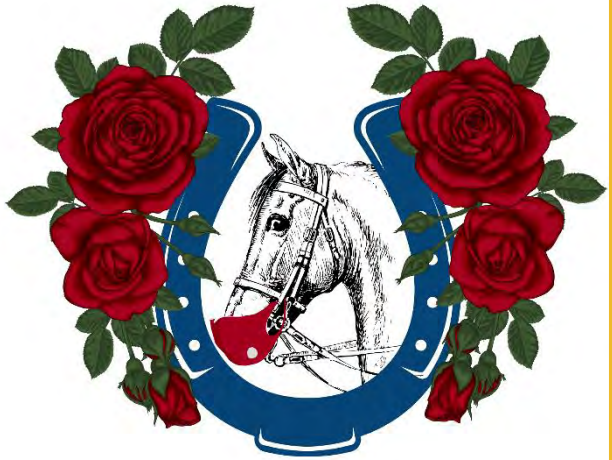
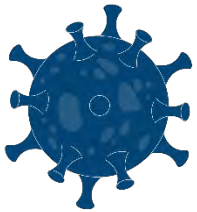


WELCOME

to the **2024**

Wyoming Infection Prevention Summit!

Race to the Finish for Infection Prevention and Control



About Mountain Pacific

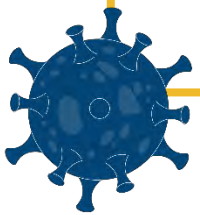
- A non-profit health care improvement organization that partners within our communities to provide solutions for better health
- Goal to increase access to high-quality health care that is affordable, safe and of value to the patients they serve

- Originated in Helena, Montana in 1973, but has broadened our reach to include Wyoming, Alaska, Hawaii and U.S. Pacific territories of Guam, American Samoa and the Commonwealth of the Northern Mariana Islands

- Hold federal and state contracts that allows quality of care oversight for Medicare and Medicaid members to help improve the delivery of health care and the systems that provide it

All in this Together

> Alone we can do so little, together we can do much.
>
> Helen Keller



We couldn’t do this without YOU!

Luci Magnuson - Wyoming Department of Health
Jenny Wolf - Wyoming Center on Aging (WyCOA)
James Rhodes - Big Horn Rehabilitation & Care Center
Sheila Lutz - Hot Springs Health
Vanessa McDaniel, Banner Wyoming Medical Center
Stephanie Boroz- Banner Wyoming Medical Center
Lisa Rambo - Ivinson Memorial Hospital
Christina Baugh – Memorial Hospital of Carbon County
Callie Perkins -Mountain Pacific
Larissa Skinner - Mountain Pacific
Jennifer Adu - Mountain Pacific
Cindy Prince- The Legacy Living and Rehabilitation Center
Angel Oliver- Sheridan Memorial Hospital

Thank you sponsors!

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UV you can trust

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Wyoming
Long-Term Care Ombudsman Program

Mountain Pacific
INNOVATING BETTER HEALTH

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PDI

Memorial Hospital of Carbon County

Shepherd of the Valley
REHABILITATION AND WELLNESS

STERIS

Life Care Center of Casper®

Wyoming Department of Health

PROJECT FIRSTLINE
CDC'S National Training Collaborative for Healthcare Infection Prevention & Control

Since 1984
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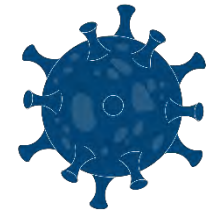
40 Years of Helping You Help Yourself...

Presenter and Panelist Acknowledgments

Luci Magnuson, Wyoming Department of Health (WDOH)
Sarah Hendricks, WDOH
Leslie Fowler, WDOH
Haley McKee, WDOH
Stephanie Boroz, Banner Wyoming Medical Center
Vanessa McDaniel, Banner Wyoming Medical Center
Angela Ritchey, STERIS
Christina Baugh, Memorial Hospital of Carbon County
Sheila Lutz, Hot Springs Health
Lisa Rambo, Ivinson Memorial Hospital
Kirsten Akin, North Big Horn Hospital
Cindy Prince, The Legacy Living and Rehabilitation Center
Angel Oliver, Sheridan Memorial Hospital
Kelley O'leary, Infection Prevention Consulting Services, LLC
Julie Gorog, Advanced Sterilization Products (ASP)
Ray Tupling, Mountain Pacific
Chad Matheson- Workers' Compensation Safety & Risk (WCSR)



Racing Roundup

2024 Derby Contenders

Positions	Horse	Owner	Jockey
1	QINnovator	Mountain Pacific	Ray Tupling
2	Crockett	Life Care Center of Casper	Brenna Reiter
3	Maverick	PDI Healthcare	Danny Bleizeffer
4	Zap-a-Dee-Doo-Dah	Xenex	Jennifer Thomas
5	Draw'n Blood	Wyoming Healthfairs	Tandi Rinker
6	STERIS HP (Horse Powered)	STERIS	Anthony Amacci

RACE ONE

Cast your vote for the top three predicted finishers:

1st place: _____

2nd place: _____

3rd place: _____

Steed Naming Excellence Award

Cast your vote for the best-named horse. Write-in your favorite below!

_____

Positions	Horse	Owner	Jockey
1	The Flaming Stallion	Shepherd of the Valley	Shane Boggs
2	Sammy Solver	3M/ Solventum	Megan O'Dell
3	Crystarr	Kurin	Crystal Canter
4	Bali, Island in the sun	Wyoming Department of Health Long-Term Care Ombudsman	Patty Hall
5	Peaks Valor	Peaks Healthcare Consulting	Stacey Hult
6	Violet	UltraViolet Devices Inc. (UVDI)	Kathy Colvin

RACE TWO

Cast your vote for the top three predicted finishers:

1st place: _____

2nd place: _____

3rd place: _____

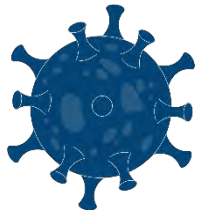
Design it Yourself!

Join us in the vendor area anytime throughout the day to **create your own derby hat**! All materials will be provided, and a prize will be awarded for the best one!

Please join us tonight!

Gallop and Gather
Mixer and Vendor Walk
Sponsored by **STERIS**
5 – 6 PM

Plated Dinner and Guest Speaker
Ranola Miller
6:15 – 7 PM



Stick Horse Race
With Rodeo Rick
7 – 7:30 PM

Door Prizes
Wrap Up
7:30 – 8 PM

We are Grateful You are Here!

SLIDO POLL

***will be live during the summit!**

Project Firstline

Center for Disease Control and Prevention (CDC)'s National Training Collaborative for Health Care Infection Prevention and Control

#WeAreFirstline

Crystal Morse, MS HSA,CSW, CCM Project Firstline Senior Account Manager

Wyoming Department of Health

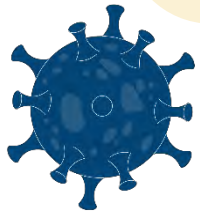
PROJECT FIRSTLINE
CDC'S National Training Collaborative for Healthcare Infection Prevention & Control

Mountain Pacific
INNOVATING BETTER HEALTH

Program Overview

"Project Firstline training content is designed to **make infection prevention a way of life**, providing the latest science and understanding that will **empower every health care worker** to be an infection control leader on their team."

Michael Bell, MD, Deputy Director
CDC Division of Health Care Quality Promotion



2021 Learning Needs Assessment

What infection control topics would you like to receive additional trainings?

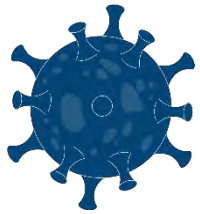
- **Source Control**
- **Environmental Cleaning**
- **Screening**
- **COVID-19**
- **Personal Protective Equipment (PPE)**
- **Hand Hygiene**

N=212

Program Overview

Table 4: What is your preferred learning format?

Preferred Learning Format	Count	Percentage
Self-paced learning	123	32.3%
Interactive discussion with peer groups	100	26.2%
Slide presentation with lecture	88	23.1%
Interactive discussion with clinician	69	18.1%
Other	1	0.3%

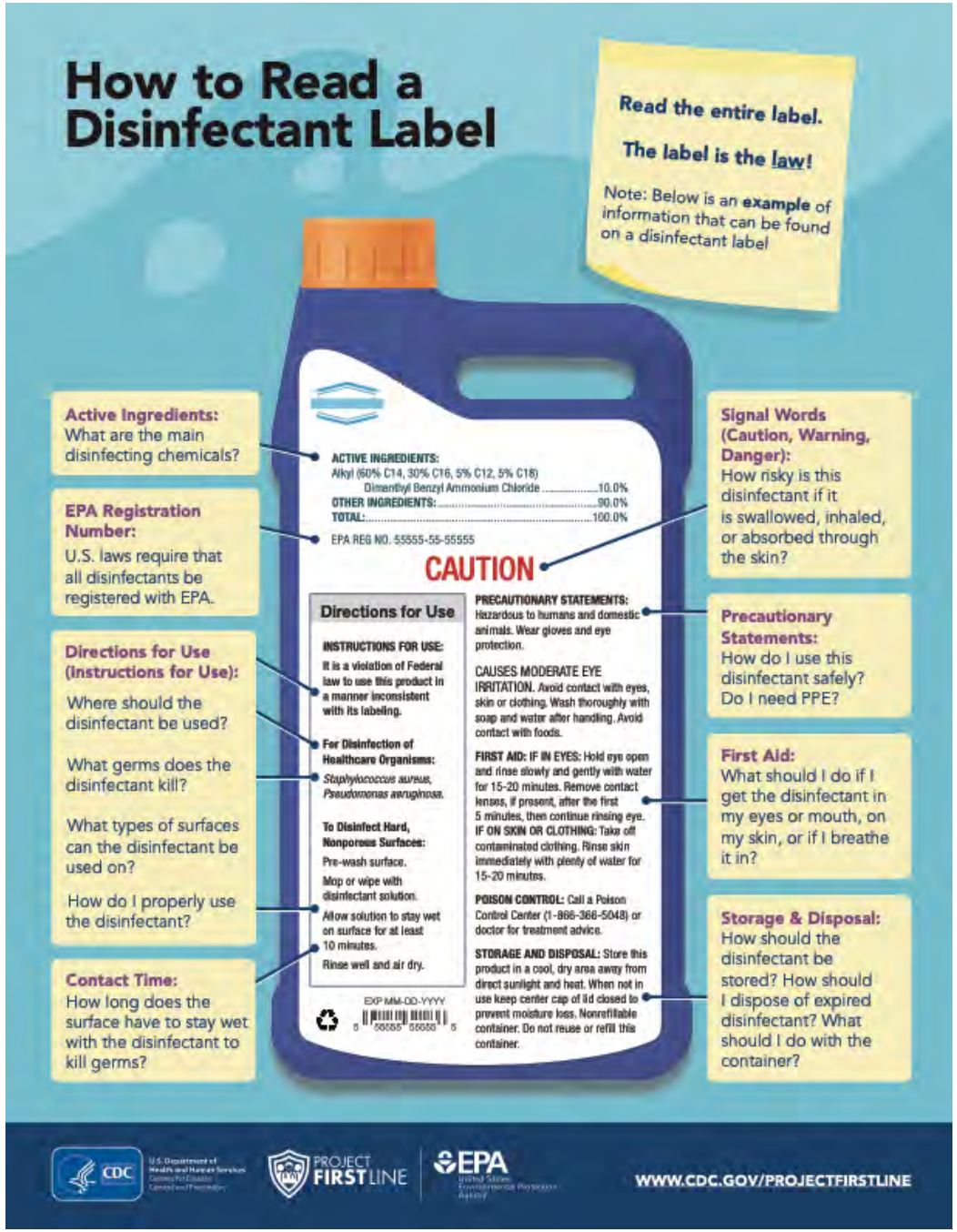


Learning Needs Assessment, continued

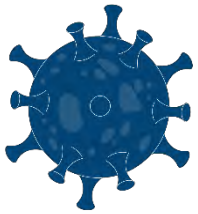
Table 7: Did the training include material specific to any of the following ?

Response	Count	Percentage
Hand Hygiene	174	21.4%
Personal Protective Equipment (PPE)	160	19.7%
Coronavirus Disease 2019 (COVID-19)	138	17%
Environmental Cleaning	120	14.7%
Screening	97	11.9%
Source Control	89	10.9%
None of the Above	23	2.8%
Other	9	1.1%
Not Reported	4	0.5%

Read the Label it's the Law



Project Firstline Cleaning and Disinfecting



Timeline

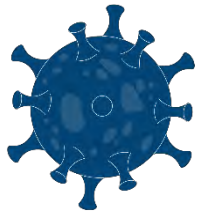
August 2023
Introduction to Infection Preventionists during the 2023 Infection Prevention Summit

September 2023
Submission to CDC

October 2023
CDC approval

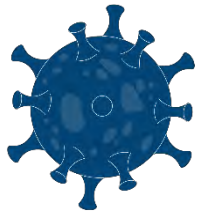
November 2023 – Current
Dissemination of interactive video game

February 2024
Added evaluation for data collection



Prevention Without Measurement is Just Guessing

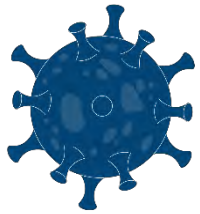
- Vyond video trainees as of April 3, 2024 = 250 – more every week
- Provides a self-paced and effective infection prevention training opportunity
- Average time to complete = 21 minutes
- Wide geographic reach
  - The online platform allows anyone with internet access to participate.



Wide Range of Trainees

Position/Role:
Trainee's education and experience varies widely. The commonality between all is they is they interact with high touch surfaces or patients in some sort of care setting.

- Doctors
- Opticians
- Nurses
- Infection Prevention Specialists
- Environmental Service Workers
- Community Health Workers
- Nursing Home Administrators



Workplace:
Primarily, but not limited to nursing homes

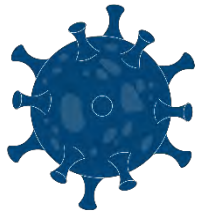
- Thirty percent of trainees **not** in a nursing home setting

Trainee Satisfaction

Overall understanding improvement: **94%**

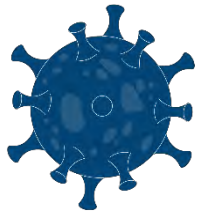
Intend to implement the training into everyday work: **96%**

Would recommend the training to a friend or colleague: **96%**



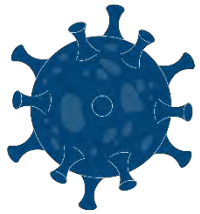
Outcomes

- Trainees found the following topics challenging:
  - Question 1: Choose correct order to enter room
  - Question 3: Expiration Date
  - Question 10: High touch surfaces

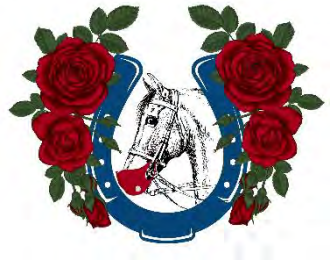


Most Informative Feedback

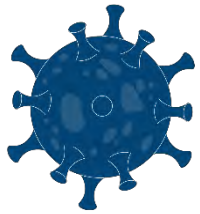
- "Locating items on the label for correct use of disinfection products"
- "Interactive and easy to follow“
- “How to read the label correctly I usually ignore it“
- "Good reminder to check expiration dates"



Least Informative Feedback



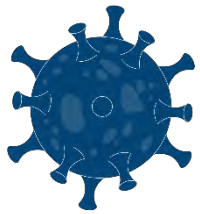
- “The game won’t allow you to pause"
- “Too childish”
- “Address the active ingredients“
- “Clicking on surfaces to clean"



Milestones

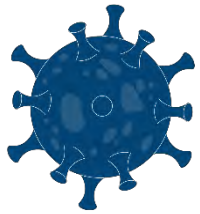
March 2024: The Near-Life case study article that features the Project Firstline "cleaning and disinfecting" video are on the Near-Life website at https://near-life.tech/works/infection-control-mountain-pacific/.

June 2024: The abstract and video were selected to be presented at the Montana Health Network (MHN) Frontier Healthcare Conference.



What's Next?

- Continuing the Vyond video series as a quick, effective and enjoyable way to learn about infection prevention
- What other topics would you like to see? What topics would be most valuable to you?



Resources

- Near-Life Cleaning and Disinfecting Video Game: https://near-life.io/share/t/760/p/1699/s/2729/g/2729
- Project Firstline - How to Read a Disinfectant Label: https://www.cdc.gov/hai/pdfs/HowToReadALabel-Infographic-508.pdf
- Project Firstline: https://www.cdc.gov/infectioncontrol/projectfirstline/index.html?ACSTrackingID=USCDC_2104-DM63110&ACSTrackingLabel=New%20Project%20Firstline%20Website&deliveryName=USCDC_2104-DM63110

IMPLEMENTING A CLEANING AND DISINFECTING PROGRAM

KELLEY O'LEARY, MSN, RN, CIC

INFECTION PREVENTIONIST

INFECTION PREVENTION CONSULTING SERVICES, LLC

Pics: Project Firstline Flickr

OBJECTIVES

- Review ways to assess cleaning and disinfecting practices in your facility.
- Describe process improvement measures to implement a cleaning and disinfecting program.

slido

How do you measure adherence to cleaning and disinfecting practices?

Healthcare Associated Infections (HAIs)

HAI Hospital Prevalence and Nursing Home (NH) Survey: https://www.cdc.gov/hai/eip/antibiotic-use.html

At least one infection associated with healthcare

- 1 in 31 hospital patients
- 1 in 43 NH residents
  - 1 in 12 NH residents receive an antimicrobial medication

2022 Current HAI Progress Report: https://www.cdc.gov/hai/data/portal/progress-report.html

- Significant decreases in HAIs between 2021 and 2022
- No significant changes for Surgical Site Infections (SSIs) – Colo and Hyst

Source: CDC Data Portal - https://www.cdc.gov/hai/data/portal/index.html

Pic: Hutcherson Healthcare Services

CDC's Core Infection Prevention and Control Practices for Safe Healthcare Delivery in All Settings

1. Leadership Support
2. Education and Training of Healthcare Personnel
3. Patient, Family and Caregiver Education
4. Performance Monitoring and Feedback
5. Standard Precautions
    a. Hand Hygiene
    b. Environmental Cleaning and Disinfection
    c. Injection and Medication Safety
    d. Risk Assessment with appropriate use of PPE
    e. Minimize Potential Exposures
    f. Reprocessing of Reusable Medical Equipment
6. Transmission-Based Precautions
7. Temporary Invasive Medical Devices for Clinical Management
8. Occupational Health

https://www.cdc.gov/infectioncontrol/guidelines/core-practices/index.html#anchor_72633

ENVIRONMENT PLAYS A ROLE

Where Germs Live in Healthcare Interactive Infographic

Hand Hygiene Adherence

Additional Indications:

- Before moving from work on a soiled body site to a clean body site on the same patient
- Immediately after glove removal

PROJECT FIRSTLINE

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Source: Project Firstline

HOW GERMS SPREAD AND CAUSE INFECTION

Hierarchy of Controls

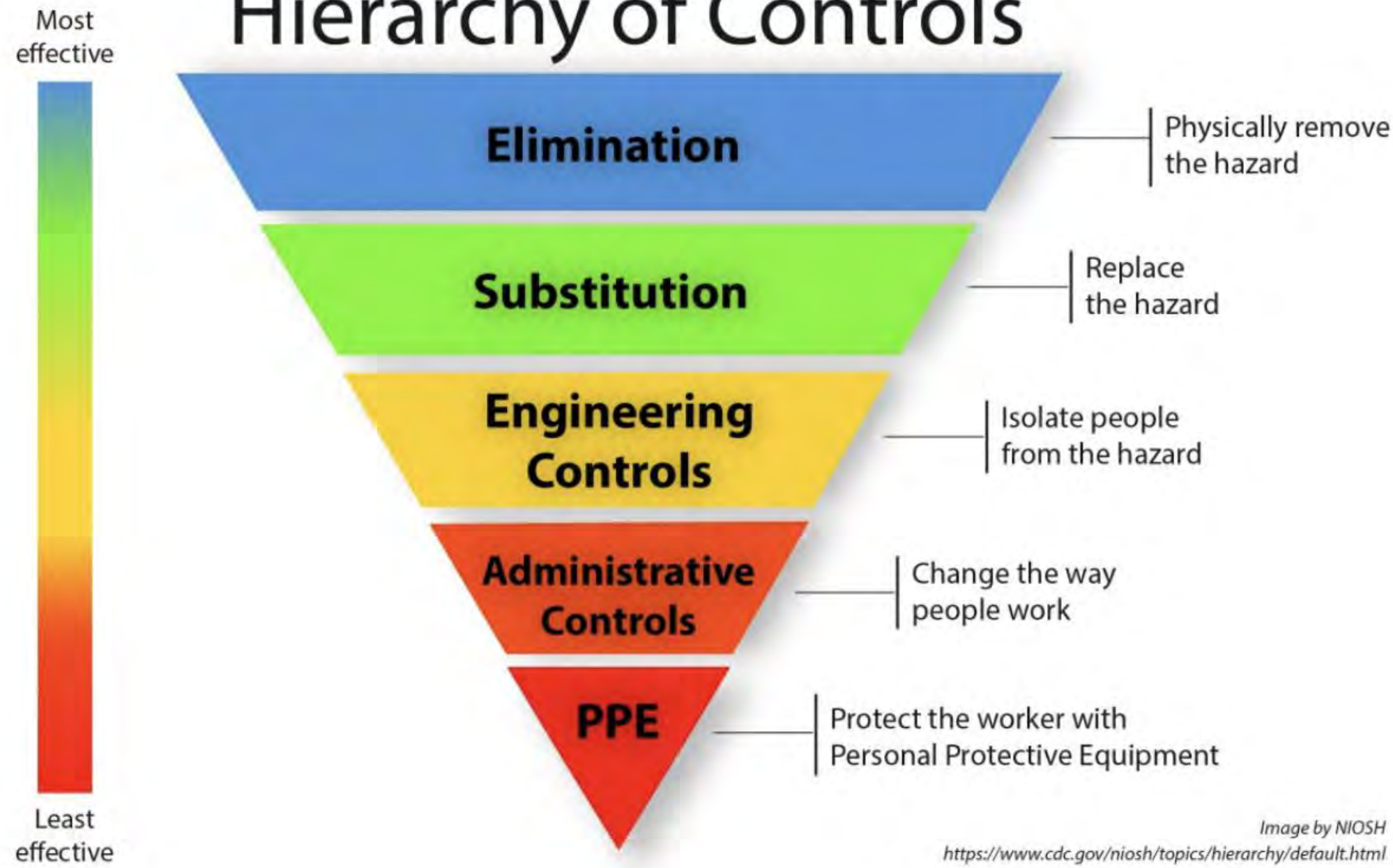


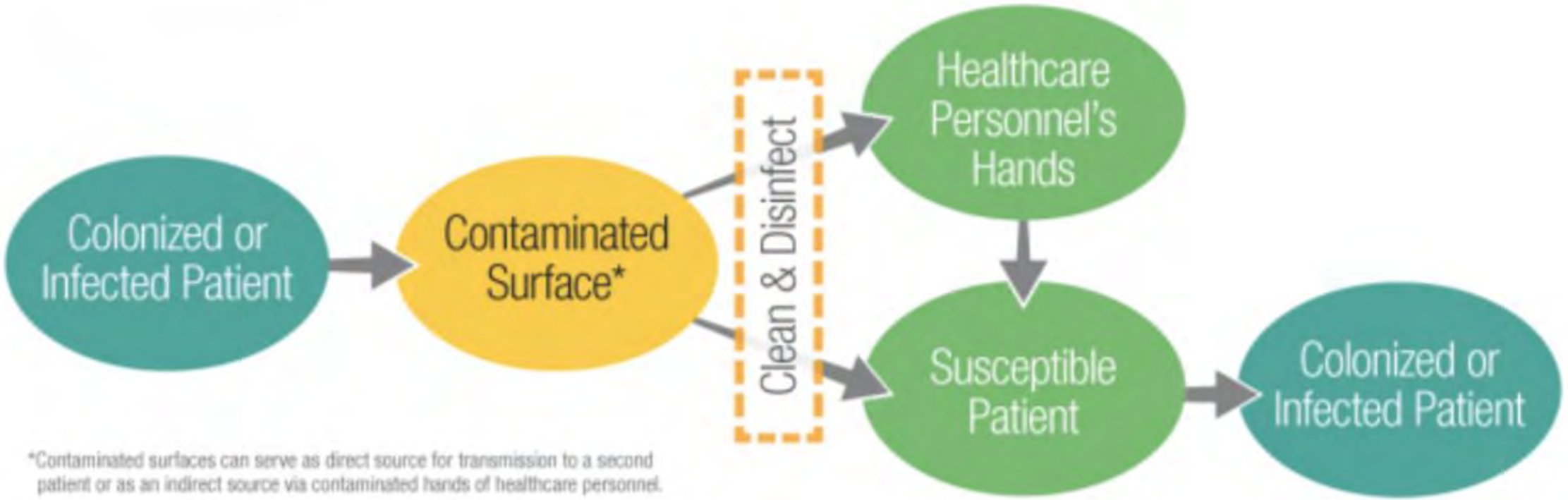
Image by NIOSH
https://www.cdc.gov/niosh/topics/hierarchy/default.html

SERIOUS ABOUT HAND HYGIENE

Penn State Hershey Medical Center:
https://www.youtube.com/watch?v=IRhEKLbo3Y0

Pic: Hutcherson Healthcare Services

Contaminated Surfaces



Contaminated Environment

Cross sectional survey of 11 long-term care facilities (LTCF) in South Carolina

Evaluated hygiene of frequently touched surfaces using three monitoring tools: (1) ATP measure organic material, (2) crAssphage indicator of fecal contamination, and (3) human norovirus

- 337 surfaces tested negative for norovirus
- crAssphage was detected on 311 (92%) surfaces
- ATP was detected on 332 (99%) surfaces

Cannon, et al. (2022). Hygienic monitoring in long-term care facilities using ATP, crAssphage, and human noroviruses to direct environmental surface cleaning.

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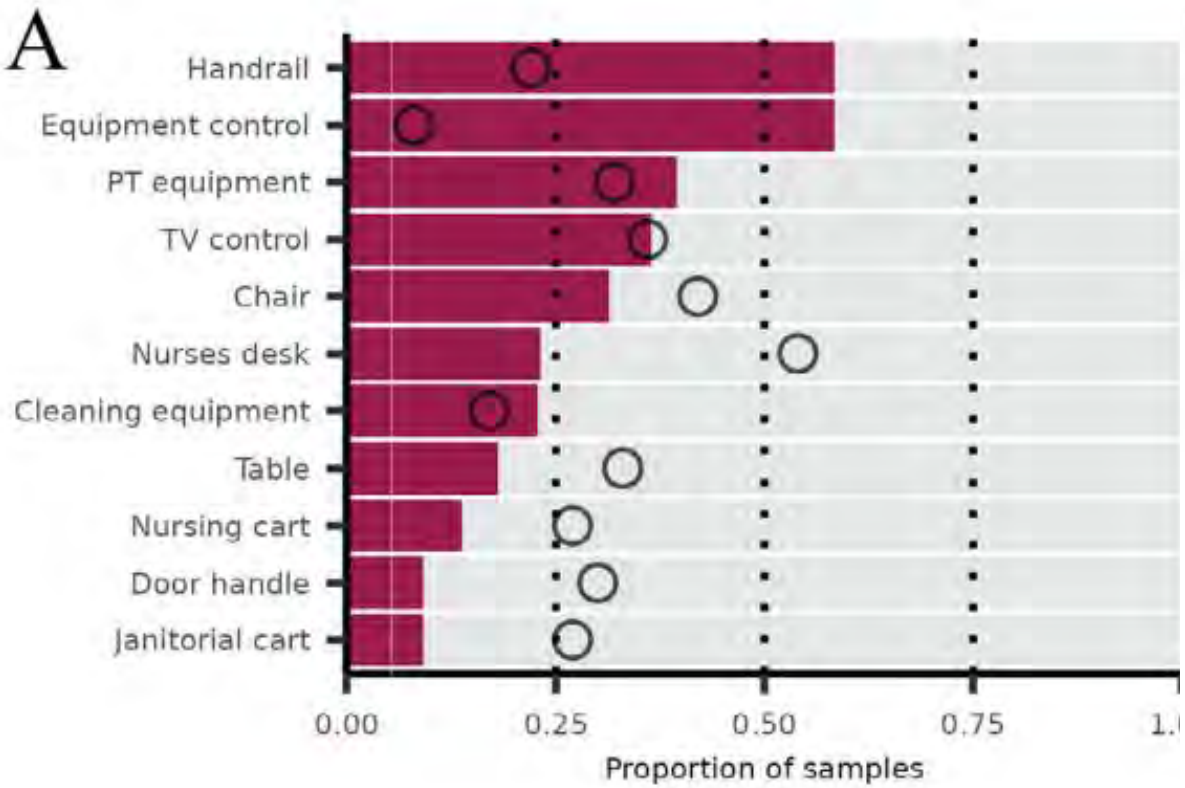
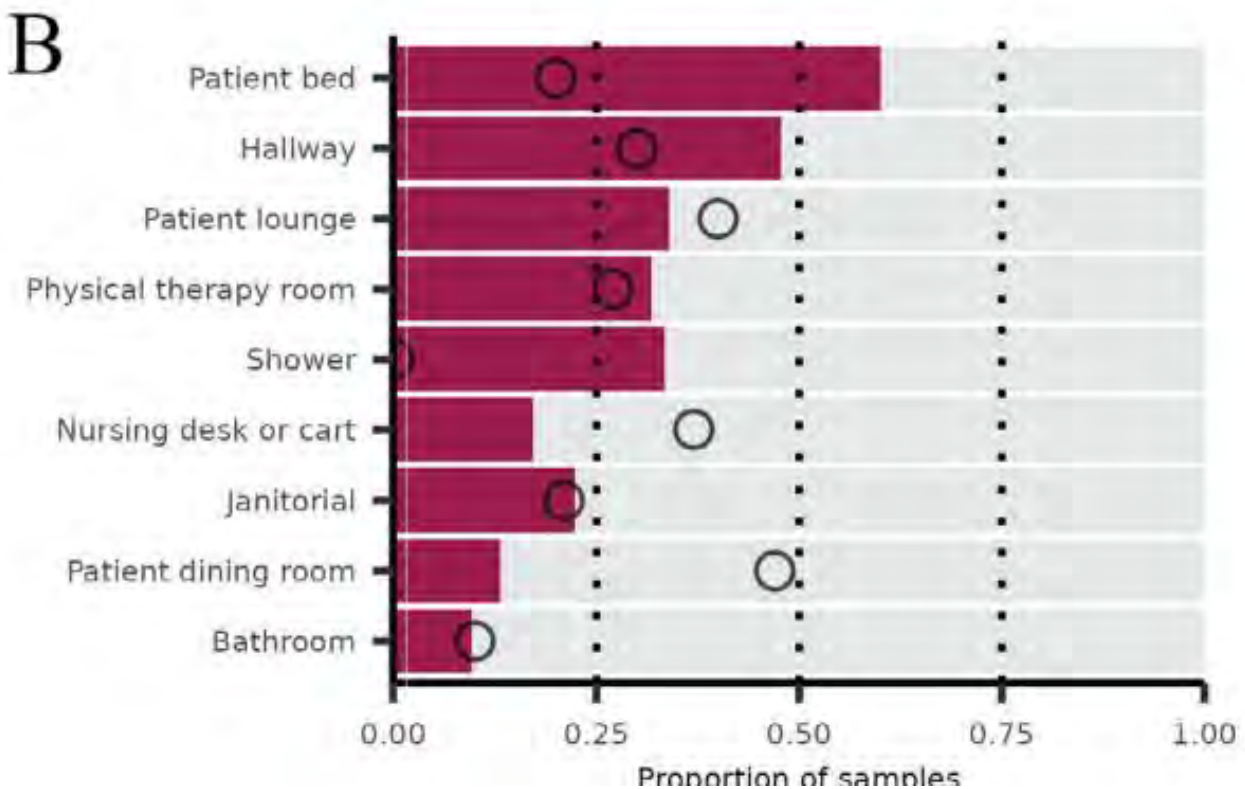
LEVELS OF CRASSPHAGE AND ATP DETECTED



Surfaces



Locations

Cannon, et al (cont.)

HOW DIRTY IS YOUR QWERTY?

Keyboards from nursing stations in three hospitals and a dental practice were analyzed for contamination.

Results:
Gram negative bacteria were recovered from almost half (45%) of the samples with methicillin-resistant Staphylococcus aureus (MRSA),vancomycin-resistant enterococcus (VRE) and multidrug-resistant (MDR) *Acinetobacter* spp.

Discussion: This study implies that hospital keyboards outside of the patient zone harbor dry surface biofilms serving as a potential reservoir to transferable pathogens.

Ledwoch, et al. (2021). How dirty is your QWERTY? The risk of healthcare pathogen transmission from computer keyboards. *Journal of Infection Control, 112*; 31-36.

slido

Which program level for evaluating environmental cleaning are you following?

***will be live during the summit!**

CDC OPTIONS FOR EVALUATING ENVIRONMENTAL CLEANING, 2010

Level 1 Program

- IPC based program coordinated and maintained through environmental services (ES)
- Structured education of the ES staff
- Develop measures for monitoring (IPC/ES team) cleaning of high touch surfaces (HTS)
  - Competency evaluation of ES staff by ES leadership
- Optimize interventions to improve
- Results reported to Infection Control Committee and facility leadership

Pic: Project Firstline Flickr

Level II Program

- All level 1 components
- Covertly or in conjunction with ES staff, objective assessment of terminal room thoroughness of disinfection by one or more methods
  - Direct observation
  - Swab cultures
  - Agar slide cultures
  - Flurorescent marker
  - ATP Bioluminesence
- Routine monitoring (e.g., weekly)
  - At least 5% of beds (>150 bed facility), or
  - Minimum of 15 care beds/areas (<150 beds)
  - If <15 beds, monitor 25% of the beds

PRODUCTS FOR ENVIRONMENTAL CLEANING

Cleaning products

- Liquid soap
- Enzymatic cleaners
- Detergents (select neutral pH, between 5 and 8)

Combine with water and use mechanical action (i.e. scrubbing and friction).

Disinfectants - low level

- Quaternary ammonium compounds
- Alcohol (ethyl or isopropyl)
- Chorine releasing agent (e.g. bleach)
- Hydrogen Peroxide

Pic: Project Firstline Flickr

A TALE OF TWO OUTBREAKS

2011 MRSA in the NICU

State of Alaska Epidemiology **Bulletin**

Department of Health and Social Services
William J. Streur, Commissioner

Division of Public Health
Ward B. Hurlburt, MD, MPH, CMO/Director

Editors:
Joe McLaughlin, MD, MPH
Louisa Castrodale, DVM, MPH

3601 C Street, Suite 540
Anchorage, AK 99503 http://www.epi.Alaska.gov

Local (907) 269-8000
24 Hour Emergency 1-800-478-0084

Bulletin No. 29 November 2, 2011

Outbreak of Methicillin-resistant *Staphylococcus aureus* in a Newborn Intensive Care Unit

Background

Methicillin-resistant *Staphylococcus aureus* (MRSA) is a Gram-positive bacterium that is resistant to several types of beta-lactam antibiotics (e.g., penicillin, amoxicillin, nafcillin) and is sometimes associated with severe health consequences. In April 2011, an Anchorage hospital (Hospital A) asked the Alaska Section of Epidemiology (SOE) to assist with an investigation of a MRSA outbreak in Hospital A's newborn intensive care unit (NICU). The purpose of this *Bulletin* is to report the results of the collaborative investigation.

Methods

Since April 2011, the Hospital A and SOE investigative team performed the following tasks:

- Assessed the NICU's environment in April and again in July to review cleaning and disinfection practices for patient care equipment and the general environment;
- Performed observations of health care workers and parents using iScrub to assess hand hygiene and

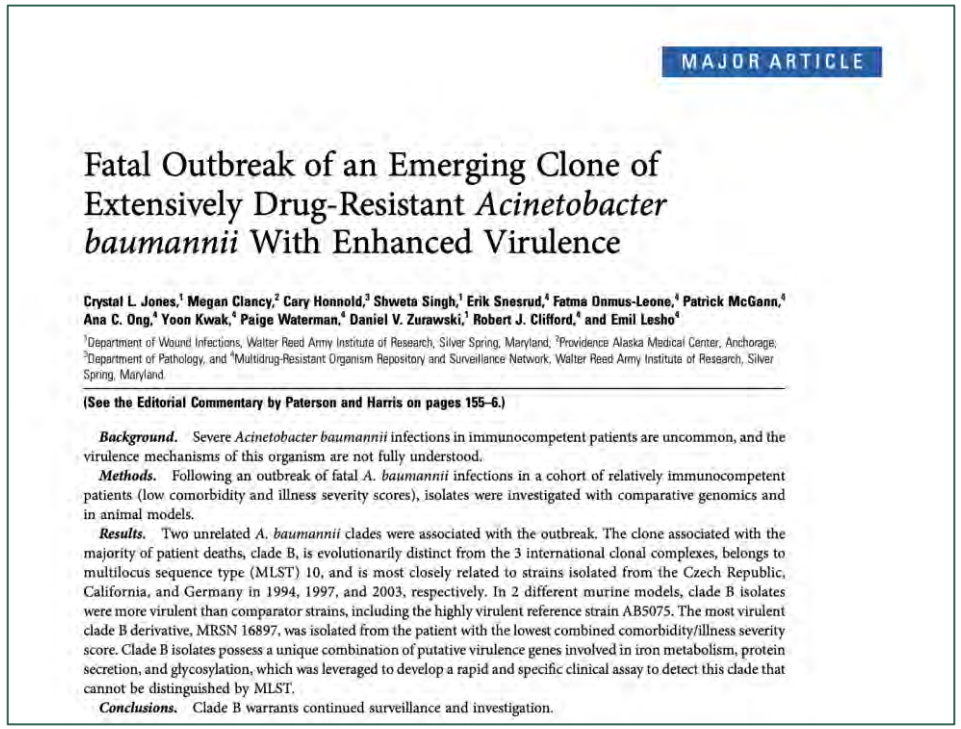
Approximately 165 HCWs provided medical care to infants in the NICU; 139 were screened for MRSA, and none were positive for the outbreak strain. A total of 196 observations were conducted to assess for adherence to established hand hygiene and isolation precaution guidelines;[2,3] the guidelines were met 136 (69%) times. Of the 60 times that the guidelines were not met, 32 (53%) were due to inadequate hand hygiene, 4 (7%) were due to inadequate use of a gown, and 24 (40%) were due to both inadequate hand hygiene and use of a gown. Spacing between infants was substantially less than the recommended standard.[4]

Discussion

Transmission of MRSA during this outbreak was likely facilitated by multiple factors including NICU crowding and breakdowns in infection control practices. The observed 69% adherence to selected infection control guidelines in the NICU demonstrates that improvement is needed in this area; however, this problem is not uncommon in intensive care

https://epi.alaska.gov/bulletins/docs/b2011_29.pdf

2011-2013 Acinetobacter baumannii facility wide



MAJOR ARTICLE

Fatal Outbreak of an Emerging Clone of Extensively Drug-Resistant *Acinetobacter baumannii* With Enhanced Virulence

Crystal L. Jones,[1] Megan Clancy,[2] Cary Honnold,[3] Shweta Singh,[1] Erik Snesrud,[4] Fatma Onmus-Leone,[4] Patrick McGann,[4] Ana C. Ong,[4] Yoon Kwak,[4] Paige Waterman,[4] Daniel V. Zurawski,[1] Robert J. Clifford,[4] and Emil Lesho[4]

[1]Department of Wound Infections, Walter Reed Army Institute of Research, Silver Spring, Maryland, [2]Providence Alaska Medical Center, Anchorage, [3]Department of Pathology, and [4]Multidrug-Resistant Organism Repository and Surveillance Network, Walter Reed Army Institute of Research, Silver Spring, Maryland.

(See the Editorial Commentary by Paterson and Harris on pages 155–6.)

Background. Severe *Acinetobacter baumannii* infections in immunocompetent patients are uncommon, and the virulence mechanisms of this organism are not fully understood.

Methods. Following an outbreak of fatal *A. baumannii* infections in a cohort of relatively immunocompetent patients (low comorbidity and illness severity scores), isolates were investigated with comparative genomics and in animal models.

Results. Two unrelated *A. baumannii* clades were associated with the outbreak. The clone associated with the majority of patient deaths, clade B, is evolutionarily distinct from the 3 international clonal complexes, belongs to multilocus sequence type (MLST) 10, and is most closely related to strains isolated from the Czech Republic, California, and Germany in 1994, 1997, and 2003, respectively. In 2 different murine models, clade B isolates were more virulent than comparator strains, including the highly virulent reference strain AB5075. The most virulent clade B derivative, MRSN 16897, was isolated from the patient with the lowest combined comorbidity/illness severity score. Clade B isolates possess a unique combination of putative virulence genes involved in iron metabolism, protein secretion, and glycosylation, which was leveraged to develop a rapid and specific clinical assay to detect this clade that cannot be distinguished by MLST.

Conclusions. Clade B warrants continued surveillance and investigation.

https://academic.oup.com/cid/article/61/2/145/328660

FOLLOWING ROOT CAUSE ANALYSIS, FORMULATE IMPROVEMENT PLAN

Performance Improvement Plan (PIP) Team Report

Flagstaff Rehabilitation Center

Date: July 27, 2022

- **Include dates when Intervention was implemented; when review of interventions occurred and when standardized solution was implemented or the PDCA cycle was continued.**

Plan		Do	Check	Act
Problem/Concern/ Opportunity	**Objective Goal**	**Interventions**	**Review of Interventions**	**Continue PDCA Cycle or standardized solution (policy updated)**
Staff not performing hand hygiene per Facility policy. Audit revealed 73% Compliance.	*Staff will perform hand hygiene per policy 100%*	*1. Review policy to ensure accuracy* *2. Re-educate staff on policy* *3. Develop competency for all staff following policy guidelines*	*5 random audits will be conducted on each shift weekly for 1 month after competency completion.*	How would you make sustainable improvement?

Privileged Document for Internal QA/QI Purposes Only

From the Foundation for Quality Care nyshfa-nyscal

FOUNDATION for QUALITY CARE

Performance Improvement Plan (PIP) Team Report

[HOSPITAL A]

Facility: MEDICAL CENTER Date: 2012

- **Include dates when Intervention was implemented; when review of interventions occurred and when standardized solution was implemented or the PDCA cycle was continued.**

Plan		Do	Check	Act
Problem/Concern/ Opportunity	**Objective Goal**	**Interventions**	**Review of Interventions**	**Continue PDCA Cycle or standardized solution (policy updated)**
Staff not performing cleaning and disinfecting per facility policy.	Staff will improve their knowledge of cleaning and disinfecting principles and role responsible for cleaning and disinfecting patient care equipment.	1. Review policy to ensure accuracy. 2. Reeducate staff on policy. 3. Develop competency for all staff following policy guidelines. 4. Monitor adherence to cleaning and disinfecting using ATP hygiene device.	Added "Appendix A" Develop training module (computer based) Just in time skills fair (Ns) Monthly competency (EVS) 30 random audits will be conducted on patient care equipment monthly using the ATP hygiene Device. 5 random audits will be conducted on high touch surfaces monthly after EVS staff terminal cleaning.	Added to the policy Annual training and demonstrated competency for EVS and NS staff Formalized a Cleaning and Disinfecting program and added measurement goals to infection prevention program plan and evaluation
Audits revealed uncertainty of responsible party for cleaning and disinfecting patient care equipment.				

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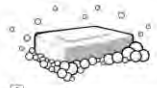
PROCESS IMPROVEMENT

- Reviewed policy and procedures
  - Ensure best practices
  - Added ”Appendix A” of equipment cleaning
- Training to EVS *and* frontline staff
  - Infection preventionist (IP) presents to new hires
  - Just in time training >300 healthcare workers (HCWs)
    - Skills lab format
    - Healthstream module
  - Annual education
- Monitor adherence – how?
  - EVS/IP audits
  - Dashboard
  - IP plan and evaluation

POLICY APPENDIX A



Appendix A

ITEM	CLEANING AGENT	SCHEDULE	RESPONSIBILITY / COMMENTS
B/P Equipment noninvasive (including BP/ECG)	Hospital germicidal cleaner	• Weekly • Wipe down on unit after patient use	Housekeeping for nursing units and operating room aides
• Bair Huggers • Machine and air hose	• Disposable blanket • Hospital germicidal	After patient use	OR aides/Equipment tech/CNA
Bard mini infusors	Hospital germicidal	After patient use	Housekeeping
Bed Cradles	Central Supply/Distribution	Between patients	Central Supply/Distribution
Bedside Commode	Hospital germicidal	Between patients	Housekeeping
Beds-fold up, rollaway, chair	Hospital germicidal	Between visitors	Housekeeping
Breast pumps (base component)	Hospital germicidal quaternary	Between patients	• Nursing between patients • Central sterile processing at PM check.
Cast carts	Hospital germicidal quaternary	Between patients	Cast tech
Cast cutter	Per manufacturer	Between patients	Cast tech
Circboards	Hospital germicidal quaternary	Between patients	Nursery CNA
Code Cart	Hospital germicidal	After use Monthly if not used	• Defibrillator cleaned by CNA on nursing unit • Cart and Suction machine cleaned by Sterile Processing • CNA/ Equipment tech
Component Monitoring Systems (Adult): • Case and CRT screen • ECG/Resp Cable/leads • Noninvasive BP cuff • CO2 transducer/cable • Sp O2 cable and transducer (reusable)	Hospital germicidal	Patient discharged or between patients Once per day	Housekeeping PACU
Component Monitoring Systems (Neonatal)	Hospital germicidal	Patient discharged	Housekeeping
Computer Keyboards	Hospital germicidal	Daily / At Discharge	Housekeeping, (If fluid spill call Ext6-2800)
Defibrillator Monitor/Defib)	Hospital germicidal	After use	Unit CAN/Equipment tech
Defibrillator (no Monitor)	Hospital germicidal	After use	Unit CNA
Dialysis machines (external surfaces)	Hospital germicidal	After use	Dialysis tech
Doppler (pulse amplifiers, etc)	Send to Sterile Processing or Hospital germicidal	Every day	Central Supply or equipment tech for critical care PACU staff
EKG/ECG Machine	Hospital germicidal	After use	Tech doing procedure
Electric Razors	Send to Sterile Processing	Between patients	Sterile Processing/Distribution
Elevated toilet seat	Hospital germicidal	Between patients	Housekeeping
Fans	Send to Central Supply/Distribution	Patient discharged	Central Supply/Distribution
Feeding pumps	Send to Sterile Processing	Between patients	Central Supply/Distribution
Fetal heart Monitor and components	Hospital germicidal	Between patients	• Nursing or housekeeper • Straps should be laundered
Fluid/blood warmer	Hospital germicidal	• Between patients	Surgery for OR

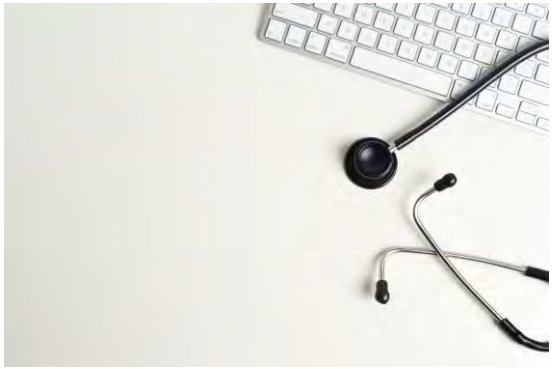
ITEM	CLEANING AGENT	SCHEDULE	RESPONSIBILITY / COMMENTS
		• At preventative maintenance	CNA for nursing/RN
Glucometer	Hospital germicidal	Daily	Nursing/Equipment tech
Gomco	Send to Sterile Processing	After use	Sterile Processing
Heat therapy devices (k motors, Gaymar)	Send to Sterile Processing	After patient use	Central Supply/Distribution
Hoyer lift	Hospital germicidal	Quarterly and between patient use	Housekeeping
Hypo/hypothermia blanket	Send to Sterile Processing	After patient use	Central Supply/Distribution
Kinair bed	Hospital germicidal	Patient discharged	Housekeeping
Incubator	Hospital germicidal quaternary	Patient discharge or weekly	Nursery housekeeping
Infant warmer	Hospital germicidal quaternary	Patient discharge or weekly	Nursery housekeeping
Intracranial pressure monitor, unit and cable	Hospital germicidal	Patient discharge	Critical care tech
IV Cart/tray	Hospital germicidal	Quarterly and when soiled	IV team
Isolation cart	Send to Central Supply/Distribution	Patient discharge	Central Supply/Distribution
IV infusion pumps	Send to Sterile Processing	After patient use	Central Supply/Distribution
IV Poles	Hospital germicidal	Between patients	Housekeeping or in surgery, OR assistants
Latex sensitive cart	Hospital germicidal	Patient discharged	Distribution or Operating Rooms
Leather restraints	Send to Sterile Processing	Between patients	Central Supply/Distribution
Light for open chest	Hospital germicidal	Weekly	Housekeeping
Medicine cart	Hospital germicidal	Monthly	Nursing
Nourishment cart	Hospital germicidal	Monthly	Housekeeping
O2 gauges-wall mounted	Hospital germicidal	Between patients	Housekeeping
Opthalmoscopes	Per manufacturer	Weekly	Nursing/Equipment tech
Pacemaker Battery Generator	Hospital germicidal	Between patients	• Nursing/housekeeping • Monitor tech
PCA Pumps (Upright, flat bed)	Send to Sterile Processing	Between patients	Central Supply/Distribution
Phlebotomy trays	Hospital germicidal	Quarterly	Phlebotomy and nursing
Phototherapy	Hospital germicidal	Between patients	Housekeeping
Pneumatic tubes	Send to Sterile Processing if visibly contaminated	When fluid spill occurs	Central Supply/Distribution
Pressure infusion bags	Hospital germicidal	Between patients	Nursing / OR assistants/Equipment tech
Pulse oximeter	Disposable or if reusable, hospital germicidal	Between patients	• OR Anesth. Assistants • Nursing • Housekeeping/Equipment tech
Recliner chairs	Hospital germicidal	Between patients	Housekeeping
Sandbags	Hospital germicidal	Between patients	Housekeeping
Scales •Bed •Platform •Infant	Hospital germicidal	Between patients or, if covered, weekly	Housekeeping
Sequential Compression Devices	Send to Sterile Processing	Between patients	Central Supply/Distribution
Shampoo bubs	Hospital germicidal	Between patients	CNA
Spica table	Hospital germicidal	Between patients	OR aides
Stethoscope • Personal • Isolation cart	Alcohol wipe Return to Central Supply	Between patients When isolation discontinued	Owner of stethoscope Central Supply
Stretchers	Hospital germicidal	Between patients	• Transportation • Housekeeping in Recovery

ITEM	CLEANING AGENT	SCHEDULE	RESPONSIBILITY / COMMENTS
		PRN	• OR assistants In Surgery
Suction gauges and Suction Container bracket	• Send gauges to Sterile Processing • Hospital germicidal for bracket and container	Gauges – monthly Container and bracket between patients	Central Supply/Distribution Housekeeping/OR assistants
Syringe pumps	Send to Sterile Processing	Between patients	Central Supply/Distribution
Thermometers • Oral electronic • Tympanic • Rectal	• Hospital germicidal • Follow manufacturer's instructions • Send to Sterile Processing	• Daily • Between patients • Between patients	• Nursing • Nursing • Central Supply/Distribution
Telemetry monitors	Hospital germicidal	Preventative maintenance	Biomed during servicing
Tourniquets	• Hospital germicidal • Or disposable	Between patients	OR assistants
Traction equipment	Hospital germicidal	Between patients	Housekeeping
Treatment/exam	Hospital germicidal	Daily or when soiled	Housekeeping or nursing
Walkers	Hospital germicidal	Between patients	Department or nursing/equipment tech
Wheelchairs	Hospital germicidal	Between patients	• Transportation • Nursing unit/equipment tech

•Always clean equipment when soiled with blood or any other body fluid.

