



The Gold Standard *Enhanced Barrier Precautions*

Viral Respiratory Diseases Detection, Containment, and Response in
Long-term Care Settings

October 22, 2020

10:00 a.m.



“

The speaker does not have a financial or non-financial relationship with a commercial interest that would create a conflict of interest with this presentation. ”

Disclosure Statement

Objectives

- ▶ Review Standard Precautions and Transmission-based Precautions
- ▶ Discuss Enhanced Barrier Precautions
- ▶ Utilize Enhanced Barrier Precautions based on local data and emerging infectious diseases surveillance guidance



Standard Precautions

- ▶ Should be used with all patients consistently regardless of infectious status



- Gloves - when there will be contact with blood, body fluids, mucous membranes, non-intact skin, or other potentially infectious materials
- Protective clothing (e.g. gowns) - when there will be contact with blood, body fluids, or other potentially infectious substances to protect skin and prevent soiling or contaminating clothing
- Mouth, nose, and eye protection - when there will be splashes or sprays of blood, body fluids, secretions, or excretions

Transmission-based Precautions (TBP)

► Used when Standard Precautions alone are insufficient to prevent the spread of pathogens

- Droplet
- Contact
- Airborne

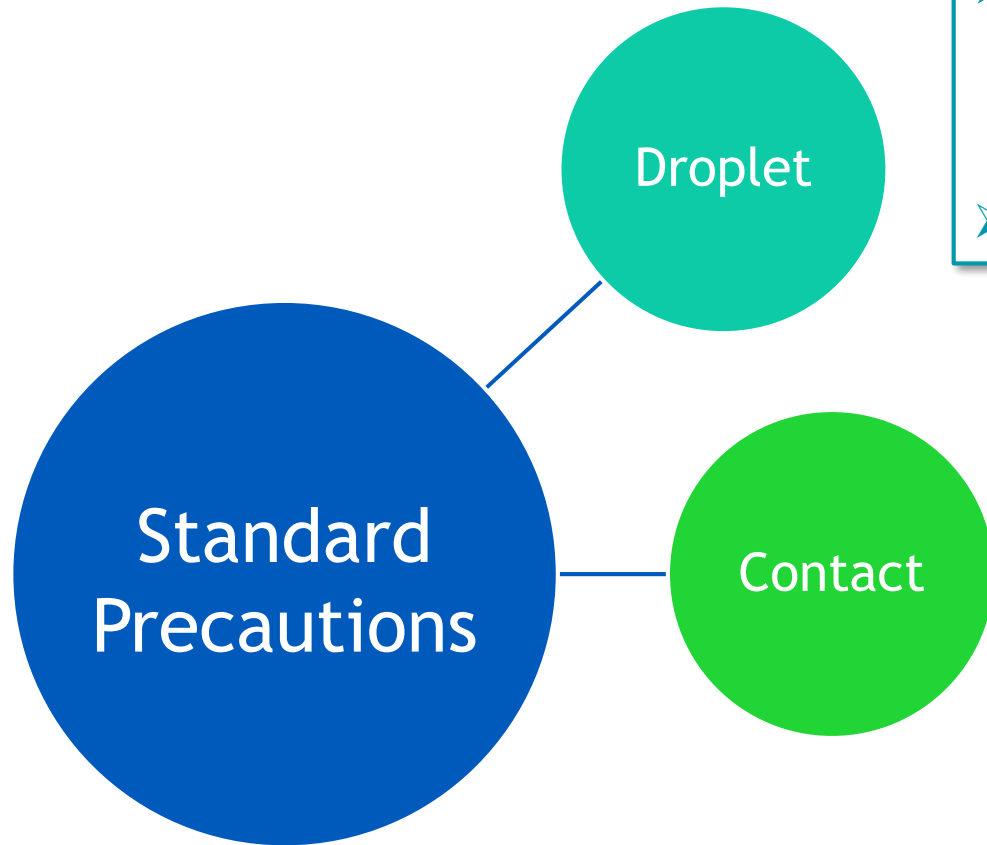


Standard Precautions

Standard Precautions

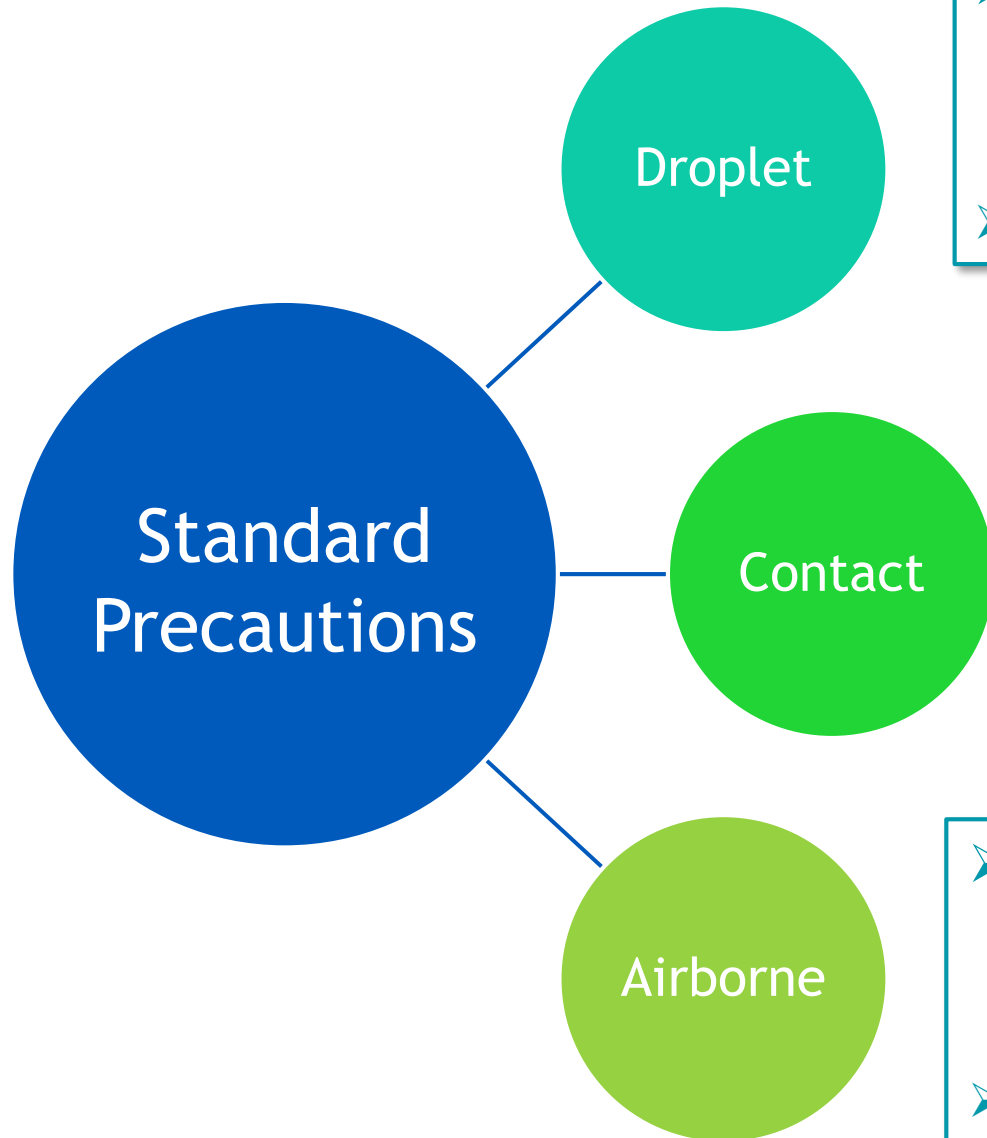
Droplet

- Patients known to be infected with pathogens transmitted by respiratory droplets
 - Influenza, mumps, other respiratory illnesses
