# Enhanced Barrier Precautions in Skilled Nursing Facilities

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# Disclosures

- CDC, our planners, our presenters, and their spouses/partners wish to disclose they have no financial interests or other relationships with the manufacturers of commercial products, suppliers of commercial services, or commercial supporters. Planners have reviewed content to ensure there is no bias.

- Presentations will not include any discussion of the unlabeled use of a product or a product under investigational use.)

- CDC did not accept commercial support for this continuing education activity

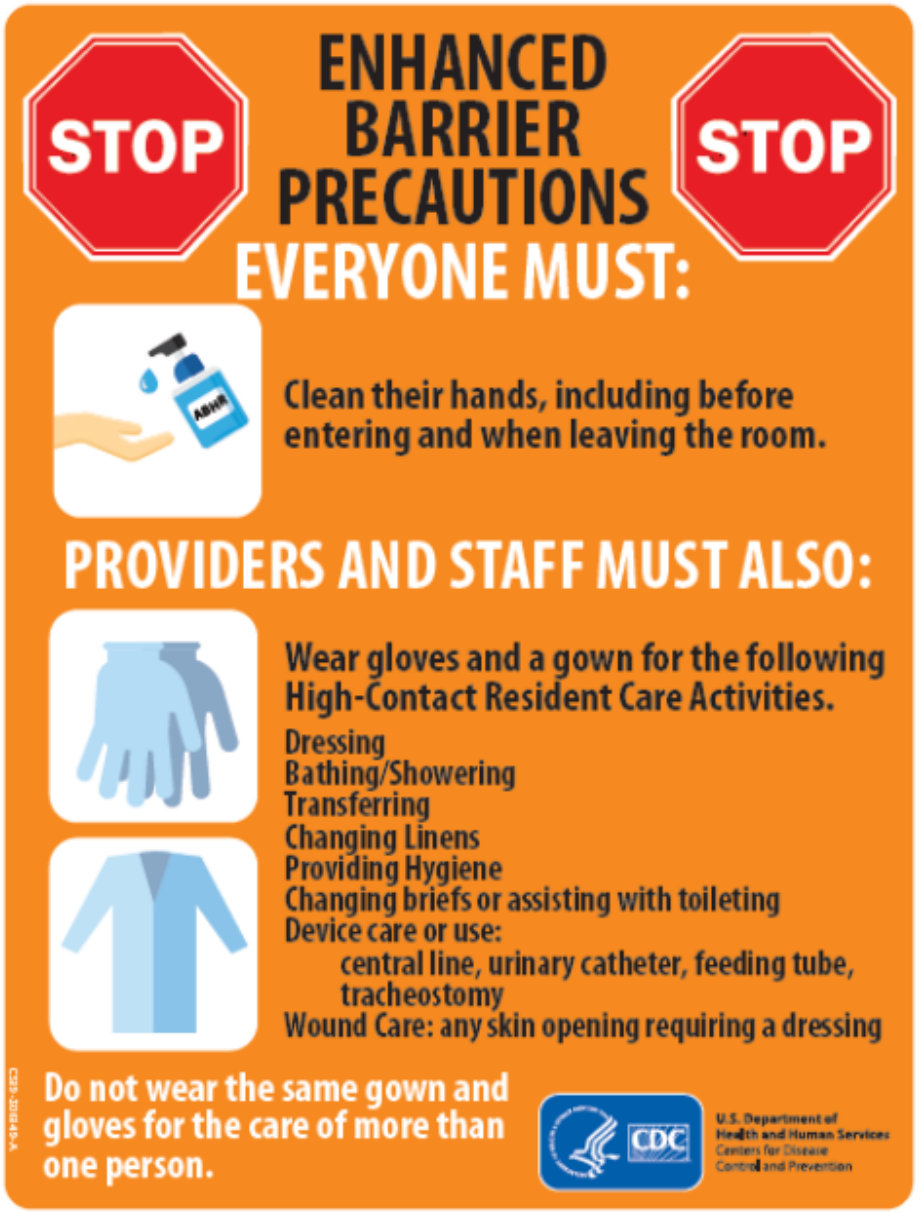
# Objectives

1. Describe the role their healthcare facility type plays in limiting further transmission throughout a jurisdiction.
   a. To describe scenarios appropriate for Transmission-Based Precautions (when to use Contact Precautions, Enhanced Barrier Precautions, and Standard Precautions)
2. Identify infection prevention and control practices they should implement at their healthcare facilities to prevent MDRO transmission.
   a. To describe Enhanced Barrier Precautions
   b. To describe which residents need Enhanced Barrier Precaution
3. Recognize current practices for communicating a patient/resident MDRO status both inside and outside their facility and identify key strategies for improving interprofessional care through clear multidisciplinary communication.
   a. To understand the use and significance of interfacility and intra-facility forms during transfers

# Enhanced Barrier Precautions: What?

# What is Enhanced Barrier Precautions?

- Use of gown and gloves during high-contact care activities for high-risk residents as a means to disrupt multidrug-resistant organism (MDRO) spread
- Expand the use of personal protective equipment (PPE) beyond situations in which exposure to blood and body fluids is anticipated
- Reduces the necessity for resident's restriction to room




- Does not require a private room
- Gowns and gloves are recommended for High-Contact Resident Care Activities
- Residents are not restricted to their room
- Intended to be used for the entire length of resident's stay in the facility

# Enhanced Barrier Precautions

| Recommended in | Not Currently Recommended in |
|---|---|
| Nursing Homes (NHs) | Acute Care Hospitals |
| Skilled Nursing Facilities (SNFs) | Long-Term Acute Care Hospitals |
| | Assisted Living Facilities |
| | Residential Care Facilities |
| | Group Homes |

# Enhanced Barrier Precautions

| Recommended for Residents With | Not Recommended |
| --- | --- |
| Wounds *regardless of MDRO colonization status* | Resident with draining wounds |
| Infection or colonization with a novel or targeted MDRO *when Contact Precautions do not apply* | On units or in facilities where ongoing transmission is documented or suspected |
| An indwelling medical device | Resident with acute diarrhea |
| | Resident with sites of secretions or excretions that are unable to be covered or contained |

