



Enhanced Barrier Precautions (EBP): An Overview

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Objectives

The attendee will obtain an overview of:

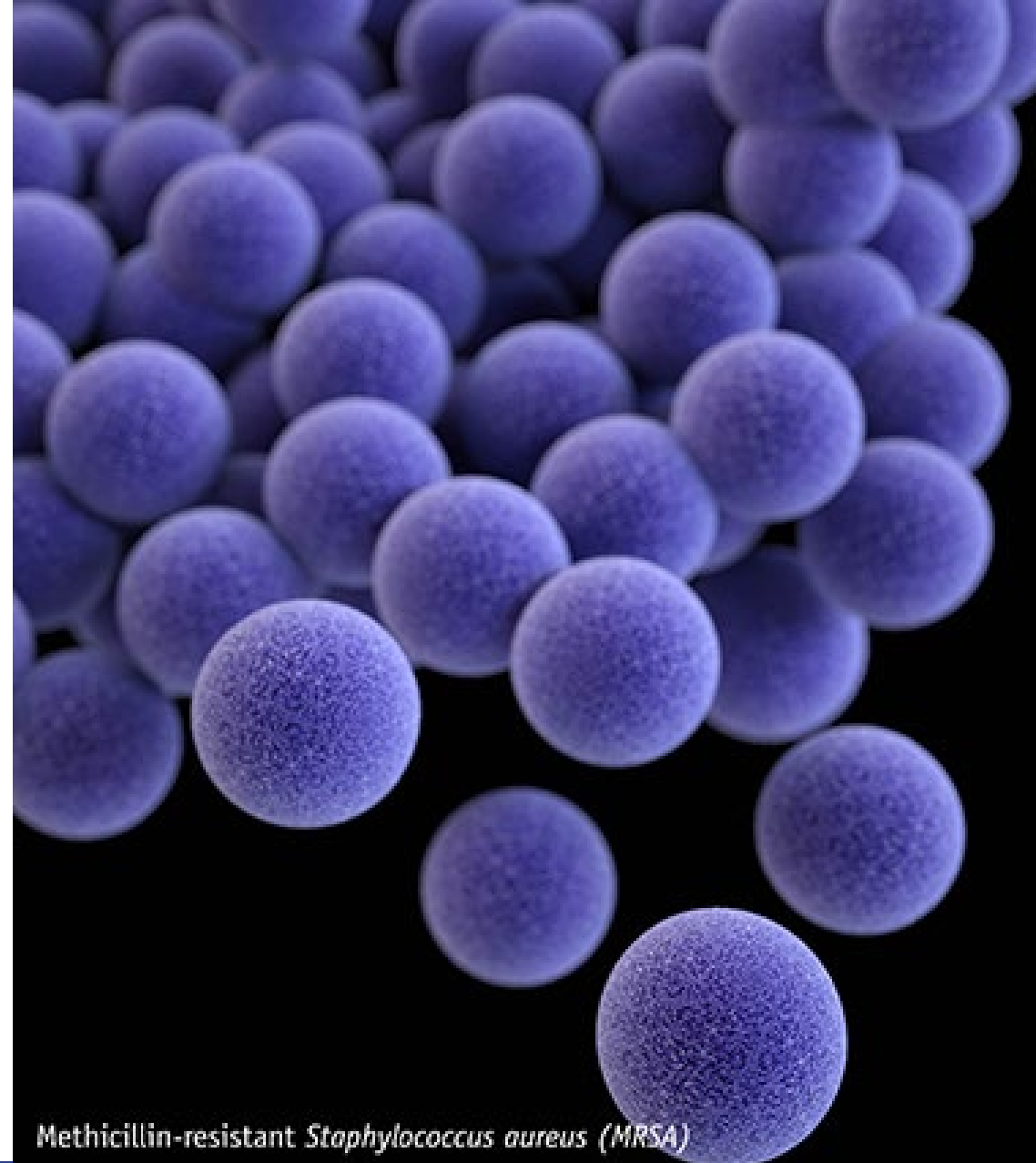
- A brief history of multidrug-resistant organisms (MDROs); the cause, spread, colonization, infection; and who is at risk
- The Centers for Disease Control and Prevention's (CDC) rationale for recommending Enhanced Barrier Precautions (EBP)
- Guidelines for implementation of EPBs to the nursing home population

