

vSNF Workgroup | Workshop #6

MDRO Case Studies in vSNF

During the COVID-19 Pandemic

July 13, 2022

Healthcare-Associated Infections Program
Center for Health Care Quality
California Department of Public Health



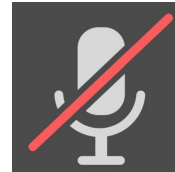
Housekeeping Reminders



This session is
being recorded



If your name does
not show up,
please “right click”
to rename



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if you are not
speaking



To comment, type
in the Chat or
unmute

Implicit Bias

- Describes how our unconscious attitudes or judgements can influence our thoughts, decisions, or actions
- Includes involuntary, unintentional perceptions made without awareness
- Occurs as our brains sort information and perceive data to understand our world
- Affects our decisions, contributing to societal disparities
 - Self awareness about implicit bias can promote healthcare diversity and equality
- Learn more about your own implicit bias at [Project Implicit](https://implicit.harvard.edu/implicit/) (implicit.harvard.edu/implicit/)



Agenda

12-12:05PM	Welcome
12:05-12:25PM	Review Adherence Monitoring Feedback Tools and Trackers
12:25-1:25PM	MDRO Case Studies in vSNF During the COVID-19 Pandemic
1:25-1:30PM	Next Steps



REVIEW ADHERENCE MONITORING FEEDBACK TOOLS AND TRACKERS



Tools for Implementing a Quality Improvement Project

Tools for Implementing a Quality Improvement Project			
Institutional Support and Infrastructure	Training and Education	Reminders in the Workplace	Evaluation and Feedback
Gain leadership approvals for participation	Hand Hygiene		
	Slides/flipchart for healthcare worker education sessions Hand washing (video)	<i>My 5 Moments for Hand Hygiene</i> poster Hand hygiene technique posters: <i>How to Handrub</i> , <i>How to Handwash</i>	Observation tools: adherence monitoring Templates for sharing adherence monitoring data with staff and leadership
Participate and receive feedback from onsite assessments	Environmental Cleaning and Disinfection		
	Slides/flipchart for healthcare worker education sessions Principles of cleaning (video)	<i>CDC Cleaning Strategy (Clean to Dirty)</i> flyer <i>Who Cleans What?</i> Flyer (customize to your facility policy)	Observation tools: adherence monitoring, fluorescent marker tool Templates for sharing adherence monitoring data with staff and leadership Environmental cleaning and disinfection responsibility assessment tool
Pre-post evaluation (distributed at workshops)			

Adherence Monitoring Tool: Hand Hygiene



Healthcare-Associated Infections Program Adherence Monitoring Hand Hygiene

Assessment completed by: _____
Date: _____
Unit: _____

Regular monitoring with feedback of results to staff can improve hand hygiene adherence. Use this tool to identify gaps and opportunities for improvement. Monitoring may be performed in any type of patient care location.

Instructions: Observe at least 10 hand hygiene (HH) opportunities per unit. Observe a staff member and record his/her discipline. Check the type of hand hygiene opportunity you are observing. Indicate if HH was performed. Record the total number of successful HH opportunities and calculate adherence.

HH Opportunity	Discipline	What type of HH opportunity was observed? (select/ <input checked="" type="checkbox"/> 1 per line)	Was HH performed for opportunity observed? <input checked="" type="checkbox"/> or <input type="checkbox"/>	
<i>Example</i>	N	<input type="checkbox"/> before care/entering room* <input type="checkbox"/> before task <input type="checkbox"/> after body fluids <input type="checkbox"/> after care* <input checked="" type="checkbox"/> upon leaving room <small>*Remember: Hand hygiene should be performed before and after glove use</small>	<input checked="" type="checkbox"/>	
HH1.		<input type="checkbox"/> before care/entering room <input type="checkbox"/> before task <input type="checkbox"/> after body fluids <input type="checkbox"/> after care <input type="checkbox"/> upon leaving room		
HH2.		<input type="checkbox"/> before care/entering room <input type="checkbox"/> before task <input type="checkbox"/> after body fluids <input type="checkbox"/> after care <input type="checkbox"/> upon leaving room		
HH3.		<input type="checkbox"/> before care/entering room <input type="checkbox"/> before task <input type="checkbox"/> after body fluids <input type="checkbox"/> after care <input type="checkbox"/> upon leaving room		
HH4.		<input type="checkbox"/> before care/entering room <input type="checkbox"/> before task <input type="checkbox"/> after body fluids <input type="checkbox"/> after care <input type="checkbox"/> upon leaving room		
HH5.		<input type="checkbox"/> before care/entering room <input type="checkbox"/> before task <input type="checkbox"/> after body fluids <input type="checkbox"/> after care <input type="checkbox"/> upon leaving room		
HH6.		<input type="checkbox"/> before care/entering room <input type="checkbox"/> before task <input type="checkbox"/> after body fluids <input type="checkbox"/> after care <input type="checkbox"/> upon leaving room		
HH7.		<input type="checkbox"/> before care/entering room <input type="checkbox"/> before task <input type="checkbox"/> after body fluids <input type="checkbox"/> after care <input type="checkbox"/> upon leaving room		
HH8.		<input type="checkbox"/> before care/entering room <input type="checkbox"/> before task <input type="checkbox"/> after body fluids <input type="checkbox"/> after care <input type="checkbox"/> upon leaving room		
HH9.		<input type="checkbox"/> before care/entering room <input type="checkbox"/> before task <input type="checkbox"/> after body fluids <input type="checkbox"/> after care <input type="checkbox"/> upon leaving room		
HH10.		<input type="checkbox"/> before care/entering room <input type="checkbox"/> before task <input type="checkbox"/> after body fluids <input type="checkbox"/> after care <input type="checkbox"/> upon leaving room		
Disciplines: CNA = Nurse Assistant D = Dietary N = Nurse		P = Physician RT = Respiratory Therapist S = Student VIS = Visitor	VOL = Volunteer W = Social Worker OTH = Other, Specify U = Unknown	Opportunities: <input checked="" type="checkbox"/> = Opportunity Successful <input type="checkbox"/> = Opportunity Missed
For HH1-HH10:				
Total # HH Successful (“# <input checked="" type="checkbox"/> ”): _____		Total # HH Opportunities Observed: _____	Adherence: _____% (Total # HH Successful ÷ Total HH Opportunities Observed x 100)	

Adherence Monitoring Tool: Environmental Cleaning and Disinfection



Healthcare-Associated Infections Program Adherence Monitoring Environmental Cleaning and Disinfection

Assessment completed by:
Date:
Unit:

Regular monitoring with feedback of results to staff can maintain or improve adherence to environmental cleaning practices. Use this tool to identify gaps and opportunities for improvement. Monitoring may be performed in any type of patient care location.

Instructions: Observe at least two (2) different environmental services (EVS) staff members. Observe each practice and check a box if adherent (“Yes”) or not adherent (“No”). In the right column, record the total number of “Yes” responses for adherent practices observed and the total number of observations (“Yes” + “No”). Calculate adherence percentage in the last row.

Environmental Cleaning Practices		EVS Staff 1		EVS Staff 2		EVS Staff 3		Adherence by Task	
		<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input type="checkbox"/> No	# Yes	# Observed
ES1.	Detergent/disinfectant solution is mixed and stored according to manufacturer’s instructions.	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input type="checkbox"/> No		
ES2.	Solution remains in wet contact with surfaces according to manufacturer’s instructions.	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input type="checkbox"/> No		
ES3.	Cleaning process avoids contamination of solutions and cleaning tools; a clean cloth is used in each patient area, and the cloth is changed when visibly soiled.	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input type="checkbox"/> No		
ES4.	Standard cleaning protocol is followed to avoid cross-contamination (e.g. from top to bottom, patient room to bathroom, and clean to dirty)	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input type="checkbox"/> No		
ES5.	Environmental Services staff use appropriate personal protective equipment (e.g. Gowns and gloves are used for patients/residents on contact precautions upon entry to the Contact precautions room.)	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input type="checkbox"/> No		
ES6.	Hand hygiene is performed throughout the cleaning process as needed, including before and after glove use.	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input type="checkbox"/> No		
ES7.	High-touch surfaces* are thoroughly cleaned and disinfected after each patient. Mark “Yes” if Fluorescent Marker Assessment Tool result is 100%; mark “No” if <100%.	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input type="checkbox"/> No		
ES8.	There are no visible tears or damage on environmental surfaces or equipment.	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input type="checkbox"/> No		
ES9.	The room is clean, dust free, and uncluttered.	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input type="checkbox"/> No		

*Examples of high touch surfaces:

Bed rail	Chair	Room light switch	TV remote	Bathroom door knob/handle	Bathroom sink
Tray table	In-room medical cart	IV pole (“grab area”)	Room inner door knob/handle	Bathroom handrail	Bathroom faucet
Side table	Room sink	Call button	In-room cabinet	Bathroom light switch	Toilet flush handle
Side table handle	Room sink faucet	PPE container	In-room computer/keyboard	Toilet seat	Toilet/bedpan cleaner

of Correct Practice Observed (“# Yes”): _____

Total # Environmental Services Observations (“# Observed”): _____
(Up to 15 Total)

Adherence _____ %
(Total “# Yes” ÷ Total “# Observed” x 100)

If practice could not be observed (i.e. cell is blank), do not count in total # Observed.