- Facemask and eye protection



- Patients known to be infected with pathogens transmitted by respiratory droplets
 - Influenza, mumps, other respiratory illnesses
- Facemask and eye protection

- Patients with known or suspected infection/colonization with pathogens that may be spread through contact
 - Draining wounds, CDI/F, norovirus
- Gloves and gown



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 - Influenza, mumps, other respiratory illnesses
- Facemask and eye protection

- Patients with known or suspected infection/colonization with pathogens that may be spread through contact
 - Draining wounds, CDI/F, norovirus
- Gloves and gown

- Patients known to be infected with pathogens transmitted via the airborne route
 - TB, measles, varicella
- N95

Question 1

Polls are not anonymous.
You must select an
answer to participate
fully in this activity!

In which of the following situations might a resident need to be placed on Contact Precautions?

- A. They are infected with C. difficile
- B. They have a heavily draining wound from which a carbapenem-resistant Enterobacteriaceae (CRE) was cultured
- C. There's an ongoing outbreak of Acinetobacter baumannii in the facility
- D. A and B only
- E. A, B, and C

Question 1

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Multidrug-resistant Organisms (MDRO): A Continued Threat

MDR *Pseudomonas Aeruginosa*

Slowly decreasing since 2013



32,600

Estimated cases
in hospitalized
patients in 2017



2,700

Estimated
deaths in 2017



\$767M

Estimated attributable
healthcare costs in 2017

Carbapenem-resistant Enterobacteriaceae (CRE)

