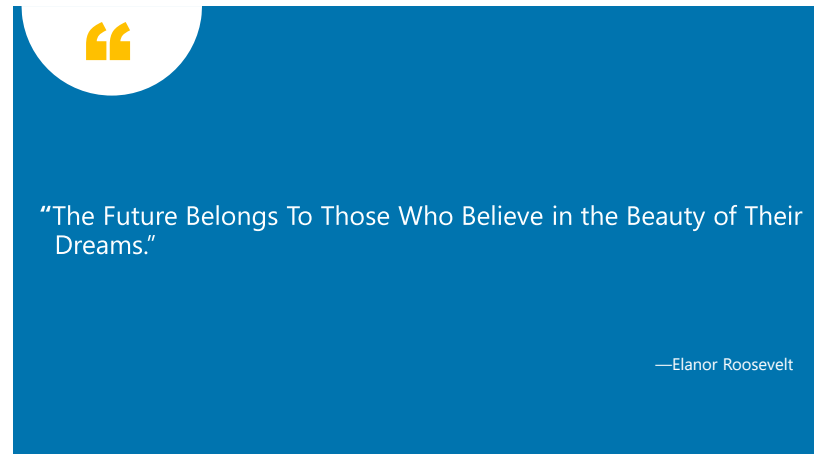


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INTRODUCTION

New to Infection Prevention?

Story of a new Infection Preventionist

What will be your story?

Topics Covered

1

Standard & Transmission-Based Precautions

2

Contact, Droplet, Airborne, Enhanced Barrier, and Protective Environment in Patient Care Setting Differences

3

Multi-Drug Resistant Organisms and Horizontal & Vertical Approaches

4

Emerging Technologies in the prevention of pathogen transmission

1

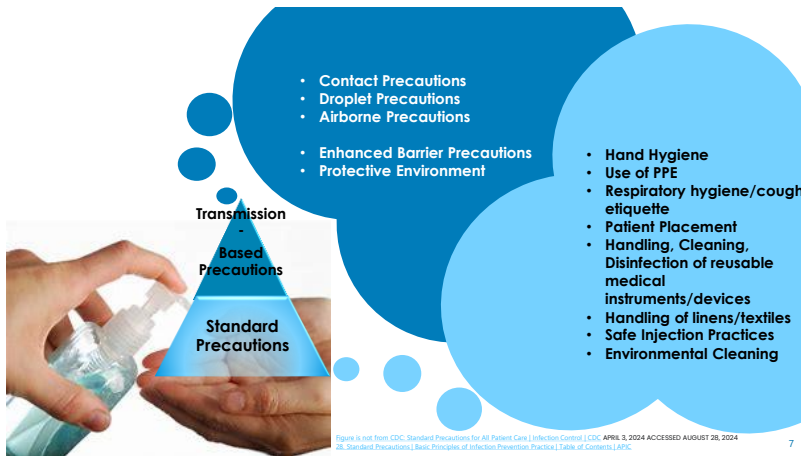
Standard & Transmission-Based Precautions

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Standard Precautions

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Isolation in Different Care Settings

The Healthcare Infection Control Practices Advisory Committee (HICPAC) and CDC are reviewing and potentially revising Standard and Isolation Precautions guidelines

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Used for diseases transmitted by contact with the patient or the patient's environment.

- Use Gown & Gloves for ALL cares
- Single Room Placement preferred
- Clean room daily with a focus on high touch areas, bathrooms, and areas close to patient
- Limit transport outside of room to medically necessary purposes:
 - Cover/contain potentially infectious body fluids before transport
 - Discard PPE before transporting and Don clean PPE to handle the patient at the destination

Isolation Precautions (Transmission-based Precautions) APIC Text 2014 [Isolation Precautions](#) (Transmission-based Precautions). In Basic Principles of Infection Prevention Practice. 1 Table of Contents. 1 APIC, accessed August 28, 2024.

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Contact Precautions in Alternative Care Settings

Ambulatory/Outpatient Settings:

Place in contact precautions within examination rooms as soon as possible, proper cleaning/disinfection after leaving

Home Care: Limit items taken into home environment to reduce waste. Place a protective barrier down when laying down equipment.

Rehabilitation, Long Term Care, and Behavioral Health:

Evaluate proper placement (i.e. new joint replacement shouldn't go in with someone with MRSA)

Heavy consideration to needs of patient and determination if "enhanced barrier" is more appropriate (therapies, groups, etc.)

