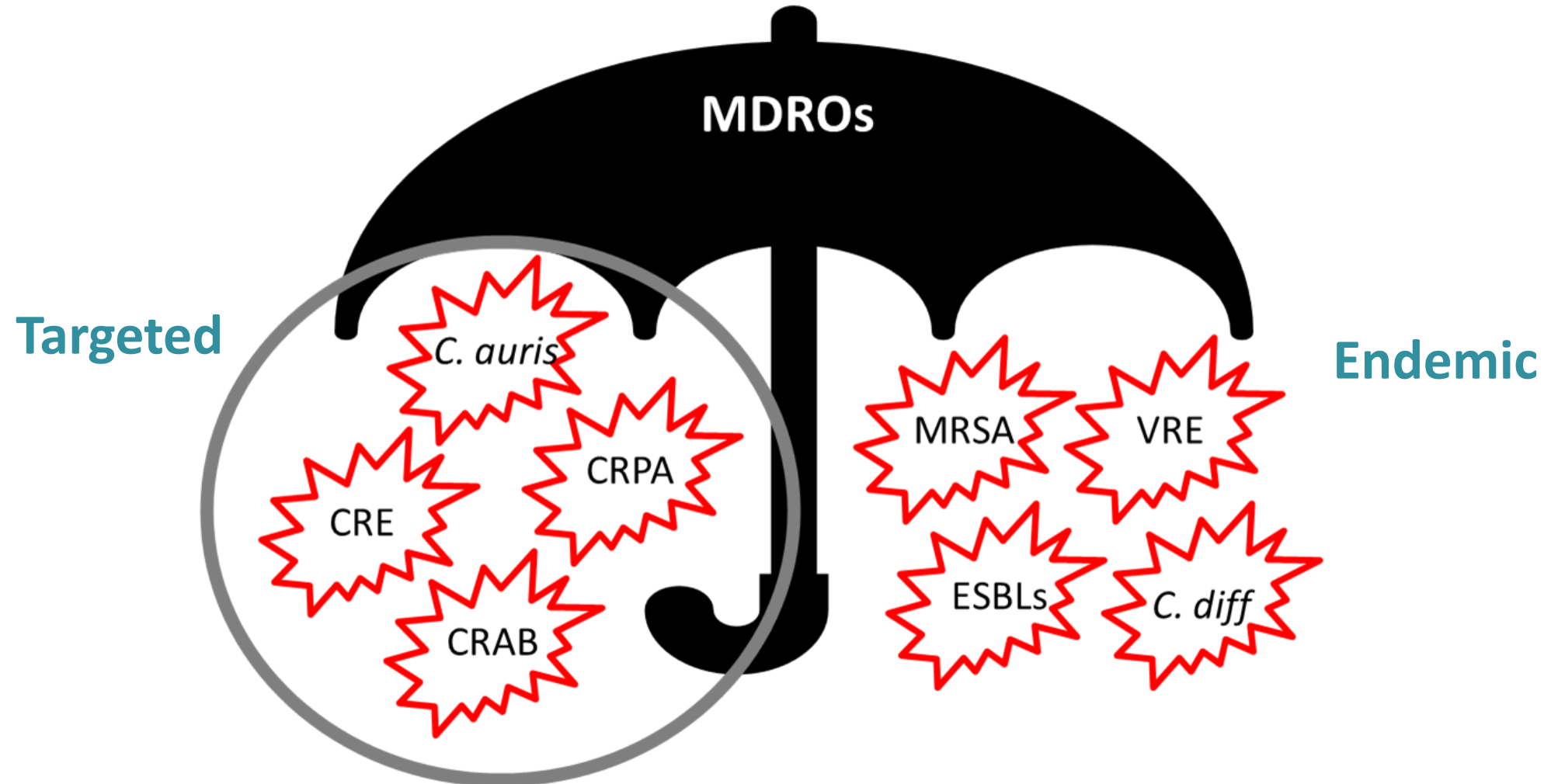


Preventing MDROs in Nursing Homes: **Enhanced Barrier Precautions**

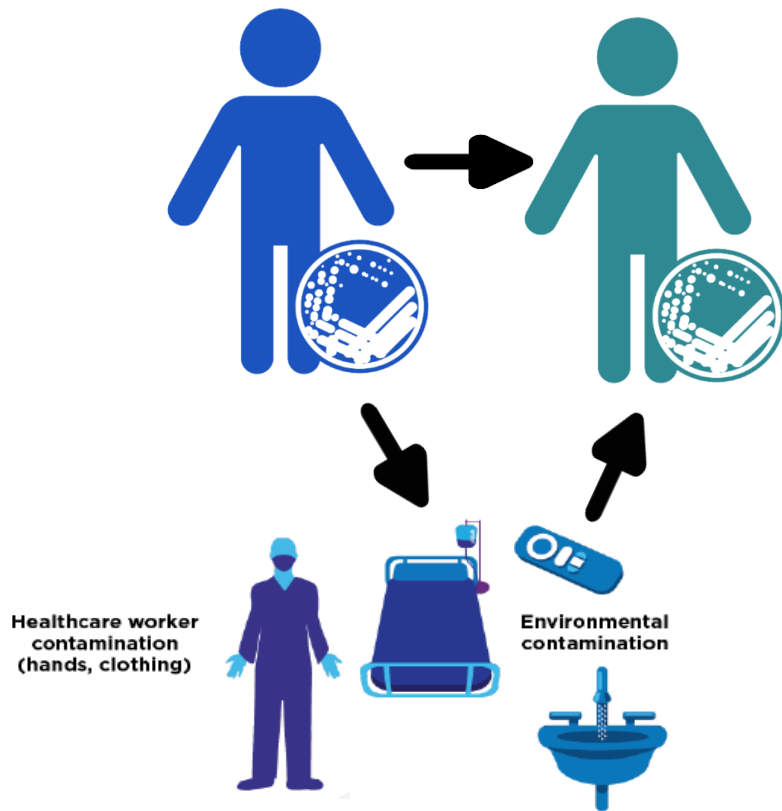
Communicable Disease Division

Michigan Department of Health and Human Services

Multidrug-Resistant Organisms



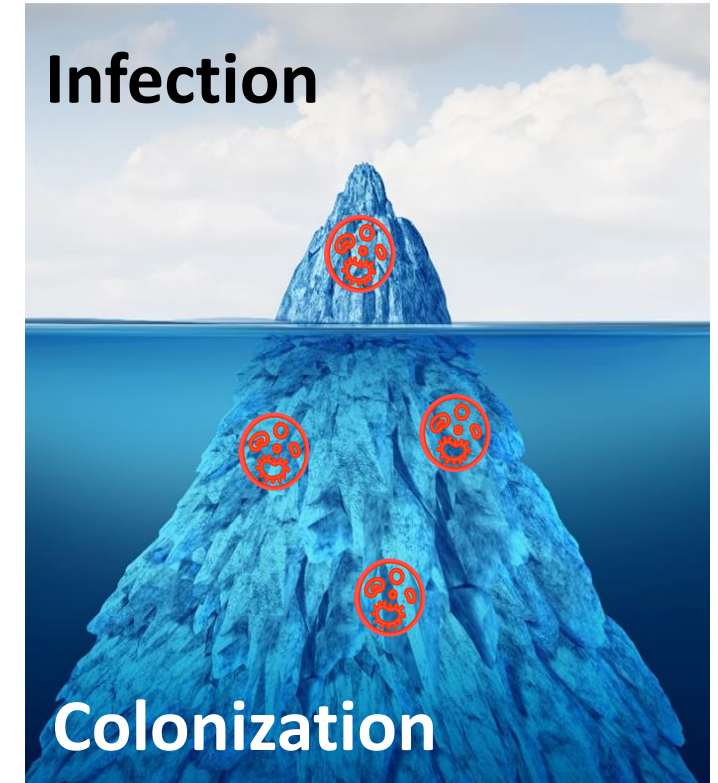
Colonization Drives MDRO Spread and Precedes Infection