Patient Case

A 64-year-old female is admitted to a skilled nursing facility from the hospital after a stay for sepsis and chronic kidney disease. Hemodialysis was initiated during the hospitalization and a tunneled dialysis catheter was placed. 26 days after her admission, she is found to have a temperature of 100.2 and a heart rate of 108. Initial labs are drawn, but she is discovered to be unresponsive the following day. She is sent to the hospital and diagnosed with MRSA bacteremia from a dialysis catheter associated infection.

What is an MDRO?

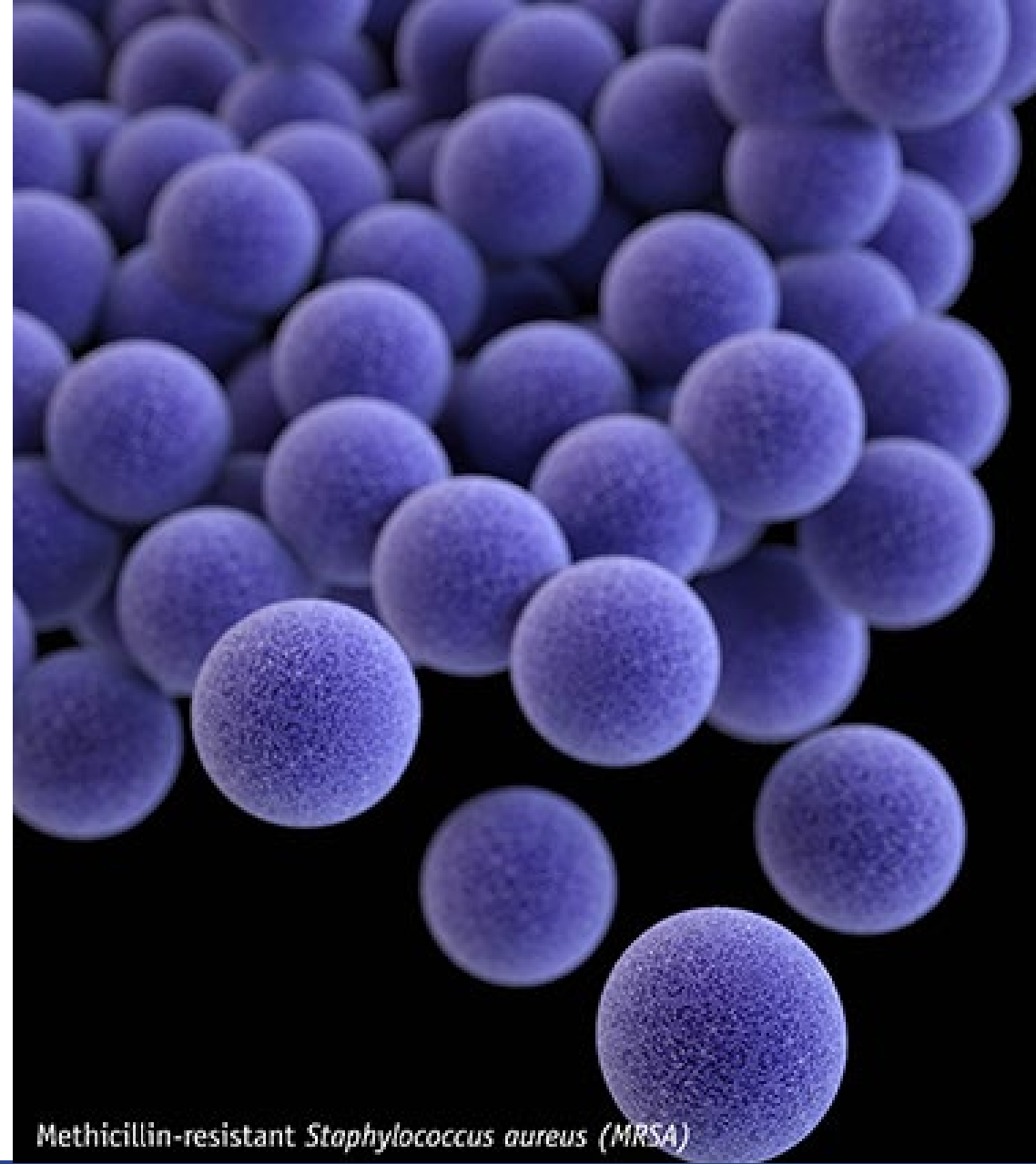
- Multidrug-resistant organisms (MDROs) are microorganisms (typically bacteria) that are resistant to one or more classes of antibiotics.
- These organisms are frequently resistant to most common antibiotics.
- MDRO infections are associated with longer hospital stays, increased costs, and higher mortality.
- The prevalence of MDROs have increased dramatically over the last few decades.