Cases have plateaued



13,100

Estimated cases
in hospitalized
patients in 2017



1,100

Estimated
deaths in 2017



\$130M

Estimated attributable
healthcare costs in 2017

Carbapenem-Resistant *Acinetobacter*

Steadily decreasing since 2015



8,500

Estimated cases
in hospitalized
patients in 2017



700

Estimated
deaths in 2017



\$281M

Estimated attributable
healthcare costs in 2017

Drug-Resistant *Candida auris*

Increasing since 2015



323

Clinical cases
in 2018



90%

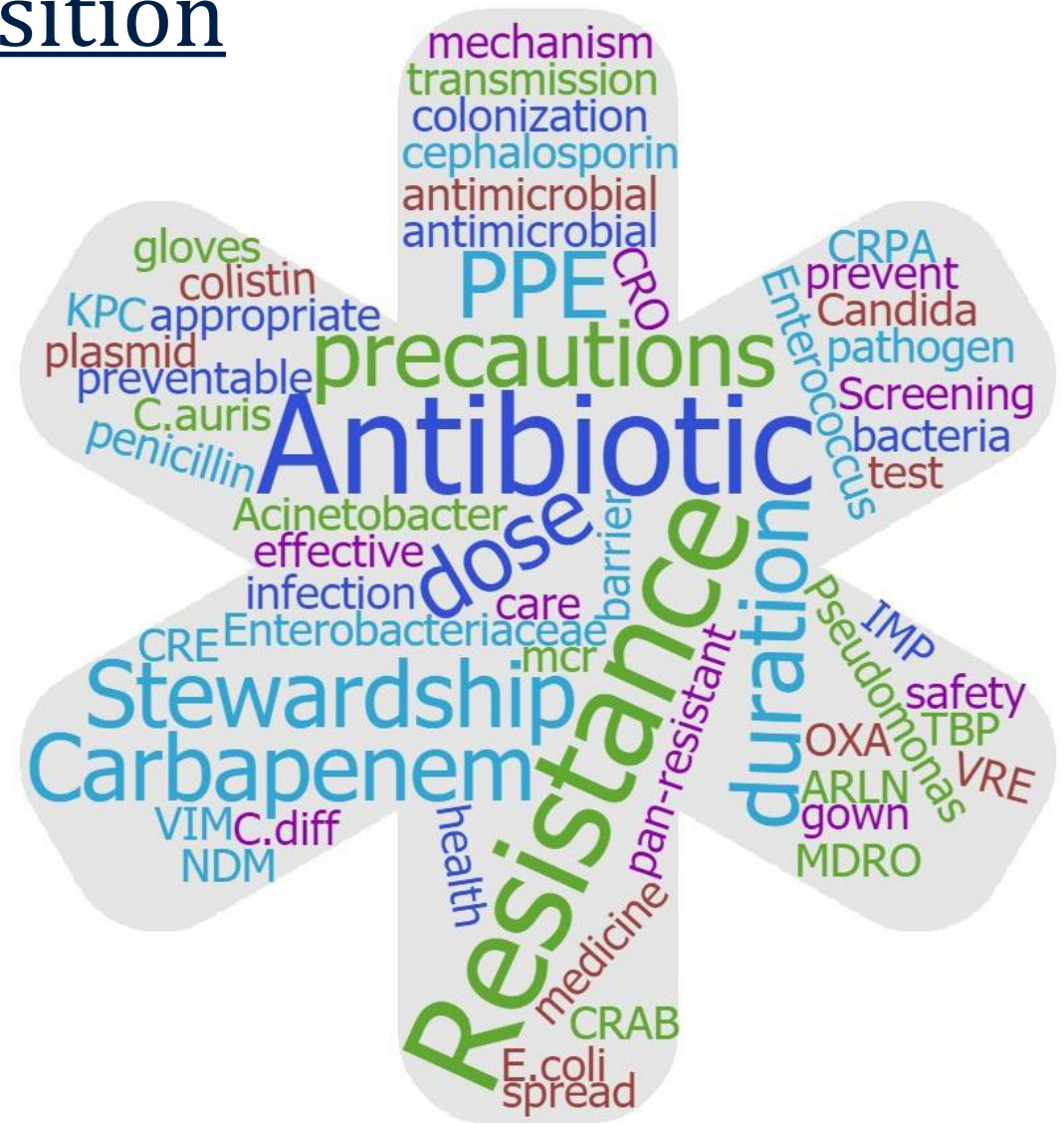
Isolates resistant to at
least **one** antifungal

30%

Isolates resistant to at
least **two** antifungals

Risk Factors for MDR0 Acquisition

- ▶ Indwelling medical devices
- ▶ Presence of wounds/ulcers
- ▶ Frequent healthcare stays
 - Prolonged lengths of stay
- ▶ Comorbidities
- ▶ Antibiotic use



Factors Affecting Transmission of Pathogens

Inter-facility Infection Control Transfer Form

This form must be filled out for transfer to accepting facility with information communicated prior to or with transfer.
Please attach copies of latest culture reports with susceptibilities if available.