Shedding of MDROs from colonized individuals leads to contamination of HCP hands and clothing and the surrounding healthcare environment







Colonization confers a 2-10-fold higher risk of infection with the colonizing organism



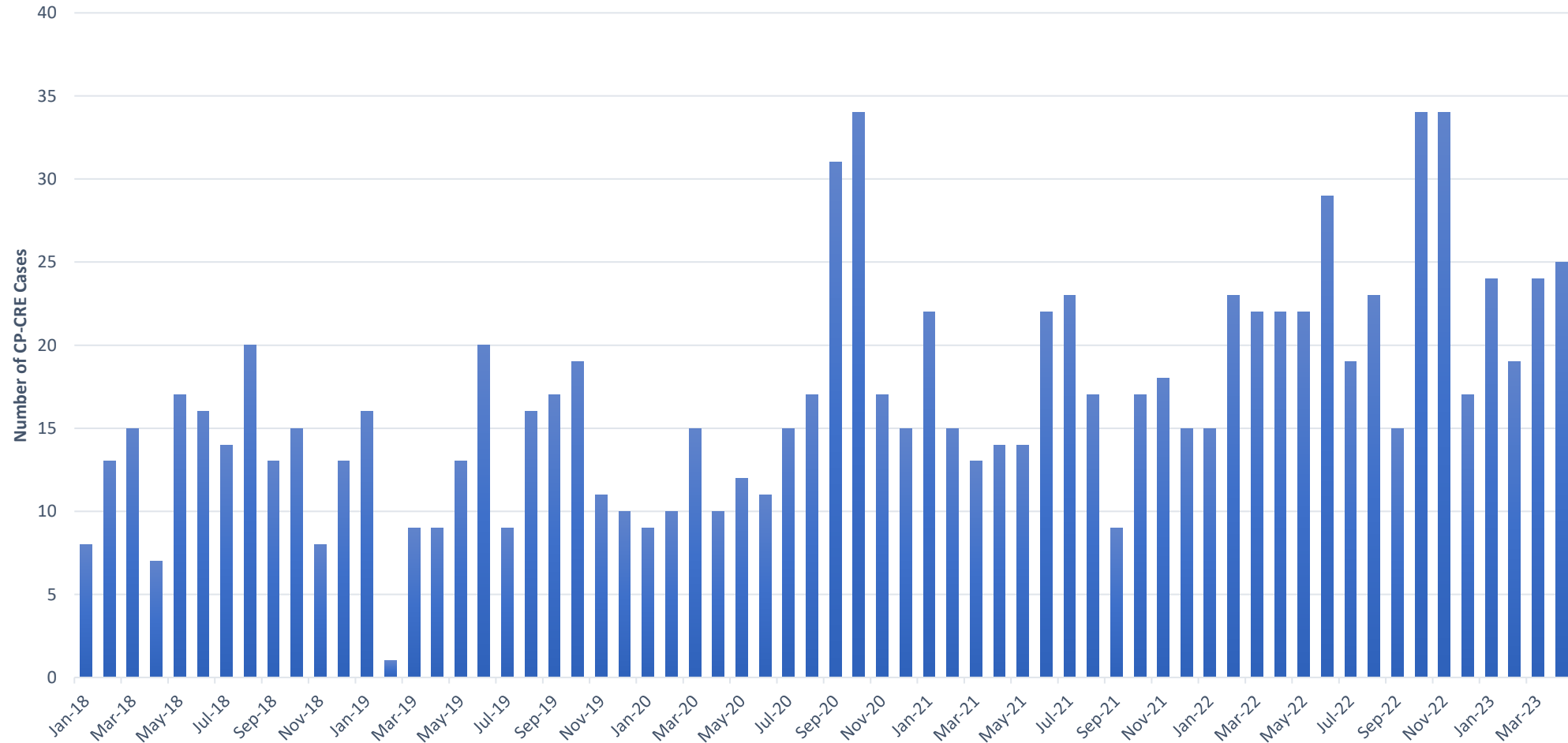
For every individual identified with an MDRO infection, there are many more who are colonized

