WISCONSIN DEPARTMENT of HEALTH SERVICES

Wisconsin HAI Long-Term Care Education Series

July 22, 2021

Today's Agenda

- Novel Multidrug-Resistant Organisms
  - **Beth Ellinger,** Infection Preventionist, HAI Program
  - **Greta Beyer,** Regional Infection Preventionist, HAI Program
  - **Megan Lasure,** Antibiotic Resistance Lab Network Epidemiologist, State Lab of Hygiene and DPH

- Review of Visitation Guidelines in Long-term Care
  - **Jessica Radtke,** Deputy Bureau Director, Bureau of Nursing Home Resident Care
  - **Kim Marheine,** Ombudsman Services Supervisor, Board on Aging and Long-term Care

Identifying, Investigating, and Responding to Novel Multidrug-Resistant Organisms (MDROs)

Megan Lasure, MPH
Beth Ellinger, MS, MPH, CIC
Greta Beyer, MHA, BSN, RN

Wisconsin Healthcare-Associated Infections (HAI) Prevention Program

New National Estimate*

Each year, antibiotic-resistant bacteria and fungi cause at least an estimated:

2,868,700 infections

35,900 deaths

+

***Clostridioides difficile* is related to antibiotic use and antibiotic resistance:**

223,900 cases

12,800 deaths

https://www.cdc.gov/drugresistance/pdf/threats-report/2019-ar-threats-report-508.pdf

CDC Targeted MDROs

- Pan-resistant organisms
- Carbapenemase-producing *Enterobacterales* spp.
- Carbapenemase-producing *Pseudomonas aeruginosa*
- Carbapenemase-producing *Acinetobacter baumannii*
- *Candida auris*

Pan-Resistant Organisms

- These organisms are resistant to all tested antimicrobials (antibiotics or antifungals).
- Clinical labs generally test against a few, clinically relevant antibiotics, but the Wisconsin State Laboratory of Hygiene (WSLH) tests about 20.
- Sometimes an organism that is pan-resistant at the clinical lab is susceptible to other antibiotics on WSLH's panel of drugs.

What is a Carbapenemase?

- Carbapenemases make an organism highly resistant, especially to carbapenem antibiotics.
- Carbapenem antibiotics are often used as drugs of last resort for resistant infections.
- Carbapenemase genes (for example KPC, NDM-1, VIM, IMP, OXA-48) can spread between bacteria, which can spread resistance within a patient's normal flora or between patients.

Carbapenemase-Producing *Enterobacterales*

- This order of bacteria is commonly found in the human gut as part of the normal flora.
  - Examples include *E. coli, Klebsiella, Enterobacter,* and *Citrobacter.*
- Carbapenem-resistant Enterobacterales (CRE) can cause serious infections if introduced to a sterile site, but people can also be colonized with carbapenemase-producing (CP) CRE without illness.

Carbapenemase-Producing *Pseudomonas aeruginosa*

- *Pseudomonas aeruginosa* is a bacteria that can be found in water and soil.
- The species is naturally drug resistant and can cause severe wound, burn, and respiratory infections.
- CP-*Pseudomonas aeruginosa* is relatively rare, but can cause very serious and hard-to-treat infections.

Carbapenemase-Producing *Acinetobacter baumannii*

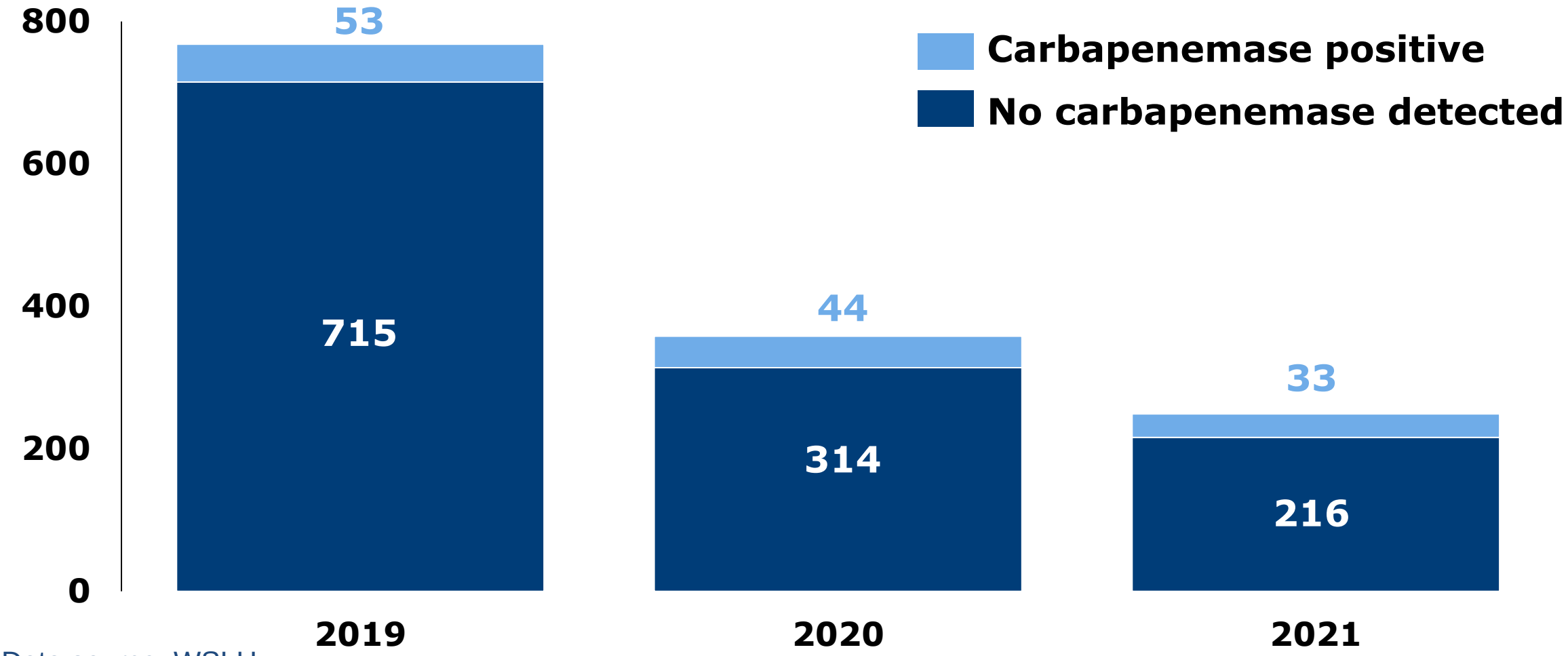
- *Acinetobacter baumannii* is an opportunistic pathogen.
- It survives for a long time on surfaces, can colonize the skin, and causes severe infections.
- Carbapenem-resistant *Acinetobacter baumannii* (CRAB) can be highly resistant.
  - Most isolates are CP.
  - Pan-resistant isolates have been detected in Wisconsin.
  - It complicates the treatment of infections.

Candida auris

- This fungal pathogen is almost always resistant to antifungals.
- Very few available antifungals are available to treat human disease, making this a high priority.
- Special cleaning agents are needed to kill *C. auris* on surfaces (Environmental Protection Agency List P).
- *C. auris* infections have a high mortality rate (30 to 60%).

