out.

Standard Precautions: *Recommendation*

1. Standard Precautions apply to the care of all patients, regardless of suspected or confirmed infection status, in any setting in which healthcare is delivered, and at all times. (*Standard Practice*)

Standard Precautions: *Narrative*

- Standard Precautions are a group of infection prevention and control practices that are based on the principle that all blood, body fluids, secretions, excretions (except sweat in most circumstances), nonintact skin, and mucous membranes may contain transmissible infectious agents.

Standard Precautions: *Narrative (cont.)*

- Components of Standard Precautions are defined in the [CDC's Core Infection Prevention and Control Practices for Safe Healthcare Delivery in All Settings](#) and include:
 - Hand hygiene
 - Environmental cleaning and disinfection
 - Injection and medication safety
 - Risk assessment with use of appropriate personal protective equipment (e.g., gloves, gowns, masks) based on activities being performed
 - Minimizing Potential Exposures (e.g., having patients and visitors wear a mask when respiratory symptoms are present)
 - Reprocessing of reusable medical equipment between each patient or when soiled

Standard Precautions: *Narrative (cont.)*

- Performing a risk assessment is central to Standard Precautions; this includes assessment by HCP of their risk of exposure to potentially infectious materials for each activity being performed. Based on that assessment, HCP implement practices and use PPE to prevent possible exposure.
- Performing a risk assessment can be challenging, and HCP might not anticipate all potential opportunities for exposure. To reduce this risk, facilities might choose to systematically apply elements of Standard Precautions to situations recognized as likely to present a risk of pathogen transmission. For example, because it can be difficult to anticipate if a patient with a respiratory infection will cough or sneeze during an encounter, facilities may choose to implement universal use of eye protection by HCP (in addition to the already indicated mask or respirator) for the care of patients with respiratory virus infections.

Transmission-Based Precautions: *Recommendation*

1. HCP should be trained on how and when to apply Transmission-Based Precautions, including how to put on, correctly use, and remove PPE. (*Standard Practice*)

Syndromic and Empiric Applications of Transmission-Based Precautions: *Recommendation*

1. Use appropriate Transmission-Based Precautions at the time a patient develops symptoms or signs consistent with a transmissible infection, to reduce transmission risk. (*Standard Practice*)

Use of Transmission-Based Precautions to Prevent Transmission by Touch: *Recommendations*

1. **Contact Precautions** (applies to all healthcare facilities)
 - a. Patients are cared for in a dedicated space, preferably a single patient room. See Patient Placement and Patient Transport sections below for more details. (*Standard Practice*)
 - b. A gown and gloves are used for all interactions that may involve contact with the patient or the patient's environment. Gown and gloves should be put on upon entry into a patient's designated space (generally defined the patient's bedspace or room) and properly removed and disposed before exiting the designated space. (*Standard Practice*)

Use of Transmission-Based Precautions to Prevent Transmission by Touch: *Recommendations (cont.)*

1. **Contact Precautions** (applies to all healthcare facilities)
 - c. Patient-care equipment (e.g., blood pressure cuffs, stethoscopes) is ideally dedicated to the patient and the patient's designated space. Disposable equipment may be used to minimize cross-transmission. If shared patient-care items are used, they should be cleaned and disinfected prior to use with other patients in accordance with the manufacturer's instructions for use. (*Standard Practice*)

Use of Transmission-Based Precautions to Prevent Transmission by Touch: *Recommendations (cont.)*

1. Contact Precautions (applies to all healthcare facilities)

- d. In general, clean, unopened patient care supplies should not be stored in the room but should be available near the room to allow easy access while ensuring that large amounts of supplies do not become contaminated. Any disposable supplies that are brought into the room should not be returned to the general supply; they may be sent home with the patient upon discharge if needed (e.g., for dressing changes) or discarded. For clinical areas where supplies are stored routinely within rooms (e.g., outpatient clinic rooms), supplies should be stored in covered or closed clean storage areas. (*Standard Practice*)

Use of Transmission-Based Precautions to Prevent Transmission by Touch: *Recommendations (cont.)*

1. **Contact Precautions** (applies to all healthcare facilities)
 - e. Frequent cleaning and disinfection of room surfaces (e.g., at least daily or prior to use by another patient in ambulatory settings) is used to reduce environmental reservoirs of infectious material, focusing on frequently touched surfaces and areas in the immediate vicinity of the patient. See Environmental Infection Control Guidelines for additional details. (*Standard Practice*)