•When cleaning electronic equipment, turn the machine off, never pour solution directly on the equipment (spray containers should not be used).

•Patients in isolation should have their own dedicated equipment. If equipment must be removed always clean and disinfect prior to use on another patient.



HOW DO YOU KNOW IT'S CLEAN?

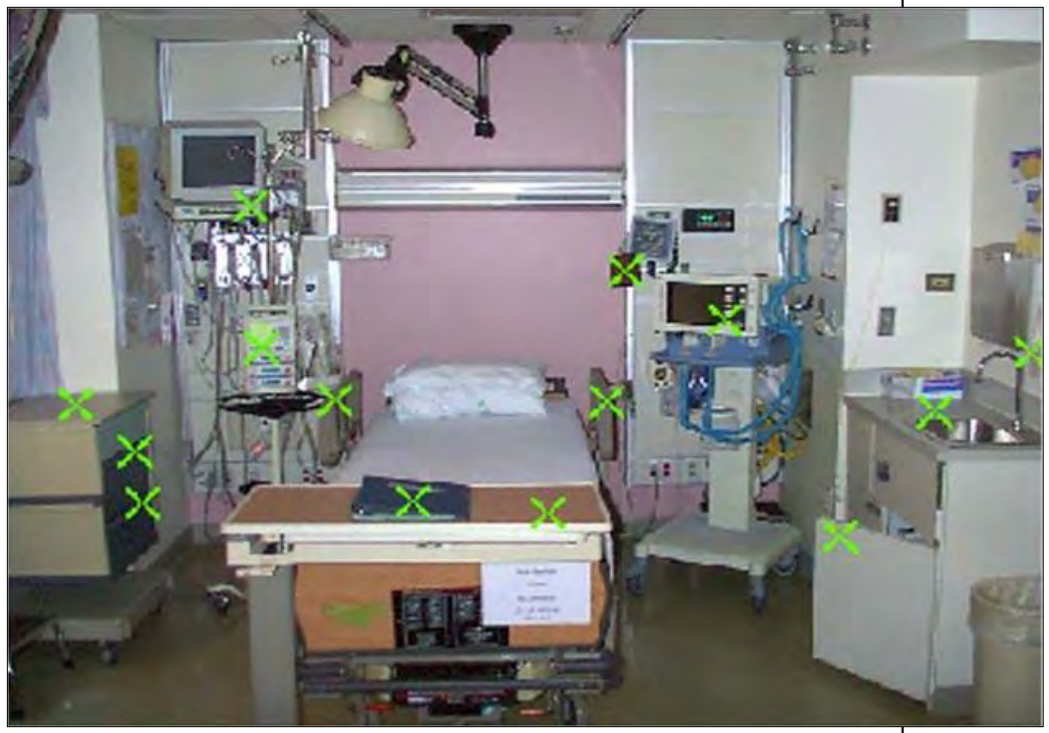
https://www.discountplasticbags.com/medical/durable-medical-equipment-covers/

Evaluating Patient Zone Environmental Hygiene

Method	Ease of Use	Identifies Pathogens	Useful for Individual Teaching	Directly Evaluates Cleaning	Published Use in Programmatic Improvement
Direct Practice Observation	Low	No	Yes	Yes	1 Hospital
Swab cultures	High	Yes	Not Studied	Potentially	1 Hospital
Agar slide cultures	Good	Limited	Not Studied	Potentially	1 Hospital
Fluorescent gel	High	No	Yes	Yes	49 Hospitals
ATP system	High	No	Yes	Potentially	2 Hospitals

https://www.cdc.gov/HAI/toolkits/Appendices-Evaluating-Environ-Cleaning.html#fig1

TARGET PLACMENT ON HIGH TOUCH OBJECTS



https://www.cdc.gov/hai/pdfs/toolkits/environ-cleaning-eval-toolkit12-2-2010.pdf

HOW DO YOU KNOW IT'S CLEAN?

The Johns Hopkins Hospital – 1020 bed tertiary acute care teaching facility

- Between December 2016 and August 2017
- Evaluated 2942 high touch surfaces (HTS) in 228 rooms on 13 hospital units
  - Overall removal rate of Florescent Gel (FG) was 75%
  - Discharge 88% removal rate
  - Daily 71% removal rate

Discussion: results suggest that sampling a small number of HTS in a small number of rooms is enough to check environmental cleaning on a unit

Rock et al. (2019) Evaluating accuracy of sampling strategies for fluorescent gel (FG) monitoring of patient room cleaning. *Infection Control Hospital Epidemiology.*

Pic: Project Firstline Flickr

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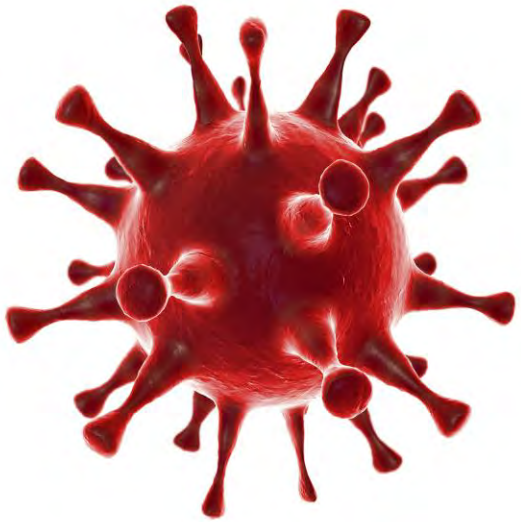
MONITORING



CDC Environmental Checklist for Monitoring Terminal Cleaning[1]

Date:	
Unit:	
Room Number:	
Initials of ES staff (optional):[2]	

Evaluate the following priority sites for each patient room:

High-touch Room Surfaces[3]	**Cleaned**	**Not Cleaned**	**Not Present in Room**
Bed rails / controls			
Tray table			
IV pole (grab area)			
Call box / button			
Telephone			
Bedside table handle			
Chair			
Room sink			
Room light switch			
Room inner door knob			
Bathroom inner door knob / plate			
Bathroom light switch			
Bathroom handrails by toilet			
Bathroom sink			
Toilet seat			
Toilet flush handle			
Toilet bedpan cleaner			

Evaluate the following additional sites if these equipment are present in the room:

High-touch Room Surfaces[3]	**Cleaned**	**Not Cleaned**	**Not Present in Room**
IV pump control			
Multi-module monitor controls			
Multi-module monitor touch screen			
Multi-module monitor cables			
Ventilator control panel			

Mark the monitoring method used:

☐ Direct observation ☐ Fluorescent gel
☐ Swab cultures ☐ ATP system ☐ Agar slide cultures

[1]Selection of detergents and disinfectants should be according to institutional policies and procedures
[2]Hospitals may choose to include identifiers of individual environmental services staff for feedback purposes.
[3]Sites most frequently contaminated and touched by patients and/or healthcare workers

Screenshot

PROJECT FIRSTLINE
CDC's National Training Collaborative for Healthcare Infection Prevention & Control

TERMINAL CLEANING

Record results of evaluation for each surface on the check list for every room monitored. Use the following symbols for marking:

O = NOT CLEAN, X = CLEAN, LEAVE BLANK = NOT EVALUABLE NOTE - USE CAP LETTERS "X" AND "O"

The percentage of individual surfaces cleaned will be automatically calculated in Sheet 2 (Aggregate Score Sheet).

Please report aggregate scores calculated for each category highlighted in Sheet 2 (Aggregate Score Sheet).

				High Touch I			High Touch II			High Touch III				Bathroom Surfaces							Equipment Surfaces					Surfaces Cleaned for Each Room		
Unit	Rm No.	Date of Marking (if applicable)	Date of Evaluation	Bed rails	Tray table	IV pole	Call box / button	Telephone	Bedside table handle	Chair	Rm sink	Rm light switch	Rm inner doorknob	BR inner doorknob	BR light switch	BR handrails	BR sink	Toilet seat	Toilet flush handle	Toliet bedpan cleaner	IV pump control	Monitor controls	Monitor touch screen	Monitor cables	Ventilator panel	# Surfaces Cleaned	# Surfaces Evaluated	% of Surfaces Cleaned
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"What's my number?"

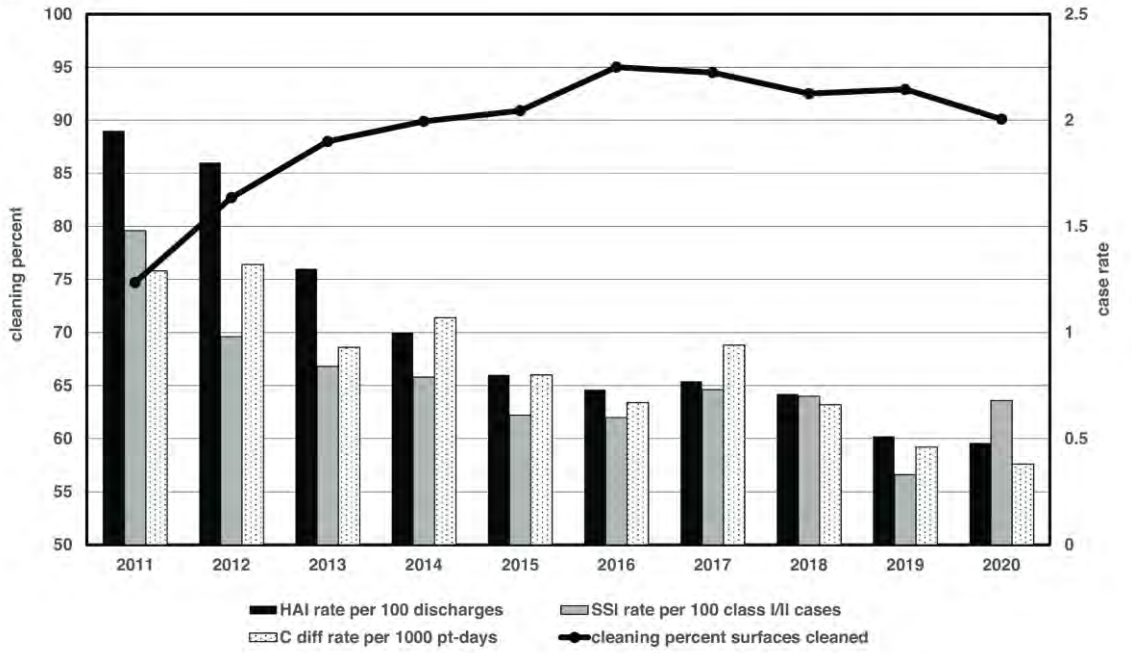
PROGRAM DEVELOPED

- Training for EVS and nursing
  - On-hire
  - Annual
- Program document formalized
  - Quality improvement
    - EVS monitors their staff via demonstrated competency
    - IP monitors patient care equipment monthly
- Include goals and process data in annual Infection Control program evaluation

SUSTAINING CHANGE

- 305-bed hospital in southwestern Connecticut
- EVS and IP departments incorporated a formal education, monitoring and feedback process focused on cleaning and disinfecting of high touch surfaces (HTS) starting in 2011.
- Cleaning validation was performed by IP liaison nurses using fluorescent targeting methods
- In 2011, cleaning performance was 74.7% and increased to >90%. This has been sustained for six years.

Fig. 4.



Parry, et al. (2022). SHEA. Environmental cleaning and disinfection: Sustaining changed practice and improving quality in the community hospital. *Antimicrobial Stewardship & Healthcare Epidemiology, 2* (e113), 1-7.

SUSTAINING CHANGE

Efficacy of bioburden reduction on mobile phones

- Pre-post, quasi-experimental study conducted in a 20 bed Cardiovascular intensive care unit (ICU)
- 30 samples each on personal and shared phones (staff nurses); total 300 swabs during 12-month period
  - Collected at one, three, six, twelve months post intervention
- Surface bioburden estimated with a luminometer expressed in relative light units (RLUs)
- RLUs decreased for both personal and shared phones

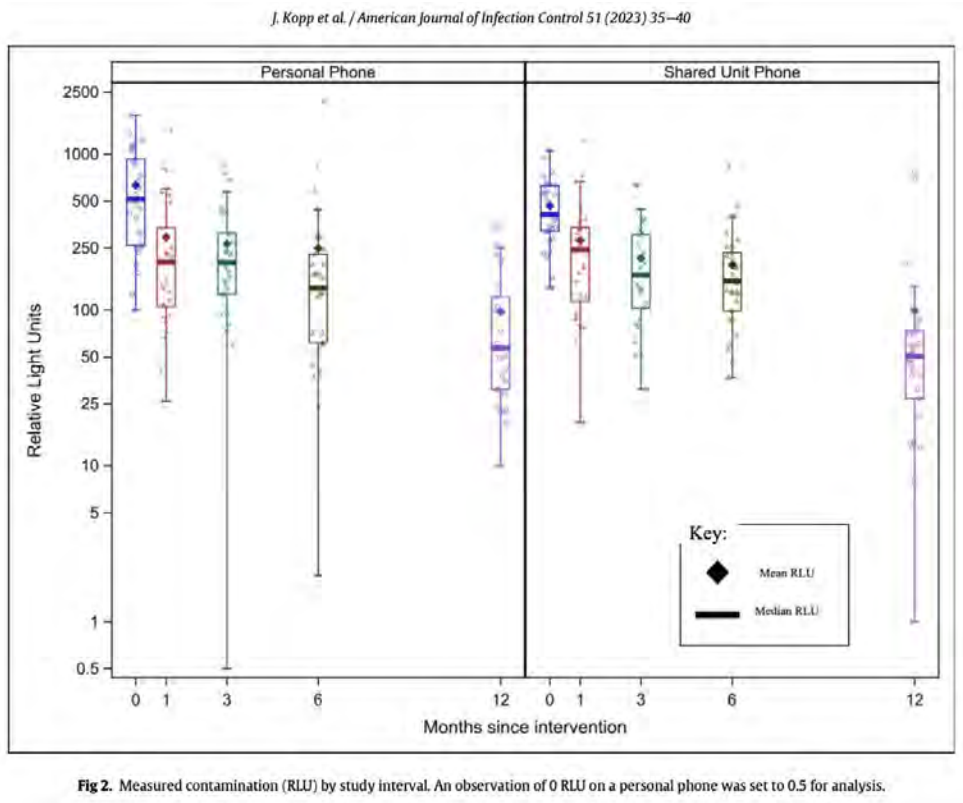
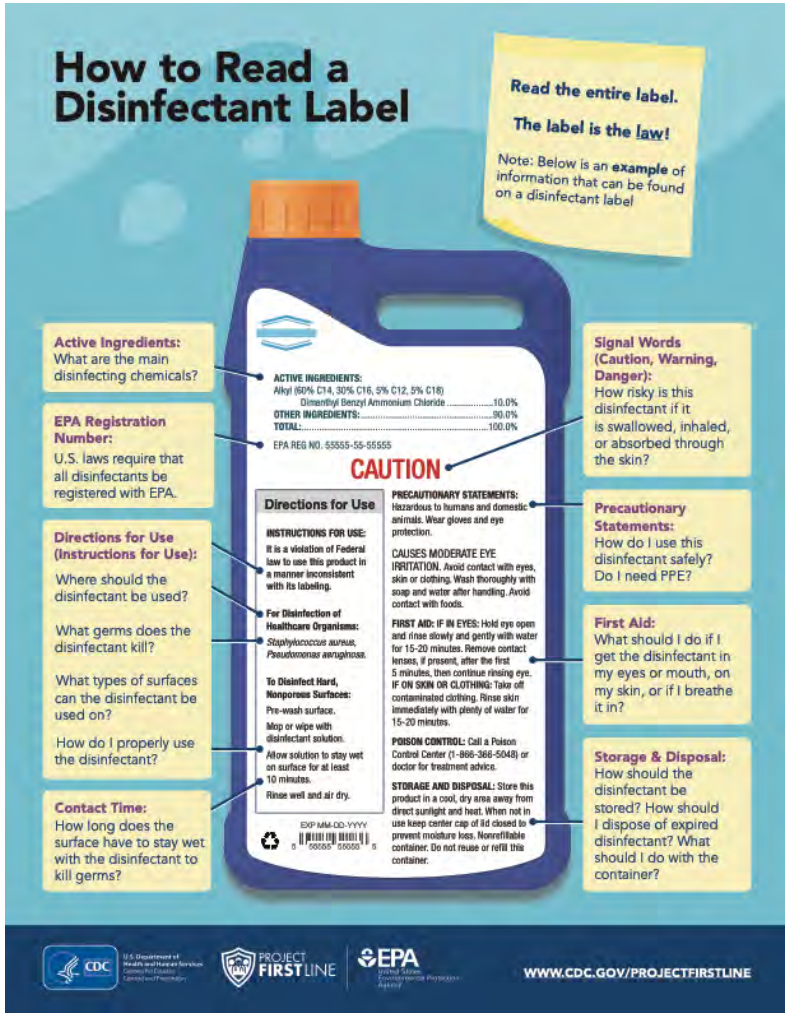


Fig 2. Measured contamination (RLU) by study interval. An observation of 0 RLU on a personal phone was set to 0.5 for analysis.

Kopp, et al. (2023). Efficacy of a bioburden reduction intervention on mobile phones of critical care nurses. *American Journal of Infection Control, 51* (1), 35-40.

ADDITIONAL RESOURCES

- APIC STRIVE Environmental Services: (https://apic.org/Resources/Topic-specific-infection-prevention/Environmental-services/)
  4 Training Modules for EVS Technicians
- CDC Infection Control Assessment and Response (ICAR) module 4 with observation tools: https://www.cdc.gov/hai/prevent/infection-control-assessment-tools.html
- Project Firstline
  - EVS training - California Department of Health: https://www.cdph.ca.gov/Programs/CHCQ/HAI/Pages/ProjectFirstlineEVSToolkit.aspx
  - How to Read a Disinfectant Label: https://www.cdc.gov/hai/pdfs/howtoreadalabel-infographic-508.pdf
  - Association for the Health Care Environment (AHE) Training Collaborative: https://www.ahe.org/project-firstline



KEY TAKEAWAYS

- CDC Core Infection Prevention and Control practices include environmental cleaning and disinfection.
- Healthcare environmental surfaces may be contaminated with germs increasing the risk of healthcare associated infections. Heaviest contamination are areas nearest the patient zone.
- Consider implementing a level II program for evaluating environmental cleaning.
- Develop an EVS/IP partnership and formalize a cleaning and disinfecting program in your facility.

Pic: Project Firstline Flickr

REFERENCES

THANK YOU!

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CDC Project Firstline. Found at: https://www.cdc.gov/infectioncontrol/projectfirstline/healthcare/print.html

CDC Reduce risk from surfaces. Found at: https://www.cdc.gov/hai/prevent/environment/surfaces.html

Hutcherson Healthcare Services. AI generated Infection Prevention pictures. Permission provided by Josh Huffman via LinkedIn.

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Penn State Hershey Medical Center YouTube video Serious about Hand Hygiene. Found at: https://www.youtube.com/watch?v=IRhEKLbo3Y0

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WHO 5 moments of Hand Hygiene. https://www.who.int/publications/m/item/five-moments-for-hand-hygiene

ANTIBIOTIC RESISTANCE(AR) AND THE THREAT OF MULTI-DRUG RESISTANT ORGANISMS

Luci Magnuson, MPH, CIC

Wyoming Department of Health

Objectives

1. Learn about the history of antibiotics, their importance and the threat of resistance and strategies to reduce antimicrobial resistance.
2. Discuss targeted multi-drug resistant organisms (MDROs) and other threats that are highest priority in Wyoming.
3. Understand the difference between carbapenem resistant organisms (CRO) and carbapenemase-producing organisms (CPO).
4. Describe some common antibiotic resistant mechanisms and why CPOs are of high concern.
5. Describe prevention strategies for *Candida auris* and targeted MDROs (CPO) in healthcare facilities.
6. Describe response and containment strategies if *Candida auris* or targeted MDROs (CPO) are identified in healthcare – Point Prevalence Survey (PPS) and/or ICAR.

History of Antibiotics

- The word “antibiotics” is derived from the Greek “anti” (“against”) and “bios” (“life”), meaning the drug is “against” the life of the disease causing organism (15).
- Antibiotics kill bacteria by inhibiting protein synthesis or stopping reproduction of bacteria by preventing them from making certain proteins they need to multiply (16).
- They are made up from natural products such as mold or may include synthetic substances, depending on the antibiotic.
- While there is a long history of the connection between molds and bacterial inhibition dating back to the 1800’s, it was the discovery of a useable antibiotic that could be released to the general public called penicillin that changed modern medicine (15).
- The average lifespan before the discovery of penicillin was 47 years old, even in the industrialized world (17).

Antibiotic History

When was penicillin first discovered?

a.) 1624

b.) 1885

c.) 1928

d.) 1964

pic cite

c.) 1928

Antibiotic History

True or **False**

Penicillin was discovered by accident! The scientist who discovered penicillin famously kept an untidy lab. He went on vacation and left several specimens out on the counter. When he returned a month later, he noticed that one of them had developed a fungus. A zone of bacterial colonies surrounding the fungus showed no growth.

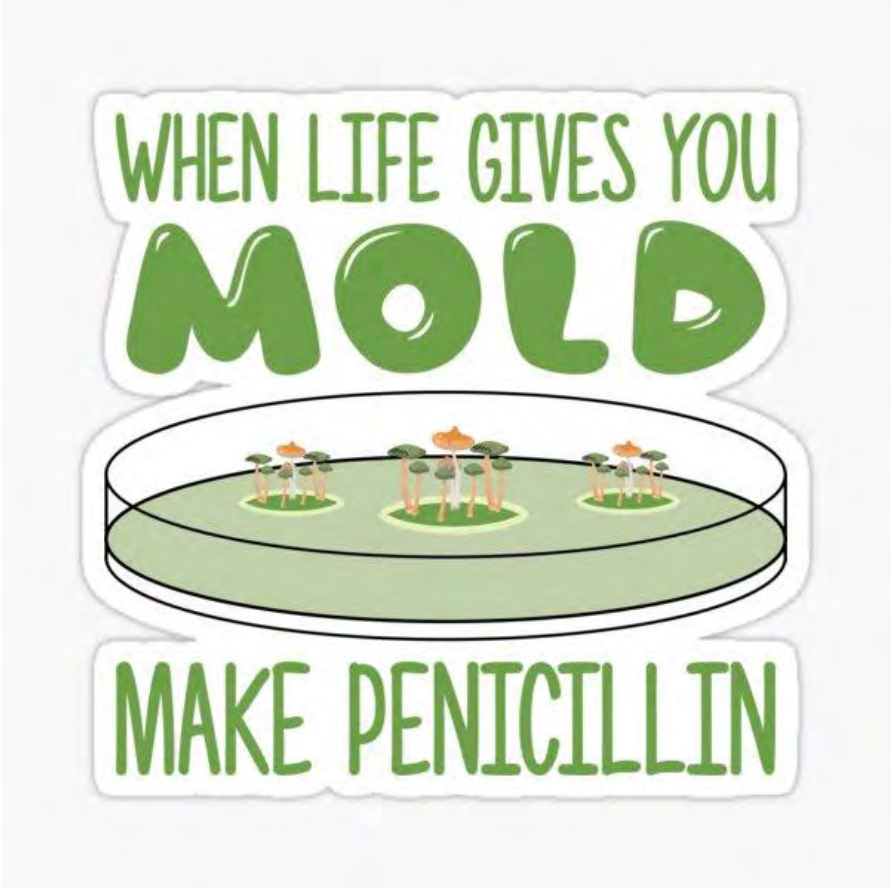
True

Alton, J., & Alton, A. (2018). *Alton's antibiotics and infectious disease: The layman's guide to available antibacterials in austere settings*. Alton First Aid, LLC

picture cite

The Discovery of Penicillin

- The discovery of penicillin in 1928 by Sir Alexander Fleming marked the beginning of the antibiotic revolution (1).
- After isolating the mold and identifying it as belonging to the *Penicillium* genus, he determined that penicillin had antibacterial effects but couldn't find a way to mass produce his new discovery (19).
- By the early 1930s, interest had faded until Drs. Ernst Chain and Howard Florey made a breakthrough successfully purifying penicillin and mass production was started in 1940 (15).
- Penicillin's impact changed the process of drug discovery, its large-scale production transformed the pharmaceutical industry, and its clinical use changed the therapy for infectious diseases (19).



picture cite

CDC. Antibiotic Resistance Threats in the United States, 2019. Atlanta, GA,

Antibiotic Era

- Penicillin becoming widely available in 1945 and marked the beginning of the antibiotic era (2).
- Between the 1950s and 1970s there were many discoveries of novel antibiotics, but no new classes of antibiotics have been discovered since then.
- The approach to discovery of new drugs has become the modification of existing antibiotics (3).
- The antibiotic era revolutionized the treatment of infectious diseases worldwide, although with much success in developed countries.
- In the US, for example, the leading causes of death changed from communicable diseases to non-communicable diseases (cardiovascular disease, cancer and stroke), the average life expectancy at birth rose to 78.8 years, and older population changed from 4% to 13% of the entire U.S. population (17).
- A significant threat to the achievements of antibiotics is **antibiotic resistance**, which is the ability of the bacteria to resist the effect of antibiotic for which they were initially sensitive to.
- Suboptimal antibiotic doses, especially from misuse of antibiotics, help in the stepwise selection of resistance (4).

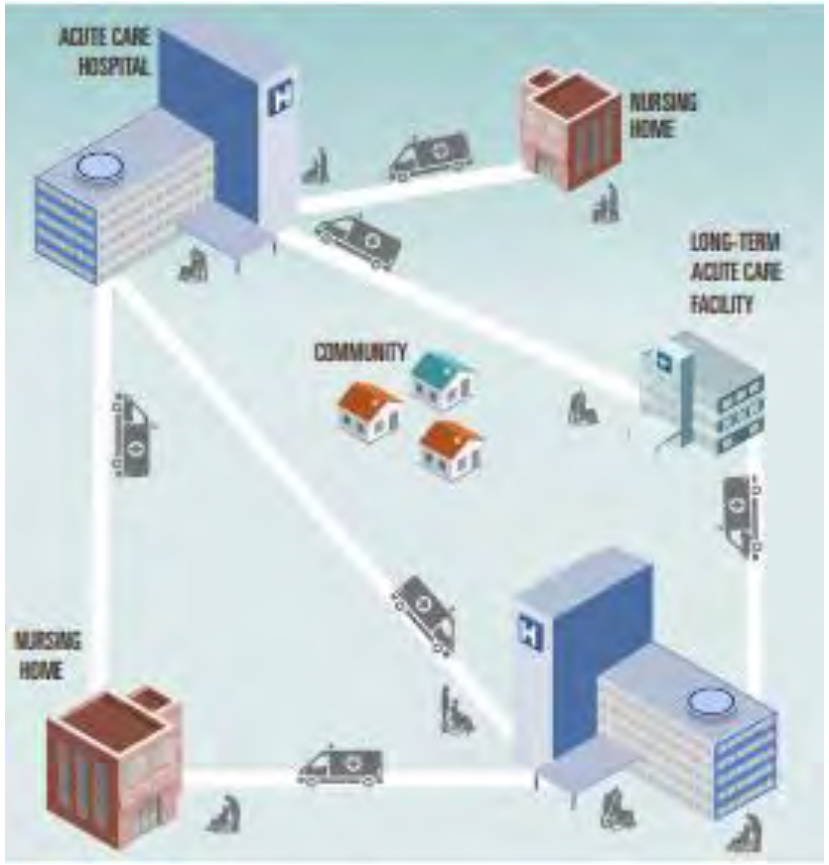
What is Antimicrobial Resistance (AMR)?

- Antibiotic resistance (AR)—the ability of germs to defeat the drugs designed to kill them—is one of the greatest global public health challenges of our time.
- When already hard-to treat germs have the right combination of resistance genes, it can make all antibiotics ineffective, resulting in untreatable infections or “pan resistant” infections.
- Globally, there are 4.95 million deaths per year associated with antimicrobial resistance (18).
- In the U.S., more than 2.8 million antimicrobial-resistant infections occur each year (19).

picture cite

Resistance Threats are Amplified in Health Care

Antibiotic resistance disproportionally impacts the most vulnerable—the young, elderly and sick—who frequently receive medical care. Often, the most deadly, resistant healthcare associated bacteria spread from patient to patient and across healthcare facilities through patient transfer. When not stopped, these resistant healthcare-associated infections can spill over into communities, becoming much harder to control.



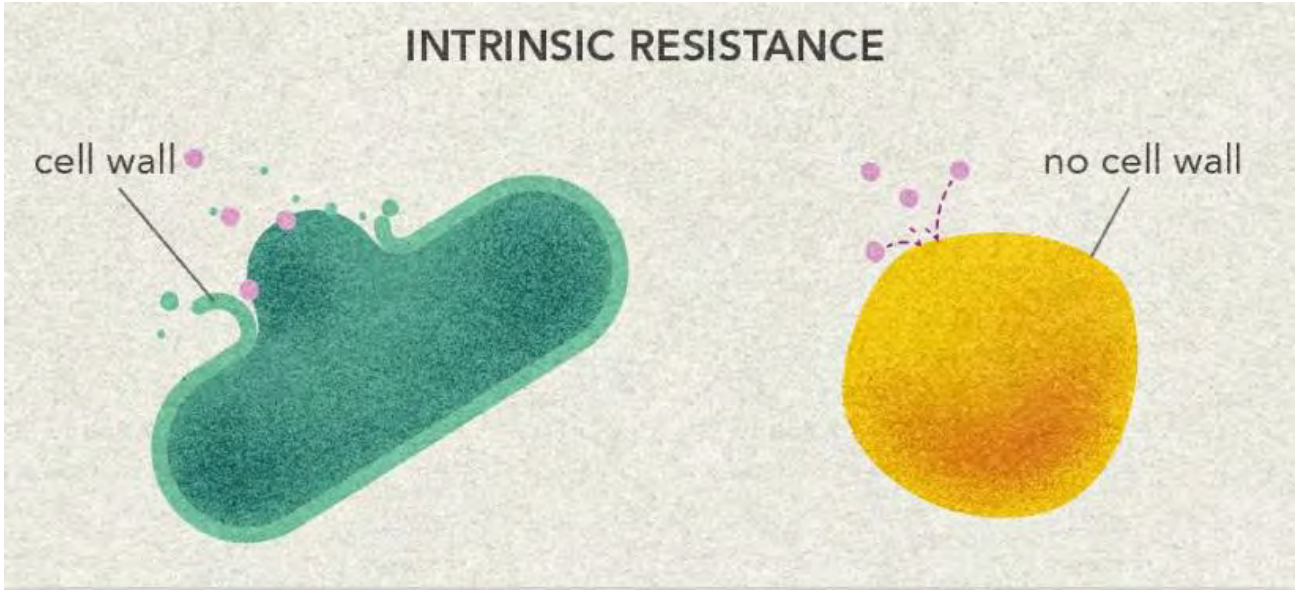
Resistance Mechanisms

- To survive the effects of antibiotics, bacteria are constantly finding new defense strategies, called “resistance mechanisms.”
- Some resistance results from natural “intrinsic” resistance in certain types of bacteria, while other resistance is acquired.
- Alarmingly, antibiotic-resistant germs can share their resistance genes with other germs that have not been exposed to antibiotics.
- These mechanisms can change over time and lead to more resistant infections.
- Resistance traits can be inherited generation to generation. They can also pass directly from germ to germ by way of mobile genetic elements.

Types of Antibiotic Resistance (AR)

Intrinsic Resistance:

In some cases, a type of bacteria will survive antibiotic treatment and multiply because it is intrinsically resistant. For example, although many types of bacteria have cell walls, some don't. An antibiotic like penicillin that prevents cell-wall building can't harm a bacterium that doesn't build a cell wall in the first place.



Types of Antibiotic Resistance (AR)

Acquired Resistance

Bacteria can also acquire resistance. This happens when a type of bacteria changes in a way that protects it from the antibiotic. Bacteria can acquire resistance in two ways: either through a new **genetic change** that helps the bacterium survive, or by **transferring DNA** from a bacterium that is already resistant.

picture cite

CDC. Antibiotic Resistance Threats in the United States, 2019. Atlanta, GA

We Can't Rely on Antibiotics to Fix the Problem

- Between 1962 and 2000, no new major classes of antibiotics were approved to treat common and deadly gram-negative infections.
- Since 1990, 78% of major drug companies have scaled back or cut antibiotic research due to development challenges.
- Historical data shows that, generally, **1 out of 5** infectious disease drugs that reach the initial phase of testing in humans will receive approval from the U.S. Food and Drug Administration (FDA).

picture cite

Infection prevention and control: Prevent infections and reduce the spread of germs

Tracking and data: Share data and improve data collection

Antibiotic use and access: Improve appropriate use of antibiotics, reduce unnecessary use (called antibiotic stewardship), and ensure improved access to antibiotics

Vaccines, therapeutics, and diagnostics: Invest in development and improved access to vaccines, therapeutics, and diagnostics for better prevention, treatment, and detection

Environment and sanitation: Keep antibiotics and antibiotic-resistant threats from entering the environment through actions like improving sanitation and improving access to safe water

CDC proposed five core actions to better prepare the United States for the resistance that will continue to emerge Worldwide.

Strategies for Prevention and Response to Novel and Targeted Multidrug-Resistant Organisms (MDROs)

picture cite

What is a Novel or Emerging MDRO?

- **Novel MDRO:**
  - An organism with a resistance mechanism that has never or very rarely been identified in the United States. These are classified as Tier 1 organisms and mechanisms.
- **Targeted MDRO**
  - An organism resistant to most or all available antimicrobials and with the potential to spread widely. Current examples of targeted MDROs for much of the US include pan-resistant organisms, carbapenemase producing organisms (CPO) and *Candida auris.* These are classified as Tier 2 and above; in some jurisdictions, targeted MDROs may be endemic.
- **Focus MDRO**
  - The subset of targeted MDROs that the area public health jurisdiction has identified as the focus of their MDRO Prevention Plan. These are the MDROs for which outcomes will be measured and interventions (e.g., educational materials or colonization screening) will be directed.

Before we Start – Acronyms

- Carbapenem-Resistant Enterobacterales **(CRE)**
  - When Enterobacterales develop resistance to the group of antibiotics called carbapenems
- Carbapenemase Producing Carbapenem-Resistant Enterobacteriaceae **(CP-CRE)**
  - The latest case definition is from 2018 which is why is it Enterobacteriaceae vs. Enterobacterales.
  - CP-CRE is defined as *Enterobacter* spp., *Escherichia coli* and *Klebsiella* spp. where the isolate is positive for carbapenemase production.
  - CP-CRE definition is being phased out in 2024.
- Carbapenemase-Producing Organisms **(CPO)**
  - Any organism resistant to the group of antibiotics called carbapenems
  - A subset of carbapenem resistant organisms that is carbapenemase producing
- Carbapenem-Resistant Organism **(CRO)**
  - Any organism resistant to the group of antibiotics called carbapenems
- In 2024, the CP-CRE code will be retired but literature still uses CP-CRE definitions

Target MDROs in Wyoming

- Organisms that the HAI/AR Program focuses on and reports to the CDC
- Require intensive public health actions
- This not does mean that CREs or other MDROs are not reportable to the state or that infection prevention should not be implemented in healthcare settings.
- It is important to have prevention strategies as well as containment/response strategies in place in order to prevent the spread of target MDROs

Examples of Target MDROs

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

Prevention Strategies

To prevent the spread of novel and targeted MDROs across healthcare facilities

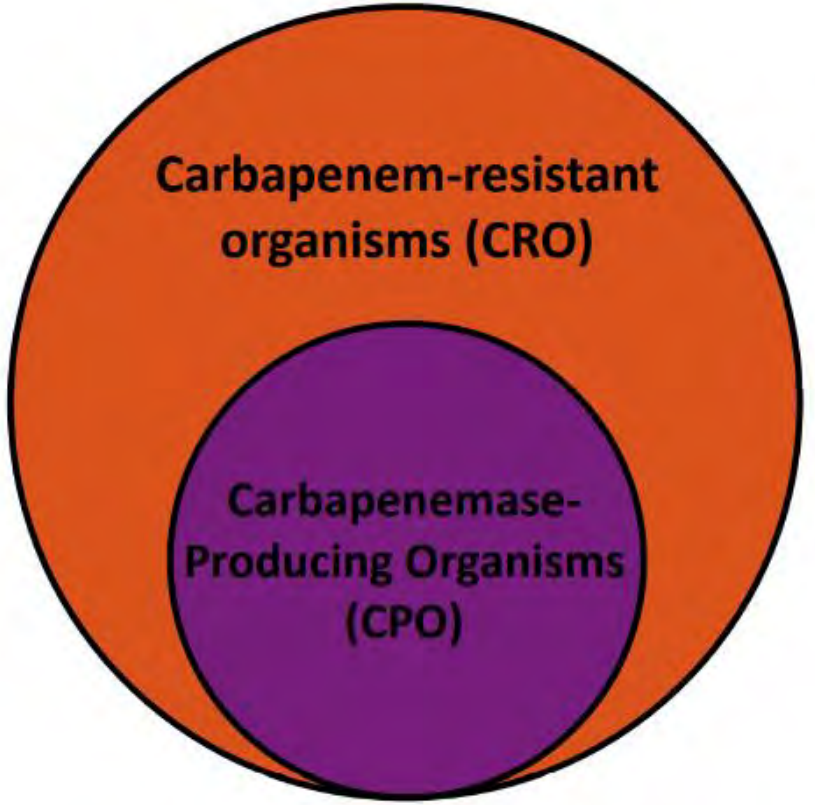
Containment Strategy

To address the initial response to novel and targeted MDROs

CRO versus CPO

- **Carbapenem-Resistant Organisms (CRO)**
  - CRAB: Carbapenem-resistant *Acinetobacter baumannii*
  - CRPA: Carbapenem-resistant *Pseudomonas aeruginosa*
  - CRE: Carbapenem-resistant Enterobacterales
    - Examples: *Escherichia coli* (E. coli) and *Klebsiella pneumoniae*

- **Carbapenemase Producing Organisms (CPO)**
  - CP-CRAB: Carbapenemase-Producing Carbapenem-resistant *Acinetobacter baumannii*
  - CP-CRPA: Carbapenemase-Producing Carbapenem-resistant *Pseudomonas aeruginosa*
  - CP-CRE: Carbapenemase-Producing Carbapenem-resistant Enterobacterales



Wyoming Department of Health
Reportable Diseases and Conditions

Acute Flaccid Myelitis (AFM)
Anaplasmosis/Ehrlichiosis
ANTHRAX (*Bacillus anthracis* or *Bacillus cereus* expressing anthrax toxins)
Babesiosis (*Babesia* sp)
BOTULISM (*Clostridium botulinum*)
LAB **Brucellosis** (*Brucella* sp)
California Serogroup Virus
LAB **Campylobacteriosis** (*Campylobacter* sp)
LAB ***Candida auris***
LAB **Carbapenem-resistant Enterobacterales (CRE)**
LAB **Carbapenem-resistant *P. aeruginosa* (CRPA)**
LAB **Carbapenem-resistant *A. baumannii* (CRAB)**
Chancroid (*Haemophilus ducreyi*)
Chikungunya Virus Disease
***Chlamydia trachomatis* Infection**
LAB **Cholera** (*Vibrio cholerae*)
Colorado Tick Fever
Creutzfeldt-Jacob Disease
***Cronobacter* Infection, Invasive (Infants only)**
Cryptosporidiosis (*Cryptosporidium* sp)
LAB **Cyclosporiasis** (*Cyclospora cayetanensis*)
Dengue
DIPHTHERIA (*Corynebacterium diphtheriae*)
Eastern Equine Encephalitis Virus
LAB **Vancomycin-Intermediate *Staphylococcus aureus***
LAB **Vancomycin-Resistant *Staphylococcus aureus***
Varicella, chickenpox only
LAB **Vibriosis** (*Vibrio* sp)
West Nile Virus
Western Equine Encephalitis Virus
Yellow Fever
LAB **Yersiniosis** (*Y. enterocolitica, Y. pseudotuberculosis*)
Zika Virus Disease

Other Reportable Conditions
Animal Bites/Exposures Requiring Rabies Prophylaxis
Blood Lead, all levels
Cancer
Clusters/Outbreaks, GI, respiratory, other illness
SUSPECTED BIOLOGICAL, CHEMICAL, OR RADIOLOGICAL INCIDENT
UNEXPLAINED DEATH
UNUSUAL ILLNESS OF PUBLIC HEALTH IMPORTANCE
Revised January 12, 2024

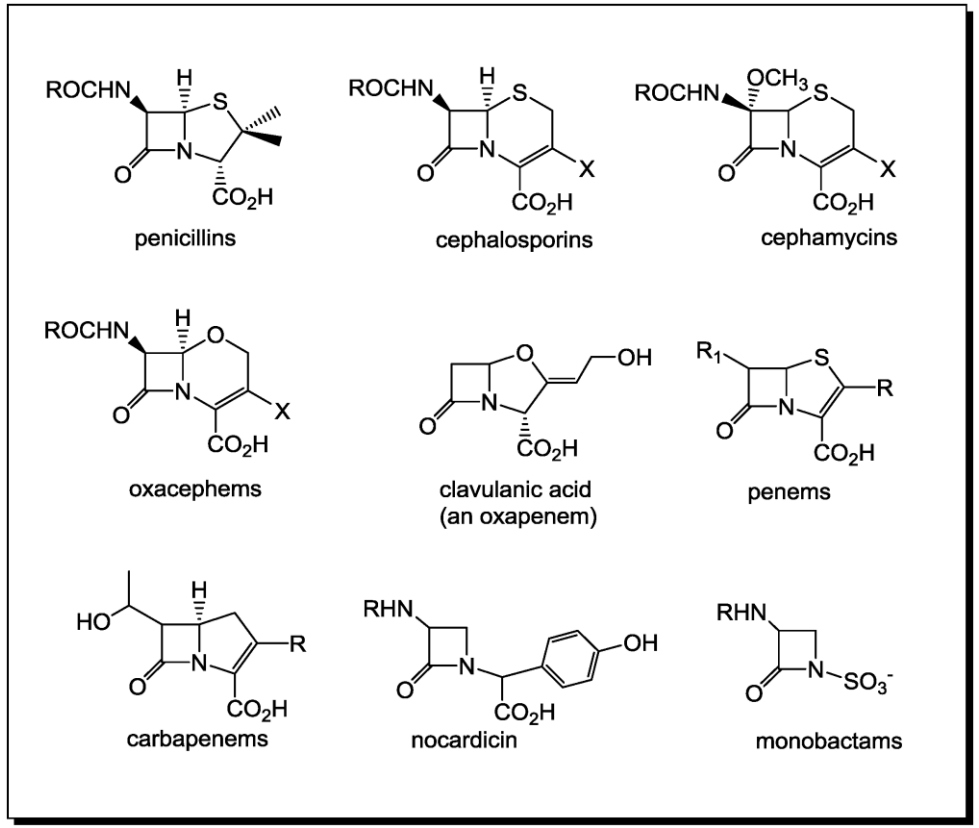
More common MDROs like MRSA, ESBL, VRE are not reportable but still require infection control strategies in healthcare.

Carbapenem Resistance

- Carbapenem resistance, mainly among Gram-negative pathogens, is an ongoing public-health problem of global dimensions.
- Carbapenem resistant organisms include some of the most urgent antibiotic resistant threats.
- Resistance used to be rare (less than 1%) but has increased rapidly due to the spread of **carbapenemases.**
- Carbapenemases are enzymes that inactive carbapenems and other beta-lactam antibiotics.
- Most common **carbapenemase** genes:
  - **KPC** - *Klebsiella pneumoniae* carbapenemase
  - **NDM** - New Delhi Metallo-beta-lactamase
  - **VIM** - Verona integron-encoded metallo-beta-lactamase
  - **IMP** – Imipenemase Metallo-beta-lactamase
  - **OXA-48** - Oxacillinase-48 (OXA-48)

Name of Common Carbapenem Antibiotics

- Beta-Lactams
  - Penicillin, cephalosporins, carbapenems and others
  - Broad spectrum
  - Most commonly used antibiotic
- Macrolides
- Fluoroquinolones
- Sulfonamides
- Tetracyclines
- Linocosamides
- Aminoglycosides
- Nitroimidazoles
- Rapamycins (15)



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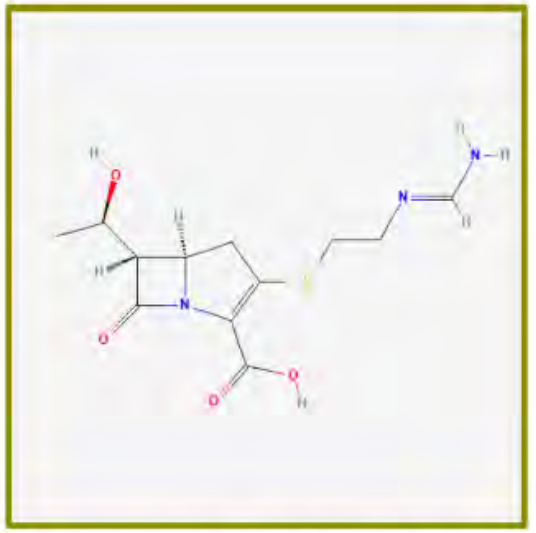
Carbapenem Antibiotics

- Some of the common carbapenems used are:
  - Ertapenem
  - Imipenem
  - Doripenem
  - Meropenem (22)



The carbapenem antibiotic imipenem

- Subclass of beta-lactam antibiotics and active against many organism that are resistance to other beta-lactam antibiotics
- Antibacterial agents with a broad range of antimicrobial activity
- Increasingly important due to increase in resistance to other antibiotics, not typically a “first line” antibiotics – reserved for serious, resistant infections
- Relied on to treat the sickest patient and most resistant bacteria for over 20 years

Why are Carbapenemase Producing Organisms a higher concern?

What are Carbapenemases?

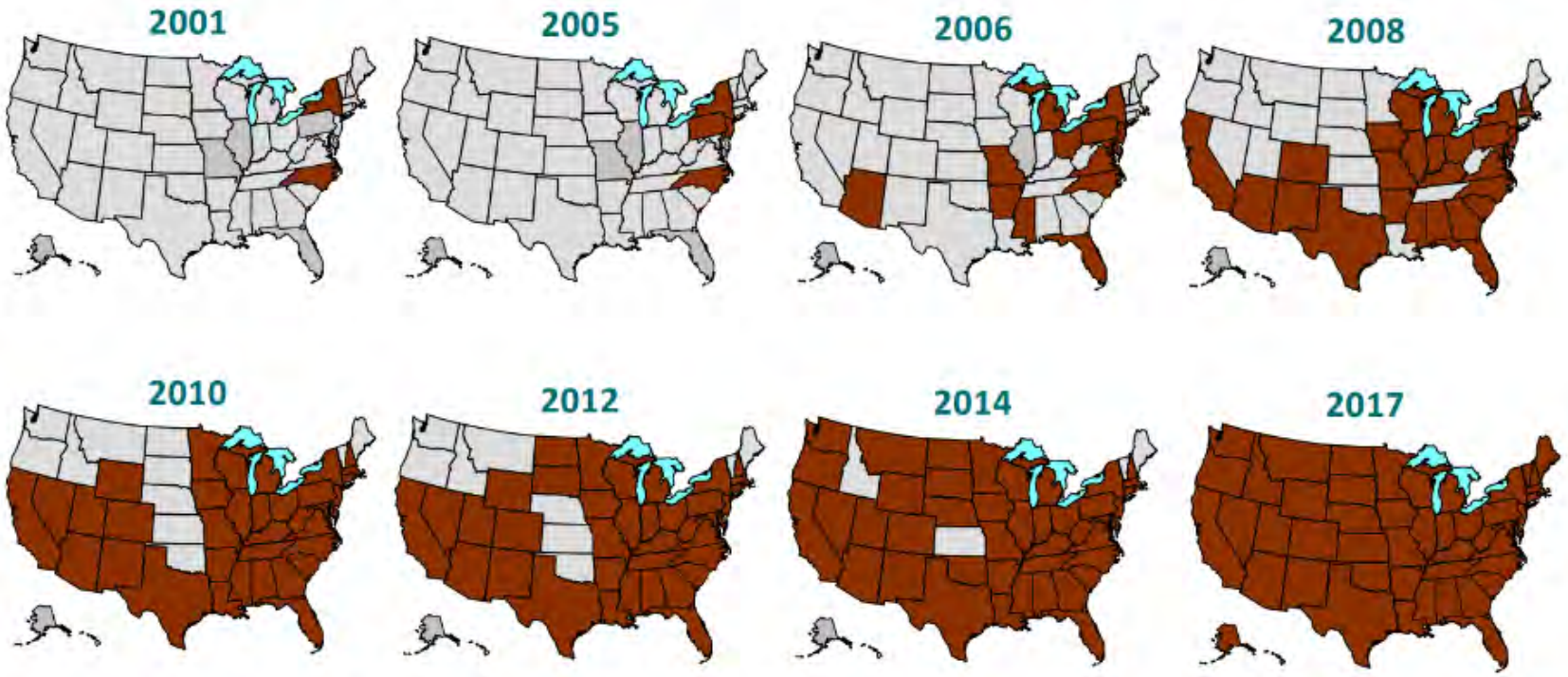
- Carbapenemases are **enzymes** (proteins) that make carbapenem and other βlactam antibiotics ineffective (27). One way that a germ becomes resistant to carbapenem drugs is through acquiring a gene that produces a carbapenemase (28).
- The genes that encode carbapenemases are typically found on mobile gene elements called plasmids, which means they can be easily transferred between different types of bacteria and in turn, facilitate transmission between patients.
- Thus, people who are infected or colonized with a CPO need a high level of adherence to infection control to prevent the spread of CPOs (24).

What are Carbapenemase-Producing Organisms (CPO)?

- CPOs are **types of bacteria** that produce a genetically-encoded antibiotic resistance mechanism called a carbapenemase.
- Carbapenemase-producing organisms (CPO) are an epidemiologically important group of multidrug-resistant pathogens classified by the Centers for Disease Control and Prevention (CDC) as an **urgent threat to public health** (6).
- Since the detection of *Klebsiella pneumoniae* carbapenemase (KPC)-producing *Klebsiella pneumoniae* in the United States in 1996, CPO have spread throughout the country and include many organism-carbapenemase combinations (7,8).
- Infections caused by CPO are difficult to treat and associated with high mortality because they are highly resistant or pan-resistant and can often lead to outbreaks in healthcare settings (9).
- Expands the organisms for CPO, to include but not be limited to, Enterobacterales, *Acinetobacter baumannii* and *Pseudomonas aeruginosa*.