Methicillin-resistant *Staphylococcus aureus* (MRSA)

Colonization vs. Infection

- Colonization means that a potential bacterial pathogen is present on or in an individual's body.
- Colonization increases risk for infection, but does not necessarily indicate that an infection is present.
- Individuals who are chronically ill, immunosuppressed, or who have been recently admitted to the ICU are at increased risk of developing infections from bacteria they are colonized with.



Methicillin-resistant *Staphylococcus aureus* (MRSA)



The Rationale for EBP

- Residents in nursing homes are at increased risk of becoming colonized and developing infection with MDROs.
- About 50% of nursing home residents may be colonized with an MDRO.
- Focusing only on residents with active infection fails to address the continued risk of transmission.
- There is growing evidence that the traditional implementation of contact precautions in nursing homes is not implementable for most residents for prevention of MDRO transmission.



Guidelines for EBP Implementation

- ***Enhanced Barrier Precautions*** refers to the use of gown and gloves during high-contact resident care activities that provide opportunities for transfer of MDROs to staff hands and clothing.
- MDROs may be indirectly transferred from resident-to-resident during these **high-contact care activities**.
- Nursing home residents with **wounds and indwelling medical devices** are at especially high risk of both acquisition of and colonization with MDROs.



Guidelines for EBP Implementation

- The use of gown and gloves for **high-contact resident care activities** is indicated – when Contact Precautions do not otherwise apply – for nursing home residents with wounds and/or indwelling medical devices regardless of MDRO colonization, as well as for residents with MDRO infection or colonization.

High-Contact Care Activities

Examples of high-contact resident care activities requiring gown and glove use for ***Enhanced Barrier Precautions*** include:

- Dressing
- Bathing/showering
- Transferring
- Providing hygiene (brushing teeth, combing hair, shaving)
- Changing briefs or assisting with toileting
- Changing linens
- Device **care or use**: central line, urinary catheter, feeding tube, tracheostomy/ventilator
- Wound care – refer to CDC’s Frequently Asked Questions
- Physical & occupational therapy

Chronic Wounds

The intent of EBP is to focus on residents with a higher risk of acquiring an MDRO over a prolonged period of time.