Sending Healthcare Facility:

Patient/Resident Last Name	First Name	Date of Birth	Medical Record Number

Name/Address of Sending Facility	Sending Unit	Sending Facility Phone

Sending Facility Contacts	Contact Name	Phone	E-mail
Transferring RN/Unit			
Transferring physician			
Case Manager/Admin/SW			
Infection Preventionist			

Does the person* currently have an infection, colonization OR a history of positive culture of a multidrug-resistant organism (MDRO) or other potentially transmissible infectious organism?	Colonization or history (Check if YES)	Active infection on Treatment (Check if YES)
Methicillin-resistant <i>Staphylococcus aureus</i> (MRSA)	<input type="checkbox"/> Yes	<input type="checkbox"/> Yes
Vancomycin-resistant <i>Enterococcus</i> (VRE)	<input type="checkbox"/> Yes	<input type="checkbox"/> Yes
<i>Clostridioides difficile</i>	<input type="checkbox"/> Yes	<input type="checkbox"/> Yes
<i>Acinetobacter</i> , multidrug-resistant	<input type="checkbox"/> Yes	<input type="checkbox"/> Yes
Enterobacteriaceae (e.g., <i>E. coli</i> , <i>Klebsiella</i> , <i>Proteus</i>) producing Extended Spectrum Beta-Lactamase (ESBL)	<input type="checkbox"/> Yes	<input type="checkbox"/> Yes
Carbapenem-resistant Enterobacteriaceae (CRE)	<input type="checkbox"/> Yes	<input type="checkbox"/> Yes
<i>Pseudomonas aeruginosa</i> , multidrug-resistant	<input type="checkbox"/> Yes	<input type="checkbox"/> Yes
<i>Candida auris</i>	<input type="checkbox"/> Yes	<input type="checkbox"/> Yes
Other, specify (e.g., lice, scabies, norovirus, influenza):	<input type="checkbox"/> Yes	<input type="checkbox"/> Yes

Does the person* currently have any of the following? (Check here ☐ if none apply)

<input type="checkbox"/> Cough or requires suctioning	<input type="checkbox"/> Central line/PICC (Approx. date inserted <input type="text"/>)
<input type="checkbox"/> Diarrhea	<input type="checkbox"/> Hemodialysis catheter
<input type="checkbox"/> Vomiting	<input type="checkbox"/> Urinary catheter (Approx. date inserted <input type="text"/>)
<input type="checkbox"/> Incontinent of urine or stool	<input type="checkbox"/> Suprapubic catheter
<input type="checkbox"/> Open wounds or wounds requiring dressing change	<input type="checkbox"/> Percutaneous gastrostomy tube
<input type="checkbox"/> Drainage (source): <input type="text"/>	<input type="checkbox"/> Tracheostomy

- ▶ Adherence to hand hygiene
- ▶ Availability and appropriate use of PPE
 - PPE optimization in light of shortages during COVID-19 response
- ▶ Inadequate environmental cleaning
- ▶ Contaminated shared medical equipment
- ▶ Resident cohorting
- ▶ Unrecognized carriage
 - Colonization ≠ Infection
- ▶ Lack of communication between healthcare facilities during transfers



Preventing the Spread of Novel or Targeted Multidrug-resistant Organisms (MDROs) **Unrecognized MDRO Carriage in Nursing Homes**

Copy link

Facilities with skilled units (n=14)



58% MDRO carriage



Documented MDRO: 17%

Facilities with ventilator units (n=4)