The 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% 



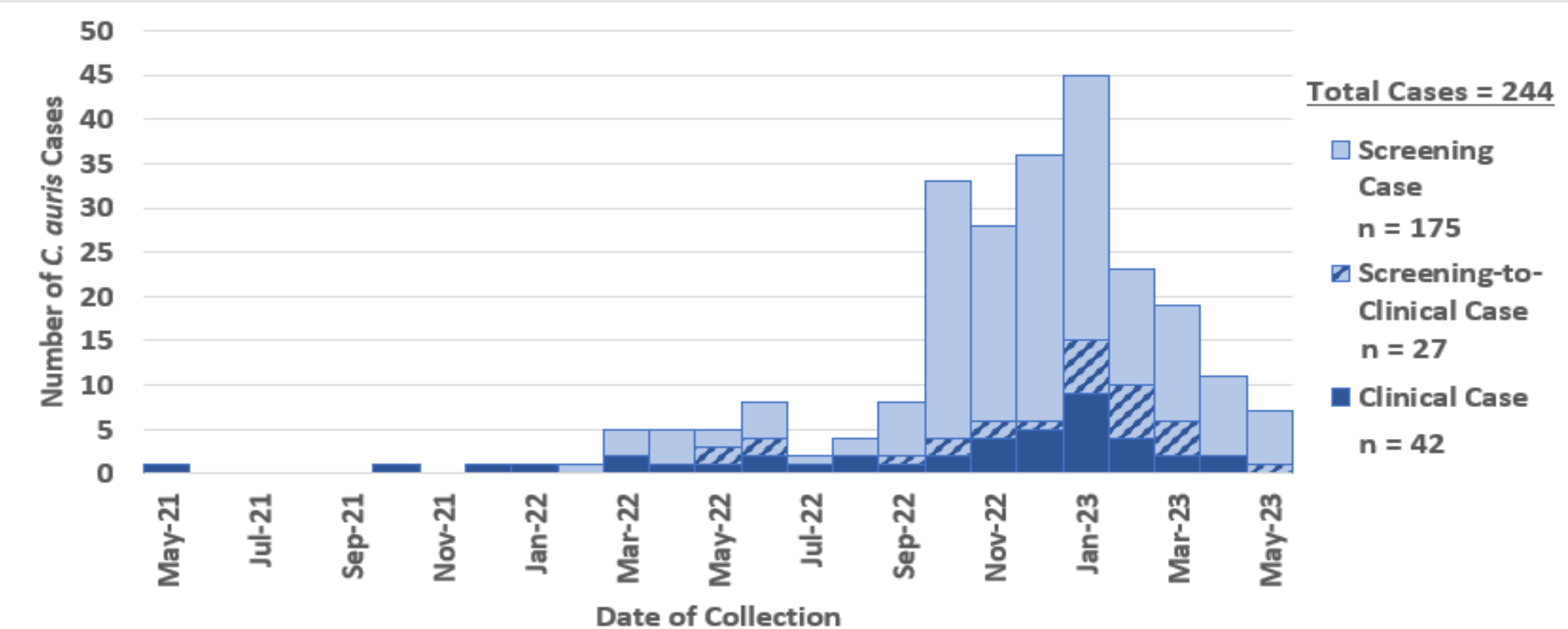
Confirmed CP-CRE Cases Reported to MDSS 2018-2023 YTD*



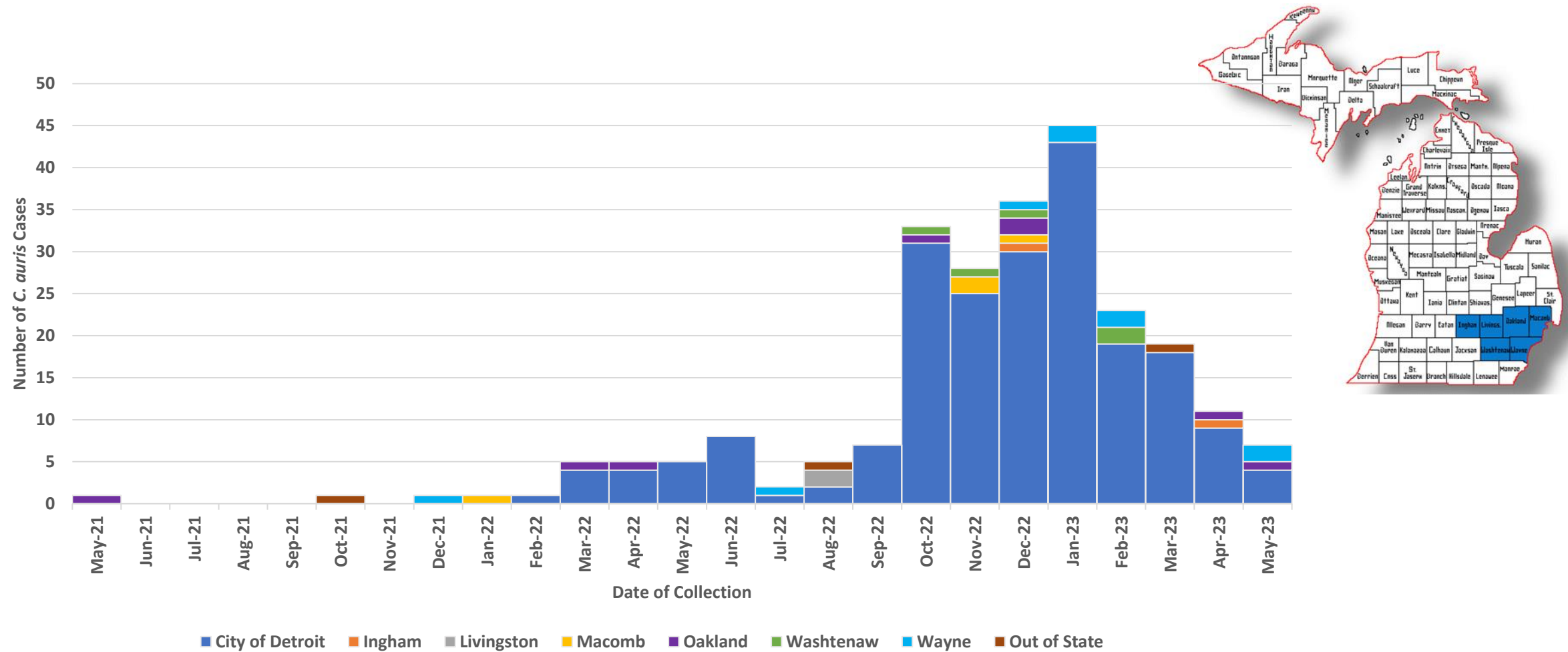
**Preliminary – Data Subject to Change*

Candida auris in Michigan

Fig 1. *Candida auris* Cases in Michigan by Case Type, May 1, 2021 – May 15, 2023



