Hospital Infection Prevention and Control (IPC) in the US

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Goals for this talk

Why Talk About IPC in the United States?

1. To show examples of daily IPC work in the US, and through these…
2. To understand the similarities and differences between US and EU IPC practices in terms of…
   - Goals
   - Philosophies
   - Strategies
3. To promote international discussion and view IPC practices through the lens of multilateralism
   - The US in some ways has historically existed in a silo (internal strategies / surveillance vs. multilateral cooperation)

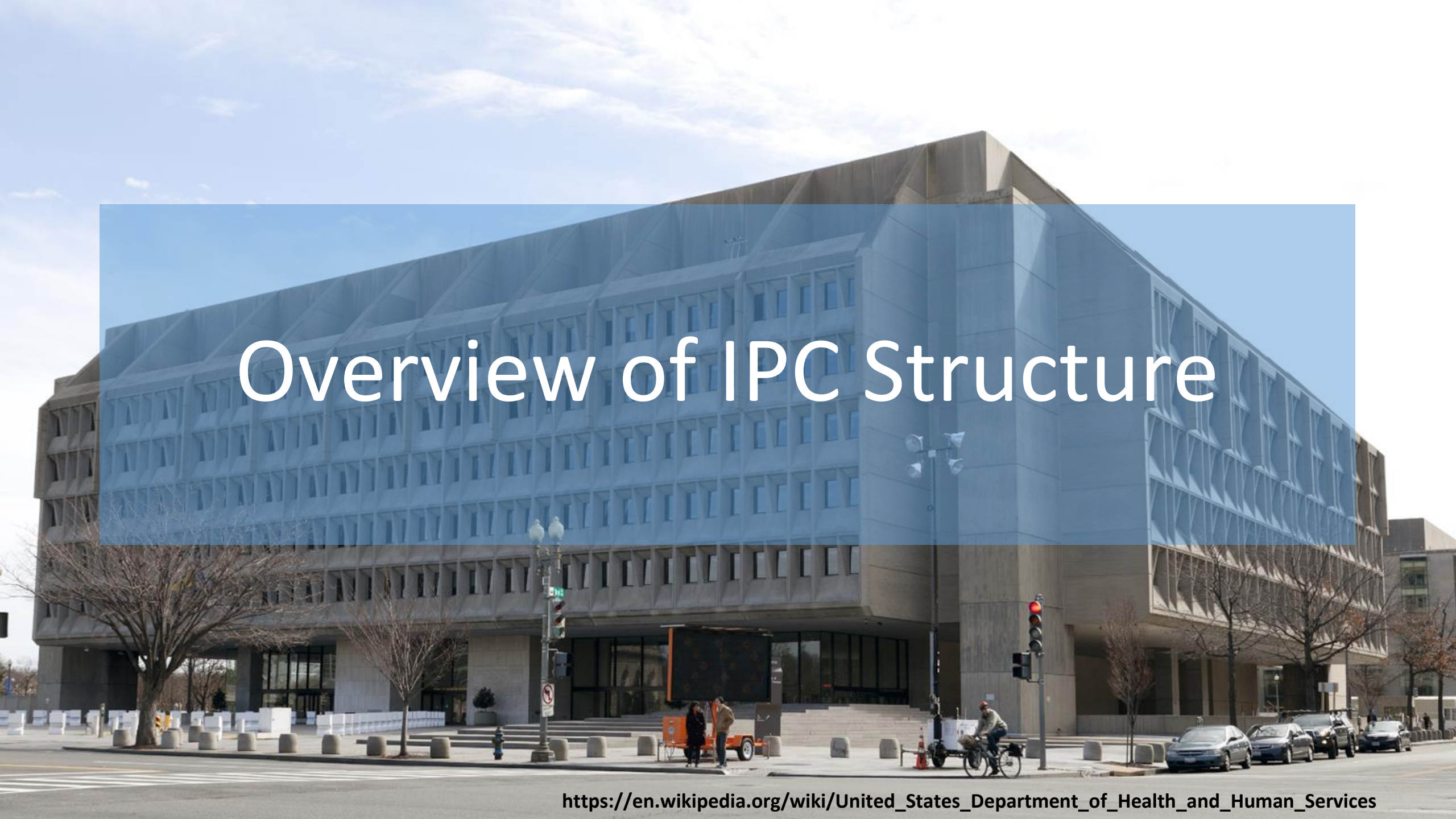
Important things to keep in mind…

- (Almost) all hospitals in the US are private.
- High out of pocket costs, even for the insured.
- (Almost) all patient rooms are single or double rooms.
- (Relatively) high vaccination rates.
  - ~ 50% overall Flu vaccination uptake
  - ~ 77% Flu vaccination uptake among HCWs

  (Rizzo, https://doi.org/10.1080/21645515.2017.1367463)
- (Comparatively) little permitted sick leave.
  - High “Presenteeism”

https://department.va.gov/integrated-service-networks/visn-04/

Overview of IPC Structure



https://en.wikipedia.org/wiki/United_States_Department_of_Health_and_Human_Services

Who Oversees IPC in the United States?

Regulatory Agencies: Federal

Department of Health and Human Services:

- **Center for Medicare/Medicaid Services (CMS)** – "Conditions of Participation", Require IPC programs, Require HAI targets
- **Food and Drug Administration (FDA)** – pharmaceuticals, medical devices, sterilization equipment, issues recalls

Department of Labor

- **Occupational Safety and Health Administration (OSHA)** – Workplace safety, PPE, Sharps Safety

Regulatory Agencies: State / Municip.

- State and Municipal Public Health Departments
- Hospital Surveyors
- State Legislators

Regulatory Agencies: Private

- **The Joint Commission** – the accrediting body of all US hospitals, "The Deeming Authority"
- Hospital Graders: "Leapfrog"
- Local Hospital Administration

Advisory Agencies: Federal

Department of Health and Human Services:

- **Centers for Disease Control and Prevention (CDC) –** Conducts research, develops guidelines, sets benchmarks, conducts outbreak investigations, collects and disseminates surveillance data
- **Agency for Healthcare Research and Quality (AHRQ)** – conducts research on patient safety and develops guidelines
- **National Institute of Health** – Funds and supports biomedical research
- **National Institute of Allergy and Infectious Diseases** – biomedical research specifically involving infectious disease

Advisory Agencies: State / Municipal

- Public and Municipal Health Departments

Advisory Agencies: Private

- Universities
- Public Action Committees
- Professional Practice Organizations:
  - AMA, APIC, SHEA, etc.

Carrot and Stick Model

(Almost) all hospitals in the US are private.

- So, what compels them to enact IPC measures?

1. CMS links patient outcomes to insurance reimbursements.
2. Joint Commission provides accreditation to hospitals which meet requisite safety and quality standards.

Stated simply:

- **Hospitals enact IPC programs**
  - **To reduce rates of hospital associated infections**
    - **To receive reimbursements (financial incentive) and remain open (existential threat).**

IPC Structure: Core Functions US compared to EU

Core Functions of IPC per CDC:

1. **Leadership**
2. **Education & Training of Healthcare Workers on IPC Topics**
3. **Patient and Caregiver Education**
4. **Performance Monitoring and Feedback (Including Surveillance)**
5. **Standard Precautions**
   - 5a. Hand Hygiene
   - 5b. Environmental Cleaning/Disinfection
   - 5c. Injection Safety
   - 5d. PPE Risk Assessment
   - 5e. Minimizing Potential Exposures
   - 5f. Reprocessing Reuseable Medical Devices
6. **Transmission-Based Precautions**
7. **Management of Indwelling Devices and Infection Risk**
8. **Occupational Health**

https://www.cdc.gov/infection-control/hcp/core-practices/index.html

Core Competencies for IPC per ECDC:

1. **Program Management**
   - a) Elaborating and advocating an infection control program
   - b) Management of an infection control program, work plan and projects
2. **Quality Improvement**
   - a) Contributing to quality management
   - b) Contributing to risk management
   - c) Performing audits of professional practices and evaluating performance
   - d) Infection control training of employees
   - e) Contributing to research
3. **Surveillance and Investigation of HAIs**
   - a) Designing a surveillance system
   - b) Managing (implementation, follow up, evaluation) a surveillance system
   - c) Identifying, investigating and managing outbreaks
4. **Infection Control Activities**
   - a) Elaborating infection control interventions
   - b) Implementing infection control healthcare procedures
   - c) Contributing to reducing antimicrobial resistance
   - d) Advising appropriate laboratory testing and use of laboratory dat
   - e) Decontamination and sterilization of medical devices
   - f) Controlling environmental sources of infections

https://www.ecdc.europa.eu/sites/default/files/media/en/publications/Publication[illegible]ction-contr[illegible]es.pdf

What does an Infection Preventionist do?

Daily Tasks:

- Surveillance
- Auditing / Monitoring
  - Hand Hygiene
  - Indwelling devices
  - Environment of Care
- Manage Isolation / Bed Flow
- Staff and Patient Education
- Infection risk analysis and mitigation for construction activities
- Contact Tracing
- Outbreak Investigation

Longterm Strategy Work:

- Represent IPC interests in leadership meetings
- Annual infection risk assessment and gap analysis
- Annual and long-term strategy development
- Project initiatives and process improvement

Let's look at some of these activities, keeping in mind certain considerations unique to the US…

Unique Considerations:

US Hospital Design, Hand Hygiene, and Isolation

Prevalence of Single and Double Patient Rooms in US Hospitals

Consider: Patient rooms in the US are almost always single-occupancy (private room) or double-occupancy (semi-private)

New constructions are almost universally single-occupancy

What are the implications for IPC?