Carbapenemases can Spread Rapidly

KPC-CRE found in the US spread from 2 states in 2001 to 50 states, DC, and PR by 2017



Knowledge Check

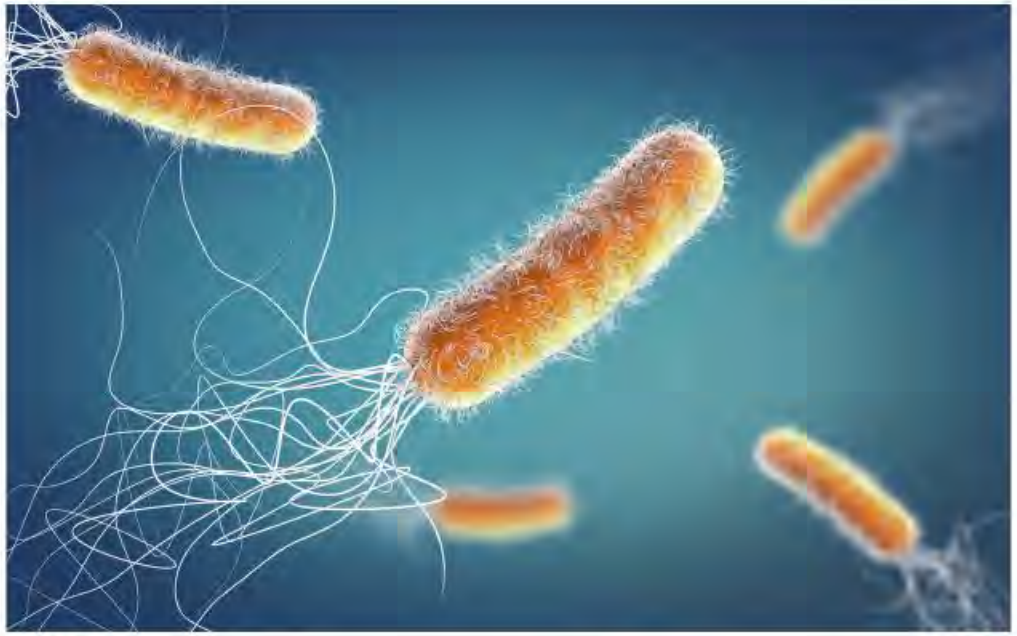
What would carbapenemase-producing carbapenem resistant *Pseudomonas aeruginosa* be classified as?

a.) CRE

b.) CRPA

c.) CP-CRPA

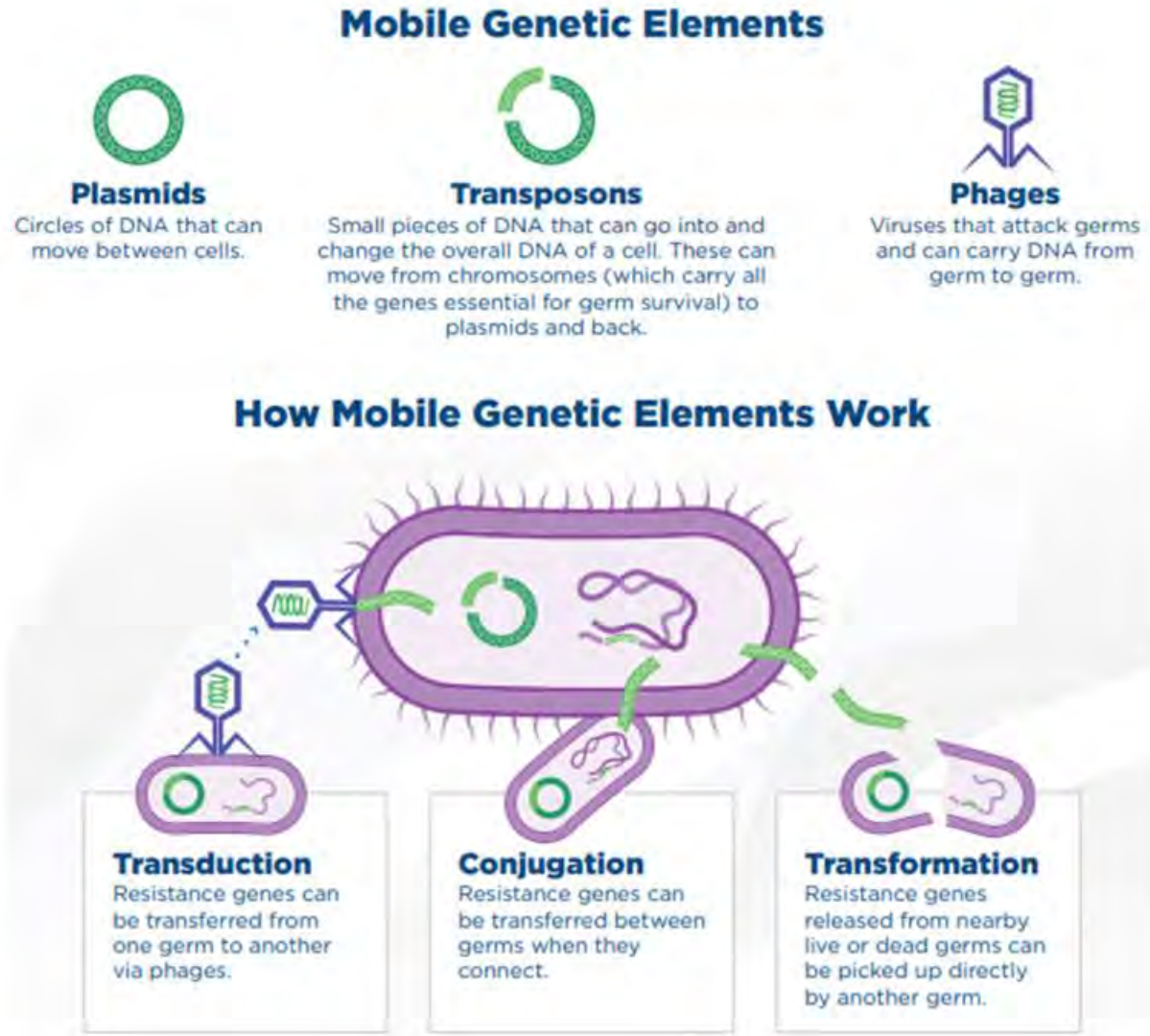
d.) CPO



picture cite

d.) CPO

Pseudomonas aeruginosa is in the order pseudomonadales not Enterobacterales so it wouldn't be a CRE. If it **wasn't** carbapenemase producing it would be a CRPA which is reportable to the state.



Carbapenemase Producing Organisms often exhibit this type of resistance method making
it harder to treat!

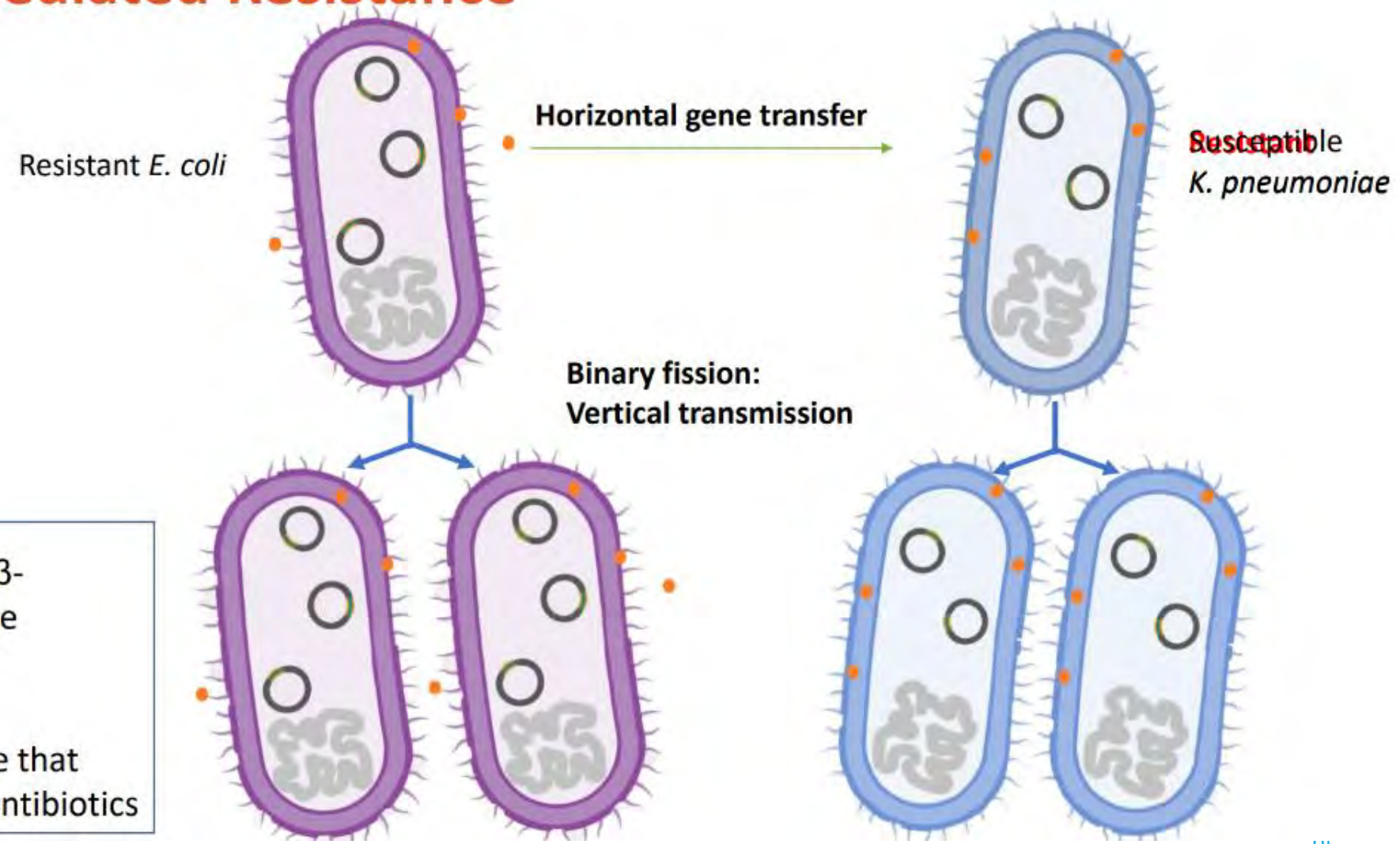
Genetic code for some resistance mechanisms can be shared

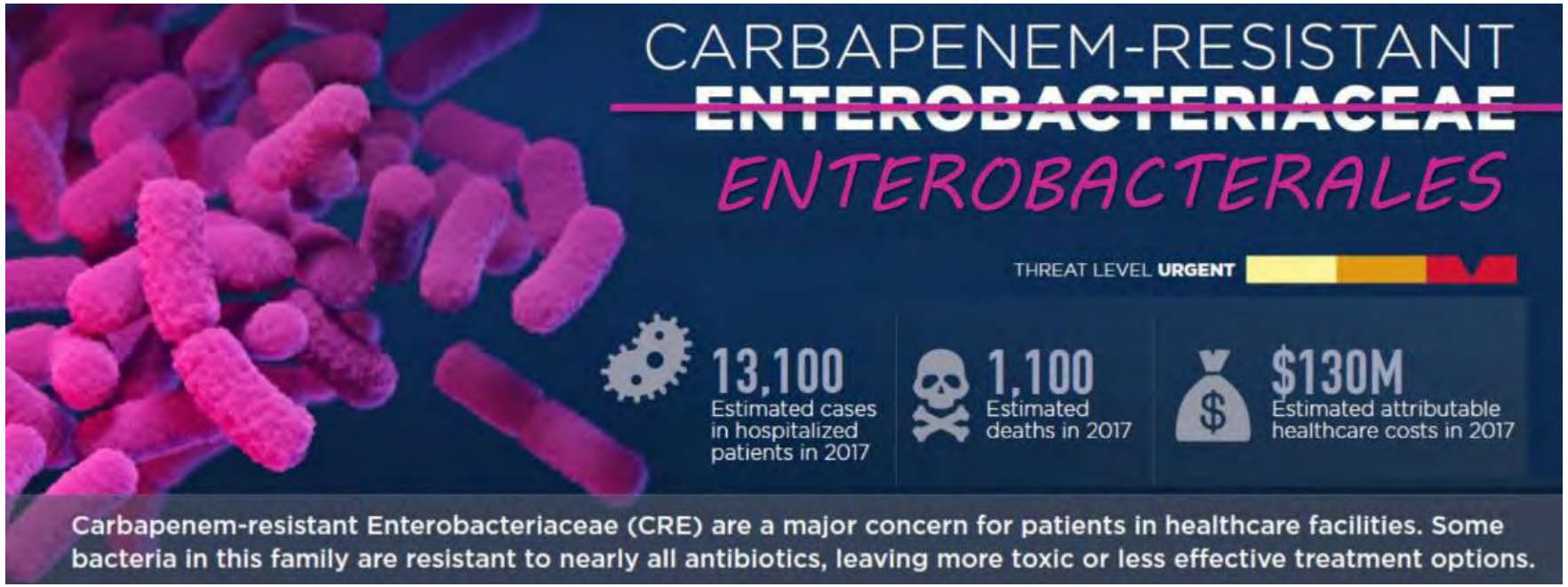
- On mobile genetic elements such as plasmids
- Across different strains, species and taxonomic families
- With strains that have not been exposed to antibiotics
- Often with other antibiotic resistant genes

Horizontal gene transfer increases potential for rapid
spread, including to strains that are at baseline more
successful, more virulent or more resistant (23).

CDC. Antibiotic Resistance Threats in the United States, 2019. Atlanta, GA

Plasmid-Mediated Resistance



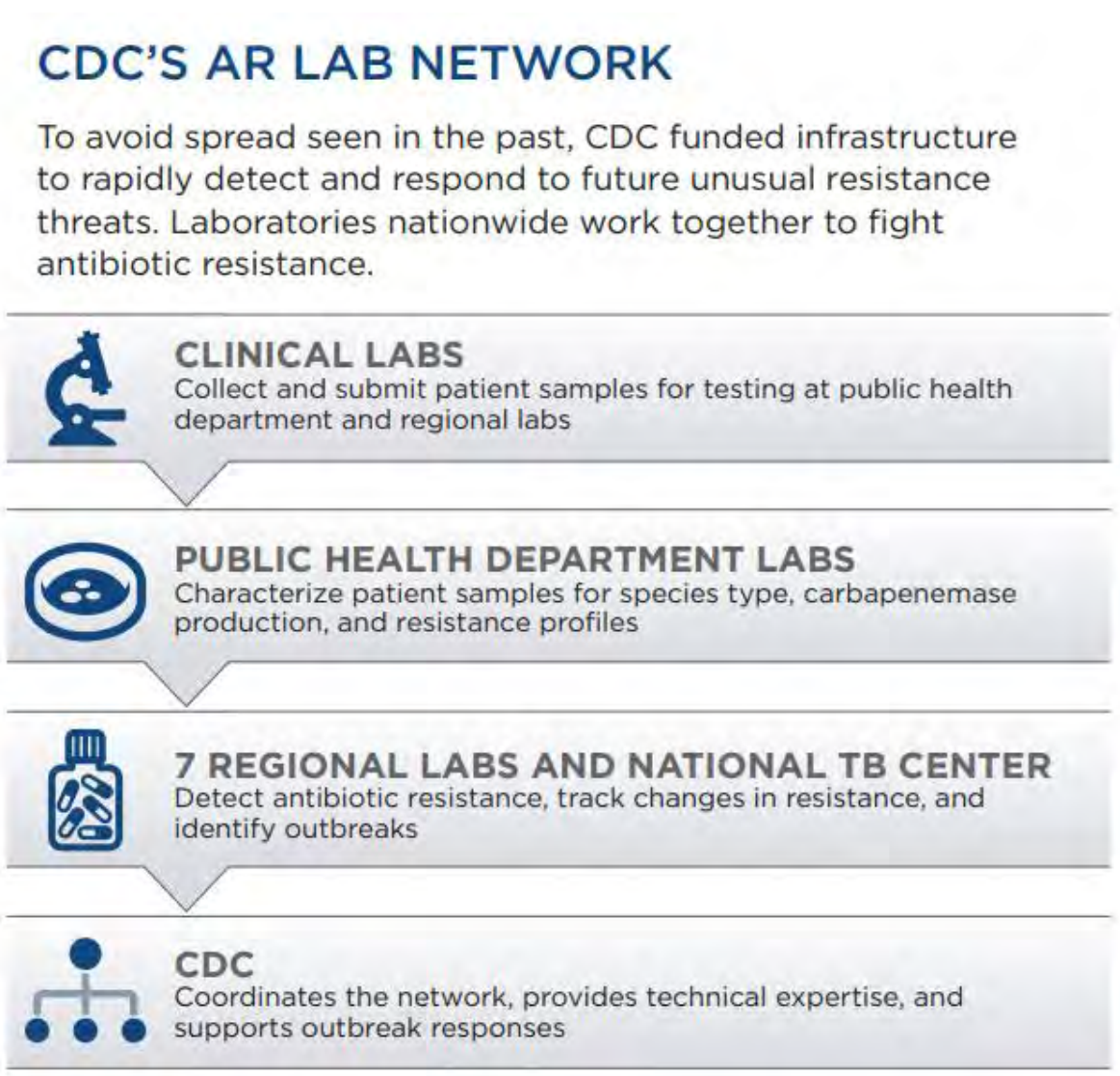


- Patients who require devices (e.g., catheters) and patients taking long courses of some antibiotics are most at risk for CRE infections.
- In the U.S., approximately 35% of CRE carry a gene for carbapenemases, which inactive carbapenem and other beta-lactam antibiotics and can spread rapidly among different strains (23).

Name Change
In 2020, a taxonomy change was adopted to use "Enterobacterales" as the name of a new scientific order. "*Enterobacteriaceae* " are now a family within the "Enterobacterales" order

Stopping CRE and CPO

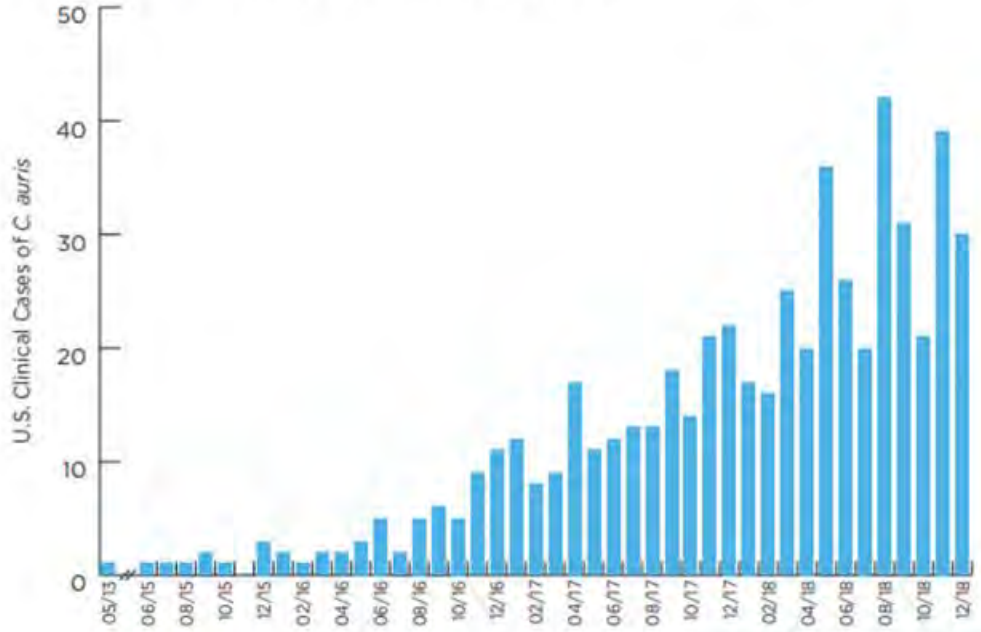
- CDC developed a robust system for detecting and responding to carbapenemase-producing CRE (CPO) in the United States.
- In 2016, CDC established the Antibiotic Resistance Laboratory Network (ARLN).
- Through the network, labs in 50 states, many major cities and Puerto Rico provide clinical laboratories access to advanced detection capacities to identify patients with CPO infections.
- Patients with CPO may have gone unrecognized before the AR Lab Network.
- When CPO is identified now, health departments and healthcare facilities can take action to contain its spread.



- *C. auris*, first identified in 2009 in Asia, has quickly become a cause of severe infections around the world.
- *C. auris* is a concerning drug-resistant fungus due to:
  - Often multidrug-resistant, with some strains (types) resistant to all three available classes of antifungals
  - Spreads easily from person to person
  - Can cause large scale and deadly outbreaks in healthcare facilities
  - Some common healthcare disinfectants are less effective at eliminating it
  - Can be carried on patients' skin without causing infection, allowing spread to others

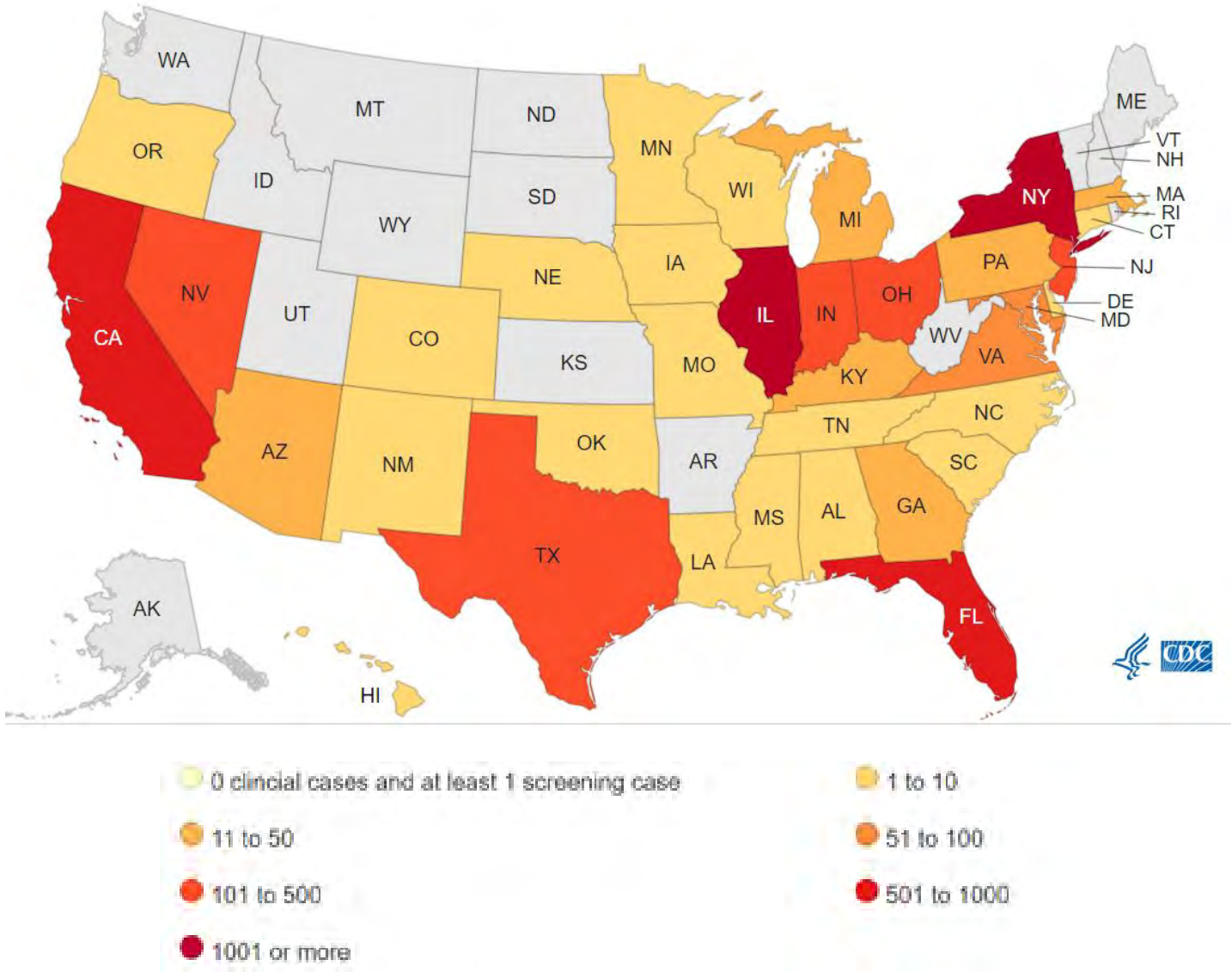
CASES OVER TIME

C. auris began spreading in the United States in 2015. Reported cases increased 318% in 2018 when compared to the average number of cases reported in 2015 to 2017.



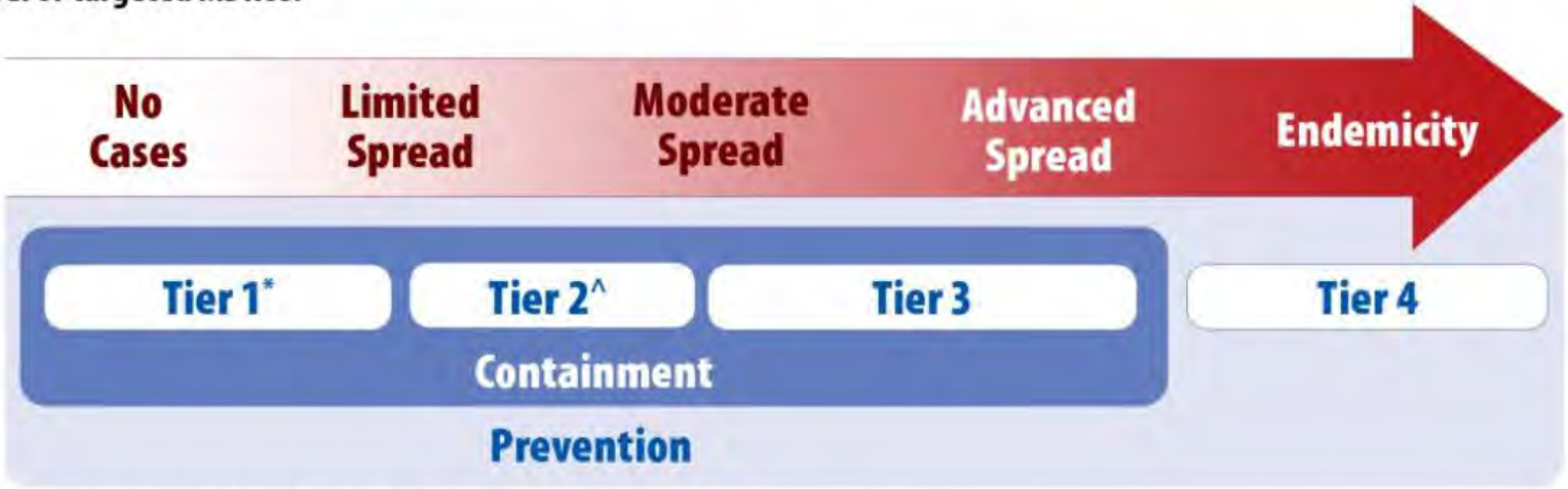
CDC. Antibiotic Resistance Threats in the United States, 2019. Atlanta, GA

Number of *C. auris* clinical cases through Dec 31, 2022



Public Health Strategies to **Contain** the Spread

Figure 1. Relationship between epidemic stages, response tiers, containment response, and prevention activities for novel or targeted MDROs.



Organism or resistant mechanism that have

*Never (or very rarely) been identified **in the United States** and for which experience is extremely limited are Tier 1.

^Never (or very rarely) been identified **in a public health jurisdiction but are more common in other parts of the U.S.** are Tier 2.

Tier Two Organisms

For Tier 2 organisms, information is available from U.S. or comparable settings about how transmission of these organisms occurs and the groups primarily at risk. Tier 2 organisms include:

1. MDROs that are primarily associated with healthcare settings and are not commonly identified in the region. Generally, these have either not been previously identified in the region or have been limited to sporadic cases or small outbreaks (i.e., correspond to "not detected" or "limited to moderate spread" epidemiologic stages). However, these MDROs might be found more commonly in other areas of the United States or even in other regions or patient sharing networks within the same jurisdiction. In most of the U.S., carbapenem-resistant Enterobacterales (CRE) and carbapenem-resistant *Acinetobacter spp.* with OXA-48 or metallo-β-lactamase carbapenemases (e.g., New Delhi Metallo-β-lactamase (NDM), Verona-integron-mediated carbapenemase (VIM), and Imipenemase (IMP)), carbapenemase-producing *Pseudomonas spp.*, and *Candida auris* meet the Tier 2 criteria. In many areas of the United States, carbapenem-resistant Enterobacterales producing *Klebsiella pneumoniae* carbapenemase (KPC-CRE) and *C. auris* also meet the Tier 2 criteria because they are not commonly identified.
2. Organisms for which no current treatment options exist (pan-not susceptible) and that have the potential to spread more widely within a region (e.g., have plasmid-mediated resistance mechanisms), even if more susceptible isolates of the same organism and mechanism are more commonly identified (i.e., Tier 3 or endemic).

Public Health Strategies to ***Prevent*** the Spread

Section I. Preparing to Implement an MDRO Prevention Plan:

- Determining the MDRO(s) that will be the focus of the prevention activities
- Risk stratifying healthcare facilities within the jurisdiction
- Prioritizing where to begin implementation
- Evaluating jurisdictional laboratory capacity and surveillance
- Defining outcome and process measures

Section II. Elements of an MDRO Prevention Plan, four prevention strategies:

- Providing education
- Improving general infection prevention and control (IPC) practices
- Detecting colonized individuals
- Facilitating communication

Tier Two Response

picture cite

1. Identify initial response measures.
2. Conduct a healthcare investigation.
3. Conduct a contact investigation.
4. Conduct clinical laboratory prospective and retrospective surveillance.
5. Identify Environmental cultures.
6. Implement a system to ensure adherence to infection control measures.

Tier Two Response – what to expect as a healthcare worker

HAI Epidemiologist and facility IP should collaborate during a target MDRO response.

Identify initial response measures

- Intended to facilitate **prompt** implementation of appropriate infection prevention and control (IPC) measures (e.g., Contact Precautions) for the index patient, at the facility where they are currently admitted, to prevent transmission.

Conduct a healthcare investigation

- Review the patient's healthcare exposures from approximately 30 days prior to the initial positive culture up to the present.
- Exposures of interest include overnight stays in healthcare settings outpatient visits, and home health visits

Conduct a contact investigation (also known as a Point Prevalent Survey)

- Use colonization screening to identify additional cases, to facilitate implementation of appropriate precautions, and evaluate for potential transmission.
- This includes screening roommates who shared a bathroom (think communal shower rooms in long term care) and screening patients currently admitted to the rooms where the index patient stayed within 30 days (think tracking down and screening several discharged patients in acute care).

Tier Two Response Cont.

Conduct Clinical Laboratory Prospective and Retrospective Surveillance

- Collaborate with microbiology laboratories to help perform prospective surveillance for at least three months after identification of the index patient or, if transmission is identified through surveillance or screening, three months after the last case is identified.
- All identified isolates should be promptly tested to investigate whether they have the same mechanism of resistance as the index case; isolates should be **saved** as additional testing at the state, regional or CDC laboratory might be indicated.
- Perform retrospective surveillance (laboratory lookbacks) of results to identify organisms with similar resistance patterns, extending three months prior to identification of the index case.

Identify Environmental Cultures

- Some public health responses to Tier 2 organisms and mechanisms **will not** require environmental cultures. However, in some situations, environmental cultures may help identify environmental reservoirs or evaluate the effectiveness of cleaning and disinfection.
- Environmental cultures are recommended only if transmission is identified or suspected and there is epidemiologic evidence implicating an environmental reservoir in ongoing transmission.

Tier Two Response Cont.

Implement a system to ensure adherence to infection control measures

- **Healthcare facilities should:**
  - Educate and inform the HCP and visitors for the index patient about the organism and precautions indicated to prevent transmission.
  - Ensure that adequate supplies are available to implement Transmission-Based or Enhanced Barrier Precautions.
  - Conduct ongoing adherence monitoring of infection control practices and provide feedback to HCP
  - Flag affected patients' medical records to initiate appropriate infection control precautions upon readmission.
  - Make plans for how receiving facilities will be notified of affected patients' MDRO status, if the patient is transferred, including whether to notify the health department prior to transfer.
- **Health departments should:**
  - Conduct on-site IPC assessments at all healthcare facilities identified in the healthcare investigation and any outpatient facilities where patients or HCP may have had extensive contact with the index patient, such as wound care clinics.

In Summary

- Antibiotic resistance is a not a future concern, we have to address this now, especially in healthcare.
- While all MDROs require action, carbapenem resistant organisms (CRO) are especially concerning in healthcare.
- CRO that have the ability to product carbapenemases are the most dangerous because they have the ability to transfer their resistance genes to other types of bacteria. These, known as CPO, require an in-depth response and collaboration between public health and healthcare workers.
- By ensuring your healthcare facility has strong IPC practices, provides education and other prevention methods (facility communication, colonization screening, following core principles of infection control, etc.) you can greatly reduce the occurrence and spread of MDROs.

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Resources:

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Tuberculosis in Wyoming

April 30, 2024

Leslie Fowler, TB Program Manager
Sarah Hendricks, TB Program Controller
Haley McKee, CDU Epidemiologist

Wyoming Department of Health | PUBLIC HEALTH DIVISION

TB Program Staff

TB Program Manager
Leslie Fowler, RN BSN

Oversees CDC TB Prevention Grant and related activities

Public Health Block Grant

Processes TB bills

340B Oversight

TB Controller
Sarah Hendricks, MPH

TB Testing Prior Authorizations

Medication Assistance Enrollments

Technical Assistance

Contact Tracing & IGRA Follow Up

CDU Epidemiologist
Haley McKee

TB Testing Prior Authorizations

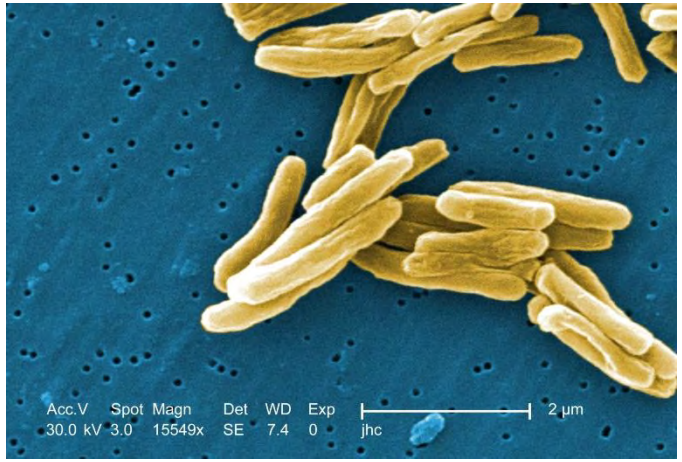
Contact Tracing & IGRA Follow up

Agenda

- TB 101
- TB in Wyoming
- TB Prevention & Control in Wyoming Healthcare Facilities
- CDU TB Program Services
- Resources

TB 101

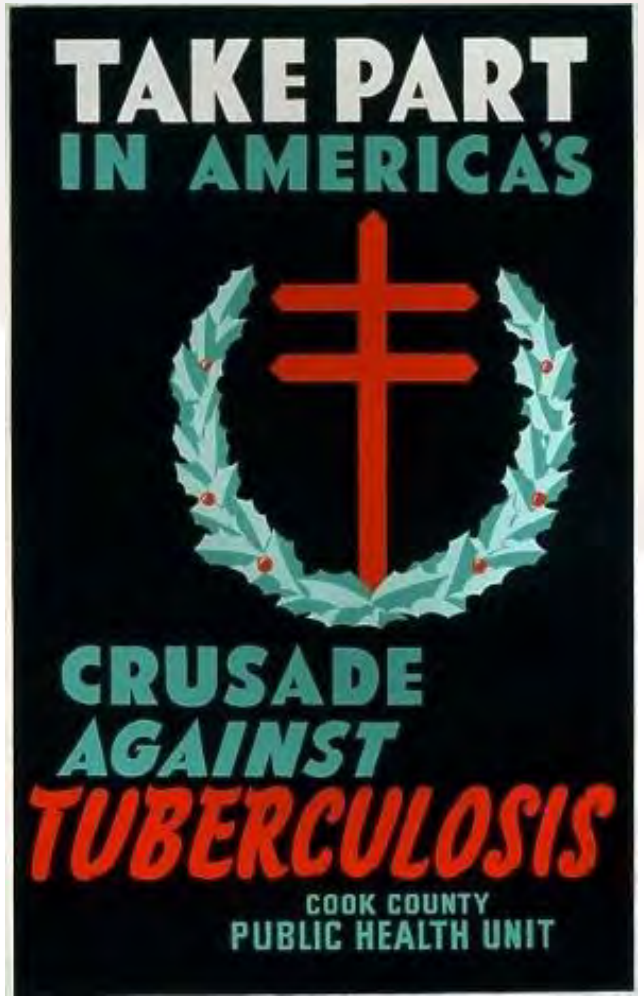
What is Tuberculosis?



- TB is caused by members of the Mycobacterium tuberculosis complex (MTBC), which includes:
  - *Mycobacterium tuberculosis* (Mtb), the etiologic agent of TB in humans;
  - *M. africanum*, that causes TB in humans only in certain regions of Africa;
  - *M. bovis*, *M. caprae*, and *M. pinnipedii*, causing TB in wild and domesticated mammals;
  - *M. microti*, that causes TB only in voles.
- The Bacillus Mtb is a gram negative, slow growing mycobacteria (doubling time of 12–24 h under optimal conditions).
- A major feature of Mtb is the peculiar cell wall structure, that provides an exceptionally strong impermeable barrier to noxious compounds and drugs, and it plays a fundamental role in virulence.

What is Tuberculosis (TB)?

- *Mycobacterium tuberculosis* usually attacks the lungs, but TB bacteria can attack any part of the body such as the kidney, spine, and brain.
  - TB bacteria spread through the air from one person to another when a person with TB disease of the lungs or throat coughs, speaks, or sings.
- Not everyone infected with TB bacteria becomes sick. As a result, two TB-related conditions exist: latent TB infection (LTBI) and TB disease. If not treated properly, TB disease can be fatal.
- In the US, TB incidence rates have dropped significantly over the last ~50 years from 15.7/100k in 1975 to 2.5/100k in 2022
  - The estimated global TB incidence rate was 133/100k in 2022



Latent, Active TB, and Extrapulmonary Active TB

- Latent Tuberculosis Infection (LTBI)
  - Not infectious/contagious
  - Occurs when a person is exposed to active TB, but healthy immune system walls off bacteria.
  - Bacteria may be anywhere in the body
  - Can become infectious (active) with age and/or compromised immunity

- Active Pulmonary Tuberculosis (Tuberculosis Disease)
  - Infectious/contagious
    - Level of infectiousness is dependent on many factors
  - Traditional pulmonary presentation of TB in lungs
  - Can cause death if not properly treated

- Active Extra-pulmonary Tuberculosis (Tuberculosis Disease)
  - Active TB disease that occurs outside of the lungs in the body
    - Common area is the lymph system, specifically the neck
  - Not infectious/contagious unless area becomes exposed to open environment
  - Can spread to lungs and become infectious
  - Can cause death if not properly treated

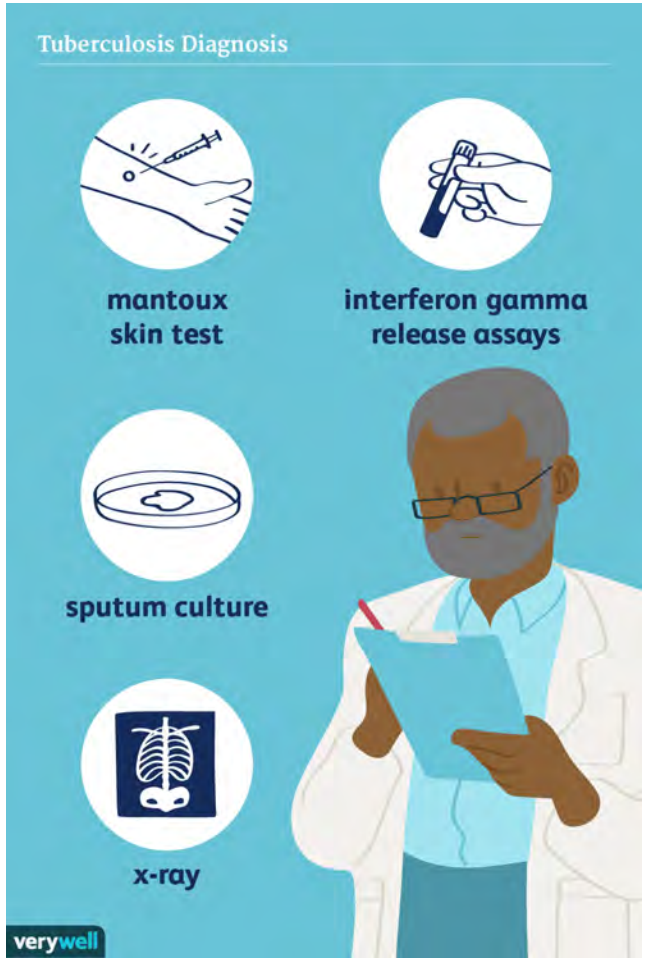
The Difference between Latent TB Infection (LTBI) and TB Disease

A Person with Latent TB Infection	A Person with TB Disease

• Has no symptoms	• Has symptoms that may include
	  ◦ a bad cough that lasts 3 weeks or longer
	  ◦ pain in the chest
	  ◦ coughing up blood or sputum
	  ◦ weakness or fatigue
	  ◦ weight loss
	  ◦ no appetite
	  ◦ chills
	  ◦ fever
	  ◦ sweating at night

• Does not feel sick	• Usually feels sick
• Cannot spread TB bacteria to others	• May spread TB bacteria to others
• Usually has a skin test or blood test result indicating TB infection	• Usually has a skin test or blood test result indicating TB infection
• Has a normal chest x-ray and a negative sputum smear	• May have an abnormal chest x-ray, or positive sputum smear or culture
• Needs treatment for latent TB infection to prevent TB disease	• Needs treatment to treat TB disease

Testing for TB



Multiple tests aid in the diagnosis of LTBI and Active TB including:

- Tuberculin skin test (TST) (aka Mantoux skin test or PPD)
  - CDC Training
  - Be mindful of conditions that impact interpretation
- Interferon-gamma release assays (IGRAs)
  - QuantiFERON Gold, QFT, QuantGold
  - T-Spot
- Chest imaging
- Sputum collection AFB smear, NAAT/PCR, and culture
- Biopsy culture (for extrapulmonary TB)
- **Everyone with a positive TB test also needs an HIV test performed after the positive TB test.**

Latent Tuberculosis Infection Treatment

Latent Tuberculosis Infection Treatment Regimens

Treatment regimens for latent TB infection (LTBI) use isoniazid (INH), rifapentine (RPT), or rifampin (RIF). CDC and the National Tuberculosis Controllers Association preferentially recommend short-course, rifamycin-based, 3- or 4-month latent TB infection treatment regimens over 6- or 9-month isoniazid monotherapy.

Clinicians should choose the appropriate treatment regimen based on drug susceptibility results of the presumed source case (if known), coexisting medical conditions (e.g., HIV*), and potential for drug–drug interactions.

https://www.cdc.gov/mmwr/volumes/69/rr/rr6901a1.htm?s_cid=rr6901a1_w

	DRUG	DURATION	FREQUENCY	TOTAL DOSES	DOSE AND AGE GROUP
Preferred	ISONIAZID† AND RIFAPENTINE†† (3HP)	3 months	Once weekly	★ 12	**Adults and children aged ≥12 yrs** INH: 15 mg/kg rounded up to the nearest 50 or 100 mg; 900 mg maximum RPT: 10–14.0 kg; 300 mg 14.1–25.0 kg; 450 mg 25.1–32.0 kg; 600 mg 32.1–49.9 kg; 750 mg ≥50.0 kg; 900 mg maximum
					Children aged 2–11 yrs INH†: 25 mg/kg; 900 mg maximum RPT††: See above
	RIFAMPIN§ (4R)	4 months	Daily	120	**Adults:** 10 mg/kg; 600 mg maximum
					Children: 15–20 mg/kg¶; 600 mg maximum
	ISONIAZID† AND RIFAMPIN§ (3HR)	3 months	Daily	90	**Adults** INH†: 5 mg/kg; 300 mg maximum RIF§: 10 mg/kg; 600 mg maximum
					Children INH†: 10-20 mg/kg#; 300 mg maximum RIF§: 15-20 mg/kg; 600 mg maximum
Alternative	ISONIAZID† (6H/9H)	6 months	Daily	180	**Adults** Daily: 5 mg/kg; 300 mg maximum Twice weekly: 15 mg/kg; 900 mg maximum
			Twice weekly¶	★ 52	
		9 months	Daily	270	**Children** Daily: 10-20 mg/kg#; 300 mg maximum Twice weekly: 20–40 mg/kg#; 900 mg maximum
			Twice weekly¶	★ 76	

★ DOT
Directly Observed Treatment (DOT) can be done in person or via Telehealth

Active Tuberculosis Disease Treatment (6 & 9 Months)

Intensive Phase				Continuation Phase						
Drugs[a]	Duration	Frequency[b]		Drugs	Duration	Frequency[b,c]		Total Doses	Comments[c,d,e,f]	Regimen Effectiveness
INH RIF PZA EMB	8 weeks	7 days/week for 56 doses	5 days/week for 40 doses	INH RIF	18 weeks	7 days/week for 126 doses	5 days/week for 90 doses	182 to 130	This is the preferred regimen for patients with newly diagnosed pulmonary TB.	Greater
INH RIF PZA EMB	8 weeks	7 days/week for 56 doses	5 days/week for 40 doses	INH RIF	18 weeks	3 times weekly for 54 doses		110 to 94	Preferred alternative regimen in situations in which more frequent DOT during continuation phase is difficult to achieve.	
INH RIF PZA EMB	8 weeks	3 times weekly for 24 doses		INH RIF	18 weeks	3 times weekly for 54 doses		78	Use regimen with caution in patients with HIV and/or cavitary disease. Missed doses can lead to treatment failure, relapse, and acquired drug resistance.	
INH RIF PZA EMB	8 weeks	7 days/week for 14 doses then twice weekly for 12 doses[g]		INH RIF	18 weeks	2 times weekly for 36 doses		62	Do not use twice-weekly regimens in HIV-infected patients or patients with smear positive and/or cavitary disease. If doses are missed then therapy is equivalent to once weekly, which is inferior.	Lesser

Abbreviations: INH = isoniazid; RIF = rifampin; PZA = pyrazinamide; EMB = ethambutol; HIV = human immunodeficiency virus

Directly Observed Treatment (DOT) can be done in person or via Telehealth and performed when drugs are administered less than 7 days per week.

TB drugs should be administered together and on an empty stomach to achieve maximal peak serum concentrations and to facilitate DOT.

Active Tuberculosis Disease Treatment (4 Months)

Intensive Phase			Continuation Phase					
Drugs	Duration[a]	Frequency[b]	Drugs	Duration[c]	Frequency[b]	Total Doses	Comments[d,e]	Regimen Effectiveness
RPT MOX INH PZA	8 weeks	7 days/week for 56 doses	RPT MOX INH	9 weeks	7 days/week for 63 doses	119	Recommended for people ages 12 and older with body weight at or above 40 kg, with pulmonary TB caused by organisms that are not known or suspected to be drug-resistant, and who have no contraindications to this regimen.	The 4-month rifapentine-moxifloxacin TB treatment regimen is as effective as (noninferior to) the standard daily 6-month regimen in curing drug-susceptible TB disease.

Abbreviations: RPT= rifapentine; MOX= Moxifloxacin; INH = isoniazid; PZA = pyrazinamide

Directly Observed Treatment (DOT) can be done in person or via Telehealth. At least 5 of 7 weekly doses should be administered under direct observation.

Drugs are administered with food once a day, every day of the week.

Other Considerations for TB

- Special Populations
  - Incarcerated/congregate/residential settings
  - Pregnancy
  - Immunocompromised, particularly people living with HIV, Diabetes, or liver conditions
- Recent live vaccine administration
- Foreign-born/BCG Vaccination
- Drug Resistant TB detection

Contact CDU for special population patients

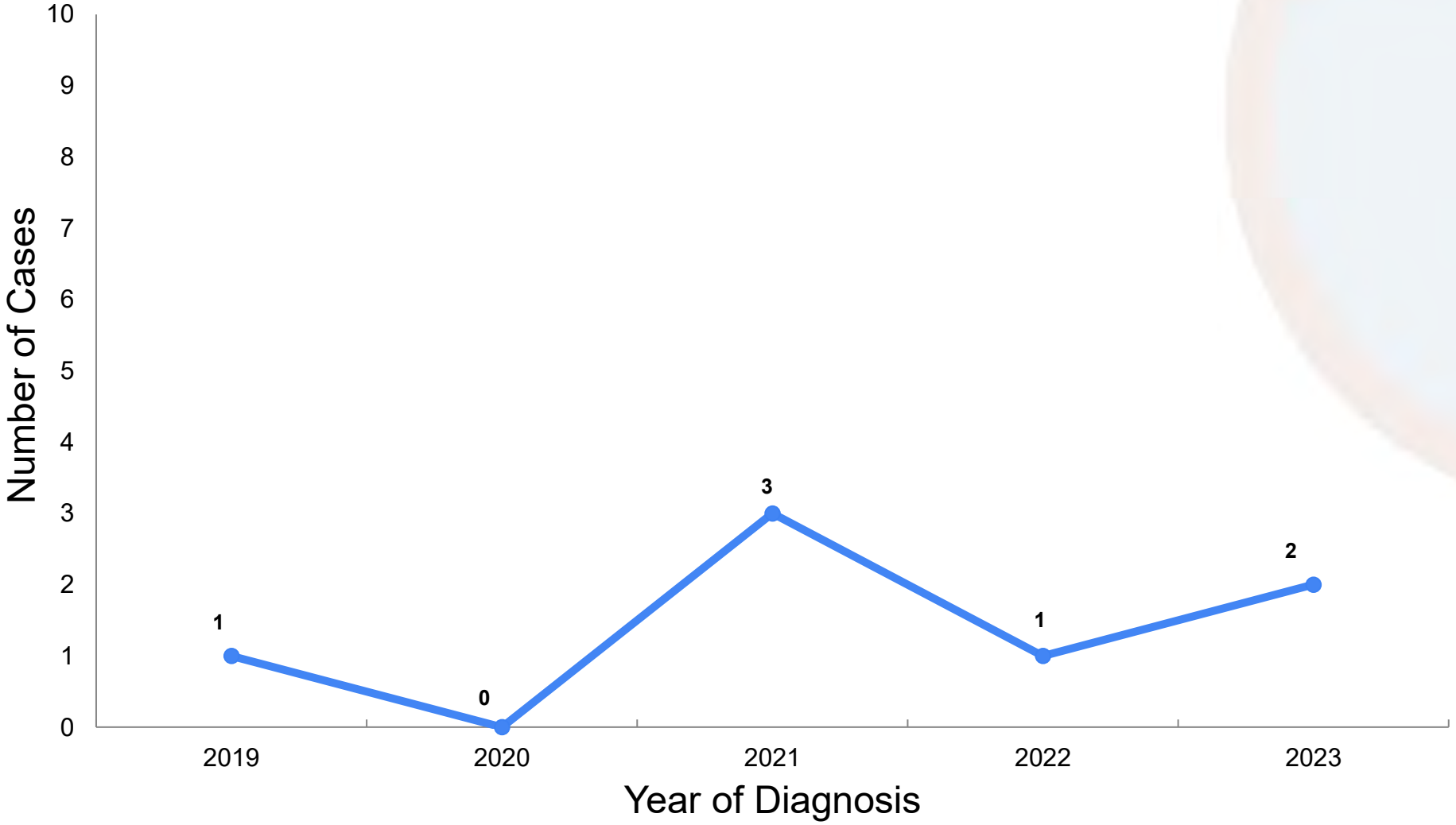
Reportable?