Candida auris in Michigan



Risk Factors for MDROs in Nursing Homes



Indwelling devices

Ventilators

Urinary catheters

PEG tubes

Central lines



Wounds & decubitus ulcers



Antibiotic use



Recent healthcare exposures

Acute care

Long-term care



Comorbid conditions



Functional dependence

Overall MDRO Prevention Strategy



Hand Hygiene



Environmental
Cleaning and
Disinfection



PPE Use



Auditing &
Feedback



Communication



Hand Hygiene

- Alcohol-Based Hand Sanitizer (ABHS) prior to and after performing any hands-on activity with the resident
 - Includes before putting on gloves and after taking gloves off
- Use soap and water if hands are visibly soiled, before eating, and after using the restroom



Cleaning & Disinfection

- Create a cleaning and disinfection plan
- Clean and disinfect high touch surfaces frequently
- Streamline the number of cleaning and disinfection products
- Clean and disinfect reusable medical equipment after every use (i.e., glucometers, transfer lifts, vital sign machines)
- Create a “Who Cleans What” list

Who Cleans What and When?						
<p><i>Template for healthcare facilities to ensure that all surfaces, devices, and equipment are properly cleaned at the right times by the right staff. Please modify this template as needed. Below are just some examples of various surfaces that should be covered!</i></p>						
Facility name: _____		Unit: _____		Update date: _____		Approved by: _____
Area/Device/Equipment	EVS	Frequency	Nursing	Frequency	Other (Specify)	Frequency
Anesthesia equipment and controls						
Bathroom sink						
Bed rail/controls						
Bed table						
Bedside cabinet & other furniture						
Bladder scanner						
Blood pressure cuffs, sphygmomanometer						
Call box, button, and cords						
Computer keyboard						
Computer monitor, keyboard, mouse, cart						
Corridor railing						
Dispensers for towels, soap, sanitizer, etc.						
Door knob/handle, push plates (in/out of room)						
Feeding pumps, stands						
Glove box holders						
Infusion pumps and control						
ISO holder						
IV poles						
Light switch						

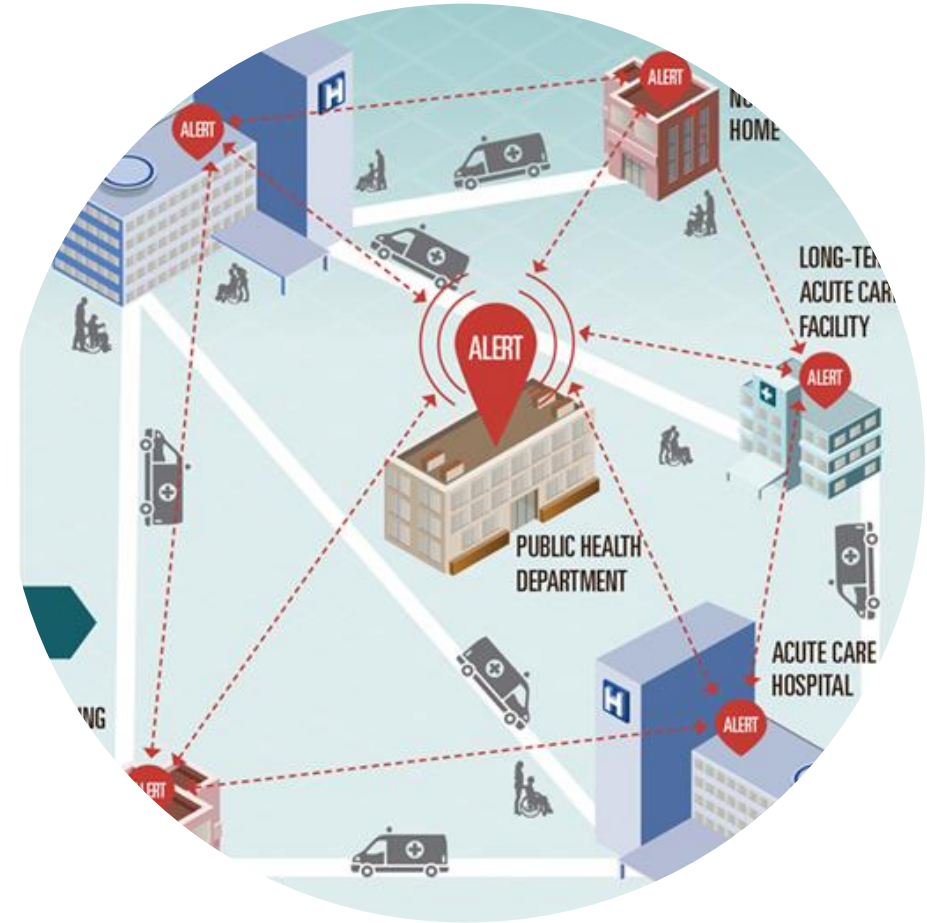
PPE Use

- Educate staff on when to use PPE and what types of PPE are recommended when caring for residents
- Ensure PPE is stored appropriately and at the point of care



Communication

- Make sure precautions signs are appropriate and easy to understand
- Maintain an up-to-date list of residents who meet criteria for precautions and share with staff
- Notify other healthcare facilities about a resident's MDRO status if resident requires a different level of care
- Transfer forms



Auditing & Feedback

- Monitor adherence to infection prevention and control (IPC) practices
- IPC practices include hand hygiene, PPE use, cleaning and disinfection of equipment and environmental surfaces
- Provide real-time feedback on adherence to healthcare personnel and leadership