76% MDRO carriage



Documented MDRO: 20%

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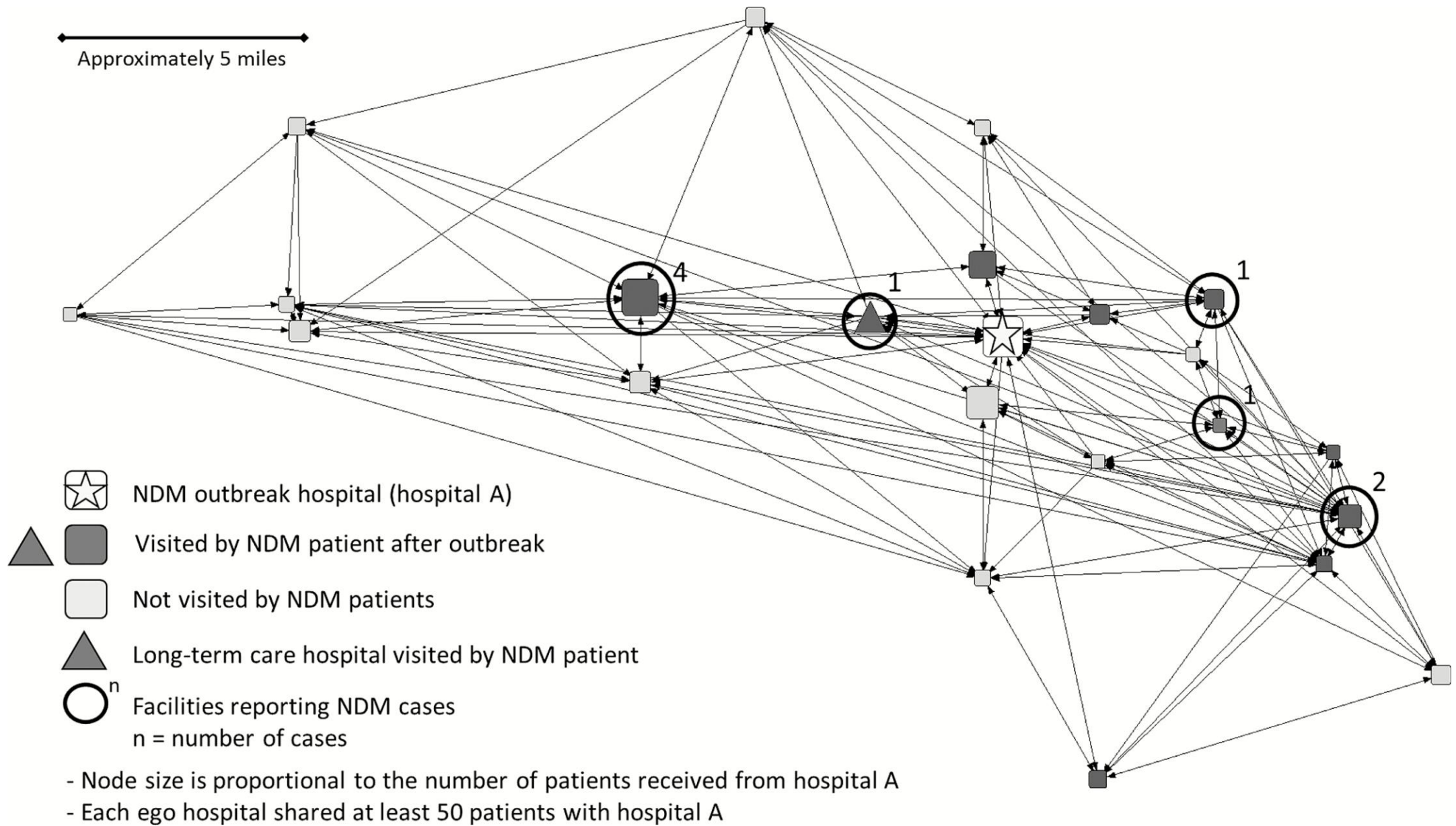
McKinnell JA et al.
Clin Infect Dis. 2019.
69(9):1566-1573



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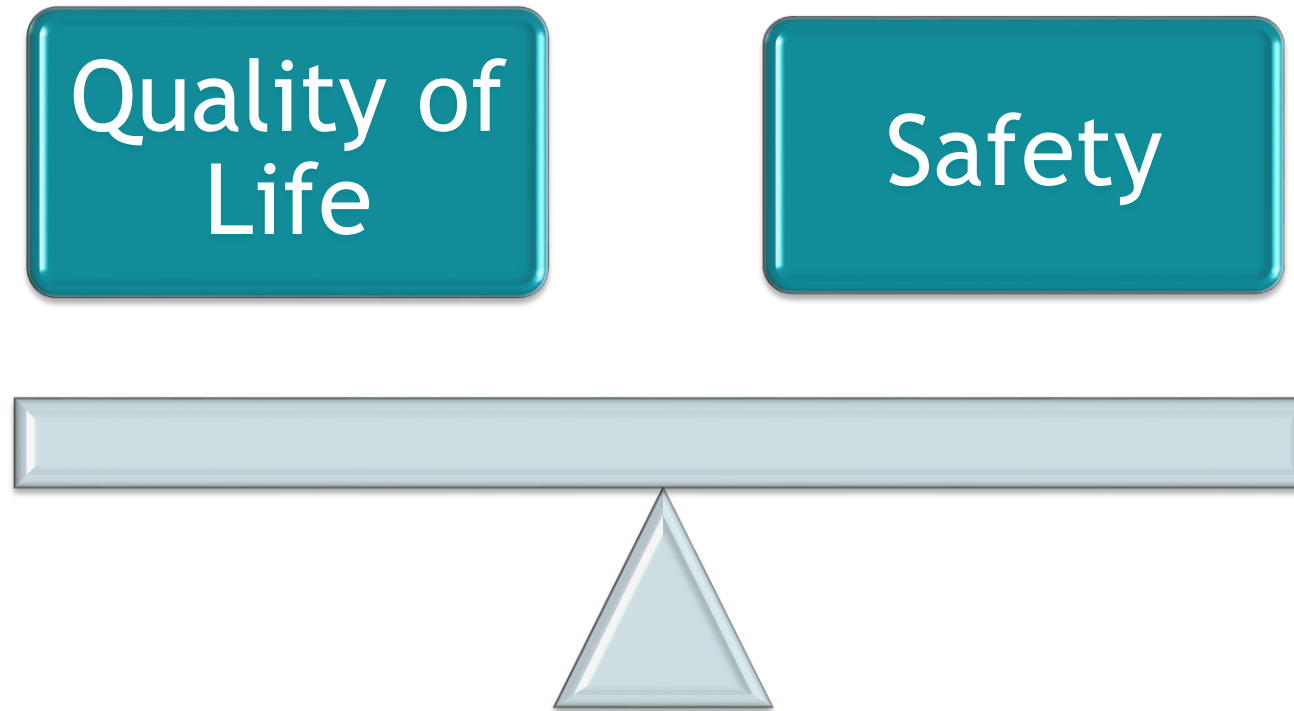
CDC webinar recording link (free CE): <https://youtu.be/jewg8BepdVw>