# Enhanced Barrier Precautions: Why?

# Why Do We Need Enhanced Barrier Precautions?

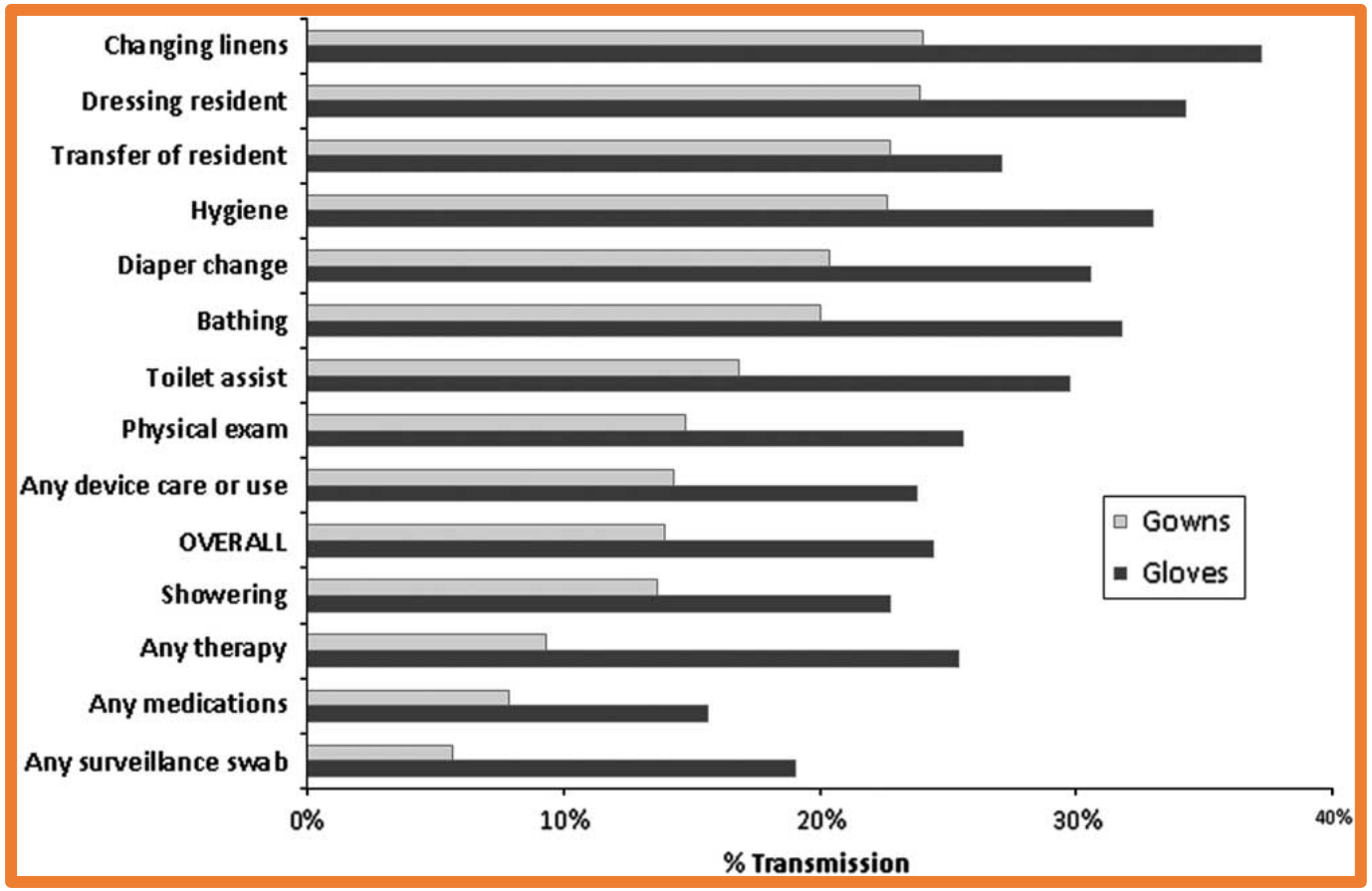
- The potential to disrupt MDRO transmission in a less restrictive manner
- Focusing only on residents with active infection fails to address the continued risk of transmission from residents with MDRO colonization, which can persist for long periods of time (e.g., months), and result in the silent spread of MDROs
- Resident-to-resident pathogen transmission in SNFs occurs, in part, via healthcare personnel, during resident care activities

# Why Do We Need Enhanced Barrier Precautions?

- Residents in SNFs are disproportionately affected by MDRO infections
- Allows for a more effective response to serious antibiotic resistant threats
- Residents with complex medical needs are at higher risk for acquiring MDROs
- Standard Precautions often have not been successfully implemented in nursing home settings

# MDRO Contamination of NH Caregiver Hands and Clothes During Common Activities

- Evaluated different interactions between staff and MDRO colonized residents
- Assisting with linen change, transfers, and personal hygiene had highest likelihood of contamination

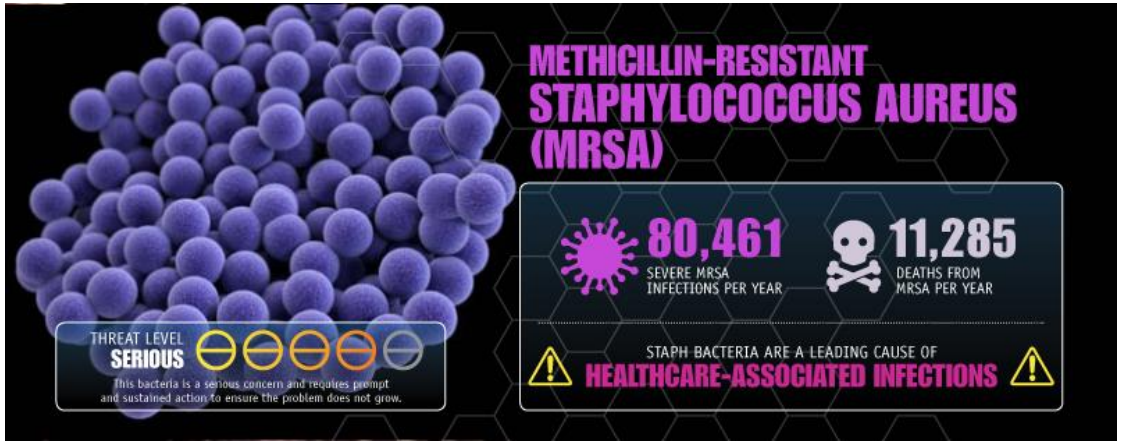



(Roghmann, et al., 2015; Blanco et al., 2017; Blanco et al., 2018)

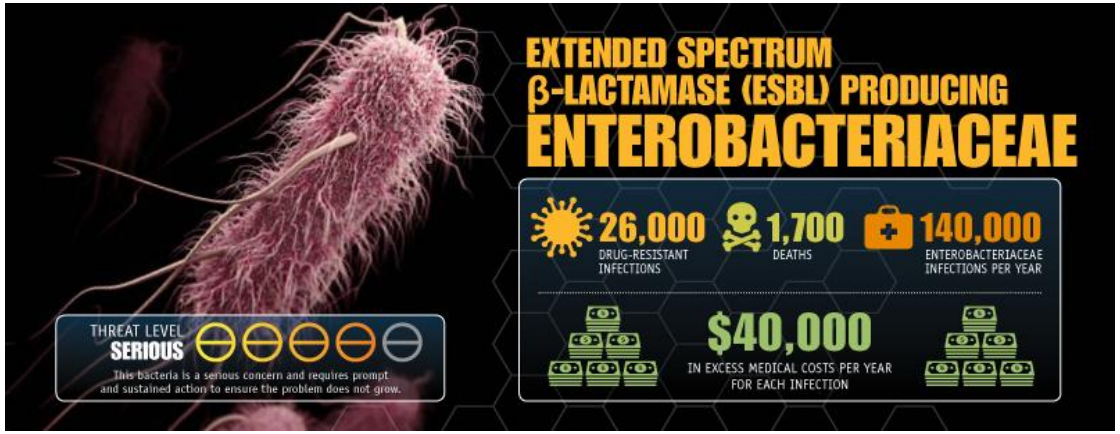
# Why Do We Need Enhanced Barrier Precautions?