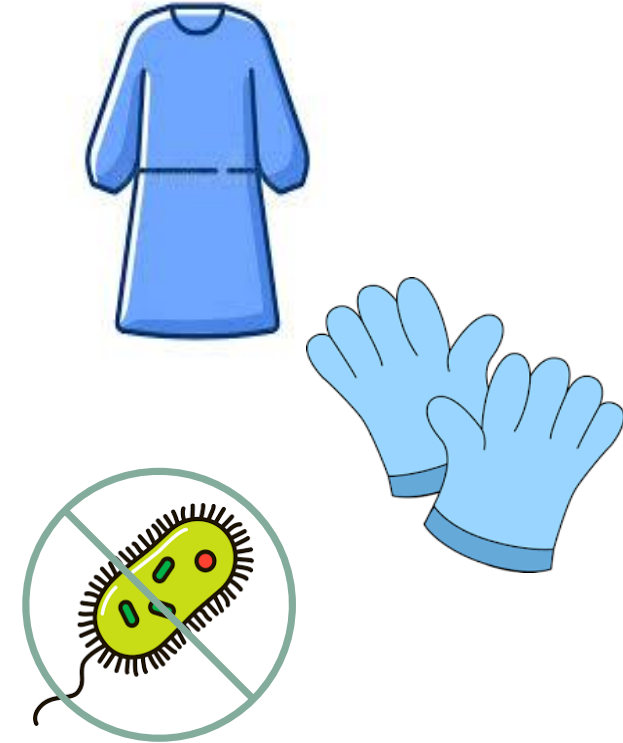
Challenges with Standard Precautions and TBP in Nursing Homes

- Residents disproportionately affected by MDROs
- Residents may be colonized with an MDRO
- Standard Precautions may not adequately address MDRO transmission
- Contact precautions creates challenges for nursing homes
 - Room restriction
 - Gown and glove use for resident room entry
 - Time-limited

Enhanced Barrier Precautions

Enhanced Barrier Precautions (EBP)

- Risk-based approach to PPE use to reduce the spread of MDROs
- Use of gown and gloves during high-contact resident care activities for residents at high risk of colonization with an MDRO
- Expands the use of PPE beyond situations where blood and body fluid exposure is anticipated
- Used in conjunction with good infection prevention and control activities



Why Does EBP Focus on Nursing Homes?

- Nursing home residents are at a higher risk for acquiring an MDRO
- Standard Precautions are not consistently applied in nursing homes
- Reduces the need for Contact Precautions
- Effective response to antimicrobial resistance in nursing homes



High-Contact Resident Care Activities

- Dressing
- Bathing/showering
- Transferring
- Providing hygiene
- Changing linens
- Changing briefs or assisting with toileting
- Device care or use of a device (central line, urinary catheter, feeding tube, tracheostomy/ventilator)
- Wound care: any skin opening requiring a dressing



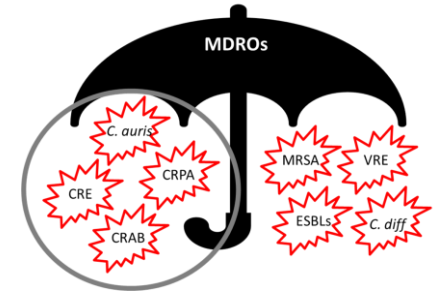
Indications for Enhanced Barrier Precautions

- EBP are indicated for nursing home residents with any of the following:
 - Infection or colonization with an MDRO *when Contact Precautions do not otherwise apply*
 - Wounds
 - Indwelling medical devices (e.g., urinary catheter, feeding tube, central line, tracheostomy, ventilator)
- EBP is not limited to outbreaks or specific MDROs

What Does “when Contact Precautions do not apply” Mean?

- Contact Precautions should be used for all residents infected or colonized with an MDRO who also have:
 - Draining wounds, secretions, or excretions that cannot be covered or contained
 - Acute diarrhea
 - Residents who have another infection or condition for which Contact Precautions is recommended

For Which MDROs are EBP Indicated?



Targeted MDROs

- Pan-resistant organisms
- Carbapenemase-producing organisms (CPOs)
 - Enterobacterales
 - *Pseudomonas* spp.
 - *Acinetobacter* spp.
- *Candida auris*

Other Important MDROs

- Methicillin-resistant *Staphylococcus aureus* (MRSA)
- ESBL-producing Enterobacterales
- Vancomycin-resistant Enterococci (VRE)
- Multidrug-resistant *Pseudomonas aeruginosa*
- Drug-resistant *Streptococcus pneumoniae*

Enhanced Barrier Precautions

- Gown and glove use
- Private room not required
- Resident can participate in communal activities and is not restricted to room
- Intended for resident's entire length of stay
- Utilized only in nursing homes



Precaution	Who	When	Gloves	Gown	Face Protection	Room Restriction
Enhanced Barrier	Residents with: <ul style="list-style-type: none"> • Infection or colonization with MDRO when contact precautions do not apply • Wounds, indwelling devices regardless of MDRO status 	During high-contact care activities: <ul style="list-style-type: none"> • Dressing • Bathing/showering • Transferring • Providing hygiene • Changing linens • Changing briefs or assisting with toileting • Indwelling device care or use • Wound care 	✓ High contact care	✓ High contact care	✓ Risk of splash or spray	X None – able to leave the room
Contact	Residents with: <ul style="list-style-type: none"> • Acute diarrhea • Draining wounds, excretions, secretions unable to contain • For a limited time period during an investigation of a suspected or confirmed MDRO outbreak • Other infections or conditions where recommended (TBP Appendix A) 	Any room entry	✓ Any room entry	✓ Any room entry	✓ Risk of splash or spray	✓ Single room ✓ Care in room except when medically necessary

EBP Implementation Plan

Initiate Leadership & Staff Buy-In

- Leadership
 - Corporate and facility
- Staff
- Ideally includes meetings and educational sessions
 - What is EBP
 - Reasoning behind EBP
- Positive outcomes of reducing MDROs
 - Residents
 - Colonization pressure
 - Admission issues
 - Costs of infections

Consider QAPI Approach

- Traditional methods of introducing a new practice may not be sufficient
- Benefits of QAPI approach
 - Systematic, slower implementation of EBP
 - Learn lessons from each unit EBP is introduced

Pre-Implementation Tool—Enhanced Barrier Precautions (EBP) (For use in Skilled Nursing Facilities/Nursing Homes only)

This NEW tool is designed to be used prior to implementation of EBP in your facility (either a unit, wing, or entire facility) as a guide for developing a successful plan for the implementation of EBP during high-contact resident care activities. It is intended for use in skilled nursing facilities/nursing homes.