Use of Transmission-Based Precautions to Prevent Transmission by Touch: *Recommendations (cont.)*

2. **Enhanced Barrier Precautions** (applies to Skilled Nursing Facilities):
 - a. Enhanced Barrier Precautions are indicated, when Contact Precautions do not otherwise apply, for nursing home residents with multidrug-resistant organism (MDRO) infection or colonization. (*Expert Opinion*)
 - b. Enhanced Barrier Precautions may be considered for residents at high risk for MDRO colonization, regardless of known MDRO status (e.g., residents with wounds and/or indwelling medical devices). (*Expert Opinion*)

Use of Transmission-Based Precautions to Prevent Transmission by Touch: *Recommendations (cont.)*

2. **Enhanced Barrier Precautions** (applies to Skilled Nursing Facilities):
 - c. Use a gown and gloves for high-contact resident care activities including dressing, bathing/showering, transferring, providing hygiene, changing linens, changing briefs or assisting with toileting, device care or use (e.g., central venous catheter, urinary catheter, feeding tube, tracheostomy/ventilator management), and wound care. In general, gown and gloves would not be required for resident care activities other than those listed above, unless indicated per Standard Precautions. (*Expert Opinion*)

Use of Transmission-Based Precautions to Prevent Transmission by Touch: *Recommendations (cont.)*

2. Enhanced Barrier Precautions (applies to Skilled Nursing Facilities):

- d. Residents are not restricted to their rooms or limited from participation in group activities. Because Enhanced Barrier Precautions do not impose the same activity and room placement restrictions as Contact Precautions, they are intended to be in place for the duration of a resident's stay in the facility or until the indication for Enhanced Barrier Precaution is resolved (e.g., resolution of wound or discontinuation of the indwelling medical device). (*Expert Opinion*)

Use of Transmission-Based Precautions to Prevent Transmission by Touch: *Narrative*

- Enhanced Barrier Precautions are intended for the prevention of MDRO transmission in skilled nursing facilities. They refer to the use of gown and gloves during high contact resident care activities that risk potential transfer of MDROs to HCP hands and clothing. Preventing this transfer can then help prevent MDRO transmission when HCP perform high contact care activities on other residents. They also take into account the special circumstances of care in a skilled nursing facility (e.g., home-like environment) and barriers to implementing Contact Precautions for residents infected or colonized with an MDRO.
 - For example, MDRO colonization may persist for long periods (e.g., months to years); restriction of a resident to their room on the basis of their MDRO status, as recommended for residents on Contact Precautions, would result in prolonged isolation of the resident to the detriment of their overall health and wellbeing.

Use of Transmission-Based Precautions to Prevent Transmission by Touch: *Narrative (cont.)*

- The target MDROs for Enhanced Barrier Precautions may be prioritized by public health and through local risk assessment.
- Enhanced Barrier Precautions may be considered for other congregate settings in healthcare facilities other than skilled nursing facilities (e.g., congregate behavioral health units in acute care hospitals).

Narrative, Table 1: Transmission-Based Precautions to Prevent Transmission by Touch (Except Skilled Nursing Facilities)

Category	PPE	Situation	Dedicated Medical Equipment	Single occupancy
Contact Precautions	Gown/glove for all activities	Any entry into designated patient space	Yes	Preferred; if not available, then cohort

Disclaimer: The findings and conclusions herein are draft and have not been formally disseminated by the Centers for Disease Control and Prevention and should not be construed to represent any agency determination or policy.

Narrative, Table 2: Transmission-Based Precautions to Prevent Transmission by Touch for Skilled Nursing Facilities

Category	PPE	Situation	Dedicated Medical Equipment	Single occupancy
Contact Precautions	Gown/glove for all activities	Any entry into designated patient space	Yes	Preferred; if not available, then cohort
Enhanced Barrier Precautions	Gown/glove during high contact resident care activities	When Contact Precautions do not otherwise apply: Indicated for residents with infection or colonization with an MDRO Consider for residents at high risk for MDRO colonization, regardless of known MDRO status (e.g., residents with wounds or indwelling medical devices)	Not required. Clean and disinfect equipment between residents (per Standard Precautions)	Not required

Disclaimer: The findings and conclusions herein are draft and have not been formally disseminated by the Centers for Disease Control and Prevention and should not be construed to represent any agency determination or policy.