- IGRAs became reportable via ELR on January 1st, 2024
  - TB program will be following up on reported labs to better assess LTBI rates in Wyoming
- Active TB is reportable in Wyoming via ELR and providers
  - TB program receives reports on all labs indicating possible active TB cases

- https://health.wyo.gov/publichealth/infectious-disease-epidemiology-unit/reporting/

TB in Wyoming

Active Tuberculosis Disease Cases



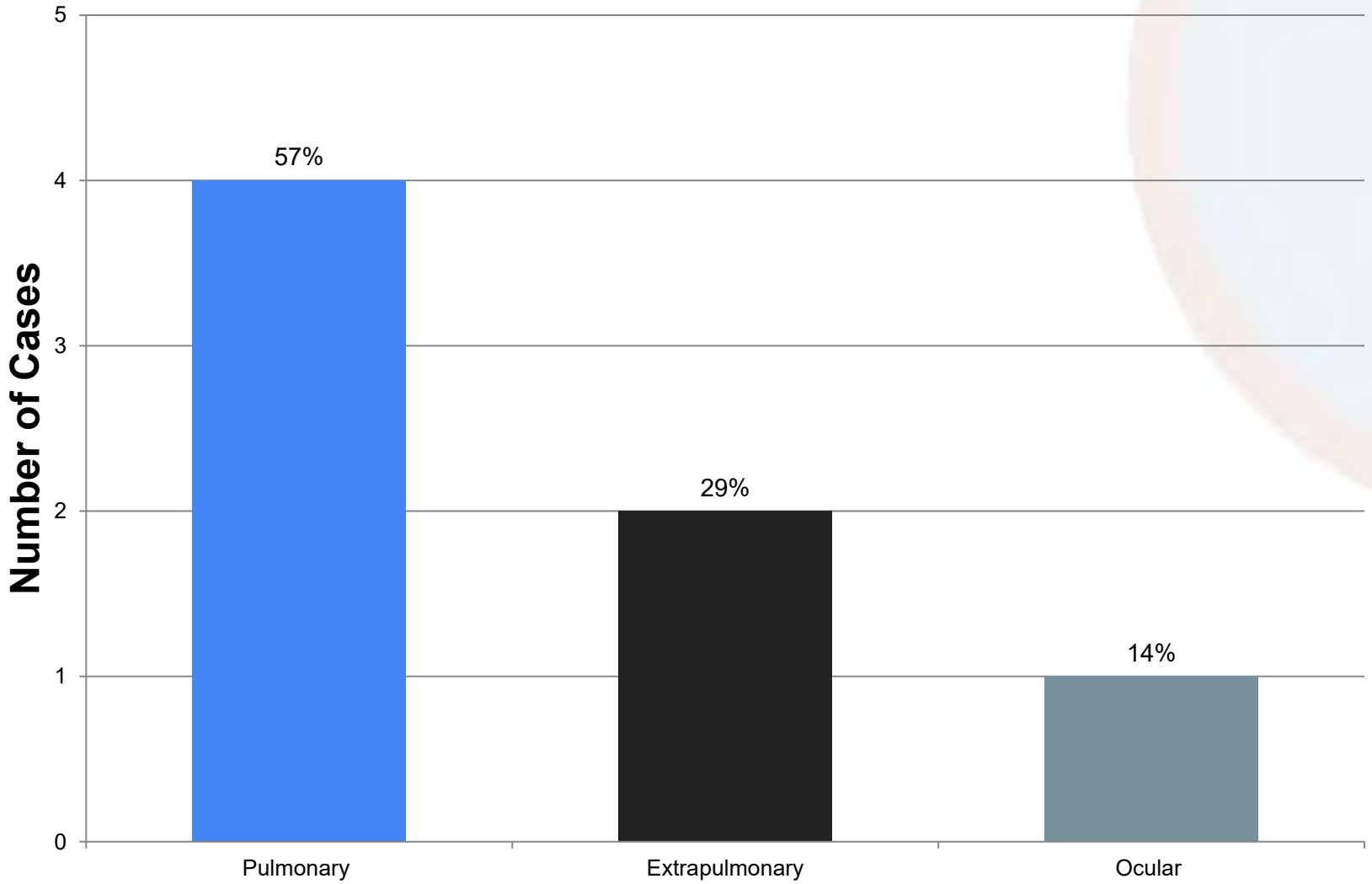
Active TB Incidence Locations in WY

The following counties had at least one active TB case between 2019 and 2023:

- Big Horn
- Fremont
- Laramie
- Natrona
- Teton

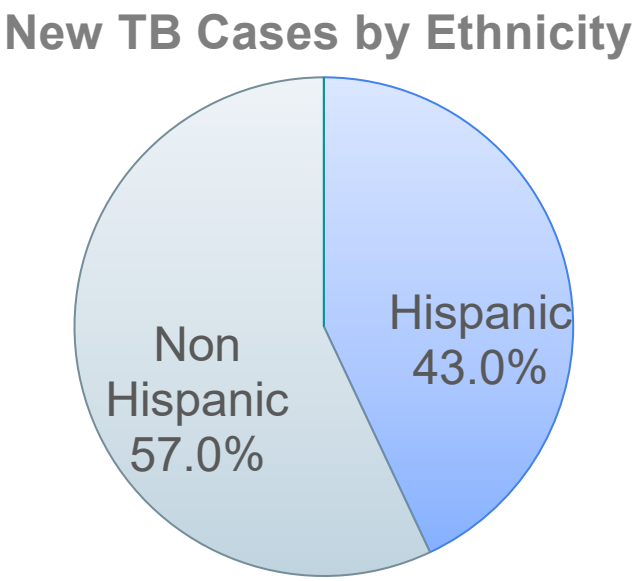
Due to Wyoming's low incidence of Tuberculosis, 5-year data is provided to protect the identities of Active cases.

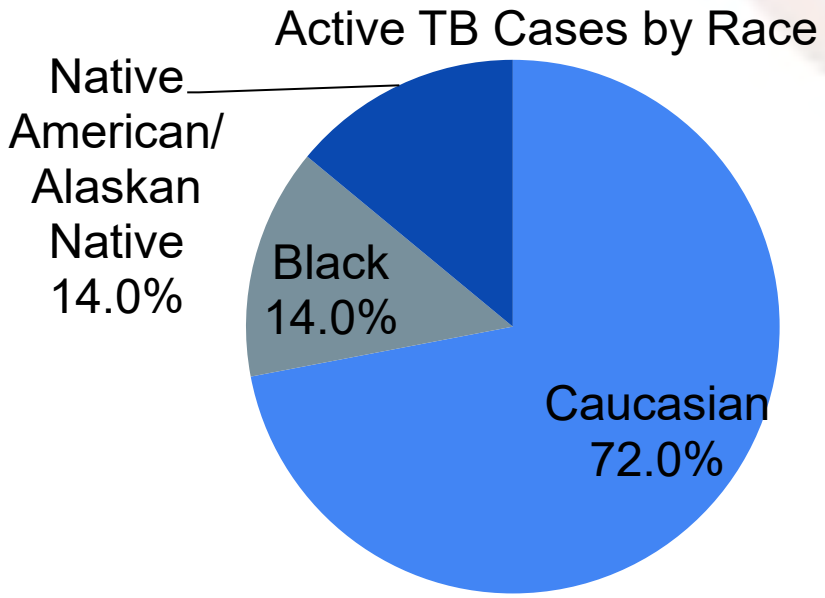
Types of Tuberculosis 2019-2023

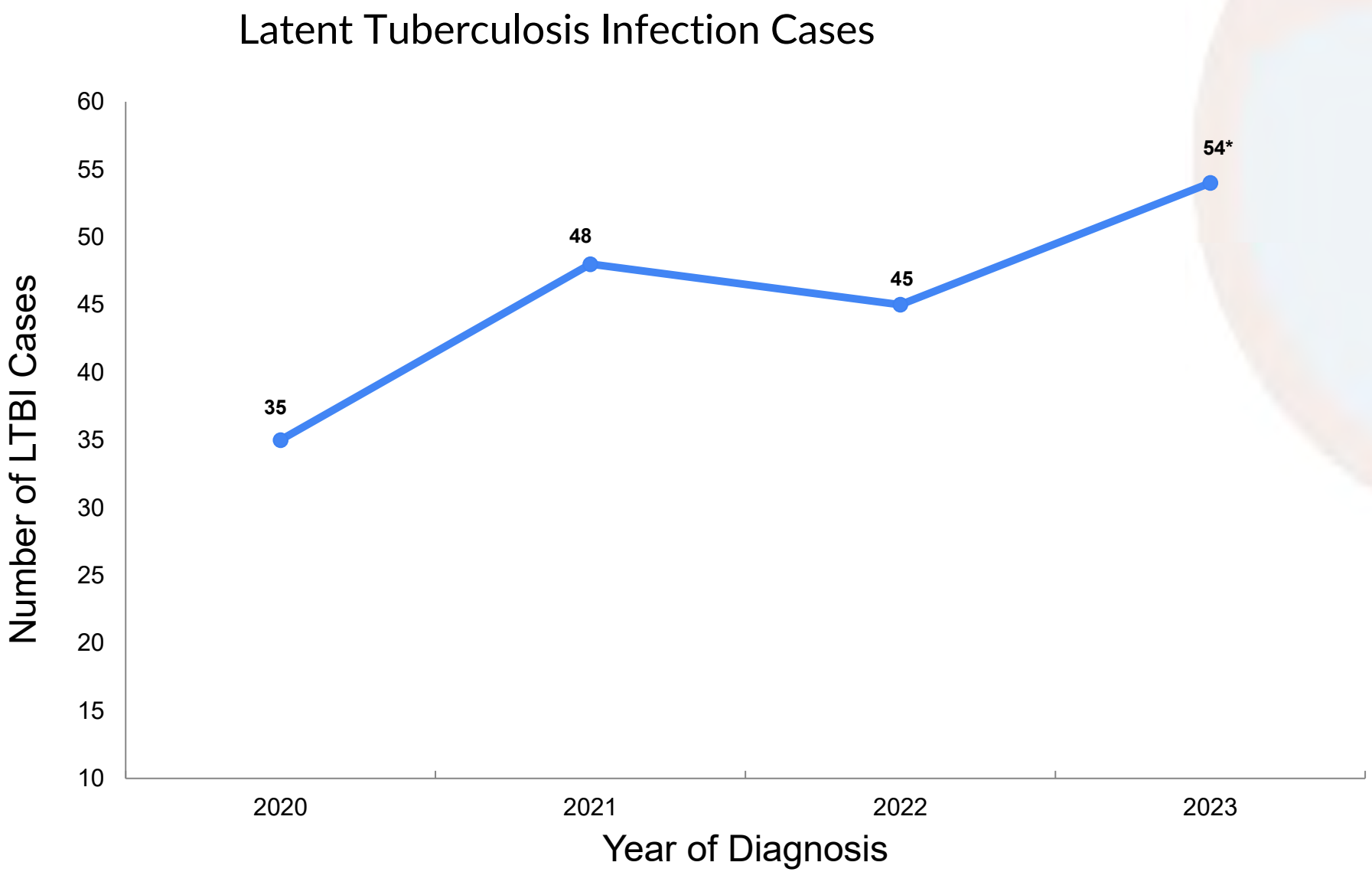


Active TB Case Demographics 2019-2023

- Age: 14% were younger than 14, 86% were older than 55
- Gender: 43% were female, 57% were male
- 71% were born in the USA, 29% were born in Mexico





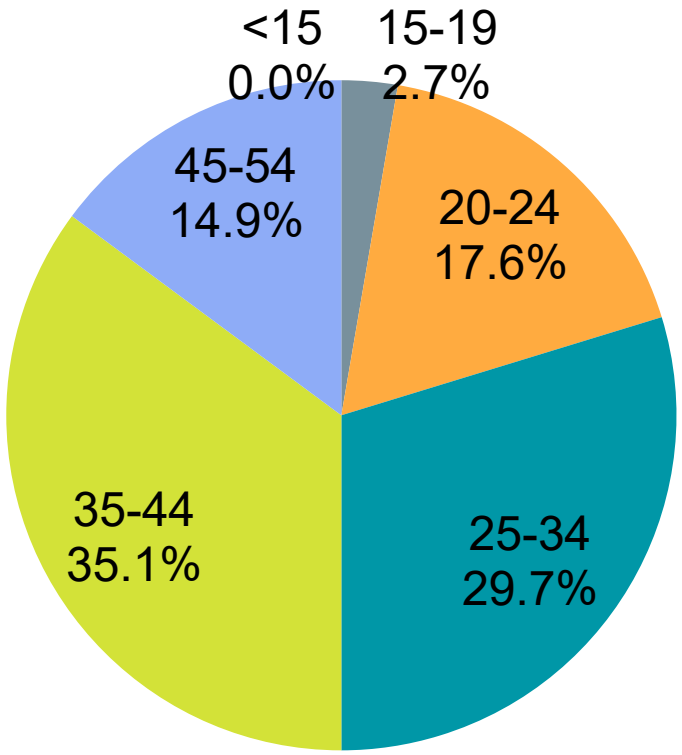


NOTE: Case rates provided for LTBI are based on cases that utilized the WDH TB Medication Assistance Program due to LTBI not being reportable in WY during this data capture. Number of cases may be higher.

Latent TB Case Demographics 2023

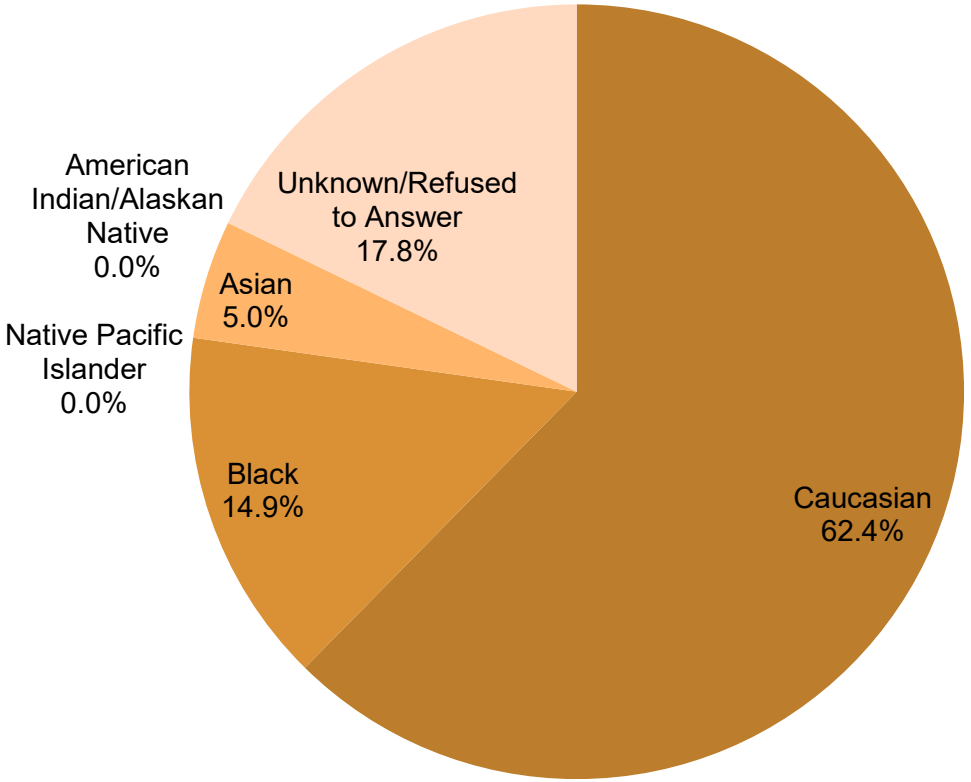
Gender: 46% were female, 54% were male

Age of LTBI Cases

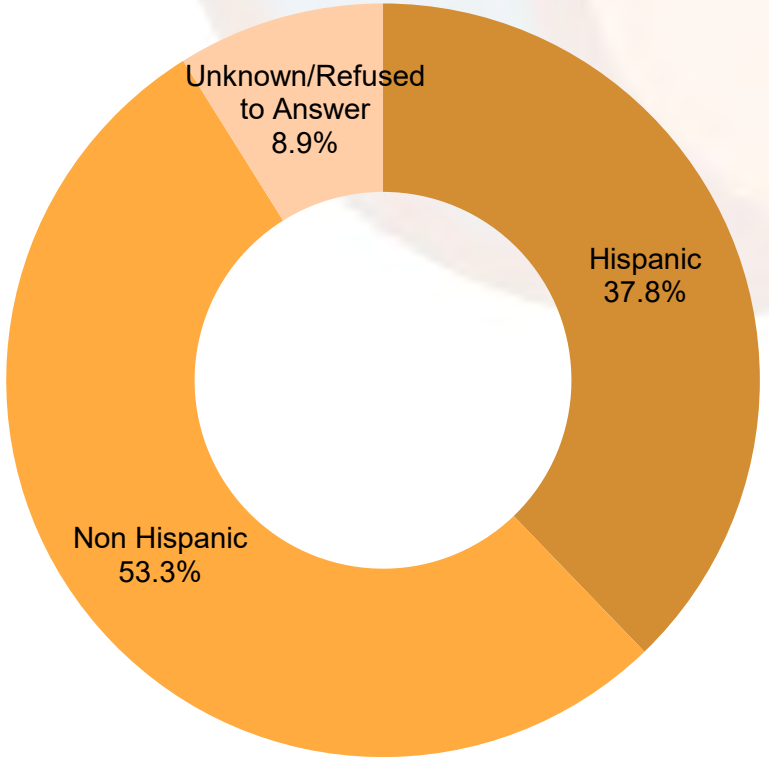


Latent TB Case Demographics 2023

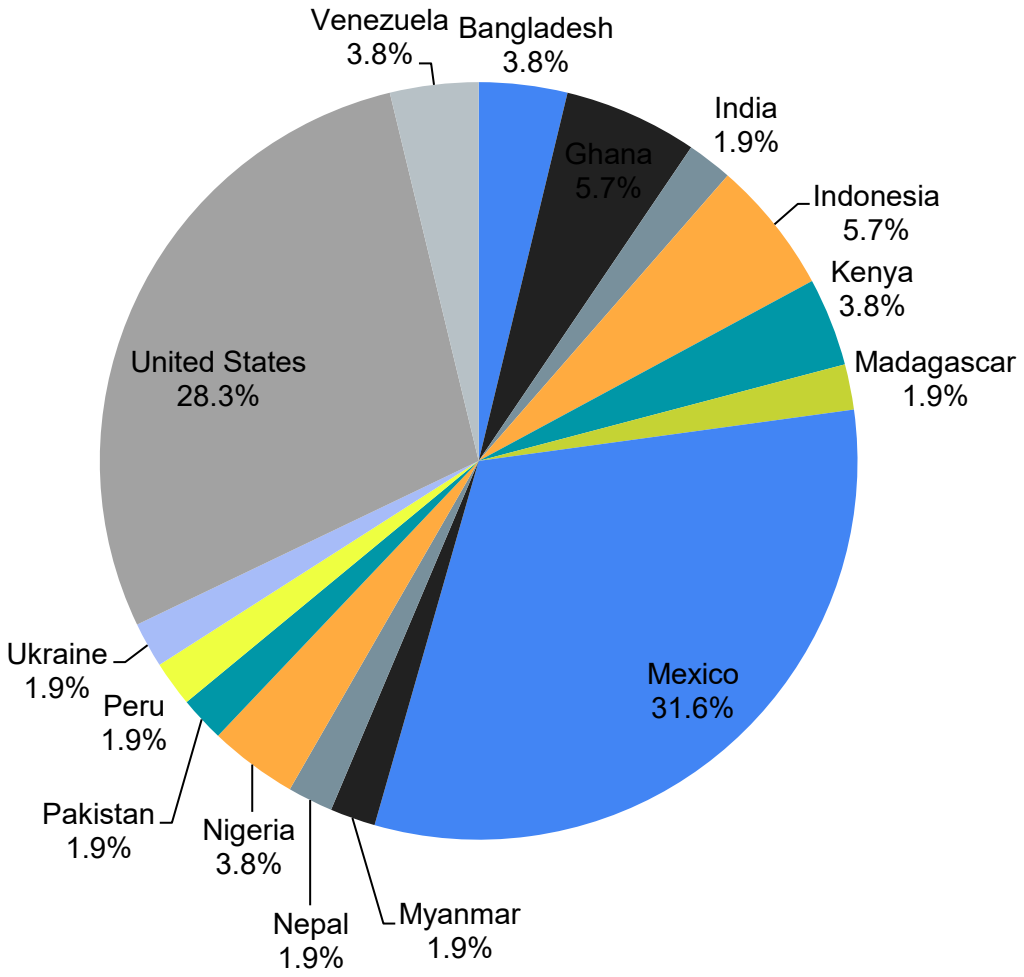
New LTBI Diagnoses by Race 2023



New LTBI Diagnoses by Ethnicity 2023



LTBI Country of Origin 2023



TB Prevention & Control in Wyoming Healthcare Facilities

Wyoming Department of Health | PUBLIC HEALTH DIVISION

WY CDU TB Program Recommendations

These recommendations are meant to be used as **bare minimum** guidance, not as a regulation or formal testing protocol.

The WDH TB program encourages facilities to review internal, state, and certification policies related to TB prevention and management and **follow the most stringent guidance.**

WY HLS

WY CDU

CDC
CENTERS FOR DISEASE CONTROL AND PREVENTION

TB & Regulation of Wyoming Healthcare Facilities

- WDH TB Program follows CDC TB guidelines
- In Wyoming, regulation of healthcare facilities falls under the jurisdiction of Wyoming Healthcare Licensing and Surveys (WY HLS)
- The WDH TB program encourages facilities to review internal (facility, company), state (WY HLS), and certification (such as JCAHO) policies related to TB testing of staff and residents and follow the most stringent guidance
    - If none of these entities address TB testing of staff or residents, the facility may establish a policy based their needs starting with CDC guidelines

Definitions

Patient TB Risk Assessment (aka Screening)

The current WDH CDU TB Program Patient TB Risk Assessment or comparable patient TB risk assessment used to determine a person's risk for TB infection.

Symptom Evaluation

Assessment for signs and symptoms of active TB infection.

TB Testing

Performing a TST or IGRA, in accordance with current Centers for Disease Control and Prevention (CDC) guidance.

CDU Facility TB Risk Assessment

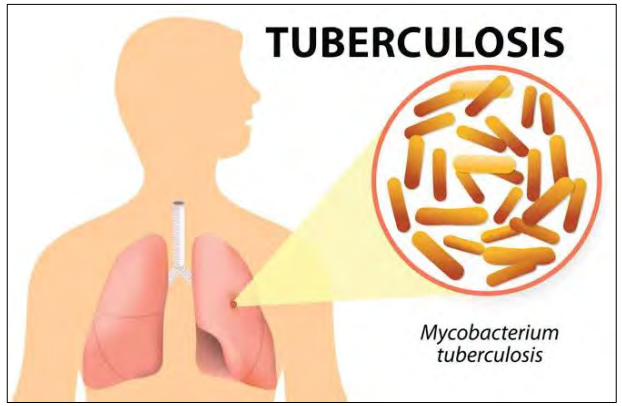
The CDU Facility TB Risk Assessment is a tool used to evaluate the TB risk exposure risk at the facility which is used to guide TB control efforts at the facility.

Suspected **Active** TB Infection

- If signs or symptoms (next slide) of active TB infection are present and there is clinical suspicion for TB, current CDC airborne precautions specific to TB should be followed until active TB infection is ruled out

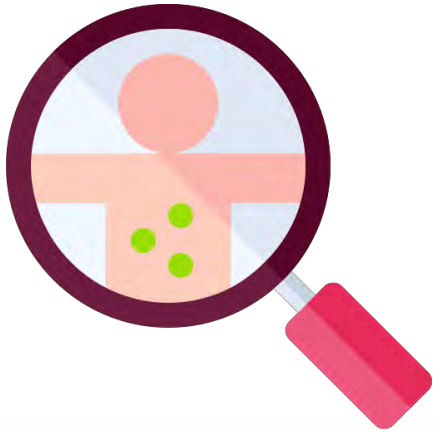
- Persons (resident, employee, visitor, etc.) with signs or symptoms of active TB infection and/or clinical suspicion for TB should not enter a residential facility in Wyoming until active TB infection has been ruled out

- If active TB infection is suspected please coordinate with the WDH CDU TB Program and report labs to WDH in accordance with the current WDH Reportable Diseases and Conditions List



Active TB Infection

- Suspected to have active TB infection
- Exhibiting signs or symptoms consistent with active TB infection including:
  - Prolonged cough (>2-3wks) with or without sputum production that may be bloody
  - Chest pain
  - Chills
  - Fever
  - Night sweats
  - Diagnosis of community-acquired pneumonia that has not improved after 7 days of treatment
  - Unexplained weight loss
  - Weakness or easily fatigued
  - Loss of appetite
- Diagnostic or radiological imaging consistent with active TB infection
- Any person (resident, employee, visitor, etc.) who is a recent contact to an active TB case should have a patient TB risk assessment and symptom evaluation prior to entering to a healthcare facility in Wyoming



Healthcare Facilities

Facility TB Risk Assessment

Healthcare facilities should complete a CDU Facility TB Risk Assessment initially and on an annual basis to determine how often facility staff should be evaluated for TB infection.

- The CDU Facility Risk Assessment is a guide that provides a baseline recommendation for TB testing in Wyoming facilities based on the type of facility and recent WY TB data.
- Data for the CDU Facility TB Risk Assessment is available on the CDU Surveillance Program and Statistics webpage.
- The CDU Facility TB Risk Assessment is a guide for your facility and **is not** submitted to CDU.

Healthcare Employees

New Employees

Upon hire (i.e., preplacement) and prior to their first day of work, employees should receive a patient TB risk assessment, symptom evaluation, and TB testing.

- TST or IGRA in accordance with current CDC guidance for healthcare personnel.
  - If TB testing is positive, the employee should have chest radiological imaging and/or further medical evaluation to rule out active TB infection before their first day of work
  - Those determined to have Latent TB Infection (LTBI) are not infectious and may start work
    - Treatment for LTBI is recommended to avoid conversion to active TB.
  - Those deemed to have active TB should not start work until no longer able to transmit TB to others (as defined by current CDC guidance)

Current Employees

- Patient TB risk assessment and symptom evaluation annually, and as needed based on risk since the last patient TB risk assessment.
- The employee should be tested for TB in accordance with the annual CDU TB Facility Risk Assessment results and if the employee has new risk factors for TB infection since their last patient TB risk assessment.
- Current employees who are exposed to active TB at work or outside of work should receive a patient TB risk assessment and symptom evaluation.
  - The employee may work if they have latent (not contagious) TB infection.
  - If the employee is suspected of having active (contagious) TB infection, they may not work until active TB infection is ruled out.

Employees with a history of a positive TB test **and** completed TB Treatment

Continue to receive routine TB screening and in the context of ruling out **active TB disease** reinfection or treatment failure due to known exposure or symptom development.

No longer be tested for tuberculosis infection using TSTs or IGRAs, as those are unreliable predictors of infection after treatment completion.

Employees with a history of a positive TB test **without** TB Treatment

Receive additional testing to rule out active TB and receive appropriate treatment

- Be aware that some positive TSTs in the past may have been influenced by factors such as BCG vaccination, biologics treatment, HIV diagnosis, interpretation, and employment that required multiple TB skin tests
- If a new resident has a history of a positive TST but no IGRA, it may be beneficial to obtain an IGRA before pursuing additional testing
- A list of factors impacting TSTs can be found on page 5 of the CDU Patient TB Risk Assessment

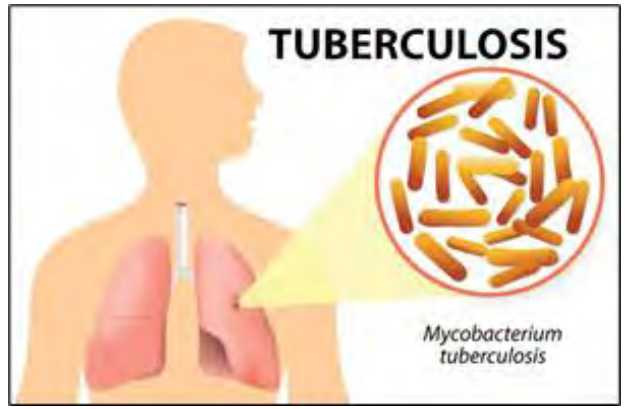
Employees with a history of a positive TB test with **incomplete** TB Treatment

May need additional testing to rule out active TB and will need consultation regarding the appropriate TB treatment at this time.

Contact the WDH CDU TB Program at cdu.treatment@wyo.gov or call 307-777-6563 for guidance in these situations.

Employees with signs and symptoms of **active** TB infection

Refer the employee to a clinician to determine if airborne precautions or isolation are recommended until a TB risk assessment, symptom evaluation, and TB testing are performed on the employee to rule out active TB infection.



Testing Considerations

"Flip Floppers"

- Those with frequent exposure risks or tested regularly may flip-flop between positive and negative TST or IGRA results
  - i.e. Healthcare worker
- TST
  - 10mm vs 15mm for positive test
- IGRAs values (Nil) may be an indicator

2 Step Testing

- Sometimes called the booster effect.
- Receiving one TST may awaken the immune response but typically not within the 48-72 hour TST read window.
- A second TST is more likely to catch the immune response and be reactive.
- Spacing varies (CDC: 1-3 weeks after first test)

Healthcare Workers & Positive TST or IGRA, what next?

Wyoming follows CDC regulations for TB testing of healthcare workers

- If a TST is used to test new hires (i.e., pre-placement), two-step testing should be conducted.
- Low-risk health care personnel who test positive for TB infection should have a second TB test to confirm the result.

	2005 Recommendations	2019 Recommendations — Key Changes
Screening	Recommended for all health care personnel pre-placement/upon hire* Annual screening may be recommended based on risk assessment of health care facility and setting	Individual baseline TB risk assessment added Annual TB screening no longer routinely recommended for most health care personnel unless occupational risk or ongoing exposure
Post-exposure testing	Recommended IGRA or TST test for all health care personnel when an exposure is recognized* If that test is negative, do another test 8–10 weeks after the last exposure*	No change
Treatment of positive TB test	Referral to determine whether latent TB infection (LTBI) treatment is indicated	Treatment is encouraged for all health care personnel with untreated LTBI Shorter course (3 to 4 month) treatments encouraged over the longer (6 or 9 month) regimens because they are easier to complete
TB education	Recommended annually for all health care personnel*	Annual education should include information about TB risk factors, the signs and symptoms of TB disease, and TB infection control policies and procedures

*No change in the 2019 recommendations

Residents of Healthcare Facilities

New Resident Admissions

- Patient TB risk assessment, symptom evaluation, and TB testing
- If TB testing is positive, chest radiological imaging and/or further medical evaluation to rule out active TB infection before admission to the facility
    - Those determined to have Latent TB Infection (LTBI) are not infectious and may be admitted to the facility.
        - Treatment for LTBI is recommended to avoid conversion to active TB.
    - Those deemed to have active TB should not be admitted until no longer able to transmit TB to others (as defined by current CDC guidance)

New Residents with a History of a Positive TB test **and** completed TB Treatment

Continue to receive routine TB screening and in the context of ruling out **active TB disease** reinfection or treatment failure due to known exposure or symptom development.

No longer be tested for tuberculosis infection using TSTs or IGRAs, as those are unreliable predictors of infection after treatment completion.

New Residents with a History of a Positive TB test **without** TB Treatment

Receive additional testing to rule out active TB and receive appropriate treatment

- Be aware that some positive TSTs in the past may have been influenced by factors such as BCG vaccination, biologics treatment, HIV diagnosis, interpretation, and employment that required multiple TB skin tests
- If a new resident has a history of a positive TST but no IGRA, it may be beneficial to obtain an IGRA before pursuing additional testing
- A list of factors impacting TSTs can be found on page 5 of the CDU Patient TB Risk Assessment

New Residents with a History of a Positive TB test with **incomplete** TB Treatment

May need additional testing to rule out active TB and will need consultation regarding the appropriate TB treatment at this time.

Contact the WDH CDU TB Program at cdu.treatment@wyo.gov or call 307-777-6563 for guidance in these situations.

Current Residents

Patient TB risk assessment and symptom evaluation annually, and as needed based on risk since the patient's last TB risk assessment.

Readmission Screening:

- If a resident leaves the facility and is later readmitted, perform a patient TB risk assessment and symptom evaluation upon readmission and perform TB testing if resident has new risk factors for TB infection since their last patient TB risk assessment.

Current residents with signs and symptoms of active TB infection:

- If signs or symptoms of active TB infection are present in a current resident, current CDC airborne precautions specific to TB should be followed until active TB infection is ruled out and a patient TB risk assessment, symptom evaluation, and TB testing are performed on the resident.
- If TB testing is positive the resident should receive chest radiological imaging and further medical evaluation to rule out active TB infection.

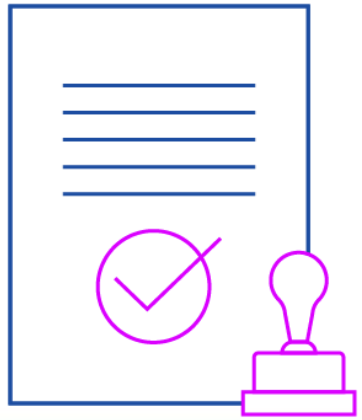
CDU TB Program Services

Wyoming TB Patient Assistance

- **Active** TB patients may be eligible for Wyoming Medicaid **Active** TB coverage
- **All CDU TB Program services are subject to available funding**
  - The CDU TB Program is always the payor of last resort
    - If the patient is insured, the CDU program can be billed after all other payors have been billed
    - If the patient is uninsured, the CDU TB Program will be primary, and pay at Medicaid rates

CDU TB Program Prior Authorizations

- Used when patient needs assistance covering cost of TB related diagnostic testing
  - Includes IGRAs, CXRs, LFTs, sputum collection, and office visits
    - Flat fees and current Medicaid rates reimbursed depending on service
    - HIV tests should be done at a KnoWyo testing site vs. lab
      - If unable to test at KnoWyo testing site, must request PA
  - TSTs and Patient TB Risk Assessment completion are not covered
- Services must be **prior** authorized before the service is provided
- Correct insurance status is required on the patient risk assessment and prior authorization form
- The CDU TB Prior Authorization form can be found on the CDU TB webpage



CDU TB Medication Assistance Enrollment

- Copy of:
  - Patient TB Risk Assessment
  - TB related result(s): TST, IGRA, CXR, LFT, sputum, etc.
  - TB related prescriptions (30-day prescriptions)
  - Insurance status and carrier (if applicable), if not included in clinic notes
  - Send the above to cdu.treatment@wyo.gov

CDU TB Program Billing Reminders

- Billing instructions are provided on page 2 of the Prior Authorization form
- Billing for preauthorized CDU TB Program services must be correctly submitted to the CDU TB Program by December 31st of the year the services were provided
- The CDU TB Program is not able to directly reimburse clients for services or medications which the were paid out of pocket

Resources

Wyoming Department of Health | PUBLIC HEALTH DIVISION

Resources

CDU TB Program Website- Recently revamped!
https://health.wyo.gov/publichealth/communicable-disease-unit/tuberculosis-2/

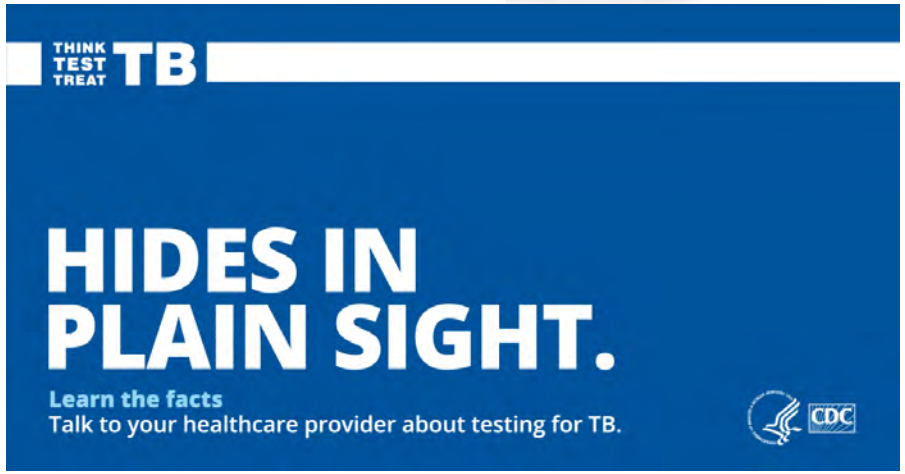
CDU Monthly Webinars and TB Program Quarterly Meetings
Email cdu.treatment@wyo.gov to request access to Google drive link

CDC LTBI webpage
https://www.cdc.gov/tb/topic/basics/tbinfectiondisease.htm

Curry Center of Excellence
https://www.currytbcenter.ucsf.edu/trainings

CDC Think, Test, Treat TB Campaign
https://www.cdc.gov/thinktesttreattb/index.html

CDC TB Self Study Modules
https://www.cdc.gov/tb/education/provider_edmaterials.htm

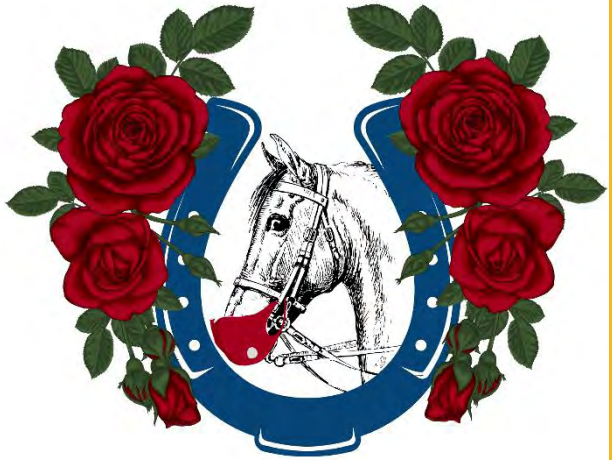


Questions?

TB Program Manager	TB Controller	CDU Epidemiologist
Leslie Fowler, BSN, RN	Sarah Hendricks, MPH	Haley McKee
307-777-3562	307-777-6563	307-777-5369
leslie.fowler@wyo.gov	sarah.hendricks@wyo.gov	haley.mckee@wyo.gov

Wyoming Department of Health | PUBLIC HEALTH DIVISION

Welcome, Ranola Miller

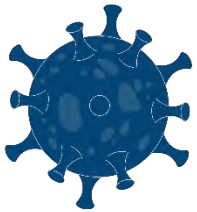


WELCOME

to day two of the 2024

Wyoming Infection Prevention Summit!

Race to the Finish for Infection Prevention and Control



WCSR

Presented By

Chad Matheson

WORKERS' COMPENSATION SAFETY & RISK

Welcome
We will discuss the following:

- Who is WCSR?
- What services do we provide?
- Comprehensive & Limited Inspection
- WCSR Specialists
- Typical WCSR Visit
- Pandemic Plan in Place
- Completion of Inspection
- Discount Programs
- Benefits of using WCSR
- WCSR Team and Locations
- Frequently Asked Questions
- Safety and Health Programs you currently have in place

Who is WCSR?

- Workers' Compensation Safety & Risk (WCSR) – is a State-funded Safety & Risk Consultation Division
- Nine state employees moved from OSHA in April 1, 2016 and became a new division called WCSR with in the Workers' Compensation Division in the State of Wyoming.
- We have Safety Specialists located in: Worland, Laramie, Gillette, Casper, Rock Springs, Cody, and Cheyenne, which allows us to provide service to all areas in Wyoming.
- We Do Not have Federal or State OSHA oversite. (no grant money)
- We are a division of Wyoming's Department of Workers' Compensation.
- We can provide safety service in both private and public sectors including General Industry, Health Care, Construction, Oil & Gas, etc.

What services do we provide?

- Safety, Health, Industrial Hygiene - noise monitoring
- Comprehensive and or Limited Service on-site visits
- Trainings & Presentations to employers that have had comprehensive visits with WCSR
- Available to answer questions on Safety, Health, and Workers' Compensation
- Anchor Testing
- Information on discounts and other available programs

Benefits of using WCSR

- **We are a FREE service** to employers who are in good standing with the State Of Wyoming.
- Your request allows us to come in and do a comprehensive visit, limited visit, or IH monitoring.
- Knowledge of workplace hazards and ways to control/eliminate them.
- Develop and maintain effective safety and health programs.
- On-site training and presentations by the Safety Specialist for you and your employees.
- Provide you with information on all discounts and programs.
- Assist you with your Workers' Compensation questions or concerns.
- Always be available for **any** questions or concerns you may have.

Comprehensive Inspection

- Evaluation of all physical hazards
- Evaluation of safety and health programs currently in place
- Evaluation of environmental hazards
- Evaluation of physical work practices (ergonomics)
- The expectation of any visit is that the employer fix the identified hazards – which will lead to a Minimum of a 3% discount when abatements completed

Limited Inspection

A limited inspection is not available for a discount

Limited inspection is a visit on a specific area or program

The expectation of any visit is that the employer fix the identified hazards

WCSR Specialists

Will not:

- Issue citations
- Report violations to OSHA

Will:

- Will address imminent dangers immediately
- Help you have a safe work environment for you and your employees
- Help with the application process for discounts
- Be available to assist you with all your needs throughout the year

Typical Opening for a WCSR Visit

- If we did not have you sign a service request before hand, then we will have one ready for you
- Have an “Opening Conference” with company representatives.
- Verify that you are not working with OSHA Consultation or OSHA Compliance.
- Discuss why WCSR is there.
- Review your loss run report, your Experience Modification Rating (EMR).
- Review your 300 Log (recordkeeping) if applicable.
- Review H & S programs you have in place and training documentation.
- Specialist will inspect what you have requested (Full comprehensive or a limited visit).
- Specialist will complete a site walk-through inspection with company representative(s).
- Specialist may interview employees in private. We let the employer know what the questions are.
- Specialist will discuss the hazards found with you and your employees as you walk around.

Typical Walk-Around during a WCSR Visit

- Electrical
- Falls from heights
- Damaged tools
- Chemicals
- PPE
- Housekeeping
- Sanitation
- Many more

Typical Walk-Around during a WCSR Visit

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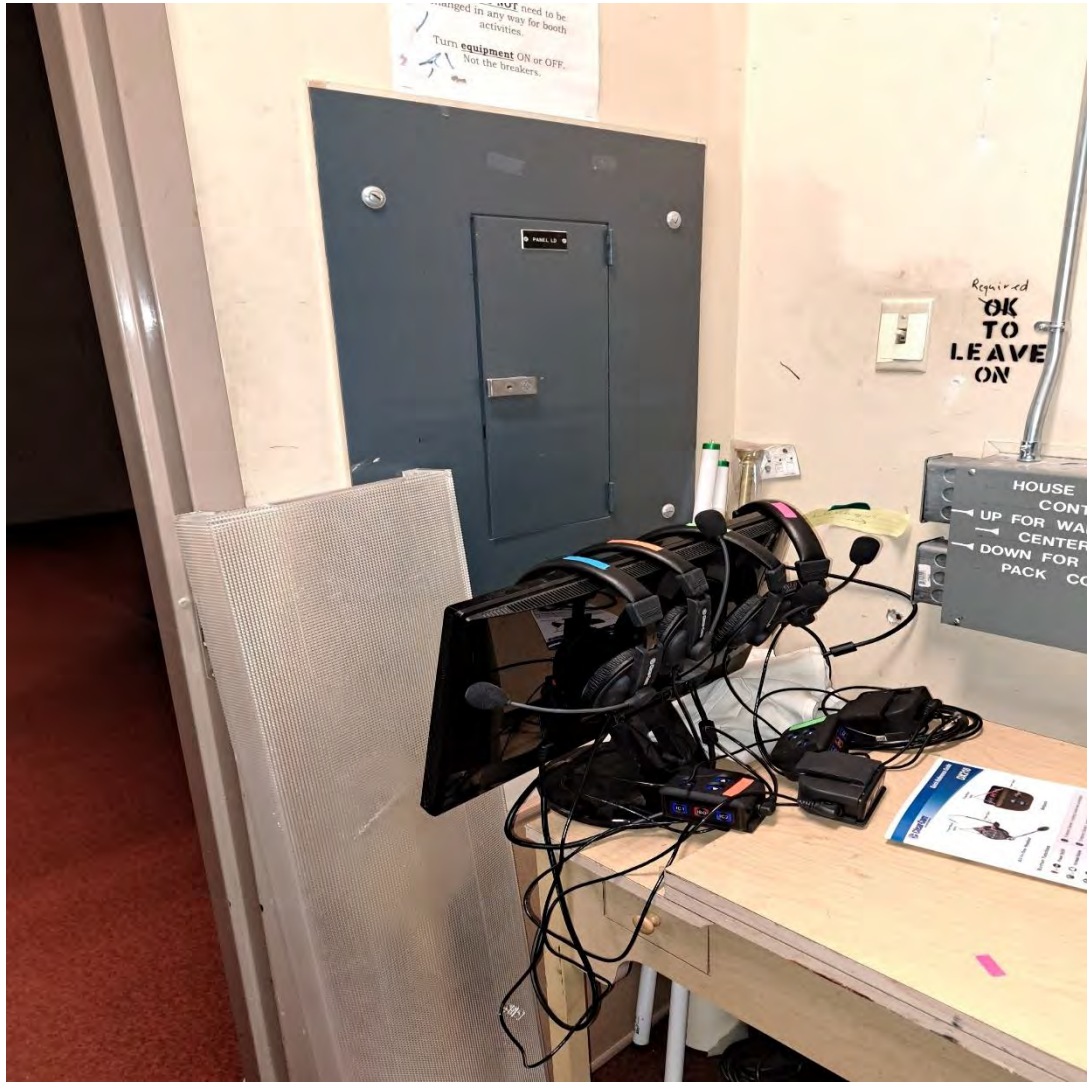
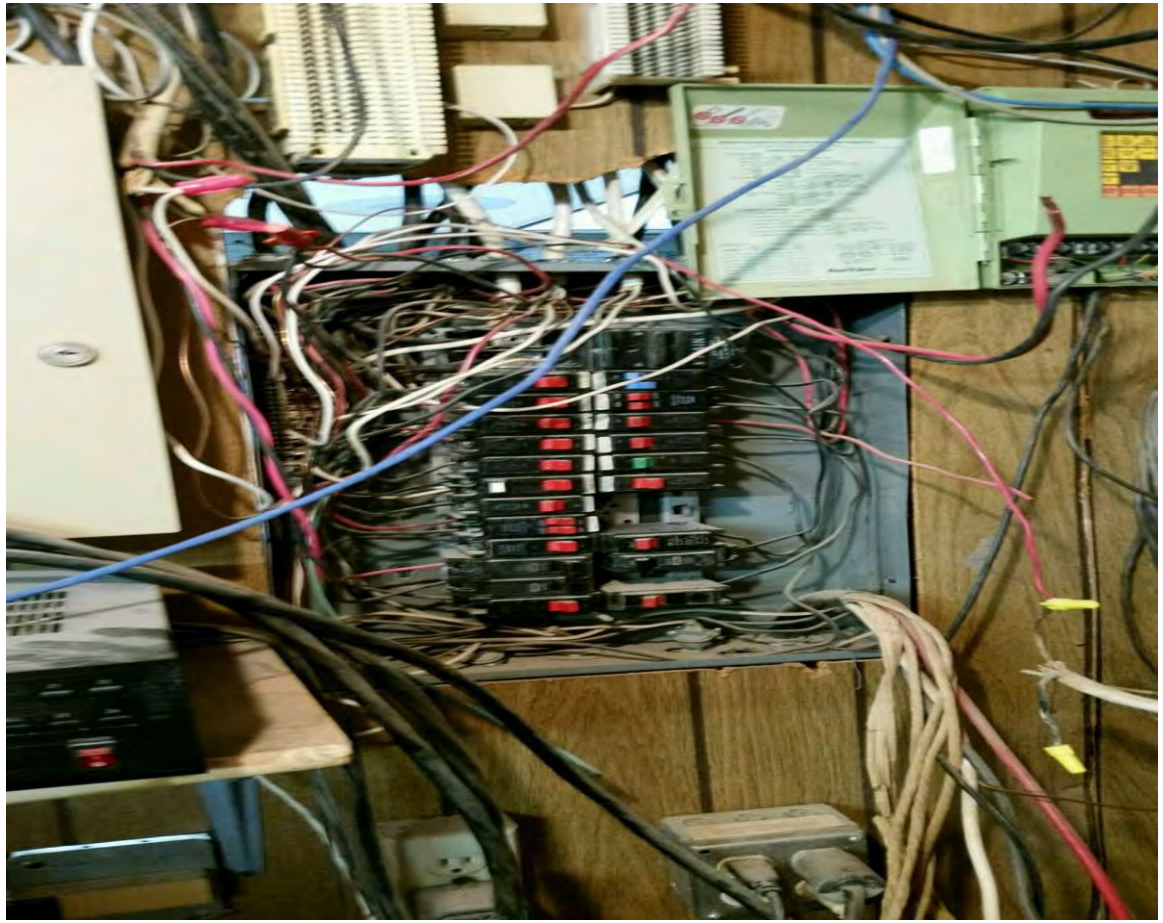


Typical Walk-Around during a WCSR Visit



Typical Walk-Around during a WCSR Visit

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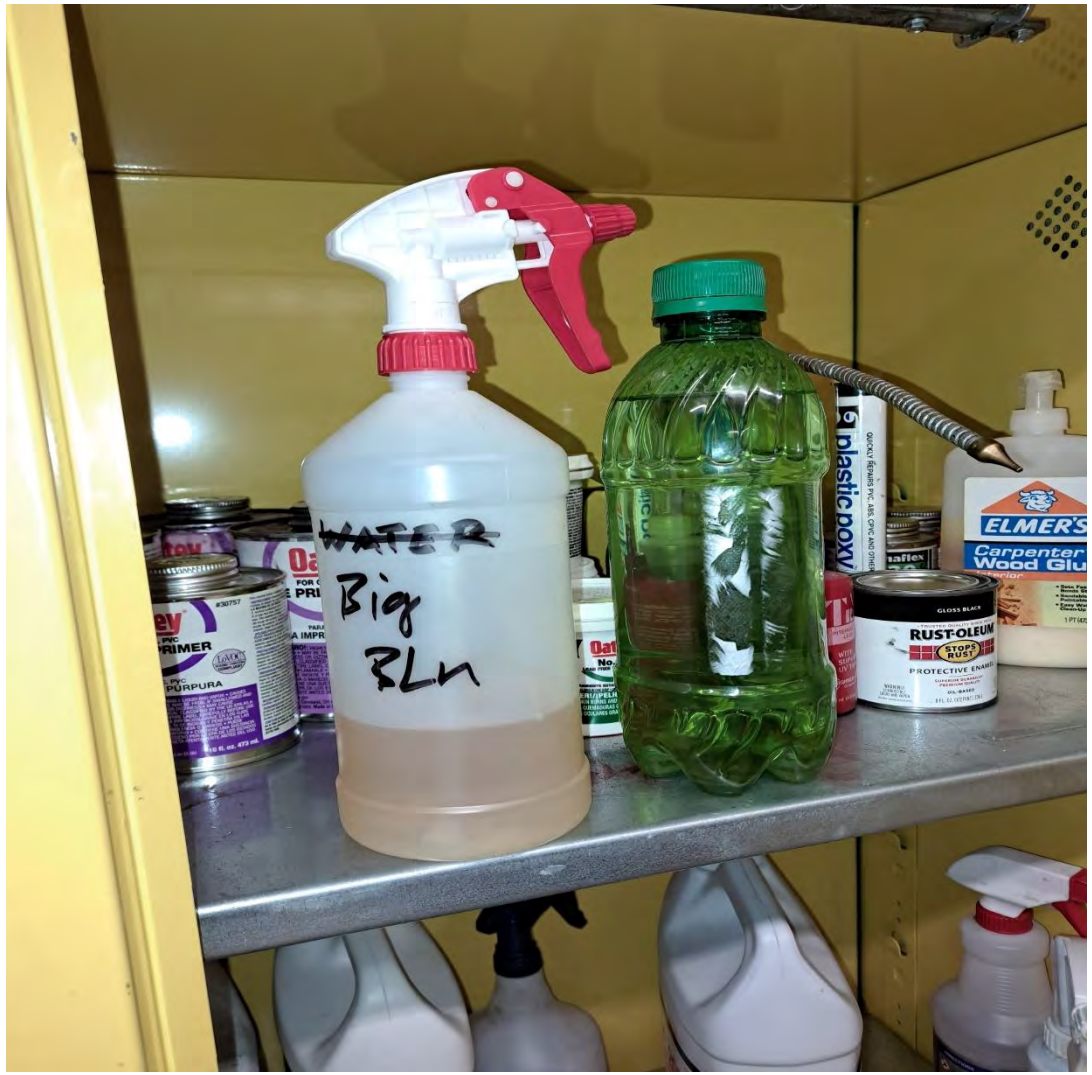


Typical Walk-Around during a WCSR Visit

Typical Walk-Around during a WCSR Visit

Typical Walk-Around during a WCSR Visit

Health Care Specific Hazards

- Storing Acids and Bases together
- Refrigerators marked as no food storage
- Processes for cold storage, x-rays, sharps log
- PPE

Completion of Inspection

- Closing Conference, usually with management, or at the very least the person that walked around with us.
- Discuss their findings and possible solutions.
- Discuss what you are doing right.
- Discuss the abatement period.
- Discuss abatement due date. (Normally 42 days after the end of the visit).
- Discuss extensions, extra time to fix hazards.
- Hazards need abated to be eligible for the DWS discount.
- Discuss the discount programs available and services available to you.
- Discuss the dollar amount you could save by participating in the programs.
- Discuss the possibilities of doing training for your employees.

Health and Safety Consultation Discount Program

This discount is associated with a comprehensive WCSR visit

Four Discount Levels:

3%	Invite WCSR to do inspection & correct all hazards.
5%	All hazards corrected & score 2 or better on form 33
7%	Score 2 or better on form 33 and must be below TRC & DART for their NAICS
10%	Above and score a 2 or higher on Form 33 and at least a 3 on 10% of the questions.