Challenges in Long-term Care Settings:

Transmission-based Precautions

Challenges with Implementation of TBP



Adverse Effects of Transmission-based Precautions



- ▶ Depression
 - Hospitalized patients on Contact Precautions were 40% more likely to be depressed¹
- ▶ Patient satisfaction
- ▶ PPE fatigue
- ▶ Perceived stigma
- ▶ Financial burden to facility
- ▶ Decreased care
 - Patients on Contact Precautions are about half as likely to be examined as patients not on Contact Precautions²

¹ Day HR, Perencevich EN, Harris AD, et al. Do contact precautions cause depression? A two-year study at a tertiary care medical centre. *J Hosp Infect.* 2011;79(2):103–107. doi:10.1016/j.jhin.2011.03.026

² Saint S, Higgins LA, Nallamothu BK, Chenoweth C. Do physicians examine patients in contact isolation less frequently? A brief report. *Am J Infect Control* 2003;31(6):354-6.



Preventing the Spread of Novel or Targeted Multidrug-resistant Organisms (MDROs)



Copy link

Difficulty in Applying Transmission-Based Precautions for MDROs in Nursing Homes

- “Transmission-Based Precautions must be used when a resident develops **signs and symptoms** of a transmissible infection”
- “Facility policies must identify type and **duration** of Transmission-Based Precautions”
- “Transmission-Based Precautions should be the **least restrictive possible** for the resident based on his/her clinical situation and used for the **least amount of time**”
- “Once the resident is **no longer a risk for transmitting the infection... removing Transmission-Based Precautions is required**”

MORE VIDEOS

Play (k)

Department of Health and Human Services. Centers for Medicare and Medicaid Services. Rev. 173, 11-22-17.
[Site Operations Manual Appendix PP: Guidance to Surveyors for Long Term Care Facilities \[PDF – 749 pages\]](#)

https://www.cms.gov/Regulations-and-Guidance/Guidance/Manuals/downloads/som107ap_pp_guidelines_ltc.pdf



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Preventing the Spread of Novel or Targeted Multidrug-resistant Organisms (MDROs)



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Difficulty in Applying Transmission-Based Precautions for MDROs in Nursing Homes

- “Transmission-Based Precautions should be implemented when a resident develops **signs and symptoms of infection**”
Colonization \neq Infection
- “Facility policies must identify type and duration of Transmission-Based Precautions”
Duration of MDRO colonization can be prolonged (>6 months)
- “Transmission-Based Precautions should be as **restrictive as possible** for the resident based on his/her clinical situation and used for the **least amount of time**”
- “Once the resident is no longer symptomatic, Transmission-Based Precautions should be discontinued, but the resident remains at risk for transmitting the MDRO **infection...** even when not actively infected”
Resident remains at risk for transmitting the MDRO infection... even when not actively infected

MORE VIDEOS

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Department of Health and Human Services. Centers for Medicare and Medicaid Services. Rev. 173, 11-22-17.

State Operations Manual Appendix PP: Guidance to Surveyors for Long Term Care Facilities [PDF – 749 pages]

https://www.cms.gov/Regulations-and-Guidance/Guidance/Manuals/downloads/som107ap_pp_guidelines_ltc.pdf



