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RECOMMENDED PRACTICES TO INTERRUPT TRANSMISSION OF INFECTIOUS AGENTS

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HISTORY OF ISOLATION PRECAUTIONS

- ▶ 1983 CDC Isolation Precautions in Hospital
Category-based precautions (Airborne Isolation, Droplet and Contact) plus blood and body fluids precautions
- ▶ 1985 Introduced Universal Precautions all patients considered infectious regardless of testing (*OSHA uses term universal precautions in BBP rule*)
- ▶ 1987 Body Substance Isolation
 - focused on worker protection
- ▶ 1996 CDC HICPAC Revised Isolation Guidelines
 - Introduced Standard Precautions and kept 3 categories of transmission-based precautions

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GUIDANCE DOCUMENTS


- ▶ 2007 Guideline for Isolation Precautions: Preventing Transmission of Infectious Agents in Healthcare Settings-**revised and added:**
 - ▶ Safe Injection Practices
 - ▶ Respiratory Hygiene/Cough Etiquette
 - ▶ Use of mask during spinal procedures
- ▶ Management of Multi-drug resistant organisms (2006)
- ▶ Implementation of Personal Protective Equipment (PPE) use in nursing homes to prevent spread of multidrug-resistant organisms (6/22)
 - ▶ EBPs
 - ▶ QSO-24-8-NH (3/20/24)

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KEY CONCEPTS

- ▶ Risk of transmission of infectious agents occurs in all settings
- ▶ Infections are transmitted from patient-to-patient via HCPs hands or medical equipment/devices
- ▶ Unidentified patients who are colonized or infected may represent risk to other patients
- ▶ Isolation precautions are **only part** of a comprehensive IP program



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FUNDAMENTAL ELEMENTS -

- ▶ Administrative support
- ▶ **Adequate Infection Prevention staffing**
- ▶ Good communication with clinical microbiology lab and environmental services
- ▶ A comprehensive educational program for HCPs, patients, and visitors
- ▶ **Infrastructure support** for surveillance, outbreak tracking, and data management

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CONTROLLING TRANSMISSION OF INFECTION




If there is a **means of transmission**, infection will spread to others.

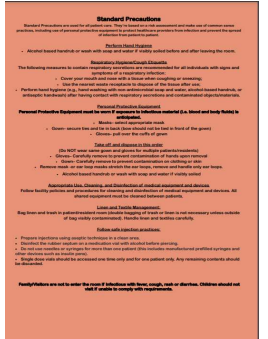
Standard Precautions
Transmission-Based Precautions

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STANDARD PRECAUTIONS





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2007 Guideline for Isolation Precautions: Preventing Transmission of Infectious Agents in Healthcare Settings

Jane D. Siegel, MD, Emily Rhinehart, RN MPH CIC, Margerite Jackson, PhD, Linda Chiarello, RN MS, the Healthcare Infection Control Practices Advisory Committee

Acknowledgement: The authors and HICPAC gratefully acknowledge Dr. Larry Strausbaugh for his many contributions and valued guidance in the preparation of this guideline.

Suggested citation: Siegel JD, Rhinehart E, Jackson M, Chiarello L, and the Healthcare Infection Control Practices Advisory Committee. 2007 Guideline for Isolation Precautions: Preventing Transmission of Infectious Agents in Healthcare Settings. <http://www.cdc.gov/hicpac/2007isolation/2007.pdf>

➤ **Implementation of Standard Precautions constitutes the primary strategy for the prevention of healthcare-associated transmission of infectious agents among patients and healthcare personnel**



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HAND HYGIENE

➤ After touching blood, body fluids, secretions, excretions, contaminated items; immediately after removing gloves; between resident contacts.

➤ **When hands are visibly dirty or contaminated with proteinaceous material or are visibly soiled with blood or other body fluids, wash hands with either a nonantimicrobial soap and water or an antimicrobial soap and water**

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How to hand wash

Palms, interlaced fingers




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ALCOHOL BASED HAND RUB

➤ **Unless hands are visibly soiled, an alcohol-based hand sanitizer is preferred over soap and water in most clinical situations.**



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How to hand rub

20-30 seconds total



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HAND HYGIENE PROGRAM

ESSENTIAL PRACTICES = QUALITY OF EVIDENCE HIGH

- ▶ Promote the preferential use of ABHS in most clinical situations
- ▶ Perform HH as indicated by CDC **OR** the WHO Five moments
- ▶ HCP who provide direct or indirect care in high-risk areas (e.g, ICU, perioperative) should not wear artificial fingernail extenders
- ▶ Engage all HCP in primary prevention of occupational irritant and allergic contact dermatitis
- ▶ Provide facility-approved hand moisturizer that is compatible with antiseptics and gloves
- ▶ For routine hand hygiene, choose liquid, gel or foam ABHS with at least 60% alcohol

<https://doi.org/10.1017/ice.2022.304>

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HAND HYGIENE PROGRAM

ESSENTIAL PRACTICES = QUALITY OF EVIDENCE HIGH

- ▶ Involve HCP in selection of products
- ▶ Educate HCP about an appropriate volume of ABHS and the time required to obtain effectiveness
- ▶ Ensure that ABHS dispensers are unambiguous, visible, and accessible within the workflow of HCP
- ▶ In private rooms, consider 2 ABHS dispensers the minimum threshold for adequate number of dispensers: 1 dispenser in the hallway, and 1 in the patient room

<https://doi.org/10.1017/ice.2022.304>

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HAND HYGIENE PROGRAM

ESSENTIAL PRACTICES = QUALITY OF EVIDENCE HIGH

- ▶ Educate HCP about the potential for self-contamination and environmental contamination when gloves are worn
- ▶ *Clean hands immediately following glove removal. If handwashing is indicated (C. difficile, norovirus) and sinks are not immediately available, use ABHS and then wash hands as soon as possible.*
- ▶ Educate and confirm the ability of HCP to doff gloves in a manner that avoids contamination.
- ▶ Take steps to reduce environmental contamination associated with sinks and sink drains
- ▶ *Do not keep medications or patient care supplies on countertops or mobile surfaces that are within 1 m (3 feet) of sinks*
- ▶ Monitor adherence to hand hygiene