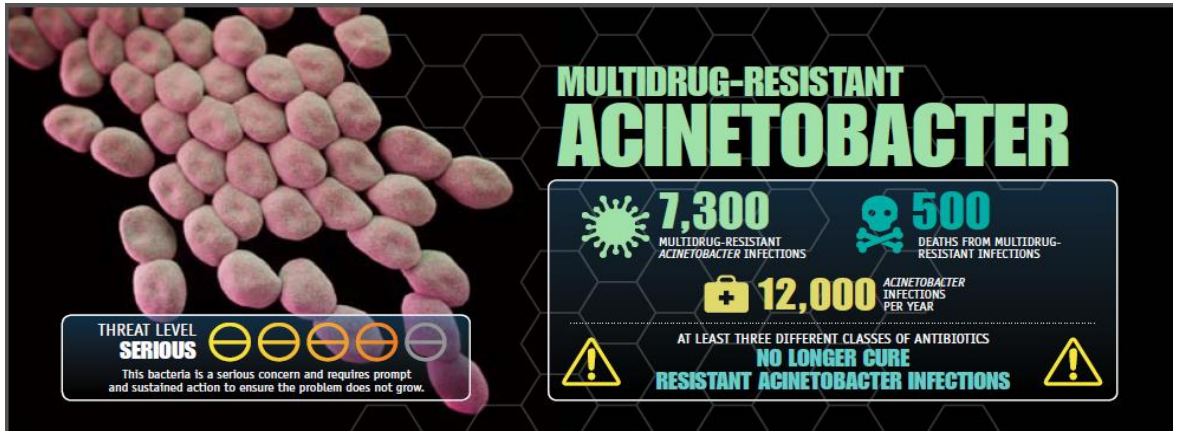
**Resident Quality of Life**

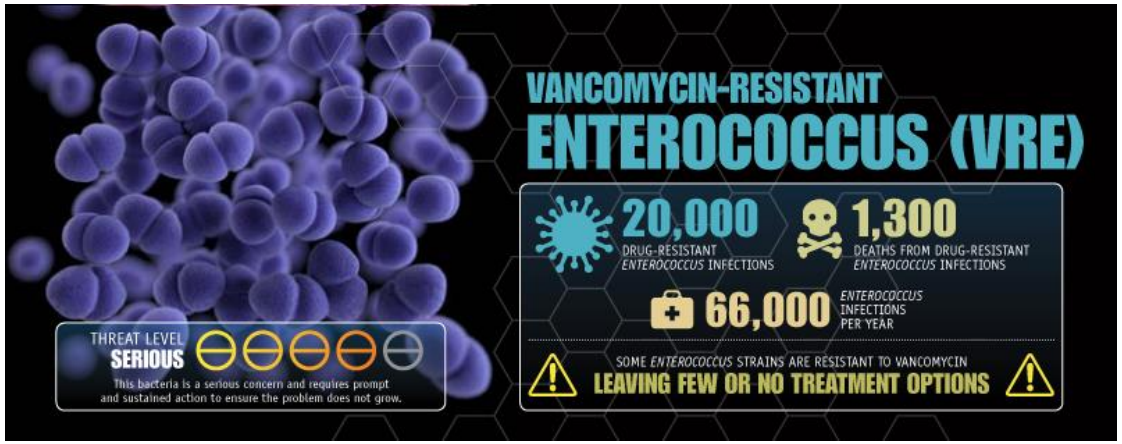
**Resident Safety**

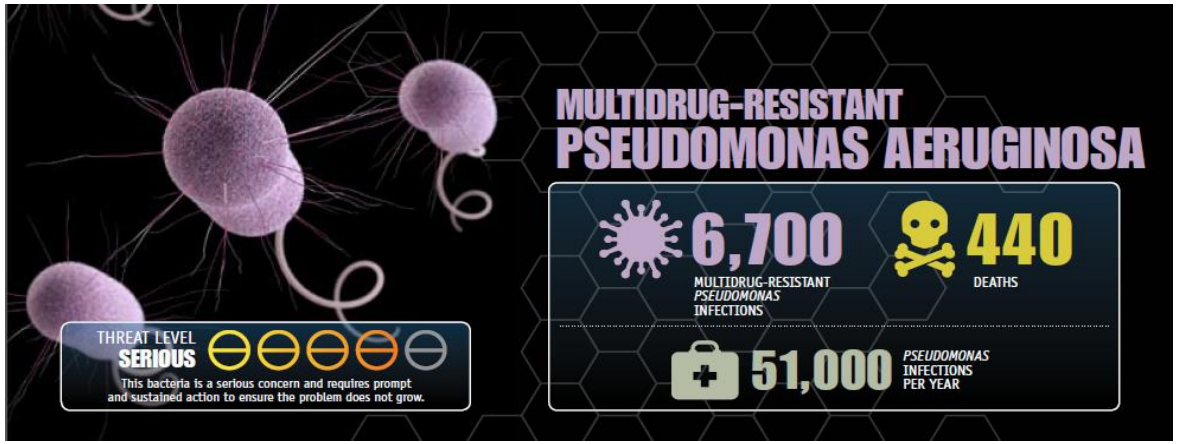

METHICILLIN-RESISTANT
STAPHYLOCOCCUS AUREUS
(MRSA)
80,461
SEVERE MRSA INFECTIONS PER YEAR
11,285
DEATHS FROM MRSA PER YEAR
STAPH BACTERIA ARE A LEADING CAUSE OF
HEALTHCARE-ASSOCIATED INFECTIONS
THREAT LEVEL
SERIOUS
This bacteria is a serious concern and requires prompt and sustained action to ensure the problem does not grow.

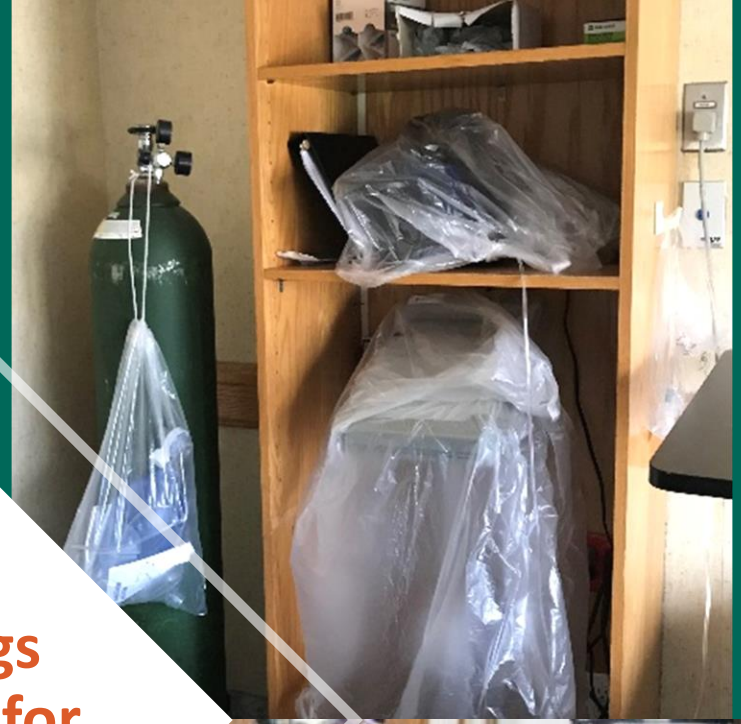

CARBAPENEM-RESISTANT
ENTEROBACTERIACEAE
9,000
DRUG-RESISTANT INFECTIONS PER YEAR
600
DEATHS
CARBAPENEM-RESISTANT KLEBSIELLA SPP.
7,900
1,400
CARBAPENEM-RESISTANT E. COLI
CRE HAVE BECOME RESISTANT TO ALL OR NEARLY ALL AVAILABLE ANTIBIOTICS
THREAT LEVEL
URGENT
This bacteria is an immediate public health threat that requires urgent and aggressive action.


EXTENDED SPECTRUM
β-LACTAMASE (ESBL) PRODUCING
ENTEROBACTERIACEAE
26,000
DRUG-RESISTANT INFECTIONS
1,700
DEATHS
140,000
ENTEROBACTERIACEAE INFECTIONS PER YEAR
$40,000
IN EXCESS MEDICAL COSTS PER YEAR FOR EACH INFECTION
THREAT LEVEL
SERIOUS
This bacteria is a serious concern and requires prompt and sustained action to ensure the problem does not grow.


MULTIDRUG-RESISTANT
ACINETOBACTER
7,300
MULTIDRUG-RESISTANT ACINETOBACTER INFECTIONS
500
DEATHS FROM MULTIDRUG-RESISTANT INFECTIONS
12,000
ACINETOBACTER INFECTIONS PER YEAR
AT LEAST THREE DIFFERENT CLASSES OF ANTIBIOTICS
NO LONGER CURE
RESISTANT ACINETOBACTER INFECTIONS
THREAT LEVEL
SERIOUS
This bacteria is a serious concern and requires prompt and sustained action to ensure the problem does not grow.