Impact on Hand-Hygiene

Easier to track

With single-occupancy, can track hand-hygiene **“in-and-out”** rather than the WHO “5-moments”.

CMS/Joint-Commission requires that all hospitals **track hand-hygiene** and have **hand-hygiene improvement programs**.

Easier to control

Hand-Sanitizer is placed at the entrance to every room (not unique)

Because staff must pass through the entrance to get to another patient, they **always** pass by hand-sanitizer before patient contact

Hand Hygiene is the #1 focus of Infection Prevention Programs in the US

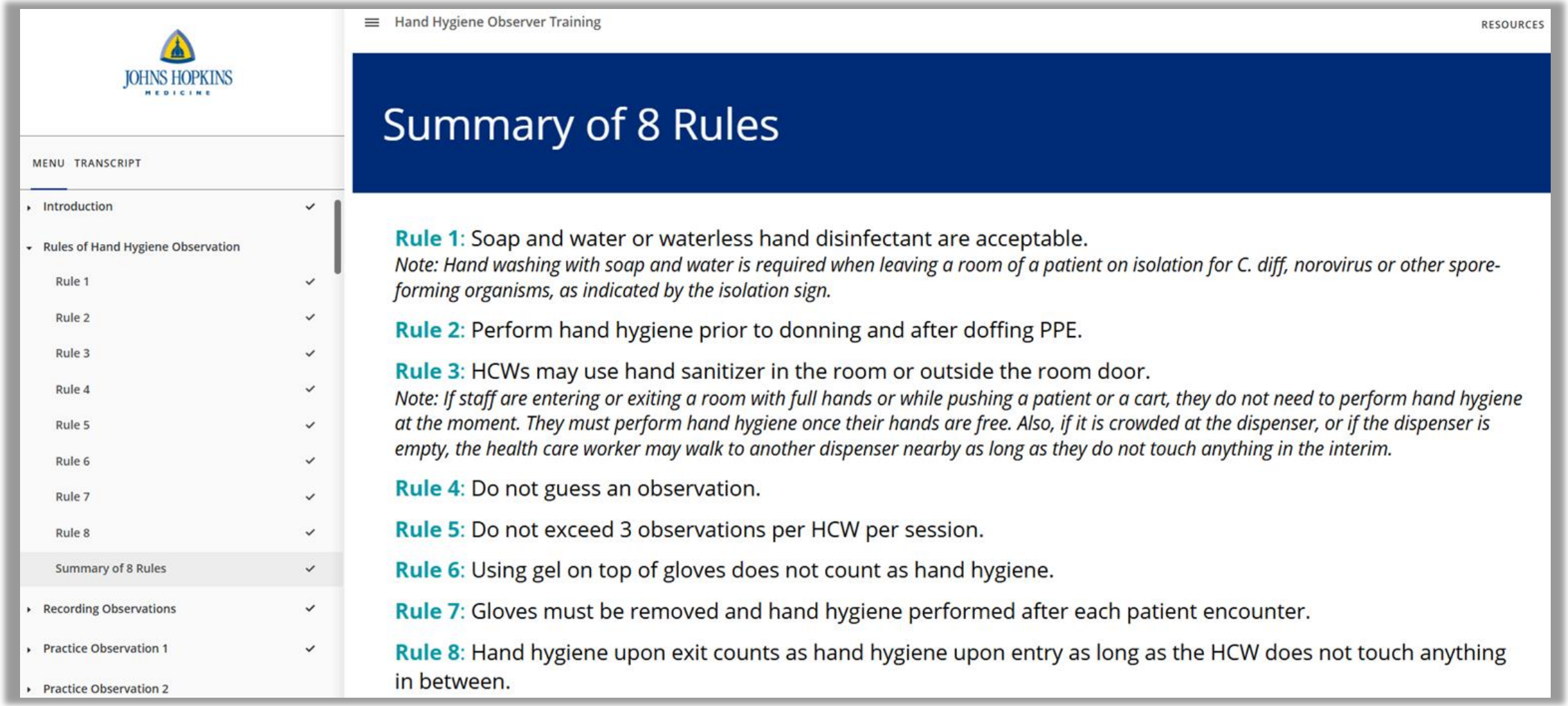
Hand Hygiene Continued

Regulations (CMS/Joint-Commission) requires healthcare facilities to have **Hand-Hygiene Improvement Programs**

Private hospital raters (Leapfrog) require a certain number of hand-hygiene **observations per month**

Healthcare systems often hire dedicated **hand hygiene observers**

Healthcare systems are increasingly adopting **automated hand-hygiene surveillance** systems

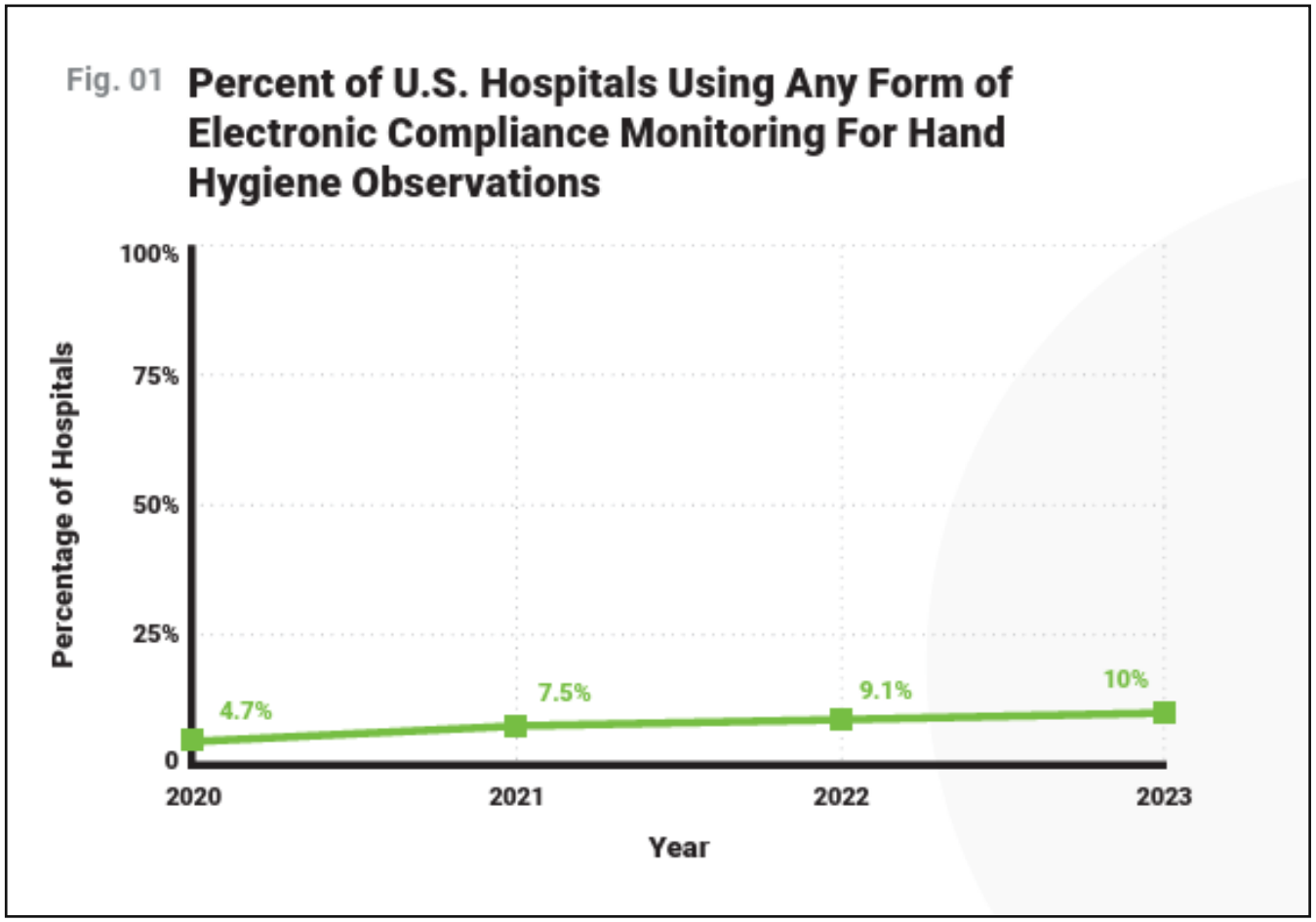


Johns Hopkins Rules for Hand-Hygiene Observers

https://www.hopkinsmedicine.org/HEIC-HHtraining/story.html

Rise of Automated Hand-Hygiene Surveillance

https://vitalacy.ai/automated-hand-hygiene-monitoring-technology/



https://www.leapfroggroup.org/sites/default/files/Files/leapfrog-HH-report-2024_FINAL.pdf