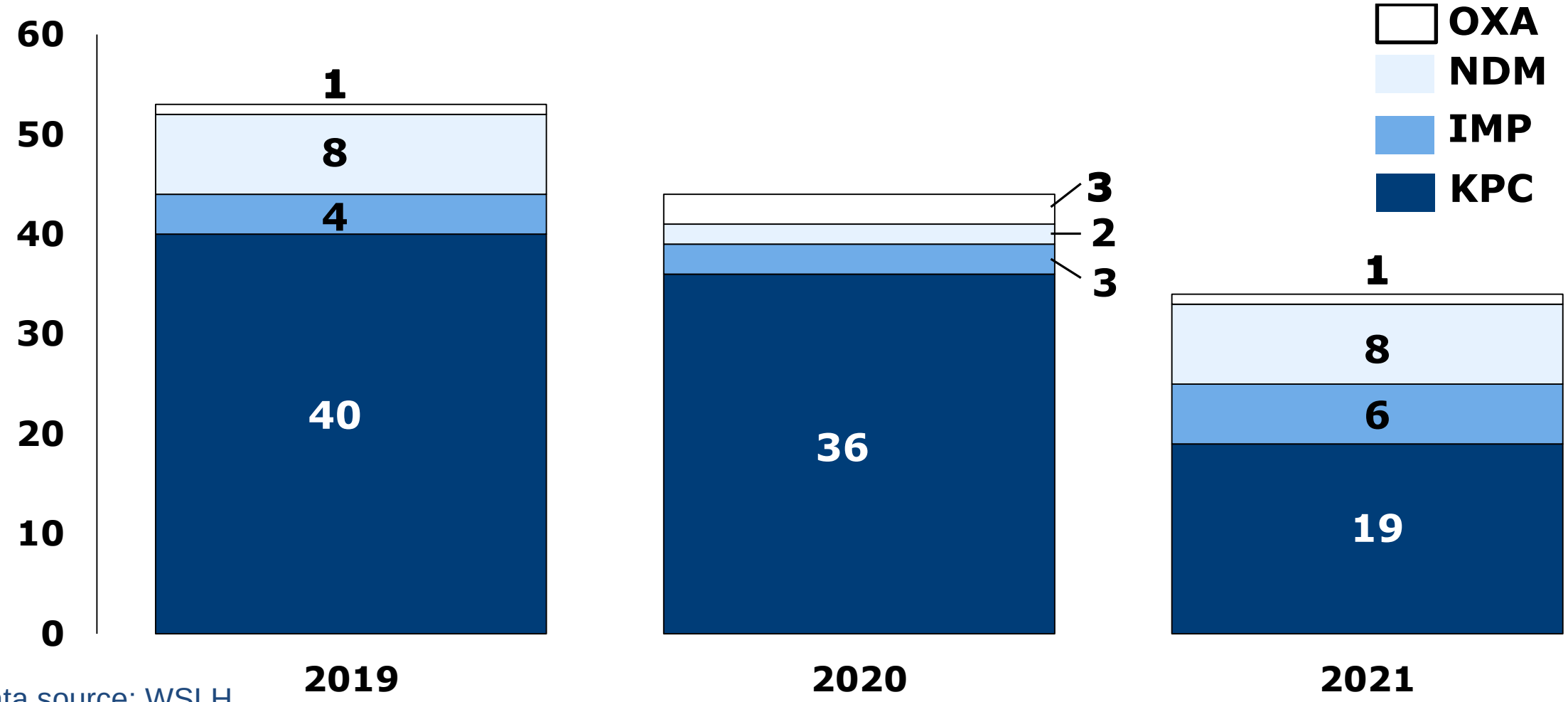
https://www.epa.gov/pesticide-registration/list-p-antimicrobial-products-registered-epa-claims-against-candida-auris