VANCOMYCIN-RESISTANT
ENTEROCOCCUS (VRE)
20,000
DRUG-RESISTANT ENTEROCOCCUS INFECTIONS
1,300
DEATHS FROM DRUG-RESISTANT ENTEROCOCCUS INFECTIONS
66,000
ENTEROCOCCUS INFECTIONS PER YEAR
SOME ENTEROCOCCUS STRAINS ARE RESISTANT TO VANCOMYCIN
LEAVING FEW OR NO TREATMENT OPTIONS
THREAT LEVEL
SERIOUS
This bacteria is a serious concern and requires prompt and sustained action to ensure the problem does not grow.


MULTIDRUG-RESISTANT
PSEUDOMONAS AERUGINOSA
6,700
MULTIDRUG-RESISTANT PSEUDOMONAS INFECTIONS
440
DEATHS
51,000
PSEUDOMONAS INFECTIONS PER YEAR
THREAT LEVEL
SERIOUS
This bacteria is a serious concern and requires prompt and sustained action to ensure the problem does not grow.

# Nursing home settings provide opportunities for transmission

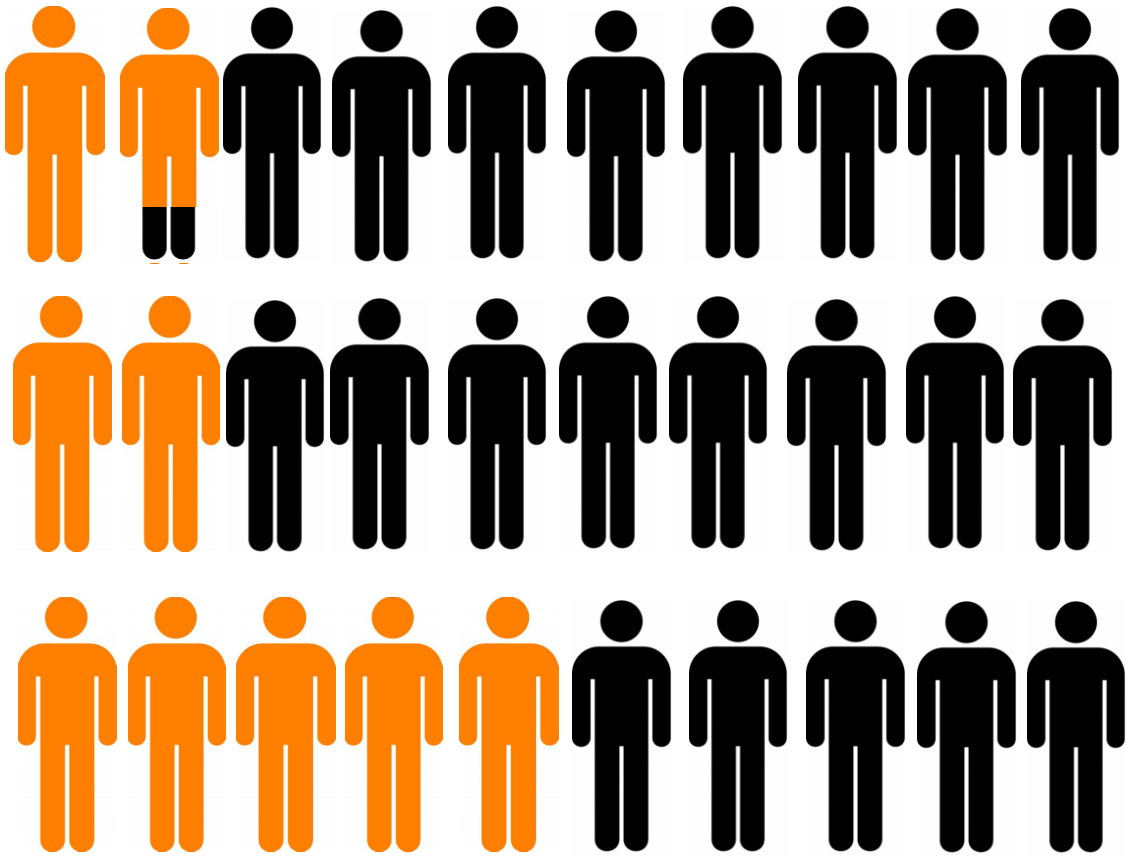
# Older adults are at high risk for infections with MDROs

# Risk Factors for Colonization with MDROs

- Indwelling medical device (urinary catheter, PEG tube, trach, central line)
- Lower functional status
- Presence of wounds or decubitus ulcers
- Antibiotic use in prior 3 months
- Fluoroquinolone use
- History of hospitalization
- Older age
- Comorbid medical conditions

(Mody et al., 2007; Cassone and Mody, 2015)

# MDRO Prevalence



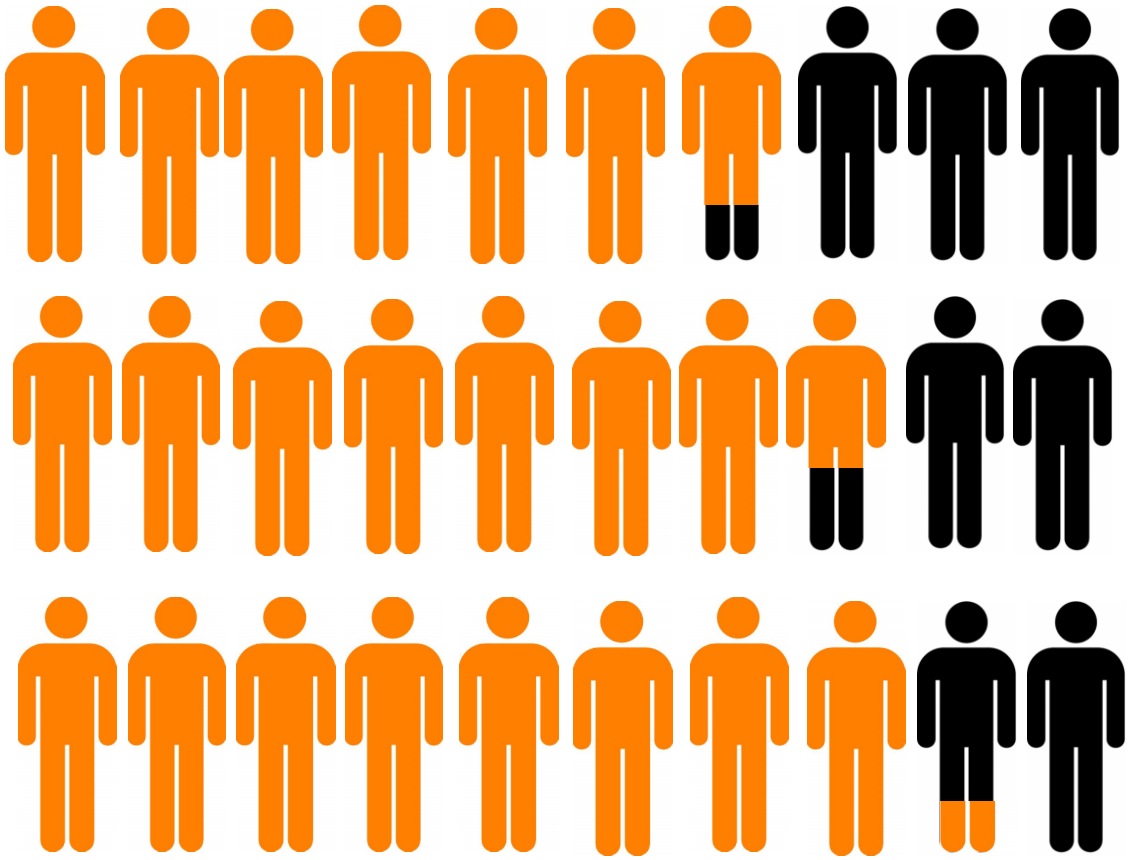
Known MDRO

No Known MDRO

| Facility Type | % With Known MDRO |
|---|---|
| SNF (n = 14) | 17% |
| vSNF (n = 4) | 20% |
| LTACH (n = 3) | 50% |