<https://doi.org/10.1017/ice.2022.304>

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APPROACHES THAT SHOULD NOT BE CONSIDERED A ROUTINE PART OF HH




- ▶ Do not supply individual pocket-sized ABHS dispensers in lieu of accessible wall-mounted dispensers
- ▶ Do not refill or “top-off” soap dispensers, moisturizer dispensers or ABHS dispensers
- ▶ Do not use antimicrobial soaps formulated with triclosan
- ▶ Do not routinely double-glove
- ▶ Do not remove access to ABHS when responding to organisms such as *C. difficile* or norovirus
- ▶ Do not disinfect gloves during care

<https://doi.org/10.1017/ice.2022.304>

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STANDARD PRECAUTIONS

Component	Recommendation
Personal Protective Equipment (PPE)	
Gloves 	For touching blood, body fluids, secretions, excretions, contaminated items; for touching mucous membranes and non-intact skin
Gown 	During procedures and resident-care activities when contact of clothing/exposed skin with blood/body fluids, secretions, and excretions is anticipated
Mask, eye protection 	During procedures and resident-care activities likely to generate splashes or sprays of blood, body fluids, secretions, especially suctioning, endotracheal intubation

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USE OF PERSONAL PROTECTIVE EQUIPMENT (PPE)



- ▶ Perform and maintain an inventory of PPE – monitor daily PPE use
- ▶ Make necessary PPE available where patient care is provided
- ▶ Position trash can near the exit inside the room for disposal
- ▶ Implement strategies to optimize current PPE supply – even before shortages occur

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USE OF PERSONAL PROTECTIVE EQUIPMENT (PPE)



- ▶ Three overriding principals related to personal protective equipment (PPE)
 - ▶ Wear PPE when the nature of the anticipated patient interaction indicates that contact with blood or body fluids may occur
 - ▶ Prevent contamination of clothing and skin during the process of removing PPE
 - ▶ Before leaving the patient's room, remove and discard PPE –respirators removed after leaving

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SAFE WORK PRACTICES (PPE USE)

- ✓ Keep hands away from face
- ✓ Work from clean to dirty
- ✓ Limit surfaces touched
- ✓ Change when torn or heavily contaminated
- ✓ Perform hand hygiene

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Personal Protective Equipment (PPE)

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Component	Recommendation
Soiled equipment	Handle in a manner that prevents transfer of microorganisms to others and to the environment; wear gloves if visibly contaminated; perform hand hygiene
Environmental Control	Develop procedures for routine care, cleaning, and disinfection of environmental surfaces, especially frequently touched surfaces in resident-care areas
Laundry	Handle in a manner that prevents transfer of microorganisms to others and to the environment
Needles and sharps	Do not recap, bend, break, or hand-manipulate used needles; if recapping is required, use a one-handed scoop technique only; use safety features when available; place used sharps in puncture-resistant container
Resident Resuscitation	Use mouthpiece, resuscitation bag, other ventilation devices to prevent contact with mouth and oral secretions

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Component	Recommendation
Patient placement	Prioritize for <u>single room</u> if patient is at increased risk of transmission, is likely to contaminate the environment, does not maintain appropriate hygiene, or is at increased risk of acquiring infection or developing adverse outcome following infection.
Respiratory hygiene/cough etiquette	Instruct symptomatic persons to cover mouth/nose when sneezing/coughing; use tissues and dispose in no-touch receptacle; observe hand hygiene after soiling of hands with respiratory secretions; wear surgical mask if tolerated or maintain spatial separation, >3 feet if possible.
Respiratory secretions in symptomatic persons, beginning at initial point of encounter)	

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Component	Recommendation
Safe Injection Practices	<p>Apply to the use of needles, cannulas that replace needles, and, where applicable intravenous delivery systems</p> <ul style="list-style-type: none"> • Use aseptic technique • Needles, cannulae and syringes are sterile, single-use items • Use single-dose vials for parenteral medications whenever possible • Do not administer medications from single-dose vials or ampules to multiple residents • Do not keep multidose vials in the immediate resident treatment area • Do not use bags or bottles of IV solution as a common source of supply for multiple residents
Special Lumbar Procedures	Wear a surgical mask when placing a catheter or injecting material into the spinal canal or subdural space

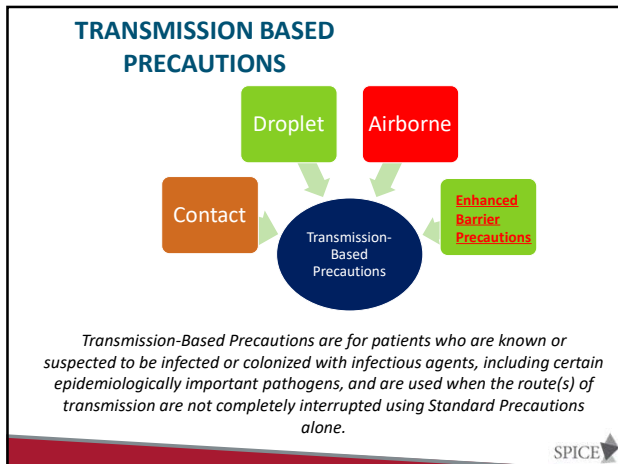
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RECOMMENDED PRACTICES TO REDUCE TRANSMISSION IN ALL SHARED ROOMS

- ▶ When patients are placed in shared rooms, facilities must implement strategies to help minimize transmission between roommates.
- ▶ These strategies apply for all shared rooms, regardless of patient colonization or infection status:
 - 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 mopheads, 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.