Adherence Monitoring Tool: Fluorescent Marker Assessment



Healthcare-Associated Infections Program Adherence Monitoring Fluorescent Marker Assessment Tool

Assessment completed by:
Date:
Facility Name:
LHJ:

Regular monitoring with feedback of results to staff can maintain or improve adherence to environmental cleaning practices. Use this tool to identify gaps and opportunities for improvement. Monitoring may be performed in any type of patient care location. Use this tool in addition to the Environmental Cleaning and Disinfection adherence monitoring tool.

Instructions: Discreetly place fluorescent marker on multiple high touch surfaces/equipment to be cleaned. Use additional forms as needed.				Adherence by Task	
Note: Apply small amount of fluorescent marker with Q-tip on the surfaces. Do not apply it to porous surfaces and the electrical outlets and switches.				# Yes	# Marked Areas
Check fluorescently marked high touch surfaces for each room below. After the room has been cleaned, use a black light to view marked areas. Circle "Yes" if the fluorescent marker was removed completely and "No" if any amount of fluorescent marker appears under the black light.					
Room #:	Bed #:	Unit:	<input type="checkbox"/> Isolation Room	Time marked with fluorescent marker:	Time to return:
<input type="checkbox"/> Room light switch: Yes / No	<input type="checkbox"/> Room inner <u>door knob</u> /handle: Yes / No	<input type="checkbox"/> PPE Container: Yes / No	<input type="checkbox"/> In-room cabinet: Yes / No	<input type="checkbox"/> In-room computer/keyboard: Yes / No	<input type="checkbox"/> Telephone: Yes / No
<input type="checkbox"/> Room <u>sink</u> : Yes / No	<input type="checkbox"/> Room sink faucet: Yes / No	<input type="checkbox"/> Chair: Yes / No	<input type="checkbox"/> Side table: Yes / No	<input type="checkbox"/> Side table handle: Yes / No	<input type="checkbox"/> Bed rail: Yes / No
<input type="checkbox"/> Tray table: Yes / No	<input type="checkbox"/> Tray table handle: Yes / No	<input type="checkbox"/> Call button/TV Remote: Yes / No	<input type="checkbox"/> IV pole, not in use: Yes / No	<input type="checkbox"/> Bathroom <u>door knob</u> /handle: Yes / No	<input type="checkbox"/> Bathroom light switch: Yes / No
<input type="checkbox"/> Bathroom handrail: Yes / No	<input type="checkbox"/> Bathroom sink: Yes / No	<input type="checkbox"/> Bathroom faucet: Yes / No	<input type="checkbox"/> Toilet seat: Yes / No	<input type="checkbox"/> Toilet flush handle: Yes / No	<input type="checkbox"/> Toilet / bedpan cleaner: Yes / No
<input type="checkbox"/> Feeding pump: Yes / No <input type="checkbox"/> IV pump face: Yes / No <input type="checkbox"/> IV pole, in use: Yes / No <input type="checkbox"/> Ventilator: Yes / No <input type="checkbox"/> Vitals machine: Yes / No					
<input type="checkbox"/> Pill crusher: Yes / No (hallway or patient room)					
In hallway (assess after patient use):					
<input type="checkbox"/> Medication cart: Yes / No <input type="checkbox"/> Wound care cart: Yes / No <input type="checkbox"/> Patient lift: Yes / No <input type="checkbox"/> Patient bed scale: Yes / No <input type="checkbox"/> Portable x-ray machine: Yes / No					
Room #:	Bed #:	Unit:	<input type="checkbox"/> Isolation Room	Time marked with fluorescent marker:	Time to return:
<input type="checkbox"/> Room light switch: Yes / No	<input type="checkbox"/> Room inner <u>door knob</u> /handle: Yes / No	<input type="checkbox"/> PPE Container: Yes / No	<input type="checkbox"/> In-room cabinet: Yes / No	<input type="checkbox"/> In-room computer/keyboard: Yes / No	<input type="checkbox"/> Telephone: Yes / No
<input type="checkbox"/> Room <u>sink</u> : Yes / No	<input type="checkbox"/> Room sink faucet: Yes / No	<input type="checkbox"/> Chair: Yes / No	<input type="checkbox"/> Side table: Yes / No	<input type="checkbox"/> Side table handle: Yes / No	<input type="checkbox"/> Bed rail: Yes / No
<input type="checkbox"/> Tray table: Yes / No	<input type="checkbox"/> Tray table handle: Yes / No	<input type="checkbox"/> Call button/TV Remote: Yes / No	<input type="checkbox"/> IV pole, not in use: Yes / No	<input type="checkbox"/> Bathroom <u>door knob</u> /handle: Yes / No	<input type="checkbox"/> Bathroom light switch: Yes / No
<input type="checkbox"/> Bathroom handrail: Yes / No	<input type="checkbox"/> Bathroom sink: Yes / No	<input type="checkbox"/> Bathroom faucet: Yes / No	<input type="checkbox"/> Toilet seat: Yes / No	<input type="checkbox"/> Toilet flush handle: Yes / No	<input type="checkbox"/> Toilet / bedpan cleaner: Yes / No
<input type="checkbox"/> Feeding pump: Yes / No <input type="checkbox"/> IV pump face: Yes / No <input type="checkbox"/> IV pole, in use: Yes / No <input type="checkbox"/> Ventilator: Yes / No <input type="checkbox"/> Vitals machine: Yes / No					
<input type="checkbox"/> Pill crusher: Yes / No (hallway or patient room)					
In hallway (assess after patient use):					
<input type="checkbox"/> Medication cart: Yes / No <input type="checkbox"/> Wound care cart: Yes / No <input type="checkbox"/> Patient lift: Yes / No <input type="checkbox"/> Patient bed scale: Yes / No <input type="checkbox"/> Portable x-ray machine: Yes / No					
	# of Correct Practice Observed ("# Yes")	Total # Marked Areas		Adherence (Total "# Yes" ÷ "Total # Marked Areas" x 100)	
EVS					
Clinical Staff					
Hallway					
TOTAL					

Adherence Monitoring Tool: Environmental Cleaning and Disinfection Responsibility Assessment



Healthcare-Associated Infections Program Environmental Cleaning and Disinfection – Responsibility Assessment

Everyone is responsible for the cleanliness of the care environment. It is recommended to keep an updated checklist of *who cleans what* in your policy. The following items may be used to develop a checklist for assigning cleaning responsibilities among staff. This tool may also be used as an assessment or teaching tool to identify gaps and opportunities for improvement.

Instructions: Ask at least four (4) staff with different titles to list who cleans each item. Compare responses to your facility’s policy. Look for areas where it is unclear who cleans certain items or if there is a mismatch among respondents. Use the results from this exercise to remind and reeducate staff on the importance of environmental cleaning. Example respondents include: infection preventionists, EVS managers, nurses, respiratory therapists, EVS workers.

Who is responsible for cleaning:	Respondent #1 Title:	Respondent #2 Title:	Respondent #3 Title:	Respondent #4 Title:
ABHR dispenser				
Bathroom				
Bedrail				
Blood pressure machine				
Call button				
Charting area				
Floor				
Floor, with large spill				
Glucometer				
In-room computer/keyboard				
IV pole				
IV pump				
Light switch				
Medication cart				
Oxygen tank				
Patient linen				
PPE container				
Privacy curtains				
Reusable thermometer				
Room/toilet sink				
Side table				
TV remote				
Ventilator				
Ventilator alarm in hallway				