This discount is good for 3 years, onsite audits may be performed to validate discount.

Discount Programs

Risk Management
(discounts are applied quarterly)

- Drug-Free Workplace Discount - 10% (Annual application)

- Safety Discount - Three Discount levels: 3.33% - 6.66% - 10% (Annual application)

- Deductible Program - Employer is committed to the Deductible Program for 1 calendar year from the date of approval. After the 1 year the employer can opt-out or continue and need to be enrolled in the Safety Discount Program to be eligible

  Discount Levels (Deductible Plan)

  4% ($1,000) – 10% ($5,000)

  15% ($10,000) – 25% ($25,000) – 37.5% ($50,000)

  45% ($75,000) – 50% ($100,000)

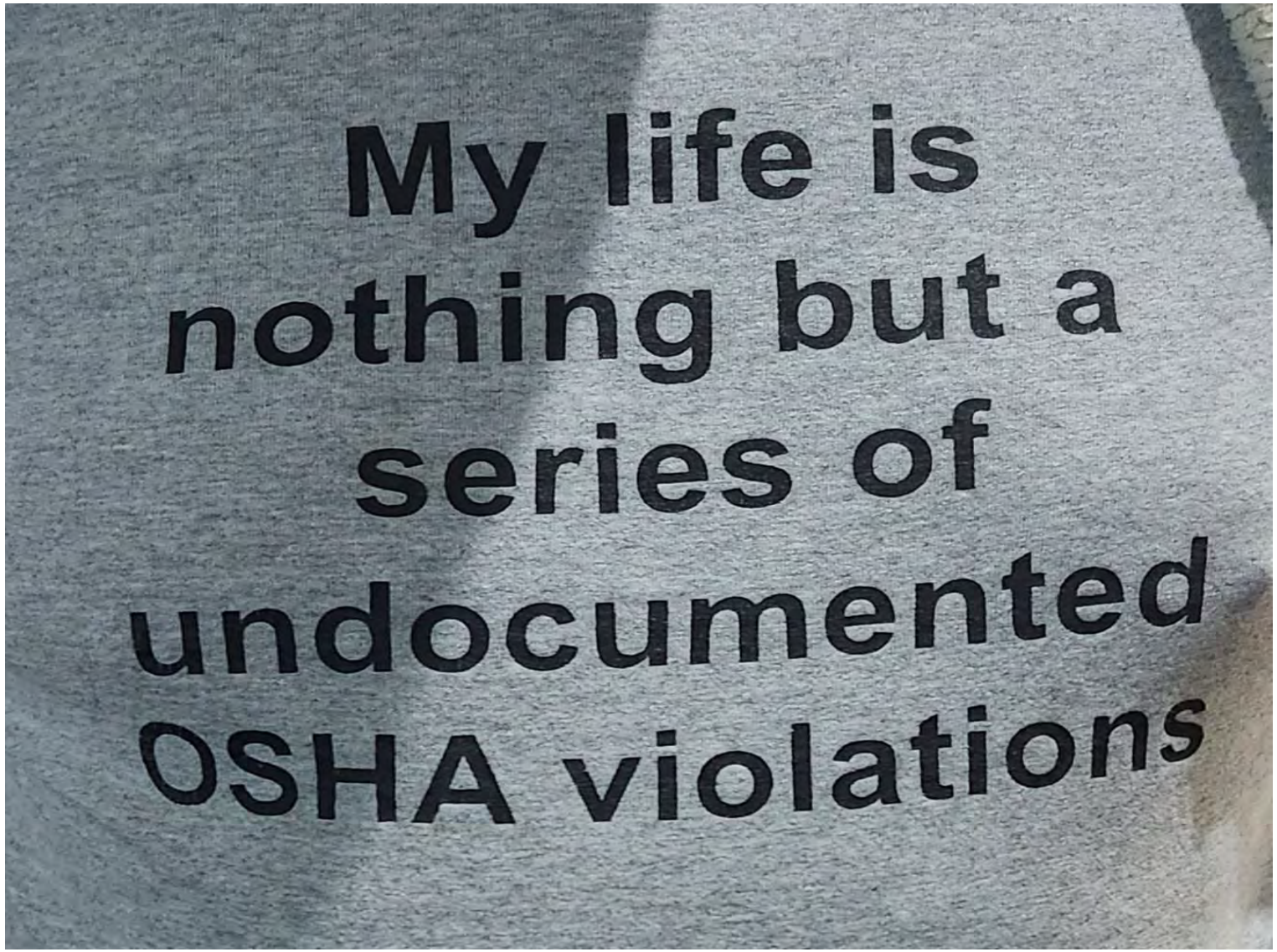
Other Programs

Workplace Safety Contracts – (sometimes called the Safety Improvement Fund)

Funding up to $10,000 per fiscal year (July1 – June 30). Employer would have to pay 10% of approved expenses (health/safety equipment or training). Provides opportunities to Wyoming employers to enhance or implement new safety practices.

WCSR Team and Locations

Main Office Number	**Casper**	307-777-8901	
Thomas Trujillo – Program Manager	**Worland**	307-431-9567	thomas.trujillo@wyo.gov
Adam Powell – Lead Safety Specialist	**Laramie**	307-214-7004	adam.powell2@wyo.gov
Stormy Clarke – Safety Specialist	**Gillette**	307-631-1095	stormy.clarke@wyo.gov
Todd Condelario – Safety Specialist	**Casper**	307-256-4673	todd.condelario@wyo.gov
Jason Forbes – IH/Safety Specialist	**Rock Springs**	307-431-0291	jason.forbes@wyo.gov
Chad Matheson – Safety Specialist	**Cheyenne**	307-259-3529	chad.matheson@wyo.gov
Becky DeSersa – Administrative Assistant	**Casper**	307-233-4628	becky.desersa@wyo.gov


My life is
nothing but a
series of
undocumented
OSHA violations

Thank you for your time!
Do you have any questions?

Best Sterilization and Disinfection Practices In Central Sterilizing Processing Department (CSPD)

WYOMING INFECTION PREVENTION SUMMIT 2024

Stephanie Boroz ASHA, CRCST, CHL, RSO

AGENDA

- Introduction
- Terminal Sterilization Achievement and Sustainability
- Immediate Use (IUSS) vs. New Technology
- Partnership and Investment in Building Sound Processes
- Questions

INTRODUCTION

Stephanie Boroz has been with Banner Health at Wyoming Medical Center as an associate director for sterile processing for just under one year. Stephanie holds a degree in health care administration from Colorado Technical University, CSPD certifications through Healthcare Sterile Processing Association (HSPA) and holds national licensure as a registered safety officer (RSO). She has worked as a professor, developing formal curriculum for AST and CSPD programs and has written national testing material for HSPA. The last 13 years of her professional career have been devoted to providing and developing educational opportunities and ensuring excellence in patient safety to the communities she has served.

TERMINAL STERILIZATION

- CRITICAL DEVICE LIFE CYCLE
- STERILITY ACHIEVEMENT
- VERIFICATION VS VALIDATION
- MAINTENANCE & SUSTAINABILITY

CRITICAL DEVICE LIFE CYCLE

Point of Use

Transportation to decontamination

Decontamination

Inspection and Assembly

Packaging

Sterilization

Sterile Storage

Distribution

POINT OF USE, CARE, AND TRANSPORTATION

Care of instrumentation always starts at the point of use.

Sterile water is superior! Please do not use saline.

Open all box locks and flush ports.

Disassemble multipart instrumentation and flush lumens.

Dependent on facility policy, separate and cover “used” from “unused” using either moist OR towels, or...

Separate “used” and “unused” inside a locking hard sided biohazard bin.

Apply enzymatic to both “used” and “unused” instrumentation prior to transportation.

Transport to decontamination in locking hard sided biohazard bins or in locked case carts.

BLOOD CAN DRY IN AS LITTLE AS 20 MINUTES: FACILITATES THE GROWTH OF BIOFILMS WITHIN AN HOUR

Attachment

Bacteria attaches to surfaces.

Growth

Bacteria grows and divides creating a dense matrixed structure.

Maturation

Bacteria secrets a slimy extracellular matrix of proteins and polysaccharides.

Detachment

The slime acts as a shield, protecting the bacteria from antibiotics, immune system and chemicals allowing the bacteria to mature and detach.

Re-development

Bacteria is cast off and searches for new places to grow and prosper.

DECONTAMINATION

DELIVERY

Delivery to decontamination spaces should follow as soon as possible after conclusion of the procedure.

RINSE

Enzymatic spray and gross biohazardous material should be rinsed in the first of the three-sink bay system.

SOAK

The second bay is used to soak instrumentation in a neutral PH enzymatic solution. Soaking time depends on manufacturer IFU's.

INSPECTION AND BRUSHING

Instrumentation should be inspected for damage and bioburden and brushed under the surface of the enzymatic solution to prevent aerosols.

FINAL RINSE

Final rinse must be performed in the third bay if automated systems are not available. Sterile, RO or DI water must meet standards of ST:108.

ULTRASONIC

Instruments requiring and validated for cavitation should be ran through appropriate cycles in the ultrasonic machine.

AUTO-WASH

Automated washer cycles must meet manufacturer IFU's for each specific instrument. Ensure lumens are hooked up and thermal disinfection cycles are chosen.

VERIFICATION & MAINTENANCE REQUIREMENTS IN DECONTAMINATION

TEMP & HUMIDITY

- Daily
- 60-65 degrees F
- 30%-60% humidity
- 10 Negative air exchanges

ENVIRONMENTAL CLEANING

- Everyday the space is used.
- Mimics procedural areas

AÇU-DOSING SYSTEMS

- Calibration and dosage of detergents
- Detergent tubing

ULTRASONIC

- Degassing
- Cavitation verification
- Filter changes
- Water Quality
- Everyday used

AUTOMATED WASHERS

- TOSI/Verify testing
- Every level on every rack
- In lumen ports
- Thermal Disinfection
- Descale and cleaning

Follow Manufacturer IFU's for PM's, Calibration and Maintenance Requirements.

CLEANING VERIFICATION

WHAT IS ATP TESTING?

ADENOSINE TRIPHOSPHATE- THE SOURCE OF ENERGY FOR USE AND STORAGE AT THE CELLULAR LEVEL.

COLLECT SAMPLE ⇨ ACTIVATE IN ENZYMATIC ⇨ LUMINOMETER ⇨ READS IN RLU'S

BENCHMARK FOR ATP TESTING IS 200 RLU'S. (RELATIVE LIGHT UNITS)

WHAT IS RESI-TESTING?

RESI-TESTS CONFIRMS THE ABSENCE OR PRESENCE OF PROTEIN AND PROTEIN RESIDUES.

COLLECT SAMPLE ⇨ ACTIVATE ⇨ COLOR READ OUT WITH A SENSITIVITY OF >1UG/CM

BENCHMARK FOR PROTEIN TESTING IS 6.4UG/CM

HOW DO THEY STACK UP?

- IN COMPETITIVE STUDIES WHERE ATP AND PROTEIN HAVE BEEN COMPARATIVELY MEASURED AT THE SAME TIME WITH THE SAME TEST SUBJECTS PASSING ATP WAS MEASURING OUT AT 27.67 RLU WHERE PROTEIN WAS MEASURING OUT AT 3.37 UG/CM.
- ANOTHER SAMPLE ATP WAS MEASURING 124.00 URL (WELL BELOW ATP PASSING STANDARD) AND PROTEIN WAS MEASURING 6.18 UG/CM (RIGHT AT THE BENCHMARK).
- THIS WAS PUBLISHED BY 3M! IT LOOKS GREAT FOR ATP, RIGHT?! THEIR BENCHMARK IS 200 RLU'S. THIS IS CONSIDERED TOTALLY CLEAN BY THEIR STANDARD.
- COMPARATIVELY, WHEN I SURFACE SWAB MY CELL PHONE WITH RESI, I GET SIMILAR READINGS OF 3.4UG/CM.

LET'S DIG A LITTLE DEEPER!

PSEUDOMONAS AERUGINOSA- PROTOTYPICAL BIOFILM FORMATION- GRAM NEGATIVE PATHOGEN- CONTAINS PROTEINS LIKE LIPOPROTEINS- PRODUCES AND RELEASES A BROAD VARIETY OF EXOPROTEINS TROUGH PROTEIN SECRETION SYSTEMS.

ENTEROCOCCUS FAECALIS- ENTEROCOCCAL SURFACE PROTEIN- HIGH MOLECULAR WEIGHT SURFACE PROTEIN- GRAM POSITIVE COMMENSAL BACTERIUM.

HEMOGLOBIN- PROTEIN IN YOUR RED BLOOD CELLS THAT CARRIES OXYGEN TO YOUR BODY'S ORGANS AND TISSUES.

BIOBURDEN- PRESENCE OF MICROORGANISMS ON A SURFACE, INSIDE A DEVICE OR FROM A PORTION OF LIQUID PRIOR TO STERILIZATION. IE AEROBIC BACTERIA, SPORES, AEROBIC FUNGI, ANAEROBES.

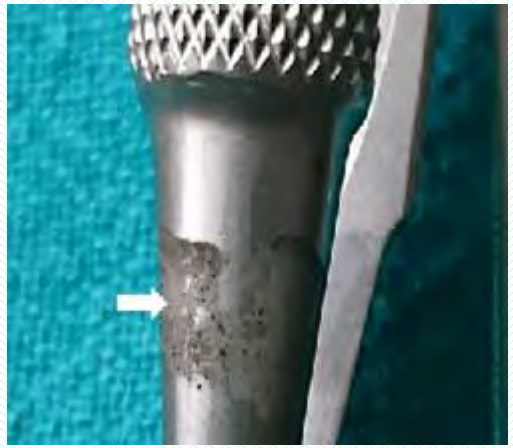
ATP TESTING CLEARLY STATES IT DOES NOT DETECT VIRUSES IN ITS DISCLAIMER. WHY? VIRUSES CONTAIN RNA AND DNA, BUT NOT ATP.

VIRUSES HAVE RNA AND DNA. RNA AND DNA ARE MADE UP OF NUCLEOTIDES. NUCLEIC ACIDS CREATE PROTEINS IN PROTEIN SYNTHESIS! THE PROCESS OF CREATING PROTEIN USING GENETIC INFORMATION IN NUCLEIC ACIDS IS SO IMPORTANT TO LIFE SCIENTISTS CALL IT THE " CENTRAL DOGMA" OF MOLECULAR BIOLOGY. REST-TESTING DOES DETECT VIRAL LEVELS OF CONTAMINATION. IT HAS A WIDER SPECTRUM OF DETECTION.

INSPECTION AND ASSEMBLY

Pitting and Engraving

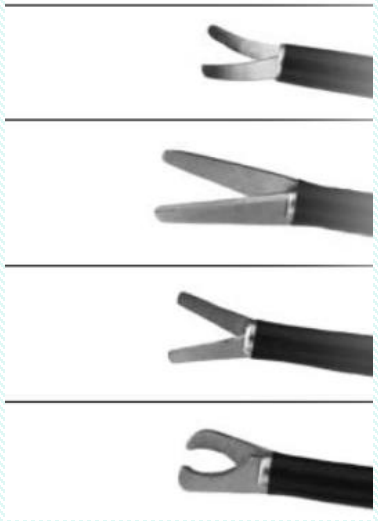
Rust and Staining

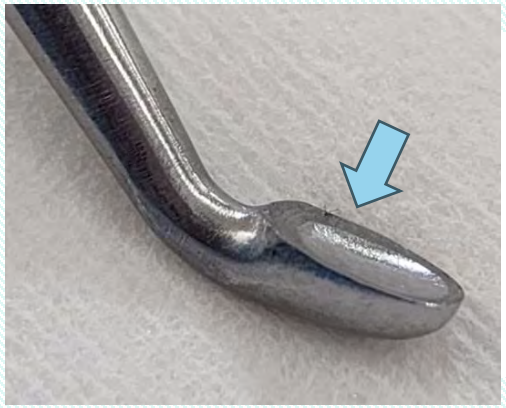


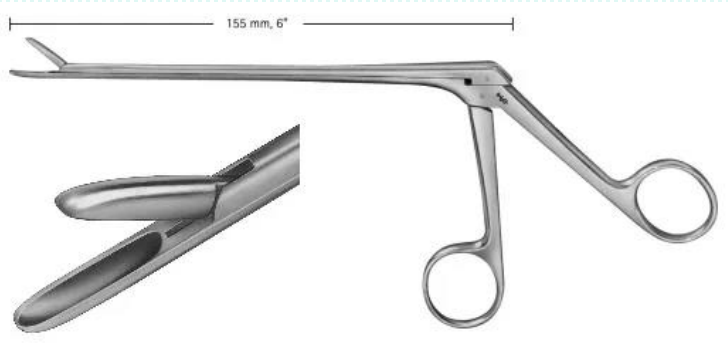
Insulation Testing

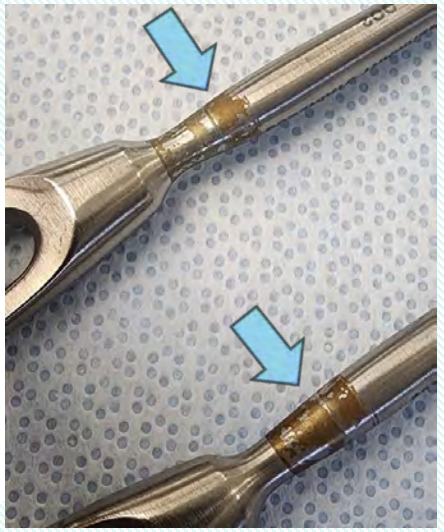
Laser Finish Integrity

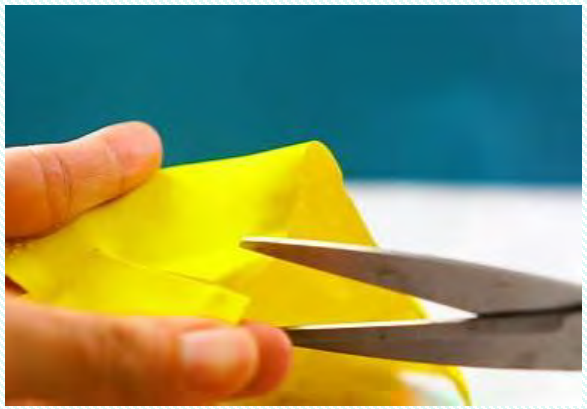
INSPECTION AND ASSEMBLY







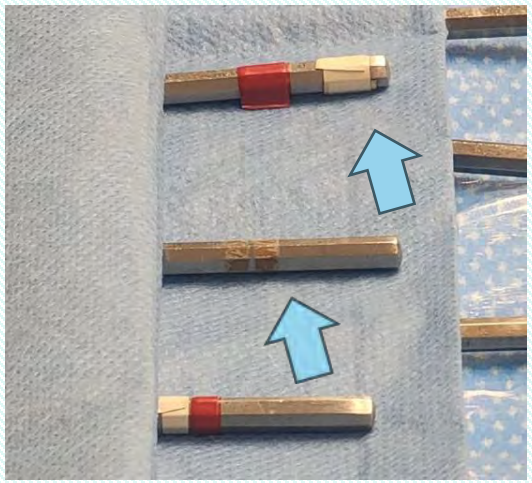




Scissor Functionality

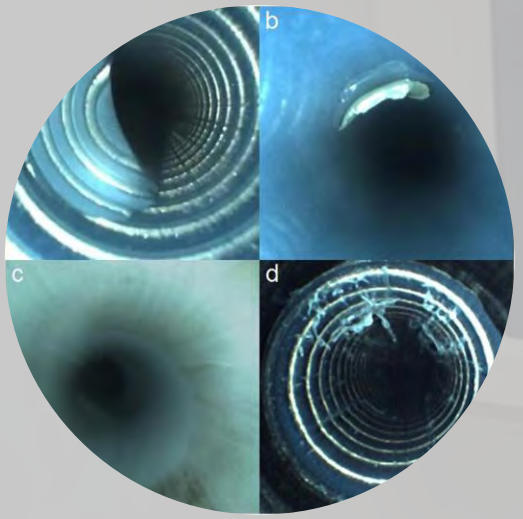
Curettes, Osteotomes and Gouges

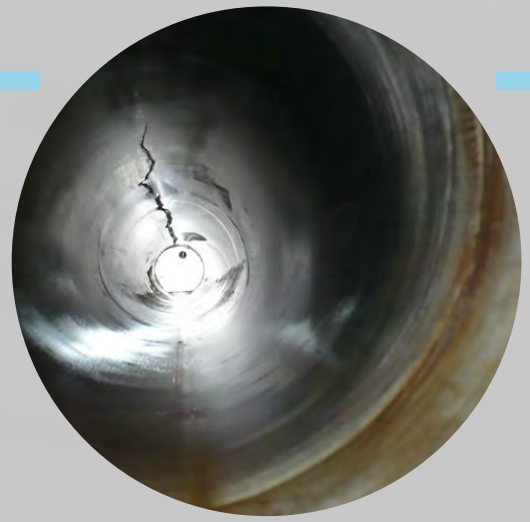
Kerrisons, Ronguers and Pituitary Ronguers

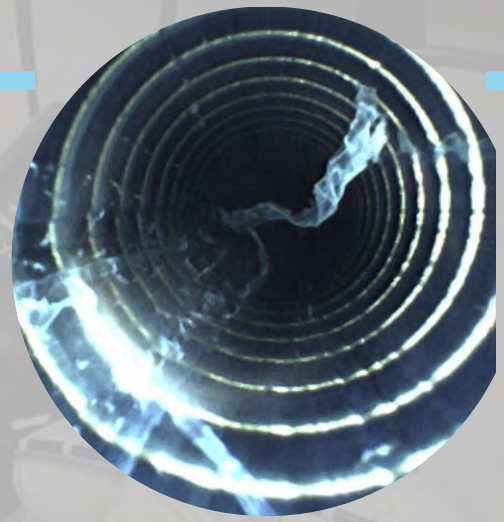


Tape, adhesives and dipped coatings.

BORESCOPE INSPECTION



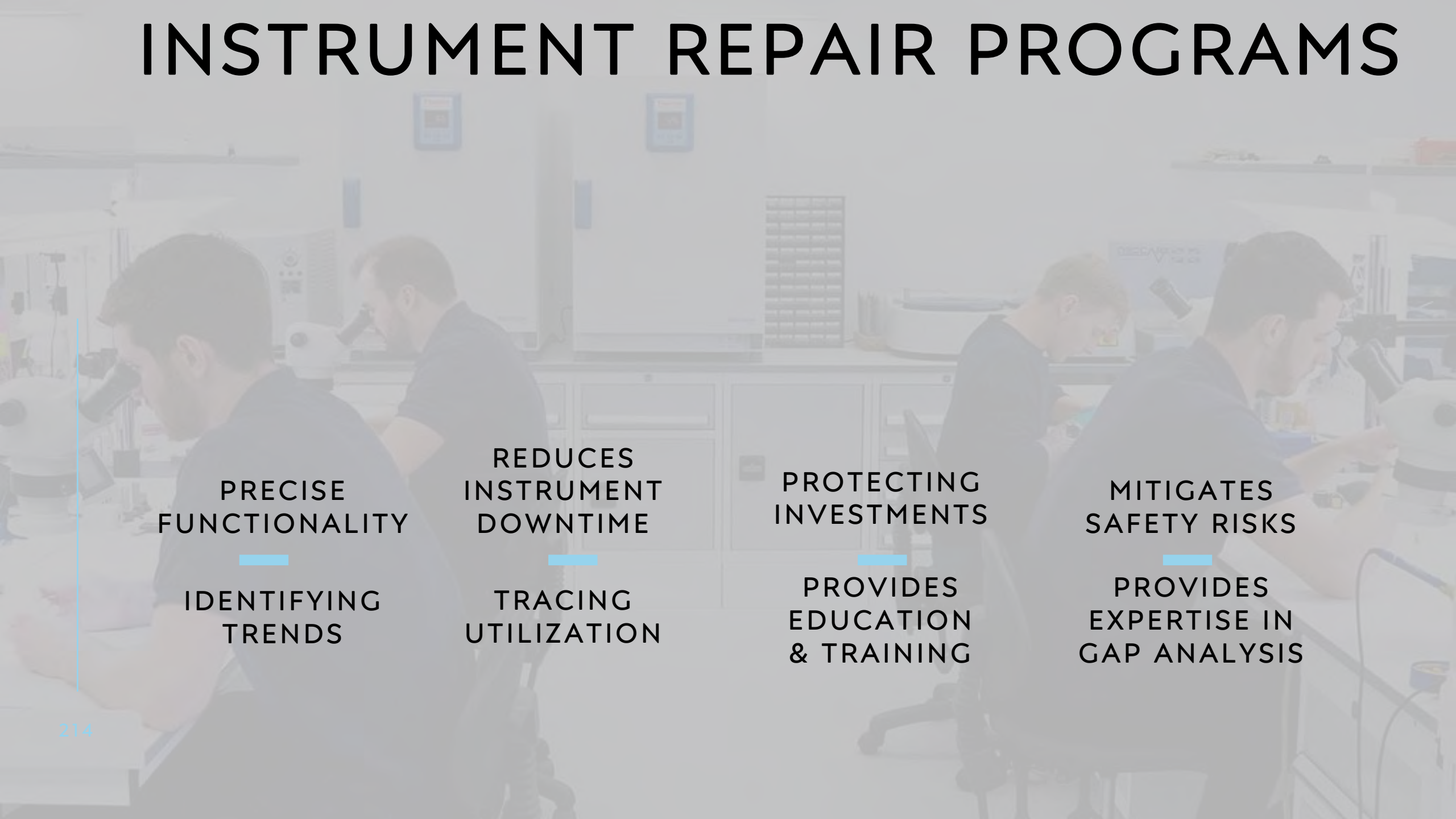




REQUIRED SUPPLIES FOR TESTING & INSTRUMENT MAINTENANCE

1. Good lighting!
2. Lighted Magnification
3. Yellow and Red TheraBand
4. Index Cards, tissues, rubber bands
5. Plastic Dowels
6. Erasers
7. Insulation Tester
8. Demagnetizer
9. Adhesive Remover
10. Instrument Milk/Lubricant
11. Sterile Water & 70% Iso Alcohol
12. 10ml & 20ml syringes
13. Borescope

INSTRUMENT REPAIR PROGRAMS



PRECISE FUNCTIONALITY

IDENTIFYING TRENDS

REDUCES INSTRUMENT DOWNTIME

TRACING UTILIZATION

PROTECTING INVESTMENTS

PROVIDES EDUCATION & TRAINING

MITIGATES SAFETY RISKS

PROVIDES EXPERTISE IN GAP ANALYSIS

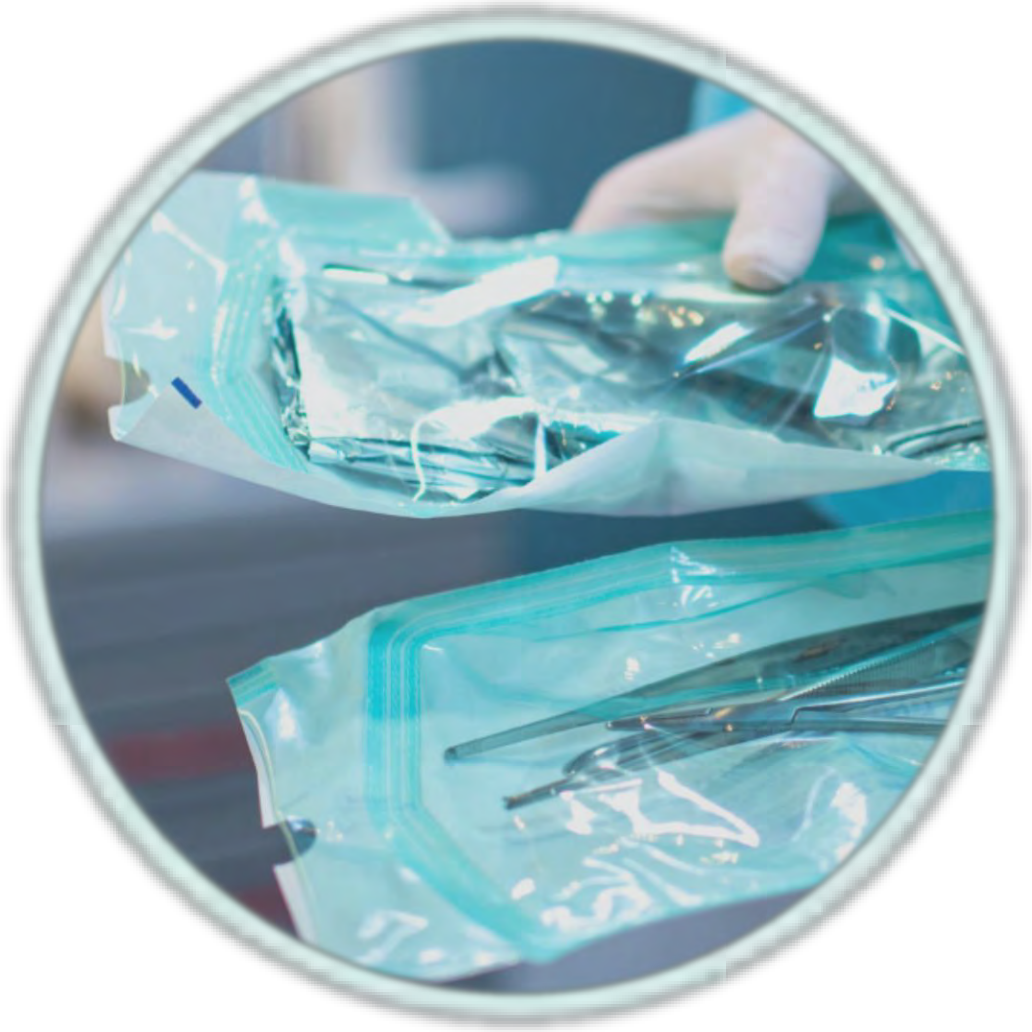
PACKAGING

CONTAINERS

- Must not exceed 25lbs
- Heavy items in the bottom, light on top.
- All ratchets and box locks must be open.
- Gaskets and filters must fit snug.
- Use filters validated for the means of sterilization it will be exposed.
- Lock with tamper proof locks.

SURGICAL WRAP

- Must not exceed recommended weight in IFU
- Must fit items and allow for aseptic presentation
- Note surgical wrap can be low temp or steam sterilized, the use of paper towels or surgical towels may or may not be required.
- The use of silicone corner protectors is great practice.



PACKAGING

PEEL PACKS

- Weight of instrumentation peel packed must not puncture the paper or plastic side of the peel pack.
- Both heat-seal and self-seal peel packs are validated.
- Steam sterilization and low temp gas plasma have their own separate validated peel packs.
- Peel packs can only be used in double configurations if validated in the manufacturer IFU's.
- Do not mix different brands of Peel Packs in double configurations. Double configuration is only validated with singular products.
- Internal peel packs can not be bent or folded.
- Bubbles and creases in the heat seal void sterility.
- Sharp instrumentation must have tip protectors.
- Ensure box locks and ratchets are in the open position.

TERMINAL STERILIZATION

- Ethylene Oxide (EtO)
- Gas Plasma
- High-Pressure Steam

ETHYLENE OXIDE

- Four primary variables; Gas Concentration, Humidity, Temperature and Time.
- This sterilization process could take hours to days.
- EtO is an alkylating agent that disrupts cellular metabolism and reproductive processes.
- EtO does not use excessive heat, moisture or radiation.
- Commonly used for but is not limited to catheters, OR supply packs, electronics, stents and dressings.
- Primarily used in large manufacturing facilities.
- EtO comes with both environmental and occupational safety hazards.

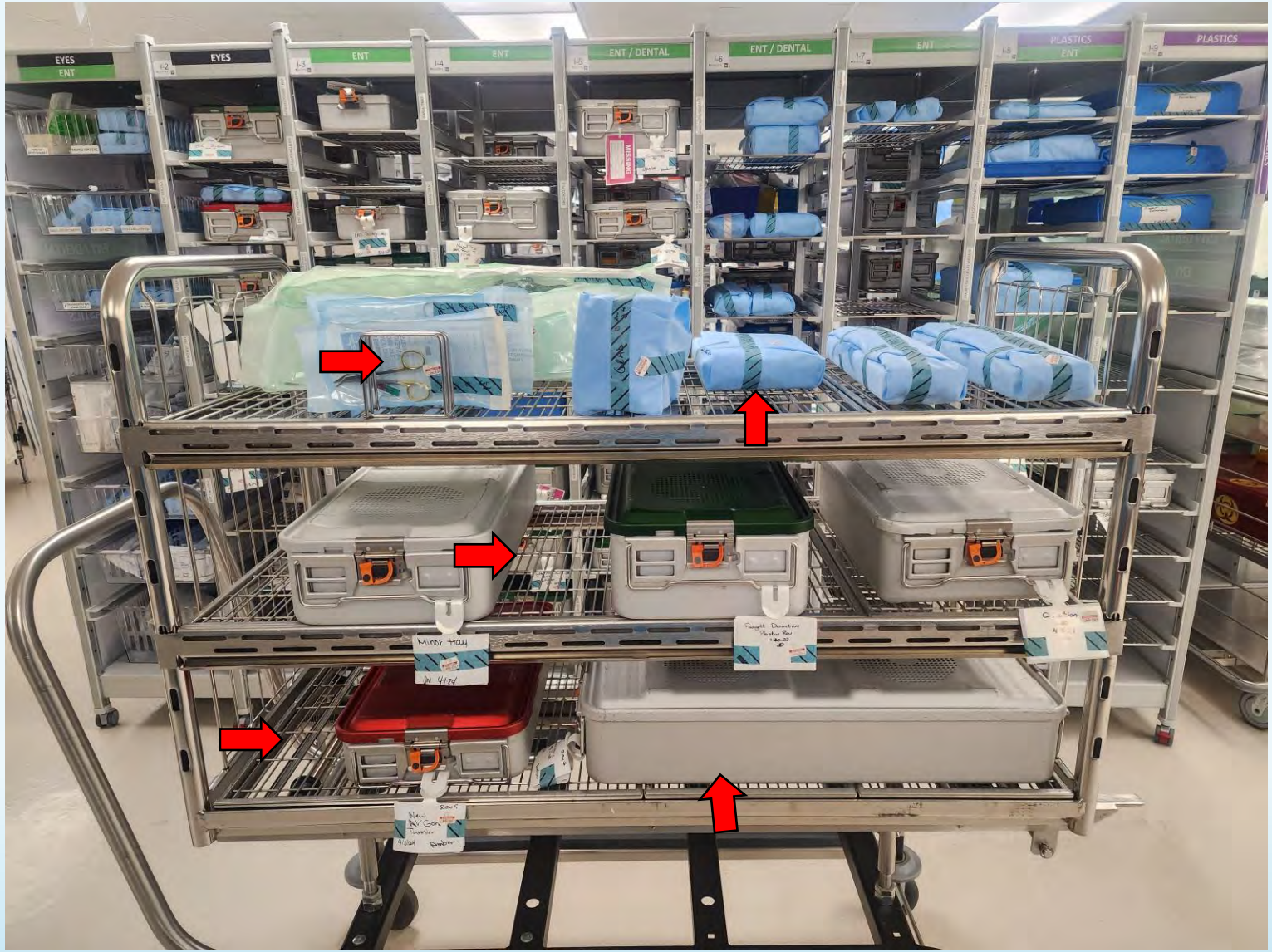
H2O2 GAS PLASMA

- Low temperature sterilization process used to sterilize heat-sensitive medical devices.
- Most commonly used in healthcare facilities as it is a non-toxic and environmentally safe option.
- Absolutely no moisture can be within this sterilization cycle. Water could evaporate and become apart of the air/gas mix causing pressure to rise and abort. Water could freeze creating a barrier to protect bacteria from sterilant gas.
- Sterilization cycle consists of multiple injections of H2O2 into the chamber contacting surfaces and penetrating lumens.
- After sterilization H2O2 vapors are vacuumed from the chamber and converted into water and oxygen.
- No toxic residues remain on the devices that could pose as a risk to patients.
- Best practices include mechanical, chemical and biological monitors on every load.

STEAM STERILIZATION

- Most widely used and most dependable means of sterilization.
- Achieved by exposing critical devices to saturated steam under pressure, this process denatures or coagulates proteins and microorganisms.
- Three phases consisting of conditioning, exposure and exhaust.
- Factors for successful terminal sterilization cycles include sufficient utility supply, steam and water quality, validated exposure times, wrapping and loading techniques, sterilizer maintenance and performance and post sterilization handling.
- Multifactorial instrumentation sets and how to successfully meet all parameters for terminal sterilization.
- Best practices include mechanical, chemical and biological monitors on every load.
- Most common mistakes in steam sterilization failures include closed valves, caps screwed on, exceeding weight limits, improper load configuration and liquid.

LOAD CONFIGURATION



VERIFICATION & MAINTENANCE REQUIREMENTS IN STERILIZATION

TEMP & HUMIDITY

- Daily
- 68-73 degrees F
- 30%-60% humidity
- 4 Positive air exchanges

ENVIRONMENTAL CLEANING

- Daily
- Horizontal damp dust.
- Floors are wet mopped.
- Trash and linen removed.
- Monthly high dust, windows and vents.

GAS PLASMA EQUIPMENT

- Cleaning the chamber, gasket and lenses.
- Daily validation testing.

STEAM STERILIZERS

- Cleaning the gaskets and strainers.
- Daily Bowie-Dick warm up and testing.
- Weekly leak testing.

Follow Manufacturer IFU's for PM's, Calibration and Maintenance Requirements.

VERIFICATION VS VALIDATION

VERIFICATION

- Verification is the processes and procedure a user performs to establish that required predetermined specifications and validations have been met.

-Daily Testing

-Placing Level 1 and Level 5 Chemical Integrators

-Biological testing

-An internal process

You ordered blueberry pancakes; they look and smell like blueberry pancakes!

VALIDATION

- Validation is the process of evaluating scientific and technical evidence that a control measure or combination of control measures, when properly implemented are capable of effectively controlling risk.

-Manufacturer Validation Study

-The process that deems the product was built to meet the needs

- An external process

They taste like blueberry pancakes!

STERILE STORAGE & MAINTENANCE

TEMP & HUMIDITY

- Less than 75 degrees F
- Relative Humidity 30-60%
- Minimum of 4 positive air exchanges per hour.

Checked Daily

ENVIRONMENTAL CLEANING

- Horizontal damp dusting.
- Wet mop
- Trash and linen removed.
- Monthly high dust, windows and vents.

Performed Daily

ENVIRONMENTAL MAINTENANCE

- 18” from ceiling
- 8” from the floor
- Away from water sources
- Clean ceiling tiles and floors.
- Intact walls and painting
- Intact non-porous surfaces

Upon Design & As Needed

PEEL PACKS

- Ensure peel packs are not crumpled or folded.
- Store peel packs paper to plastic.
- Do not place heavy items on top of each other.
- Place peel packs in individual bins, not on open shelving.
- If a peel pack is dropped it is considered contaminated.
- Always check visual indications of sterility.

WRAPPED SETS

- Do not stack wrapped items more than two high.
- Ensure the weight of the stacked trays do not exceed the manufactured validated weight.
- Store on smooth tear guard shelving.
- Wrapped sets can go on top of containers.
- Always check visual indications of sterility.

CONTAINERS

- Containers may be stacked, but do not exceed shelf weight limits.
- Do not stack containers on top of wrapped sets.
- Containers must still be dust covered if outside sterile storage requirements.
- Always check visual indications of sterility.

STERILE STORAGE & MAINTENANCE

DISTRIBUTION

HANDLING

- Pick up all four corners, do not slide to transfer.
- Use plastic trays with wrapped sets for transportation if available.
- Do not carry sterile supply under your arm.
- Do not stack wrapped trays more than two high.
- Do not stack containerized sets on top of wrapped sets.

TRANSPORTATION

- Transport on flat surfaces.
- Ensure your transportation cart is clean and dry prior to placing sterile supply.
- If transporting outside of restricted areas sterile items must be dust covered.
- Transport on carts with low risk to tip.

  -Do not transport on ring stands.

IMMEDIATE USE (IUSS) & NEW TECHNOLOGY

- DEFINING IUSS
- INTENDED USE
- BEST PRACTICES
- NEW TECHNOLOGY

DEFINING IUSS

DEFINITION OF IUSS

IUSS or also known as “Flash” sterilization is the shortest possible time from being removed from the sterilizer to aseptic transfer to the sterile field.

IUSS is the process of washing, sterilizing and delivery to patient care for immediate use.

INTENDED USE

An IUSS item is meant for immediate use. This is not to be stored for later use nor from one case to another.

IUSS is not to be used for insufficient supply or turn-overs.

IUSS is intended for emergencies where a patient is on the table and there is no suitable replacement.

BEST PRACTICES

When performing IUSS cycles you must document identifiable patient information.

Inform your Infection Prevention team to allow follow-up.

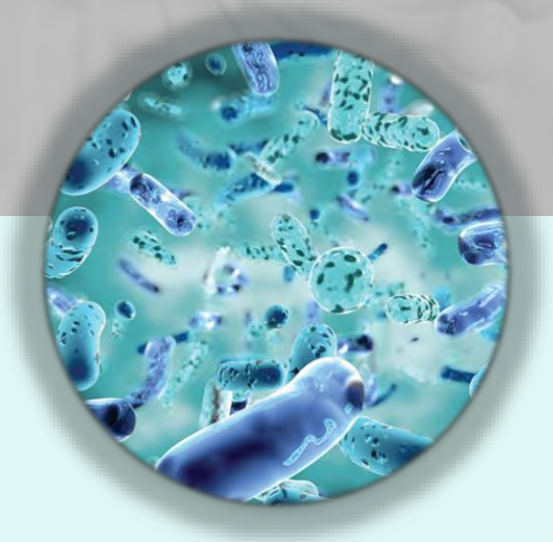
Report in your event and safety reporting system.

PARTNERSHIP & INVESTMENT

- MULTIDISCIPLINARY COLLABORATION
  - USING PARTNERSHIP TO PROVIDE EXCELLENCE IN PATIENT CARE
    - INVESTMENT AND BUY IN

DEVELOPING PARTNERSHIPS


Partnership is not a posture but a process-a continuous process that grows stronger each year as we devote ourselves to common tasks.
John F. Kennedy
quotefancy

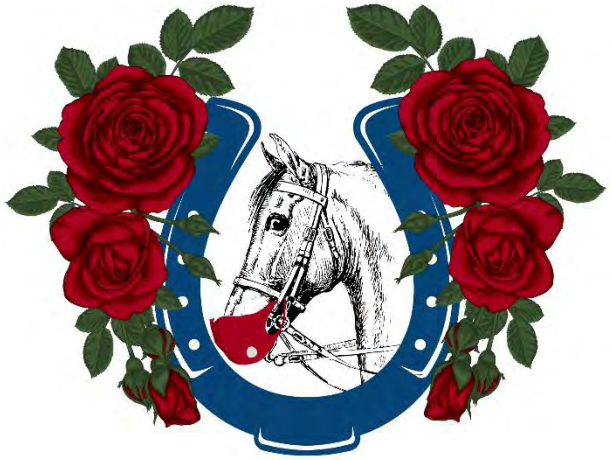


QUESTIONS?

STEPHANIE BOROZ
STEPHANIE.BOROZ@BANNERHEALTH.COM

Angela Ritchey - STERIS

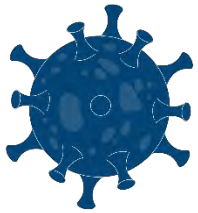
- Ready for the unexpected: Endoscopy Processing Survey
- Define the importance of an accrediting survey
- List the regulatory and guidance agencies that set endoscopy standards and guidelines
- State five strategies that help facilities be survey ready, including:
  - Maintaining current IFUs
  - Developing competencies
  - Completing documentation
  - Identify processing gaps
  - Preparing Processing staff for surveyor interactions



Winning with Leadership when the Stakes are High

Callie Perkins, RN, BSN

Mountain Pacific



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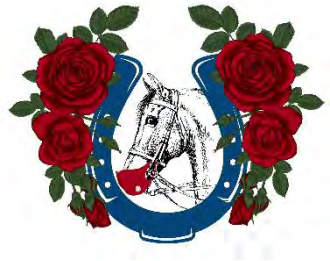
Meet the Panel



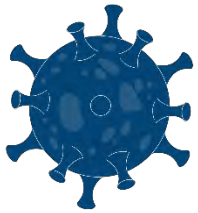
- Vanessa McDaniel, RN, BSN, CIC
  Director of Infection Prevention, Banner Wyoming Medical Center
- Christina Baugh, RN
  Clinical Risk, Clinical Quality & Infection Prevention Manager, Memorial Hospital of Carbon County
- Sheila Lutz, BSN, RN, CIC
  Infection Preventionist & Employee Health, Hot Springs Health
- Lisa Rambo, BSN, RN, CIC
  Senior Director of Quality, Ivinson Memorial Hospital
- Kirsten Akin, BSN, RN
  Infection Preventionist, North Big Horn Hospital
- Cindy Prince, BSN, RN, WCC
  Assistant Director of Nursing, The Legacy Living and Rehabilitation

Panel Questions

1. How do you gain leadership buy-in?
2. How do you present solutions?
3. How do you gain staff buy-in?
4. What challenges have you experienced and how have you overcome them?
5. What tips/tricks do you have to keep your tasks and your office organized?
6. Do you have any fun employee education ideas?
7. How do you stay current with changes in guidance?
8. What advice do you have for new IP's?

Resource

Infection Preventionist (IP) Quick Guide and Checklist: https://www.mpqhf.org/QIO/ip-quick-guide-and-checklist/



Lunch Buffet and Vendor Walk

From Passion to Exhaustion:

Recognizing and Overcoming burnout

Angel Oliver, MSN, RN

Burnout Topics

01 Prevalance

02 Impact

03 Myths

04 Early Warning Signs

05 Recalibrate and take back your passion

01

Burnout Prevalance

> 44,000 articles

All countries

All types of professions

02

The Impact

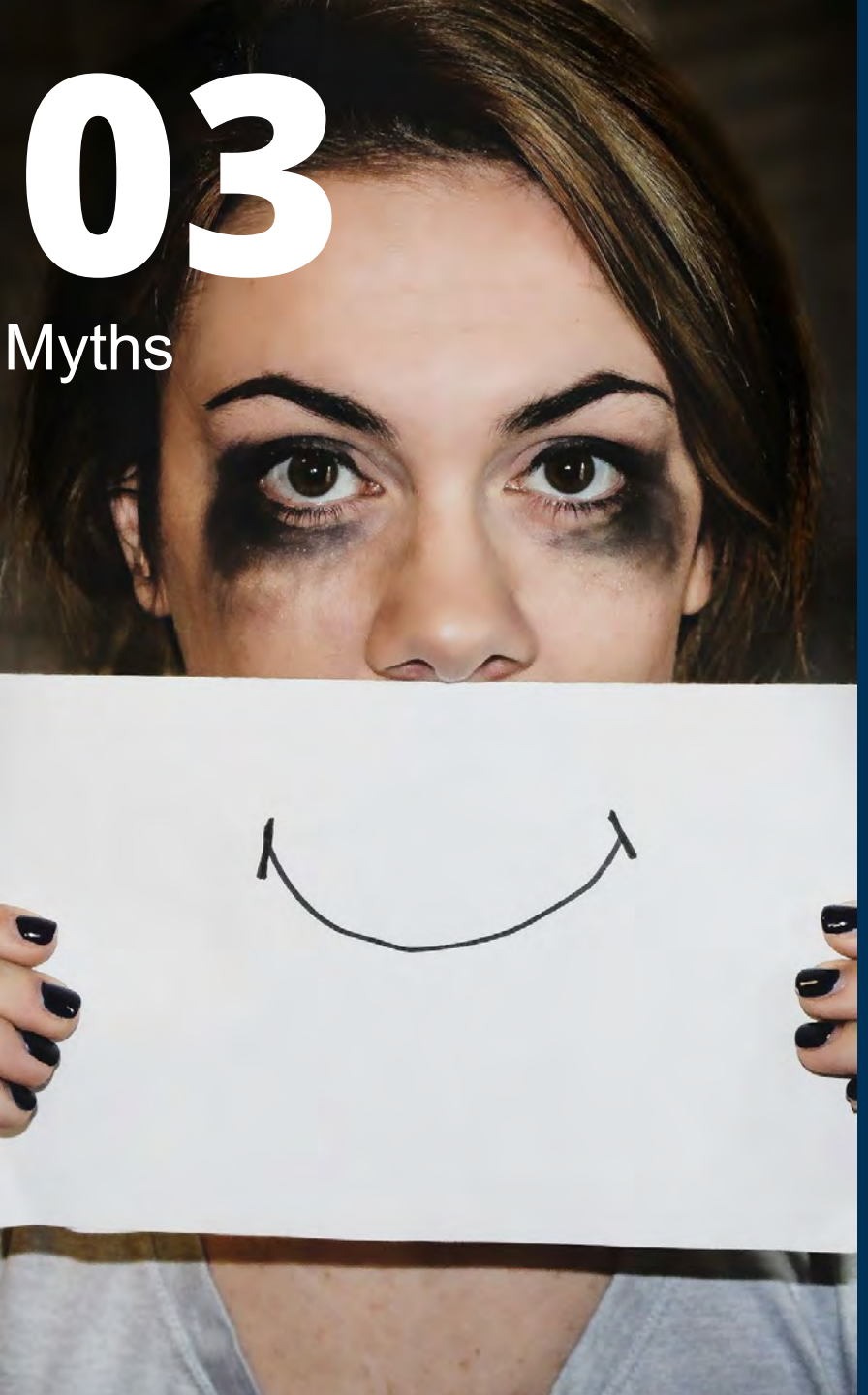
Personally

Professionally

Patient Satisfaction

Medical Errors

Patient Harm



03

Myths

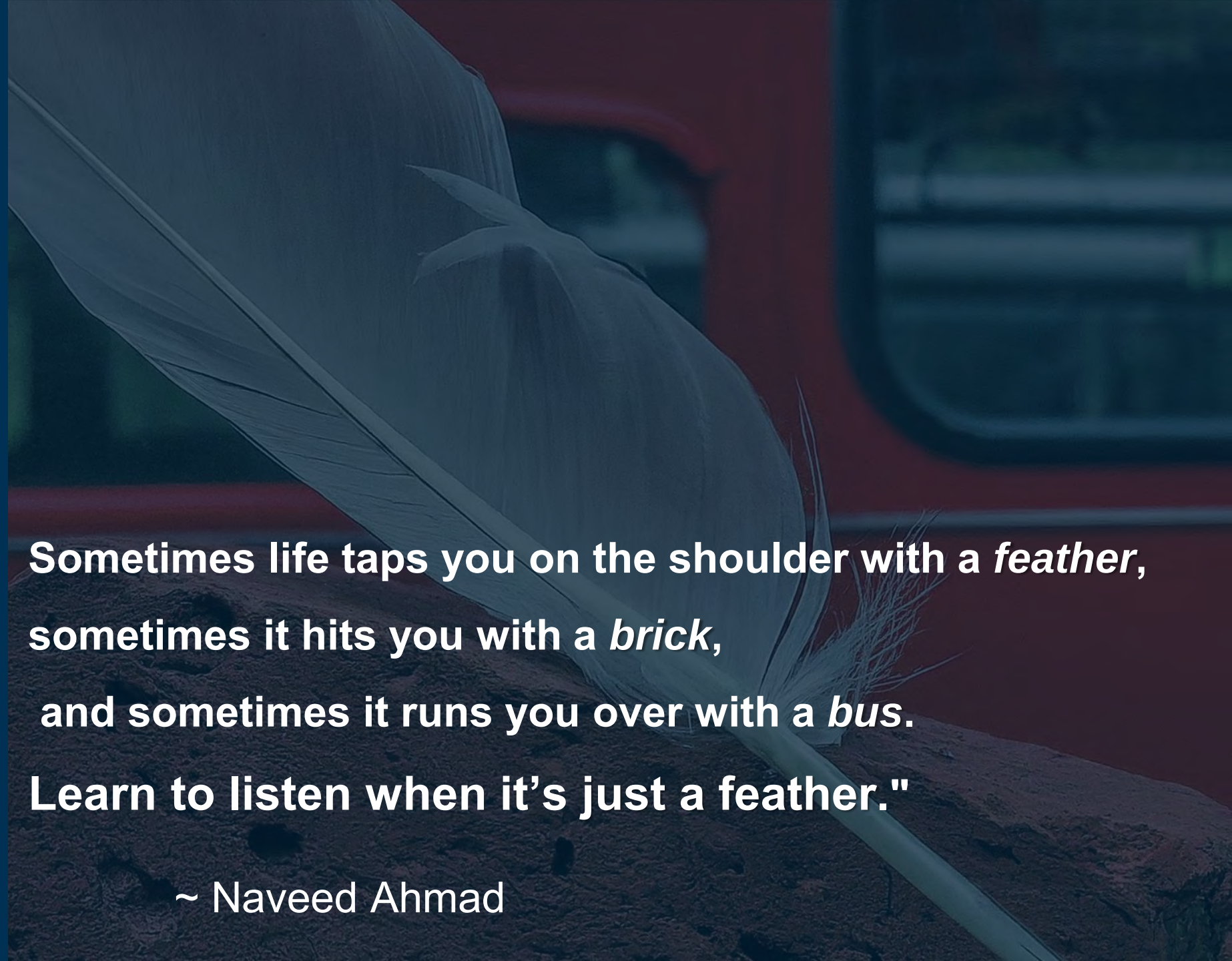
Burnout is obvious

It isn’t urgent if I’m not falling apart

Everyones burnout is the same

A vacation will cure my burnout

If I find a different job my burnout will go away



Sometimes life taps you on the shoulder with a *feather*,

sometimes it hits you with a *brick*,

and sometimes it runs you over with a *bus*.