<https://www.cdc.gov/fungal/candida-auris/c-auris-infection-control.html#:~:text=Healthcare%20providers%20and%20in%20the%20same%20room,>

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SOURCES OF INFECTION



- ▶ Humans
 - ▶ Patients
 - ▶ Healthcare Personnel
 - ▶ Visitors/household members
- ▶ Environmental
- ▶ Common Vehicles
- ▶ Vectorborne

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Host Factors

- Age
- Immobility
- Incontinence
- Dysphagia
- Chronic Diseases
- Poor Functional Status
- Medications
- Indwelling devices

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ROUTES OF TRANSMISSION



- ▶ Direct Contact
- ▶ Indirect Contact
- ▶ Droplet
- ▶ Aerosol (Airborne)

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CONTACT PRECAUTIONS
PRECAUCIONES DE TRANSMISION POR CONTACTO

STOP **ALTO**

Everyone must:
Clean hands before entering and when leaving room.
Todos deben:
Lavarse las manos cuidadosamente antes de entrar a la habitación y después de salir de la habitación.

All Healthcare Personnel must:
Todo el personal de atención médica debe:
Wear gloves when entering room and remove before leaving room.
Usar guantes al entrar a la habitación y quitárselos antes de salir de la habitación.
Wear a gown when entering room and remove before leaving.
Usar una bata al entrar a la habitación y quitársela antes de salir.
Use patient-dedicated or single-use disposable equipment, if shared equipment is used clean and disinfect between patients.
Usar equipo desechable de un solo uso o designado al paciente. Si se utiliza equipo compartido, limpiar y desinfectar cuidadosamente entre pacientes.

Additional PPE may be required per Standard Precautions.
Es posible que se requiera utilizar equipo de protección personal adicional según las precauciones estándar.

Common conditions:
Methicillin-resistant Staphylococcus aureus (MRSA)
Clostridium difficile (C. diff)
Enterobacteriaceae resistant to carbapenems (CRE)
Extended-spectrum beta-lactamase-producing Gram-negative bacilli (ESBL-GNB)
Candida auris
Other multidrug-resistant organisms
Scabies
Uncontained draining wounds or abscesses
Rabies

Room Placement:
Use private room when available. When private rooms are unavailable, place together in the same room persons who are colonized or infected with the same pathogen.

Personal Protective Equipment:
Gloves and gown when entering and exiting room.
Gown: secure ties and fasten back from behind (not in front of the gown).
Gloves: use only the cuffs of glove.
Take off and dispose in the room.
Gloves: Carefully remove to prevent contamination of hands upon removal.
Gown: Carefully remove to prevent contamination of clothing or skin.
Avoid hand contact with gown neck and waist. If visibly soiled, decontaminate.

Room Cleaning:
No special precautions. Should be managed in accordance with routine procedures.

Transport and Linen Management:
Bag linen and trash in patient's room or in hallway, trash or linen is not necessary on transport.
Essential transport only. Place and disinfect transport equipment. Alert receiving department regarding patient/resident isolation precautions status.

Transport:
Essential transport only. Place and disinfect transport equipment. Alert receiving department regarding patient/resident isolation precautions status.

Duration of Precautions:
For all multidrug-resistant organisms, follow guidance and recommendations from CDC (Management of Multidrug-resistant Gram-negative Bacteria) and SHEA (Duration of Contact Precautions for Acute-Care Settings).
For other guidance for duration of precautions, follow Appendix A, Type and Duration of Precautions Recommended for Selected Multidrug-resistant Organisms with the CDC's STOP Guidelines for Prevention and Control of Infection in Long-Term Care Facilities.
Preventing Transmission of Infection Agents in Healthcare Settings.

REVISÉ DATE: 1/20/22

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DIRECT AND INDIRECT CONTACT TRANSMISSION

DIRECT CONTACT: SKIN TO SKIN TOUCHING

INDIRECT CONTACT: INANIMATE SURFACES

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CONTACT PRECAUTIONS

- Common conditions:
 - MRSA,
 - VRE,
 - CRE,
 - ESBL-GNR,
 - Candida auris,
 - Scabies,
 - Uncontained draining wounds or abscesses
- Private room if available
- Don gown and gloves when entering the room
- Disposable or dedicated equipment
- Transport patients in a fresh gown

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The Large Burden of MDROs in Nursing Homes

Facility Type	Documented MDRO	Actual MDRO
Nursing Homes (n = 14)	17%	58%
Ventilator-Capable Nursing Homes (n = 4)	20%	76%

McKinnell JA et al, Clin Infect Dis. 2019; 69(9):1566-1573

Slide acknowledgement CDC presentation

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ENHANCED BARRIER PRECAUTIONS (EBP)
PRECAUCIONES CON BARRERAS REFORZADAS (CEBARRAS)

STOP **ALTO**

Everyone must:
Clean hands before entering and after leaving room.
Todos deben:
Lavarse las manos antes de entrar y después de salir de la habitación.

All Healthcare Personnel must:
Todo el personal de atención médica debe:
Wear gloves and gown for the following High-Contact Resident Care Activities:
Dressing/Bathing/Showering
Transferring
Changing Linens
Providing Hygiene
Changing briefs or assisting with toileting
Device care of use: central line, urinary catheter, feeding tube, tracheostomy
Wound Care, any skin opening requiring a dressing

Additional PPE may be required per Standard Precautions.
Es posible que se requiera utilizar equipo de protección personal adicional según las precauciones estándar.

Enhanced Barrier Precautions:
Not intended for acute care or long-term acute care (LTAC) facilities with use of the following:
Methicillin-resistant Staphylococcus aureus (MRSA)
Clostridium difficile (C. diff)
Enterobacteriaceae resistant to carbapenems (CRE)
Extended-spectrum beta-lactamase-producing Gram-negative bacilli (ESBL-GNB)
Candida auris
Other multidrug-resistant organisms
Scabies
Uncontained draining wounds or abscesses
Rabies

Room Placement:
Use private room when available. When private rooms are unavailable, place together in the same room persons who are colonized or infected with the same pathogen.

Personal Protective Equipment:
Gloves and gown when entering and exiting room.
Gown: secure ties and fasten back from behind (not in front of the gown).
Gloves: use only the cuffs of glove.
Take off and dispose in the room.
Gloves: Carefully remove to prevent contamination of hands upon removal.
Gown: Carefully remove to prevent contamination of clothing or skin.
Avoid hand contact with gown neck and waist. If visibly soiled, decontaminate.