(McKinnell, et al., 2019)

# MDRO Prevalence



Known MDRO

No Known MDRO

| Facility Type | % Found with MDRO |
|---|---|
| SNF (n = 14) | 58% |
| vSNF (n = 4) | 76% |
| LTACH (n = 3) | 82% |

(McKinnell, et al., 2019)

## MDRO Prevalence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(McKinnell, et al., 2019)

# Enhanced Barrier Precautions: How?

# How to be Successful with Implementing EBP

- **Know your residents**
  - **MDRO Status (if known)**
    - Current residents and new admissions
  - **Indwelling Medical Devices**
    - Central line, urinary catheter, G/NG/PEG tube, tracheostomy, and ventilator
  - **Wound(s) requiring a dressing**

G – Gastrostomy, NG – Nasogastric, PEG – Percutaneous Endoscopic Gastrostomy

# How to be Successful with Implementing EBP

- Hand Hygiene
- Auditing
- PPE Use
- Environmental Cleaning and Disinfection
- Communication

# Hand Hygiene

- Use Alcohol-Based Hand Sanitizer prior to and after performing any hands-on activity with resident
  - Including before and after donning and doffing gloves

- Recommendation to use soap and water if hands are visibly soiled, before eating, and after using the restroom

https://www.cdc.gov/handhygiene/providers/index.html

# Auditing

- Audit consistently appropriate use and compliance with hand hygiene, PPE don/doff, and environmental cleaning and disinfecting
- Can be either paper or electronic documentation
- Share your results and provide real-time feedback

# PPE Use

- **PPE Use**
  - Ensure staff understand when and what types of PPE are recommended during activities with residents
  - Ensure appropriate storage and accessibility of PPE at point of care locations

# Environmental Cleaning and Disinfection

- Effective cleaning and disinfection of facility surfaces and equipment is critical
- Focus on daily cleaning and disinfection of high touch surfaces
- Clean and disinfect non-disposable, non-dedicated (i.e., shared between patients) equipment after each use

# Environmental Cleaning and Disinfection

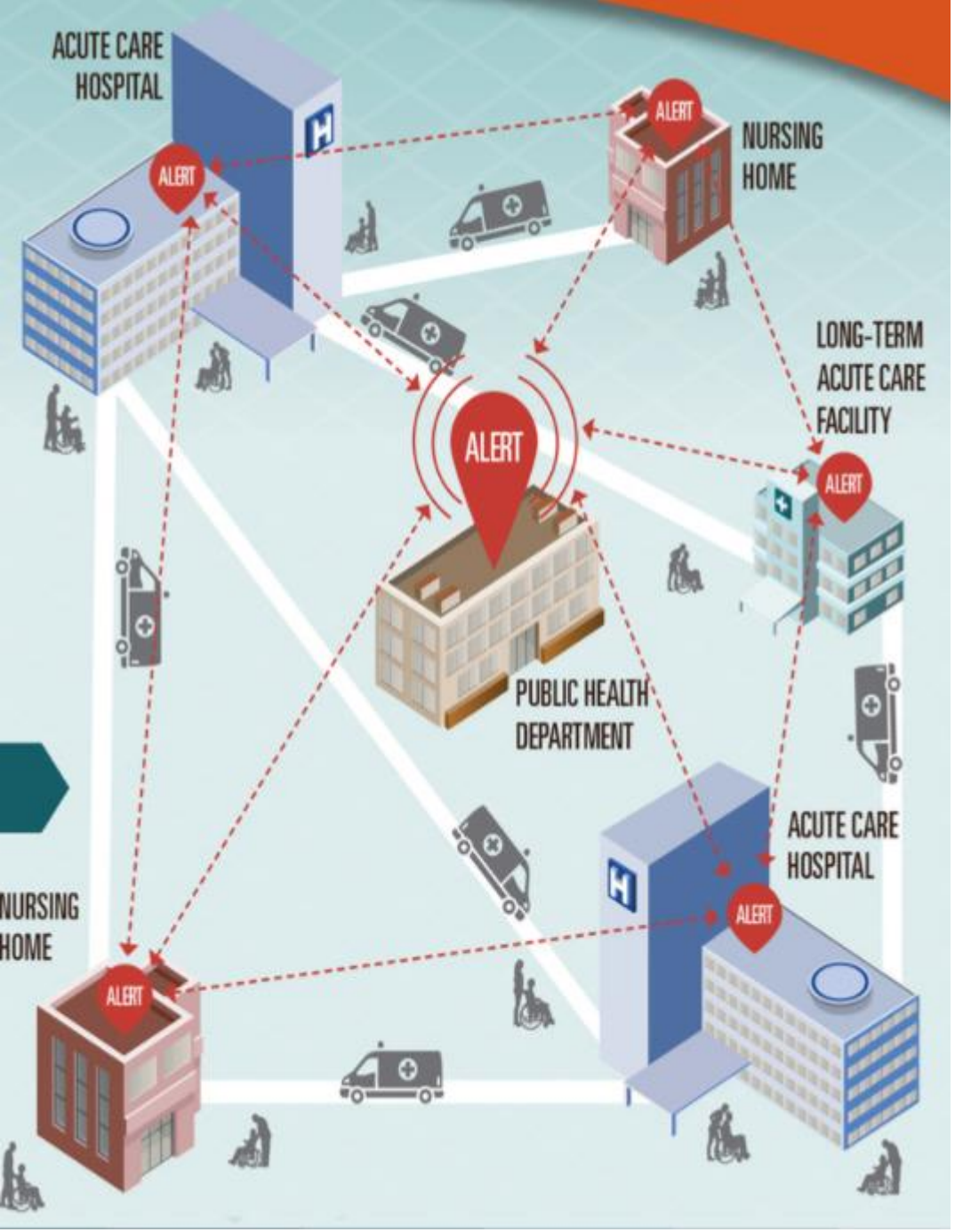
- Ensure you are using the right cleaning/disinfection product for the correct contact time (dwell time)
- Contact time: The amount of time a disinfectant must remain wet on a surface to be effective
- Know your facility and regional epidemiology
- Establish a “who cleans what” list for all staff

# Communication

- Ask the transferring unit, hall, facility for MDRO history and current MDRO infection or colonization
- Use appropriate recommended signs for residents requiring Transmission-Based Precautions or Enhanced Barrier Precautions

# Communication

- Health Departments
- Within your facility
- Other healthcare providers and facilities
- Your residents, staff, and families




## Coordinated Approach *(Needed)*

- Public health departments track and **alert** health care facilities to antibiotic-resistant or *C. difficile* germs coming from other facilities and outbreaks in the area.
- Facilities and public health authorities share information and implement shared infection control actions to stop spread of germs from facility to facility.