Reminders in the Workplace: *Who Cleans What?* List



Healthcare-Associated Infections Program

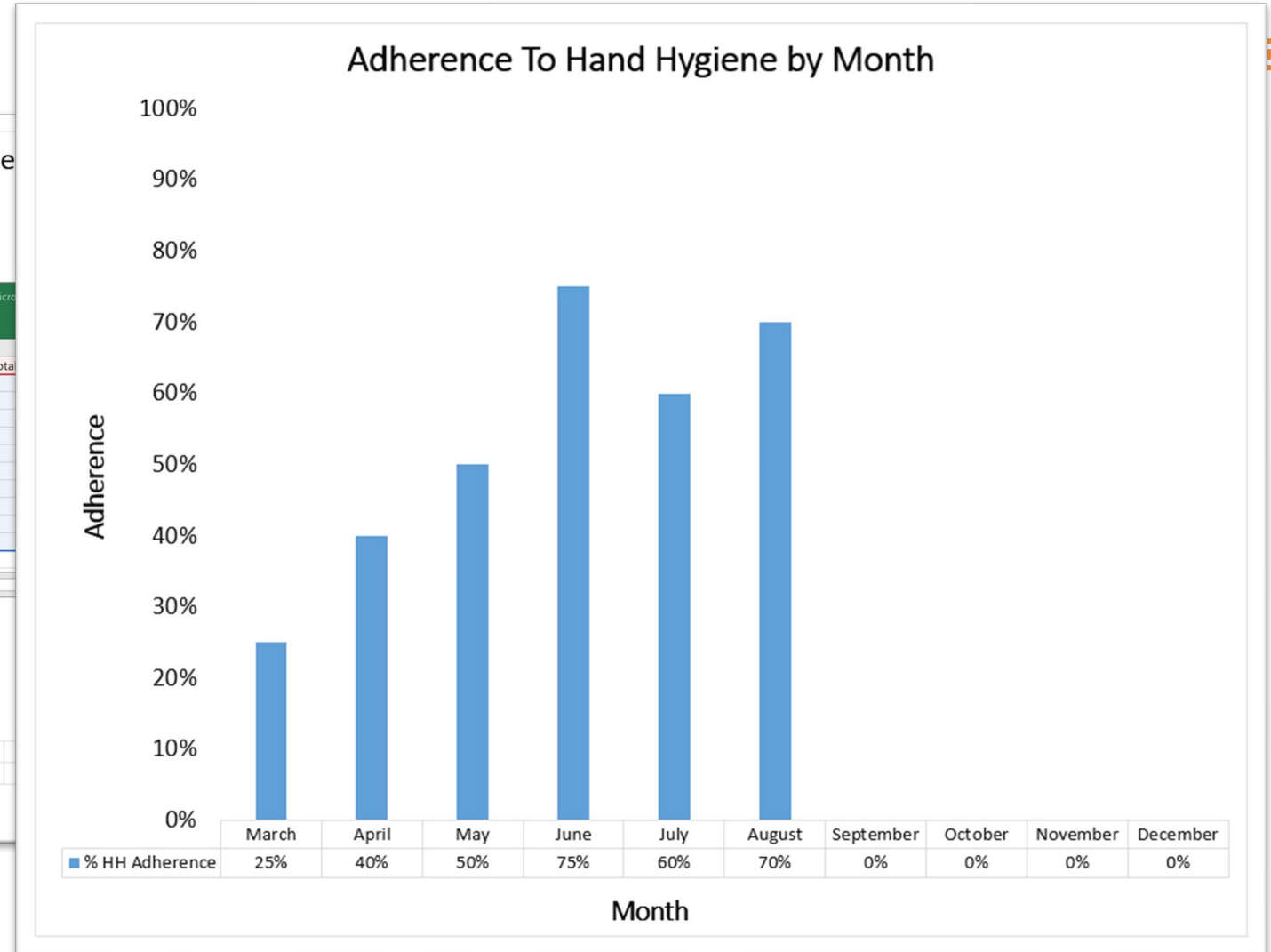
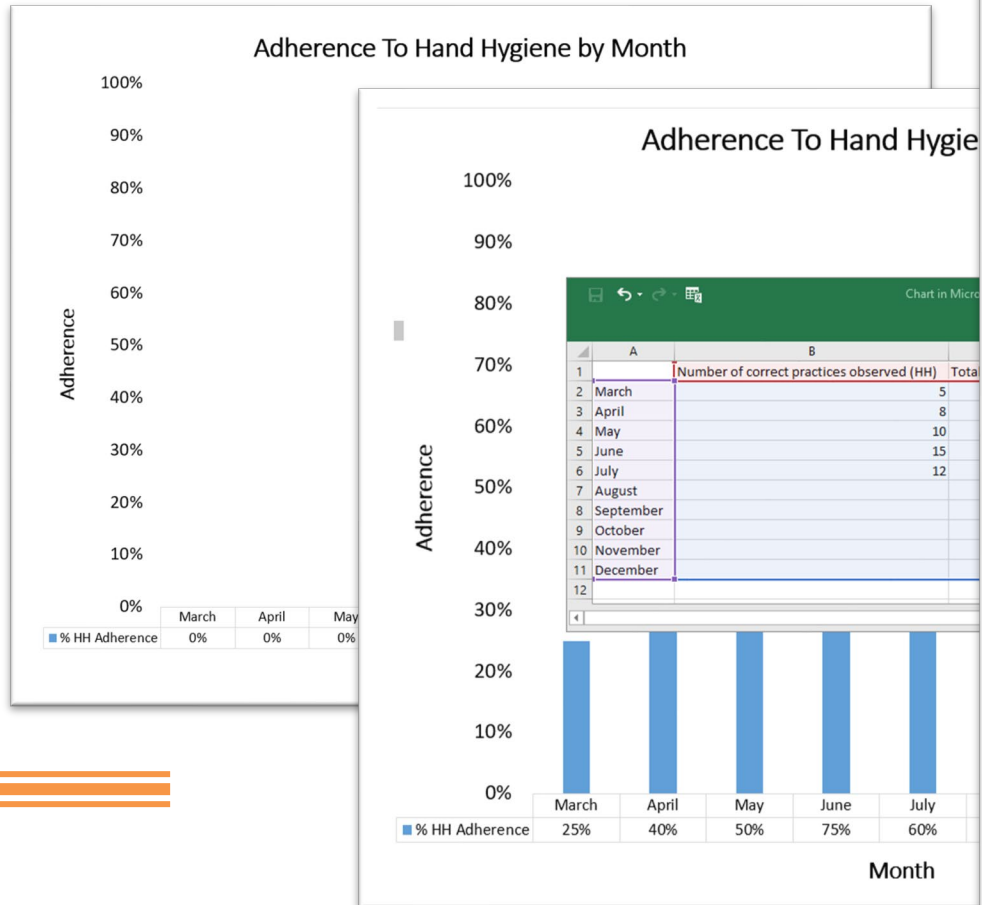
Environmental Cleaning and Disinfection – Who Cleans What?

Everyone is responsible for cleaning and disinfection of the healthcare environment. Keep an updated list of *who cleans what* in your policy. Customize the below template to correspond to your facility policy (e.g., add/delete roles in the top row, add/delete items in the left column). Mark the appropriate columns below with an “X” to designate responsibility, and denote frequency of cleaning (e.g., daily) or when to clean (e.g., before use). Revisit the list on a regular basis to ensure accuracy. Keep this list on cleaning carts, etc., for quick reference.

Date Last Verified:

Who is responsible for cleaning/disinfection of:	Housekeeping	CNA	LVN	RN	RT	PT/OT	Other
ABHR dispenser							
Bathroom							
Bedrail							
Blood pressure machine							
Call button							
Charting area							
Feeding pump							
Floor							
Floor, with large spill							
Glucometer							
In-room computer/keyboard							
IV pole							
IV pump							

Evaluation and Feedback



Evaluation and Feedback (Adherence Monitoring)

Regular monitoring with feedback of results to staff can maintain or improve adherence to hand hygiene, environmental cleaning and education, and contact precautions practices. Use the following tools to identify gaps and opportunities for improvement.

- Adherence Monitoring Tools: Use the adherence monitoring tools to track progress over time. Monitoring may be performed in any type of patient care location.
 - [Hand hygiene \(PDF\)](#)
 - [Hand Hygiene for EVS Staff \(PDF\)](#)
 - [Environmental Cleaning and Disinfection \(PDF\)](#)
 - [Fluorescent Marker Assessment Tool \(PDF\)](#): Use in conjunction with the Environmental Cleaning and Disinfection adherence monitoring tool.
 - [Environmental Cleaning and Disinfection Responsibility Assessment Tool \(PDF\)](#)
 - [Who Cleans What Reminder Template \(Word\)](#): Use in conjunction with Environmental Cleaning and Disinfection Responsibility Assessment Tool. Customize the template to correspond to your facility policy.
 - [Contact Precautions \(PDF\)](#)
- Adherence Monitoring Feedback Tool and Instructions (Tool): Use the feedback tools to share adherence monitoring data with staff and leadership.
 - [Hand Hygiene \(Word\)](#)
 - [Environmental Cleaning and Disinfection \(Word\)](#)
 - [Fluorescent Marker Tool \(Word\)](#)
 - [Contact Precautions \(Word\)](#)
 - [Ventilator Associated Pneumonia \(Word\)](#)

Multidrug-resistant Organism Case Studies in Ventilator-Equipped Skilled Nursing Facilities During the COVID-19 Pandemic

July 13, 2022

Presented via Webinar

Ventilator-Equipped Skilled Nursing Facility Workgroup to
Prevent Multidrug-Resistant Organisms

Rachel Levit, MPH
Healthcare-Associated Infections (HAI) Program
Center for Health Care Quality
California Department of Public Health

Objectives

- Summarize background information on multidrug-resistant organisms (MDRO)
- Describe how the investigation details of an MDRO outbreak in a ventilator-equipped skilled nursing facility (vSNF) align with infection prevention and control (IPC) practices
- Discuss how COVID-19 related IPC challenges have impacted MDRO spread
- Apply MDRO investigation steps and IPC best practices to a case-based discussion

Multidrug-resistant Organisms (MDRO)

- **MDRO**
 - Bacteria or fungi that are resistant to many types of antibiotics
 - Infections caused by MDRO can be difficult to treat and lead to high mortality
- Residents with MDRO can remain **colonized** for many months, possibly indefinitely
 - Colonized residents can **still transmit the germ** to other residents
 - Can go on to develop clinical infections