Room Cleaning:
No special precautions. Should be managed in accordance with routine procedures.

Transport and Linen Management:
Bag linen and trash in patient's room or in hallway, trash or linen is not necessary on transport.
Essential transport only. Place and disinfect transport equipment. Alert receiving department regarding patient/resident isolation precautions status.

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For other guidance for duration of precautions, follow Appendix A, Type and Duration of Precautions Recommended for Selected Multidrug-resistant Organisms with the CDC's STOP Guidelines for Prevention and Control of Infection in Long-Term Care Facilities.
Preventing Transmission of Infection Agents in Healthcare Settings.

REVISÉ DATE: 7/26/2023

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Implementation of Personal Protective Equipment (PPE) Use in Nursing Homes to Prevent Spread of Multidrug-resistant Organisms (MDROs)

Print version: Implementation of PPE in Nursing Homes to Prevent Spread of MDROs [PDF - 7 pages]

On this Page

- Background
- Description of Precautions
- Summary of PPE Use and Room Restriction
- Implementation
- References
- Resources

Summary of Recent Changes:

- Added additional rationale for the use of Enhanced Barrier Precautions (EBP) in nursing homes, including the high prevalence of multidrug-resistant organism (MDRO) colonization among residents in this setting.
- Expanded residents for whom EBP applies to include any resident with an indwelling medical device or wound (regardless of MDRO colonization or infection status).
- Expanded MDROs for which EBP applies.
- Clarified that, in the majority of situations, EBP are to be continued for the duration of a resident's admission.

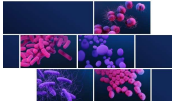
<https://www.cdc.gov/hai/containment/PPE-Nursing-Homes.html>

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MDROs TARGETED BY CDC 2019

- ▶ Pan-resistant organisms:
 - ▶ Resistant to all current antibacterial agents *Acinetobacter*, *Klebsiella pneumoniae*, *Pseudomonas aeruginosa*
- ▶ Carbapenemase-producing Enterobacterales
- ▶ Carbapenemase-producing *Pseudomonas* spp.
- ▶ Carbapenemase-producing *Acinetobacter baumannii* and
- ▶ *Candida auris*



July 2022:

- Expanded MDROs for which EPBs apply (MRSA, VRE etc.)
- Expanded residents for whom EPBs applies to include any resident with an indwelling medical device or wound (regardless of MDRO colonization or infection status)
- EPB are to be continued for the duration of the resident's stay

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ENTERIC PRECAUTIONS PRECAUCIONES DE TRANSMISION POR ALTO

ENTERICA

Family/Visitors should not visit if having signs or symptoms of an infection or a communicable disease. Visitación debe ser limitada a familiares y amigos. Los visitantes y visitantes no deben visitar si tienen signos o síntomas de una enfermedad contagiosa. Las visitas también dependen de la política de la institución de una enfermedad contagiosa. Antes de entrar a la habitación, siga las instrucciones a continuación.

Follow instructions below before entering room.

Everyone must:

- ✓ Clean hands before entering and when leaving room.
- Todos deben:** Lavarse las manos antes de entrar y antes de salir de la habitación.

All Healthcare Personnel must:

Todo el personal de atención médica debe:

- ✓ Wear gloves when entering room and remove before leaving room.
- ✓ Use patient-dedicated or single-use disposable equipment. If shared equipment is used, clean with an EPA K list disinfectant.
- ✓ Use *any* equipment disinfectable in the list K of the EPA.

Additional PPE may be required per Standard Precautions. Es posible que se requiera equipo de protección personal adicional según las precauciones estándar.

REVISED DATE: 1/29/2022

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CONTACT → ENTERIC PRECAUTIONS

- ▶ Common conditions:
 - ▶ *Clostridioides difficile*,
 - ▶ Norovirus,
 - ▶ Rotavirus
- ▶ USE ABHR for routine care.
- ▶ During an outbreak, HCP should consider using soap & water routinely

- ▶ Private room if possible
- ▶ Gown and gloves
- ▶ Disposable or dedicated equipment
- ▶ Use EPA agent from the K list of disinfectants: Dilute Bleach, sporicidal disinfectants.

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DROPLET PRECAUTIONS PRECAUCIONES DE TRANSMISION POR GOTAS

Family/Visitors should not visit if having signs or symptoms of an infection or a communicable disease. Visitación debe ser limitada a familiares y amigos. Los visitantes y visitantes no deben visitar si tienen signos o síntomas de una enfermedad contagiosa. Las visitas también dependen de la política de la institución de una enfermedad contagiosa. Antes de entrar a la habitación, siga las instrucciones a continuación.

Follow instructions below before entering room.

Everyone must:

- ✓ Clean hands before entering and when leaving room.
- Todos deben:** Lavarse las manos antes de entrar y al salir de la habitación.

Wear surgical/procedure mask when entering the room and remove after exiting the room.

Usar una mascarilla quirúrgica o para procedimientos al entrar a la habitación y quitársela después de salir de la habitación.


Additional PPE may be required per Standard Precautions. Es posible que se requiera equipo de protección personal adicional según las precauciones estándar.

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DROPLET PRECAUTIONS

Applies when **respiratory droplets** contain pathogens which may be spread to another susceptible individual



- ▶ Common conditions:
 - ▶ Pertussis,
 - ▶ Influenza,
 - ▶ Rhinovirus,
 - ▶ Neisseria meningitidis,
 - ▶ Mumps,
 - ▶ Rubella,
 - ▶ Parvovirus B19
- ▶ Surgical or procedure mask upon entering the room
- ▶ Private room when available
- ▶ Transport patient in a medical grade mask.

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AIRBORNE PRECAUTIONS PRECAUCIONES DE TRANSMISION AEREA

Family/Visitors should not visit if having signs or symptoms of an infection or a communicable disease. Visitación debe ser limitada a familiares y amigos. Los visitantes y visitantes no deben visitar si tienen signos o síntomas de una enfermedad contagiosa. Las visitas también dependen de la política de la institución de una enfermedad contagiosa. Antes de entrar a la habitación, siga las instrucciones a continuación.