# Educational Resources

- **Don’t Reinvent the Wheel**
  - Use the resources available
  - Provide numerous options for learning (auditory, visual, tactile)
  - Give and receive feedback


# Limiting Further Transmission

When to Use Standard Precautions, Transmission-Based Precautions, or Enhanced-Barrier Precautions

# Standard Precautions

## Used in all settings with all residents

- **Gloves**
  - Use when anticipating touching blood, body fluids, secretions, excretions, contaminated items, and touching mucous membranes and non-intact skin
- **Gowns**
  - Use during any procedure and resident care activity when contact anticipated with blood/body fluids, secretions, or excretions
- **Mask, goggles, or face shield**
  - Use during any activity likely to generate splashes or sprays with blood, body fluids, secretions, or excretions

# Contact Precautions

## Used in all settings with specific residents for all room entries

- Includes the use of gowns and gloves
- C. difficile, scabies, norovirus, and other conditions where Contact Precautions is recommended
- Presence of acute diarrhea, draining wounds, or other sites of secretions or excretions that are unable to be covered or contained
- On units where ongoing transmission is documented or suspected

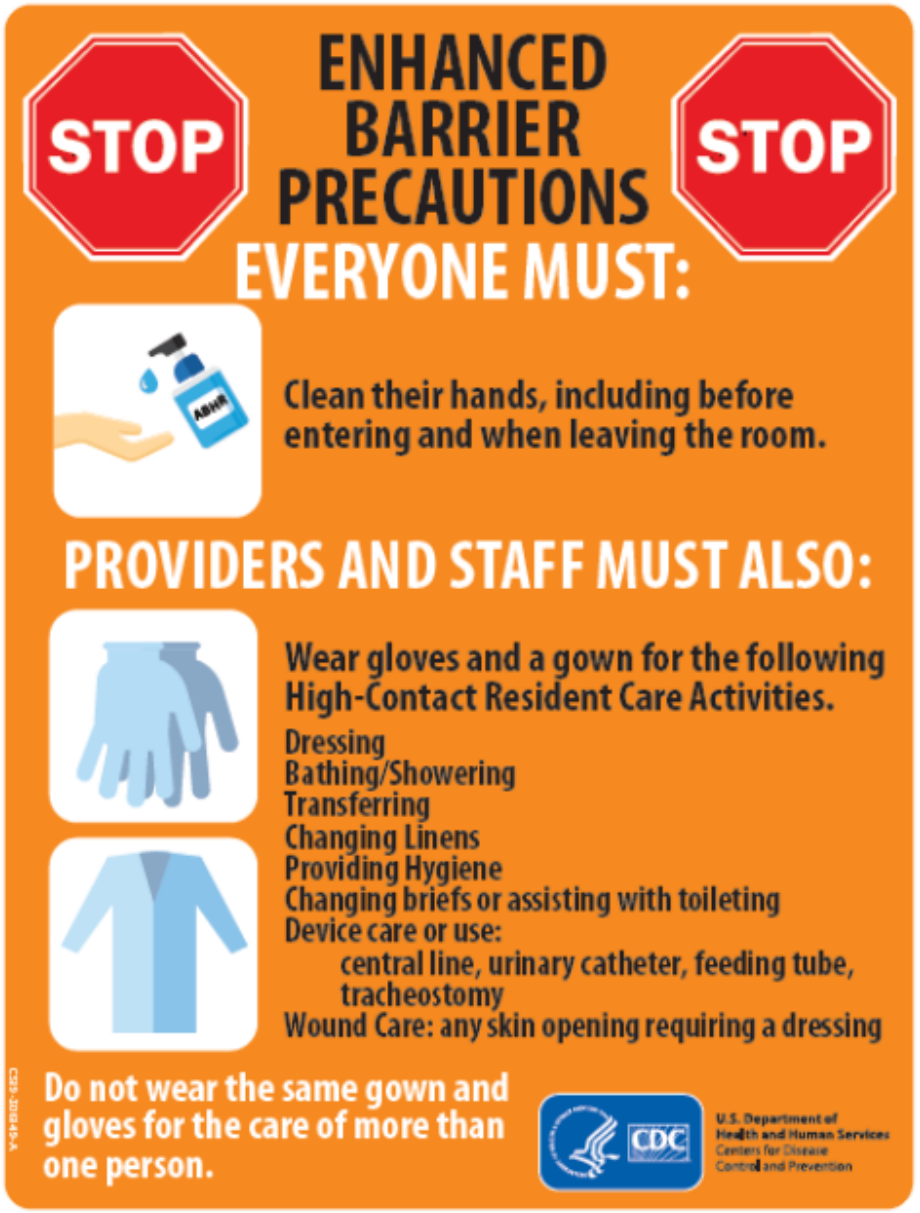

- Resident should be placed in a private room*
- Gowns and gloves are recommended for every entry into the room and for all activities being performed in the room
- Residents should be restricted to their room except for medically necessary movement
- Intended to be time-limited
  - to reduce transmission during a limited infectious period or period of high risk for transmission (e.g., acute care hospital stay)

*When a private room is unavailable, some residents may be cohorted

# Enhanced Barrier Precautions (EBP)

## Used in NH settings with specific resident situations and only during High-Contact Resident Care Activities

- Includes the use of gowns and gloves
- Infection or colonization with a novel or targeted MDRO *when Contact Precautions do not apply*
- Wounds/and or indwelling medical devices *regardless of MDRO colonization status* who reside on a unit or wing where a resident known to be infected or colonized with a novel or targeted MDRO resides




- Does not require a private room
- Gowns and gloves are recommended for High-Contact Resident Care Activities
- Residents are not restricted to their room
- Intended to be used for the resident's entire length of stay in the facility

# Scenarios for TBP or EBP

**Resident of a nursing home with acute diarrhea x1wk. He has a tracheostomy and colonization with vancomycin-resistant enterococci (VRE) . Acute diarrhea resolves and does not recur.**

- What type of precautions, if any, would you recommend for the resident while he has acute diarrhea?
- What type of precautions, if any, should be used after resolution of the acute diarrhea?
- How long should the resident be on precautions, if any?

# Scenarios for TBP or EBP

**Resident of a nursing home has had an indwelling urinary catheter to promote wound healing. She has a history of being colonized with carbapenem-resistant *Escherichia coli* (*E. coli*) . The wound is now healed, and the indwelling urinary catheter has been discontinued. The resident has no other wounds or indwelling medical devices.**

- What type of precautions, if any, would you recommend for the resident?
- How long should the resident be on precautions, if any?

# Scenarios for TBP or EBP

## Do residents placed on Enhanced Barrier Precautions for a novel or targeted MDRO require placement in a single-person room?

- No. Single-person rooms should be prioritized for residents placed on Contact Precautions
- Residents on EBP may share rooms with other residents
- If there are multiple residents with a novel or targeted MDRO in the same facility, consider cohorting them together in one wing or unit to decrease the direct movement of HCP

# Enhanced Barrier Precautions – Not Recommended For:

- Residents of Long-Term Acute Care Hospitals, Assisted Living Facilities, Residential Care Facilities, or patients of Acute Care Hospitals
- Residents with acute diarrhea, unable to contain excretions or secretions
- Residents with conditions where Contact Precautions are recommended to be used (i.e., *C. diff*., scabies, norovirus)
- For facilities with ongoing MDRO transmission

# Review of Enhanced Barrier Precautions (EBP) Pilot with Genesis

# Genesis EBP Pilot: The Basics

## EBP Criteria

- Colonization or infection with any MDRO
- Wounds and/or indwelling medical devices
- EBP implemented facility wide in a variety of different long-term care facilities

## Create an implementation plan

- 2-4 weeks for implementation
- 3 months of intervention

# Genesis EBP Pilot: The Basics

## Outcomes

- Staff adherence to EBP
- Staff, resident, and family member feedback
- Description of residents meeting EBP criteria
- Change in hospitalization and infection
- Burden, including cost