CRE Cases in Wisconsin, 2019-2021



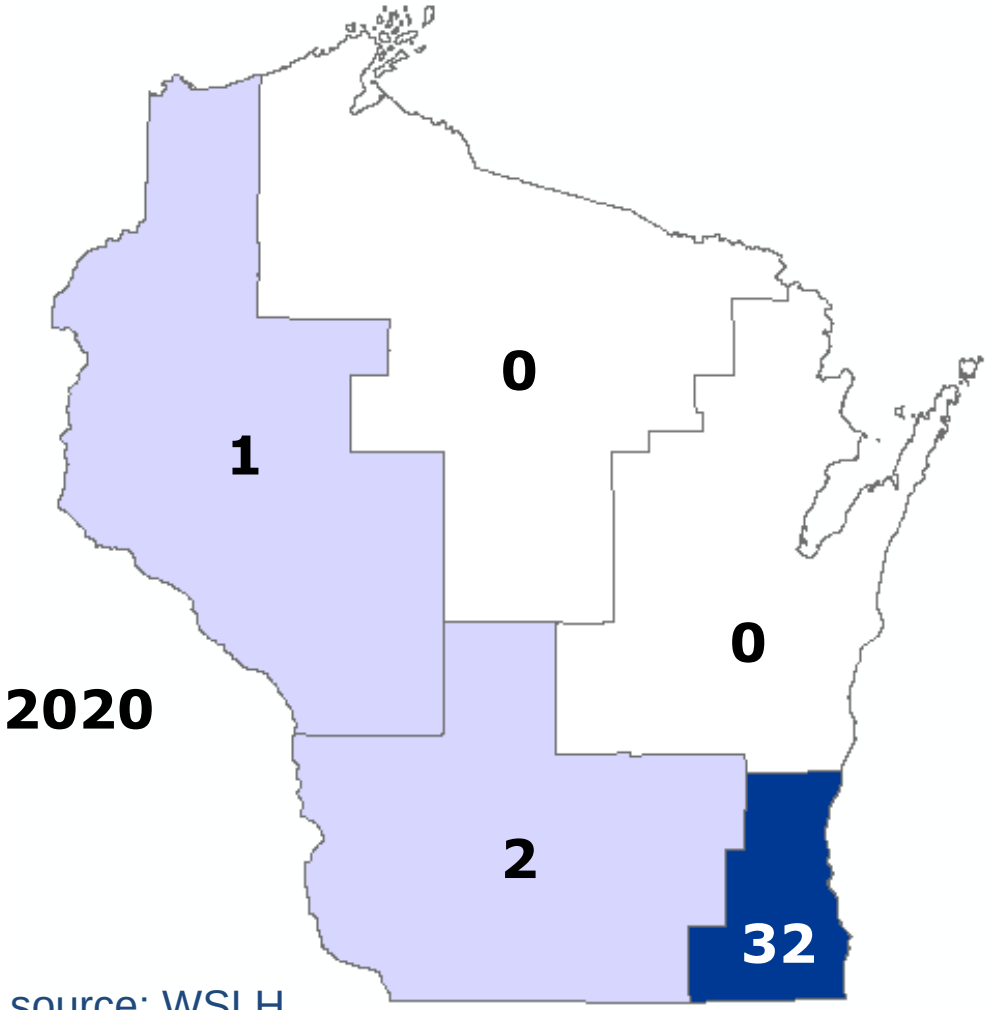
Data source: WSLH

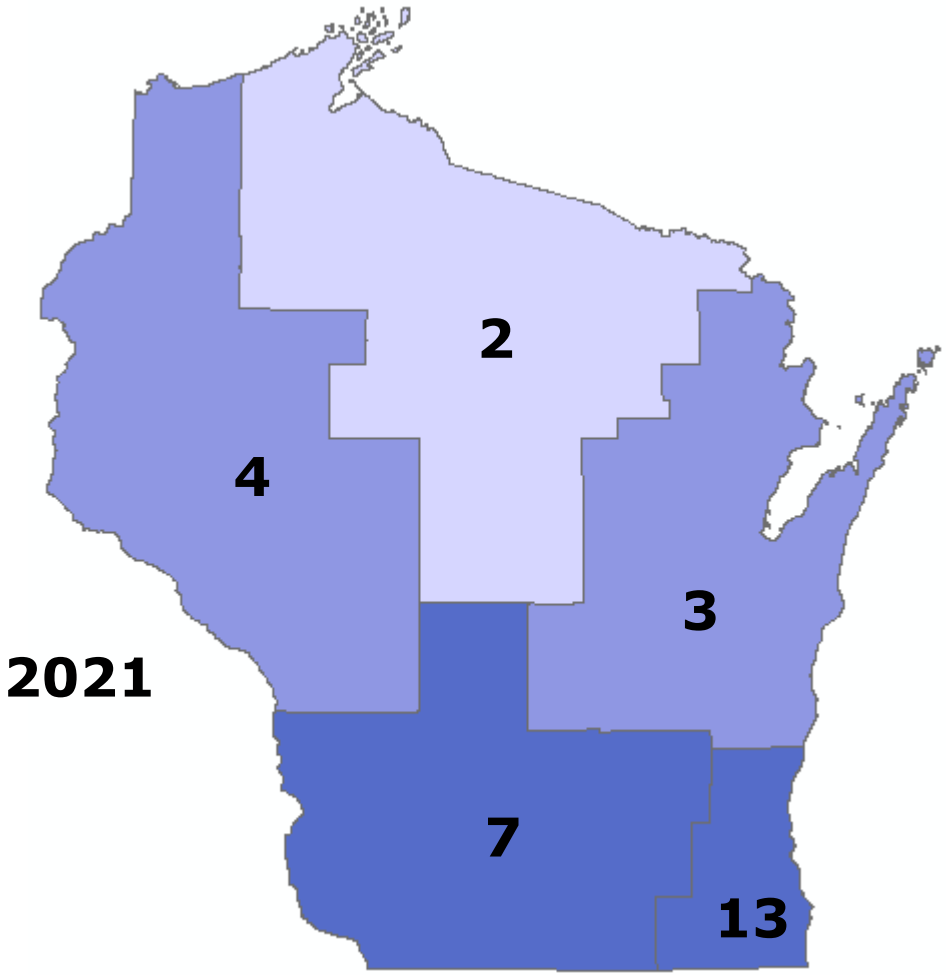
Carbapenemases in CRE Wisconsin, 2019-2021