MDRO Risk Factors

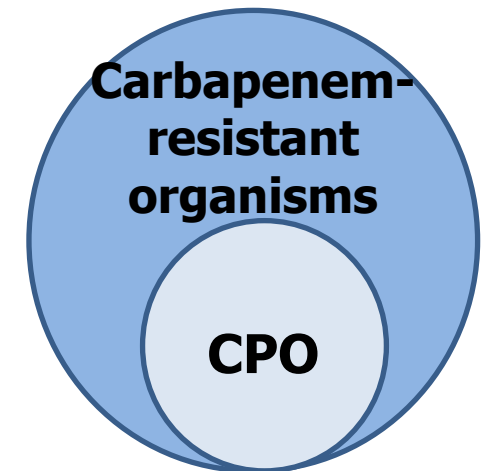
- Indwelling medical devices
 - e.g., urinary catheter, endotracheal tube
- Mechanical ventilation
- Wounds
- Recent antibiotic use
- Frequent exposure to healthcare facilities
 - **Especially ventilator units in skilled nursing facilities (vSNF) and long-term acute care hospitals (LTACH)**

MDRO Cause Outbreaks

- Causes **outbreaks in vSNF**
 - Sources of transmission include:
 - infected and colonized residents
 - shared medical equipment
 - healthcare worker contaminated hands, clothing (not typically colonized or infected)
 - healthcare environment surfaces
 - Highly transmissible within and between healthcare facilities
 - **Early and aggressive containment efforts can limit spread**
 - We don't want these bugs to become common in healthcare facilities
-
-

MDRO Examples

- *Candida auris*
- **Carbapenemase-producing organisms (CPO)**
 - Carbapenem-resistant (resistant to broad-spectrum carbapenem antibiotics)
 - Enterobacterales, e.g., *E. coli*, *Klebsiella* and *Enterobacter* species (CRE)
 - *Pseudomonas aeruginosa* (CRPA)
 - *Acinetobacter baumannii* (CRAB)
 - Carbapenemases
 - Enzymes that inactivate carbapenem antibiotics
 - Carbapenemase genes transferred between/within species
 - KPC, NDM, OXA-48, VIM, IMP
 - Other variants including OXA-23, OXA-24/40, OXA-237



KPC=Klebsiella pneumoniae carbapenemase; NDM=New Delhi Metallo- β -Lactamase; OXA=Oxacillinase, VIM=Verona Integron Metallo- β -Lactamase; IMP= Imipenemase

Healthcare-associated MDRO*: What We Know

	<i>C. auris</i>	CRAB	Other MDRO (e.g., CRE, CRPA)	<i>C. diff</i>
Causes outbreaks in healthcare settings	X	X	X	X
Leads to substantial morbidity and mortality	X	X	X	X
Risk factors include frequent or extended healthcare exposure, antimicrobial use	X	X	X	X
Patients can remain colonized for many months (no “clearance” recommendations)	X	X	X	X
Persistent in the healthcare environment	X	X		X

*Including *Clostridioides difficile* (*C. diff*); *C. auris*=*Candida auris*; CRAB = carbapenem-resistant *Acinetobacter*; CRE = carbapenem-resistant Enterobacterales; CRPA = carbapenem-resistant *Pseudomonas aeruginosa*; MDRO=multidrug-resistant organism

FACILITY INVESTIGATION AND RESPONSE

Facility Response Actions

- 1. Consistently review lab reports to identify any residents that have MDRO**
 - 2. Implement IPC practices for residents with MDRO**
 - Contact precautions, single-bed room if possible, use of disinfectant effective against MDRO of concern
 - Gather epidemiological information (who, what, where, when)
 - 3. Communication**
 - Communicate MDRO status to receiving healthcare facility
 - During outbreak, empiric Contact precautions and screening for MDRO-exposed residents discharged to other healthcare facilities
 - Patient and family education
-
-

Investigation and Response

4. Improve core IPC practices

- IP and facility leadership to routinely identify IPC gaps and areas of improvements
- Staff in-services and retraining
- Routine adherence monitoring and providing results to staff

5. Response testing and surveillance

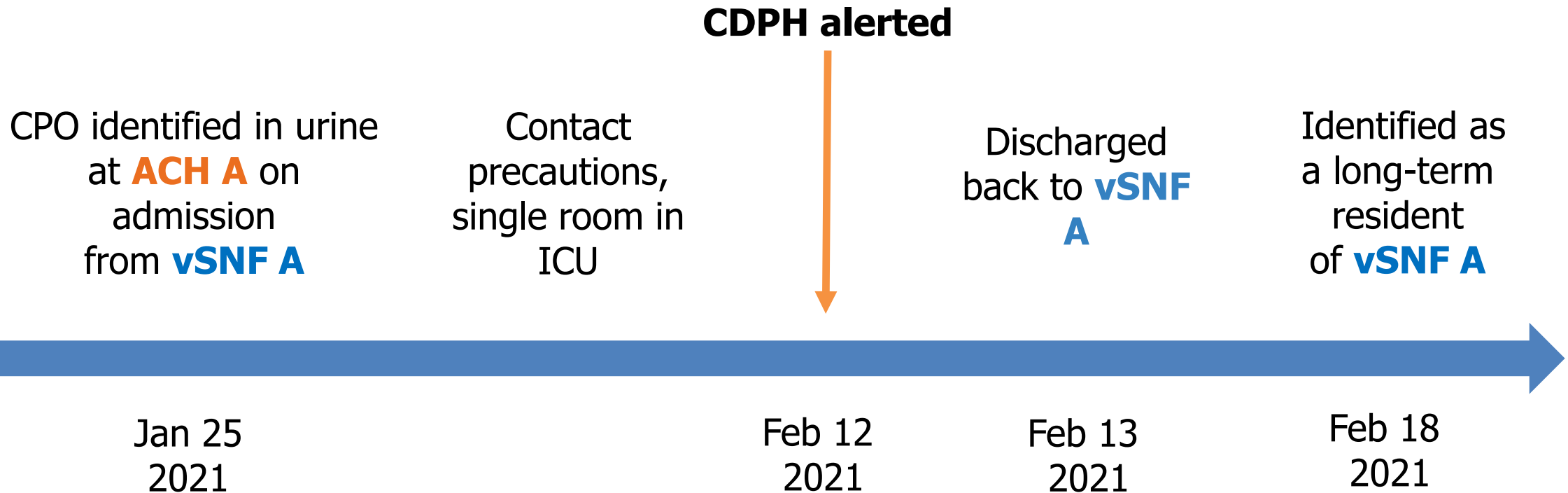
- In consultation with LHD, identify and screen epi-linked contacts
- Point prevalence survey (PPS)



MDRO OUTBREAK AT VSNF A



Identification of the Index Case



Index Patient

- Long-term resident of **vSNF A**, admitted from **LTACH A** in 2015
- Frequently readmitted to **ACH A**
- High-risk, 69-year-old male
 - Mechanical ventilation
 - Indwelling devices: trach, G-tube, urinary catheter
 - Wound care
 - Bedbound
- Co-colonized with MRSA, VRE, and other CPO

vSNF A

- 120-bed vSNF (30 in vent unit)
- Long-term residents
- Routinely sends patients to **ACH A**
- Previous known MDRO outbreaks
- Other known MDRO (CRO, CPO) cases previously and currently in facility