# Center Demographics

Total of 10 skilled nursing centers participated

- 7 in Pennsylvania
- 3 in Rhode Island

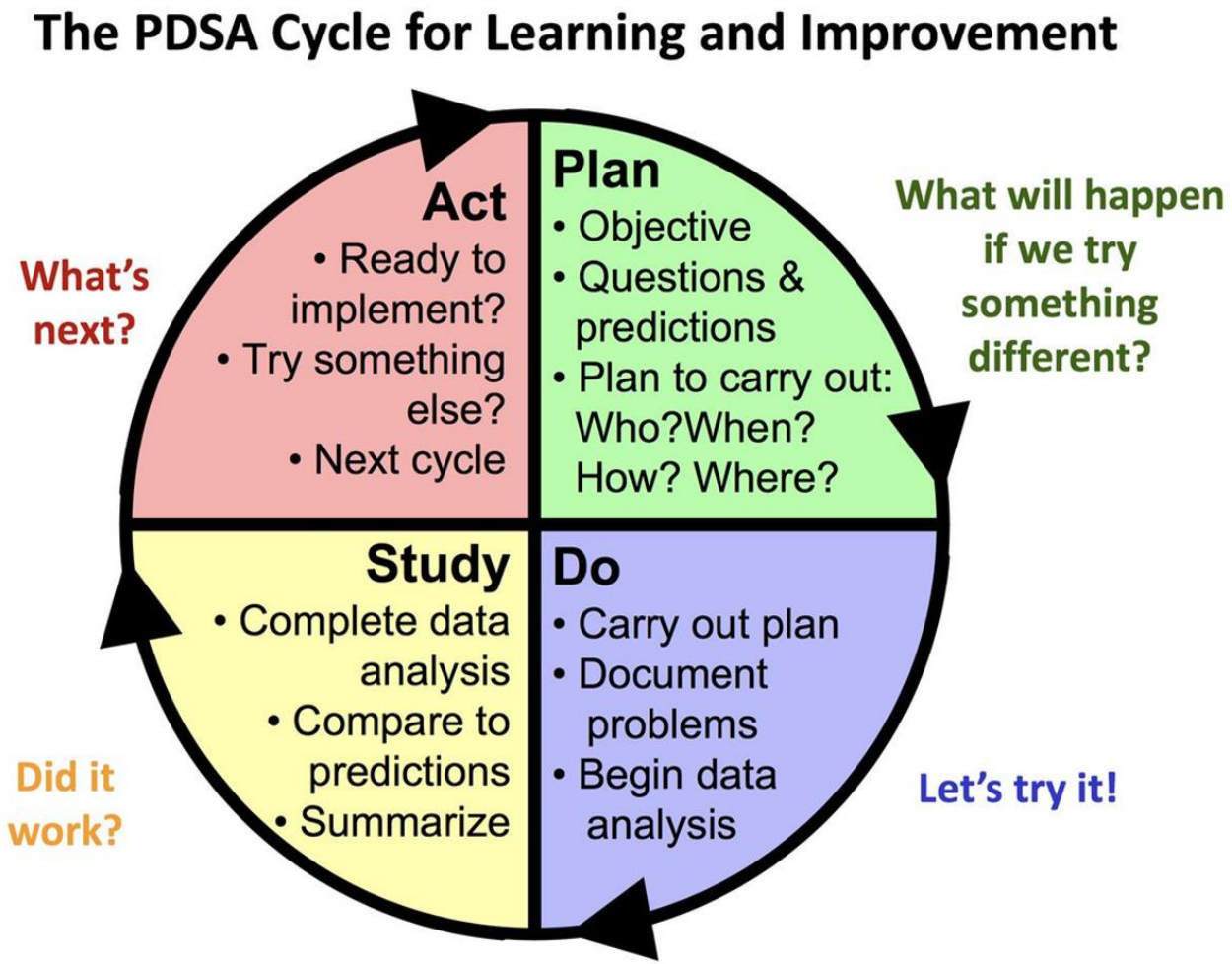
2 centers had mechanical ventilation units

9 centers had short stay/rehab units and traditional long-term care units

1 center was a PowerBack – all private rooms, total short stay

Number of beds per center ranged from 106 – 238

# Implementation Plan



# Implementation Guide

- Planning
- Training and educating staff
- Education for residents, families, and visitors
- Communication
- Ordering/stocking precautions signs
- Supply of PPE and isolation carts
- Location sites for isolation carts, ABHS dispensers, and disinfectant wipes

- Implementation as a standing item in QAPI
- Identifying residents with qualifying characteristics for placement on EBP
- Placement of residents on EBP or Contact Precautions
- Documentation - line list, care plan





## Welcome to Our Center!

We are committed to a culture of patient safety in this facility, from the nursing staff, to the administrative office, to the environmental services department. The infection prevention and control department would like to share with you some of the clinical practices we use to prevent the spread of germs here, at Genesis Healthcare, based on nationally recognized standards of care.

You will notice that our staff may wear personal protective equipment, or PPE, such as gowns and gloves for patient care, such as bathing, dressing, grooming, toileting and changing linens.

This is in accordance with CDC recommendations for certain standards of patient care and also as a result of a deeper commitment to protecting you or your loved one from the germs of the patient we last cared for.

Our staff take care of many patients, and like honeybees, if we are not careful, can transfer germs from patient to patient, just like a honey bee pollinates flowers in a field. We don't want to be honeybees. We want to provide safe, effective and competent care for you or your loved one, by wearing the proper PPE to prevent the risk of transmission.

If you have any questions about this practice, please ask to speak to your nurse or the Infection Preventionist for this facility.
Thank you!

- Targeted education provided to:
  - Residents and their families
  - Nursing and Rehab staff
  - Environmental Services
- Inform:
  - Medical Providers
  - State Surveyors

# Plan Your Workflow

**THINK**

- What residents am I assigned to?
- Are any residents on Transmission-Based Precautions?
- How do I organize my time?
- Which residents should I care for first?

**PLAN: BUNDLE**

- What supplies do I need to care for the resident?
- What PPE do I need to wear and when?
- How many glove changes do I anticipate?
- Are hand hygiene supplies readily available?
- In what order should I perform resident care tasks?

**DO**

- Bathing, dressing, transferring residents from beds to chairs and back, and wound/other procedures
- REMEMBER: Clean versus Dirty – you'll need to change gloves and perform hand hygiene several times

# Chapel Manor – Tara Winter, Center Executive Director

- While financials are important, she is more quality and customer driven
    - Resident and employee satisfaction is her focus
- Progressive leader
    - Make center different in the market
    - Take on the new and different
- Empty rooms
- Chapel Manor takes risks – opens door to develop partner relationships with hospitals and department of health
    - Capitalize on the opportunity
- Amazing team, especially nursing leadership, strong core team
- Found that if she says, “we can do it” and the team believes they can

# Chapel Manor – Tara Winter, Center Executive Director

- Work together for the best result for the resident
  - COVID pointed out the strengths and weaknesses of the healthcare industry
  - Lesson learned – if we come together and work together and rather than in silos, we can benefit our residents
- Employees want to be challenged and engaged
  - Superior relationship with the Philadelphia DOH – very supportive
  - Embrace the DOH and they will embrace you
  - The DOH wants you to succeed
- Stressed to center employees
  - The city DOH reached out to them for their opinion and help
  - Pump staff up

# Why did Residents meet EBP Criteria?

## Number and Proportion of Residents Meeting EBP Criteria

| Indication | Number of Residents Total = 319 | Percentage |
|---|---|---|
| Wounds | 138 | 43% |
| Indwelling Device | 149 | 47% |
| Novel/Target Organism | 12 | 4% |
| Any other MDRO | 141 | 44% |

# What is the Proportion of Residents meeting EBP Criteria in Different Centers?

| Center Description | Met EBP Criteria |
|---|---|
| **Center #1:**<br>• Mostly long-stay residents<br>• Short-stay unit<br>• CENSUS = 238 | **66/238 = 28%**<br>• MDRO = 36 (55%)<br>• Wound = 29 (44%)<br>• Device = 23 (35%)<br>*20 (30% met >1 criteria) |
| **Center #2:**<br>• Short-stay only<br>• Average LOS ≤ 2 weeks<br>• CENSUS = 110 | **10/110 = 9%**<br>• MDRO = 2 (20%)<br>• Wound = 1 (10%)<br>• Device = 7 (70%)<br>*No residents met >1 criteria |
| **Center #3:**<br>• Provides ventilator services<br>• Mix of long- and short-stay residents<br>• CENSUS = 130 | **54/130=42%**<br>• MDRO = 32 (59%)<br>• Wound = 24 (44%)<br>• Device = 29 (54%)<br>*27 **(50% met >1 criteria)** |