Use of Transmission-Based Precautions to Prevent Transmission through the Air: *Recommendations*

1. Routine Air Precautions

- a. A mask is worn by HCP on room entry, and eye protection is used based on Standard Precautions. (*Standard Practice*)
- b. Private rooms are preferred; if not available, then cohort. (*Standard Practice*)
- c. Rooms should be appropriately ventilated, but an AIIR is not routinely needed. (*Standard Practice*)
- d. Source control masking should be used by the patient when they leave their room (e.g., for transport to a procedure). (*Standard Practice*)

Use of Transmission-Based Precautions to Prevent Transmission through the Air: *Recommendations (cont.)*

2. Special Air Precautions

- a. A NIOSH-approved[®] fit-tested N95 (or higher-level) respirator and eye protection are worn by HCP on room entry. (*Expert Opinion*)
- b. A private room is indicated. (*Expert Opinion*)
- c. Rooms should be appropriately ventilated, but an AIIR is not routinely needed. (*Expert Opinion*)
- d. Source control masking is indicated for the patient when they leave their room (e.g., for transport to a procedure). (*Expert Opinion*)

Use of Transmission-Based Precautions to Prevent Transmission through the Air: *Recommendations (cont.)*

3. Extended Air Precautions

- a. A NIOSH-approved[®] fit-tested N95 (or higher-level) respirator is worn by HCP on room entry, and eye protection is used based on Standard Precautions. *(Standard Practice)*
- b. A private room is indicated. *(Standard Practice)*
- c. An AIR is required. *(Standard Practice)*
- d. Source control masking is indicated for the patient when they leave their room. *(Standard Practice)*
- e. Travel outside the room should be limited (e.g., for necessary procedures and treatments). *(Standard Practice)*

Use of Transmission-Based Precautions to Prevent Transmission through the Air: *Narrative*

- The previous categories of Droplet Precautions and Airborne Precautions have now been divided into three categories to better reflect the continuum of transmission for reasons described in Section A. Pathogen-specific recommendations may be found in [Appendix A \(2007\)](#), which will be updated with interim suggestions for how facilities may map existing categories to new categories of Transmissions-Based Precautions, until recommendations for all pathogens have been updated.

Use of Transmission-Based Precautions to Prevent Transmission through the Air: *Narrative (cont.)*

- Routine Air Precautions are focused on reducing transmission of common, often endemic, respiratory pathogens that spread predominantly over short distances based on observed patterns of transmission, and for which individuals and their communities are likely to have some degree of immunity.
- Special Air Precautions are applied to patients with a respiratory pathogen, typically new or emerging, that is not observed or anticipated to spread efficiently over long distances (such as through ventilation systems), for which infection generally leads to more than mild illness, and where immunity (or vaccine) and effective treatment are not available.

Use of Transmission-Based Precautions to Prevent Transmission through the Air: *Narrative (cont.)*

- Extended Air Precautions are used when providing care to patients with pathogens that are observed to spread efficiently across long distances and over extended times, such that room air needs to be contained (e.g., prevented from moving into the hallway where individuals are not appropriately protected).

Use of Transmission-Based Precautions to Prevent Transmission through the Air: *Narrative (cont.)*

- While not required for Routine Air Precautions, HCP may choose voluntarily to wear a NIOSH-approved[®] N95 (or higher-level) respirator, per existing federal regulations.
- For Routine and Extended Air Precautions, eye protection may be added as required PPE based on infection control risk assessment performed by the facility for specific pathogens (e.g., implementing eye protection for care of all patients with respiratory viral infections during periods of high incidence in the community or facility).

Use of Transmission-Based Precautions to Prevent Transmission through the Air: *Narrative (cont.)*

- For Special Air Precautions, although an AIIR is not routinely recommended, an AIIR may be suggested for certain pathogens listed in [Appendix A \(2007\)](#), and for pathogens with uncertain transmission characteristics.

Air Narrative, Table 3: Transmission-Based Precautions to Prevent Transmission through the Air

Category	Mask or Respiratory Protection	Eye Protection	AIIR ^a
Routine Air Precautions	Mask	Per Standard Precautions	Not routinely recommended
Special Air Precautions	NIOSH-approved [®] N95 (or higher-level) respirator	Yes	Not routinely recommended
Extended Air Precautions	NIOSH-approved [®] N95 (or higher-level) respirator	Per Standard Precautions	Yes

AIIR^a = Airborne Infection Isolation Room for Containment of Air in a Designated Space

Disclaimer: The findings and conclusions herein are draft and have not been formally disseminated by the Centers for Disease Control and Prevention and should not be construed to represent any agency determination or policy.