Learn to listen when it's just a feather."

~ Naveed Ahmad

Recognizing Burnout BEFORE it's too late

Every day feels the same

Disengagement

Describing time away as "recovery"

Wishing to get sick

Cutting out self-care

Revenge bedtime procrastination

Simple tasks feel overwhelming

04

Early
Warning Signs

The dimensions

EXHAUSTION

CYNICISM

INEFFECTIVENESS

05

Recalibrating

Disengaged/Cynicism

Seek out connections:

- Get coffee with a colleague
- Have a friend over

Reconnect with meaning:

- What or who makes you feel valued?
- What is not meaningful to you?

Overextended

Get comfortable living at 80%:

- Don’t pile more work on your plate

Set and stick to your own boundaries:

- Draw the line and respect it

05

Recalibrating

Ineffectiveness

Be proactive not reactive

- You do not have to answer all requests
- Set reasonable expectations
- Set goals that are not work related

Unworthiness

Spending a lot of time doing something:

- Will you be happy with the end result?

Take time to discover what you value:

- Does your work align?
- Does your free time align?

05

Recalibrating

Detach your self-worth from you job

Work is not going to love you back

Prevent enmeshment

Invest time to your life outside of work

Give yourself some grace

Make time for garbage time

What restores you?

Let go of the “ought to’s”

Give your brain a break

Our most creative ideas come to us when we allow our minds to wander…

My ask of you, for YOU…

References

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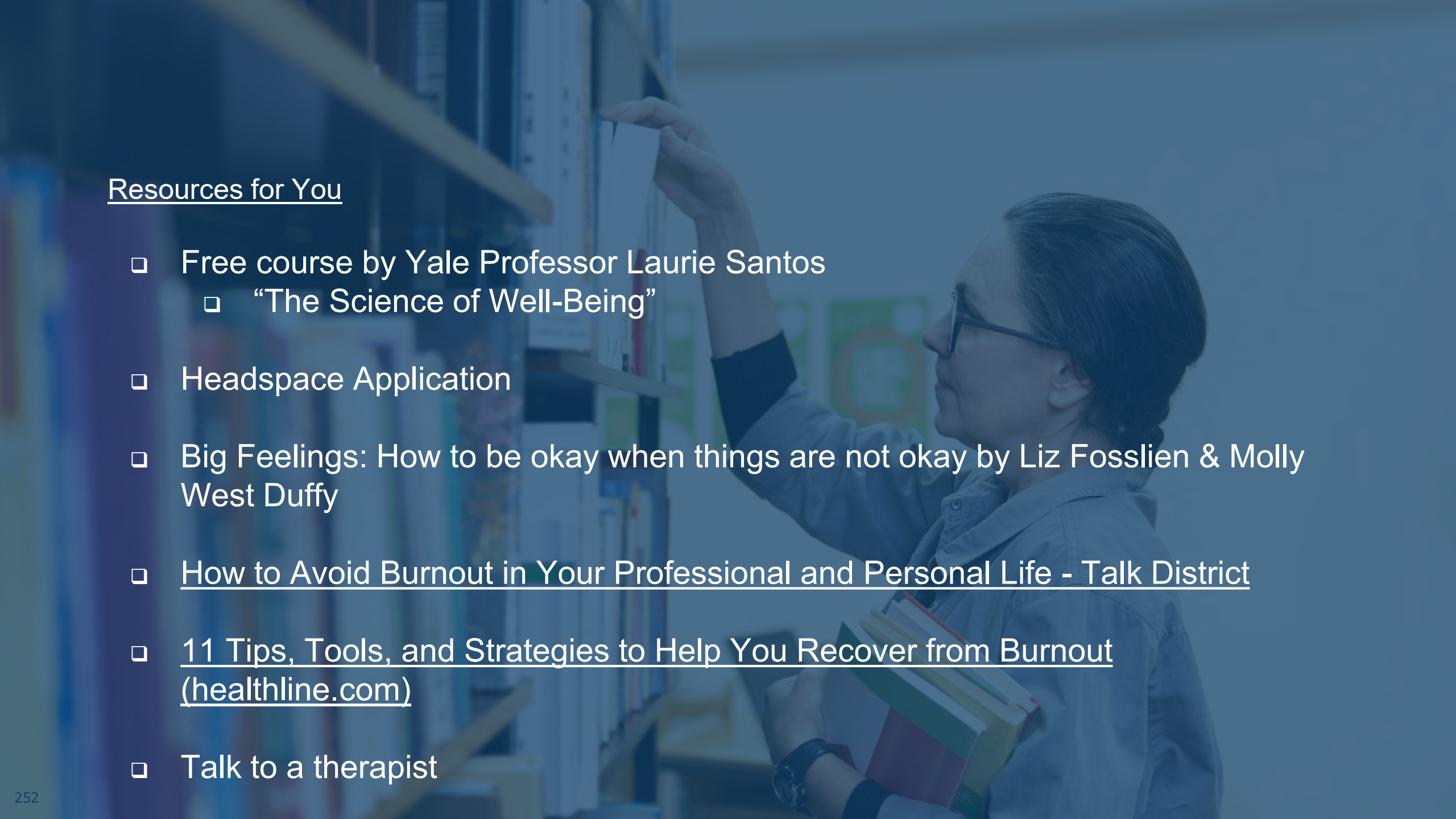


Resources for You

- Free course by Yale Professor Laurie Santos
  - “The Science of Well-Being”
- Headspace Application
- Big Feelings: How to be okay when things are not okay by Liz Fosslien & Molly West Duffy
- How to Avoid Burnout in Your Professional and Personal Life - Talk District
- 11 Tips, Tools, and Strategies to Help You Recover from Burnout (healthline.com)
- Talk to a therapist

Initiating a Proactive ICAR Program in Wyoming

Luci Magnuson, MPH, CIC

What is an ICAR?

- An Infection Control Assessment and Response (ICAR) is a CDC-sponsored, free, non-regulatory program focused on supporting state-driven efforts to improve infection prevention and control.[2]
- ICAR tools are used to systematically assess a healthcare facility's IPC practices and guide quality improvement activities (e.g., by addressing identified gaps).[1]
- ICARs are standardized assessments that combine policy/practice reviews with onsite observations.

A voluntary process where

an HAI-Prevention Epidemiologist

or Infection Preventionist looks

at an entire Infection Control

program (ICP) and points out

all the things you are doing wrong….

for many hours, so why?

source cited here

Benefits of an ICAR

Non-regulatory/non-punitive

At no cost to the facility

Shows that a facility is compliant with infection control practices, goes above and beyond

Can assist facilities with high staff turnover and reduce gaps in knowledge

Helps staff with a lack of training and support

Highlights tasks and duties neglected during the pandemic

Can assist small facilities without a full-time designated IP

Ensure an IPC program is following best practices

To have a new set of eyes

Share resources

Help build partnerships between the state and IP

Help build partnerships between the IP and necessary departments

Helps keep patients and residents safe

Why ICARS are important

- Although the HAI Epidemiologist and facility IP's/leadership can accomplish a lot through meetings, online consultations, conferences and other educational opportunities, an onsite ICAR can offer an in-depth look into the infection control practices of a facility.
- It's key purpose is to establish partnerships with health care facilities to improve infection control capacity across Wyoming
- By partnering with facility Infection Preventionists, the Wyoming Department of Health (WDH) can:
  - Assess infection prevention domains
  - Identify focus areas
  - Provide resources
  - Offer ongoing consultation.

Proactive vs. Reactive

Identifies areas of improvement or knowledge gaps

Can help create a baseline of infection control knowledge and practices

Assists facilities with policies and procedures

Are intended to prevent outbreaks and large scale infection control breaches

Can help a facility build and grow a successful ICP program

https://www.vdh.virginia.gov/haiar/ip/infection-control-assessment-and-response-icar/

Typically conducted in response to an outbreak of concern or known infection prevention issue

A reactive ICAR should be conducted when there has been an infection control breach (e.g., unsafe injection practices identified) or in response to certain types of outbreaks (e.g., Candida auris, novel or targeted MDROS, group A Strep outbreak in an acute care or long-term care facility)

ICAR Process

1. Request an ICAR- sign up form sent to healthcare facilities
2. Outreach – confirm date with facility and have them fill out a demographic form before the ICAR to identify areas of concern
3. On-site ICAR - involves modules that look at policies/procedures as well as observations
4. Report - a report of the ICAR results will be sent to the facility IP
5. Survey – created to identify areas of improvement after ICAR
6. Follow-Up - will schedule an in-person or online follow-up session to track progress
7. Gap Analysis – used to assess current infection control practices compared to evidence-based best practices
    - Help identify areas of concern, missed infection control opportunities, processes, policies, or education that could be improved

Step One: Request an ICAR

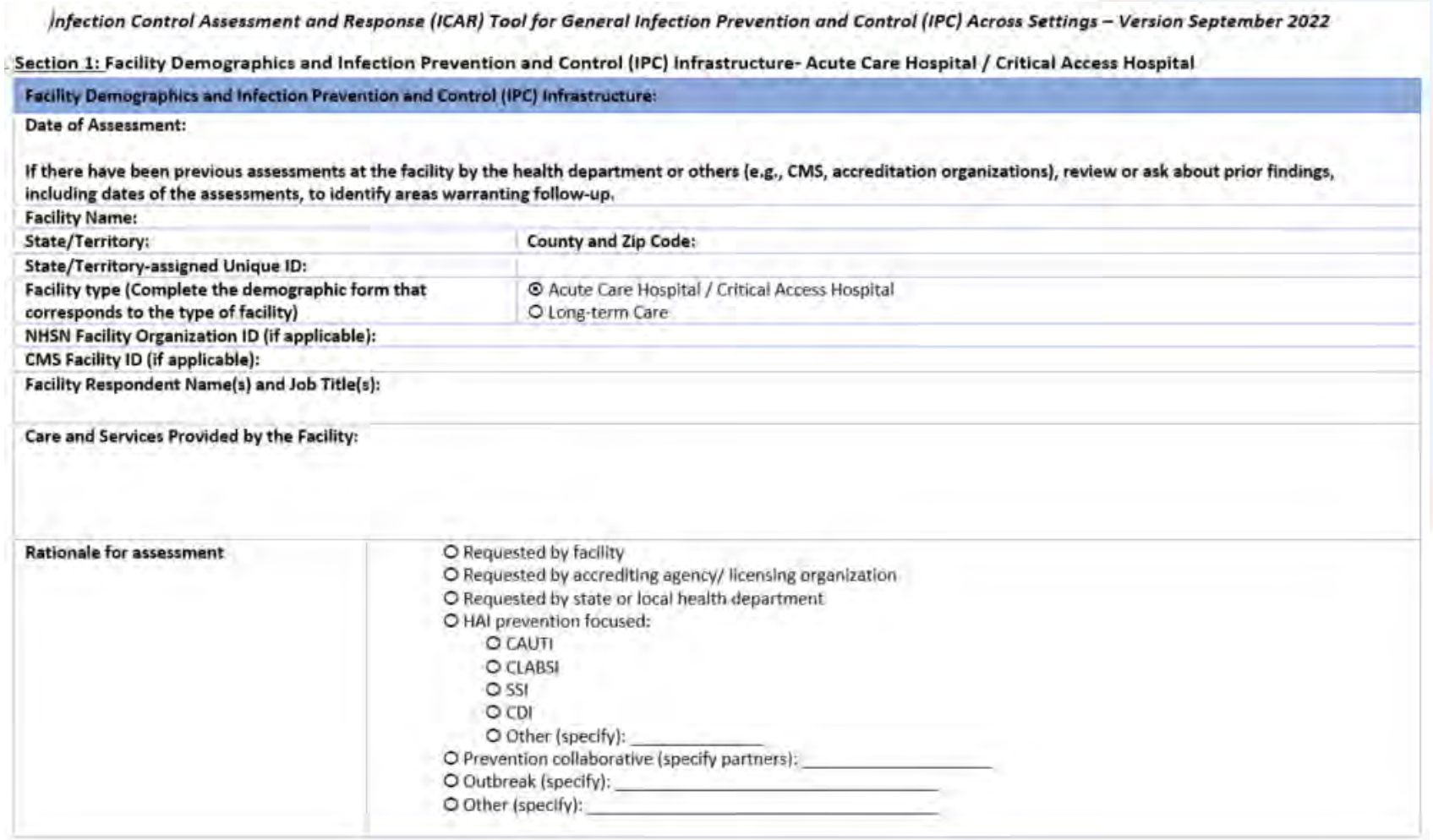
- A sign up form was created and sent to all the facilities through a listserv
- Facilities will also be informed about this service through the Wyoming Infection Prevention meeting and weekly LTC call
- Sign up Via Redcap
  - ICAR Sign Up Form
- Recommended to only sign up 3 months in advance
- Currently open to nursing homes and acute care at this point, hope to expand

Step Two: Outreach

- Once a facility and date have been selected, a calendar invite is sent out along with a confirmation email that discusses:
  - What to except, how long the ICAR will take, who is required to be there (Infection Prevention), who should be invited
    - Example, if water management is selected, the director of facilities should be included
    - If antimicrobial stewardship is selected, a lead pharmacist and microbiology should join if possible
    - Local public health is encouraged to attend
- Email will includes a standard demographic form that should be returned **one month prior to the consultation**
  - The demographic form allows facilities to target areas of concern
  - Will aim to do 2-4 modules per visit

https://www.cdc.gov/hai/prevent/infection-control-assessment-tools.html

Demographic Form



Infection Control Assessment and Response (ICAR) Tool for General Infection Prevention and Control (IPC) Across Settings – Version September 2022

Section 1: Facility Demographics and Infection Prevention and Control (IPC) Infrastructure- Acute Care Hospital / Critical Access Hospital

Facility Demographics and Infection Prevention and Control (IPC) Infrastructure:	
Date of Assessment: **If there have been previous assessments at the facility by the health department or others (e.g., CMS, accreditation organizations), review or ask about prior findings, including dates of the assessments, to identify areas warranting follow-up.**	
Facility Name:	
State/Territory:	**County and Zip Code:**
State/Territory-assigned Unique ID:	
Facility type (Complete the demographic form that corresponds to the type of facility)	◉ Acute Care Hospital / Critical Access Hospital ○ Long-term Care
NHSN Facility Organization ID (if applicable):	
CMS Facility ID (if applicable):	
Facility Respondent Name(s) and Job Title(s):	
Care and Services Provided by the Facility:	
Rationale for assessment	○ Requested by facility ○ Requested by accrediting agency/ licensing organization ○ Requested by state or local health department ○ HAI prevention focused: ○ CAUTI ○ CLABSI ○ SSI ○ CDI ○ Other (specify): _____ ○ Prevention collaborative (specify partners): _____ ○ Outbreak (specify): _____ ○ Other (specify): _____

https://www.cdc.gov/hai/prevent/infection-control-assessment-tools.html

Demographic Form Example Cont.

Please rank the following areas in order of highest priority to lowest priority for this ICAR. Number 1 is your highest priority while number 8 is your lowest priority. During your onsite ICAR, the team will focus on the top 2-4 areas.	☐ Hand Hygiene ☐ Transmission-Based Precautions ☐ Environmental Services ☐ High-Level Disinfection (semicritical items that will come into contact with mucous membranes or nonintact skin) ☐ Sterilization (critical items; will enter tissue or vascular system or blood will flow through them) ☐ Injection Safety/Medication Preparation ☐ Wound Care ☐ Laundry ☐ Therapy (i.e. physical or occupational) ☐ Infection Prevention Program Overview (risk assessment, policies and procedures, role of the IP, education support of the IP) ☐ Antibiotic Stewardship ☐Water Exposure

Step Three: Onsite ICAR

Onsite ICARs have two sections:

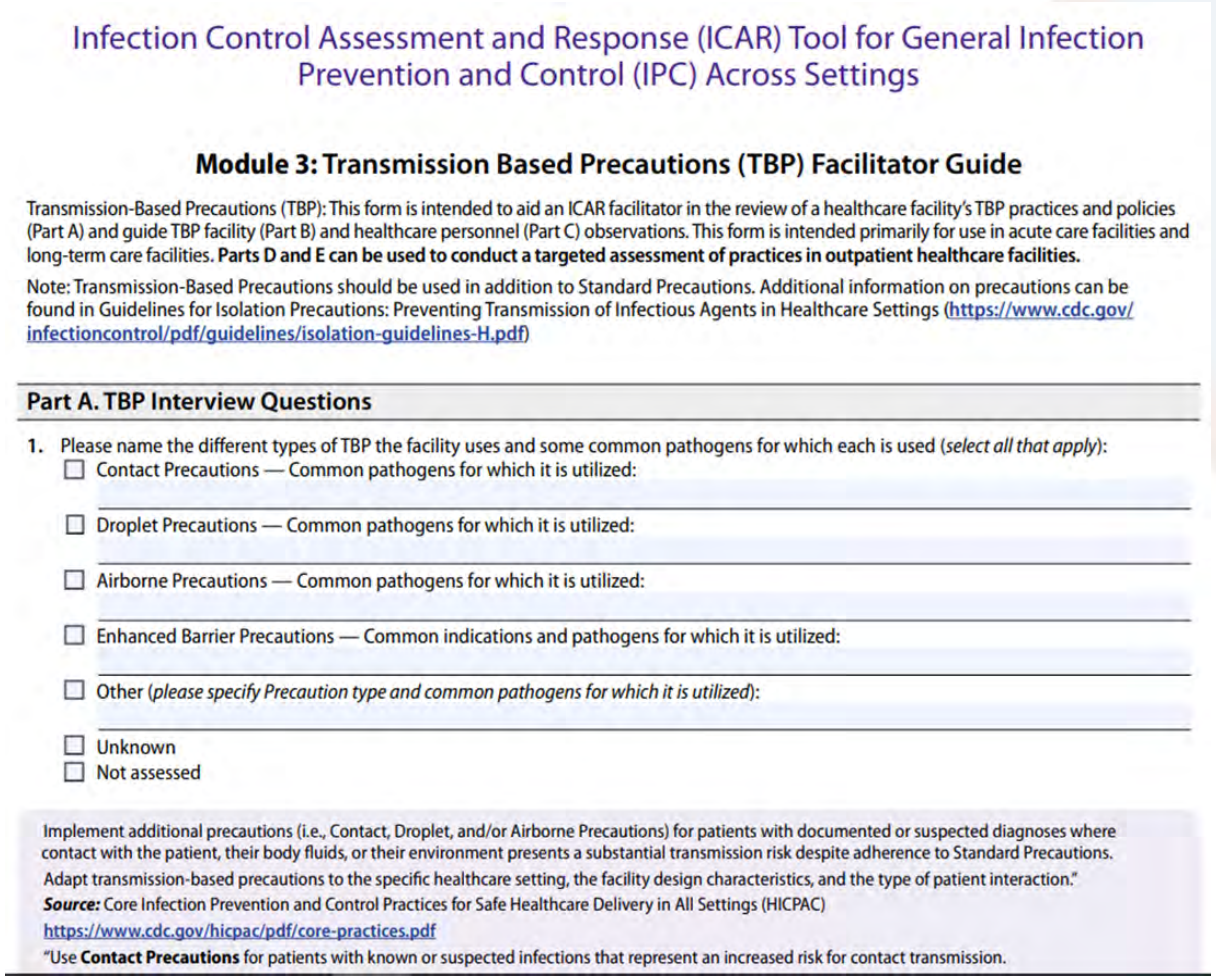
1. Facilitator Guide Assessment Modules:
    a. This section includes various modules for review during discussion of policies/procedures
    b. Helps facilities identify policies that need to be updated, policies that are missing and determine if best practices are being followed
    c. It is recommend facilities choose between 1 – 4 modules per ICAR
    d. More than 4 may be an overload of information and can't typically be done in one day
2. Observation forms
    a. Used to directly observe infection prevention practices
    b. Helps assess if discussed policies and practices are being implemented
    c. Observation sections are included within the corresponding modules

https://www.cdc.gov/hai/prevent/infection-control-assessment-tools.html

ICAR Modules

1. Training, Audits, Feedback
2. Hand Hygiene
3. Transmission-based precautions
4. EVS
5. High level disinfection and Sterilization
6. Injection Safety
7. Point of Care Blood Testing
8. Wound Care
9. Healthcare Laundry
10. Antibiotics Stewardship
11. Water Exposure

Facilitator Guide Assessment Example



Infection Control Assessment and Response (ICAR) Tool for General Infection Prevention and Control (IPC) Across Settings

Module 3: Transmission Based Precautions (TBP) Facilitator Guide

Transmission-Based Precautions (TBP): This form is intended to aid an ICAR facilitator in the review of a healthcare facility's TBP practices and policies (Part A) and guide TBP facility (Part B) and healthcare personnel (Part C) observations. This form is intended primarily for use in acute care facilities and long-term care facilities. **Parts D and E can be used to conduct a targeted assessment of practices in outpatient healthcare facilities.**

Note: Transmission-Based Precautions should be used in addition to Standard Precautions. Additional information on precautions can be found in Guidelines for Isolation Precautions: Preventing Transmission of Infectious Agents in Healthcare Settings (https://www.cdc.gov/infectioncontrol/pdf/guidelines/isolation-guidelines-H.pdf)

Part A. TBP Interview Questions

1. Please name the different types of TBP the facility uses and some common pathogens for which each is used (*select all that apply*):
   - ☐ Contact Precautions — Common pathogens for which it is utilized: _____
   - ☐ Droplet Precautions — Common pathogens for which it is utilized: _____
   - ☐ Airborne Precautions — Common pathogens for which it is utilized: _____
   - ☐ Enhanced Barrier Precautions — Common indications and pathogens for which it is utilized: _____
   - ☐ Other (*please specify Precaution type and common pathogens for which it is utilized*): _____
   - ☐ Unknown
   - ☐ Not assessed

Implement additional precautions (i.e., Contact, Droplet, and/or Airborne Precautions) for patients with documented or suspected diagnoses where contact with the patient, their body fluids, or their environment presents a substantial transmission risk despite adherence to Standard Precautions. Adapt transmission-based precautions to the specific healthcare setting, the facility design characteristics, and the type of patient interaction."

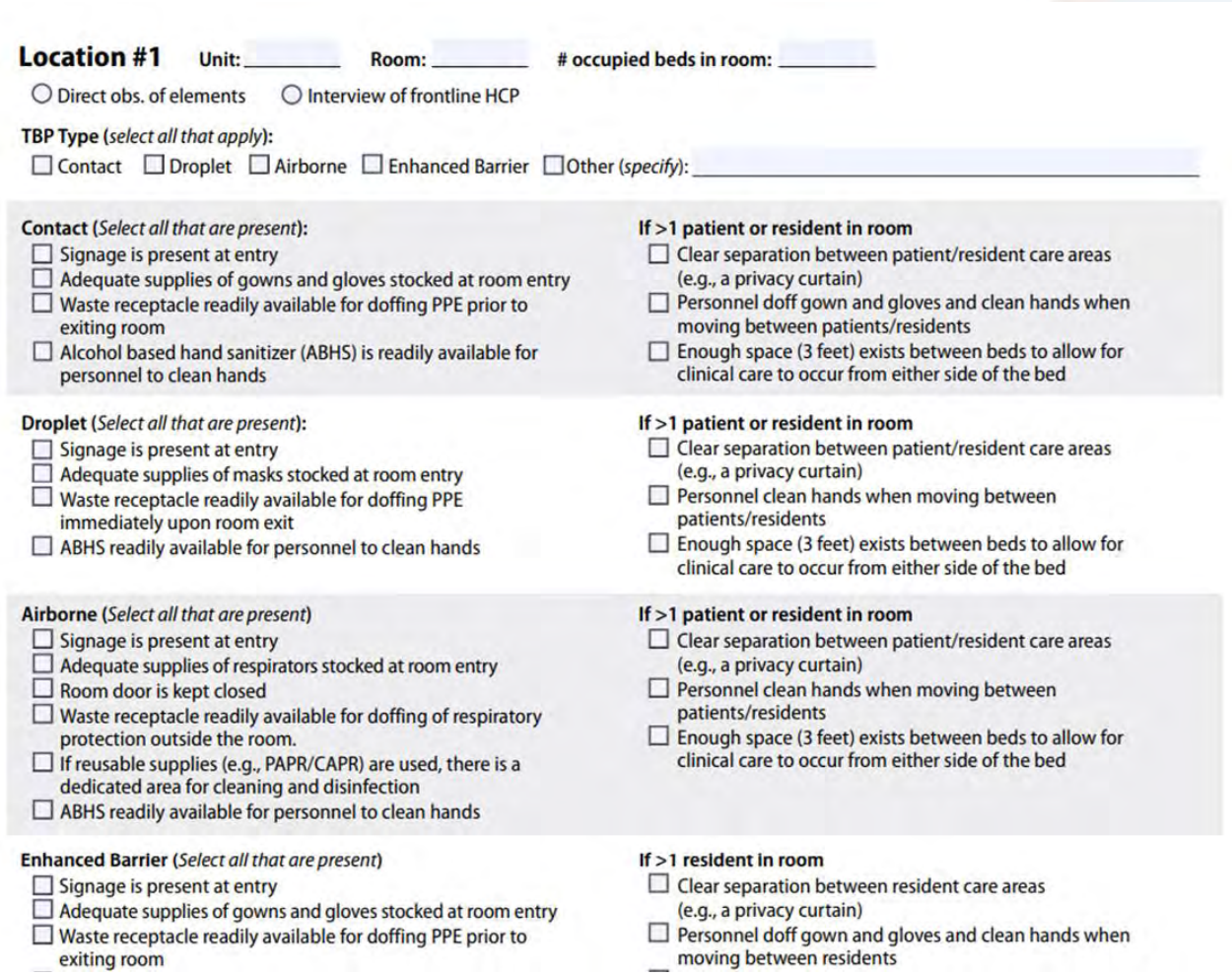
Source: Core Infection Prevention and Control Practices for Safe Healthcare Delivery in All Settings (HICPAC)

https://www.cdc.gov/hicpac/pdf/core-practices.pdf

"Use **Contact Precautions** for patients with known or suspected infections that represent an increased risk for contact transmission.

https://www.cdc.gov/hai/prevent/infection-control-assessment-tools.html

Observation Forms Example



Location #1 Unit:_____ Room:_____ # occupied beds in room:_____

○ Direct obs. of elements ○ Interview of frontline HCP

TBP Type (*select all that apply*):

☐ Contact ☐ Droplet ☐ Airborne ☐ Enhanced Barrier ☐ Other (*specify*):_____

Contact (*Select all that are present*):

- ☐ Signage is present at entry
- ☐ Adequate supplies of gowns and gloves stocked at room entry
- ☐ Waste receptacle readily available for doffing PPE prior to exiting room
- ☐ Alcohol based hand sanitizer (ABHS) is readily available for personnel to clean hands

If >1 patient or resident in room

- ☐ Clear separation between patient/resident care areas (e.g., a privacy curtain)
- ☐ Personnel doff gown and gloves and clean hands when moving between patients/residents
- ☐ Enough space (3 feet) exists between beds to allow for clinical care to occur from either side of the bed

Droplet (*Select all that are present*):

- ☐ Signage is present at entry
- ☐ Adequate supplies of masks stocked at room entry
- ☐ Waste receptacle readily available for doffing PPE immediately upon room exit
- ☐ ABHS readily available for personnel to clean hands

If >1 patient or resident in room

- ☐ Clear separation between patient/resident care areas (e.g., a privacy curtain)
- ☐ Personnel clean hands when moving between patients/residents
- ☐ Enough space (3 feet) exists between beds to allow for clinical care to occur from either side of the bed

Airborne (*Select all that are present*)

- ☐ Signage is present at entry
- ☐ Adequate supplies of respirators stocked at room entry
- ☐ Room door is kept closed
- ☐ Waste receptacle readily available for doffing of respiratory protection outside the room.
- ☐ If reusable supplies (e.g., PAPR/CAPR) are used, there is a dedicated area for cleaning and disinfection
- ☐ ABHS readily available for personnel to clean hands

If >1 patient or resident in room

- ☐ Clear separation between patient/resident care areas (e.g., a privacy curtain)
- ☐ Personnel clean hands when moving between patients/residents
- ☐ Enough space (3 feet) exists between beds to allow for clinical care to occur from either side of the bed

Enhanced Barrier (*Select all that are present*)

- ☐ Signage is present at entry
- ☐ Adequate supplies of gowns and gloves stocked at room entry
- ☐ Waste receptacle readily available for doffing PPE prior to exiting room

If >1 resident in room

- ☐ Clear separation between resident care areas (e.g., a privacy curtain)
- ☐ Personnel doff gown and gloves and clean hands when moving between residents

https://www.cdc.gov/hai/prevent/infection-control-assessment-tools.html

Step 4: Report

- Within a month of the completed onsite ICAR, a report will be sent to the facility Infection Preventionist
- The report will include a cover letter, an assessment summary and report for each module that coincides with the CDC's Facilitator Guide Assessment
- The report will be formatted into yes/no questions so it can be measurable over time
- The report can be shared with relevant departments and licensing bodies if the facility chooses

Survey

- A post ICAR survey was created in REDCap that will be sent to the facility after the onsite ICAR
- Used to help determine what is beneficial and what can be improved
- The process is new and can be adjusted over time based on experience and feedback
- ICAR Feedback Survey

Follow-Up

- After each ICAR, a follow-up will be scheduled if the facility is interested
- Follow-ups can be done in person or as an online consolation depending on preference and availability

Step 7: Gap Analysis

- A gap analysis will be used to assess current infection control practices compared to evidence-based best practices
- Help identify areas of concern, missed infection control opportunities, processes, policies, or education that need to be improved
- Results can be used to recommend actions to improve infection control practices at the facility
- Data will help identify state-wide and larger scale issues
- Can help target future education
- Can be compared to other data, such as NHSN

https://www.unmc.edu/patient-safety//capturefalls/roadmap/gap-analysis/index.html

Goals and Next Steps

- Define and outline the ICAR process on the WDH's Healthcare-Associated Infections website including a link to the sign-up form
- Grow and expand the program to include outpatient/ambulatory care, outpatient hemodialysis centers and dental clinics
- Increased availability to perform an ICAR at any facility interested
  - Dependent on staff and resources
  - Current goal is one ICAR a month
  - Ideally, recommend facilities have an ICAR annually to measure progress
    - Staff and resource limitations on offering this to every facility
    - Scheduled through July
      - Past July facilities are on a wait list

Questions?

Resources

1. https://www.cdc.gov/hai/prevent/infection-control-assessment-tools.html
2. https://www.health.state.mn.us/facilities/patientsafety/infectioncontrol/icar/about.html
3. https://www.vdh.virginia.gov/haiar/ip/infection-control-assessment-and-response-icar/
4. https://www.unmc.edu/patient-safety//capturefalls/roadmap/gap-analysis/tools.html

Wyoming Communicable Disease Unit
HIV, STIs, Hepatitis B and Hepatitis C

Leslie Fowler, BSN, RN
Haley McKee, Epidemiologist

Wyoming Department of Health | PUBLIC HEALTH DIVISION

Introductions

TB Program Manager
Leslie Fowler, BSN, RN

Oversees CDC HIV, STI, and TB Prevention grants and related activities

Hepatitis B & C Prevention

Public Health Block Grant

340B, Retail, & EPT Medication and Supply Oversight

Epidemiologist & DIS
Haley McKee

Statewide Hepatitis B and C case investigations
Work HIV, STI, and TB cases as necessary
Viral hepatitis prevention and surveillance projects

Agenda

- CDU
- HIV
- STIs
- Hepatitis B & C
- CDU Prevention
- CDU Treatment
- CDU Surveillance
- Resources

Wyoming Communicable Disease Unit

Wyoming Communicable Disease Unit (CDU)

- Wyoming Department of Health
  - Four divisions
    - *Public Health Division*
      - Three Sections
        - Public Health Sciences Section
          - Four Units
            - Communicable Disease Unit

(HIV, chlamydia, gonorrhea, syphilis, hepatitis B, hepatitis C, and TB)

Three integrated programs:

- Prevention
- Treatment
- Surveillance

Wyoming Department of Health

CDU Prevention Program

Leslie Fowler, BSN, RN
Prevention Program Manager
307-777-3562
leslie.fowler@wyo.gov

- STD Prevent Grant
- HIV Prevention Grant
- TB Prevention Grant/TB Program
- Hepatitis Prevention
- KnoWyo Safety-net HIV, STI, hepatitis, and TB testing
- Prevention Materials & Supplies
- 340B, Retail, and EPT Oversight
- CDU Monthly Webinars
- CDU Monthly Newsletter
- National Coalition of STD Directors
  - Full Member
  - Board of Directors

CDU Prevention Services

- CDU Testing Recommendations
- Social Marketing/Advertising
- KnoWyo
  - Prevention education
  - Prevention supplies
    - Free condoms
  - Safety-net testing
    - At-home testing
  - Social media
    - Facebook
    - Instagram
- W[h]Y PrEP Matters
  - PrEP/PEP navigation
  - PrEP labs
- HIV Peer Support Navigation
- Hepatitis C Treatment Navigation

CDU HIV Treatment Program

Bethany Zaczek
Treatment Program Manager
307-777-5856
cdu.treatment@wyo.gov

- HRSA Ryan White Part B and ADAP Grant
- HRSA Ryan White Part C EIS Grant
- HUD Housing Opportunities for Persons with AIDS (HOPWA) Grant
- State general funding dedicated for HIV medications and medical visits
- HIV case management

CDU HIV Treatment Website

CDU Surveillance Program

Reggie McClinton

Surveillance Program Manager

307-777-8939

Reginald.mcclinton@wyo.gov

- Epidemiology
- Disease Intervention Specialists
- Disease investigation
- Partner services
- Linkage to care
- Data requests & dissemination of data
- Data reporting

- Outbreak detection & response
- Geocoding
- Data 2 Care
- Hepatitis grant
- Harm reduction

CDU Surveillance Website

Disease Intervention Specialists (DIS)

- Responsible for following up on certain STI, HIV and viral hepatitis B & C infections across the state
- May contact an ICP for follow up information before contacting the patient.
  - Obtain patient history, test results, treatment and patient contact information.
- Can provide technical assistance to providers on treatment for STIs
  - Treatment when there is an allergy
  - Staging and treatment for syphilis cases
- Interview patients with identified infections
  - Obtain risk factors, provide education on infection, harm reduction strategies, and partner elicitation, notification and/or treatment.

WDH CDU Screening Recommendations

The WDH CDU Testing Recommendations begin with national CDC Recommendations and are then adjusted according to risk factors reported to CDU staff during interviews with positive cases in Wyoming.

The resulting CDU Testing Recommendations document is **specific to how the infections are transmitting and presenting in the Wyoming population**.

CDU Testing Recommendations can be found:

- CDU Prevention webpage
- CDU STI Health Professional Resources webpage

2024 Wyoming Communicable Disease Unit Testing Recommendations[1]

NEW recommendation for all sexually active individuals in Wyoming to receive at least annual testing for HIV, syphilis, and three-site (as indicated) chlamydia and gonorrhea regardless of relationship status.

Outside of annual testing, frequency of testing is based on the individual risk of each patient. In general, test two weeks after each partner or exposure or every 1-3 months for frequent partners or exposures.

Risk(s), more than one row may apply	HIV[2]	Hep B[3]	Hep C[2,4]	Syphilis[5]	Chlamydia	Gonorrhea	TB
All sexually active individuals	X			X	X	X	
[6] Genital chlamydia/gonorrhea: history of & never tested or history of genital sex since last tested	X			X	X	X	
Pharyngeal chlamydia/gonorrhea: history of & never tested or history of oral sex since last tested	X			X	X	X	
Rectal chlamydia/gonorrhea: history of & never tested or history of anal sex since last tested	X			X	X	X	
Men who have sex with men	X	X	X	X	X	X	
Person diagnosed with or treated for another sexually transmitted infection	X						
Tattoos or body piercing that are homemade or from an unlicensed facility or person	X	X	X	X			
[7] Pregnant persons	X	X	X	X	X	X	
≥18yo, test at least once in lifetime regardless of risk		X	X				
13-64yo, test at least once regardless of risk	X						
[3, 8] Needle stick injuries, open wound exposures or mucosal exposures to blood or body fluids	X	X	X	X			
Survivor of sexual assault or abuse	X	X	X	X	X	X	
Current or past history of injection drug use, intranasal drug use, sharing other drug equipment	X	X	X	X			X
Current or past resident of detention or correctional facility	X						X
Person living with HIV infection		X	X				X
Hepatitis B or C positive sexual contact	X	X	X	X	X	X	
Person living with hepatitis B or hepatitis C infection (Hep B infection, also test for hep C and HIV. Hep C infection, also test for hep B and HIV)	X	X	X				
People who live with someone who has with hepatitis B		X					
[9] People born to those with HIV, chlamydia, gonorrhea, syphilis, hepatitis B, or hepatitis C infection (respectively)	X	X	X	X	X	X	
Current or past long-term hemodialysis	X	X	X				
Recipient of blood transfusions, blood components, or organ transplant prior to July 1992	X	X	X				
Recipient of clotting factor or blood concentrate prior to 1987	X	X	X				
People who were notified that they received blood from a donor who later tested positive for hepatitis C infection			X				
Consistently abnormal liver tests		X	X				
People born in certain countries where hepatitis B is common		X					
People with TB infection (latent or active)	X						
Current or past history of experiencing homelessness							X
People with immunocompromising conditions or who are take immunosuppressive medication							X
People from a country where TB infection is common (Latin America, the Caribbean, Africa, Asia, Eastern Europe, and Russia)							X
People who live or work in high-risk settings							X
People who have spent time with someone who has active TB infection (now and 8-10 weeks after last exposure)							X
Travelers who anticipate prolonged exposure to persons with TB (before U.S. departure and 8-10 weeks after return to U.S.)							X
Symptoms consistent with infection (respectively)	X	X	X	X	X	X	X

Footnotes can be found on the second page.

122 W. 25th Street, 3rd Floor West Cheyenne, WY 82002 Secure Fax: (307) 777-5279

Updated 1/29/2024

Frequency 1

Frequency 2

Footnotes

Date

1	The WDH CDU Testing Recommendations begin with national CDC Recommendations and are then adjusted according to risk factors reported to CDU staff during interviews with positive cases in Wyoming. The resulting CDU Testing Recommendations document is therefore specific to how the infections are transmitting and presenting in the Wyoming population.
2	Most patients exposed to HIV or Hepatitis C seroconvert within 90 days, however some patients may not seroconvert for up to six months. If exposed, retest 90 days after last exposure and again at six months after last exposure.
3	In 2023 CDC updated the screening recommendation for hepatitis B virus to include all adults age 18 and up at least one in their lifetime, regardless of risk. If a KnoWyo testing site wishes to use a KnoWyo voucher for hepatitis B testing, prior to hepatitis B testing, check hepatitis B vaccination status and then follow the current KnoWyo Voucher Guidance to see if the testing can be covered with a KnoWyo Voucher.
4	Please note that if using a KnoWyo voucher for testing, KnoWyo funds may be used to identify new HCV infection however, they cannot be used to evaluate the current status of chronic HCV infection.
5	Contacts to a positive case may test negative initially. Please discuss this with the CDU Area DIS and instruct the patient to test 90 days from their last exposure. CDU Area DIS contact information can be found at https://health.wyo.gov/publichealth/communicable-disease-unit/staff/
6	For genital chlamydia/gonorrhea testing by vaginal self-swab is preferred for individuals with a vagina and urine is preferred for those without a vagina.
7	Repeat syphilis testing on pregnant persons throughout pregnancy if pregnant person or partner(s): have other sexual partners, use injection or intranasal drugs, unprofessional or homemade tattoo(s) or piercing(s)
8	If occupational exposures, refer to employer for testing
9	If diagnosis is desired before the child reaches age 18 months, testing for HCV RNA can be performed at or after the infant's first well-child visit at age 1–2 months through the child's healthcare provider

For support related to HIV, chlamydia, gonorrhea, syphilis, hepatitis B, or hepatitis C cases please contact the CDU Area DIS.
Area DIS contact information can be found at https://health.wyo.gov/publichealth/communicable-disease-unit/staff/ .

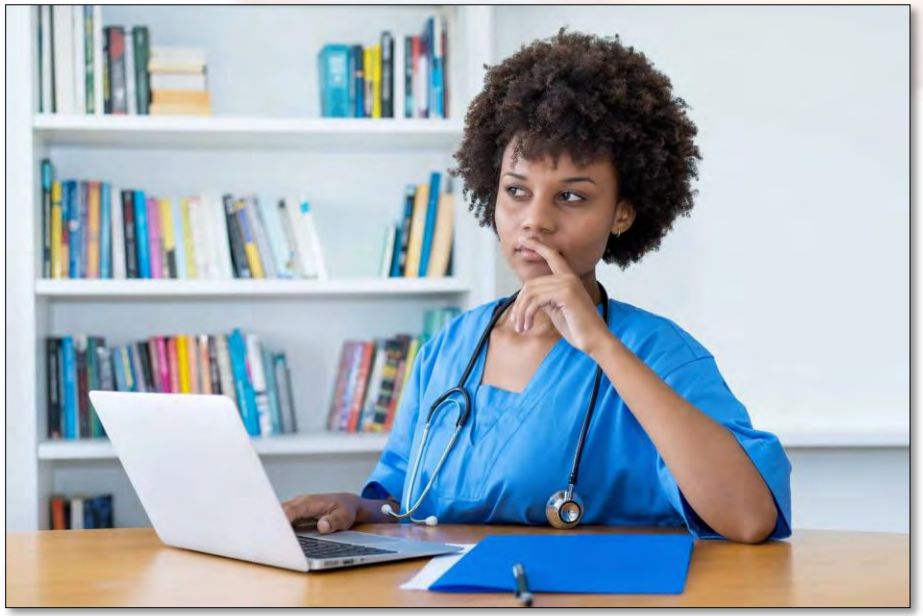
Support related to TB can be found on the CDU TB webpage at https://health.wyo.gov/publichealth/communicable-disease-unit/tuberculosis-2/.
For additional TB questions contact the CDU TB Program Staff via email at cdu.treatment@wyo.gov or call the CDU TB Controller at 307-777-6563.

122 W. 25th Street, 3rd Floor West Cheyenne, WY 82002 Secure Fax: (307) 777-5279

Updated 1/29/2024

Sexual Health Considerations

- Interest in sexual contact is a normal part of human growth and development
- Discordance between stated social values and actual social behaviors creates a challenging landscape
- Sexual health is part of health
- “Sex”, “Normal”, “Mainstream”, “Usual”, “Vanilla”, and other terms mean different things to different people
  - Sexual contact vs. “sex”
  - What’s obvious to you is obvious to you
- Correct and consistent condom use
  - Condom comfort and fit



HIV

What is HIV?

- Human Immunodeficiency Virus
- HIV is the virus that causes Acquired Immunodeficiency Syndrome (AIDS)
- There are two types of HIV
  - HIV 1
  - HIV 2
- There are over 300 individuals living with HIV in Wyoming

HIV in Wyoming

- Unfortunately, we saw an increase in newly identified HIV cases in 2023.
  - Average 12-15 cases a year
  - 2023: 22 new cases
- 2023 Demographic:
  - Age range: 24 – 77
    - Average age at dx: 40
  - 18% female, 82% male
  - 32% Heterosexual

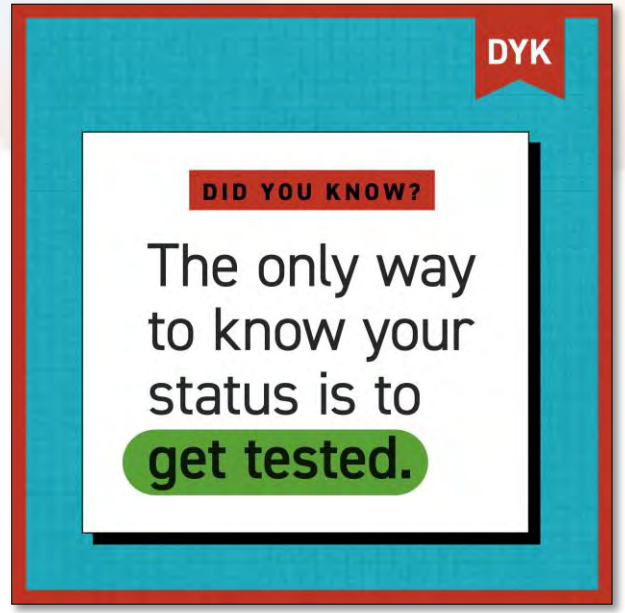
Risk(s) for HIV

- 13-64yo, test at least once regardless of risk
- Sexually active people
  - More than one sex partner
  - New partners
  - Having an STI increases your risk of HIV acquisition and transmission
- Pregnant persons
- Needle stick injuries, open wound exposures or mucosal exposures to blood or body fluids
- Survivor of sexual assault or abuse
- Tattoos or body piercing that are homemade or from an unlicensed facility or person
- Current or past history of injection drug use, intranasal drug use, sharing other drug equipment
- Current or past resident of detention or correctional facility
- Hepatitis B or C positive sexual contact
- Hepatitis B positive household contact
- Recipient of blood transfusions, blood components, or organ transplant prior to July 1992
- Recipient of clotting factor or blood concentrate prior to 1987
- Current or past history working in a healthcare setting
- People born to those living with HIV
- Current or past long-term hemodialysis
- People experiencing TB infection (latent or active)

Who Should Get Tested for HIV?

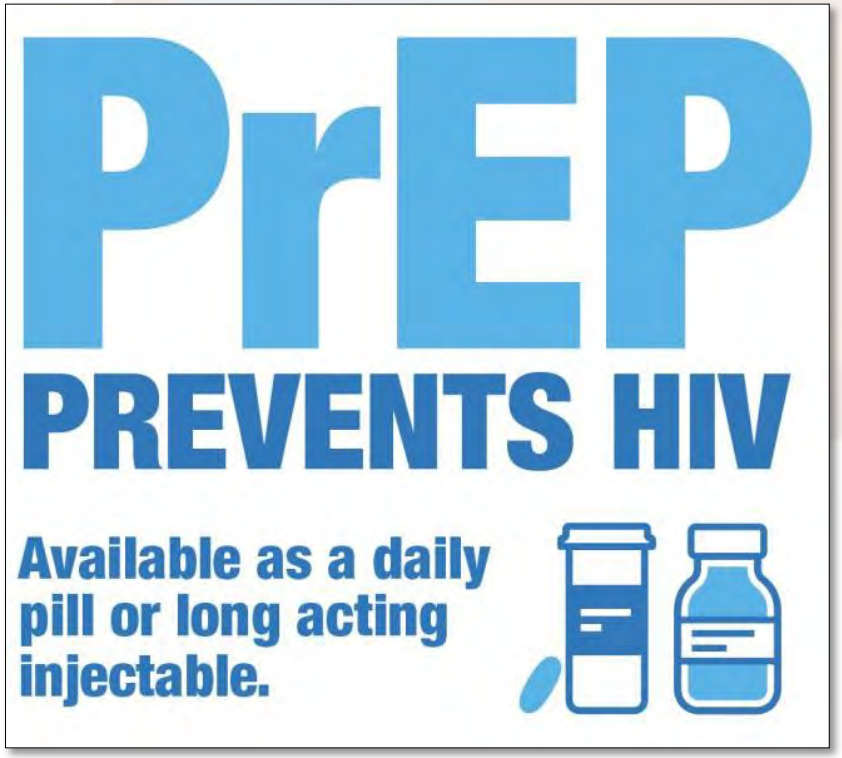
- Everyone age 13-64 should get tested at least once in their lifetime
  - **At minimum**, annually for every who has sexual contact, regardless of relationship status
    - Delayed diagnosis:
      - Poor outcomes: organ damage, visual impairment, etc.
      - Continued transmission
  - Test more often based on risk

- Encourage HIV testing in Emergency Department settings
  - Many folks who access emergency care do not have primary care or other access to healthcare
    - May be their only chance to have HIV testing



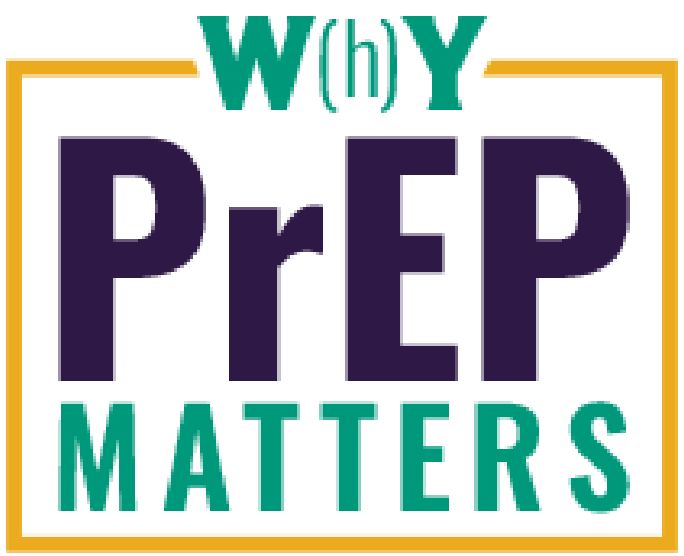
HIV Prevention with PrEP

- PrEP is Pre-Exposure Prophylaxis for HIV prevention
- PrEP reduces the risk of getting HIV from sex by about 99% when taken as prescribed.