# Costs

Increase in cost associated with increased use of PPE

- Start-up costs greater than maintenance costs
  - PPE storage carts, ABHS, gowns, gloves
- Costs may differ from actual utilization
- Challenging to predict PPE utilization; supply purchases may have been an overestimate
- Centers with more residents meeting EBP criteria have increased costs

# Costs

## Feedback from Administrators

- Spread out implementation due to budget constraints
- Unanticipated cost = Increased trash pickup ( 1 vent center)

# Comments and Feedback During Pilot

- November comments initially given to IP – “I’m always going to have to put this on? It’s too much to put on each time.”
- December - CNE – Time consuming, takes away from prompt response and time with residents, no residents voicing complaints – residents and families do not have a problem voicing concerns
- IP - Feels like everyone being admitted has an MDRO

- February CNA - In the beginning it was hard, had to go in/out of room because I forgot something. But then I got used to it and it makes me plan ahead – what am I going to do and need, now it’s not bad and isn’t adding time
- Resident – Doesn’t bother me. Did request clarification again as to why staff wearing PPE

- IP - Patient’s families coming in expecting precautions because used in hospital
- Resident – Staff wears gowns and gloves during care, doesn’t make me feel bad
- January from IP - No residents refused; they like the extra protection. Staff have incorporated into their workflow

# Updates to Enhanced Barrier Precautions

# Healthcare Infection Control Practices Advisory Committee (HICPAC) White Paper – June 2021

- Considerations for Use of Enhanced Barrier Precautions in Skilled Nursing Facilities

- EBP may be applied (when Contact Precautions do not otherwise apply) to residents with any of the following:
  - Wounds or indwelling medical devices, regardless of MDRO colonization status
  - Infection or colonization with an MDRO

# Enhanced Barrier Precautions Updates

| **2019 Public Health Response: Recommended for Residents (*on the same unit* as the resident with novel/targeted MDRO) With** | **2021 Updates: Recommended for Residents (*when Contact Precautions do not apply*) With** |
|---|---|
| Wounds *regardless of MDRO colonization status* | Wounds *regardless of MDRO colonization status* |
| Infection or colonization with a novel or targeted MDRO *when Contact Precautions do not apply* | Infection or colonization with an MDRO |
| An indwelling medical device | An indwelling medical device |

# Novel, Targeted, and Epidemiologically Important MDROs

| Examples of MDROs Targeted by CDC |
| --- |
| Pan-resistant organisms |
| Carbapenemase-producing carbapenem-resistant Enterobacterales |
| Carbapenemase-producing carbapenem-resistant *Pseudomonas* spp. |
| Carbapenemase-producing carbapenem-resistant *Acinetobacter baumannii* |
| *Candida auris* |

| Additional epidemiologically important MDROs may include, but are not limited to |
| --- |
| Methicillin-resistant *Staphylococcus aureus (MRSA)* |
| ESBL-producing Enterobacterales |
| Vancomycin-resistant *Enterococci (VRE)* |
| Multidrug-resistant *Pseudomonas aeruginosa* |
| Drug-resistant *Streptococcus pneumoniae* |

# Future Updates

- No longer focusing only on targeted or novel MDROs
- No longer focusing on outbreaks/public health response
- Expanding recommendations

# Contacts

- D.C. Health
  - doh.hai@dc.gov
- Maryland
  - mdh.ipcovid@maryland.gov – Maryland HAI Group
  - mdphl.arln@maryland.gov – Mid-Atlantic Regional Lab
- Virginia
  - hai@vdh.virginia.gov
- Massachusetts
  - 24/7 Epidemiology Line with questions: 617-983-6800

# CE Information for listening to this talk

**COURSE : WC4526-040522 - Enhanced Barrier Precautions in Skilled Nursing Facilities - April 5, 2021 (Webcast)**

**Course Detail:** https://tceols.cdc.gov/Course/Detail2/8511

**Course Access Code: MDRO2022**

**CE Expiration Date: 05/09/2022**

**Instructions for Obtaining Continuing Education (CE)**

**In order to receive continuing education (CE) for WC4526-040522 - Enhanced Barrier Precautions in Skilled Nursing Facilities - April 5, 2021 (Webcast) please visit TCEO and follow these 9 Simple Steps before May 9, 2022.**

# Recording and slides

- **The recording and slides will be posted to this website:**
  - **https://www.vdh.virginia.gov/haiar/mdro-containment-webinar-series/**

- **CE is also available on demand for the recording if any of your colleagues who didn't listen today would like to and receive CE in the future (see listed website for details)**

# Thank you

# Any Questions?

For more information, contact CDC
1-800-CDC-INFO (232-4636)
TTY: 1-888-232-6348 www.cdc.gov

# Resources

## Enhanced Barrier Precautions

Implementation of Personal Protective Equipment (PPE) in Nursing Homes to Prevent Spread of Novel or Targeted Multidrug-resistant Organisms (MDROs) (Current)
https://www.cdc.gov/hai/containment/PPE-Nursing-Homes.html

Frequently Asked Questions (FAQs) about Enhanced Barrier Precautions in Nursing Homes (Current)
https://www.cdc.gov/hai/containment/faqs.html

Considerations for Use of Enhanced Barrier Precautions in Skilled Nursing Facilities
https://www.cdc.gov/hicpac/workgroup/EnhancedBarrierPrecautions.html?msclkid=39038417aed311ec8c868e1e03c50297

# Resources

## Educational Resources

Project Firstline
https://www.cdc.gov/infectioncontrol/projectfirstline/healthcare/videos-graphics.html

CDC Train
https://cdc.train.org/cdctrain/welcome

Infection Prevention and Control Assessment Tool for Long-Term Care Facilities
https://www.cdc.gov/infectioncontrol/pdf/icar/ltcf.pdf

# Resources

## Hand Hygiene

Hand Hygiene and Standard Precautions Course
https://www.cdc.gov/handhygiene/training/interactiveEducation/

Clean Hands Count for Healthcare Providers
https://www.cdc.gov/handhygiene/providers/index.html

# Resources

## Personal Protective Equipment

Burn Rate Calculator – Version 2
https://www.cdc.gov/coronavirus/2019-ncov/downloads/hcp/PPE-Burn-Rate-Calculator-Version-2.2.xlsx

NIOSH PPE Tracker App
https://www.cdc.gov/niosh/ppe/ppeapp.html

# Resources

## Environmental Cleaning and Disinfection

CDC Environmental Cleaning Checklist
https://www.cdc.gov/hai/pdfs/toolkits/Environmental-Cleaning-Checklist10-28-2010.doc

CDC Environmental Checklist for Monitoring Terminal Cleaning
https://www.cdc.gov/hai/pdfs/toolkits/Environmental-Cleaning-Checklist-10-6-2010.pdf

CDC Environmental Cleaning Evaluation Worksheet (Excel)
https://www.cdc.gov/hai/pdfs/toolkits/Environmental-Cleaning-Eval-Worksheet-10-6-2010.xls

# Resources

## Communication

Interfacility Transfer Form
https://www.cdc.gov/hai/pdfs/toolkits/Interfacility-IC-Transfer-Form-508.pdf?msclkid=0dd6df40ac5911ec9ad0153afa2f9e30

# Resources

## State-Based Resources

State-based HAI Prevention Activities
https://www.cdc.gov/hai/state-based/index.html

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