Data source: WSLH

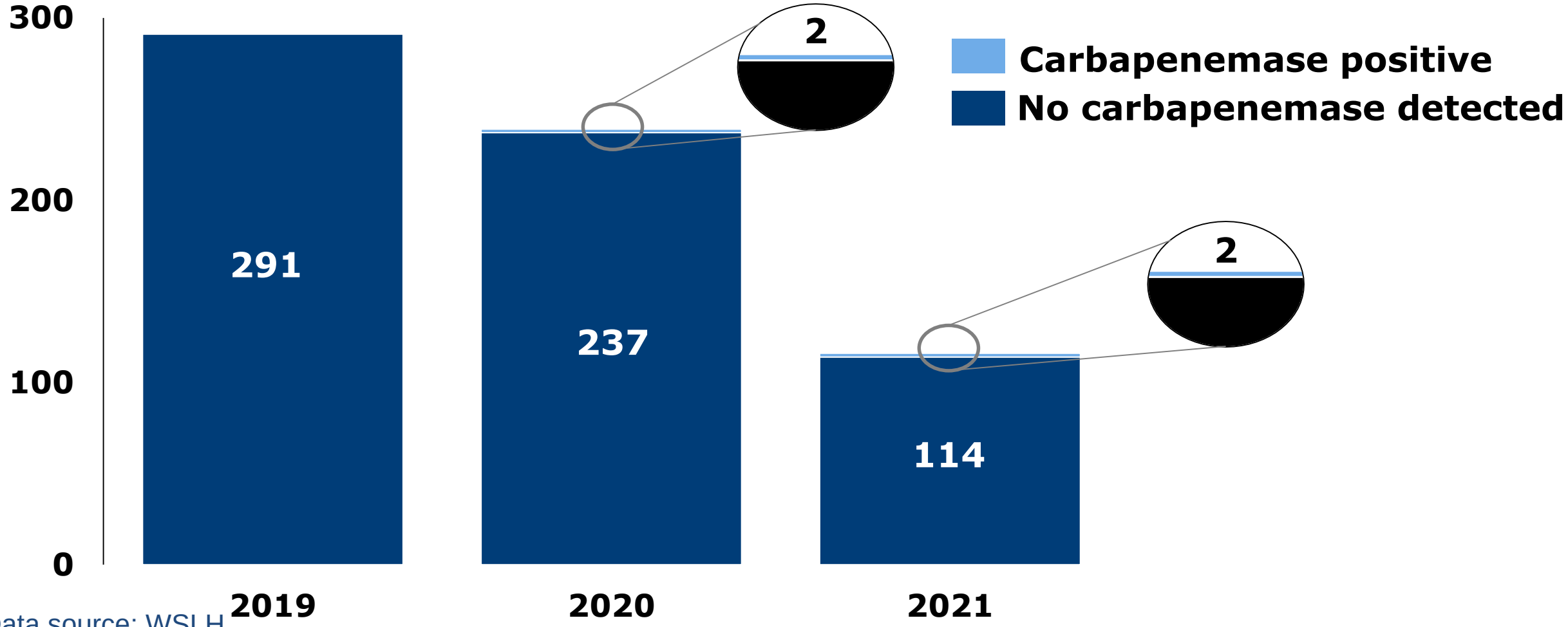
CP-CRE Cases in Wisconsin, 2020-2021





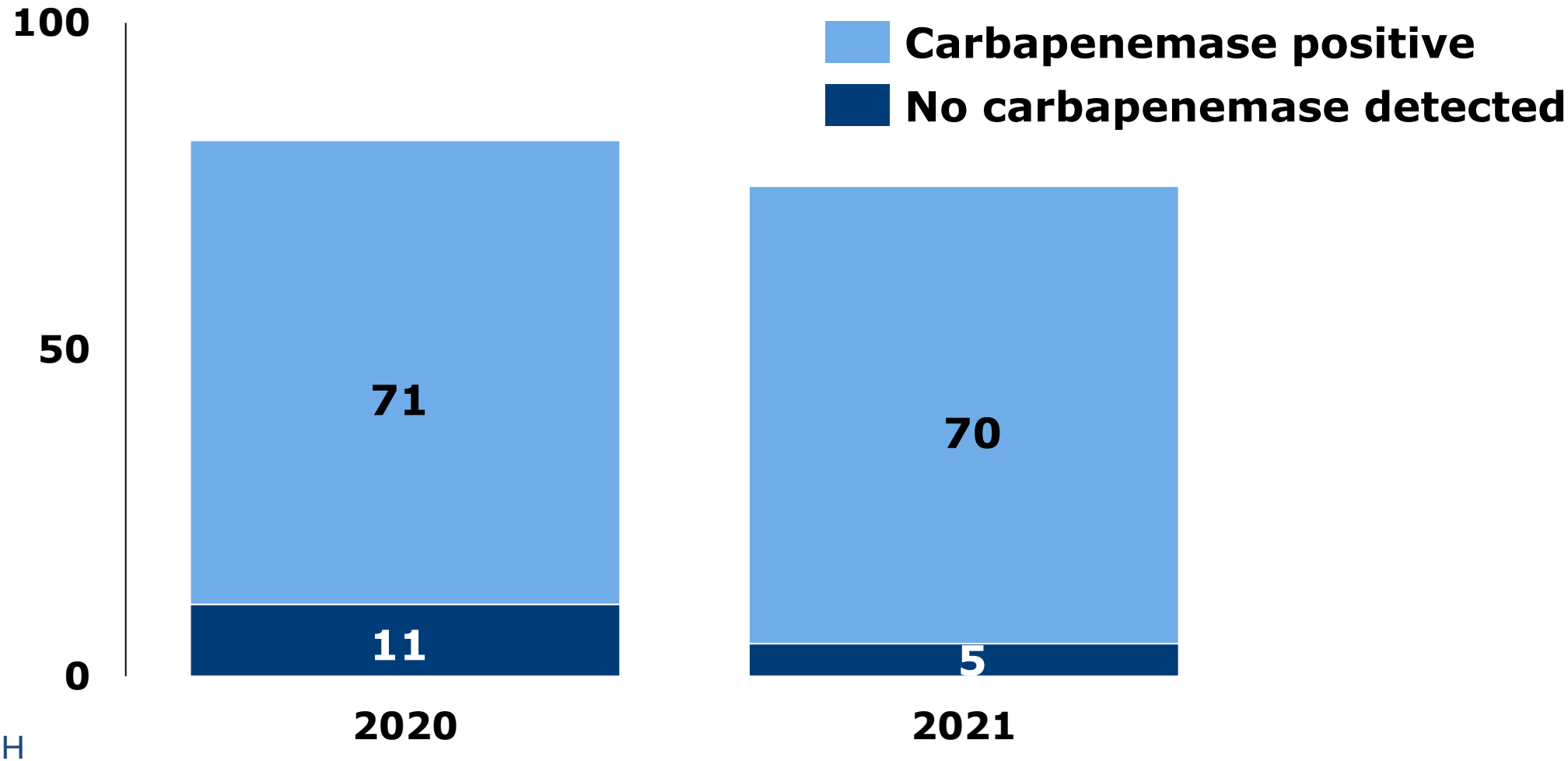
Data source: WSLH

CR-*Pseudomonas aeruginosa* Cases in Wisconsin, 2019-2021



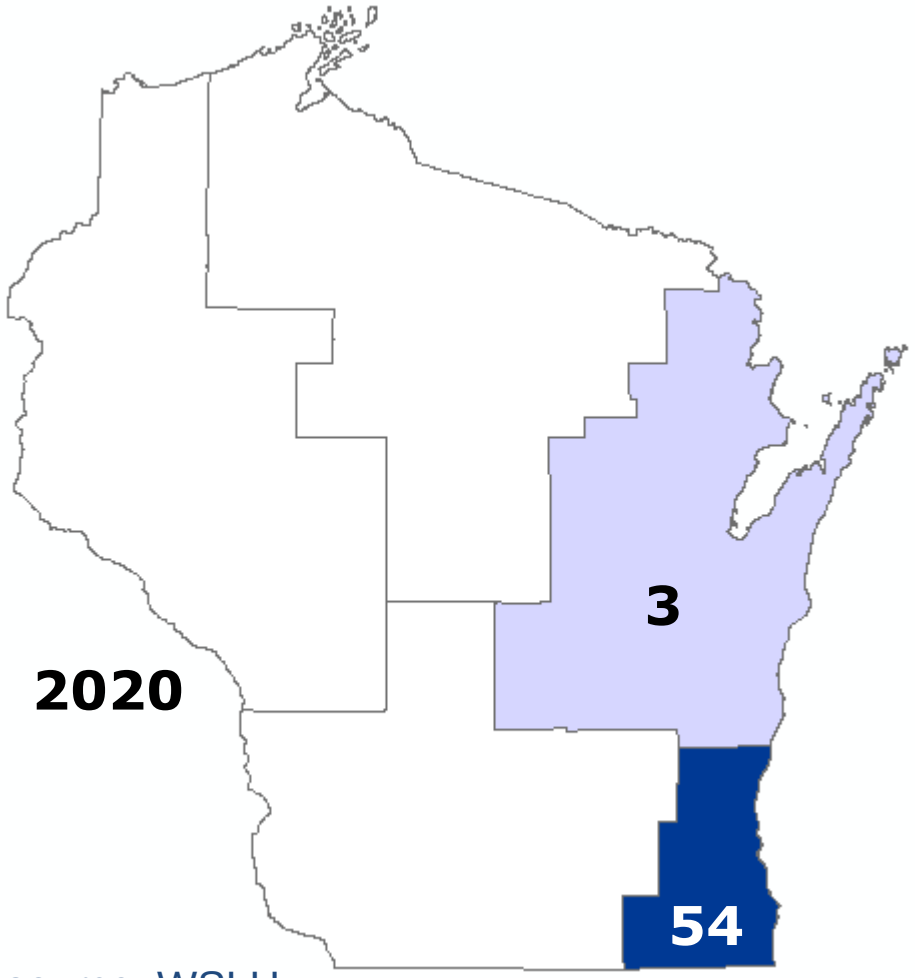
Data source: WSLH

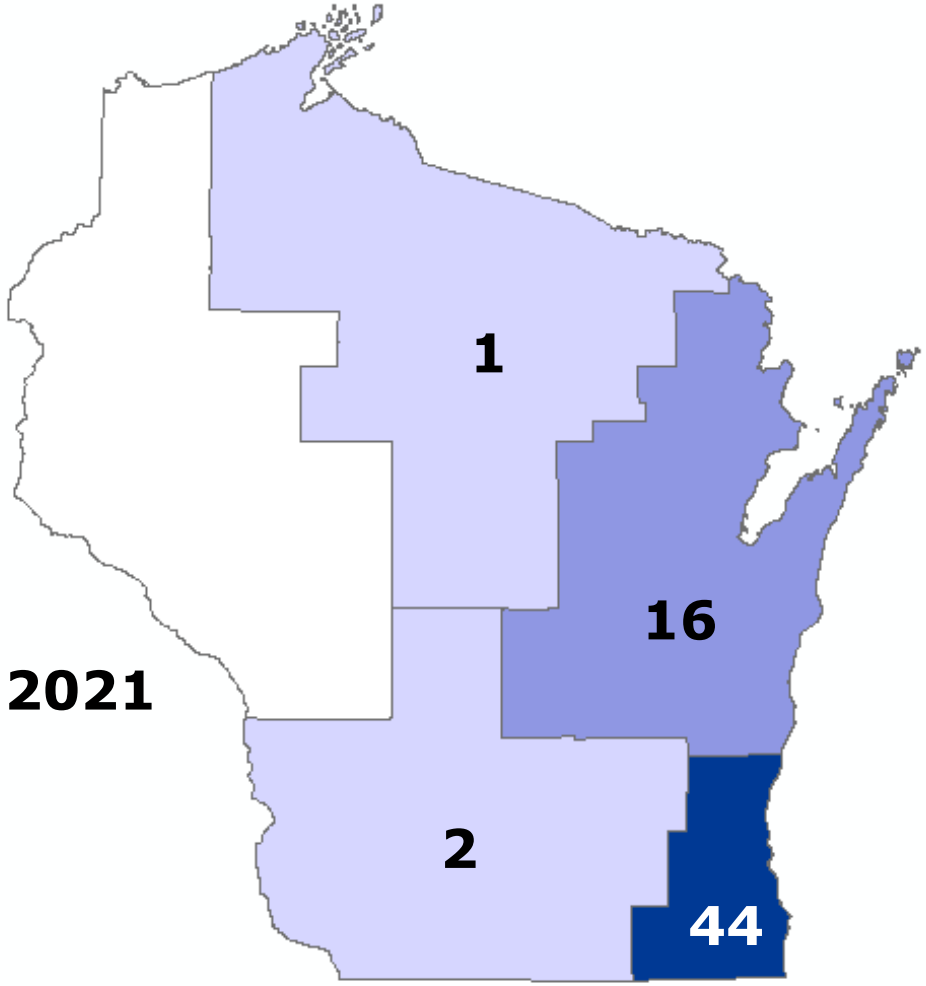
CR-*Acinetobacter baumannii* Cases in Wisconsin, 2020-2021