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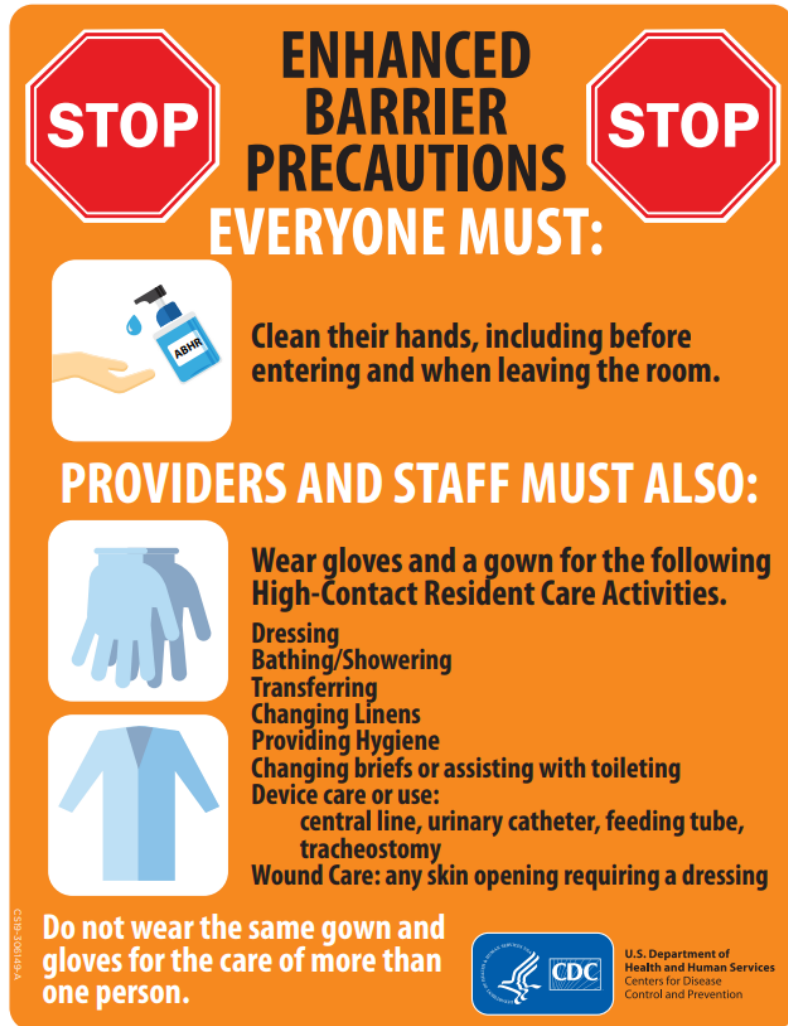


LOUISIANA
DEPARTMENT OF HEALTH

Enhanced Barrier Precautions



Enhanced Barrier Precautions (EBP)



- ▶ Geared toward nursing homes
- ▶ Falls in between Standard and Contact Precautions
- ▶ Used for residents that are colonized or infected with novel MDROs when Contact Precautions do not apply
 - May also be used for more common MDROs
- ▶ Intended for long-term use
- ▶ Isolation is **not** required

Contact Precautions vs. EBP

Contact Precautions

- ▶ Perform hand hygiene
- ▶ Gown and gloves upon room entry regardless of activities to be performed
- ▶ Dedicated equipment
- ▶ Private room
- ▶ Room restriction
 - Not permitted to participate in group activities

Enhanced Barrier Precautions

- ▶ Perform hand hygiene
- ▶ Gown and gloves prior to high-contact care activity
- ▶ Note:
 - Does **not** require a single room
 - Does **not** require restrictions of movement/participation in group activities

About EBP

- ▶ Staff must don PPE (gowns and gloves) only when performing high-contact resident care activities

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

- ▶ Gowns and gloves should **NOT** be reused or worn for the care of more than one person

When to Use EBP

► When Contact Precautions do not apply **and**

- Resident is known to be infected or colonized with a novel or targeted MDRO
 - ◆ Pan-resistant organisms
 - ◆ *Candida auris*
 - ◆ Carbapenemase-producing¹ Enterobacteriaceae
 - ◆ Carbapenemase-producing¹ *Pseudomonas* species
 - ◆ Carbapenemase-producing¹ *Acinetobacter baumannii*
- **Or** resident has a wound or indwelling medical device (regardless of MDRO colonization status) and is residing in an at-risk area
 - ◆ At-risk area = on the same unit/hall/ward with someone who's infected/colonized with a novel or targeted MDRO



¹ Carbapenemase is a form of antibiotic resistance where bacteria produce an enzyme (called a carbapenemase) that inactivates carbapenem antibiotics. Examples of carbapenemases: NDM, VIM, IMP, OXA 24/40, OXA 23, OXA-48

When to Use EBP (continued)



- ▶ Facilities may choose to implement EBP more broadly
 - For any resident with a wound or indwelling medical device
 - For residents colonized with other medically important organisms (e.g., MRSA, VRE, etc.)
 - For all residents who may be at higher risk for novel MDRO acquisition based on local circumstances
 - ◆ For example, if staff or equipment must be shared between a resident with a novel MDRO and other residents

- ▶ Facilities should have clear policies indicating when residents should be placed on EBP
- ▶ Staff should received training on EBP