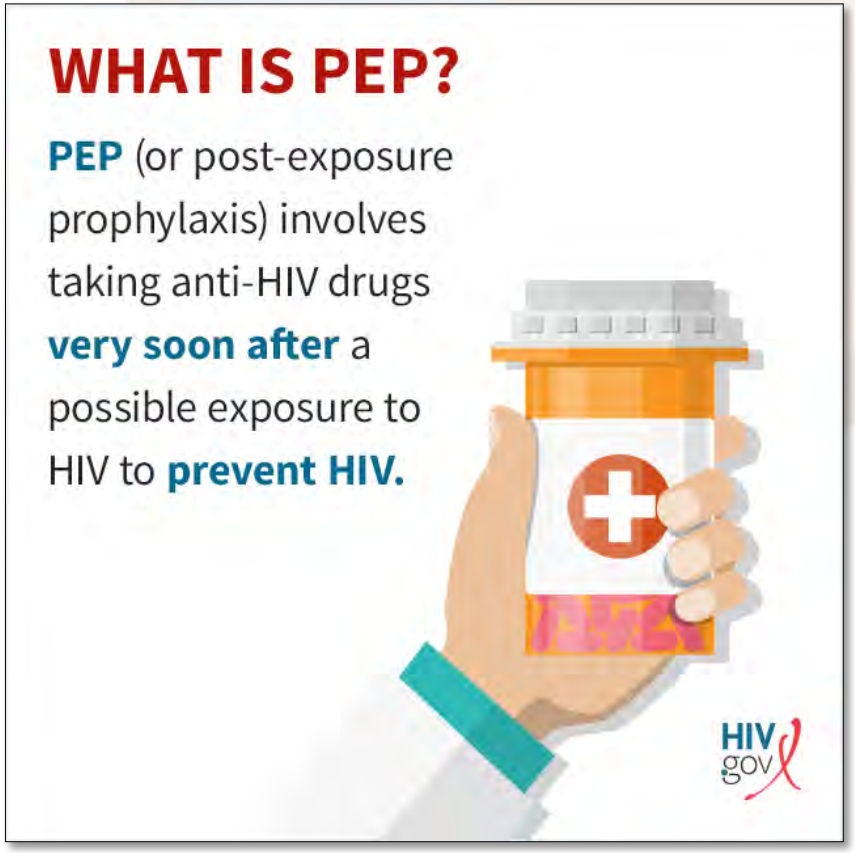
2023 HIV Testing History & PrEP Use

- 30% of our cases reported either **never** having been tested for HIV before, or being **unsure** if they had ever been tested before
- Average time since last tested: 5 years
- 25% of our cases had a negative HIV test **within 12 months** of their diagnosis
- 25% of our cases reported having a **partner living with HIV** at some point in their sexual history
- 15% reported PrEP use at some point
- 15% of our cases were diagnosed as part of **seeking PrEP**



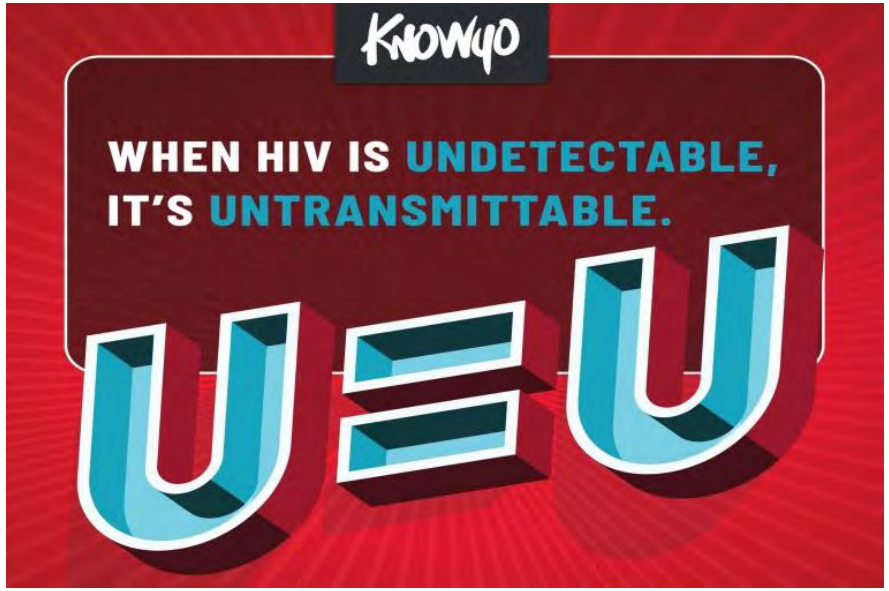
HIV Prevention with PEP

- Substantial risk for HIV acquisition
  - Exposure to HIV infected blood/body fluids
  - Sexual assault/abuse, shared needles/works, needle stick, sexual contact
- Must start within 72hrs of exposure
  - Offer PEP to patients presenting to ER within 72hrs of exposure
- 28 day medication regimen
  - Tenofovir Disoproxil/Emtricitabine
    1 tab, qd x28 days
  - Raltegravir
    2 tab, po, qd x 28 days
- CDC PEP Consultation Service for Clinicians:
  - 1-888-448-4911
  - 9am-8pm EST Monday–Friday &
    11am -8pm EST on weekends/holidays



Undetectable=Untransmittable

	Testing	HIV viral load routinely
+	Medication	HIV medication taken as prescribed
+	Undetectable	HIV viral load
	Untransmittable	HIV infection

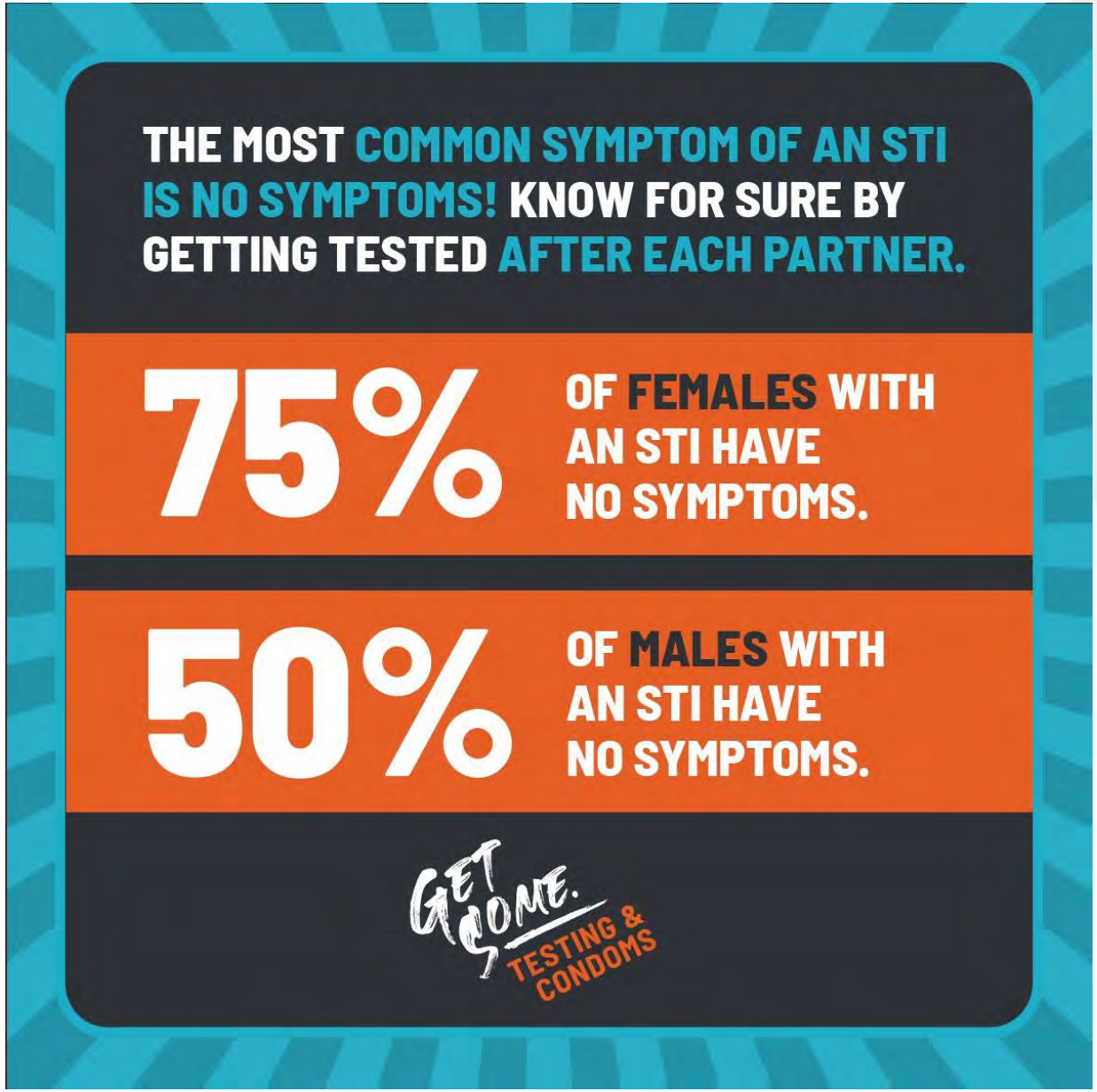


Click here for more information on U=U!

HIV in Wyoming Webinar

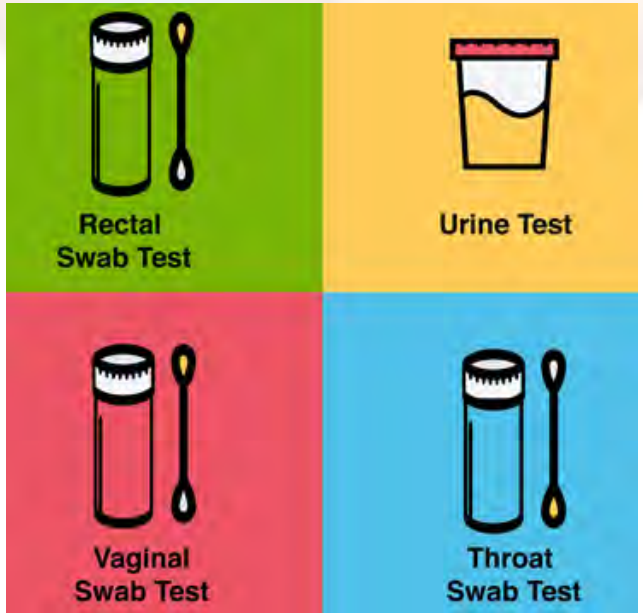
- We recently offered a webinar with more extensive information on HIV.
- This webinar can be accessed on our CDU Prevention Webinar Google Drive

STIs


THE MOST COMMON SYMPTOM OF AN STI IS NO SYMPTOMS! KNOW FOR SURE BY GETTING TESTED AFTER EACH PARTNER.
75%
OF FEMALES WITH AN STI HAVE NO SYMPTOMS.
50%
OF MALES WITH AN STI HAVE NO SYMPTOMS.
GET SOME.
TESTING & CONDOMS

Extragenital Chlamydia and Gonorrhea Testing

- Also referred to as “three site” testing
- Chlamydia (CT) and gonorrhea (GC) can occur in the genitals, pharynx, and/or rectum.
- Pharynx and/or rectum can be positive when genitals are negative.
- Different sites may be infected with different organisms.
  - Example: +CT/-GC genital, +CT/+GC pharyngeal, -CT/+GC rectal
  - Testing genitals only would miss GC infection, ineffective treatment.
- Untreated infections can result in infertility, pelvic inflammatory disease (PID), disseminated gonococcal infection (DGI).
  - DGI is usually characterized by arthritis, tenosynovitis, and/or dermatitis, and can be life threatening.



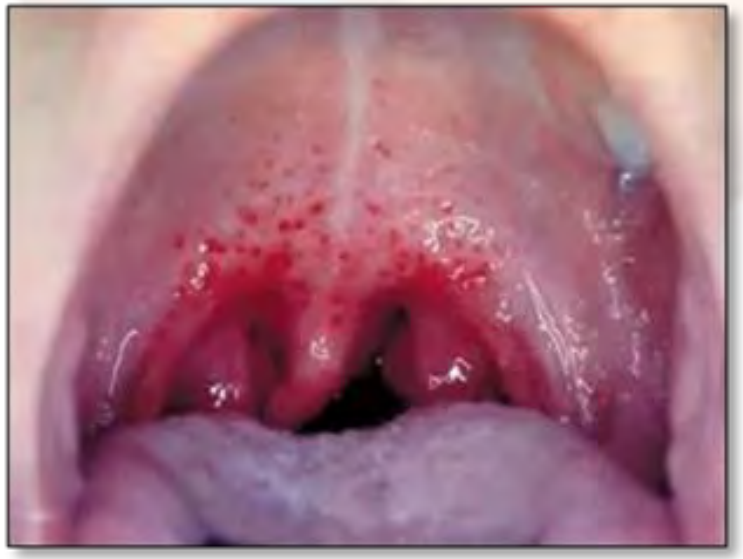
Why Do Extragenital Testing?

CDC 2021 Treatment Guidelines:

- Pharyngeal infections with gonorrhea or chlamydia might be a principal source of urethral infections
- Approximately 70% of gonococcal and chlamydial infections might be missed if urogenital-only testing is performed
- Although these infections [pharyngeal] rarely cause complications, they have been reported to be a major source of community transmission and might be a driver of antimicrobial resistance

Untreated STIs increase risk for:

- HIV acquisition
- HIV transmission



Urine vs. Vaginal Specimens

- For those born with a vagina:
  - Vaginal swab is the preferred specimen type
  - Vaginal swab specimens are as sensitive as cervical swab specimens, and there is no difference in specificity (82–87).
  - Self-collected vaginal swabs are equivalent in sensitivity and specificity to those collected by a clinician (83,88)
- First catch urine from women, while acceptable for screening, might detect up to 10% fewer infections when compared with vaginal and endocervical swab samples

[1] Recommendations for the Laboratory-Based Detection of *Chlamydia trachomatis* and *Neisseria gonorrhoeae* — 2014. https://www.cdc.gov/mmwr/preview/mmwrhtml/rr6302a1.htm

Provider vs. Self-Collected Vaginal Swabs

This Changed My Practice:

Indications and value of self-administered vaginal swabs for STIs and vaginitis – Dr. Roberto Leon

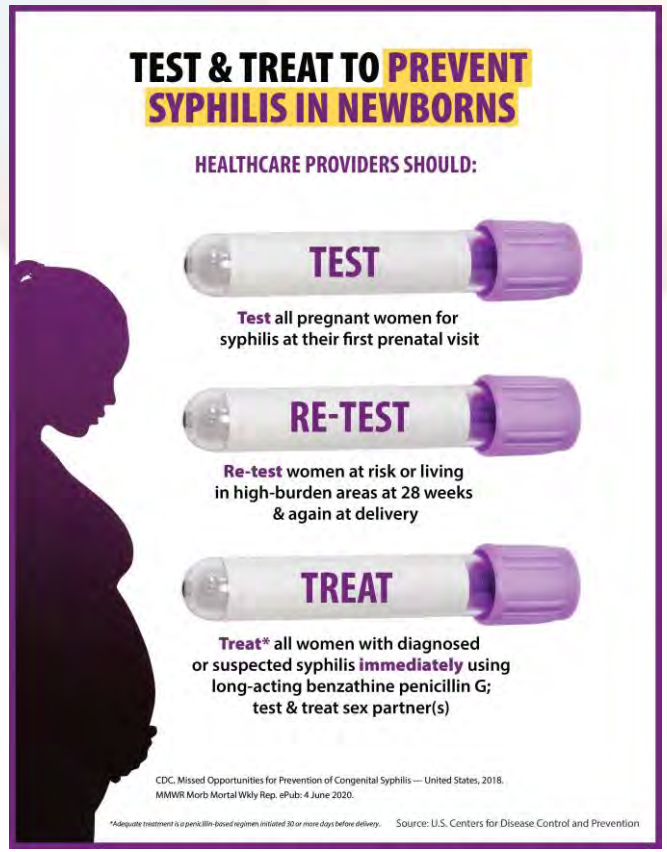
- British Medical Journal by Sarah Schoeman
- 3,867 participants
- Participant conducted self swabs upon arrival
- Provider collected swabs were then conducted during exam
- 10.2% infected with CT
- Self-collected was more sensitive than provider collected, 97% vs. 88%

- 67% of women preferred self collected

https://thischangedmypractice.com/self-administered-vaginal-swabs-sti-vaginitis/

Syphilis Call to Action

- **In 2022 U.S. Syphilis Cases Reach Highest Numbers Since the 1950s**
- Up to **40%** of babies born to women with untreated syphilis may be stillborn, or die from the infection as a newborn
- Congenital syphilis is **preventable** with appropriate testing and treatment
- Test based on risk as indicated by the current Wyoming CDU Testing recommendations
- **Repeat testing** should be provided to pregnant people, in accordance with the testing algorithm on the Health Professional Resources CDU webpage, throughout the duration of the pregnancy if any of the following apply to the patient or their partner(s):
  - **Patient or partner have other sexual partners**
  - **Use of injection or intranasal drugs**
  - **Unprofessional or homemade tattoo(s) or piercing(s)**



2021 CDC STI Treatment Guidelines

App, pocket guides, and posters are available on the CDC website
CDC Recommended Treatments:

Chlamydia

- **Doxycycline** 100mg bid x 7d
- If pregnant, azithromycin 1g PO

Gonorrhea

- If CT has been excluded:
  - Under 300lbs: 500mg **ceftriaxone** + 1.8mL lidocaine IM ventrogluteal x1
  - 300lbs or greater: 1 gram ceftriaxone + 3.6mL lidocaine IM vastus lateralis x1
- If CT has not been excluded
  - **Ceftriaxone** based on weight > or < 300lbs + Doxycycline 100mg bid x 7d

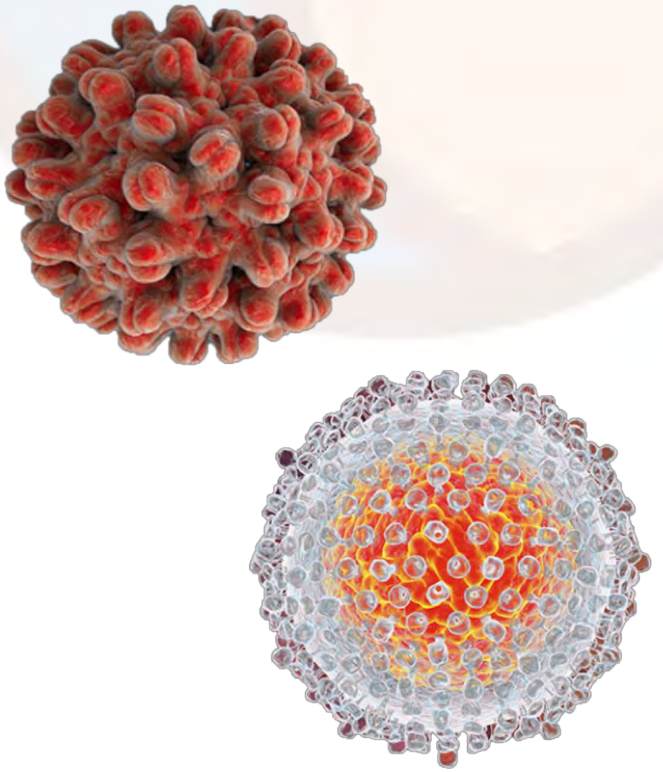
Syphilis

- Number of doses is based on the stage of syphilis, please contact Katelyn Hoff at 307-777-2434 regarding staging
  - Bicillin **L-A** (Benzathine penicillin G) 2.4mu (two 1.2mu tubex) IM
  - **Not** Bicillin C-R
- Consider treating non-pregnant persons with doxycycline to preserve Bicillin L-A due to national shortage
- For more information on this, please see the Syphilis HAN released by WDH (October 2023)

Hepatitis B & C

Hepatitis B & C Overview

- Both hepatitis B virus (HBV) and hepatitis C virus (HCV) cause liver infections that may be acute or become chronic.
- HBV and HCV are both transmitted through blood exposure and sexual contact with bodily fluids.
    - HBV can survive at least seven days in the external environment and maintain infectivity. HCV can survive externally and maintain infectivity for several weeks.
- HBV is vaccine-preventable.
- HCV can be cured with direct-acting antivirals (DAAs). Newer DAAs typically have a cure rate ≥95%.
- HBV does not yet have a cure and is instead managed with antiviral therapy which can reduce the risk of poor outcomes. HBV treatment is not recommended for all patients.



Patients with HBV and/or HCV Acquisition Risk

HBV

- Patients who use or previously used injection drugs
- Current or formerly incarcerated patients
- Patients receiving maintenance dialysis
- Patients with a history of multiple sex partners, men who have sex with men
- Patients living with HIV
- Close contacts of people living with HBV
- Patients born in high-prevalence regions

HCV

- Patients who use or previously used injection drugs
- Current or formerly incarcerated patients
- Patients receiving maintenance dialysis
- Patients living with HIV
- Close contacts of people living with HCV

Recommended Screening & Testing

HBV

- **All adults ≥18** should be screened at least once with a triple panel. More frequent testing is recommended for certain populations (pregnant patients, patients at risk for HBV exposure).
- The recommended triple-panel screening should include **anti-HBs**, **anti-HBc**, and **HBsAg** (bundling these tests can facilitate correct orders).

HCV

- **All adults ≥18** should be screened at least once with more frequent testing for certain populations (pregnant patients, patients at risk for HCV exposure).
- Best practice is an initial **anti-HCV screen with automatic reflex to HCV RNA** if positive.

HBV & HCV in the Healthcare Setting

- 2008-2019 66 outbreaks (≥2 cases) were reported to the CDC (25 HBV, 43 HCV). 62% occurred in non-hospital settings, primarily:
  - Assisted living and skilled nursing facilities
  - Hemodialysis providers (including inpatient, outpatient, and home care providers)
  - Dental clinic, outpatient clinics
- Outbreaks were associated with:
  - Infection control breaches such as improper hand hygiene and environmental cleaning
  - Syringe and vial reuse
  - Improper sterilization and unsafe practices related to podiatry and nail care
  - Drug diversion and narcotic tampering

Post-Exposure Considerations for HBV

- Verify employee immunization status
  - Dates of prior HBV vaccinations
  - Post-vaccination serology & anti-HBs titer

- Baseline testing for both the source patient and employee (ideally within 48 hours)
  - Source patient should be tested for anti-HBs, total anti-HBc, and HBsAg
  - If post-vaccination serology for the employee is unavailable, the employee should be tested for anti-HBs (with a quantitative result)

- If source patient has current or unknown HBV infection status:
  - If the employee is considered immune based on anti-HBs titer, no additional management is needed
  - If the employee is not considered immune, they should receive one dose each of HBIG and the HBV vaccine at separate body sites. They should then complete the remaining doses of the vaccination series with post-vaccination serology.

Post-Exposure Considerations for HCV

- Baseline testing for both the source patient and the employee (ideally within 48 hours)
  - HCV RNA is preferred for the source patient
  - Anti-HCV with reflex to RNA is preferred for the employee

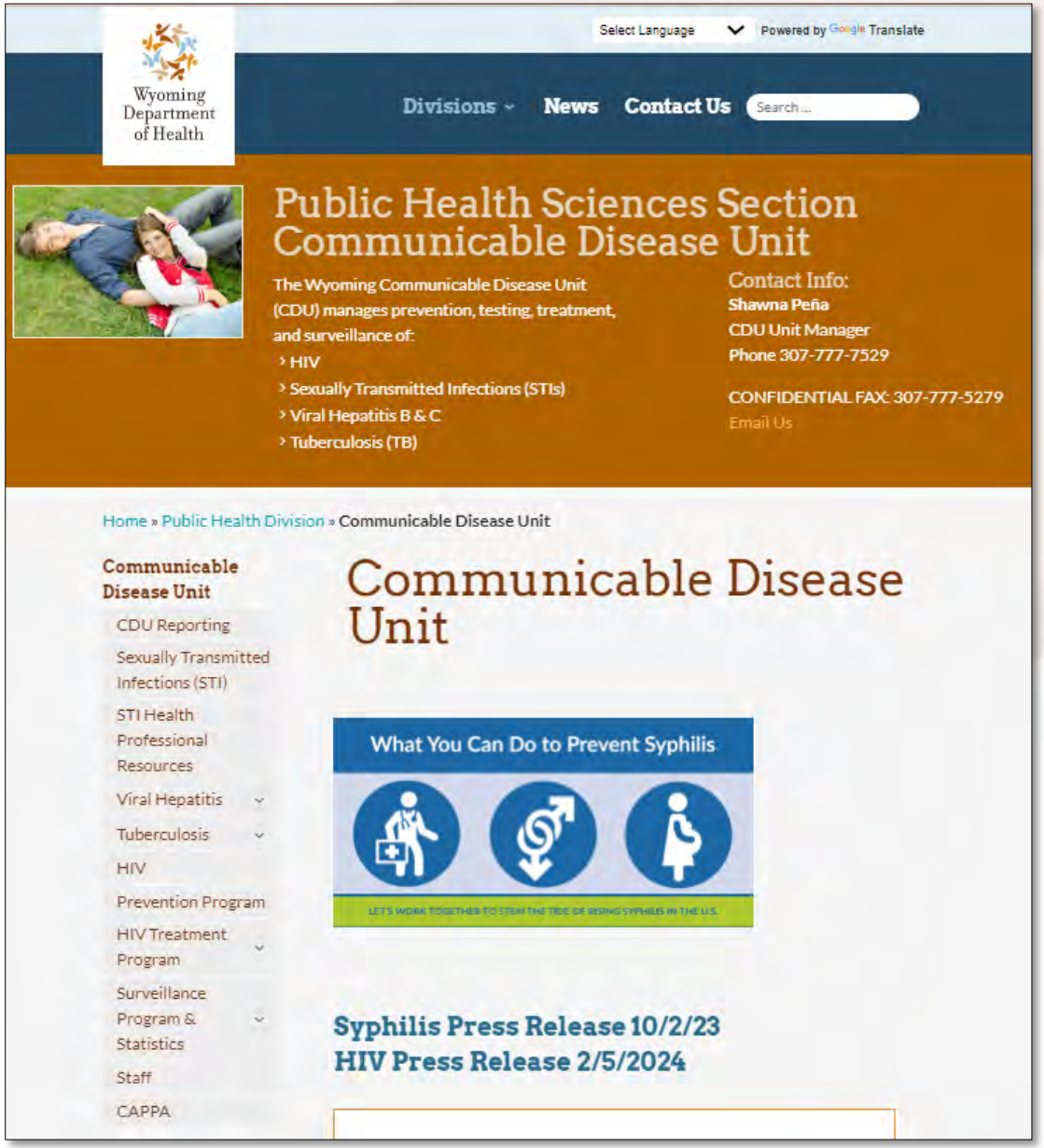
- If the source patient is HCV RNA positive or if source patient HCV RNA was unavailable:
  - 3-6 weeks after exposure, the employee should be tested for HCV RNA
  - 4-6 months after exposure, the employee should have a final anti-HCV with reflex to HCV RNA if positive

Resources

Website

[Link]

- Reporting
- STIs
- STI Health Professional Resources
- Virial Hepatitis
- Tuberculosis
- HIV
- Prevention
- HIV Treatment Program
- Surveillance
- Staff
- CAPPA



CDU Monthly Webinars

- 3rd Tuesday of every month, 2-3 or 4p
- Topic and registration link in the CDU Monthly Newsletter
  - #30 Jun: WY Department of Health Language Access
  - #31 Jul: DPTC Gender Affirming Care
  - #32 Aug: DPTC Syphilis
  - #33 Sep: KnoWyo Vouchers
  - #34 Oct: Surveillance
  - #35 Nov: CDU 101
  - #36 Jan: HIV in Wyoming
  - #37 Feb: 2024 KnoWyo Voucher Guidance
  - #38 Mar: TB 101
  - #39 Apr: CDU 340B, Retail, and EPT

Past webinars are available on the CDU Prevention Google Drive

CDU Monthly Newsletters

- Monthly Themes
- Unit & Program updates
- Training and engagement opportunities
- CDU Heroes
- Upcoming events
- Calendar
- Subscribe

Wyoming Department of Health

NEWSLETTER

Communicable Disease Unit

Monthly Theme: *STI and Sexual Assault Awareness*

April 2024

TOP NEWS

STI Awareness Month

April is STI Awareness month and it is the perfect time to learn about sexually transmitted infections (STIs). STI Awareness Week is observed the second full week in April, and it provides an opportunity to raise awareness about STIs and how they impact our lives; reduce STI-related stigma, fear, and discrimination; and ensure people have the tools and knowledge for prevention, testing, and treatment. The theme this year is, Talk. Test. Treat. Read More

APRIL IS STI AWARENESS MONTH

Sexual Assault Awareness Month

April 2024 marks the official 23rd anniversary of National Sexual Violence Resource Center's (NSVRC) Sexual Assault Awareness Month (SAAM). Even before its official declaration, SAAM was about both awareness and prevention of sexual assault, harassment, and abuse. Read More

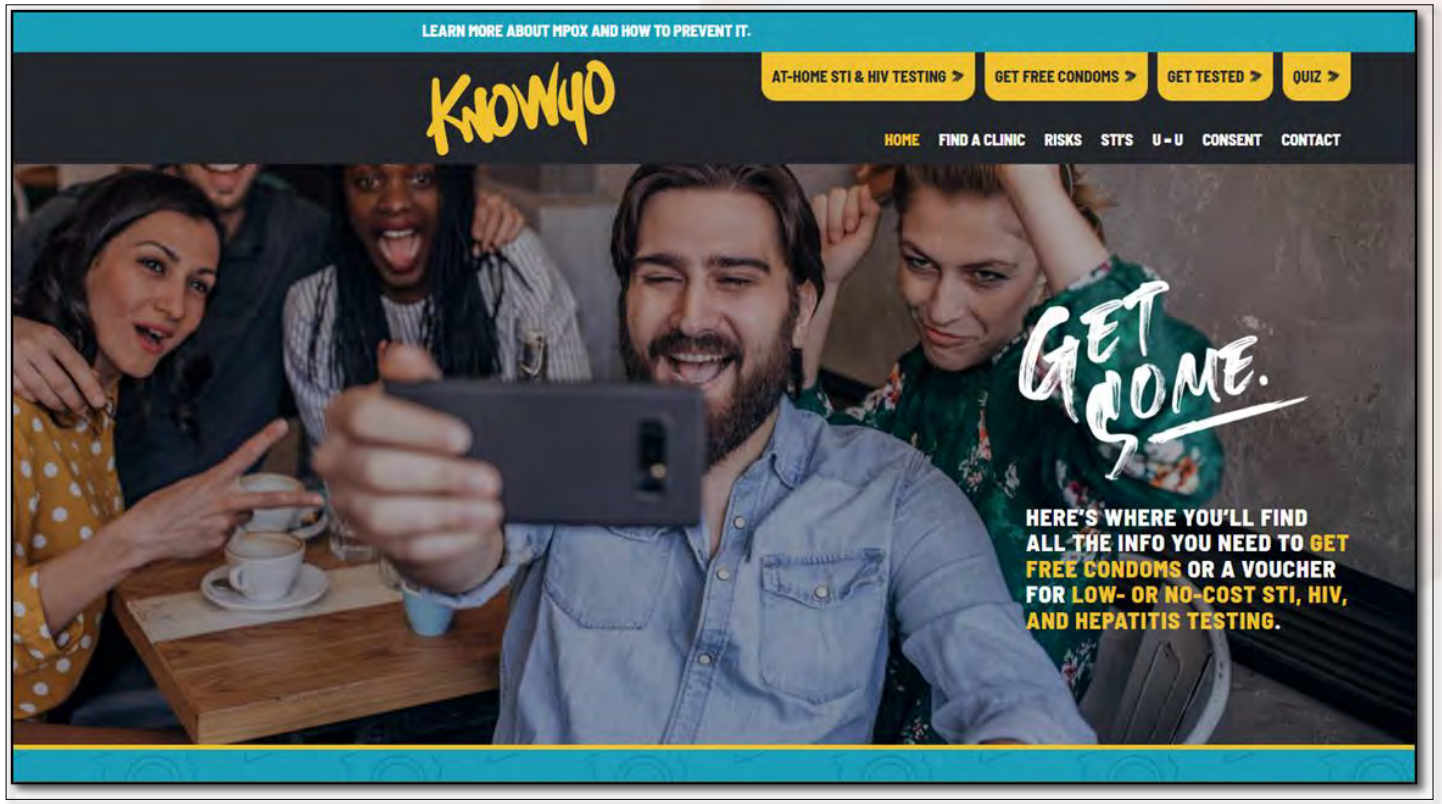
APRIL IS SEXUAL ASSAULT AWARENESS MONTH

New National Suicide Prevention Lifeline: 988
You can still use 1-800-273-8255 and many others are available here.

KnoWyo Website

https://knowyo.org/

- At-Home Testing
- Get Free Condoms
- Get Tested
- Quiz
- Find a Clinic
- Risks
- STIs
- U=U
- Consent
- Contact

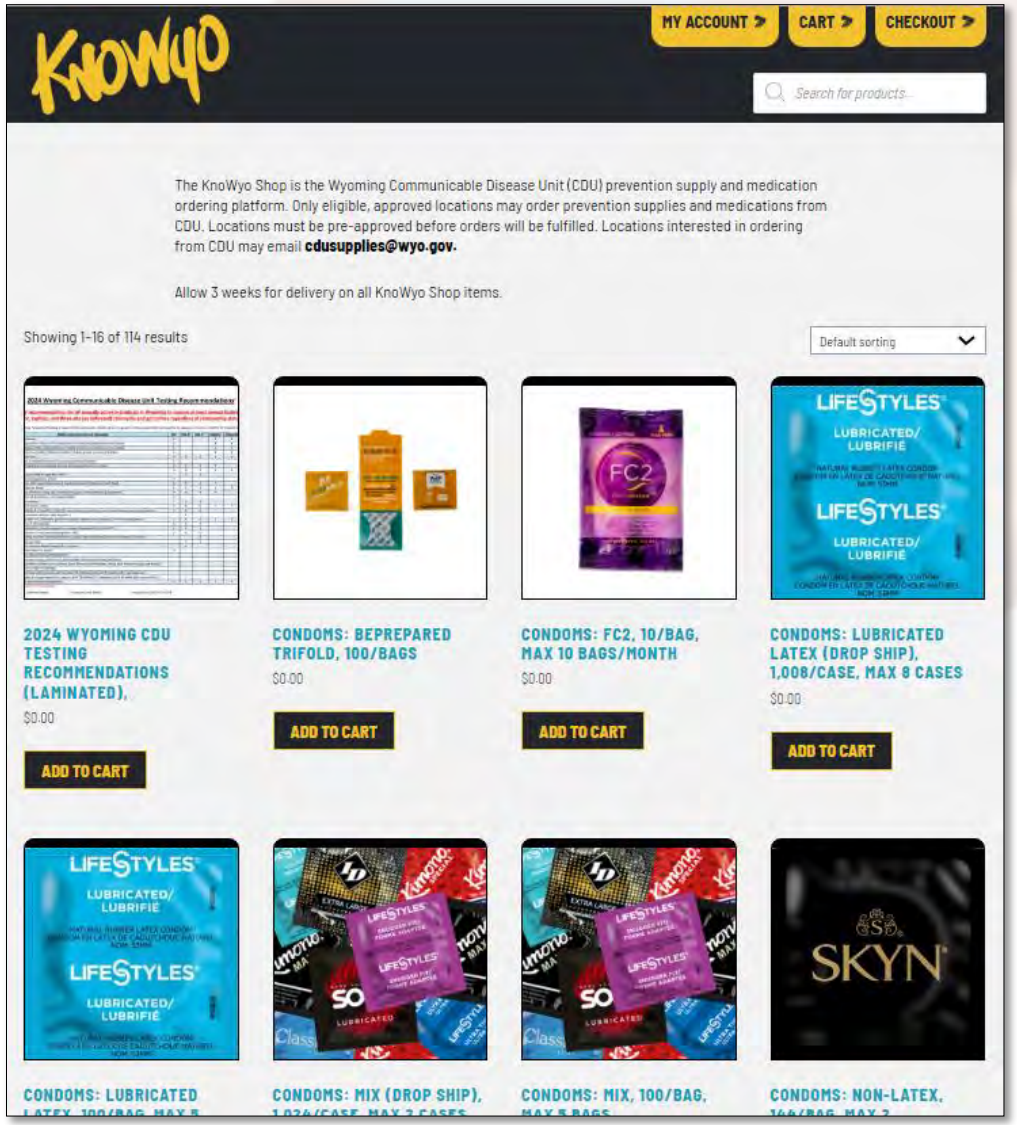


https://www.facebook.com/knowyo

https://www.instagram.com/knowyo

KnoWyo Shop

- Eligible organizations must be pre-approved
  - Email cdusupplies@wyo.gov
- Educational materials
  - Posters
  - Handouts
  - Brochures
- Prevention supplies
  - Condoms
  - Condom dispensers
  - Lubricant
  - Dental dams
  - Fentanyl test strip kits
- KnoWyo Voucher program testing supplies



KnoWyo Voucher Safety-Net Testing Program

- Federal grants which support safety-net testing for certain infections
- Reimburse KnoWyo testing sites for the cost of program approved tests based on current Wyoming Public Health Lab fees
- Over 40 in-person testing sites across the state
- Patient Eligibility
  - Wyoming address
  - Risk for HIV, chlamydia, gonorrhea, syphilis, hepatitis B, or hepatitis C infections based on the current WDH CDU Testing Recommendations
  - Due to funding limitations there are exceptions to hepatitis B & C testing).
- Testing Site Eligibility
  - Safety-net healthcare provider (Examples: public health, Title X, FQHC, university or student health clinic)
- Rapid HIV and HCV tests
- At-Home Testing
- KnoWyo Voucher Guidance

W[h]Y PrEP Matters

https://wyprepmatters.com/

- Why PrEP Matters
- The Basics
- People Who Inject Drugs
- Cost Concerns
- Find a Provider
- Resources
- U=U
- PrEP Provider Toolkit

PrEP, PEP, & HCV Navigation Assistance

We contract with Colorado Health Network (CHN) for patients in need of assistance navigating PrEP access or Hep C treatment access.

Provider referral or self referral link can be found on the main CDU web page.

COLORADO HEALTH NETWORK INC.

HEP C Treatment

HIV Peer Support Navigation

HIV Peer Support Navigation links those living with HIV to a Peer Support Navigator who is also living with HIV.

HIV Peer Support Navigation is for anyone in Wyoming who is living with HIV.

HIV Peer Support Navigator Program Goals:

- Provide support through lived experience, knowledge and understanding.
- Improve health outcomes for those living with and affected by HIV in Wyoming.
- Overcome barriers that may prevent engagement, retention, or re-engagement in treatment.

MCH Youth and Young Adult Health Program

The Youth and Young Adult Health Program is part of the WDH Maternal and Child Health Unit (MCH)

Wyoming Personal Responsibility Education Program (WyPREP)

Wyoming AIDS Education & Training Center

- Wyoming AETC
  - Located in Casper Natrona County Health Department
  - WY AETC Coordinator

  Madilyn Larson, B.S.
  307-577-9766
  mlarson@cnchd.org

Wyoming AIDS Assistance

“For over 15 years, we have raised hundreds of thousands of dollars for men, women, and children living with HIV/AIDS in the state of Wyoming.

To date we have raised over $200,000 to assist HIV/AIDS positive people with their medical, dental, vision, and mental health care costs.

Your generosity has helped countless people avoid eviction, gain access to purified water, and pay for expenses that insurance or other assistance programs don’t cover.”

https://wyoaids.org/

WYOAIDS ASSISTANCE

HELPING WYOMINGITES WITH HIV/AIDS

WYOMING
CAPPA
CARE AND PREVENTION
PLANNING ALLIANCE

The Wyoming Comprehensive Care and Prevention Planning Alliance (CAPPA) is the statewide community planning group for HIV, AIDS, hepatitis and sexually transmitted infections (STI) Wyoming.

Community planning is a process by which the health department works in partnership with the community and key stakeholders to enhance access to HIV, hepatitis, and STI prevention, care, and treatment services for high risk populations. CAPPA members also advocate for consistent access to care and treatment across Wyoming.

Meetings are open to members and the public and are held a variety of locations across the state.

Funding is available for travel including reimbursement for mileage, lodging, and meals.

CAPPA Website

Leslie Fowler, BSN, RN

Prevention Program Manager

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leslie.fowler@wyo.gov

Haley McKee

Epidemiologist/DIS

307-777-5369

haley.mckee@wyo.gov

Wyoming Department of Health | PUBLIC HEALTH DIVISION

An Ounce of Prevention

The Real Impact of Sterilization Quality Assurance

ASP Advanced Sterilization Products

Objectives

1. Explore the value of biological indicators (BIs) in preventing surgical site infections (SSIs).
2. Highlight the true cost of surgical site infections.
3. Outline the role Infection Preventionists play in a hospital's sterility assurance program.
4. Provide practical strategies for improved collaboration between Sterile Processing and Infection Preventionists.

ASP Advanced Sterilization Products

Sterility Assurance

Sterility Assurance Programs

- Environment
- Equipment Maintenance
- Personnel Training

Sterility Assurance

Sterility Assurance Programs continued...

- Chemical Indicators
- Biological Indicators
- Department Processes
- Storage and Transport

Sterility Assurance

BIs As A Key Player

- Confirms microbial kill
- Detects sterilization failures
- Prevents late recalls

References: AAMI ST79:2017
AAMI ST58:2013/(R)2018

Advanced Sterilization Products

Surgical Site Infections

Patient Cost

- Delayed patient recovery
- Increased mortality rates

References: Kirkland KB, Briggs JP, Trivette SL, Wilkinson WE, Sexton DJ. The impact of surgical-site infections in the 1990s: attributable mortality, excess length of hospitalization, and extra costs. Infection Control & Hospital Epidemiology 1999.
Agency for Healthcare Research and Quality, "Surgical Site Infections", Sept 7, 2019. https://psnet.ahrq.gov/primer/surgical-site-infections

Surgical Site Infections

Patient Cost continued...

- Intangible impact to quality of life
- Anxiety and Stress

References: Andersson AE, Bergh I, Karlsson J, Nilsson K. Patients' experiences of acquiring a deep surgical site infection: an interview study. Am J Infect Control. 2010 Nov
Pinto A, Faiz O, Davis R, Almoudaris A, Vincent C. Surgical complications and their impact on patients' psychosocial well-being: a systematic review and meta-analysis. *BMJ Open*. 2016

Surgical Site Infections

Facility Cost

- Readmissions
- Prolonged hospital stays
- Reoperations

References: Urban JA. Cost analysis of surgical site infections. Surg Infect (Larchmt). 2006

Surgical Site Infections

Reputation Cost

- Making the headlines
- Patients go elsewhere
- Patient anxiety
- Reimbursements

References: Institute of Medicine (US) Committee to Design a Strategy for Quality Review and Assurance in Medicare; Lohr KN, editor. Medicare: A Strategy for Quality Assurance: VOLUME II Sources and Methods.
Kessler DP, Mylod D. Does patient satisfaction affect patient loyalty? Int J Health Care Qual Assur. 2011
WALB News. 'Pure devastation': VA center reports positive hepatitis, HIV tests due to unsterilized equipment. https://www.walb.com/2022/02/26/pure-devastation-va-center-reports-positive-hepatitis-hiv-tests-due-unsterilized-equipment/

Consistent Standard of Care

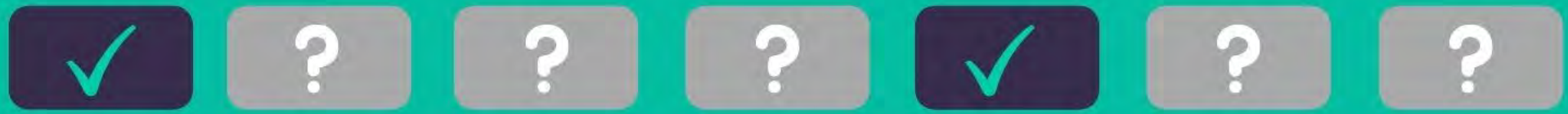
Every patient should receive the same quality of care!

Advanced Sterilization Products

Consistent Standard of Care

Sterility Assurance

- BI Used on First Load and with implants
- Loads in between have less assurance
- Sterility Assurance should match across modalities



ASP Advanced Sterilization Products

Guidelines and Best Practice

AAMI ST79:2018 "Comprehensive Guide to Steam Sterilization and Sterility Assurance in Health Care Facilities"

- Biological indicators should be used within PCDs for routine sterilizer efficacy monitoring at least weekly, but preferably every day that the sterilizer is in use. Biological indicators within a PCD may be used as part of the criteria for release of loads.

AAMI ST58:2018 "Chemical Sterilization and High-Level Disinfection in Health Care Facilities"

- 9.5.4.3- A PCD with the appropriate BI should also be used at least daily, but preferably in every sterilization cycle.

ASP Advanced Sterilization Products

Compliant Documentation

Requirements for Sterilization Records

- Critical sterilizer parameters (printout)
- Machine and load number
- Operator
- Load contents and test results

References: AAMI ST79:2017
AAMI ST58:2013/(R)2018

Advanced Sterilization Products

Compliant Documentation

Common Documentation Mistakes

- Incomplete BI results
- Misidentifying a BI
- Missing sterilization documentation
- Failure to document lot numbers

References: The Joint Commission. Updated: The Joint Commission's position on steam sterilization. Joint Commission Perspectives. July 2009

Surgical Site Infections

Strategies for Documentation Excellence

- BI automation
- Digital verification
- Digital storage
- Digital quality assurance

References: AAMI ST79:2017
AAMI ST58:2013/(R)2018

ASP Advanced Sterilization Products

IP and Sterility Assurance

- Infection Prevention and Sterile Processing should partner to develop a robust sterility assurance program.

- Infection Prevention should be aware of Sterile Processing's processes related to sterility assurance.

References: AAMI ST79:2017
AAMI ST58:2013/(R)2018

IP and Sterility Assurance

- Develop a sterilization recall policy:
  - Quarantine the load and immediately investigate
  - Identify the root cause
  - If the cause is not identified or confined to one item, initiate a recall
- Involve Infection Prevention in sterilization recalls.
- Clearly define how sterile instruments will be released.

References: AAMI ST79:2017
AAMI ST58:2013/(R)2018

Infection Prevention & Sterility Assurance

Involve Infection Prevention in evaluating sterility assurance products.

ASP Advanced Sterilization Products

Collaboration Between IP & SPD

How IPs Learn More About Sterile Processing

- Tour a Sterile Processing Department
- Ask questions
- Follow a tray through the process
- Listen to Sterile Processing podcasts

References: The Joint Commission, https://www.jointcommission.org/resources/news-and-multimedia/fact-sheets/facts-about-tracer-methodology/

Collaboration Between IP & SPD

Attend Education Sessions Together

- HSPA Conference
- APIC Conference
- Chapter meetings

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Collaboration Between IP & SPD

- Include Sterile Processing staff in Infection Prevention committees
- Give an IP presentation at an SPD meeting

Advanced Sterilization Products

Collaboration Between IP & SPD

Work together to improve reprocessing across the organization!

Connect With Us

Online

asp.com

Phone

+1 (888) 783 7723

Advanced Sterilization Products

References

- AAMI ST79:2017 (Slides 3, 4, 5, 12, 13, 15, 16, 17)
- AAMI ST58:2013/(R)2018 (Slides 3, 4, 5, 12, 13, 15, 16, 17)
- Agency for Healthcare Research and Quality, “Surgical Site Infections”, Sept 7, 2019. https://psnet.ahrq.gov/primer/surgical-site-infections (Slide 6)
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- Kirkland KB, Briggs JP, Trivette SL, Wilkinson WE, Sexton DJ. The impact of surgical-site infections in the 1990s: attributable mortality, excess length of hospitalization, and extra costs. Infection Control & Hospital Epidemiology 1999. (Slide 6)

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References

- Pinto A, Faiz O, Davis R, Almoudaris A, Vincent C. Surgical complications and their impact on patients' psychosocial well-being: a systematic review and meta-analysis. *BMJ Open*. 2016 (Slide 7)
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- The Joint Commission, https://www.jointcommission.org/resources/news-and-multimedia/fact-sheets/facts-about-tracer-methodology/ (Slide 19)
- Urban JA. Cost analysis of surgical site infections. Surg Infect (Larchmt). 2006 (Slide 8)
- WALB News. 'Pure devastation': VA center reports positive hepatitis, HIV tests due to unsterilized equipment. https://www.walb.com/2022/02/26/pure-devastation-va-center-reports-positive-hepatitis-hiv-tests-due-unsterilized-equipment/ (Slide 9)

C. Difficile and Sepsis: Costs and Prevalence among the Fee-For-Service (FFS) Medicare Beneficiary Population in Wyoming

Ray Tupling, MS, Data Scientist Supervisor

Better care, better population health and lower costs through improvement.