“Take 5”: Positive Reinforcement to Improve Hand Hygiene Rates

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Background

- Consistent hand hygiene (HH) compliance is a crucial component of infection prevention.[1]
- Factors affecting healthcare personnel (HCP) HH behaviors include perceived risk for infection, perceived social norms, perceived role models, visibility of safety programs, and levels of work stress.[1]
- Components of multimodal interventions to successfully promote HH include infrastructure for HH stations, education of HCP, routine monitoring & feedback to HCP, institutional safety climate, workplace reminders, and rewards incentives.[1-2]
- Incentives programs can lead to sustained improvement in HH compliance.[3-4]
- This project explores the use of non-monetary rewards, for HH

Methods

- We implemented a positive reinforcement HH program in a large VA healthcare system in 8/2024, including 3 inpatient medical/surgical floors and 4 intensive care units (ICUs), and assessed its impact on HH compliance.
- The program incorporated HH education, code word education, a tiered non-monetary incentive points program, real-time feedback (verbal and coupons), and performance tracking by unit.
- A code word “take 5” was developed to provide all HCP with non-confrontational language for verbal workplace reminders to one another to perform HH and/or wear personal protective equipment (PPE) when indicated.
  - “Take 5” word choice intends to invoke the importance of pausing for patient safety, and taking the 5 fingers of one’s hand to the nearest HH station for washing.
- HCP were given 1 point for performing HH or wearing PPE, or 2 points for using the code word “take 5” to remind coworkers to perform HH or wear PPE. Individual HCP winners with the most points were selected every 2 weeks.
- HH compliance rates were monitored through direct observation by trained staff (unit-based and independent), pre- (1/2024-7/2024) and post- (10/2024-3/2025) intervention. Dates 8/2024-9/2024 were excluded during education roll out.

Results

- Tiered non-monetary rewards were:
  - Stickers (**Figure 1**), for all point earners
  - Candy, for all HCP who were observed using the code word “take 5”
  - Premium parking spot or lunch with hospital executive leadership (winner’s choice for HCP winners who earned t

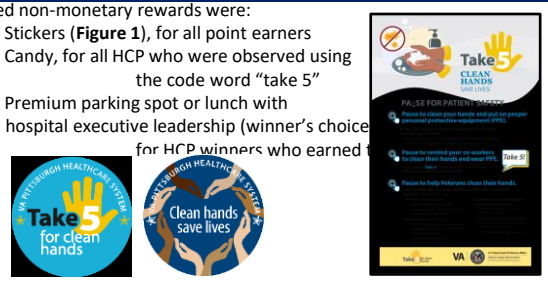

Figure 1. Stickers and posters were designed to serve as visual workplace reminders for HH.

- 17 HCP winners were identified in 8/2024-3/2025, and most elected the premium parking spot.
- An average of 208 “take 5” observations were submitted per month, with an average of 11 submitted observations per month of non-infection prevention HCP using the “take 5” code word to remind colleagues to perform HH or wear PPE.
- Participation in the program was higher on the medical/surgical floors than in the ICUs (**Figure 2**).

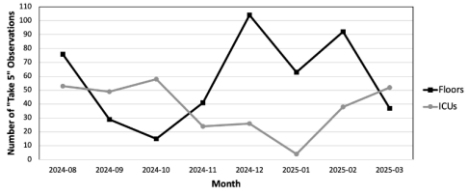

Figure 2. Program participation by unit type, including medical/surgical floors (black squares) and ICUs (gray circles).

- Participation was higher among “unit-based” HCP (e.g., nurses, nursing assistants) than among HCP who were “independent” of and serving multiple units (e.g., physicians, APPs, radiology technicians, environmental services, food services) (**Figure 3**).

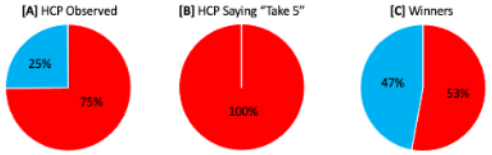

Figure 3. Percentage of HCP who were unit-based (red) or independent (blue), who **[A]** were observed in the program, **[B]** were observed using the “take 5” code word, and **[C]** were winners in the program.

- The HH compliance rate on medical/surgical floors was decreasing pre-intervention, and the baseline rate in the 3 months prior to intervention was 83%. Compliance increased post-intervention (p = 0.0321), with current average 89% (**Figure 4**).
- The average HH compliance rate in ICUs was stable pre- and po

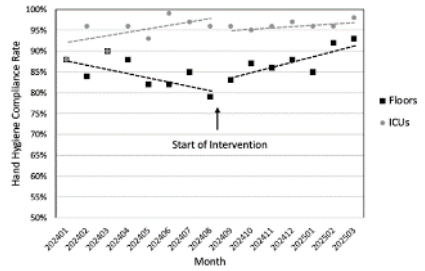

Figure 4. Hand hygiene compliance rates by unit type, pre- and post-intervention, with medical/surgical floors (black squares) and ICUs (gray circles).

Conclusions

- A positive reinforcement HH campaign, including code words and non-monetary rewards, can be effectively adopted in a large healthcare system to increase HH compliance.
- To our knowledge, this is the first report of a rewards program that incentivizes HCP to remind one another to perform HH.
- Administrative sanction of rewarding HCP in this manner signaled institutional prioritization of HH, and led to active HCP participation in HH promotion.
- All of the HCP observed reminding others to perform HH using the code word “take 5” were unit-based HCP, such as nurses.
- Programs like ours may promote social norms in which all HCP are empowered to give verbal workplace reminders for HH.

Acknowledgements

References:

1. JM Boyce, D Pittet. “Guideline for hand hygiene in health-care settings: Recommendations of the HICPAC and the HICPAC/SHEA/APIC/IDSA Hand Hygiene Task Force.” *MMWR* **2002**, *51*, no. RR-16.
2. N Luangasanatip, *et al.* “Comparative efficacy of interventions to promote hand hygiene in hospital: systematic review and network meta-analysis.” *BMJ* **2015**, *351*, h3728.
3. JD Crews, *et al.* “Sustained improvement in hand hygiene at a children’s hospital.” *Infect Control Hosp Epidemiol* **2013**, *34*, 751.
4. TR Talbot, *et al.* “Sustained improvement in hand hygiene adherence: utilizing shared accountability and financial incentives.” *Infect Control Hosp Epidemiol* **2013**, *34*, 1129.

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This work received no specific grant funding.

Impact on Patient Isolation

Isolation in place

In single occupancy beds, the patient need not be moved to go into isolation

In double occupancy, only the roommate must move

Typically, US hospitals do ***not*** have dedicated isolation wards

Isolation rooms dispersed throughout every ward

Limits exposures

Fewer exposures when a patient is discovered to have a transmissible disease later into their stay

PPE staged outside door in carts or wall cubbies

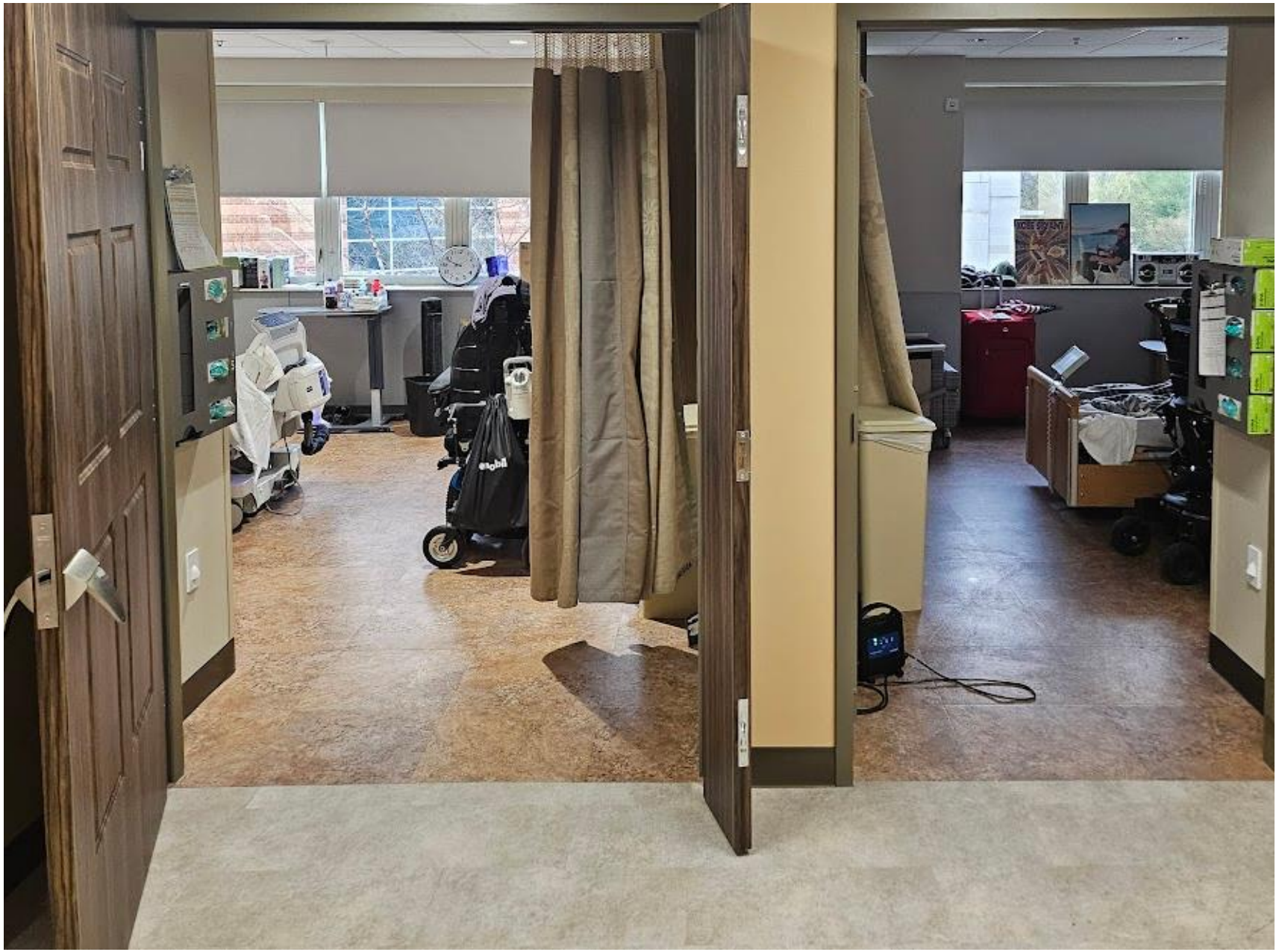
https://www.cdc.gov/infection-control/media/pdfs/contact-precautions-sign-P.pdf