Special Situations: *Narrative*

- Some procedures performed on patients may be more likely to generate higher concentrations of aerosols of respiratory particles than others. There is neither expert consensus, nor sufficient supporting data, to create a definitive and comprehensive list of these procedures (sometimes called “aerosol-generating procedures”) for healthcare settings. Certain procedures that involve manipulation of the patient’s airway and close proximity between the patient and the HCP may increase risk of pathogen transmission by air. Facilities may perform an infection control risk assessment to implement Special Air or Extended Air precautions for patients with certain target pathogens, or for all patients regardless of symptoms or confirmed infection, during certain higher risk procedures.

Source Control: *Recommendations*

1. During periods of higher levels of community respiratory virus transmission, facilities should consider implementing one of the tiers of source control:
 - a. Having HCP mask when interacting with patients (e.g., on entry to the patient's room or bedspace). (*Expert Opinion*)
 - b. Having all individuals (e.g., patients, visitors, and HCP) mask upon entry to the facility or a clinical area. (*Standard Practice*)
2. Source control measures can be implemented facility-wide or targeted toward higher risk areas (e.g., emergency departments, urgent care, bone marrow transplant units, or units experiencing an outbreak) based on a facility risk assessment. (*Standard Practice*)

Patient Placement: *Recommendations*

1. Single patient rooms are the preferred option for patients requiring Transmission-Based Precautions, whether to prevent transmission by touch or through the air. (*Standard Practice*)
2. In long-term and other residential settings, room placement decisions should balance risks to the infectious individual and to other patients. (Standard Practice) Residents in Enhanced Barrier Precautions do not require placement in a single person room. (*Expert Opinion*)
3. In ambulatory settings, patients requiring Transmission-Based Precautions should be placed in an exam room or cubicle as soon as possible rather than waiting in common areas. (*Standard Practice*)

Disclaimer: The findings and conclusions herein are draft and have not been formally disseminated by the Centers for Disease Control and Prevention and should not be construed to represent any agency determination or policy.

Patient Placement: *Recommendations (cont.)*

4. If single patient rooms are not available, patients housed (cohorted) in the same room should have the same pathogen infection or colonization status to the greatest extent possible. (*Standard Practice*)
5. Any time room sharing occurs, practices need to be in place to limit potential for cross-contamination, including ready access to hand hygiene supplies, changing PPE between roommates, and dedicating patient care items or cleaning and disinfecting shared equipment after each use. (*Standard Practice*)

Transport of Patients: *Recommendations*

Patient considerations

1. Patients under Transmission-Based Precautions (with the exception of Enhanced Barrier Precautions alone) should leave their room only when medically necessary for their evaluation or care. (*Standard Practice*)
2. If the patient is being isolated for a pathogen transmitted through the air, they should use source control, (i.e., wear a mask), any time they are outside of their room, unless a mask is medically contraindicated or the individual is not capable of wearing a mask safely. (*Standard Practice*)

Transport of Patients: *Recommendations (cont.)*

Patient considerations

3. If the patient is cared for using Contact Precautions for a pathogen transmitted by touch, appropriate barriers (e.g., clean patient gown, wrapping sheet, or impervious dressing) should be used to cover affected areas of the patient's body during transport when infectious skin lesions or drainage are present. (*Standard Practice*)

Transport of Patients: *Recommendations (cont.)*

Patient considerations

4. Before transport, direct communication with the HCP receiving the patient is required to ensure notification regarding the nature of the infection, the type of Transmission-Based Precautions required, and when the patient will arrive. (*Standard Practice*)
 - a. Communication at time of transport applies to within-facility transfers and between-facility transfers. (*Standard Practice*)

Transport of Patients: *Recommendations (cont.)*

Transporter considerations

1. HCP transporting patients should follow Standard Precautions for pathogens to avoid spreading infectious material during transport. (*Standard Practice*)
 - a. This includes performing hand hygiene before beginning transport, ensuring that wheelchairs and gurneys used for transport have been cleaned and disinfected prior to use, putting on all appropriate PPE prior to contact with the patient when assisting with patient movement at the destination location, and removing and discarding soiled PPE. (*Standard Practice*)