Follow instructions below before entering room.

Everyone must:


- ✓ Clean hands before entering and when leaving room.
- Todos deben:** Lavarse las manos antes de entrar y antes de salir de la habitación.
- ✓ Wear a respirator (N95) or higher level respirator prior to entering the room. Remove after exiting the room.
- ✓ Visitors-See nurse for instruction on mask or respirator selection and use.
- ✓ Use a respirator (N95) or higher level respirator when entering the room. Remove after exiting the room.
- ✓ Keep door closed. (Maintain negative pressure)
- ✓ Mantenga la puerta cerrada. (Mantener presión negativa)

Additional PPE may be required per Standard Precautions. Es posible que se requiera equipo de protección personal adicional según las precauciones estándar.

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AIRBORNE PRECAUTIONS



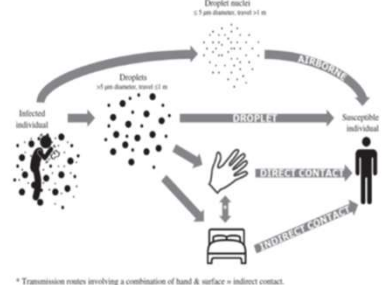
Occurs when pathogens are so small, they can easily be dispersed in the air over long distances by air currents.

- Common conditions:
 - Tuberculosis,
 - Measles

Private room only
Room requires Negative airflow pressure
Doors must remain closed
Everyone must wear an N-95 respirator
Limit the movement and transport of the patient

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TRANSMISSION-BASED PRECAUTIONS



Combinations of precautions may be necessary based on the pathogen:

- Droplet plus Contact
- Airborne plus Contact

** Transmission routes involving a combination of hand & surface + indirect contact.*

1 Procanoyan RS, et al. J Pediatr (Rio J) 2002;11 April; 2 Almendros A, et al. Vet Rec 2020;4; 3 Chin AWH, et al David Weber: Associate Chief Medical Officer, UNC Hospitals; Medical Director, Hospital Epidemiology: COVID-19 (SARS Co-V-2) Update

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STOP AIRBORNE CONTACT PRECAUTIONS ALTO

PRECAUCIONES PARA LA TRANSMISION POR CONTACTO Y POR VIA AEREA

Family/Visitors should not visit if having signs or symptoms of an infection or a communicable disease. *Evitar visitas que tengan un cuadro de enfermedad infecciosa. Las visitas también dependen de la política de la institución.*

Follow instructions below before entering room. *Antes de entrar a la habitación, leer las instrucciones y cumplirlas.*

All Healthcare Personnel must:
Todos el personal de atención médica debe:

- Clean hands before entering and when leaving room. *Lavarse las manos antes de entrar y al salir de la habitación.*
- Wear a gown when entering room and remove before leaving. *Usar una bata al entrar a la habitación y quitársela después de salir.*
- Wear N95 or higher level respirator before entering the room and remove after exiting. *Usar un respirador N95 o un respirador de nivel superior antes de entrar a la habitación y quitárselo después de salir.*
- Wear gloves when entering room and remove before leaving. *Usar guantes al entrar a la habitación y quitárselos antes de salir.*
- Keep door closed. *(Maintain negative pressure.)* *Mantener la puerta cerrada. (Mantener presión negativa.)*

Additional PPE may be required per Standard Precautions. *Es posible que se requiera utilizar equipo de protección personal adicional según las precauciones estándar.*

Airborne Contact Precautions

Remove sign after room is tentatively cleaned upon discharge or discontinuation of precautions.

Common conditions per CDC guidelines:
 Chicken flu
 Disseminated Shingles
 Smallpox
 Extrapulmonary tuberculosis (draining lesions)

Room Placement:
 Preferred placement for patients who require Airborne Precautions is in an airborne infection isolation room (AIIR). An AIIR is a single patient room that is equipped with special air handling and ventilation controls that meet the Facility Guidelines Institute (FGI) standards for AIIR. In addition, patient room placement should be in a room that is adjacent to a room with negative pressure. See the Facility Guidelines Institute (FGI) standards for AIIR. If a patient with a respiratory infection is not suitable for a health-care facility, the health-care provider should be notified if a patient will be admitted to a health-care facility or discharged to the home environment, an alternate facility or caregiver.

Personal Protective Equipment:
 Put on in this order:
 • Alcohol based handrub or wash with soap and water if visibly soiled
 • Fit tested NIOSH approved respirator (N95 or higher level respirator)
 Healthcare worker must be fit tested for respirator and refills should use same for proper use.
 • Gloves

Take off and dispose in this order:
 • Gown
 Gown: Disinfect gown ties, taking care that gloves don't contact your body when reaching for ties. Roll gown away from neck and shoulders, touching inside of gown only.
 • N95 respirator: Do NOT grasp front of respirator. Grasp bottom elastic then the sides of the top.
 • Alcohol based handrub or wash hands with soap and water if visibly soiled.

Decontaminate:
 No special precautions. Should be managed in accordance with routine procedures.

Room Cleaning:
 Follow facility policy for Airborne Contact Precautions.

Trash and Linen Management:
 Bag linen and trash in patient room (double bagging if trash or linen is not necessary unless outside of room is visibly contaminated).

Transport:
 Essential transport only. Place patient in a sealed grade mask. Clean and disinfect transport equipment. Alert receiving department regarding patient isolation precaution status.

Duration of Precautions:
 For guidance for duration of precautions, follow Appendix A, Type and Duration of Precautions Recommended for Selected Infections and Conditions within the CDC's 2007 Guidelines for Infection Prevention: Preventing Transmission of Infectious Agents in Healthcare Settings.