Isolation and Transmission Based Precautions

- CDC defines 3 kinds of Transmission Based Precautions (Isolation Precautions)
  - Contact
  - Droplet
  - Airborne

- Individual Health Systems may define more:
  - Contact-Plus (C. diff / Norovirus)
  - Elevated Contact Precautions (CRE / C. auris)
    - Organisms of epidemiological significance
  - Elevated Droplet Precautions (COVID-19)
    - Closed door, optional respirator

Single Rooms with PPE Caddies



(Leaking) Elevated Contact/Droplet Isolation Room (Left)

“Ball-in-the-Wall” Negative Pressure Indicator (Below)

Contact Precautions
Isolation Room

Impact on Environmental Cleaning/Disinfection

Fewer room transfers

No need to transfer patients to isolation wards

More opportunities to terminal clean

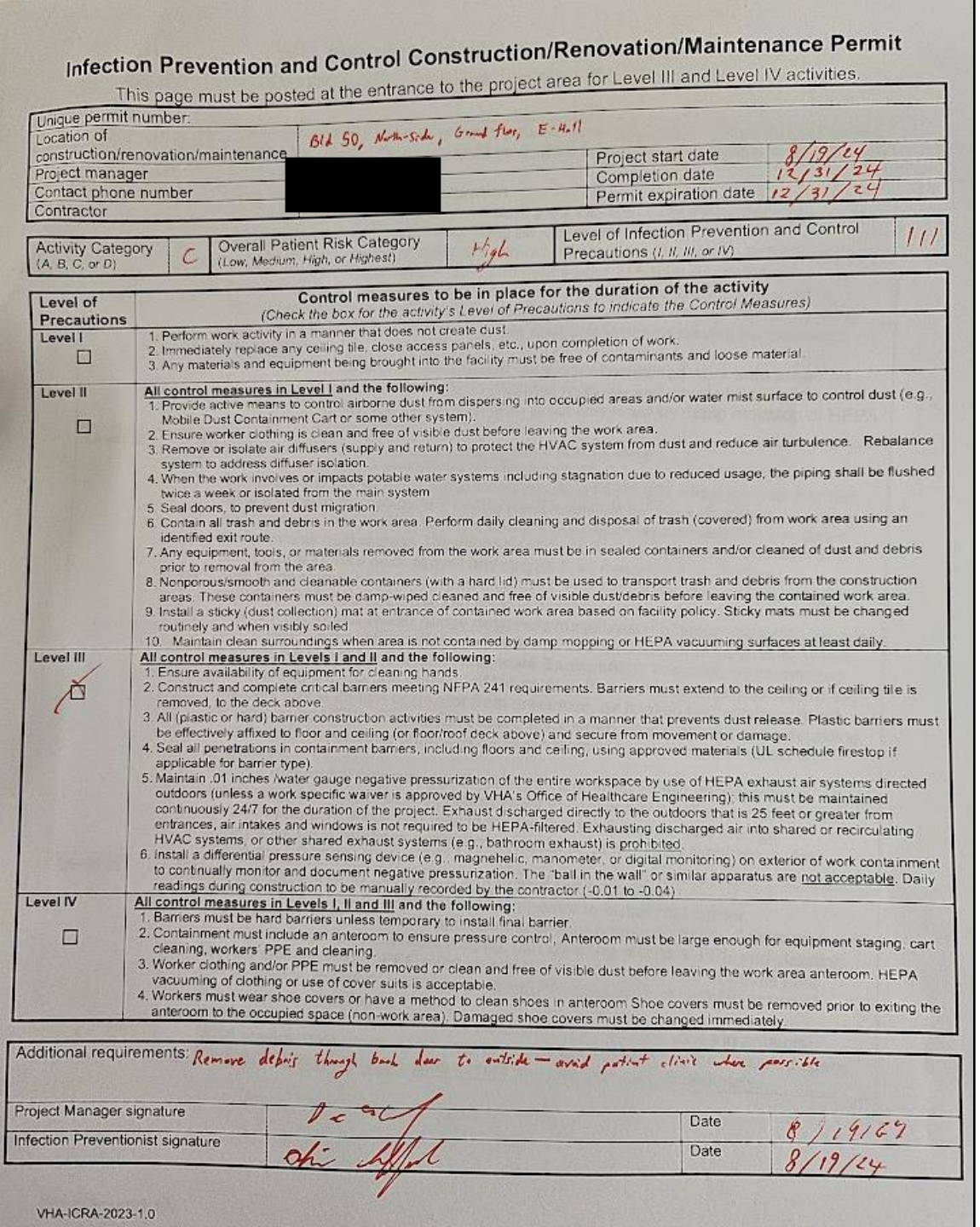
After one patient discharges, the room is empty and can be terminally cleaned

Opportunities to use UV-c or vapor H_2O_2 whole room treatments (not common)

Requires a heavy investment in EVS staff

IPC Activity:

Construction Risk Analysis and Mitigation



Infection Prevention and Control Construction/Renovation/Maintenance Permit

This page must be posted at the entrance to the project area for Level III and Level IV activities.

Unique permit number:			
Location of construction/renovation/maintenance	Bld 50, North-Side, Ground floor, E-Hall	Project start date	8/19/24
Project manager	[redacted]	Completion date	12/31/24
Contact phone number		Permit expiration date	12/31/24
Contractor			

Activity Category (A, B, C, or D)	C	Overall Patient Risk Category (Low, Medium, High, or Highest)	High	Level of Infection Prevention and Control Precautions (I, II, III, or IV)	III

Level of Precautions	Control measures to be in place for the duration of the activity (Check the box for the activity's Level of Precautions to indicate the Control Measures)
Level I ☐	1. Perform work activity in a manner that does not create dust. 2. Immediately replace any ceiling tile, close access panels, etc., upon completion of work. 3. Any materials and equipment being brought into the facility must be free of contaminants and loose material.
Level II ☐	**All control measures in Level I and the following:** 1. Provide active means to control airborne dust from dispersing into occupied areas and/or water mist surface to control dust (e.g., Mobile Dust Containment Cart or some other system). 2. Ensure worker clothing is clean and free of visible dust before leaving the work area. 3. Remove or isolate air diffusers (supply and return) to protect the HVAC system from dust and reduce air turbulence. Rebalance system to address diffuser isolation. 4. When the work involves or impacts potable water systems including stagnation due to reduced usage, the piping shall be flushed twice a week or isolated from the main system. 5. Seal doors, to prevent dust migration. 6. Contain all trash and debris in the work area. Perform daily cleaning and disposal of trash (covered) from work area using an identified exit route. 7. Any equipment, tools, or materials removed from the work area must be in sealed containers and/or cleaned of dust and debris prior to removal from the area. 8. Nonporous/smooth and cleanable containers (with a hard lid) must be used to transport trash and debris from the construction areas. These containers must be damp-wiped cleaned and free of visible dust/debris before leaving the contained work area. 9. Install a sticky (dust collection) mat at entrance of contained work area based on facility policy. Sticky mats must be changed routinely and when visibly soiled. 10. Maintain clean surroundings when area is not contained by damp mopping or HEPA vacuuming surfaces at least daily.
Level III ☑	**All control measures in Levels I and II and the following:** 1. Ensure availability of equipment for cleaning hands. 2. Construct and complete critical barriers meeting NFPA 241 requirements. Barriers must extend to the ceiling or if ceiling tile is removed, to the deck above. 3. All (plastic or hard) barrier construction activities must be completed in a manner that prevents dust release. Plastic barriers must be effectively affixed to floor and ceiling (or floor/roof deck above) and secure from movement or damage. 4. Seal all penetrations in containment barriers, including floors and ceiling, using approved materials (UL schedule firestop if applicable for barrier type). 5. Maintain .01 inches /water gauge negative pressurization of the entire workspace by use of HEPA exhaust air systems directed outdoors (unless a work specific waiver is approved by VHA's Office of Healthcare Engineering): this must be maintained continuously 24/7 for the duration of the project. Exhaust discharged directly to the outdoors that is 25 feet or greater from entrances, air intakes and windows is not required to be HEPA-filtered. Exhausting discharged air into shared or recirculating HVAC systems, or other shared exhaust systems (e.g., bathroom exhaust) is prohibited. 6. Install a differential pressure sensing device (e.g., magnehelic, manometer, or digital monitoring) on exterior of work containment to continually monitor and document negative pressurization. The "ball in the wall" or similar apparatus are not acceptable. Daily readings during construction to be manually recorded by the contractor (-0.01 to -0.04)
Level IV ☐	**All control measures in Levels I, II and III and the following:** 1. Barriers must be hard barriers unless temporary to install final barrier. 2. Containment must include an anteroom to ensure pressure control. Anteroom must be large enough for equipment staging, cart cleaning, workers' PPE and cleaning. 3. Worker clothing and/or PPE must be removed or clean and free of visible dust before leaving the work area anteroom. HEPA vacuuming of clothing or use of cover suits is acceptable. 4. Workers must wear shoe covers or have a method to clean shoes in anteroom. Shoe covers must be removed prior to exiting the anteroom to the occupied space (non-work area). Damaged shoe covers must be changed immediately.