Data source: WSLH

CP-CRAB Cases in Wisconsin, 2020-2021





Data source: WSLH

Surveillance Process

- Solicit clinical isolates from labs
- Test at WSLH
  - Culture and identification
  - Carbapenemase screen
  - PCR to detect specific carbapenemases
- Alert local/tribal health department (LTHD) and HAI Program via WEDSS when a targeted organism is detected
- Initiate LHD or HAI Program follow up with facility infection preventionist to gather information

Case Questions

- Underlying medical conditions
- Current antibiotic use
- Recent medical history, including hospitalizations and surgeries or procedures in the previous year
- Indwelling lines or devices
- Residence at a long-term care facility (LTCF) (admitted from or discharged to)
- Travel or health care exposure abroad

Targeted Organisms in LTC

- Follow up with LTCF
- Obtain resident history
  - How long have they been a resident?
  - Roommates?
  - Were they on any precautions?
- Determine risk of transmission to other residents

Next Steps for LTCF

- Colonization screening
  - Screen at-risk population (roommates, unit, etc. depending on the situation) for the same organism
- Supplies and testing provided by WSLH at no charge
- Different types of swabs based on the identified organism
  - CRE: rectal swab
  - CRAB and *Candida auris*: usually bilateral axilla/groin swab
  - Other options: tracheostomy

Ordering Colonization Testing

- HAI Program sends supply request to WSLH.
  - Needs from LTCF: main contact's phone and email, approximate number of swabs that will be collected
- WSLH ships swabs with a confirmation to HAI and facility.
- WSLH emails the facility contact a fax agreement form and test requisition order.
- The facility faxes the agreement to WSLH in order to receive results.

Day of Colonization Testing

Collect swabs on a Monday or Tuesday preferably.

- Swabs are only validated for testing within five days after collection.
- Swabs received late or on weekends can make them unable to be tested.

Day of Colonization Testing

- The facility fills out the WSLH test requisition form with resident identifiers for each swab collected.
- Each swab must also be labeled with at least two identifiers (typically name and date of birth).
- The facility packages the swabs and sends them back free via FedEx on the WSLH account.

WSLH Colonization Testing

- Test results can take 1-5 days depending on the type of test ordered.
  - CRE/CRPA rectal swabs are tested directly from the swab, so results are available quickly.
  - Any CRAB or non-rectal CRE/CRPA swabs need to be grown first, which takes additional time.
- Results are faxed to the facility and the HAI Program.

Colonization: Next Steps

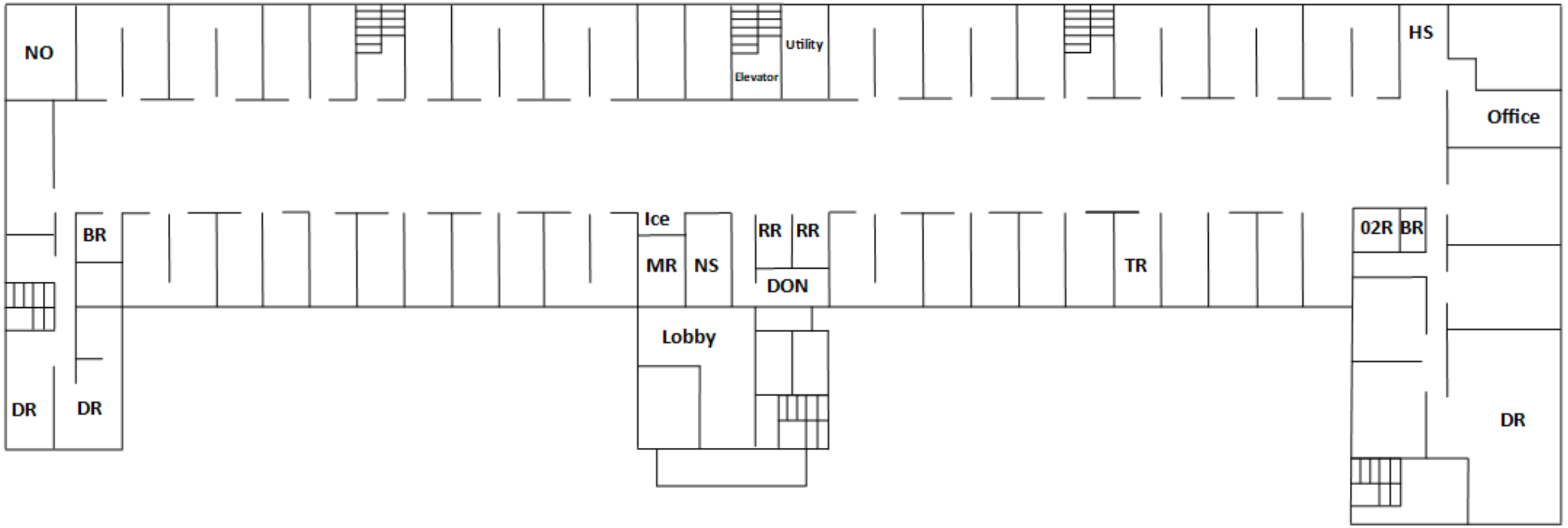
- Residents who test positive may need to be cohorted or moved to single rooms, if possible.
- Any resident who tests positive is assumed to be colonized indefinitely and will not need to be tested again.
- Follow up colonization screening is repeated in 1-2 months to detect any further transmission.
- Screenings are repeated until there are two consecutive negative screenings to indicate containment.

Case Study

You are the infection preventionist at a skilled nursing facility:

- Licensed for 50 LTC beds
- Current census: 47
- Recent survey citation for missed hand hygiene opportunities during peri-care

Facility Map



Situation

You are notified that Resident A from your facility was identified positive for CRAB following a culture of her coccyx wound during her current hospitalization.