When to Use Contact Precautions

- ▶ Contact Precautions must still be used in the following situations
 - Resident has acute diarrhea
 - Resident has a draining wound that is unable to be covered or when secretions/excretions are unable to be contained
 - On units or in facilities where ongoing transmission of a MDRO is documented or suspected
 - Resident is infected with C. diff, norovirus, scabies, or [other conditions](#) where Contact Precautions are indicated



Duration of Precautions

- ▶ Contact Precautions should be lifted as soon as clinically appropriate
- ▶ EBP are designed for long-term use
 - Residents with novel MDROs should remain on EBP for the duration of their stay in the long-term care facility
 - ◆ MDRO colonization may be prolonged and/or intermittent
 - ◆ Clearance testing is not recommended
 - ◆ EBP are meant to strike a balance between resident quality of life and safety



Scenario



1. Ms. Jones is sent to the hospital for altered mental status and tests positive for pan-resistant *Pseudomonas aeruginosa*. After a short hospitalization, her condition improves and she is discharged back to your facility.

Which kind of precautions should Ms. Jones be put on?

- A. Contact Precautions
- B. Enhanced Barrier Precautions**
- C. Contact + Enhanced Barrier Precautions
- D. Trick question – no precautions are actually needed



2. Two weeks after Ms. Jones' return, she is feeling much better and has returned to her usual baseline.

Is it okay to discontinue EBP?

- A. Yes, EBP are not needed when symptoms are absent
- B. No, Ms. Jones should stay on EBP until she tests negative for the organism
- C. No, Ms. Jones should stay on EBP for the duration of her admission



3. One month after her hospitalization, Ms. Jones develops abdominal pain, fever, and diarrhea. She has been on Enhanced Barrier Precautions since her hospitalization.

Which is the correct course of action?

- A. She should be switched to Contact Precautions
- B. Ms. Jones should stay on EBP
- C. She should be switched to Contact Precautions; once Contact Precautions are no longer indicated, she should be switched back to EBP

4. Mr. Smith resides in a room on the same unit three doors down from Ms. Jones. Mr. Smith has stage IV kidney disease and receives dialysis through a central venous catheter.

What is the correct reason for placing him on EBP?



- A. Mr. Smith resides in close proximity to Ms. Jones and is at higher risk for acquisition of an MDRO due to having an indwelling medical device.
- B. Mr. Smith has to leave the facility regularly for dialysis.
- C. Mr. Smith has a serious comorbidity



Summary

- ▶ Standard Precautions should be used for all patients, all the time
- ▶ Transmission-based Precautions should be applied when Standard Precautions alone are insufficient to prevent the spread of pathogens
 - See CDC's [Appendix A](#) for a list of recommended precautions by infection/condition type
- ▶ Enhanced Barrier Precautions
 - Used for long-term care residents infected or colonized with a novel MDRO
 - ◆ May be applied more broadly at the discretion of the facility
 - Residents infected/colonized with other medically-important organisms
 - Residents at high risk because of wounds or indwelling medical devices
 - Less restrictive than Contact Precautions and intended for long-term use

Question 2

Polls are not anonymous.
You must select an
answer to participate
fully in this activity!

Before today, how familiar were you with Enhanced Barrier Precautions?

- A. Very familiar – I have used EBP for residents in the past.
- B. Somewhat familiar – I have heard of EBP but never used them.
- C. Unfamiliar – I have never heard of EBP before today.

Resources

- ▶ CDC Guidance - Enhanced Barrier Precautions
<https://www.cdc.gov/infectioncontrol/guidelines/isolation/appendix/type-duration-precautions.html>
- ▶ FAQs about Enhanced Barrier Precautions in Nursing Homes
<https://www.cdc.gov/hai/containment/faqs.html>
- ▶ CDC Webinar: Preventing the Spread of Novel or Targeted Multidrug-resistant Organisms (MDROs) in Nursing Homes through Enhanced Barrier Precautions
https://emergency.cdc.gov/coca/calls/2019/callinfo_102419.asp
- ▶ Transmission-Based Precautions (guidance and free signage)
<https://www.cdc.gov/infectioncontrol/basics/transmission-based-precautions.html>
- ▶ Standard Precautions Guidance
<https://www.cdc.gov/infectioncontrol/basics/standard-precautions.html>
- ▶ 2019 Antibiotic Resistant Threats Report
<https://www.cdc.gov/drugresistance/biggest-threats.html>
- ▶ Appendix A: Type and Duration of Precautions Recommended for Selected Infections and Conditions
<https://www.cdc.gov/infectioncontrol/guidelines/isolation/appendix/type-duration-precautions.html>

Thank you

Ashley Terry, MPH, CPH, CIC

Healthcare-associated Infections and Antibiotic Resistance Program

Phone: 504-568-3189

Ashley.Terry@LA.gov