Can wounds, bodily fluids, etc. be contained

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CONTACT/ENTERIC

Not a "Formal" CDC Category

Used for Viral and Bacterial Diarrheal Diseases:
i.e. Norovirus, Clostridiodes difficile, Gastroenteritis Etc.

Same Principals as Contact in addition to:
Soap/Water + Sporicidal Bleach cleaning/disinfection

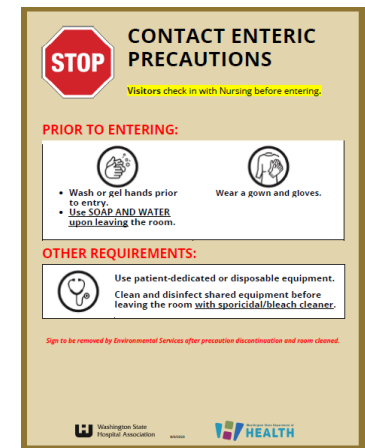
CDC: "Over half of all norovirus outbreaks reported in the US occur in long-term care facilities."

American Journal of Infection Control:
"Norovirus occurred most often in behavioral health and rehabilitation/long-term acute care units."

Norovirus Outbreaks | Norovirus | CDC. Updated June 21, 2024, accessed August 28, 2024. Rhinehart L, Walker S, Murphy D, O'Reilly K, Leeman P. Frequency of outbreak investigations in US hospitals: results of a national survey of infection preventionists. Am J Infect Control. 2012 Feb;40(1):2-8. doi: 10.1016/j.ajic.2011.10.003. PMID: 22300590.

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Used for diseases caused by large respiratory droplets that are generated by coughing, sneezing, or talking.

- Surgical mask on room entry
- Handle items contaminated with respiratory secretions (e.g., tissues, handkerchiefs) with gloves. Change PPE between patients and perform hand hygiene.
- Single room is preferred
- Clean daily with focus on high touch and horizontal surfaces
- Instruct patients or residents on respiratory hygiene and cough etiquette.
- Limit patient transport outside the room to medically necessary purposes.
- If the patient must leave the room, instruct the patient to wear a surgical mask and follow respiratory hygiene and cough etiquette.
- Once the patient is masked, the patient transporter does not need to wear a surgical mask.
- Notify the receiving department of the isolation precautions status.

Isolation Precautions (Transmission-based Precautions) APIC Text 2014 Isolation Precautions (Transmission-based Precautions) 1. Basic Principles of Infection Prevention Practice 1. Table of Contents 1 APIC, accessed August 28, 2014



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Droplet Precautions in Alternative Care Settings

Ambulatory/Outpatient Settings:

Patients who present with clinical respiratory syndromes should be instructed in the practice of respiratory hygiene and cough etiquette and given surgical masks to wear until an examination room can be provided.

HCP should wear surgical masks upon entry.

Rehabilitation, Long Term Care, and Behavioral Health:

Case-by-Case basis after considering all options.

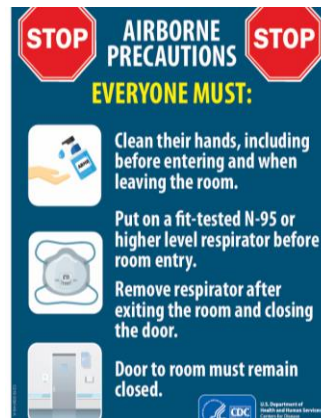
*Respiratory organisms can be responsible for institutional outbreaks in these settings.

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Used to prevent transmission of infectious organisms that remain suspended in the air and travel great distances due to their small size.

- Place patient in airborne infection isolation room with negative air pressure relative to corridor (AIIR= airborne infection isolation room)
- 6-12 air exchanges per hour
- Air exhausted directly outside
- Monitor the air pressure daily with visual indicators (e.g., smoke tubes, flutter strips) and electronic methods (e.g., maintenance air exchange reports) when possible. **Keep the door shut.**
- **Wear fit-tested NIOSH approved N-95 respirator.**
- Limit transport of patients to essential medical purposes. If transport out of AIIR is necessary place a surgical mask on the patient and instruct him/her to observe respiratory hygiene and cough etiquette.
- Do not place an N95 on the patient, as this may further hinder their ability to breathe given their compromised respiratory status.
- Cover exposed skin lesions with clean bandages and/or clean linens.
- Transport personnel do not need to wear respiratory protection during transport if the patient is masked and all skin lesions are covered.