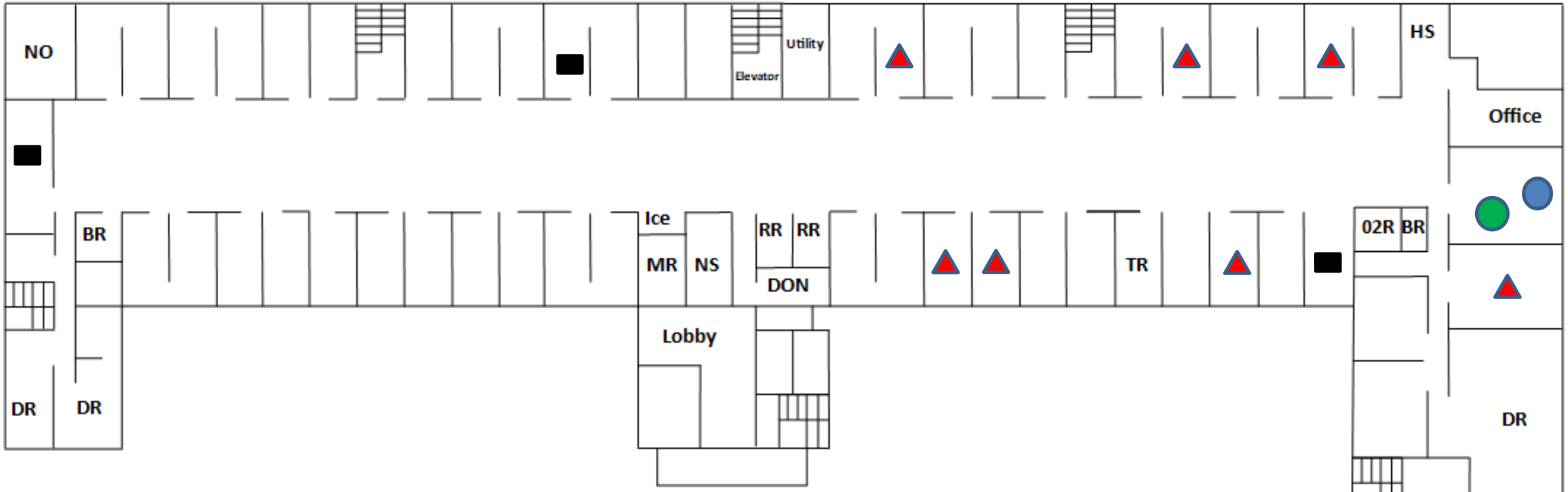
Resident A

- Chronic coccyx ulcer with history of prolonged, frequent antibiotic use related to wound infections
- Repeatedly seen in acute care and outpatient settings over the past six months
- Has lived on the LTC unit for the past 6 months
- Chronic ulcer has increased drainage with difficulty being contained to a dressing

Facility Residents and Precautions

- Resident A has had a roommate for the past six months. The roommate has a Foley catheter.
- There are multiple residents on the LTC unit with lines, drains, and wounds.
- The facility will conduct a point prevalence screen (PPS) of residents.
- What should be the readmission plan for Resident A?

Facility Map



- Resident A
- Resident B (roommate)
- Residents with lines/drains/wounds
- Vacant Room

Standard Precautions

Applies to	Personal Protective Equipment (PPE) used for these situations	Required PPE	Room restriction
All residents	Any potential exposure to: • Blood • Body fluids • Mucous membranes • Non-intact skin • Potentially contaminated environmental surfaces or equipment	Depending on anticipated exposure: gloves, gown, or face protection Change PPE before caring for another resident	None

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

Enhanced Barrier Precautions

Applies to	PPE used for these situations	Required PPE	Room restriction
All residents with either: • Infection or colonization with a novel 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 infected or colonized with a novel MDRO resides Can consider applying EBP to residents infected or colonized with other epidemiologically-important MDROs based on facility policy.	During high-contact resident care activities: • Dressing • Bathing or showering • Transferring • Providing hygiene • Changing linens • Changing briefs or assisting with toileting • Device care or use (central line, urinary catheter, feeding tube, tracheostomy/ventilator, etc.) • Wound care (any skin opening requiring a dressing)	Gloves and gown prior to the high-contact care activity Change PPE before caring for another resident Face protection may also be needed if performing activity with risk of splash or spray	None

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

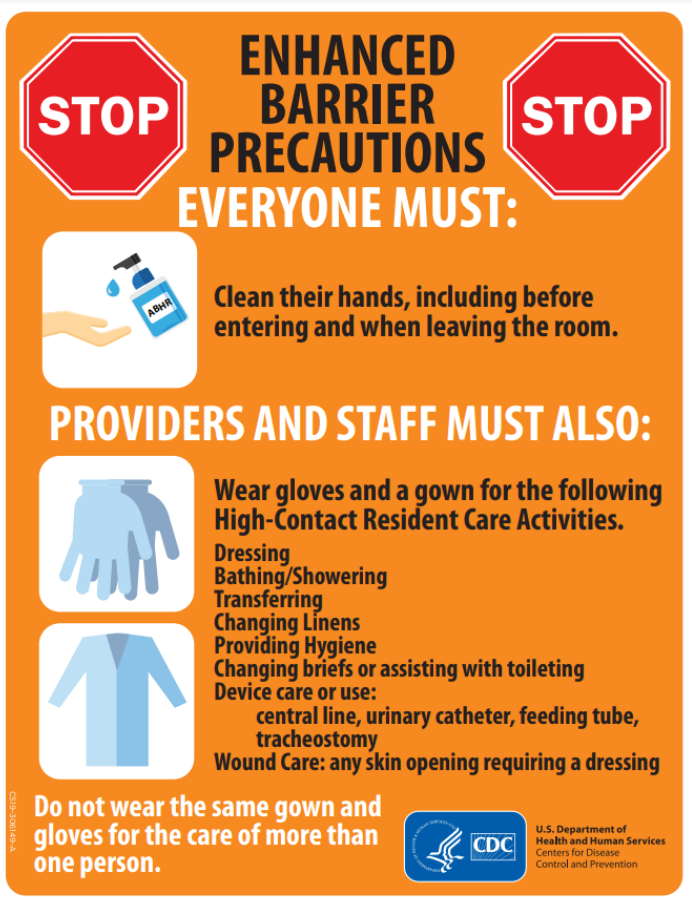
Contact Precautions

Applies to	PPE used for these situations	Required PPE	Room restriction

• All residents infected or colonized with a novel MDRO:
  • Presence of acute diarrhea, draining wounds, or other sites of secretions or excretions that are unable to be covered or contained
  • On units or in facilities where ongoing transmission is documented or suspected
 	
• For infections (e.g., *C. difficile*, norovirus, scabies) and other conditions where contact precautions is recommended per CDC Guideline for Isolation Precautions
	Any room entry	Gloves and gown
		
		Don before room entry, doff before room exit, change before caring for another resident
		
		Face protection may also be needed if performing activity with risk of splash or spray
			Yes, except for medically necessary care

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

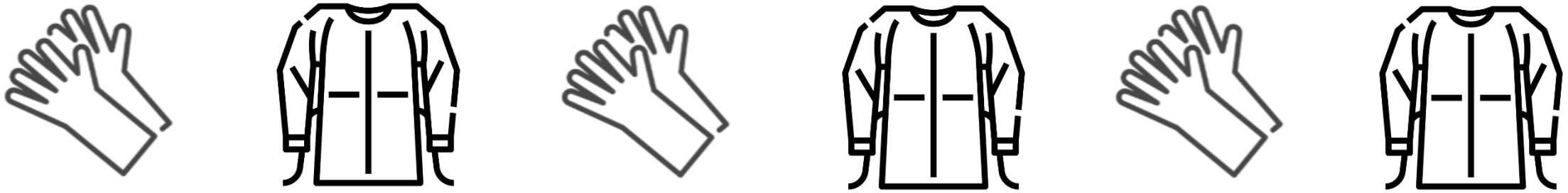
Post Transmission-Based Precautions Signs



https://www.cdc.gov/hai/containment/faqs.html

Personal Protective Equipment

- Cart
- Storage areas
- Burn rate
- Optimization strategies, as appropriate



Roommate?