Additional requirements: Remove debris through back door to outside — avoid patient clinic when possible

Project Manager signature	[signature]	Date	8/19/24
Infection Preventionist signature	[signature]	Date	8/19/24

VHA-ICRA-2023-1.0

IPC Activity:
Construction Risk Analysis and Mitigation

- Infection Preventionists monitor any dust-generating construction or maintenance activity

- Construction **cannot** proceed without IP signature
- IPC weekly rounding
- Physical barriers, air filtration, and air pressure differentials are used to mitigate risk
- First step is to conduct a risk analysis

- Major concerns:
  - Dust and dust borne pathogens
  - Disruptions to water flow / cleanliness
  - Disruptions to normal air handling

Combined Pre-Construction and Infection Control Risk Assessment

Matrix of Precautions for Construction Projects

757-XX-XXX Project Title

PART 1: INFECTION CONTROL RISK ASSESSMENT

Type	Construction Project Activity
Type A ☐	**Inspection and Non-Invasive Activities.** Include, but are not limited to: ☐ Removal of ceiling tiles for visual inspection limited to 1 tile per 50 square feet ☐ Painting (sanding limited to <10% of area). ☐ Wall covering, electrical trim work, minor plumbing, and activities that do not generate dust or require cutting of walls or access to ceilings other than for visual inspection.
Type B ☐	**Small scale, short duration activities that create minimal dust.** Include, but are not limited to: ☐ Installation of telephone and computer cabling. ☐ Access to chase spaces using doors or hatches (not cutting). ☐ Sanding of walls for painting or wall covering (minor repairs – not sanding for drywall finishing)
Type C ☐	**Work that generates a moderate to high level of dust or requires demolition or removal of any fixed building components or assemblies.** Includes, but is not limited to: ☐ Sanding (>50% of surface area – drywall finishing). ☐ Cutting of walls or ceilings. ☐ Removal of floor coverings, ceiling tiles, and casework. (>50% of surface area) ☐ New wall construction. ☐ Minor duct work or electrical work above ceilings. ☐ Major cabling activities. ☐ Any activity that cannot be completed within a single work shift.
Type D ☐	**Major demolition and construction projects.** Includes, but is not limited to: ☐ Activities that require consecutive work shifts. ☐ Requires heavy demolition or removal of a complete cabling system. ☐ New construction.

☐ Low Risk	☐ Medium Risk	☐ High Risk	☐ Highest Risk
☐ Office areas	☐ Physical and Occupational Therapy	☐ Urgent Care	☐ Cardiac Cath, EP Lab or Cardiology
☐ Out Doors	☐ Outpatient Areas	☐ Kitchen or Food Preparation / Dining / Canteen	☐ Sterile Processing Service (SPS)
☐ Electrical or Mechanical Rooms	☐ Waiting Rooms	☐ Echocardiography	☐ All inpatient medical or surgical units
☐ Social Work	☐ Sleep Lab	☐ Radiology/MRI/CT	☐ Care Units: PACU, MICU, SICU, TCU
☐ Retail Store	☐ Mental Health (outpatient only)	☐ Respiratory Therapy	☐ Spinal Cord Injury (SCI)
☐ Stairwells	☐ Prosthetics / Orthotics	☐ Nuclear Medicine	☐ Negative pressure isolation rooms
☐ Conference Rooms	☐ Domiciliary	☐ Senior Mental Health (In Patient or Senior)	☐ Outpatient chemotherapy or Oncology areas
☐ Hallways	☐ Primary Care Clinics	☐ Community Living Center (CLC)	☐ Operating Rooms/Surgery Area
☐ EMS Areas	☐ CBOCs	☐ Clean Supply	☐ Endoscopy
			☐ Dialysis

IC Matrix Class of Precautions: Construction Project by Patient Risk Group and Construction Project Type

Patient Risk Group / Activity Type	☐ TYPE A	☐ TYPE B	☐ TYPE C	☐ TYPE D
☐ LOW Risk Group	☐ I (green)	☐ II (yellow)	☐ II (yellow)	☐ III/IV (pink)
☐ MEDIUM Risk Group	☐ I (green)	☐ II (yellow)	☐ III (pink)	☐ IV (red)
☐ HIGH Risk Group	☐ I (green)	☐ II (yellow)	☐ III/IV (pink)	☐ IV (red)
☐ HIGHEST Risk Group	☐ II (yellow)	☐ III/IV (pink)	☐ III/IV (pink)	☐ IV (red)

Note: Infection Control approval is required for **ALL** construction or renovation activities.

Step 3: ☐ Class I ☐ Class II ☐ Class III ☐ Class IV

Mitigation

Unique Considerations:

Surveillance and a Focus on Device-Related Infections

What IPC metrics affect reimbursement?

1. Central Line-Associated Bloodstream Infection **(CLABSI)**
2. Catheter-Associated Urinary Tract Infection **(CAUTI)**
3. Surgical Site Infection **(SSI)**
   - Specifically, Colon and Hysterectomy SSIs
   - Post-Op Sepsis
   - Post-Op Wound Dehiscence
4. MRSA bacteremia **(MRSA-BSI)**
5. *Clostridioides difficile* Infection **(CDI)**

https://www.cms.gov/medicare/quality/value-based-programs/hospital-acquired-conditions

V. Data Tables

Table 1. Comparison of National 2022 vs 2019 SIRs for Acute Care Hospitals, as published in the *National and State HAI Progress* Reports, by HAI

HAI Type	2022 HAI Progress Report[1]				2019 HAI Progress Report[4] (pre-pandemic)				Direction of Change, 2022 vs 2019*	P-value: *2022 vs. 2019 SIR*
	Number of Hospitals	Number Observed	Number Predicted	National SIR[3]	Number of Hospitals	Number Observed	Number Predicted	National SIR[4]		
CLABSI	3,728	23,389	27,993.69	0.84	3,602	18,009	26,148.99	0.69	↑	<0.0001
CAUTI	3,780	20,237	29,055.17	0.70	3,678	19,398	26,182.61	0.74	↓	<0.0001
VAE	1,874	32,631	27,472.92	1.19	2,028	24,724	25,566.34	0.97	↑	<0.0001
Colon Surgery SSI	3,052	7,355	8,574.09	0.86	3,108	7,256	8,482.25	0.86	No change	0.8665
Abdominal Hysterectomy SSI	2,789	1,695	1,782.01	0.95	2,925	2,157	2,202.64	0.98	No change	0.3697
MRSA bacteremia	3,723	9,830	10,878.37	0.90	3,698	8,131	9,952.62	0.82	↑	<0.0001
C. difficile	3,722	42,601	88,078.90	0.48	3,702	54,282	93,184.43	0.58	↓	<0.0001

*Direction of change is shown for only those comparisons where there is a statistically significant difference between the 2022 SIR and the corresponding 2019 (pre-pandemic) SIR

Table 2. National Annual MRSA bacteremia SIRs for Acute Care Hospitals†, 2019 – 2022, as published in the *National and State HAI Progress Reports*[3-6]

Year	Number of Hospitals	Number Observed	Number Predicted	National SIR	P-value*
2019	3,698	8,131	9,952.62	0.82	<0.0001
2020	3,658	8,775	9,328.83	0.94	0.0063
2021	3,681	11,605	10,850.79	1.07	<0.0001
2022	3,723	9,830	10,878.37	0.90	--

*P-value compares each annual SIR to the 2022 national SIR
†The annual SIRs are also available from CDC's Antimicrobial Resistance & Patient Safety Portal (https://arpsp.cdc.gov/profile/nhsn/mrsa).