This tool can be customized to meet facility-specific needs. EBP can be implemented in a manner that works best for your facility. While implementation of EBP for all residents who meet criteria is the goal, this may not initially be feasible for your facility. If, during the development of your implementation plan, challenges arise for facility-wide implementation, you may choose to implement EBP on a unit or wing first, preferably one where most residents would meet criteria for the use of EBP (e.g., residents with indwelling medical devices, wounds, or known MDRO infection or colonization).

HCP can reduce personal protective equipment (PPE) consumption by bundling multiple high-contact resident care activities (e.g., changing briefs, assisting with toileting, bathing/showering and providing hygiene could be bundled with changing linens).

Facility Name:

Date of Assessment:

1. Does your facility currently have a developed timeline for implementation of EBP?

- ☐ Yes
- ☐ No
- ☐ Unknown

If yes, when do you expect to begin implementation?

- ☐ In 3–4 weeks
- ☐ In 1–2 months
- ☐ In >2 months

2. If question 1 is answered “Yes”, have you developed a policy and procedure document for the use of EBP?

- ☐ Yes
- ☐ No
- ☐ Unknown

If no, what challenges are you having with the development of a policy and procedure document?

- ☐ Staffing shortages
- ☐ Leadership input

☐ Other, please specify:

EBP Pre-Implementation Tool

Source: [Pre-Implementation Tool—Enhanced Barrier Precautions \(EBP\) \(cdc.gov\)](#)

Develop an Implementation Plan

Planning

Staff training and education

Education for residents, families, and visitors

Communication

Precaution signage

Adequate PPE and isolation carts

Where will PPE carts be located on unit

ABHS dispenser locations

Disinfectant wipes locations

Placement of residents on EBP

Documentation and care plan

Identify residents who qualify for EBP

Resident/Family Education: Factors to Consider

- Vital to successful EBP implementation
- Explain why resident is now on EBP when they had not previously been under any precautions
- Allow for questions

Keeping Residents Safe – Use of Enhanced Barrier Precautions

A message from:

Dear Residents, Families, Friends, and Volunteers:

You may have noticed new signs on some doors that say "Enhanced Barrier Precautions" and staff wearing gowns and gloves more often. We're doing this based on new recommendations from the Centers for Disease Control and Prevention to protect our residents and staff from germs that can cause serious infections and are hard to treat. You may have heard these germs called multidrug-resistant organisms or MDROs in the news.

Studies have shown that more than 50% of nursing home residents have these germs on or in their body, especially in places where the skin is broken, such as wounds or insertion sites of medical devices like feeding tubes. Most of the time people never know they are carrying these germs but under certain conditions they can enter the body and cause serious infections.

Fortunately, there are many things we can do to keep these germs from spreading, but we need your help! Two important practices are:

PPE Cart Concerns

- Do we have enough carts? Alternatives to carts?
- What about egress?
- Extra equipment in hallway
 - Crowded
 - Difficult for residents to move around or sit in halls
- Cart design:
 - Wheels
 - Slim model
- Cart placement
 - Outside every room?
 - Wall mounted PPE containers?
 - Life Safety Code



ABHS Placement

- Institutional versus home like feel
- ABHS inside resident rooms
- Resident safety
- ABHS in other areas of facility
- Fire Code
- Life Safety Code



Life Safety Code and ABHS

Table 1. NFPA 101 Life Safety Code Requirements for the use of ABHS Dispensers

Criteria	Requirement
Hand rub solution	Must not exceed 95% alcohol content by volume. (The Centers for Disease Control and Prevention recommends that ABHS contain at least 60% alcohol.)
Maximum dispenser fluid capacity	1.2 liters (41 ounces, 0.32 gal) for dispensers in rooms, corridors, and areas open to corridors. 2.0 liters (67 ounces, 0.53 gal) for dispensers in suites of rooms separated from corridors.
Maximum quantity in aerosol containers	18 oz., limited to Level 1 aerosols as defined by NPFA 30 B.
Maximum quantity of ABHS allowed in-use (i.e., in dispensers)	Ten gallons (37.8 L) in-use outside of a storage cabinet within a single smoke compartment. (Smoke compartment: A space within a building enclosed by smoke barriers on all sides, including the top and bottom. ⁵) One dispenser per room off corridors is NOT included in the calculation.
Minimum corridor width	Six feet (1830 mm) wide
ABHS dispenser distance from ignition sources	One-inch (25 mm) distance (horizontal or vertical) above, to the side, or beneath an ignition source. (Sources of ignition: Appliances or equipment that, because of their intended modes of use or operation, are capable of providing sufficient thermal energy to ignite flammable gas-air mixtures. ⁵ Examples include wall outlets, thermostats, and appliances.) Note: While one-inch is acceptable, a more conservative approach is to ensure a distance of no less than 6 inches (12.7 mm; horizontal or vertical, measured from the center of the dispenser) between ABHR dispensers and source of ignition.

Source: https://www.cdc.gov/handhygiene/firesafety/index.html#anchor_1556539412

Disinfectant Placement



PPE Issues

- Bundle care
- Extra time needed to comply with putting on and taking off PPE
- More PPE = increased trash pickup?
- Resident room trashcans



Staff Education

- Orientation, annually, and as needed
- Discipline specific
- Competency based education on hand hygiene and donning/doffing of PPE
- MDRO/EBP care plan
- Facility specific EBP notification:
 - EBP sign
 - Updated and current list of residents on EBP



Enhanced Barrier Precautions (EBP) Implementation—Observations Tool

(For use in Skilled Nursing Facilities/Nursing Homes only)

This NEW tool should be used only after you have established the use of Enhanced Barrier Precautions (EBP) in your facility (either in a unit, wing, or entire facility), and can be customized to meet the needs of the skilled nursing facility/nursing home. This tool is designed to support the conducting of observations of healthcare personnel (HCP) using EPB during high-contact resident care activities as a part of auditing and feedback. Responses should refer to current practices.