What interventions, if any, would you put into place for Resident A's roommate?

Other Residents on the Unit

What interventions would you put into place for the other residents on the unit with lines, drains, and wounds?

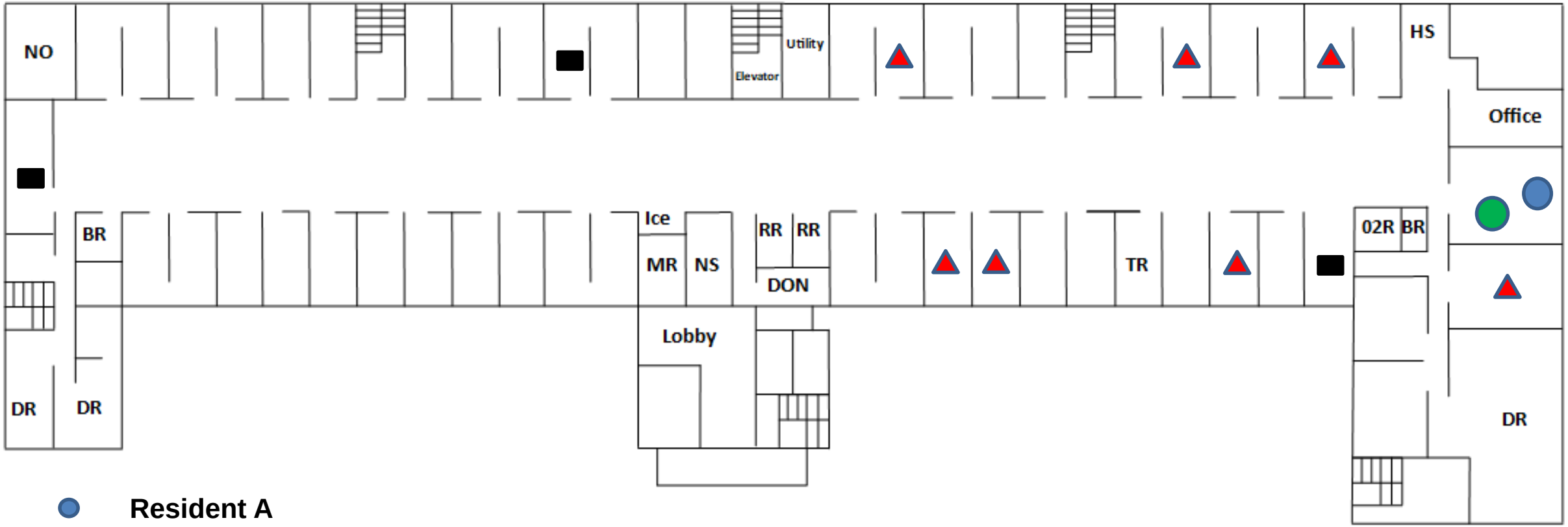
Resident A's Readmission Plan

What other interventions would you put into place for Resident A upon readmission to the facility?

Cohorting

- Cohorting places residents infected with the same pathogen and are suitable roommates in the same room.
- Do not cohort residents who have other co-infections.
- Other considerations:
  - Done on a case-by-case basis
  - Location of cohort area
  - Dedicated staff

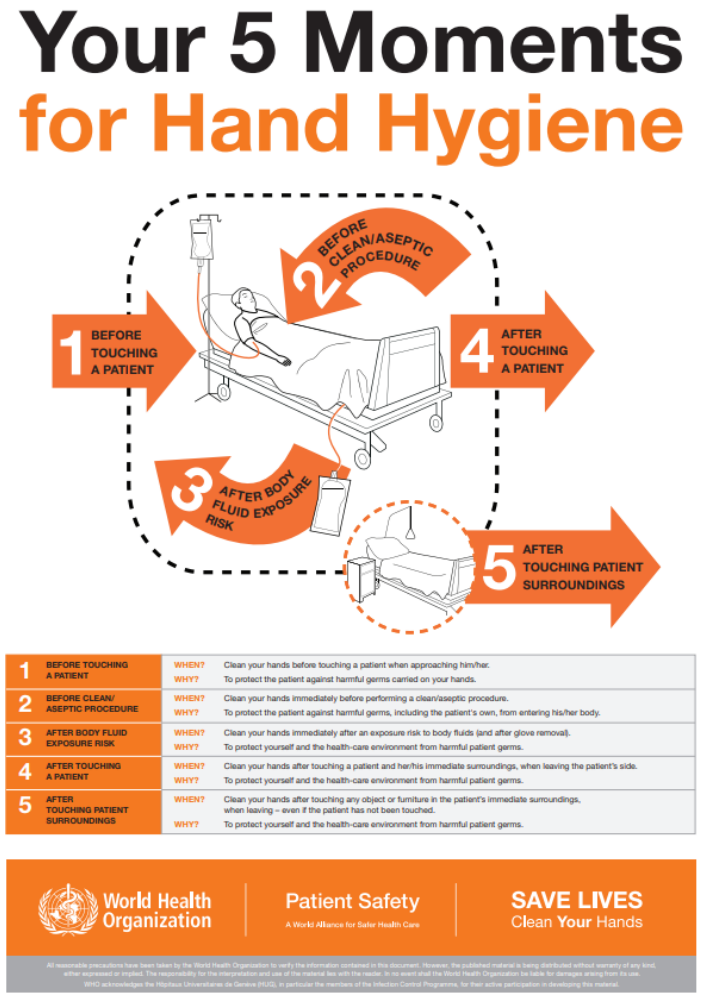
Cohorting Considerations



- Resident A
- Resident B (roommate)
- Residents with lines/drains/wounds
- Vacant Room

Hand Hygiene

https://www.cdc.gov/handhygiene/pdfs/Provider-Poster-Clean-Hands-Count-508.pdf



https://www.who.int/gpsc/5may/Your_5_Moments_For_Hand_Hygiene_Poster.pdf

Environmental Cleaning

- Increase frequency of cleaning, focusing on high-touch surfaces.
- Use single-use, disposable equipment or dedicated equipment.
- Consider designating specific environmental services staff to the affected resident care unit.
- Clean from least soiled to most soiled and from physically high to physically low areas.

Environmental Cleaning

- Use Environmental Protection Agency-registered disinfectants to clean floors and surfaces.
- Adhere to the contact time of each disinfectant to ensure complete disinfection occurs.
- Change any privacy curtains on a routine basis, if they become soiled, and after a resident on isolation is discharged or transferred.