Table 3. National Quarterly MRSA bacteremia SIRs for Acute Care Hospitals in 2022, Compared to Pre-Pandemic Time Period, for Consistent Reporters*

Quarter	Number of Hospitals	2022			2019 (pre-pandemic)			Percent Change†	P-value
		Number Observed	Number Predicted	SIR	Number Observed	Number Predicted	SIR		
Q1	3,456	2,977	2,730.12	1.09	2,092	2,502.70	0.84	30.4	<0.0001
Q2	3,452	2,163	2,566.89	0.84	2,009	2,455.62	0.82	No Change	0.3404
Q3	3,463	2,242	2,672.76	0.84	1,983	2,456.79	0.81	No Change	0.2117
Q4	3,437	2,310	2,735.37	0.84	1,978	2,464.05	0.80	No Change	0.0978

*Acute care hospitals that reported complete HAI surveillance data for both quarters in the comparison
†Percent change is shown for only those comparisons where a statistically significant difference exists. Percent change is calculated as: [(2022 SIR – 2019 SIR) / 2019 SIR] * 100

NHSN NATIONAL HEALTHCARE SAFETY NETWORK

https://www.cdc.gov/c-diff/media/images/Cdiff.jpg

US Emphasis on Device-Related Infections

CMS provides reimbursement for performance on these metrics:

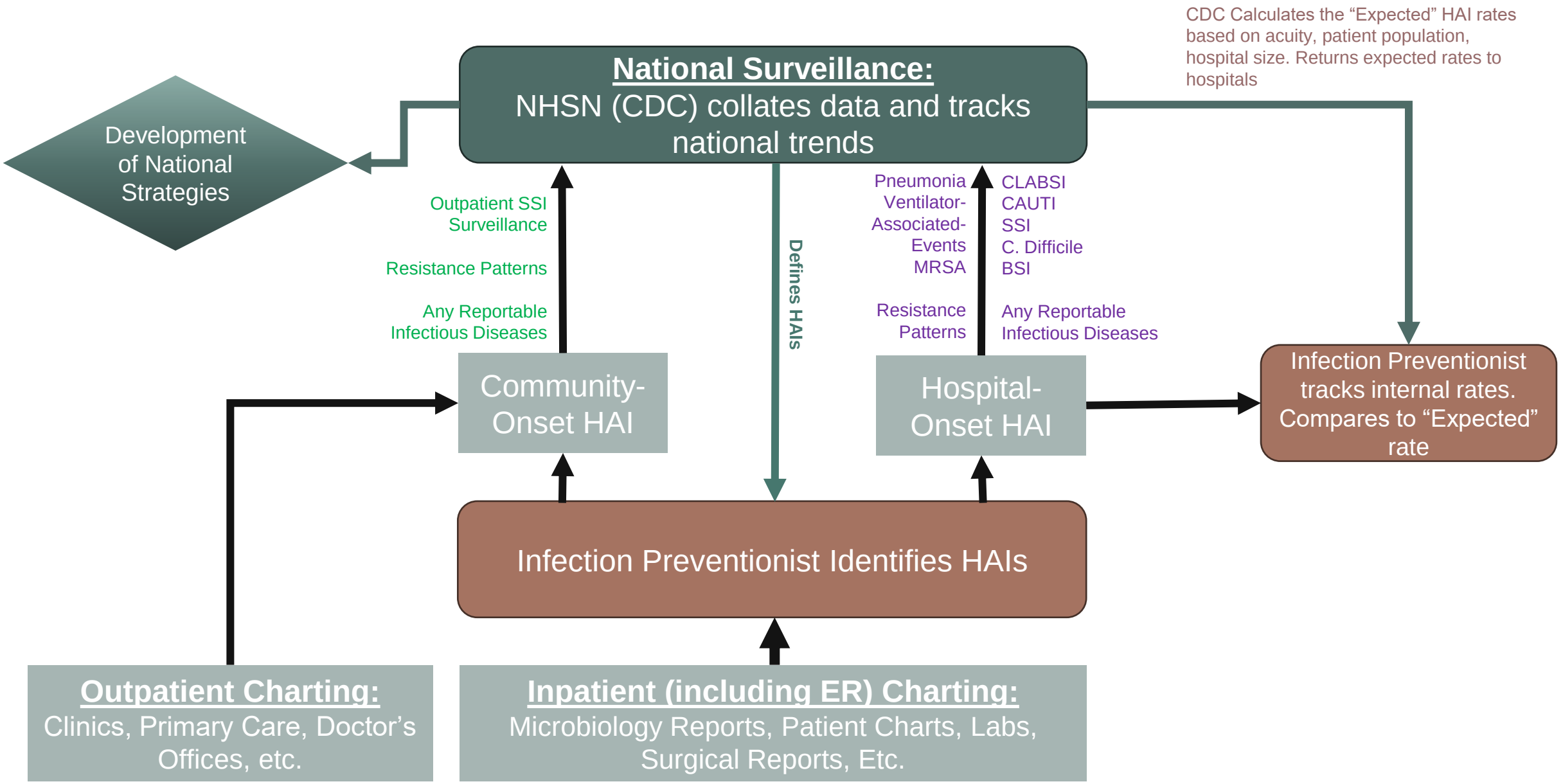
1) Central Line-Associated Bloodstream Infection (CLABSI),
2) Catheter-Associated Urinary Tract Infection (CAUTI),
3) Surgical Site Infection Rates (SSI),
4) MRSA bacteremia (MRSA-BSI),
5) Clostridioides difficile Infection Rates (CDI)

This leads research and prevention efforts to also focus on these areas

Less (but definitely not zero) focus on:

- Environmental disinfection
- MDROs other than MRSA

National Surveillance



NHSN Definition – Bloodstream Infection

https://www.cdc.gov/nhsn/pdfs/pscmanual/4psc_clabscurrent.pdf

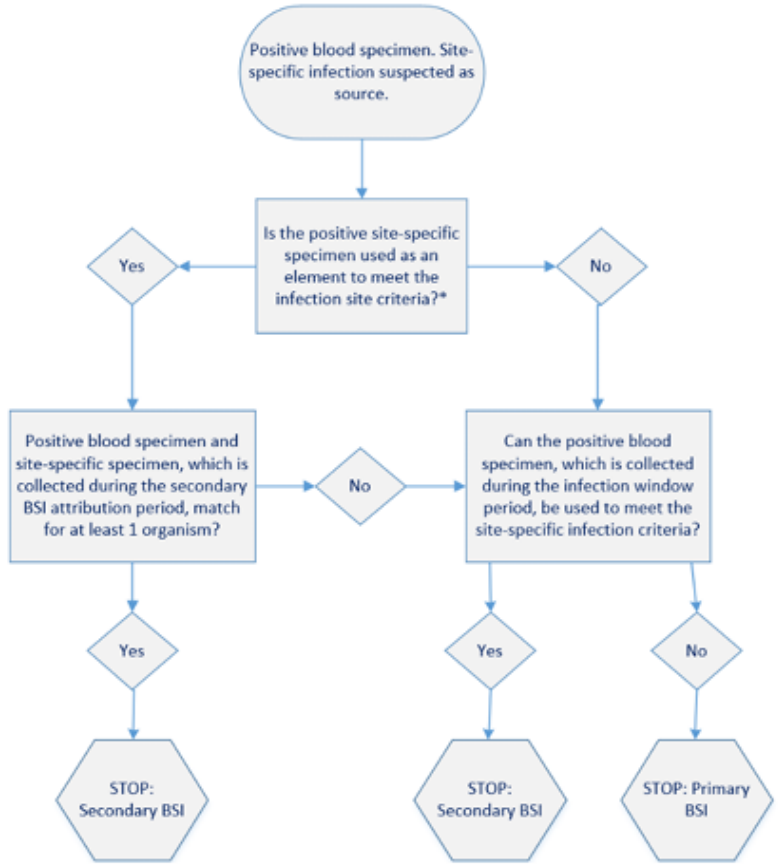
Table 1: Laboratory-Confirmed Bloodstream Infection Criteria:

Must meet **one** of the following LCBI criteria:

Criterion	*Comments and reporting instructions that follow the site-specific criteria provide further explanation and are integral to the correct application of the criteria.* Once an LCBI determination is made, proceed to the MBI-LCBI definitions, and determine if the corresponding MBI-LCBI criteria are also met (for example, after meeting LCBI 2, investigate for potential MBI-LCBI 2)
LCBI 1 If LCBI 1 criterion is met, consider MBI-LCBI 1	Patient of any age has a recognized bacterial or fungal pathogen, not included on the NHSN common commensal list: 1. Identified from one or more blood specimens obtained by a culture **OR** 2. Identified to the genus or species level by non-culture based microbiologic testing (NCT)* methods (for example, T2 Magnetic Resonance [T2MR] or next-generation sequencing [NGS]). ***Note:*** *If blood is collected for culture within 2 days before, or 1 day after the NCT, disregard the result of the NCT and use only the result of the CULTURE to make an LCBI surveillance determination. If no blood is collected for culture within this time period, use the result of the NCT for LCBI surveillance determination.* **AND** Organism(s) identified in blood is not related to an infection at another site (See Appendix: Secondary BSI Guide). *For the purposes of meeting LCBI 1, NCT is defined as a methodology that identifies an organism directly from a blood specimen without inoculation of the blood specimen to any culture media.