Isolation Precautions (Transmission-based Precautions) APIC Text 2014 [Isolation Precautions](#) (Transmission-based Precautions). J. Basic Principles of Infection Prevention Practice. 1 Table of Contents. 1 APIC, accessed August 28, 2024.



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Airborne Precautions in Alternative Care Settings

Ambulatory/Outpatient Settings:

Develop protocols to identify patients with known or suspected airborne infections

Place patient in Airborne Isolation Room as soon as possible. If A.I.I is not available, place in an exam room with a portable HEPA filter. If a HEPA filter is not available, ensure the patient wears a surgical mask. Keep the door closed.

Home Care: Encourage virtual/telephone visit if possible

Rehabilitation, Long Term Care, and Behavioral Health:

Case-by-Case basis after considering all options.

Respiratory organisms can be responsible for institutional outbreaks in these settings.

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Enhanced Barrier-LTC

When contact precautions do not otherwise apply for LTC residents with history of specific drug-resistant organisms transmitted by touch or contact. ***Residents at high risk for MDRO colonization such as wounds, indwelling medical devices.

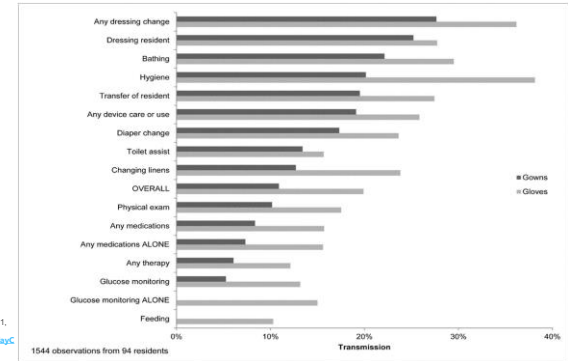
- Use of gowns and gloves for high contact resident care activities
- Private room is not required
- Residents can participate in group activities
- Duration= entire length of stay
- Clean daily with focus on high touch surfaces, patient bathrooms, and areas close to the patient

CMS: is not coded as transmission-based precautions

CDC Implementation of Personal Protective Equipment (PPE) Use in Nursing Homes to Prevent Spread of Multidrug-resistant Organisms (MDROs) <https://www.cdc.gov/nac/contaminant/PPE-Nursing-Homes.html>



VA: 7 Community Living Centers Across 4 States



AJIC: American Journal of Infection Control, 2017-09-01, Volume 45, Issue 9. <https://www.clinicalkey.com/nursing/j/!/content/playC?contentId=2.050156655317302006?scrollTo=%23h0000765>

Protective Environment

A protected environment is recommended for allogeneic hematopoietic stem cell transplant (HSCT) recipients to reduce the risk of invasive environmental fungal infections and other opportunistic pathogens

Facilities may choose to implement some of the measures below for certain immunocompromised patients other than those undergoing HSCT. This evaluation is primarily based on a daily absolute neutrophil count (ANC).

- Filter incoming air with HEPA filtration at positive pressure in relation to the corridor at 12 air exchanges per hour.
- Air pressure should be monitored daily with visual indicators (e.g. smoke tubes, flutter strips)
- Clean rooms with techniques that minimize dust (wet dusting)

Prohibit dried/fresh flowers or potted plants

Limit the time the patient spends outside the Protective Environment

Isolation Precautions (Transmission-based Precautions) APIC, Fall 2014 | Isolation Precautions (Transmission-based Precautions) | Basic Principles of Infection Prevention | <https://www.cdc.gov/eid/content/19/10/1666-1670.html> | August 28, 2024

Special Pathogens

Ebola, Zika....COVID-19

Control of Communicable Diseases Manual, 21st Edition APHA Press

CDC Guideline for Isolation Precautions: Preventing Transmission of Infectious Agents in Healthcare Settings "Appendix A" Isolation Precautions | Guidelines Library | Infection Control | CDC

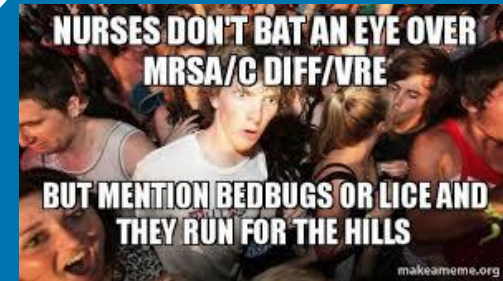
Red Book: 2021–2024 Report of the Committee on Infectious Diseases (32nd edition)



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Control of Multi-Drug Resistant Organisms (MDRO)

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Control.....