- This generally includes residents with chronic wounds and not those with only shorter-lasting wounds, such as skin breaks or skin tears covered with a bandage or similar dressing.
- Examples include, but are not limited to:
 - Pressure ulcers
 - Diabetic foot ulcers
 - Unhealed surgical wounds
 - Chronic venous stasis ulcers



Indwelling Medical Devices

- Central vascular lines
- Hemodialysis catheters
- Indwelling urinary catheters
- Feeding tubes
- Tracheostomy tubes



Things to Consider About EBP

- EBP is simply that! **Enhancing** the current standard and transmission-based Precautions.
- Gown and gloves used for each resident during high-contact resident care activities should be removed after each resident encounter.
- Hand hygiene should be performed and new gown and gloves should be donned before caring for a different resident.
- **Not recommended for residents with Clostridioides difficile. Continue isolation and contact precautions.**
- Residents do not require a private room and are not restricted to their rooms.

More Things to Consider About EBP

- Intended to be in place for the duration of a resident's stay in the facility or until resolution of the wound or discontinuation of the indwelling medical device that placed them at higher risk.
- Intended for MDROs and do not replace existing guidance regarding use of contact precautions.
- Enhanced Barrier Precautions are **primarily intended to apply to care that occurs within a resident's room** where high-contact resident care activities – including transfers – are bundled together with other high-contact activity, such as part of morning or evening care.

Does EBP Work?

Original Investigation

A Targeted Infection Prevention Intervention in Nursing Home Residents With Indwelling Devices A Randomized Clinical Trial

Lona Mody, MD; Sarah L. Krein, PhD; Sanjay Saint, MD; Lillian C. Min, MD; Ana Montoya, MD; Bonnie Lansing, LPN; Sara E. McNamara, MPH; Kathleen Symons, BA; Jay Fisch, BS; Evonne Koo, MPH; Ruth Anne Rye, BS; Andrzej Galecki, MD, PhD; Mohammed U. Kabeto, MS; James T. Fitzgerald, PhD; Russell N. Olmsted, MPH; Carol A. Kauffman, MD; Suzanne F. Bradley, MD

IMPORTANCE Indwelling devices (eg, urinary catheters and feeding tubes) are often used in nursing homes (NHs). Inadequate care of residents with these devices contributes to high rates of multidrug-resistant organisms (MDROs) and device-related infections in NHs.

OBJECTIVE To test whether a multimodal targeted infection program (TIP) reduces the prevalence of MDROs and incident device-related infections.

DESIGN, SETTING, AND PARTICIPANTS Randomized clinical trial at 12 community-based NHs from May 2010 to April 2013. Participants were high-risk NH residents with urinary catheters, feeding tubes, or both.

INTERVENTIONS Multimodal, including preemptive barrier precautions, active surveillance for MDROs and infections, and NH staff education.

MAIN OUTCOMES AND MEASURES The primary outcome was the prevalence density rate of

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The Study

- Enhanced barrier precautions were utilized in 203 residents with indwelling devices from 6 different nursing homes and compared to a control group of 215 residents.
- Barrier precaution signs were placed on the doors to their rooms, inside their closet, at the nurses' station, and on their medical records.
- The study also included active surveillance for infections and MDROs, hand hygiene promotion, and structured infection prevention education in the control group.
- Infection preventionists at the intervention facilities were invited to a conference on surveillance methods for infections.

Results

- There was a 23% reduction in the prevalence of all MDROs in the intervention group.
- There was a reduced incidence of new MRSA acquisition in the intervention group compared to the control group
- There was also a reduction in CAUTI in the intervention group compared to the control group.



Does the patient require a private room?

No. Single-person rooms (if available):

- Should be prioritized for residents who have acute infection with a communicable disease (such as influenza, SARS-CoV-2, hepatitis A) or
- For residents placed on **Contact Precautions** for presence of acute diarrhea, draining wounds, or other sites of secretions or excretions that are unable to be covered or contained.



Shared Rooms

- Residents on Enhanced Barrier Precautions may share rooms with other residents.
- Facilities with capacity to offer single-person rooms or create roommate pairs based on MDRO colonization may choose to do so.
- If there are multiple residents with the same MDRO in the facility, consider cohorting them together in one wing or unit to decrease spread.