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AIRBORNE CONTACT PRECAUTIONS

- Common conditions:
 - Chicken Pox
 - Disseminated Shingles
 - Smallpox
 - Monkey pox
 - Extrapulmonary tuberculosis (draining lesions)
- AIIR- single-patient room with special air handling and ventilation capacity that meet the Facility Guidelines Institute (FGI) standards.
- N95 or higher respirator
- Essential transport only with patient wearing a medical grade mask
- Upon discharge allow at least one hour for air to circulate

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1. Airborne Contaminant Removal

Table B.1. Air changes/hour (ACH) and time required for airborne-contaminant removal by efficiency *

ACH #	Time (mins.) required for removal 99% efficiency	Time (mins.) required for removal 99.9% efficiency
2	138	207
4	69	104
6	46	69
8	35	52
10	28	41
12	23	35
15	18	28
20	14	21
50	6	8

* This table is revised from Table S3-1 in reference 4 and has been adapted from the formula for the rate of purging airborne contaminants presented in reference 1435.
<https://www.cdc.gov/infectioncontrol/guidelines/environmental/appendix/air.html#b1>

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STOP DROPLET CONTACT PRECAUTIONS ALTO

PRECAUCIONES DE TRANSMISION POR GOTAS Y POR CONTACTO

Family/Visitors should not visit if having signs or symptoms of an infection or a communicable disease. *Evitar visitas que tengan un cuadro de enfermedad infecciosa. Las visitas también dependen de la política de la institución.*

Follow instructions below before entering room. *Antes de entrar a la habitación, leer las instrucciones y cumplirlas.*

Everyone must:
Todos deben:

- Clean hands before entering and when leaving room. *Lavarse las manos antes de entrar y antes de salir de la habitación.*
- Wear a gown when entering room and remove before leaving. *Usar una bata al entrar a la habitación y quitársela antes de salir de la habitación.*
- Wear surgical/procedure mask when entering the room. Remove immediately before leaving room. *Usar una mascarilla quirúrgica o para procedimientos al entrar a la habitación. Quitársela justo antes de salir de la habitación.*
- Wear gloves when entering room. Perform hand hygiene after removing gloves. *Usar guantes al entrar a la habitación. Lavarse a cabo la higiene de manos después de quitarse los guantes.*

Additional PPE may be required per Standard Precautions. *Es posible que se requiera utilizar equipo de protección personal adicional según las precauciones estándar.*

Droplet Contact Precautions

Remove sign after room is tentatively cleaned upon discharge or discontinuation of precautions.

Common conditions per CDC guidelines:
 Invasive group A streptococcal infection associated with soft tissue involvement
 Adenovirus pneumonia

Room Placement:
 Use private room when available. When private rooms are unavailable, place together in the same room persons who are colonized or infected with the same pathogen.
 Spatial separation of at least 6 feet and placing the curtain between patient/room beds is especially important for patient/respirator in modified rooms, with infection transmitted by the droplet route.

Personal Protective Equipment:
 Put on in this order:
 • Alcohol based handrub or wash with soap and water if visibly soiled
 • Gown
 Surgical/procedure mask: Cover nose, mouth, and chin. If wearing a mask with ties, all ties must be secured.
 • Gloves

Take off and dispose in this order:
 • Gown: perform hand hygiene after removing gloves
 • Gown: Unfasten gown ties, taking care that gloves don't contact your body when reaching for ties. Roll gown away from neck and shoulders, touching inside of gown only.
 • Surgical/procedure mask: Do NOT grasp top of the mask when removing. Grasp bottom ties that fasten at the end and pull away from face and hands only and dispose in the trash.
 • Alcohol based handrub or wash hands with soap and water if visibly soiled.

Decontaminate:
 No special precautions. Should be managed in accordance with routine procedures.

Room and Equipment Cleaning:
 Follow facility policy for Droplet Contact Precautions for room cleaning. Use patient-dedicated or single-use disposable equipment. If shared equipment is used, clean and disinfect between patients.

Trash and Linen Management:
 Bag linen and trash in patient/room (double bagging if trash or linen is not necessary unless outside of room is visibly contaminated).

Transport:
 Essential transport only. Place patient/respirator in a medical grade mask. Clean and disinfect transport equipment. Alert receiving department regarding patient/respirator isolation precaution status.

Duration of Precautions:
 For guidance for duration of precautions, follow Appendix A, Type and Duration of Precautions Recommended for Selected Infections and Conditions within the CDC's 2007 Guidelines for Infection Prevention: Preventing Transmission of Infectious Agents in Healthcare Settings.

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DROPLET CONTACT PRECAUTIONS

- ▶ Common conditions:
 - ▶ Rhinovirus if associated with copious secretions,
 - ▶ Invasive group A streptococcal infection associated with soft tissue involvement
 - ▶ Certain coronaviruses
 - ▶ RSV (infants and young children)
- ▶ Private room or keep >3 spatial separation
- ▶ Surgical or procedure mask when entering room
- ▶ Gown and gloves on room entry and remove when leaving room
- ▶ Essential transport with patient in a medical grade mask and clean gown

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SPECIAL DROPLET CONTACT PRECAUTIONS
PRECAUCIONES ESPECIALES PARA LA TRANSMISIÓN POR CONTACTO DROPLETAS

All Healthcare Personnel must:
Toda el personal de atención médica debe:
Clean hands before entering and when leaving room.
Lavar las manos antes de entrar y salir de la habitación.

Wear a gown when entering room and remove before leaving.
Usar una bata al entrar y quitarla antes de salir.

Wear N95 or higher level respirator before entering the room and remove after exiting.
Usar un respirador N95 o un respirador de nivel superior antes de entrar a la habitación y quitárselo después de salir.

Protective eyewear (face shield or goggles)
Protección para los ojos (carcasa o gafas protectoras)

Wear gloves when entering room and remove before leaving.
Usar guantes al entrar a la habitación y quitárselos antes de salir.

Place in private room. Keep door closed (if safe to do so).
Colocar en habitación privada. Mantener la puerta cerrada (si es seguro hacerlo).

Additional PPE may be required per Standard Precautions.
Es posible que se requiera adicional según las precauciones estándar.