Figure B1: Secondary BSI Guide for eligible organisms*‡

(Not applicable to Ventilator-associated Events [VAE], See Figure B2)

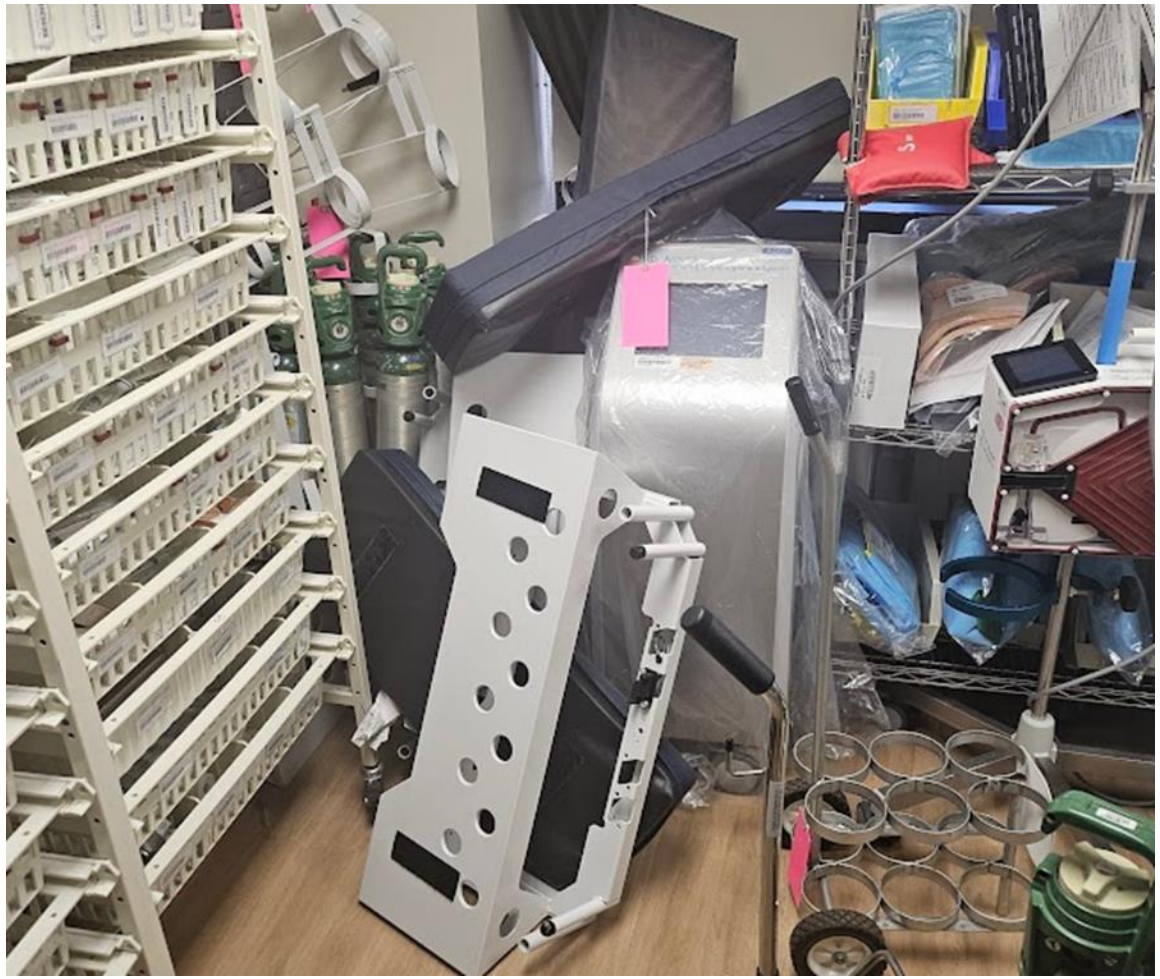


*__Exception:__ The necrotizing enterocolitis (NEC) definition does not include criteria for a matching site-specific specimen, nor an organism identified from a blood specimen, however an exception for assigning a BSI secondary to NEC is provided. A BSI is considered secondary to NEC if the patient meets one of the two NEC criteria **AND** an organism identified from a blood specimen, collected during the secondary BSI attribution period, is an LCBI pathogen or the same common commensal is identified from 2 or more blood specimens drawn on separate occasions on the same or consecutive days.

IPC Activity:

Rounding on the “Environment of Care”

Environment of Care Rounds



- **Environment of Care (EOC)** rounds are walkthroughs of patient care areas used to *identify* and *rectify* patient risks present in the care environment.

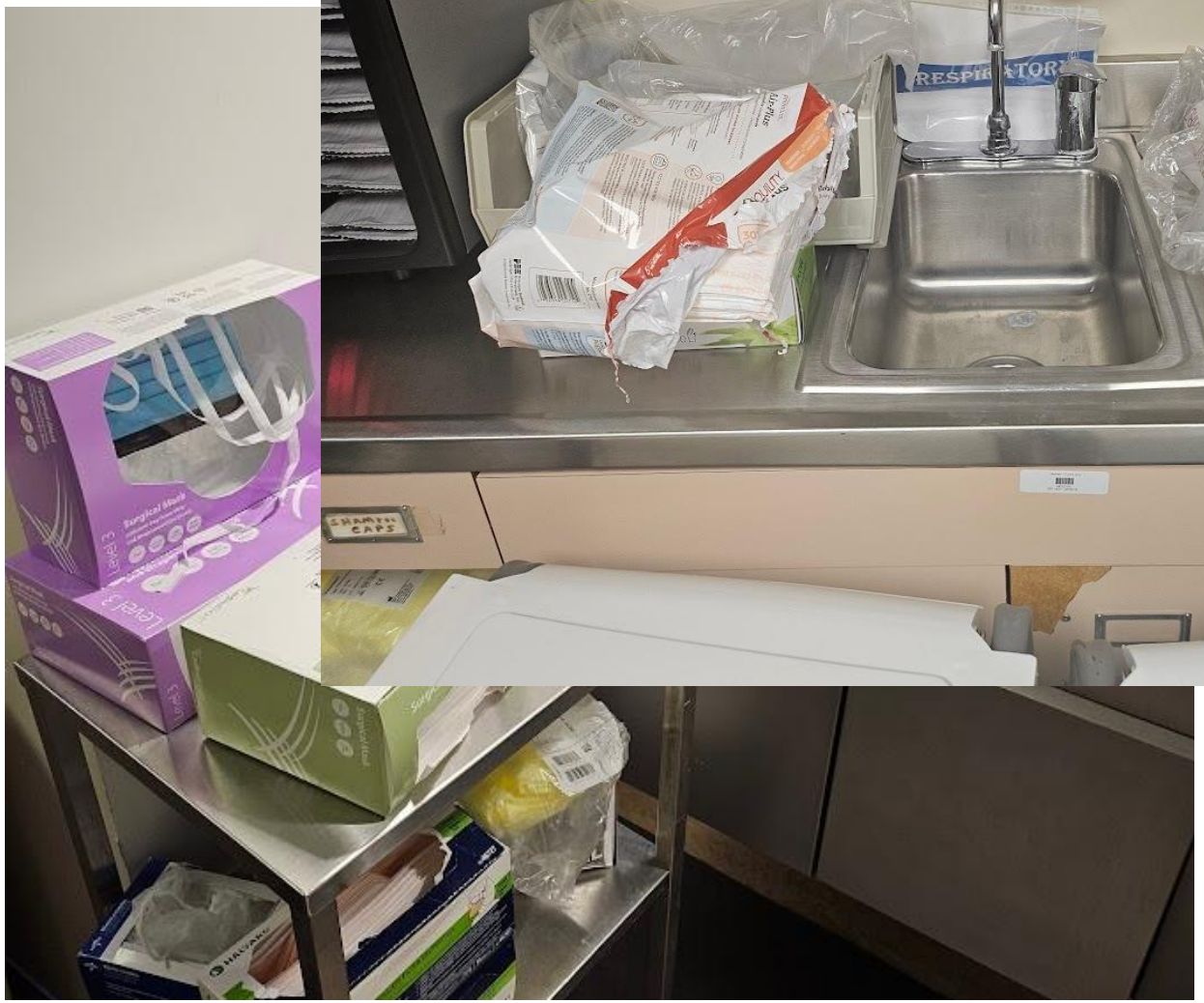
- EOC rounds are…
  - Multidisciplinary
  - Ongoing (weekly)
  - Non-Judgmental or Blame-Seeking
  - Semi-Random or Unannounced
  - Systematic and documented, with follow-up
  - Required by regulation