Staff Education

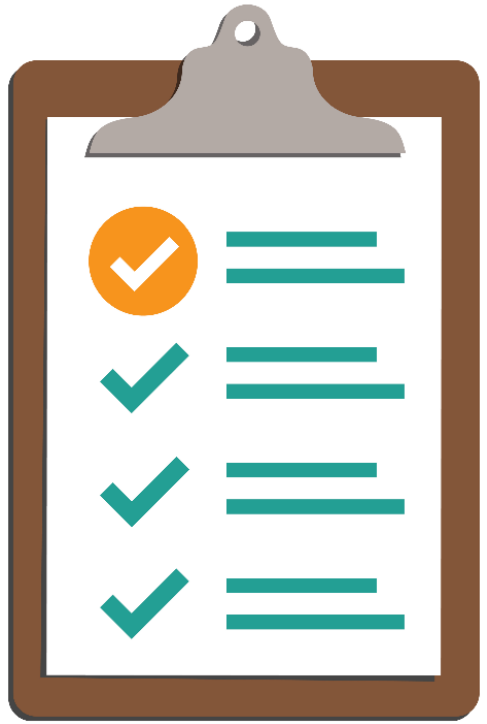
Include direct care staff and ancillary service staff on all shifts in education for:

- Overview of CRAB.
- Precautions: standard, enhanced barrier, contact.
- Hand hygiene: staff and resident.
- Cleaning: shared equipment, communal spaces (for example the tub room), and resident rooms.

Sustaining Education

How will you gauge whether education has been understood and is being followed?

- Observations/audits with appropriate follow-up
- Quality Assurance and Performance Improvement (QAPI) Committee involvement
- Colonization screening



Hand Hygiene Observations

DEPATMENT OF HEALTH SERVICES
Division of Public Health
F-02475 (06/2021)

STATE OF WISCONSIN

HAND HYGIENE OBSERVATIONS

Date: _____ **Auditor:** _____

Unit: _____

Please circle one phrase from each column that best describes the opportunity you are observing.

Hand Hygiene Audits

1	Title	Indication	Action	Coached/Comments
	MD/APNP/PA	Before resident		
	Nurse	Before asept	Alcohol rub	
	CNA	After resident	Soap and water	
	EVS	After surroundings	None performed	
	Other Staff	After body fluid		

Hand Hygiene Audits

5	Title	Indication	Action	Coached/Comments
	MD/APNP/PA	Before resident		
	Nurse	Before asept	Alcohol rub	
	CNA	After resident	Soap and water	
	EVS	After surroundings	None performed	
	Other Staff	After body fluid		

https://www.dhs.wisconsin.gov/forms/f02475.pdf

Hand Hygiene and PPE Observations

DEPARTMENT OF HEALTH SERVICES
Division of Public Health
F-02726 (10/2020)

STATE OF WISCONSIN

HAND HYGIENE (HH) AND PERSONAL PROTECTIVE EQUIPMENT (PPE) OBSERVATIONS

Staff type*	Type of opportunity	HH performed?	What PPE is indicated? (check all that apply)	PPE used by staff during observation	Comments
☐ MED ☐ EVS ☐ NUR ☐ OTH ☐ CNA ☐ FAM ☐ Therapy ☐ UNK ☐ DIET	☐ Room entry ☐ Room exit ☐ Before resident contact ☐ After resident contact ☐ Before glove use ☐ After glove use ☐ Other: _____	☐ Alcohol-rub ☐ Hand wash ☐ No HH done ☐	☐ Gown ☐ Gloves ☐ Eye protection ☐ Mask ☐ None	☐ Gown ☐ Gloves ☐ Eye protection ☐ Mask ☐ None	
☐ MED ☐ EVS ☐ NUR ☐ OTH ☐ CNA ☐ FAM ☐ Therapy ☐ UNK ☐ DIET	☐ Room entry ☐ Room exit ☐ Before resident contact ☐ After resident contact ☐ Before glove use ☐ After glove use ☐ Other: _____	☐ Alcohol-rub ☐ Hand wash ☐ No HH done ☐	☐ Gown ☐ Gloves ☐ Eye protection ☐ Mask ☐ None	☐ Gown ☐ Gloves ☐ Eye protection ☐ Mask ☐ None	

https://www.dhs.wisconsin.gov/forms/f02726.pdf

Quality Oversight

§483.75(a) Quality assurance and performance improvement (QAPI) program

- Each LTCF, including a facility that is part of a multi-unit chain, must develop, implement, and maintain an effective, comprehensive, data-driven QAPI program that focuses on indicators of the outcomes of care and quality of life.

Internal and External Communication

- How will ongoing staff communication about the outbreak be handled?
- How will ongoing communication with residents and families be handled?
- How will communication between your facility and transferring facilities or ancillary services be achieved?

Next Steps: Residents

- Resident A will be on EBP indefinitely.
- Those who are not colonized and have lines, drains, or wounds will be on EBP until the indwelling devices are removed, and/or the wound is healed.
- Colonization screening will continue until containment criteria are met (two consecutive months without new cases). Prepare for there to potentially be more cases.

Next Steps: Staff

- Continue education and observations of staff practice.
- Continue oversight of observations through Quality Assessment and Assurance (QAA) Committee and QAPI Program.

Additional EBP Resources

- CDC webinar, “Preventing the Spread of Novel or Targeted Multidrug-Resistant Organisms (MDROs) in Nursing Homes through Enhanced Barrier Precautions (2019)”: https://emergency.cdc.gov/coca/calls/2019/callinfo_102419.asp
- CDC frequently asked questions (FAQs) about enhanced barrier precautions in nursing homes: https://www.cdc.gov/hai/containment/faqs.html

Questions?

HAI Prevention Program
dhswihaipreventionprogram@dhs.wisconsin.gov
608-267-7711

WISCONSIN DEPARTMENT of HEALTH SERVICES

Visitation Guidelines in Long-Term Care Facilities

Questions?

https://www.dhs.wisconsin.gov/hai/ip-education.htm

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Topics A-Z: A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

Get the latest on COVID-19

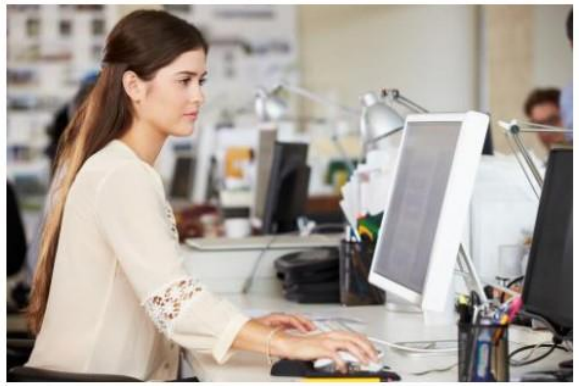
Learn about getting the COVID-19 vaccine

HAI Infection Prevention Education

HAI Infection Prevention Education

The resources below are intended to connect health care facility infection preventionists (IP) with education materials to support their role in preventing, detecting, and responding to healthcare-associated infections. IPs play an essential role in facility infection prevention policy development, surveillance, and risk assessment.

IPs serve as a resource to other staff and programs within their facilities. In addition to the state in-person trainings and online references below, there are a number of links to trusted education resources, including the Centers for Disease Prevention and Control (CDC), the Centers for Medicare and Medicaid Services (CMS), and the Association for Professionals in Infection Control and Epidemiology (APIC).



Professional Resources

- Infection Preventionist Starter Kit, P-02992 (PDF)

Upcoming LTC Education Session

Thursday, August 26, 2021

UTI Toolkit Refresher