Special Droplet Contact Precautions
Remove sign after room is completely cleared or discontinuation of precautions.
Common conditions (see CDC guidelines): SARS, COVID-19

Personal Protective Equipment:
Goggles
Gown
Eye Protection: Remove goggles or face shield from the back by lifting head band or ear pieces.
Gloves: Unfasten gloves first, taking care that gloves don't contact your body when reaching for ties. Put gloves away back and shoulders, avoiding touch of glove only.
N95 respirator: Do NOT grasp head of the respirator. Group before removal. Then the sides of the top.
Alcohol based handrub or soap and water if readily available.

Hand Hygiene:
Follow facility policy for Special Precaution Precautions.

Trash and Linen Management:
Bag linen and trash in patient/resident room (includes bagging of trash or linen if not necessary unless inside of high-risk containment).

Transport:
Essential transport only. Place patient/resident in medical grade mask. Clean and disinfect transport equipment. Alert receiving department regarding patient/resident isolation precautions status.

Duration of Precautions:
For guidance for duration of precautions, see Appendix A, Type and Duration of Precautions Recommended for Selected Infections and Conditions within the CDC's 2007 Guidelines for Isolation Precautions: Preventing Transmission of Infectious Agents in Healthcare Settings.

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SPECIAL DROPLET CONTACT PRECAUTIONS (PRIMARYLY FOR NURSING HOMES)

- ▶ Common conditions:
 - ▶ SARS,
 - ▶ SAR-CoV-2 (COVID-19)
- ▶ Private room with door closed unless fall risk.
- ▶ Fit tested N95 or higher respirator
- ▶ Protective eyewear
- ▶ Gown and gloves
- ▶ Essential transport only with resident-resident wearing a medical grade mask

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WHEN TO DISCONTINUE TBP PRECAUTIONS

- ▶ Resume Standard Precautions once high-risk exposures or active symptoms have discontinued
 - ▶ Refer to **Appendix A in the 2007 Isolation Guidelines-updated 2018**

Type and Duration of Precautions Recommended for Selected Infections and Conditions¹
Guideline for Isolation Precautions: Preventing Transmission of Infectious Agents in Healthcare Settings (2007)

Appendix A Updates [September 2018]
Changes: Updates and clarifications made to the table in Appendix A: Type and Duration of Precautions Recommended for Selected Infections and Conditions.

Infection/Condition	Type of Precaution	Duration of Precaution	Precautions/Comments
Abscess Draining; major	Contact + Standard	Duration of illness	Until drainage stops or can be contained by dressing.

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Alarming Uptick of Deadly Superbugs
Additional antibiotic resistance. Responsible for 40 Percent of all

Sickness bug forces over 50 hospital wards to be closed

SICKNESS BUG TOLL TO HIT 200,000 A WEEK

UPDATE: New Drug-Resistant Superbugs Found in 3 States

Multi-drug Resistant Organisms (MDROs)

SPICE

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RISK FACTORS FOR DEVELOPING A MDRO

- ▶ Duration of hospitalization
- ▶ High rates of transfer in and between hospitals
- ▶ Local institution risk factors
- ▶ Long term care facilities
- ▶ Intensive care units
- ▶ High rate of device utilization
- ▶ Colonization
- ▶ Prior antibiotic use

"Age, comorbid illnesses, frequent medical devices, and dependence on healthcare workers, in the setting of communal living, all serve to increase the risk of becoming colonized or infected with healthcare-acquired bacterial pathogens."
(Dumyati, et. Al., 2012)

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MDROS SPREAD IN HEALTHCARE SETTINGS

- ▶ Patient to patient transmission via healthcare provider’s hands
- ▶ Environmental/equipment contamination



X marks the location where VRE was isolated in the room



Image from Abstract: The risk of hand and glove contamination after contact with a VRE + resident environment. Hayden M, ICAAC, 2001, Chicago, IL

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CANDIDA AURIS: AN OVERVIEW, CDC

- ▶ *Candida auris* is an emerging fungus that presents a serious global health threat for the following reasons:
 - ▶ *C. auris* is spreading geographically and increasing in incidence.
 - ▶ *C. auris* may colonize patients for months to years (no method of decolonization). Infection (usually candidemia) has a high mortality (~60%).
 - ▶ It is often multidrug-resistant (e.g., echinocandins, triazoles, polyene (amphotericin B)). Some strains are resistant to all three available classes of antifungals.
 - ▶ It is difficult to identify with standard laboratory methods, and it can be misidentified in labs without specific technology. Misidentification may lead to inappropriate management.
 - ▶ It has caused multiple outbreaks in healthcare settings. For this reason, it is important to quickly identify *C. auris* in a hospitalized patient so that healthcare facilities can take special precautions to stop its spread.

Acknowledgement: Dr. David Weber MD, MPH, FIDSA, FSHEA, FRSM: Emerging Infectious Disease: *Candida Auris*-SPICE webinar (3/15/23)

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CANDIDA AURIS: AN OVERVIEW, CDC

- ▶ May 11, 2021: Updated Tracking *C. auris* to include historical and current U.S. interactive maps and downloadable datasets
- ▶ July 19, 2021: Environmental Protection Agency (EPA) has created List P, a list of EPA-registered disinfectants effective against *C. auris*
- ▶ Current needs: (1) rapid diagnostics; (2) new drugs; (3) decolonization methods; (4) registered, easy to use and effective disinfectants; (5) other tools or protocols for treatment and prevention

Acknowledgement: Dr. David Weber MD, MPH, FIDSA, FSHEA, FRSM: Emerging Infectious Disease: *Candida Auris*-SPICE webinar (3/15/23)

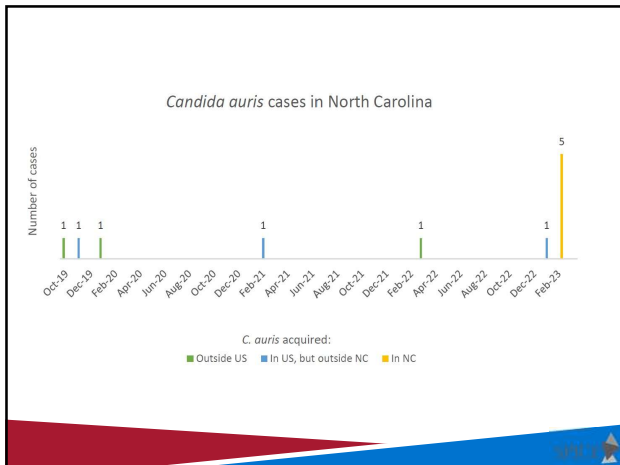
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CANDIDA AURIS: EPIDEMIOLOGY