Initial Facility Response Timeline

Point prevalence survey (PPS) 1, vent unit, rectal swabs for CPO detection

Patient 1 identified at ACH A

4/26+

First IPC assessment



CDPH alerted

PPS 2, vent unit

PPS 3, house-wide

4/25+

7/82+

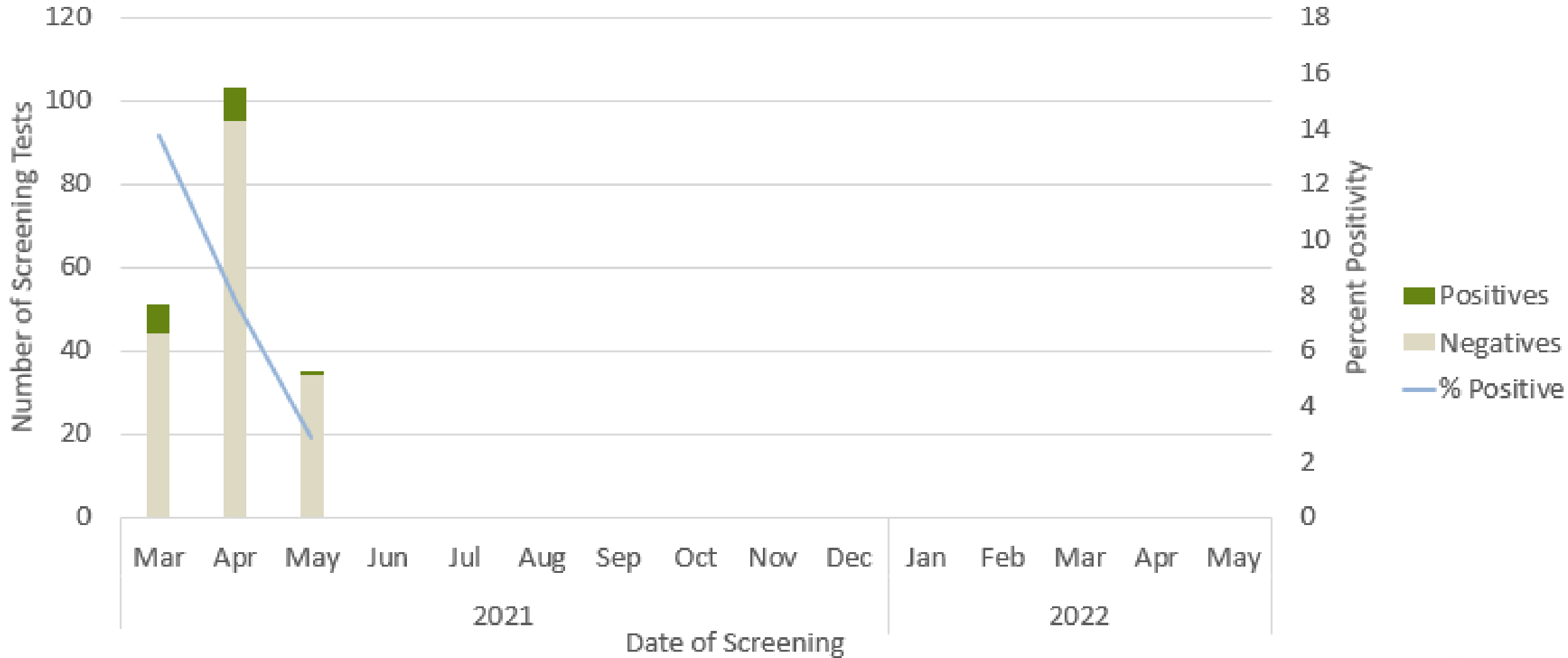
Positives in **vent unit only**



vSNF A Epidemic Curve, January - May 2021



Screening Results at vSNF A, March – May 2021





**WHAT IPC PRACTICES DO YOU THINK ARE NEEDED TO
STOP THIS OUTBREAK?**



Core Infection Prevention Practices

For Use in All Health Care Settings at All Times

- Visible, tangible leadership support for infection control
- Infection prevention training for all HCP
- Patient, family, caregiver HAI prevention education
- Performance monitoring and feedback
- Early, prompt removal of invasive devices
- Occupational health
- Standard precautions
 - Hand hygiene
 - Environmental cleaning and disinfection
 - Injection safety, medication safety
 - Assess risk, use PPE appropriately
 - Minimize potential exposures
 - Clean and reprocess reusable medical equipment
- Transmission-based precautions as necessary

[CDC HICPAC, 2017](#)

(www.cdc.gov/hicpac/recommendations/core-practices.html)

Onsite Infection Control Assessment (March 2021)

- **Hand hygiene (HH)**
 - Hand sanitizer dispensers empty or not working
 - Lack of HH by EVS and nursing staff before donning PPE
- **Personal protective equipment (PPE)**
 - Staff were using Contact precautions on a “site specific” basis
 - Staff could not interpret color coding of PPE signage

Onsite Infection Control Assessment (March 2021)

- **Environmental cleaning and disinfection**
 - Contracted company with no training provided by the vSNF
 - General lack of cleaning and disinfecting shared medical equipment
 - No policy about cleaning and disinfection responsibilities
 - Basic misunderstanding of “clean vs dirty” areas
 - Fluorescent marker audit showed <50% of high touch surfaces cleaned
- **Lack of leadership staff**
 - IP and other leadership positions had been unfilled for months



WHAT IPC PRACTICES WOULD YOU IMPLEMENT?



IPC Recommendations and Improvements

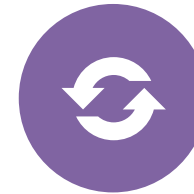
- Cohort residents and staff
 - By bug, geographically
 - Thoroughly **clean all resident rooms** in the vent unit
 - Improve alcohol-based hand sanitizer access and retrain on 5 moments of **HH**
 - **Dedicate medical equipment** to residents
 - Retrain staff on **PPE** donning and doffing sequence
 - Implement **Contact precautions** for all residents in the vent unit
 - Educate contracted **EVS** company about facility policies and expectations
 - Conduct routine **adherence monitoring**
 - Provide **follow-up IP visits** on a monthly basis
-
-



Active **outbreak closed** in June 2021



vSNF A moved to **monthly PPS** for periodic surveillance



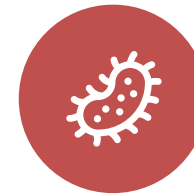
Repeat onsite IPC assessments by local health department