Facility Name:

Date of Assessment:

16. If question 15 is answered "Yes", did the HCP complete the following before providing care to the next resident in the same room?
Gown and gloves are donned (put on) before providing high-contact resident care?

- ☐ Yes
- ☐ No
- ☐ Unknown

17. After completing care for the resident, was the used gown and gloves discarded in the nearest trash receptable?

- ☐ Yes
- ☐ No, please specify what was seen:
- ☐ Unknown

If yes, where was the trash receptable located?

- ☐ Inside the room
- ☐ Outside of the room
- ☐ Other, please specify:

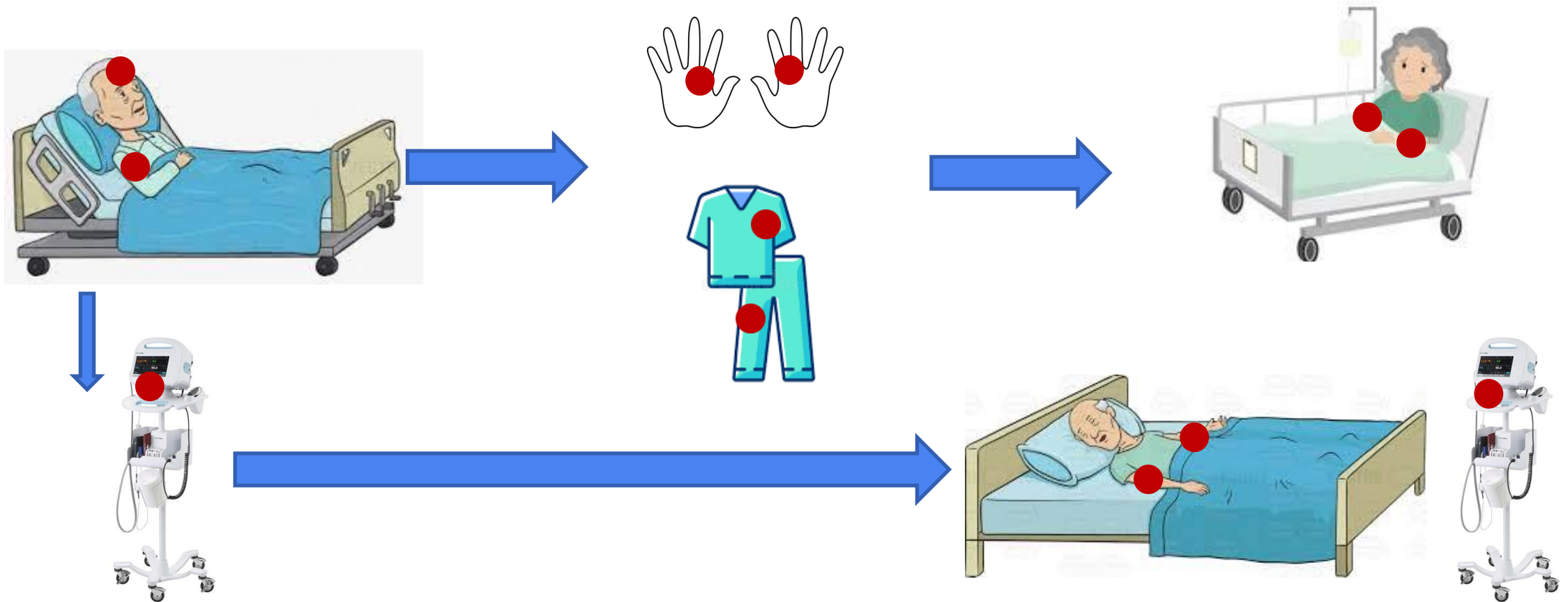
18. After completing care for the resident and discarding the gown and gloves, did the HCP perform hand hygiene?