Surveillance: identify and trend MDRO incidence and infection rates in order to identify priority needs. Translate data to risk assessment to drive policy and procedure



Education: should be facility-wide and include rates, trends, & prevention strategies



Administrative Controls: computer alerts to identify previously infected and colonized patients, PPE supplies and easy access, provision of adequate hand washing sinks and alcohol-based hand rub dispensers, and enforcing adherence to hand hygiene and isolation practices

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Intervention: The Method Varies

Vertical Approach

Aim to reduce colonization, infection, and transmission of specific pathogens
Often uses active surveillance testing to identify carriers
Measures/practices aim to prevent transmission from carriers to other patients

Horizontal Approach

Aim to reduce broad array of pathogens
Implementation of standardized practices
Measures/practices do not depend on patient-specific conditions

Septimus, E., Weinstein, R. A., Perl, T. M., Goldmann, D. A., & Yokoi, D. S. (2014). Approaches for Preventing Healthcare-Associated Infections: Go Long or Go Wide? *Infection Control & Hospital Epidemiology*, 35(52).

Wenzel, R. P., & Edmond, M. B. (2010). Infection control: the case for horizontal rather than vertical interventional programs. *International Journal of Infectious Diseases*, 14.

*Slide adopted from Kate Tyrner

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Reliable Implementation is Key

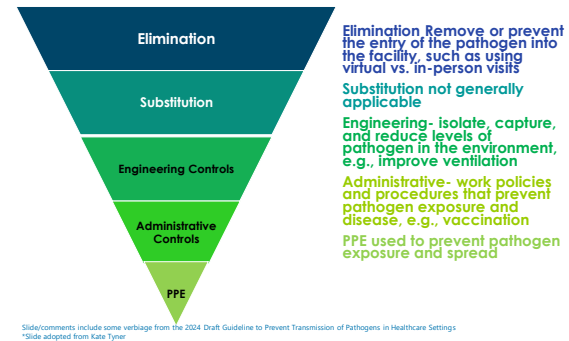


- Are policies and procedures up-to-date and accessible to staff members
- Does facility-wide training occur
 - Upon hire?
 - Annually?
 - Are personnel required to demonstrate competency after training?
- Are audits performed?
- Is audit data reported to frontline employees regularly?
- What is the process for improvement when non-adherence is observed?

Slide used from Kate Tyner's Transmission Based Precautions

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Hierarchy of Controls



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Emerging Technologies

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**Feedback Devices:**

- Electronic Hand Hygiene Monitoring Systems & Artificial Intelligence
- Simulation Technology

Engineering Controls:

- HVAC: Ventilation, Filtration and Pressure Relationships*
- Water Filtration and Design

Latest Advancements in Infection Prevention Technology Infection Control Today, September 2022, (Vol. 26, No. 7)

Current and Future Directions in Fluorescence Imaging-Guided Debridement Advances in Wound Care, July 2024

*Control of Infectious Aerosols ASHRAE 241-2023

Marfisi M, Giovannangelini F, Rotunno S, Bombalito CM, Montomali E. Water and air ozone treatment as an alternative sanitizing technology. J Prev Med Hyg. 2017;92(5):1548-1552. PMID: 28515431; PMCID: PMC5432778.

[Guidelines for Environmental Infection Control \(EICC\) \(cdc.gov\)](#)

[Upper-Room Ultraviolet Germicidal Irradiation \(UVGI\) \(cdc.gov\)](#)

Air & Surface Disinfection:

- Ultraviolet-C (UV-C) for surface, air/HVAC
(The CDC does not endorse any product)
- Dry Hydrogen Peroxide (DHP)
- Hydrogen Peroxide Vapor (HP)
- Ozone Treatments: Water and Air

(The CDC has not made recommendations regarding these technologies)

- Antimicrobial Textiles-Copper and Silver Impregnated

Surface Sampling:

- Adenosine Triphosphate (ATP) hygiene monitoring
- Autofluorescence imaging (AF) for bacterial detection

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RECAP

Standard Precautions are always in place. Signage is not necessary when encountering blood and bodily fluids.

Transmission Based Precautions vary facility to facility. Know your resources.

Continue to watch for updates to the CDC's "Guideline for Isolation Precautions: Preventing Transmission of Infectious Agents in Healthcare Settings"

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Welcome to Infection Prevention!

THANK YOU

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