Quality Improvement Organizations
Sharing Knowledge. Improving Health Care.
CENTERS FOR MEDICARE & MEDICAID SERVICES

Mountain Pacific
INNOVATING BETTER HEALTH

An Aging and Growing Population

General Population (in thousands) by Location

Location	Year 2000	Year 2010	Year 2020	Avg Annual Percent Growth
United States	282162	309327	329484	0.9
Rocky Mtns	9269	10949	12547	1.8
Wyoming	494	565	582	0.8

Medicare Beneficiaries (in thousands) by Location

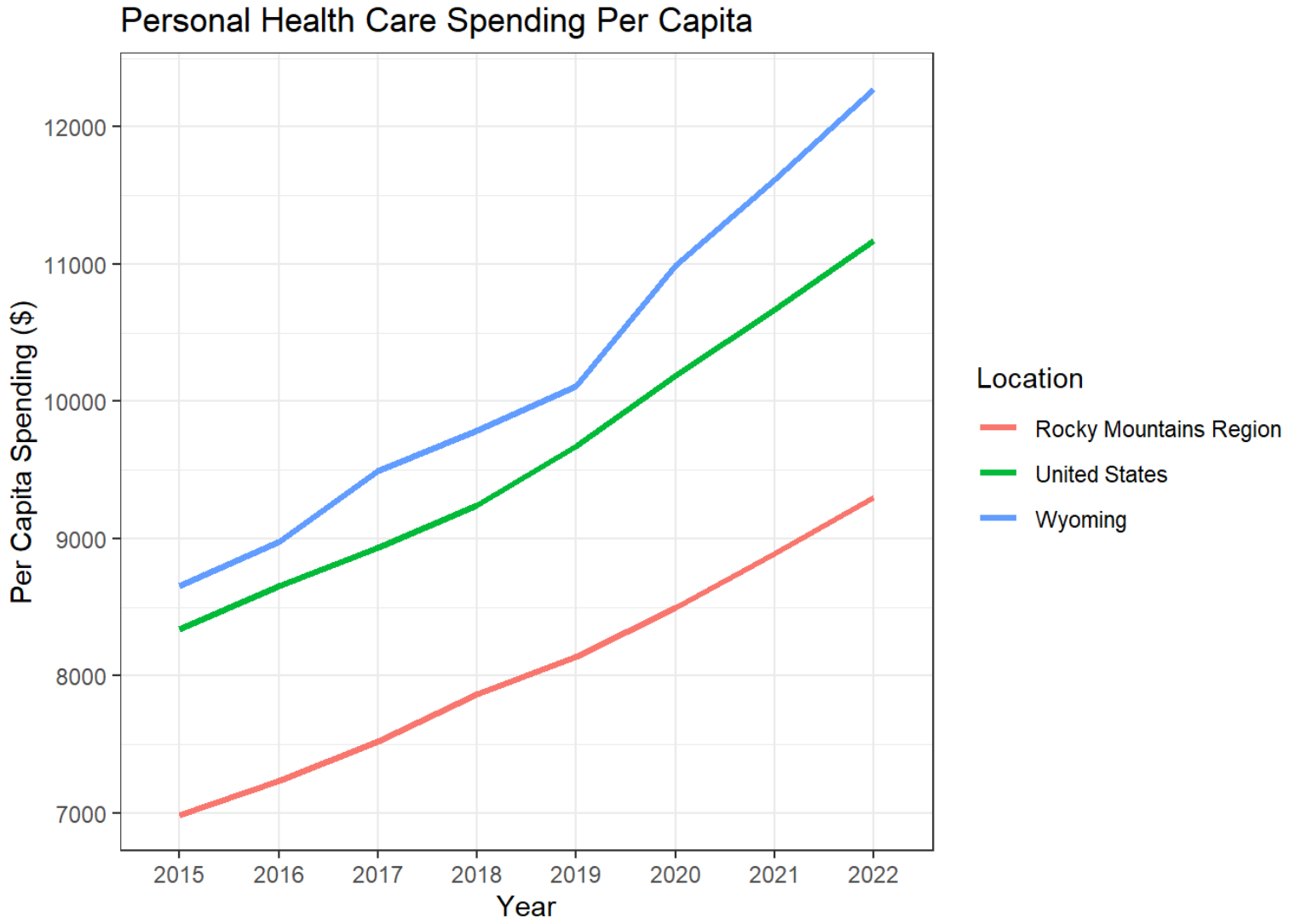
Location	Year 2000	Year 2010	Year 2020	Avg Annual Percent Growth
United States	38749	46585	61490	2.0
Rocky Mtns	1042	1387	2053	3.1
Wyoming	65	80	114	2.6

Per Capita Health Care Expenditures

- General U.S. Population
  - All ages
- Publicly available data
  - Centers for Medicare & Medicaid Services
  - U.S. Census Bureau
- Historical national health care expenditures
  - https://www.cms.gov/data-research/statistics-trends-and-reports/national-health-expenditure-data

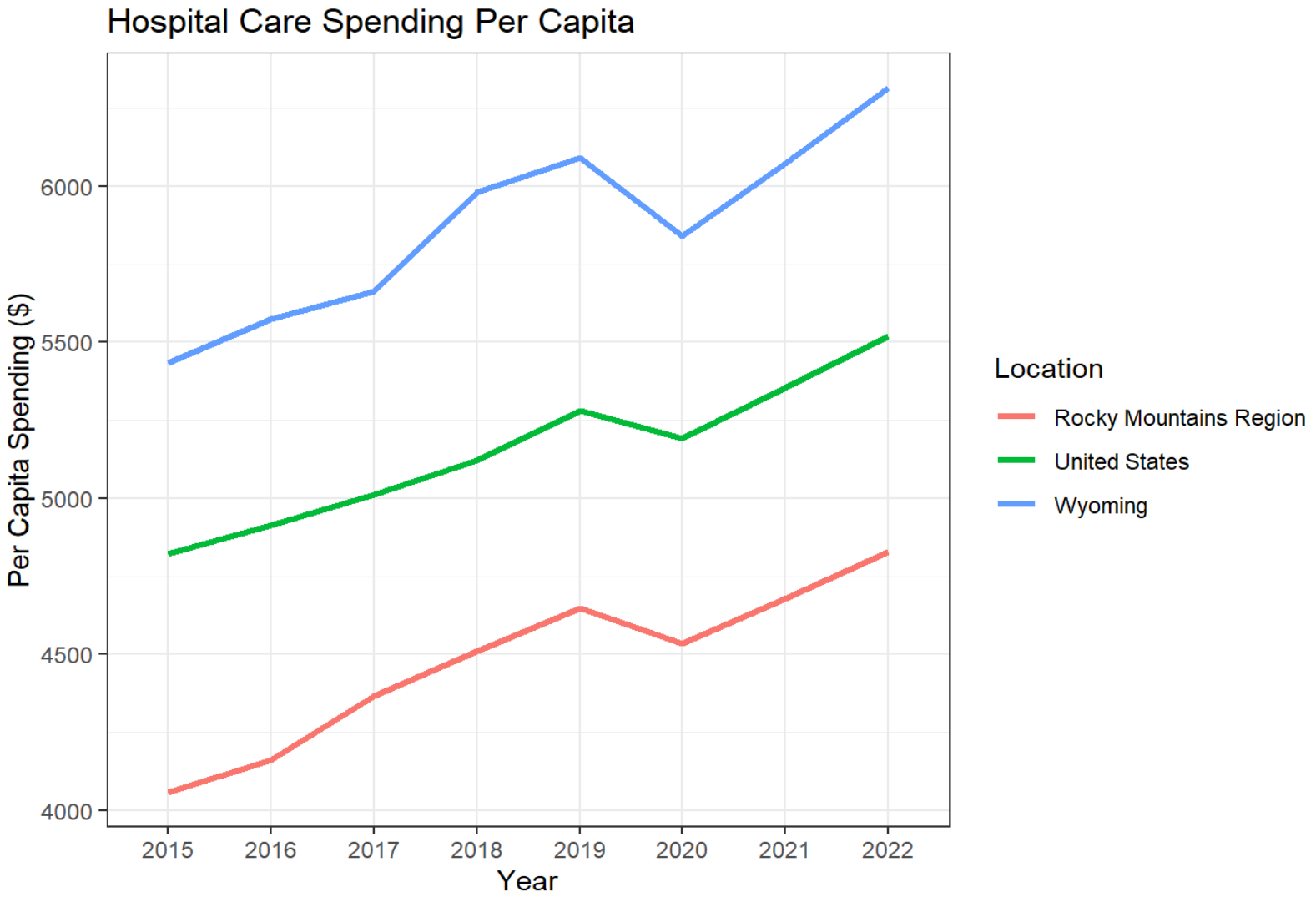
- **Rocky Mountain Region: Colorado, Idaho, Montana, Utah, Wyoming**

Personal Health Care: Wyoming Spends More Per Person



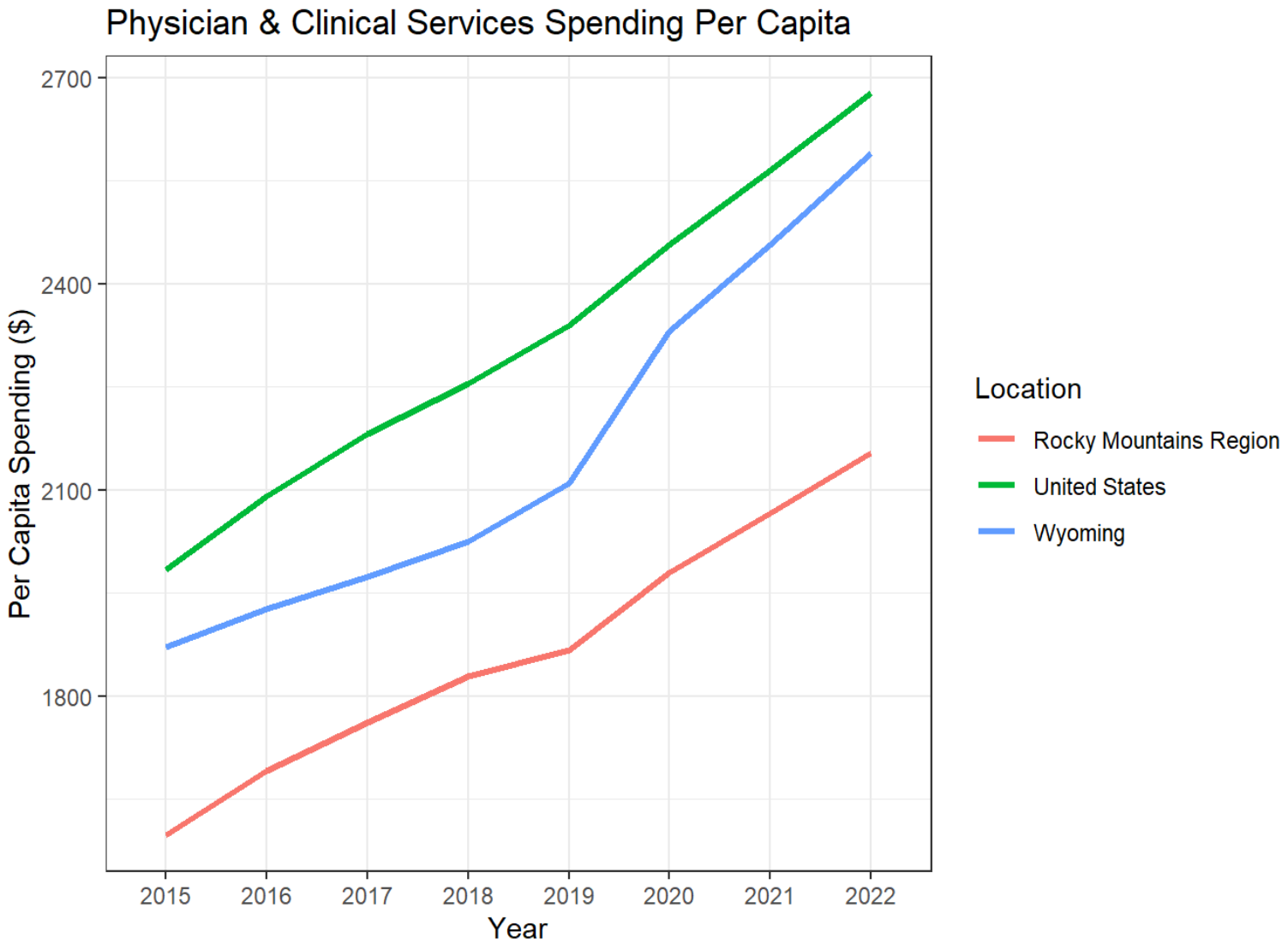
https://www.cms.gov/data-research/statistics-trends-and-reports/national-health-expenditure-data/state-residence

Inpatient Hospital Care: Wyoming Spends More Per Person



https://www.cms.gov/data-research/statistics-trends-and-reports/national-health-expenditure-data/state-residence

Outpatient Proxy: Wyoming Spends Slightly Less



https://www.cms.gov/data-research/statistics-trends-and-reports/national-health-expenditure-data/state-residence

General Population: Take Home Message

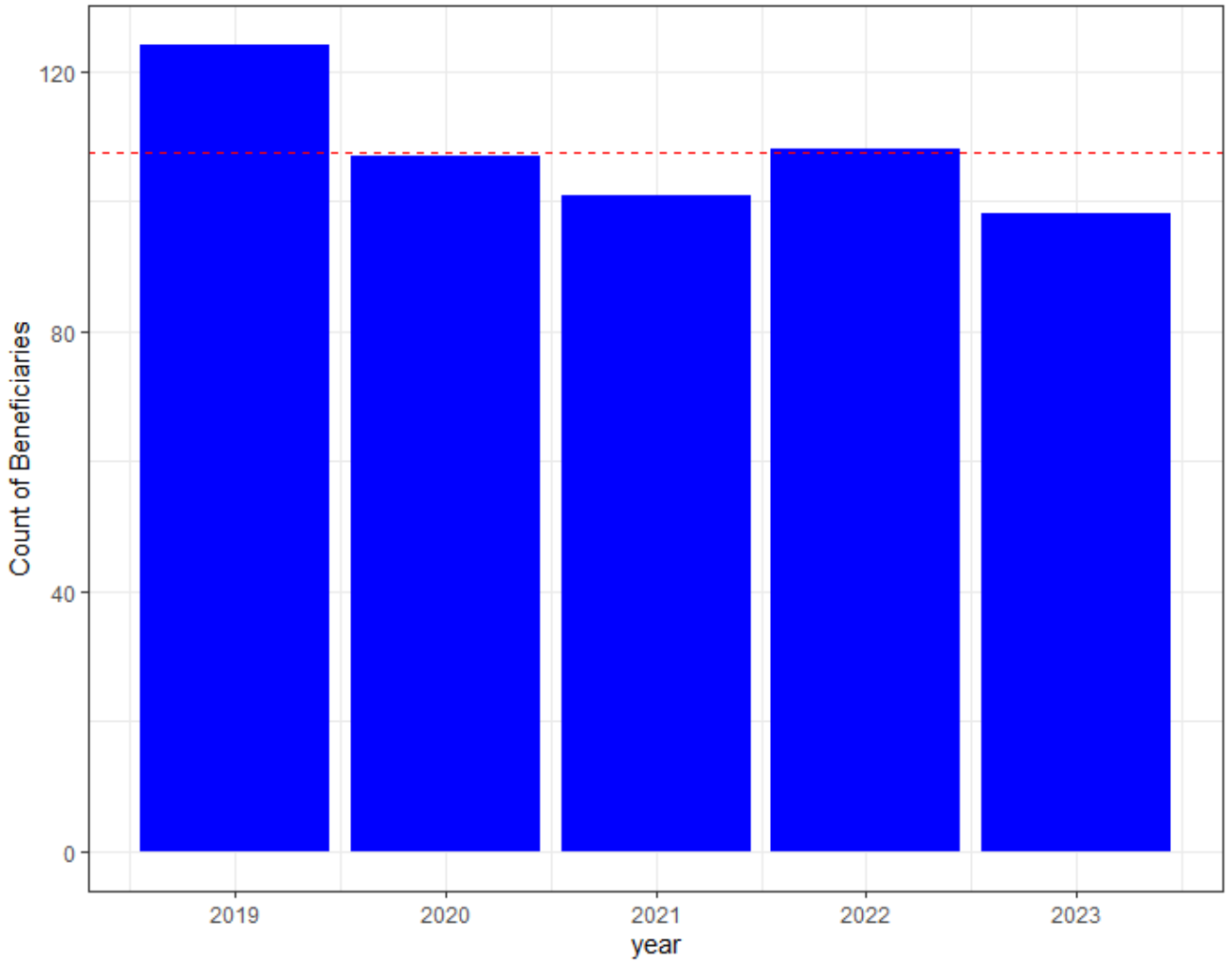
- Wyoming has a slow, but growing population (0.8% annually)
- Medicare Beneficiary population is growing faster (2.8% annually)

- Wyoming is less efficient at providing care
  - Assuming the same level of care across each state
- Residents are more likely to forgo care until inpatient care is necessary
  - Cost, access, social pressures
  - More spending on outpatient care and earlier interventions could save $ and time

FFS Medicare Beneficiaries

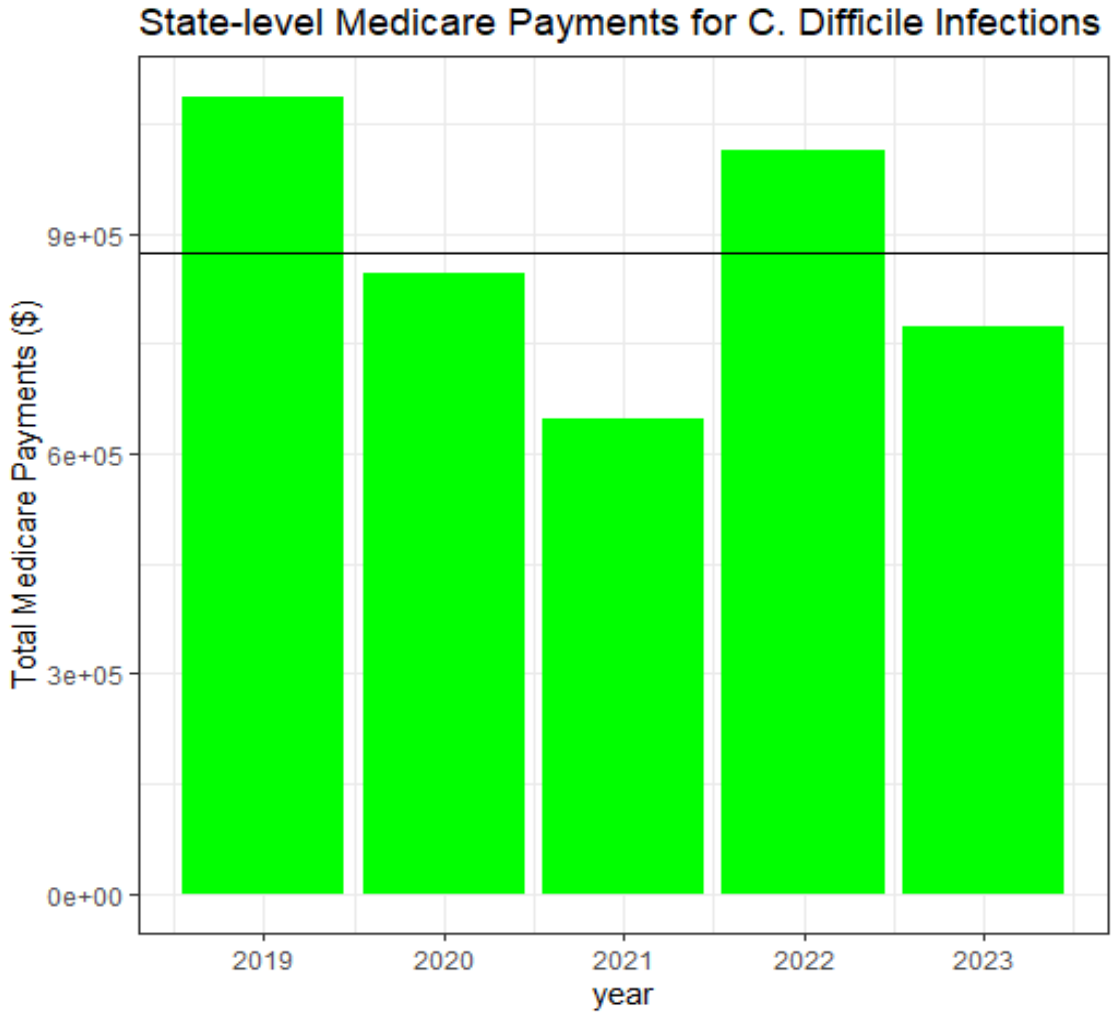
- Beneficiary Info
  - Beneficiary Information on the Cloud (BIC)
  - FFS Beneficiary Population: 110,500
  - Medicare Advantage: 6,800
- Part A (Inpatient) Claims
  - Jan 1, 2019 – Dec 31, 2023
  - ICD-10 Codes (as a primary and/or secondary diagnosis)

Annual Count of FFS Beneficiaries in Wyoming with a C. Difficile claim (primary diagnosis) - Annual Average: 107 beneficiaries

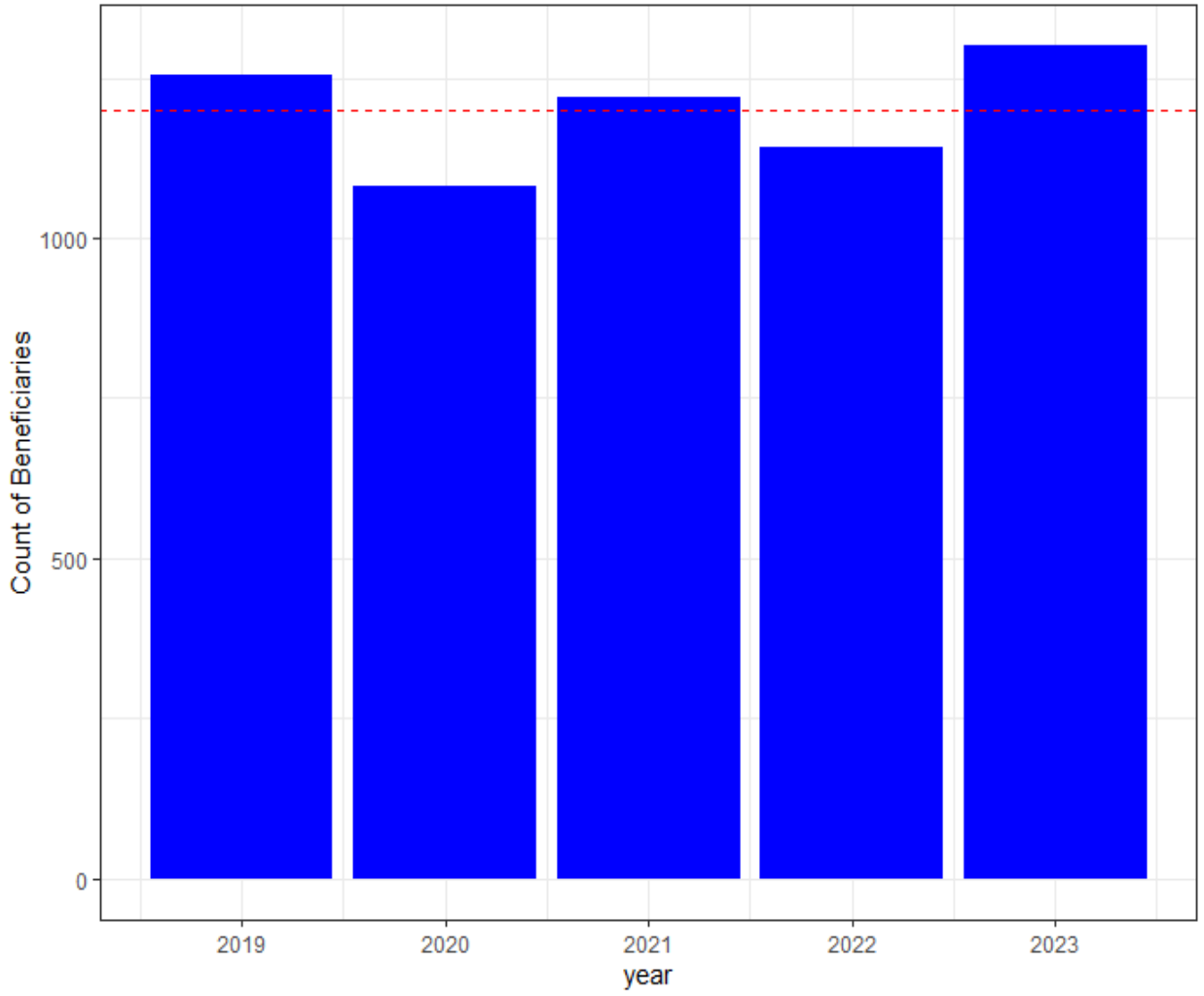


Annual Payments associated with C. Difficile claims (primary diagnosis) – Average annual payments: ~$870k

Per Capita Annual Average: $8200

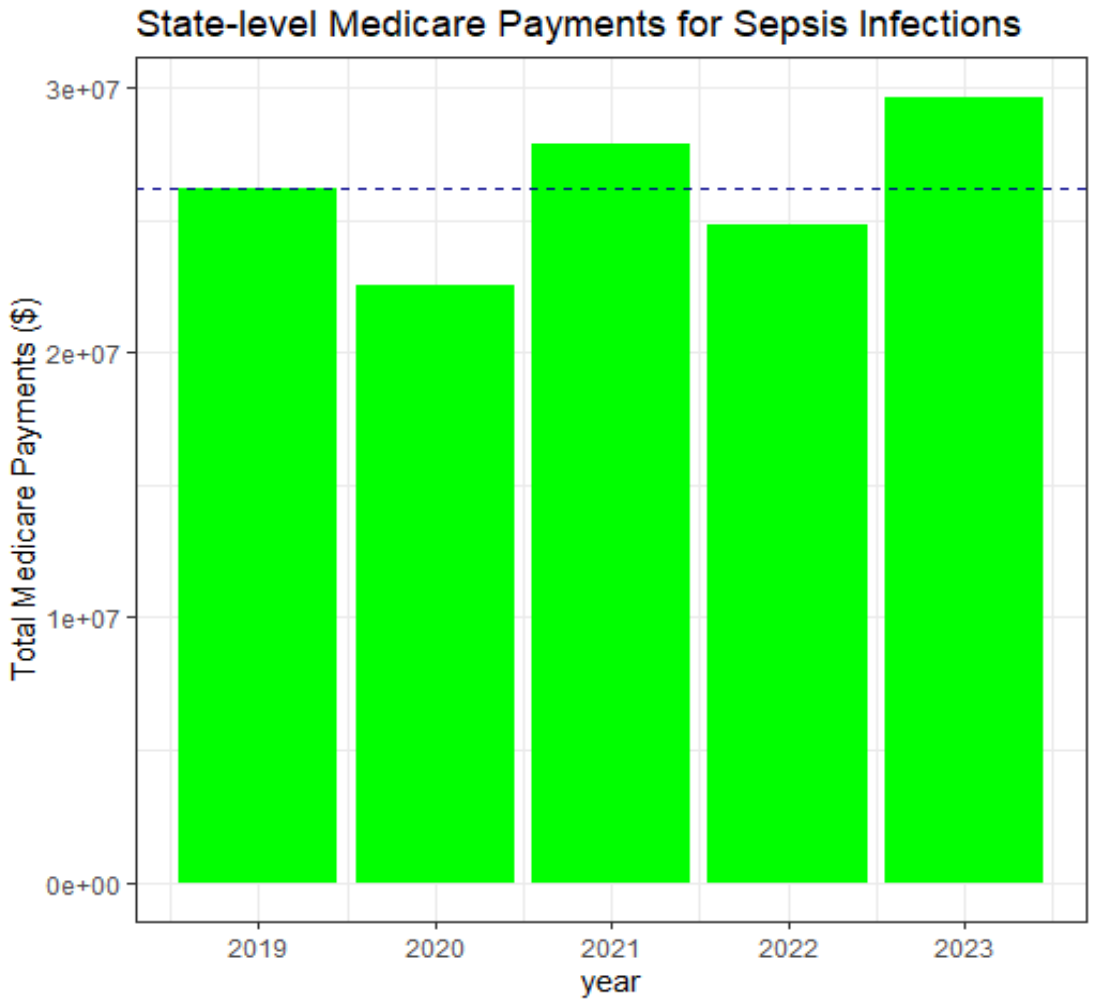


Annual Count of FFS Beneficiaries in Wyoming with a Sepsis claim (primary diagnosis) - Annual Average: 1200 beneficiaries



Annual Payments associated with Sepsis claims (primary diagnosis) – Average annual payments: ~$26 million

Per Capita Annual Average: $2200

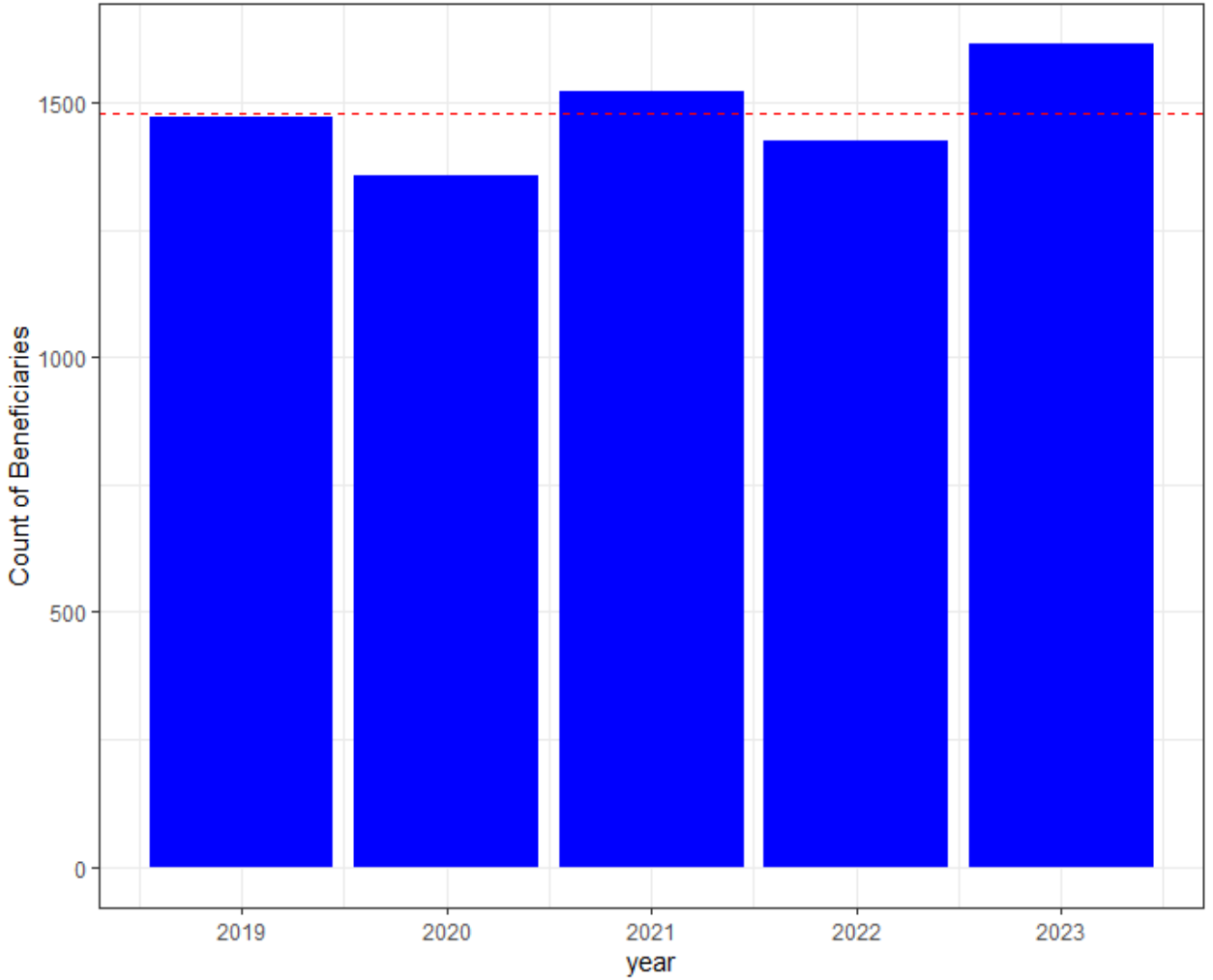


Expanded Costs

- The ICD diagnosis codes can now be found in any position on the claim.
  - A419 = Sepsis

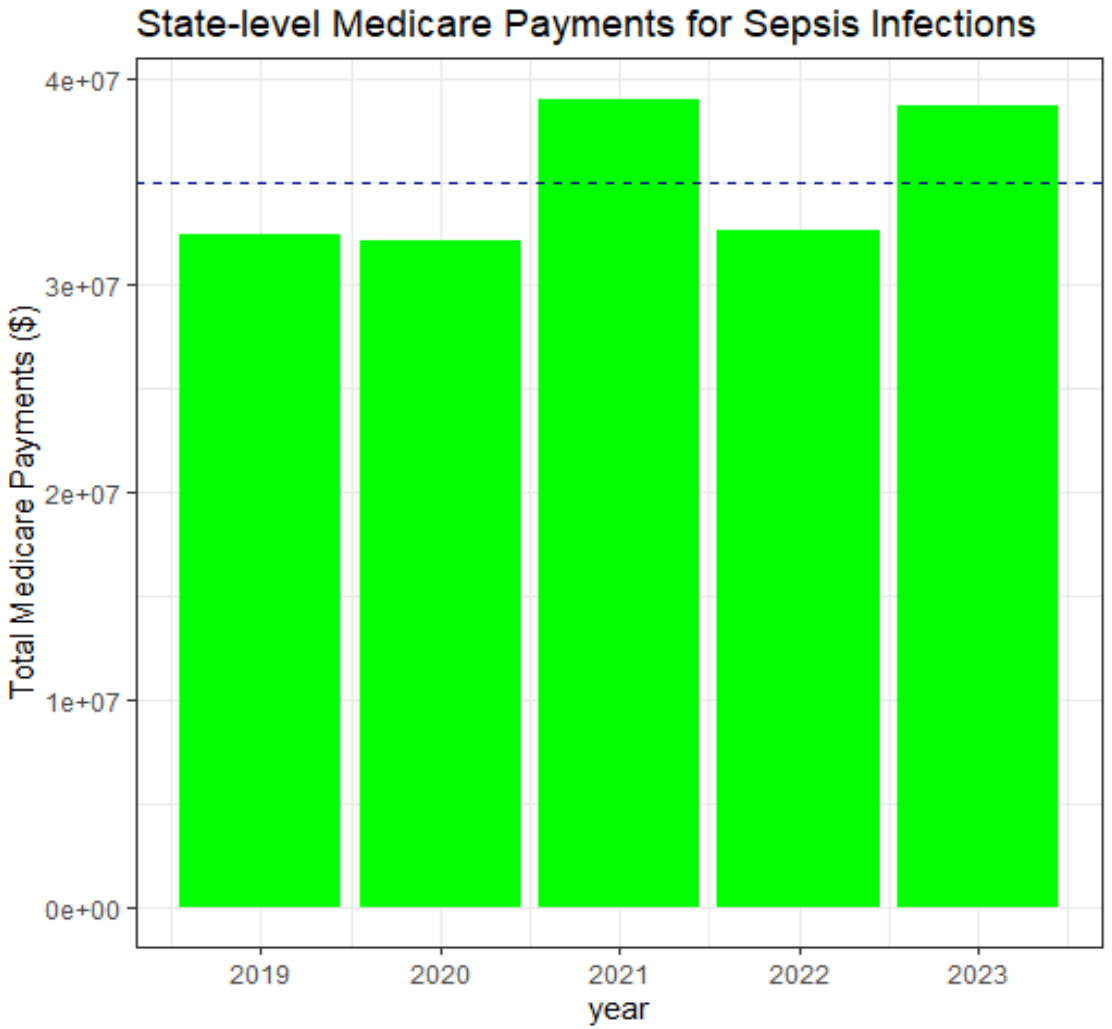
Medicare Beneficiary	Claim Payments	Diagnosis Code 1	Diagnosis Code 2	Diagnosis Code 3
John Doe	$2,000	**A419**	B129	C234
Jane Doe	$2,500	U071	**A419**	D456

Annual Count of FFS Beneficiaries in Wyoming with a Sepsis claim (any position) - Annual Average: 1478 beneficiaries

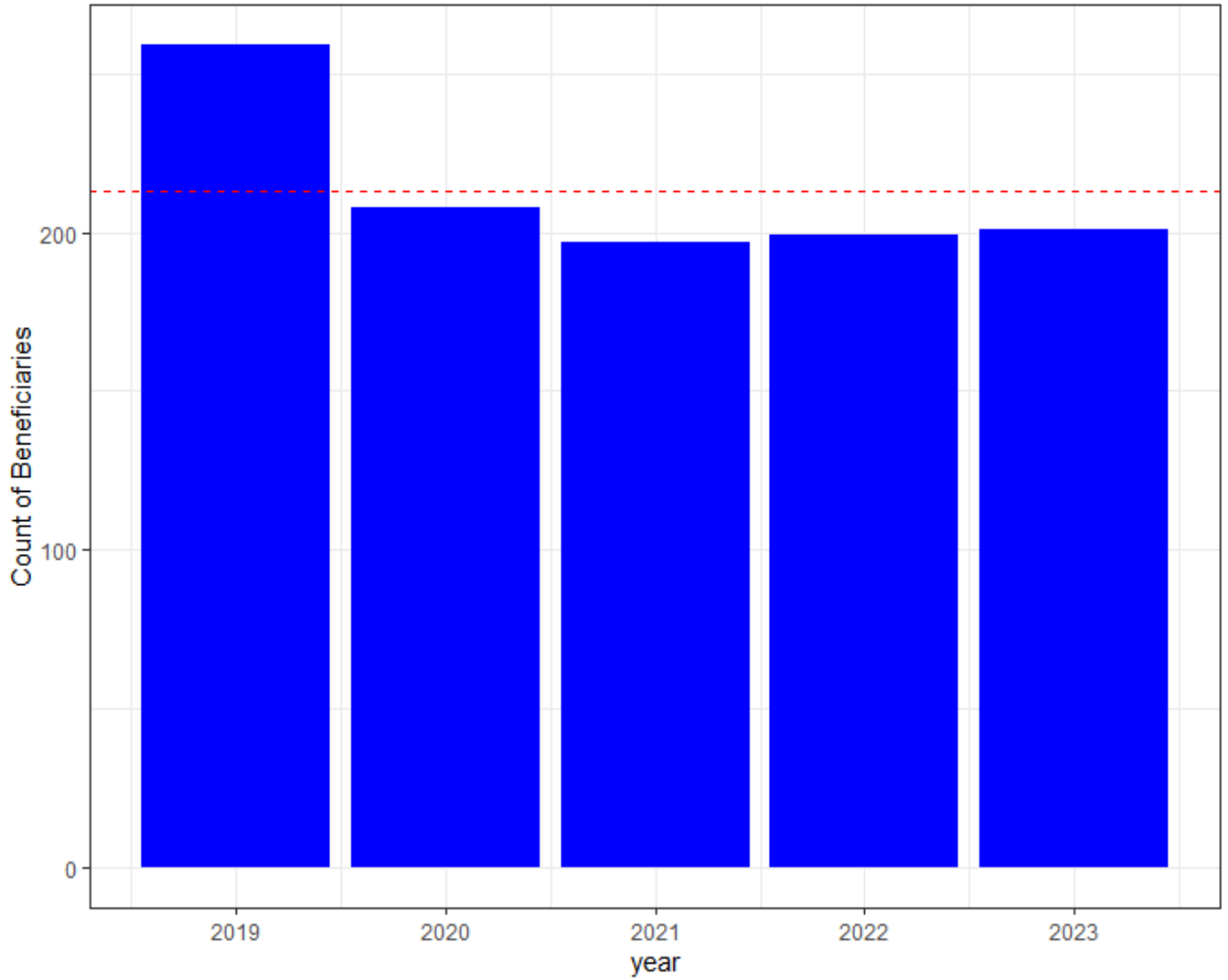


Annual Payments associated with Sepsis claims (any position) – Average annual payments: ~$35 million

Per Capita Annual Average: $23,000

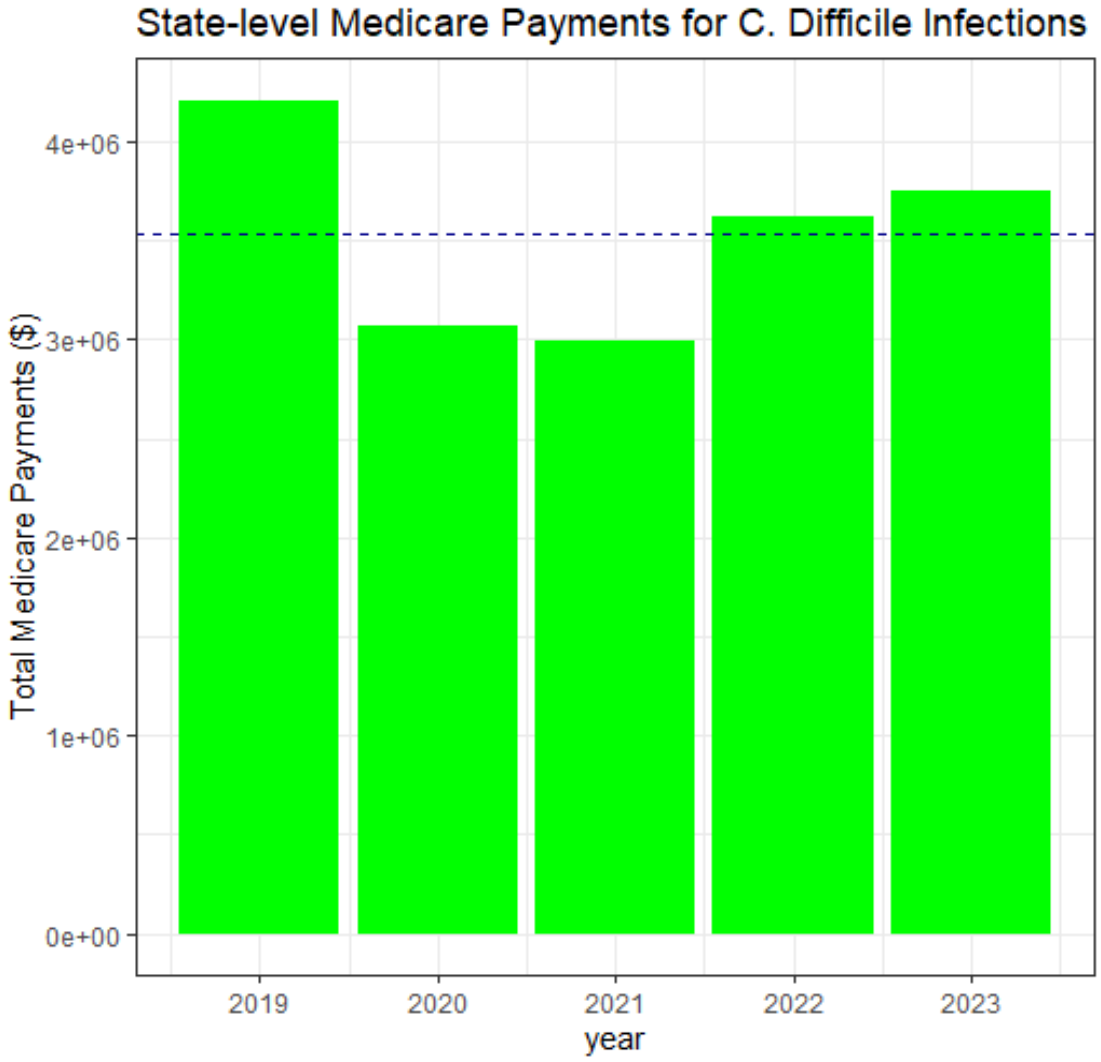


Annual Count of FFS Beneficiaries in Wyoming with a C. Difficile claim (any position) - Annual Average: 212 beneficiaries

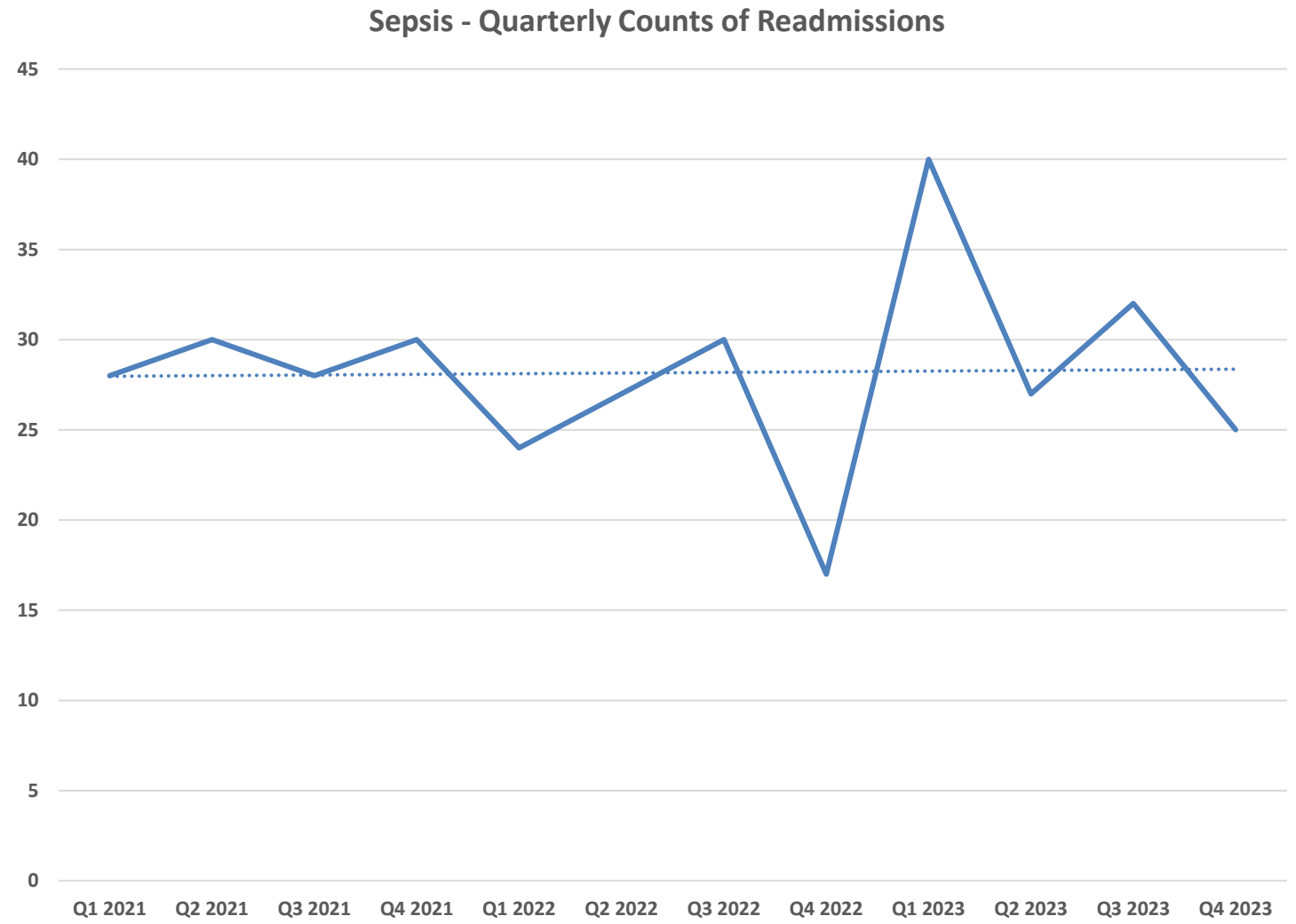


Annual Payments associated with C. Difficile claims (any position) – Average annual payments: ~$3.5 million

Per Capita Annual Average: $16,500



Every three months there are on ~28 sepsis readmissions among FFS Beneficiaries in Wyoming



C. Difficile and Sepsis in Wyoming Nursing Homes

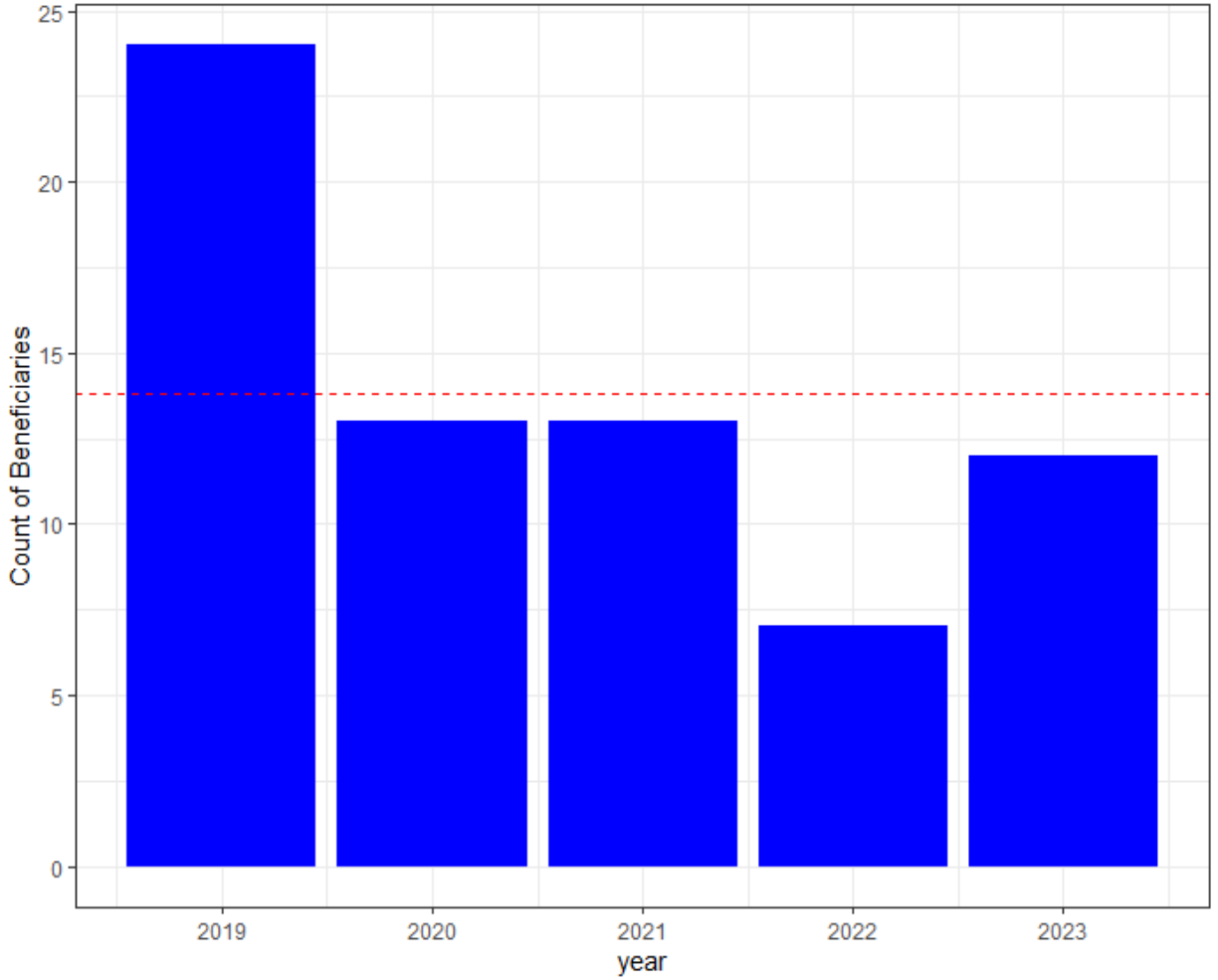
- ICD Diagnosis Code can be found in any position
- 44 nursing homes, skilled nursing facilities (SNFs), care centers and swing facilities
- 2,588 beds

Is it adequate for the aging population in Wyoming?

Annual Count of FFS Nursing Home Residents in Wyoming with a C. Difficile claim (any position) - Annual Average: 14 beneficiaries

53% of C. Difficile cases over the last five years have occurred in Laramie and Natrona Counties.

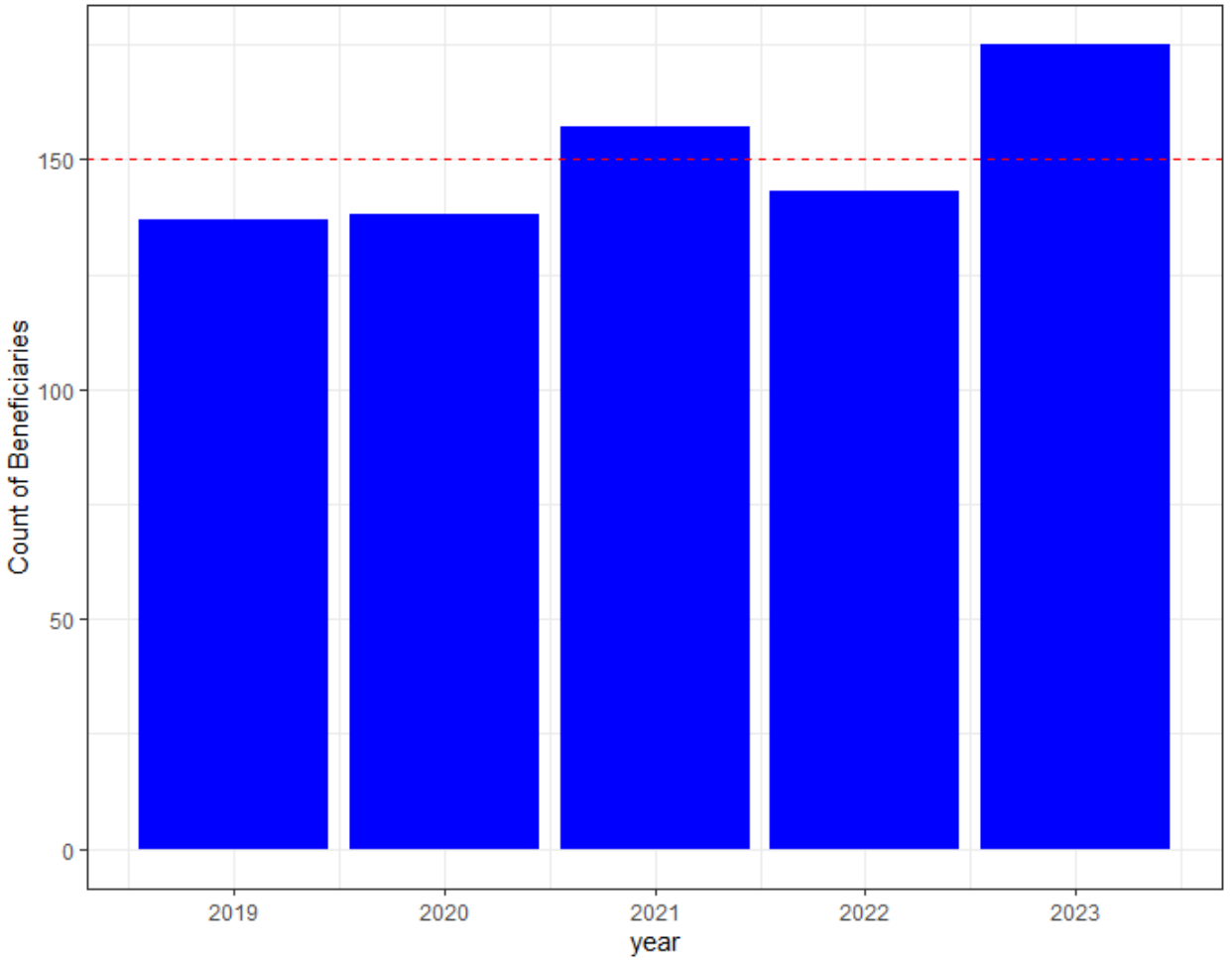
Total Medicare Payments: $1.2 million



Annual Count of FFS Nursing Home Residents in Wyoming with a Sepsis claim (any position) - Annual Average: 150 beneficiaries

37% of sepsis cases over the last five years have occurred in Laramie and Natrona Counties.

Total Medicare Payments: $3.1 million



Takeaway Thoughts

- Costs associated with infection prevention training
- 18% of nursing homes nationally do NOT have an infection prevention program
  - https://apic.org/nursing-home-infection-prevention-and-control-programs/
- One in eight sepsis-related deaths are avoidable
  - https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6484603/
- Tying financial incentives to **avoided** infections
  - Total costs rise due to increasing populations and increased cost of care
  - FFS lacks some incentives
  - Value-based care alternatives

Questions/Comments

rtupling@mpqhf.org