- ▶ First isolated in 2009 from ear discharge of a female patient in Japan; now reported in >45 countries worldwide
- ▶ Healthcare-associated outbreaks common
- ▶ Mortality ~65%-70%
- ▶ Primarily infects the usual spectrum of compromised individuals including those with uncontrolled diabetes mellitus, chronic renal diseases, neutropenia, and those on immunosuppressive therapy, broad-spectrum antimicrobials, and those with indwelling medical devices, or at extremes of age.
- ▶ Causes an array of human diseases ranging from fungemias, surgical/nonsurgical wound infections, urinary tract infections, meningitis, myocarditis, skin abscesses, to bone infections.

Acknowledgement: Dr. David Weber MD, MPH, FIDSA, FSHEA, FRSM: Emerging Infectious Disease: *Candida Auris*-SPICE webinar (3/15/23)

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CANDIDA AURIS: INFECTION CONTROL

- ▶ Place any patients with suspected or confirmed *C. auris* on contact precautions in a single-patient room immediately.
- ▶ *C. auris* is known to widely contaminate the environment and can persist in the environment for several weeks. Conduct daily and terminal environmental cleaning using a disinfectant on EPA’s List P. (NCDHHS memo 3/30/23)
- ▶ Healthcare providers should use **Contact Precautions** to manage patients with *C. auris* in acute care hospitals and long-term acute care hospitals. Manage residents with *C. auris* in nursing homes, including skilled nursing facilities, using either **Contact Precautions** or **Enhanced Barrier Precautions**, depending on the situation and local or state jurisdiction recommendations. (CDC 1/23)

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KEY MDRO PREVENTION STRATEGIES

- ▶ Assessing hand hygiene practices
- ▶ Quickly reporting MDRO lab results
- ▶ Implementing Contact Precautions
- ▶ Recognizing previously colonized patients
- ▶ Strategically place patients based on MDRO risk factors
- ▶ Careful device utilization
- ▶ Antibiotic stewardship
- ▶ Inter-facility communication

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STOP PROTECTIVE PRECAUTIONS **ALTO**

PRECAUCIONES PROTECTORAS

Everyone must: **Todos deben:**

- ✓ Clean hands before entering and when leaving room. *Lavarse las manos antes de entrar y antes de salir de la habitación.*
- ✓ Well sealed private room with filtering, air flow, air pressure, and ventilation requirements (specified on back of sign). *Habitación privada bien sellada con requisitos de filtración, flujo de aire, presión de aire y ventilación (especificados en la parte posterior del letrero).*
- ✓ No dried or fresh flowers or potted plants. *No se permiten flores frescas o secas ni plantas vivas.*
- ✓ Do not enter if feeling unwell. *No entre si está enfermo.*

Personal protective equipment may be required per Standard Precautions. *Es posible que se exija utilizar el equipo de protección personal según las precauciones estándar.*

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PROTECTIVE ENVIRONMENT

- ▶ Designed for allogenic Hematopoietic Stem Cell Transplant (HSCT) patients to minimize fungal spore counts in the air and reduce the risk of invasive environmental fungal infections
- ▶ Environmental Controls:
 - ▶ HEPA filtration of incoming air
 - ▶ Directed room air flow
 - ▶ Positive pressure in relationship to corridor
 - ▶ Well-sealed rooms (i.e., walls, floors, ceilings, windows, electrical outlets)
 - ▶ ≥ 12 air changes per hour
 - ▶ Minimize dust
 - ▶ Prohibiting dried and fresh flowers and potted plants

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STOP NEUTROPENIC PRECAUTIONS **ALTO**

PRECAUCIONES NEUTROPENICAS

Everyone must: **Todos deben:**

- ✓ Clean hands before entering and when leaving room. *Lavarse las manos antes de entrar y antes de salir de la habitación.*
- ✓ Avoid raw or undercooked fruits or vegetables; raw or undercooked eggs or shellfish. *Evitar las frutas y verduras crudas o poco cocidas; los huevos o mariscos crudos o poco cocidos.*
- ✓ No live flowers or plants. *No se permiten flores ni plantas vivas.*
- ✓ Do not enter if feeling unwell. *No entre si está enfermo.*

Additional PPE may be required per Standard Precautions. *Es posible que se exija utilizar el equipo de protección personal adicional según las precauciones estándar.*

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NEUTROPENIC PRECAUTIONS

- ▶ Absolute neutrophil count (ANC) < 1500 or AMC expected to decrease to <500 over next 48 hours
- ▶ Private room if available
- ▶ Routine room cleaning
- ▶ Avoid raw or undercooked fruits, eggs, vegetables, or shellfish or cracked pepper
- ▶ No live flowers or plants
- ▶ **No staff or visitors' entry if ill**
- ▶ Surgical mask if leaving room

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FRONT/BACK POCKET CARD: (PRINTS A 2-PAGE DOCUMENT TO BE TRIMMED/LAMINATED)

<https://spice.unc.edu/resources/nc-standardized-isolation-signage/>

The image shows two pocket cards side-by-side. The left card is for Contact Precautions and the right card is for Neutropenic Precautions. Both cards are color-coded and contain detailed instructions for staff and visitors.

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SUMMARY

- ▶ Standard precautions are the primary strategy to interrupt transmission of infectious agents in healthcare facilities
 - ▶ HH,PPE, Respiratory Hygiene, Cleaning of Equipment and Environment
- ▶ Transmission-based precautions may also need to be implemented based on the type of infection and how it is transmitted
 - ▶ Contact, Droplet, Airborne and a combination of these
 - ▶ Enhanced Barrier Precautions
- ▶ CDC Guidance specific to multi-drug resistant organisms
 - ▶ 2006-Management of MDROs
 - ▶ Enhanced Barrier Precautions - 2022

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