Transport of Patients: *Recommendations (cont.)*

Transporter considerations

2. PPE might be recommended during transport in certain circumstances:
 - a. When transporting a patient with a pathogen that presents a high risk for morbidity and mortality for HCP (e.g., Ebola virus), all pathogen-recommended PPE should be used. (*Expert opinion*)
 - b. When transporting a patient with a pathogen transmitted through the air, the transporter should carry a mask or respirator with them based on the recommended Transmission-Based Precaution category. If the patient is unable to wear a mask for source control or if the patient will require medical care during transport (e.g., suctioning), the transporter should put on a mask or respirator prior to assisting the patient. (*Expert opinion*)

Transport of Patients: *Recommendations (cont.)*

Transporter considerations

2. PPE might be recommended during transport in certain circumstances: (cont.)
 - c. When transporting a patient with a pathogen transmitted by touch, gloves might be used if there is a need to touch the patient during transport (e.g., a clean pair of non-sterile gloves can be carried, put on prior to assisting the patient and discarded immediately afterward and followed with hand hygiene).
(Expert opinion)

Transport of Patients: *Recommendations (cont.)*

Transporter considerations

3. If a patient on Special Air Precautions is unable to wear source control, or if a patient is on Extended Air Precautions for a highly contagious infection (e.g., varicella or measles), the transport route and process should include a selection of the time and route of travel within a facility to minimize exposure of others during transport (*Expert Opinion*), and use of appropriate PPE by staff during transport and at the destination location. (*Standard Practice*)

Use of Personal Protective Equipment by Visitors: *Narrative*

- The use of PPE (e.g., gowns, gloves, or masks) by visitors in healthcare settings may be considered, particularly in settings where they are providing hands-on care and having very close patient contact (e.g., feeding, dressing). In these situations, visitors may have contact with other patients or the environment and could contribute to transmission if PPE is not used. Specific recommendations may vary by facility or by unit and are determined by the level of interaction and the suspected or proven infection for which Transmission-Based Precautions might be recommended.

Visitors as Sources of Infection: *Narrative*

- Visitors, including patient family members, have been identified as the source of several types of healthcare-associated infections (e.g., pertussis, *M. tuberculosis*, and respiratory viruses). Visitor symptom screening can reduce risk of healthcare-associated infections and may be especially important for high-risk patient care areas, such as oncology and neonatal intensive care units.
- Visitor symptom screening may be passive (e.g., using signs that alert visitors with symptoms of infection not to enter clinical areas) or active (e.g., asking each visitor to report current symptoms and recent exposures to persons with infection or relevant travel, with subsequent review by facility staff to determine whether the visitor can proceed with visitation).

Discontinuation of Transmission-Based Precautions: *Narrative*

- In general, Transmission-Based Precautions are intended to remain in effect for limited periods of time (i.e., while the risk for transmission of the infectious agent persists or for the duration of the illness). For most infectious diseases, this duration reflects known patterns of persistence and shedding of infectious agents associated with the natural history of the infectious process and its treatment. Colonization with MDROs can persist for months to years.

Discontinuation of Transmission-Based Precautions: *Narrative (cont.)*

- In acute care hospitals, Contact Precautions are often left in place throughout the entire admission or may have a set duration based on repeat testing or symptom resolution.
- In nursing homes, Enhanced Barrier Precautions are used to better accommodate the communal and residential environment of the setting, and are left in place for the duration of the resident's stay or until their risk factors have resolved (e.g., indwelling medical device is removed or wound is healed).
- Refer to [Appendix A \(2007\)](#) for pathogen/disease specific recommendations.

Next Steps

- Today, we presented the first draft of an update to the 2007 Isolation Precautions Guidelines to HICPAC for consideration.
 - Portions of this two-day meeting are dedicated to detailed discussion and review of the guidelines. If ready, HICPAC members will vote at the conclusion of this two-day meeting on whether the draft guideline is ready for CDC review followed by 60-day public comment period via Federal Register.
 - Comments received during the 60-day public review period will inform draft guideline revision by HICPAC and CDC, which will occur before any future HICPAC consideration of the draft guideline for a final meeting discussion and vote in 2024 (projected).

Thank you