- ☐ Yes
- ☐ No, please specify what was seen:
- ☐ Unknown

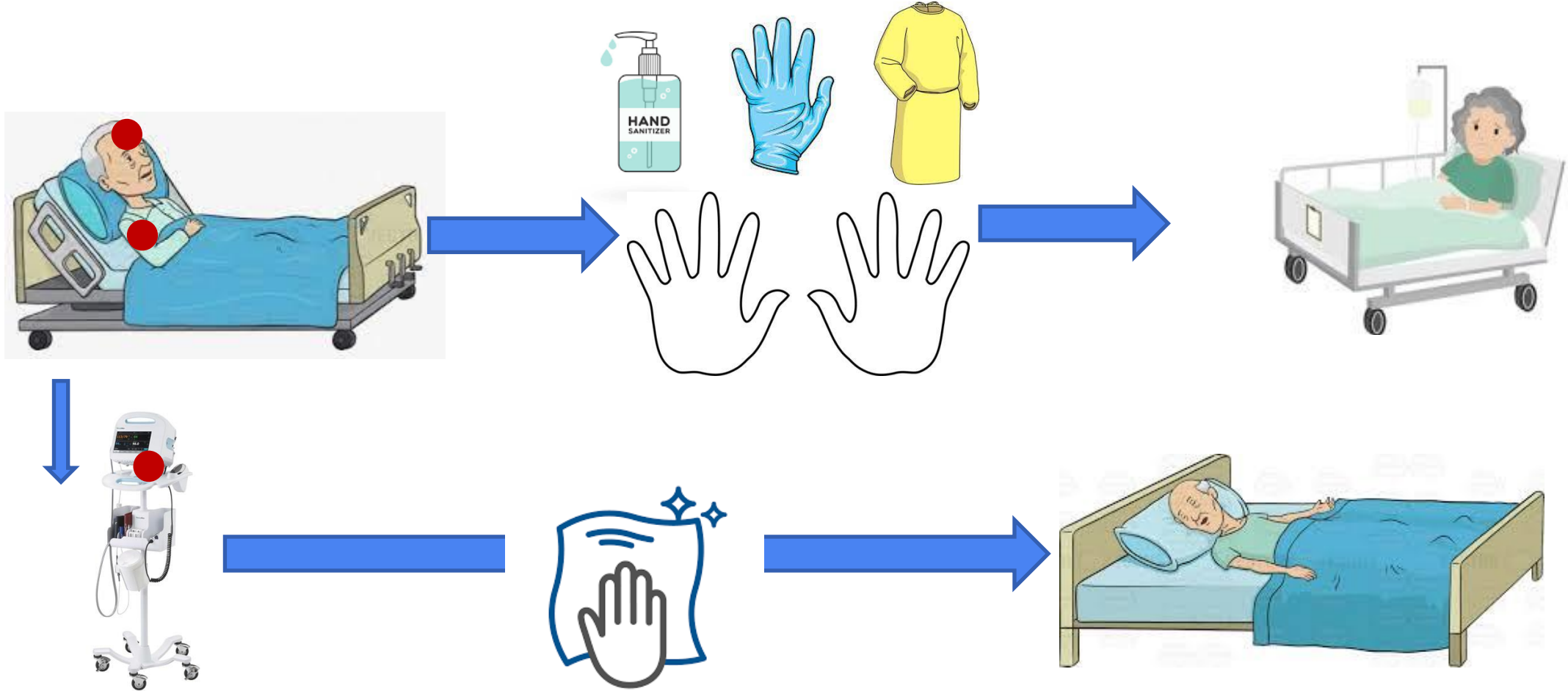
Observation and Feedback

Colonized Individuals and MDRO Transmission in Healthcare Facilities

Healthcare Personnel



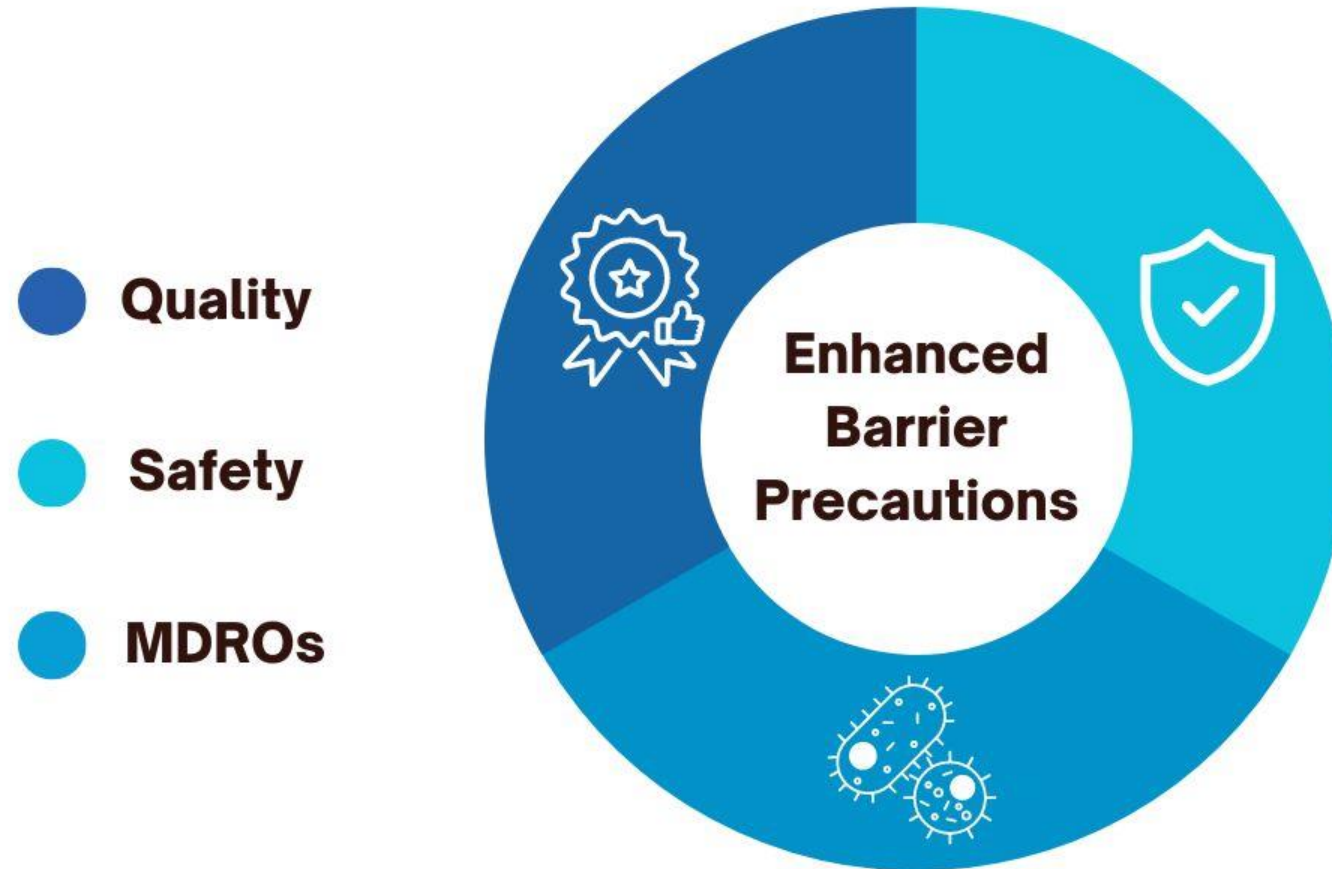
Colonized Individuals and MDRO Transmission in Healthcare Facilities



EBP – Helpful Tools

- [MDHHS Healthcare-Associated Infections](#)
- [CDC Pre-Implementation Tool](#)
- [CDC Enhanced Barrier Precautions \(EBP\) Implementation – Observations Tool](#)
- [CDC Observations Tool Summary Spreadsheet](#)
- [CDC Letter to Nursing Home Leadership](#)
- [CDC Letter to Staff](#)
- [CDC Letter to Residents, Families, Friends, and Volunteers](#)
- [CDC Inter-Facility Infection Control Transfer Form](#)
- [Healthcare Facility Transfer Form](#)
- [*Candida Auris* Transfer Information Sheet](#)
- [CDC Implementation of Personal Protective Equipment \(PPE\) Use in Nursing Homes to Prevent Spread of Multidrug-resistant Organisms \(MDROs\)](#)

Enhanced Barrier Precautions





Questions?

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[Michigan.gov/HAI](https://michigan.gov/HAI)