Collected **adherence monitoring data**

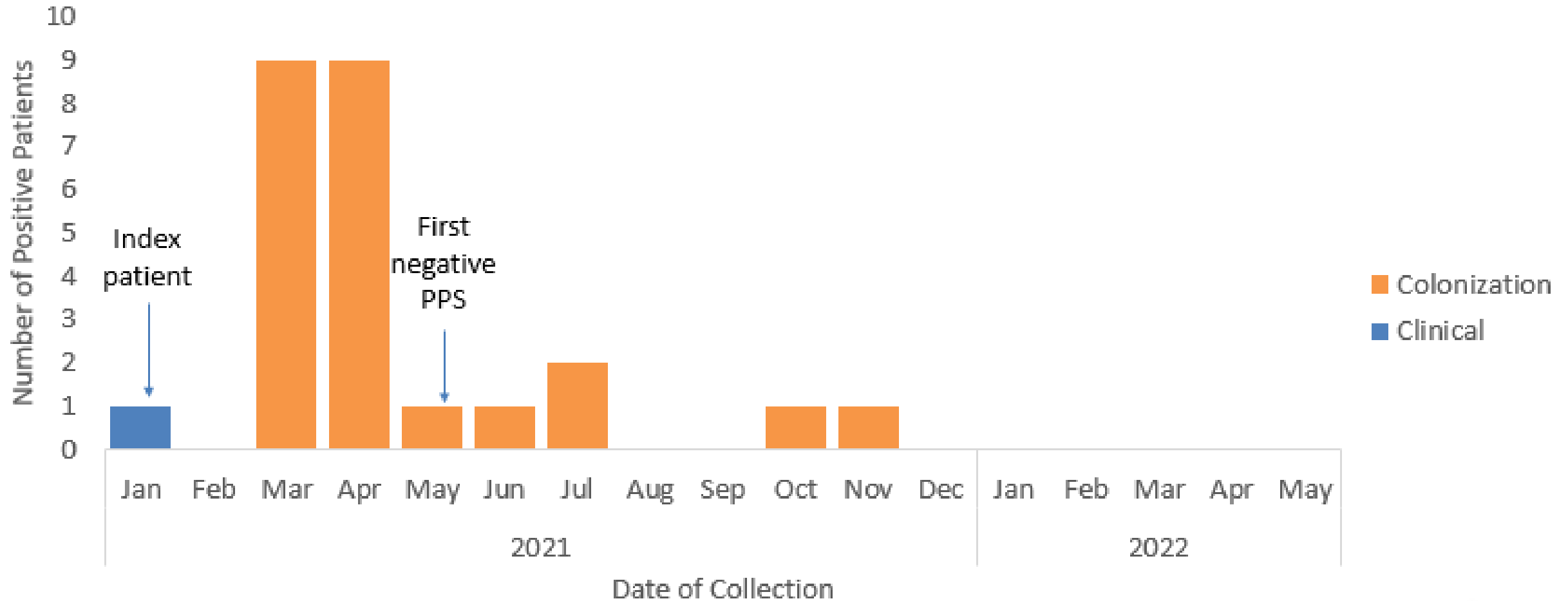


IP continued to engage staff with **in-services and trainings**

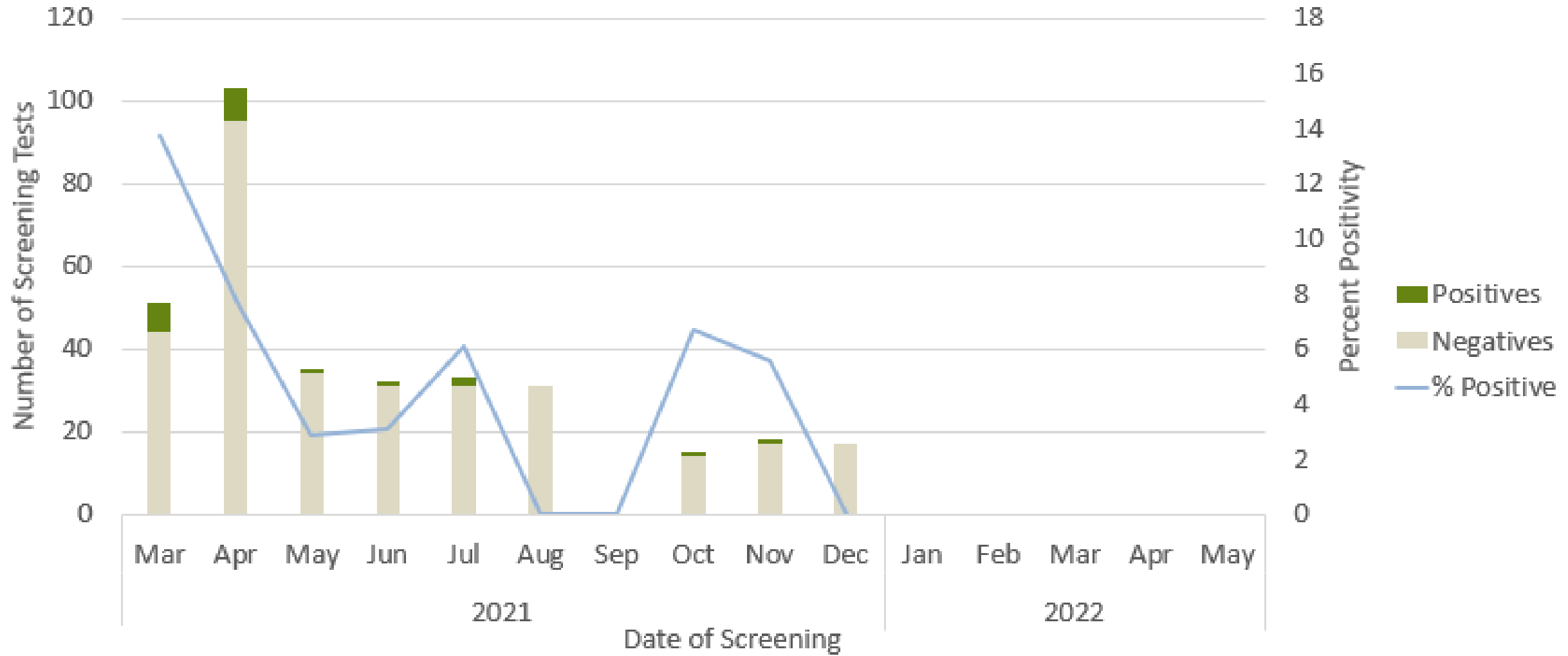


Low levels of MDRO transmission from June – December 2021

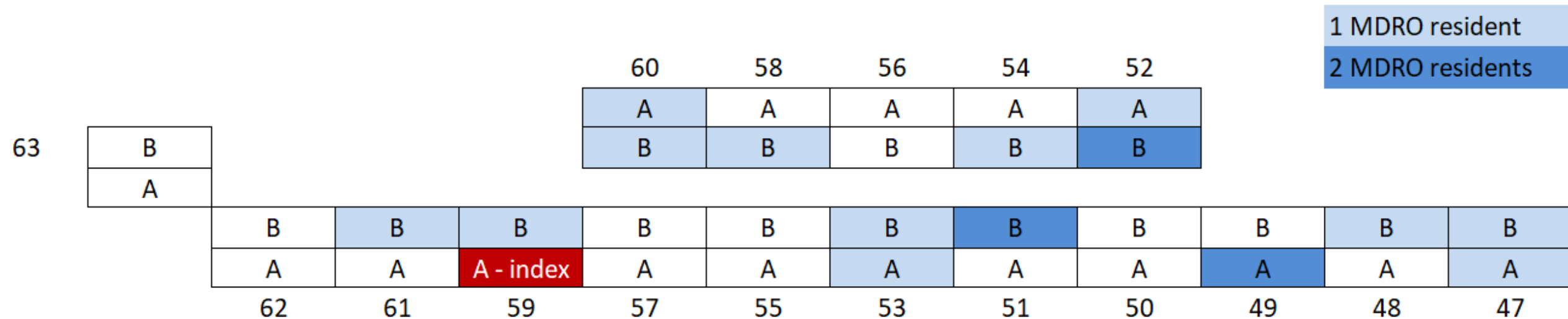
vSNF A Epidemic Curve, January - December 2021



Screening Results at vSNF A, March – December 2021



vSNF A Map of Patients Identified with MDROs, Jan. - Dec. 2021



IPC CHALLENGES DURING COVID-19 PANDEMIC AND MDRO SPREAD

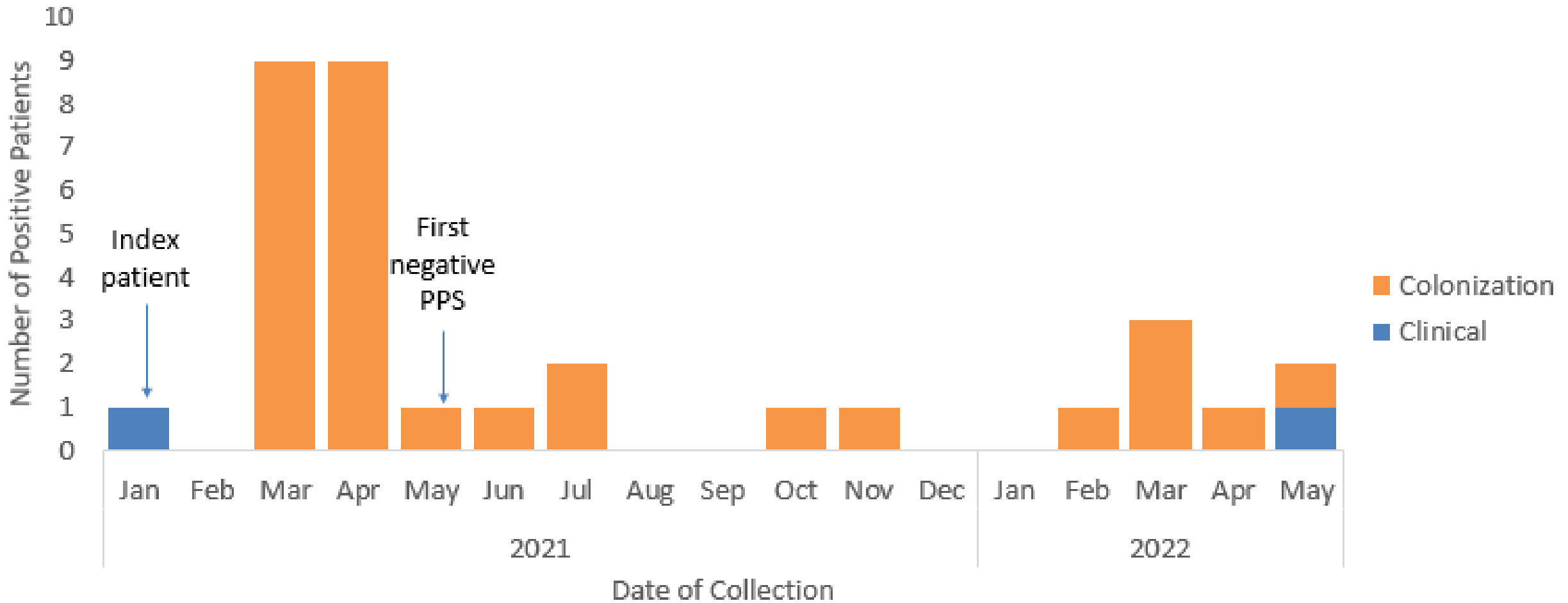
COVID-19 and MDRO-related IPC Challenges in Healthcare Settings

- **Cohorting** patients on COVID-19 status only
- Improper and overuse of **PPE** (e.g., double-gloving, -gowning)
- Inadequate environmental **cleaning and disinfection** (e.g., agent without MDRO label claim or contact time achieved for SARS-CoV-2 only)
- Implementation of **crisis capacity strategies** during PPE shortages (e.g., extended use of gowns/gloves)
- IPs pulled from their IP role to other duties
- In vSNF vent units with MDRO outbreaks, few concurrent COVID-19 outbreaks

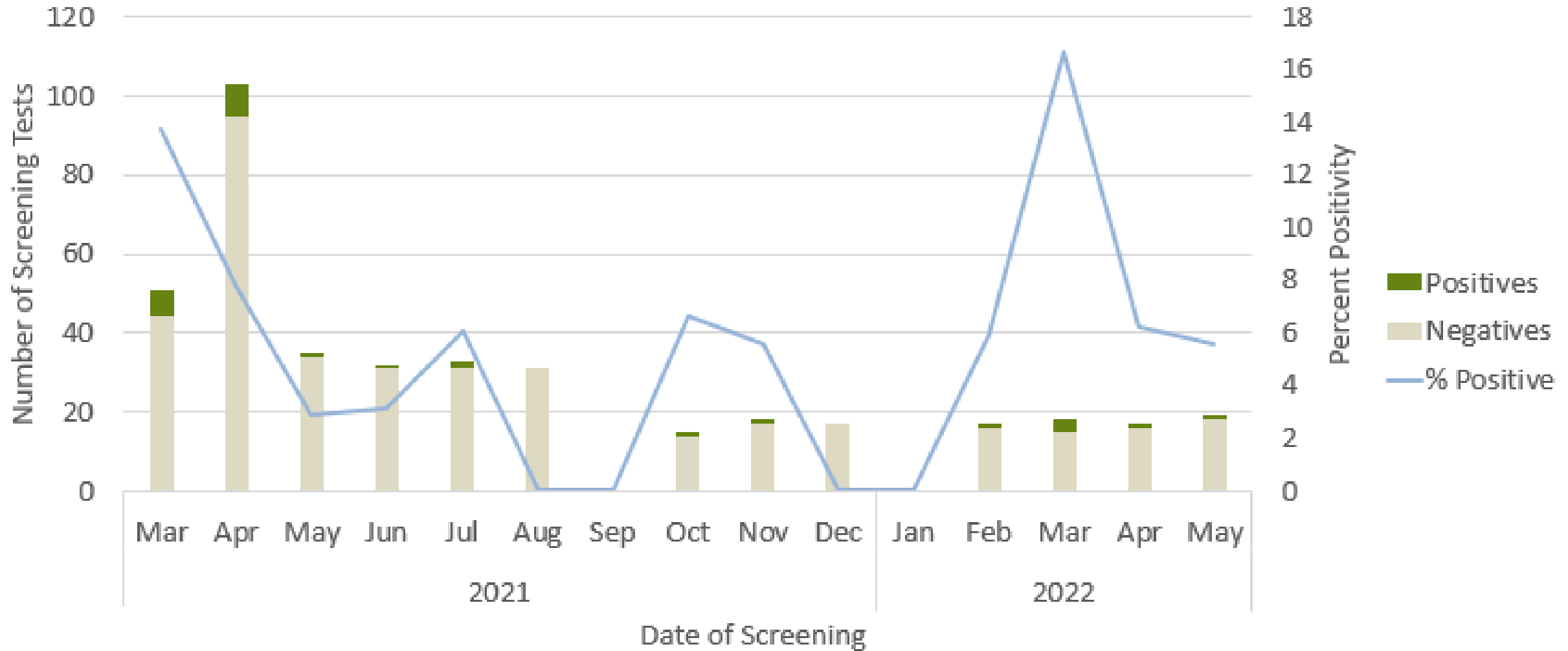
vSNF A Challenges during COVID-19 Pandemic