Shared Rooms

- When single-patient rooms are not available, cohort patients with the same MDRO in the same room or patient-care area.
- When cohorting patients with the same MDRO is not possible, place MDRO patients in rooms with patients who are at low risk for acquisition of MDROs and associated adverse outcomes from infection and are likely to have short lengths of stay. (e.g. no open wounds, no invasive medical devices, not immunocompromised).

Implementing Contact versus Enhanced Barrier Precautions

Resident Status	Contact Precautions	EBP
Infected or colonized with any MDRO and has secretions or excretions that are unable to be covered or contained.	Yes	No
Infected or colonized with a CDC-targeted MDRO without a wound, indwelling medical device or secretions or excretions that are unable to be covered or contained.	No	Yes
Infected or colonized with a non-CDC targeted MDRO without a wound, indwelling medical device, or secretions or excretions that are unable to be covered or contained.	No	At the discretion of the facility
Has a wound or indwelling medical device, and secretions or excretions that are unable to be covered or contained and are not known to be infected or colonized with any MDRO.	Yes, unless/until a specific organism is identified.	Yes, if they do not meet the criteria for contact precautions
Has a wound or indwelling medical device, without secretions or excretions that are unable to be covered or contained and are not known to be infected or colonized with any MDRO.	No	Yes

More Signs!



ENHANCED BARRIER PRECAUTIONS



EVERYONE MUST:



Clean their hands, including before entering and when leaving the room.

PROVIDERS AND STAFF MUST ALSO:



Wear gloves and a 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 or use:
central line, urinary catheter, feeding tube,
tracheostomy



Wound Care: any skin opening requiring a dressing

Do not wear the same gown and gloves for the care of more than one person.



U.S. Department of
Health and Human Services
Centers for Disease
Control and Prevention

What about all those precaution signs?!

Signs are intended to signal to individuals entering the room the specific actions they should take to protect themselves and the resident.

To do this effectively, the sign must contain information about the type of Precautions and the recommended PPE to be worn when caring for the resident.

- Generic signs that instruct individuals to speak to the nurse are not adequate to ensure Precautions are followed.
- Signs should not include information about the resident's diagnosis or the reason for the Precautions (e.g., presence of a resistant pathogen).
- Inclusion of diagnosis or the reason for the Precautions of would violate HIPAA and resident dignity.



Know Your Resources for EBPs

- Implementation of Personal Protective Equipment (PPE) Use in Nursing Homes to Prevent Spread of Multidrug-resistant Organisms (MDROs) <https://www.cdc.gov/hai/containment/PPE-Nursing-Homes.html>
- Frequently Asked Questions (FAQs) about Enhanced Barrier Precautions in Nursing Considerations for Use of Enhanced Barrier Precautions in Skilled Nursing Facilities <https://www.cdc.gov/hai/containment/faqs.html>
- Enhanced Barrier Precautions Letter to Nursing Home Residents, Families, Friends, and Volunteers <https://www.cdc.gov/hai/pdfs/containment/letter-nursing-home-residents-families-friends-508.pdf>
- Enhanced Barrier Precautions Letter to Nursing Home Staff <https://www.cdc.gov/hai/pdfs/containment/letter-nursing-home-staff-508.pdf>
- Multidrug-Resistant Organisms (MDROs): What Are They? <https://portal.ct.gov/DPH/HAI/MultidrugResistant-Organisms-MDROs-What-Are-They>
- Isolation Precautions <https://www.cdc.gov/infectioncontrol/guidelines/isolation/index.html>
- Type and Duration of Precautions Recommended for Selected Infections and Conditions <https://www.cdc.gov/infectioncontrol/guidelines/isolation/appendix/type-duration-precautions.html>
- Nursing Home Infection Preventionist Training Course https://www.train.org/cdctrain/training_plan/3814
- Multidrug-resistant organisms (MDRO) Management <https://www.cdc.gov/infectioncontrol/guidelines/mdro/index.html>



Questions?

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