- **COVID-19 outbreaks in the facility (mainly SNF units)**
 - **IPC practices**
 - Lack of appropriate masking during COVID-19 outbreak by leadership staff
 - No longer dedicating medical equipment to residents
 - Observed double-gloving
 - Missed opportunities for EVS cleaning and disinfection
 - **Facility leadership**
 - Consistent turnover of IP
 - Administrator has been absent; lack of corporate support
 - General apathy towards COVID-19 and MDRO outbreaks
-
-

vSNF A Epidemic Curve, January 2021- May 2022



Screening Results at vSNF A, March 2021 – May 2022

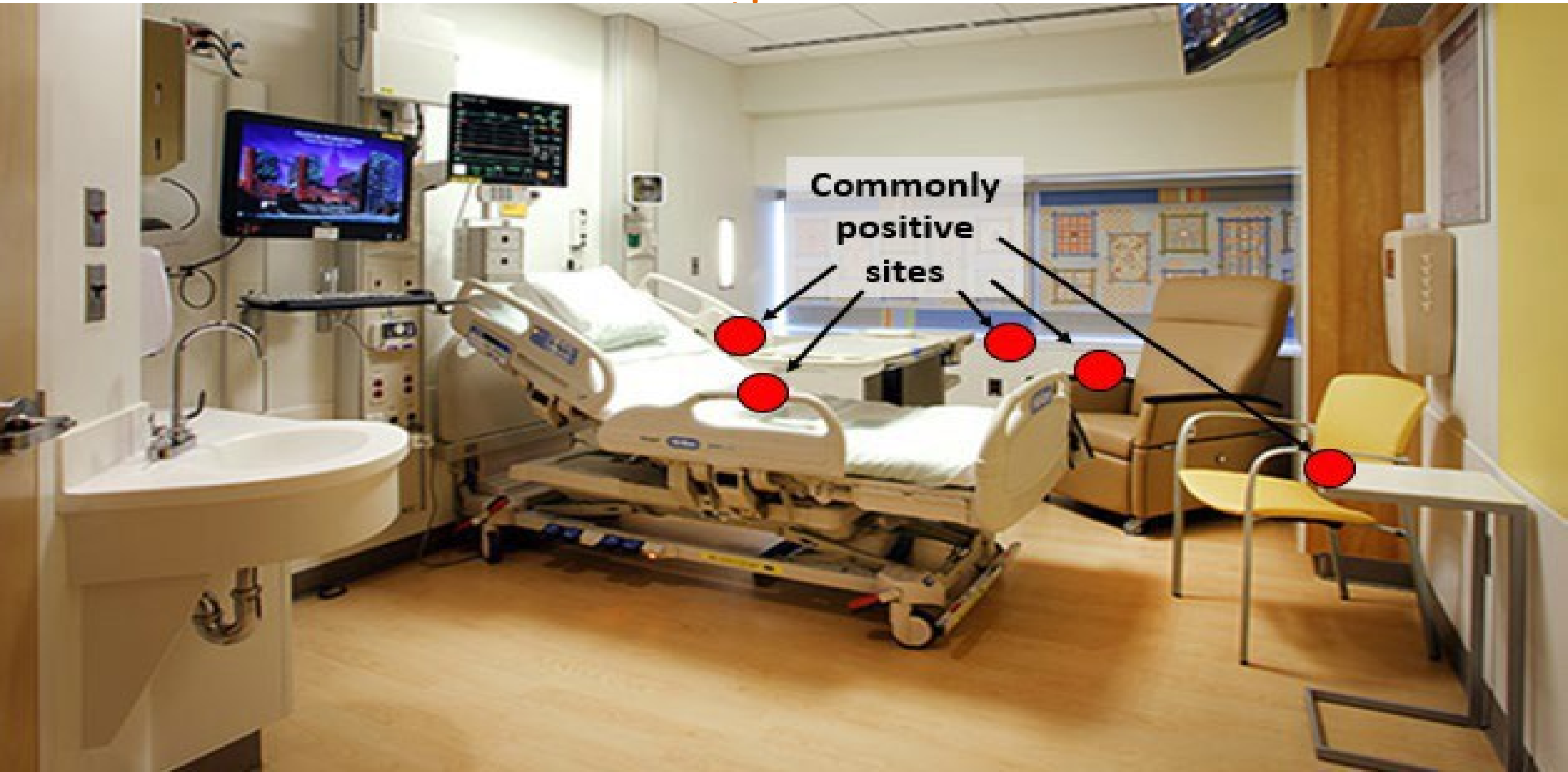


Current Situation at vSNF A

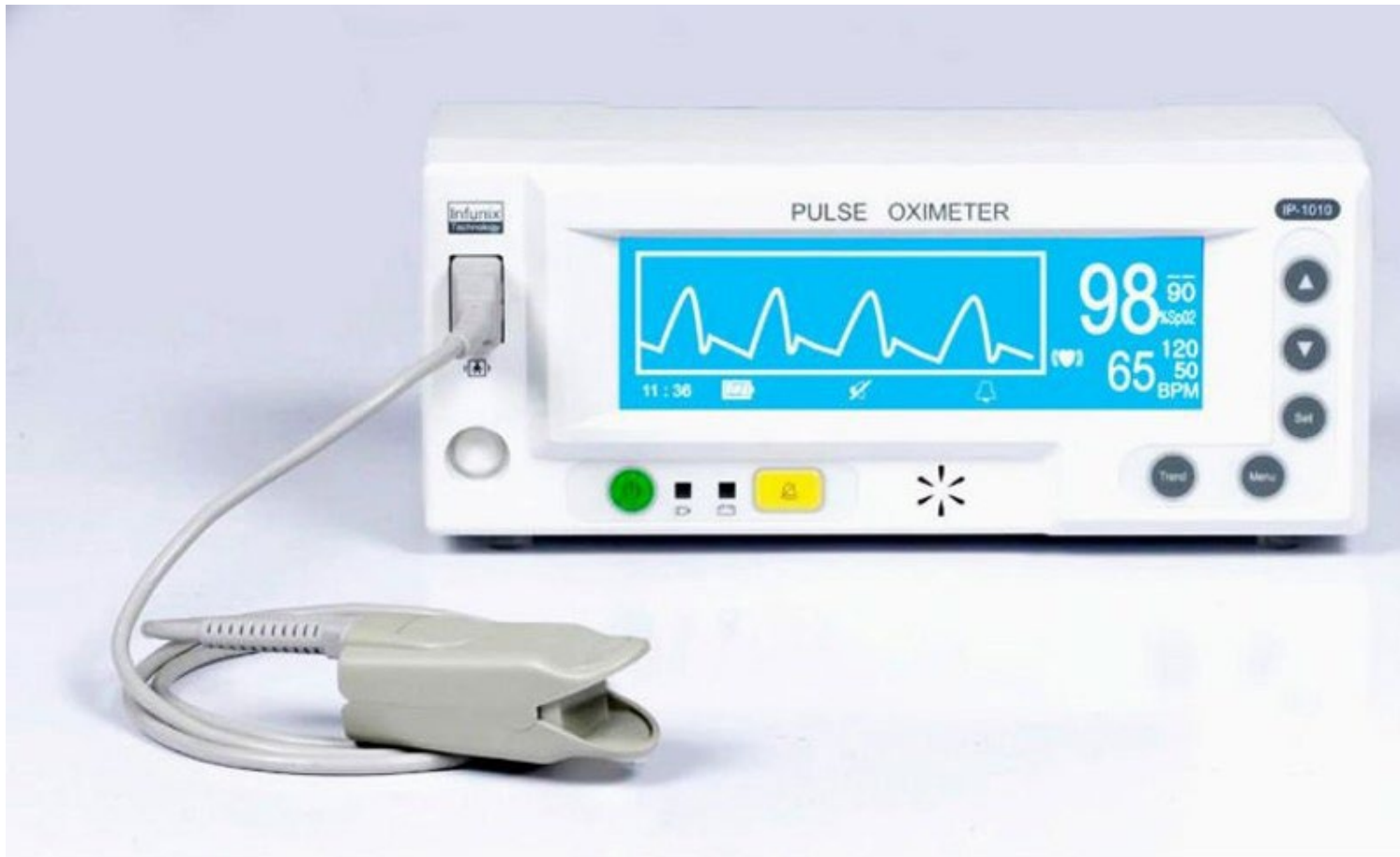
- Working to gain corporate leadership buy-in and support
- Improving and retraining on IPC practices
- Continuing monthly surveillance

ENVIRONMENTAL CLEANING AND DISINFECTION

MDRO Persist in the Environment for a Long Time



MDRO Can Contaminate Medical Equipment



Make Sure Shared Medical Equipment is Cleaned and Disinfected After Each Patient



Cleaning and Disinfection are Separate and Complementary Processes

- Cleaning is the **removal of foreign material** (e.g., soil, and organic material) from objects
 - Disinfection is the **thermal or chemical destruction** of pathogenic and other types **of organisms**
 - Thorough **cleaning is required before disinfection (unless a product is specifically labeled as a combined cleaner and disinfectant)** because inorganic and organic materials interfere with the effectiveness of disinfectants
-
-

Clean and Disinfect High-touch Areas Frequently



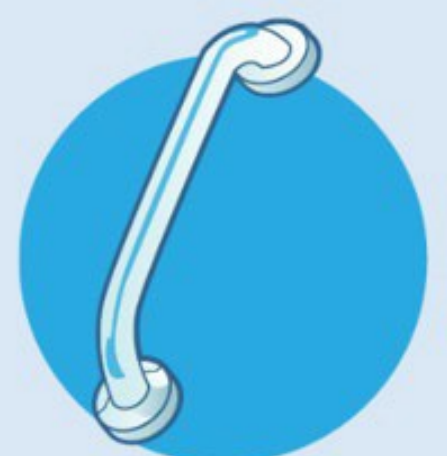
DOOR HANDLE



LIGHT SWITCH



BEDPAN CLEANERS



TOILET HANDHOLDS

Effective Strategies to Improve Cleaning and Disinfection

1. Assign clear cleaning and disinfection responsibilities
2. Develop an audit and feedback program
3. Make disinfectants available to all staff
4. Train staff on proper cleaning, disinfection, and product use



Contact/Wet Time

- Contact/Wet Time is the amount of time that a disinfectant must remain on a surface to be effective
- Consider **labeling products** with contact times to ensure all staff use disinfectants appropriately



Choosing a Product Effective Against MDRO

- **First choice:** Products with EPA-registered claims against *Candida auris* (**List P**)
- **Second choice:** Products with EPA-registered claims against *Clostridiodes difficile* spores (**List K**)
- **Third choice:** Bleach

List P products

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

List K products

(www.epa.gov/pesticide-registration/list-k-epas-registered-antimicrobial-products-effective-against-clostridium)

When Using Self-prepared Bleach, Pay Attention to Type, Dilution, and Storage

- Always **follow manufacturers' instructions** for proper use of disinfecting (or detergent) products including proper protective equipment needed
- **Use germicidal bleach** intended for healthcare settings and **not generic household bleach**
- Surfaces need to be cleaned **before** applying bleach or else it will be inactivated



[OSHA NIOSH Info Sheet: Protecting Workers Who Use Cleaning Chemicals](https://www.osha.gov/Publications/OSHA3512.pdf) (PDF)
(www.osha.gov/Publications/OSHA3512.pdf)

When Using Self-prepared Bleach, Pay Attention to Type, Dilution, and Storage

- 1 part bleach, 9 parts water dilution (1:10) required to kill *Clostridioides difficile* and *Candida auris*
- **Accurately measured** and **well mixed**
- Make your bleach solution **daily** if possible and stored in an opaque container, as **bleach is light-sensitive**



Use disinfectants effective against *Candida auris* in vent/subacute at a minimum, even if there have been no cases identified in your facility!



Conclusions

- AR and MDRO are a threat to resident safety
- Infected and colonized patients have poorer outcomes, fewer treatment options, and higher mortality
- Adherence to strong, core IPC practices + surveillance and communication can prevent spread
 - **Prevents both COVID-19 and MDRO cases**
- COVID-19 related IPC challenges and fatigue likely worsened MDRO outbreaks



RESOURCES



Resources

[CDPH *C. auris* Webpage](http://www.cdph.ca.gov/Programs/CHCQ/HAI/Pages/Candida-auris.aspx) (www.cdph.ca.gov/Programs/CHCQ/HAI/Pages/Candida-auris.aspx)

[CDPH *C. auris* Quicksheet](#) (PDF)

(www.cdph.ca.gov/Programs/CHCQ/HAI/CDPH%20Document%20Library/C%20auris%20Quicksheet_Interim_070720_ADA.pdf)

[CDPH CRO/CPO Webpage](http://www.cdph.ca.gov/Programs/CHCQ/HAI/Pages/CRE_InfectionPreventionStrategies.aspx) (www.cdph.ca.gov/Programs/CHCQ/HAI/Pages/CRE_InfectionPreventionStrategies.aspx)

[CDPH CRE Quicksheet](#) (PDF)

(www.cdph.ca.gov/Programs/CHCQ/HAI/CDPH%20Document%20Library/CRE_QuicksheetOct2019.pdf)

[CDPH CRO Quicksheet](#) (PDF)

(www.cdph.ca.gov/Programs/CHCQ/HAI/CDPH%20Document%20Library/CRO_Quicksheet_Oct2020.pdf)

[CDPH *C. auris* and CPO Screening Decision Tree](#) (PDF)

(www.cdph.ca.gov/Programs/CHCQ/HAI/CDPH%20Document%20Library/Tier2_Pathogen_Screening_Decision_Tree_Oct2020.pdf)

[CDC/CDPH *C. auris* in Long-Term Care Facilities Slides](#) (PDF)

(www.cdph.ca.gov/Programs/CHCQ/HAI/CDPH%20Document%20Library/C_auris_AHR_CDC_CDPHshareWebinarCombined_ADA_121020.pdf [Recording](https://youtu.be/5ulpo7wi6xk) (youtu.be/5ulpo7wi6xk))

[CDPH Antimicrobial Resistance Resources](#)

(www.cdph.ca.gov/Programs/CHCQ/HAI/Pages/AntimicrobialResistanceLandingPage.aspx)

[CDPH Enhanced Standard Precautions Resources](#)

(www.cdph.ca.gov/Programs/CHCQ/HAI/Pages/ESP.aspx)

Resources

[CDPH Adherence Monitoring Tools](#)

(www.cdph.ca.gov/Programs/CHCQ/HAI/Pages/MonitoringAdherenceToHCPracticesThatPreventInfection.aspx)

[CDPH Interfacility Transfer Communications Guide](#)

(www.cdph.ca.gov/Programs/CHCQ/HAI/Pages/InterfacilityCommunication.aspx)

[CDPH MDRO Testing Resources](#)

(www.cdph.ca.gov/Programs/CID/DCDC/Pages/MDLSubmissionInstructionsandForms.aspx)

[AR Lab Network Testing Resources](#)

(www.cdc.gov/drugresistance/laboratories/AR-lab-network-testing-details.html)

[CDC *C. auris* Identification](#)

(www.cdc.gov/fungal/candida-auris/identification.html)

[EPA Disinfectants Effective against *C. auris* \(List P\)](#)

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

[CDC *C. auris* Information for Patients and Family Members](#) (www.cdc.gov/fungal/candida-auris/patients-qa.html)

Greater New York Hospital Association *C. auris* Cleaning and Management Videos

- [English](https://vimeo.com/350168460) (vimeo.com/350168460)
- [Spanish](https://vimeo.com/357898819) (vimeo.com/357898819)

Timeline

- **August 10:** Pneumonia Prevention
- **September 14:** Infection Surveillance
- **October 12:** Quality Improvement Project – Part 1
- **November 9:** Interfacility Transfer Communication (Joint meeting with LTACH partners)
- November 2022 – January 2023: Midpoint IP assessments
- **Through October 2023:** Continued monthly workshops and QI project implementation

Next Steps

- Fill out the **course evaluation** (Required for CEU)
 - Complete your **onsite baseline assessment**
 - Continue to **check in monthly** with your HAI Program IP
 - Join us for our **next workshop on Wednesday, August 10, 2022, 12-1:30PM: Preventing Respiratory Infections in Ventilated Residents**
 - Access resources** on the [vSNF webpage](http://www.cdph.ca.gov/Programs/CHCQ/HAI/Pages/vSNF.aspx)
(www.cdph.ca.gov/Programs/CHCQ/HAI/Pages/vSNF.aspx)
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Questions?

Contact Erin Garcia at Erin.Garcia@cdph.ca.gov