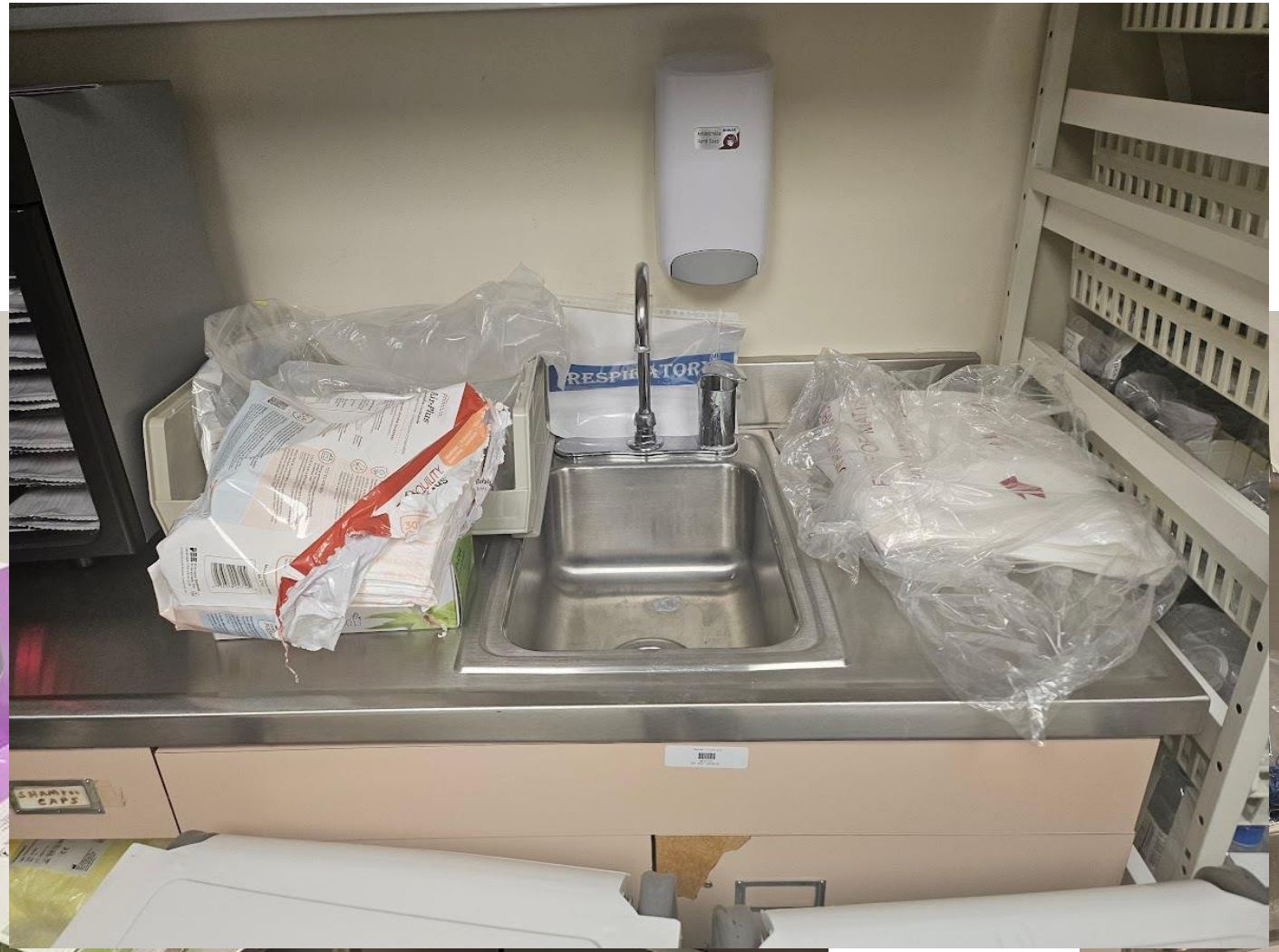
- What might we find…

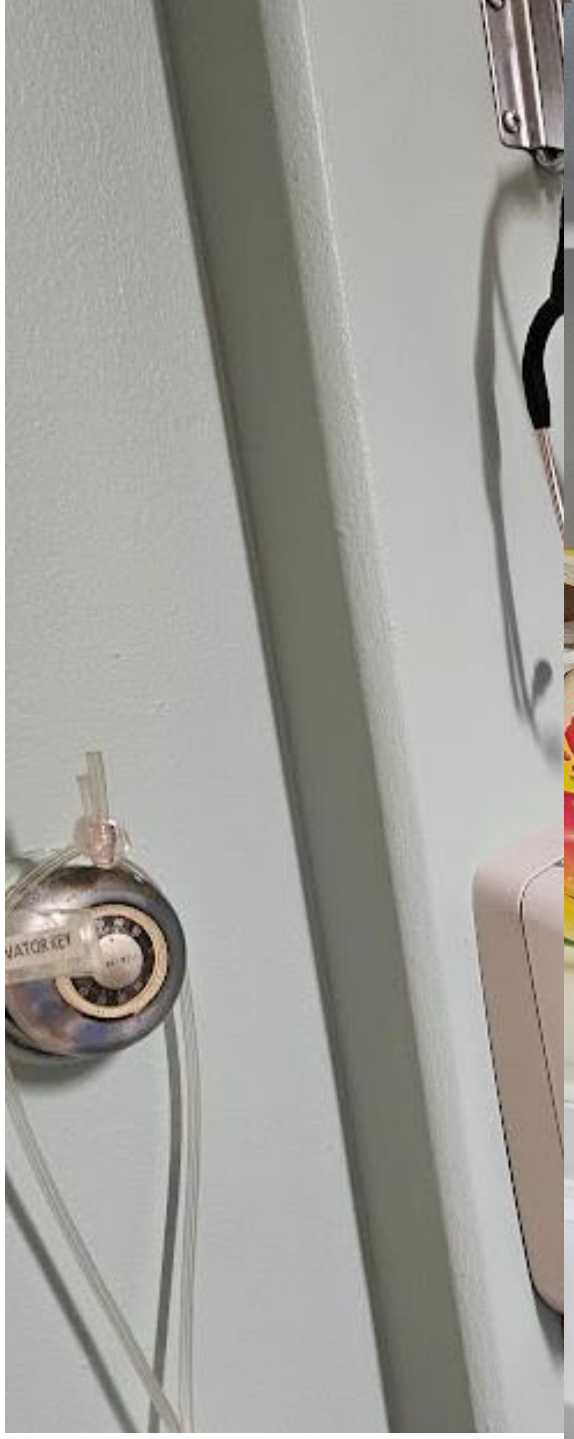
Leaks or sewage back-ups

Dust

Splashes







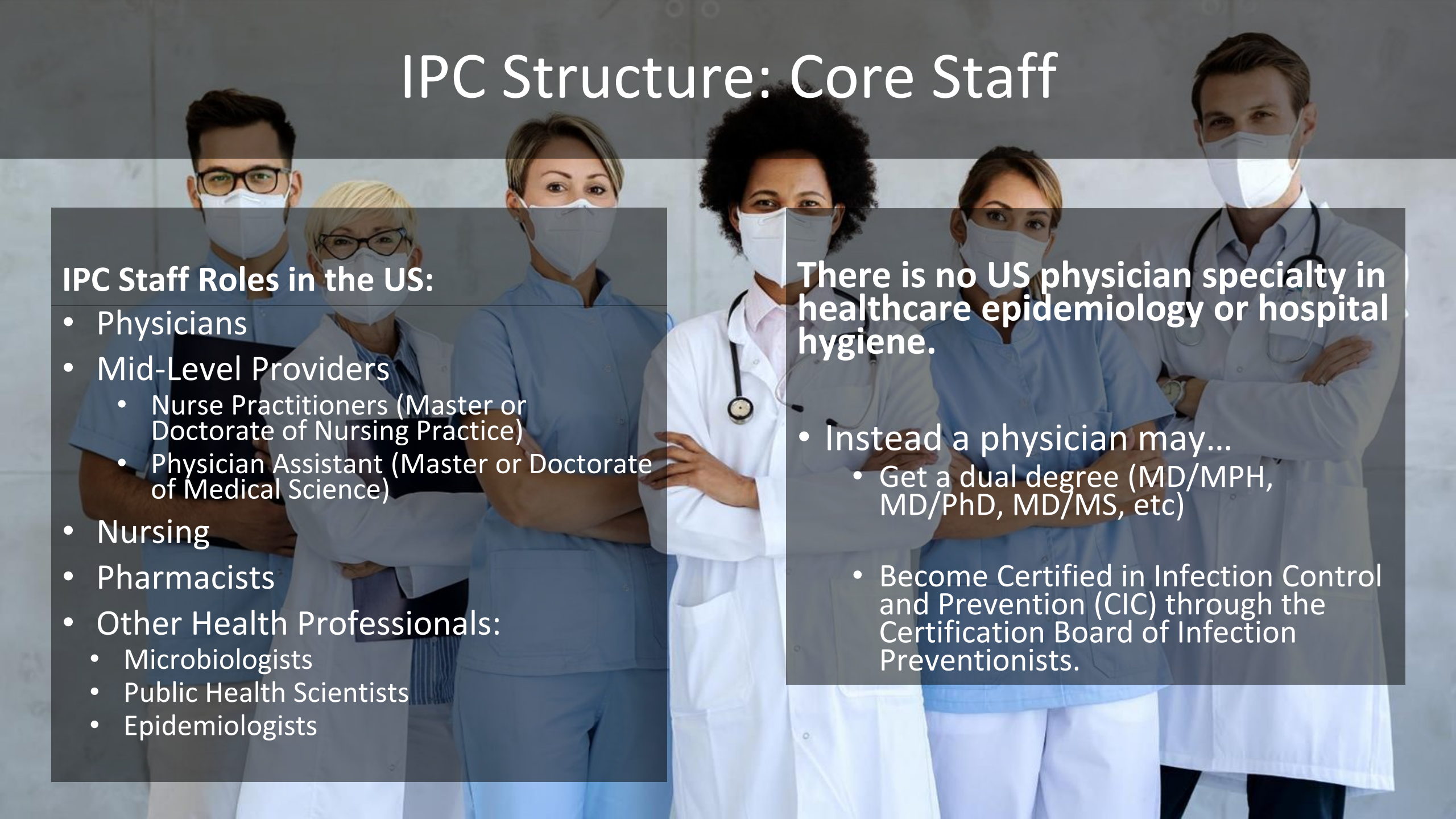
Cross Contamination

Improper storage / handling

Unique Considerations:

Physician Shortages, Nurse Professionals, and The Rise of the “Mid-Level”

IPC Structure: Core Staff



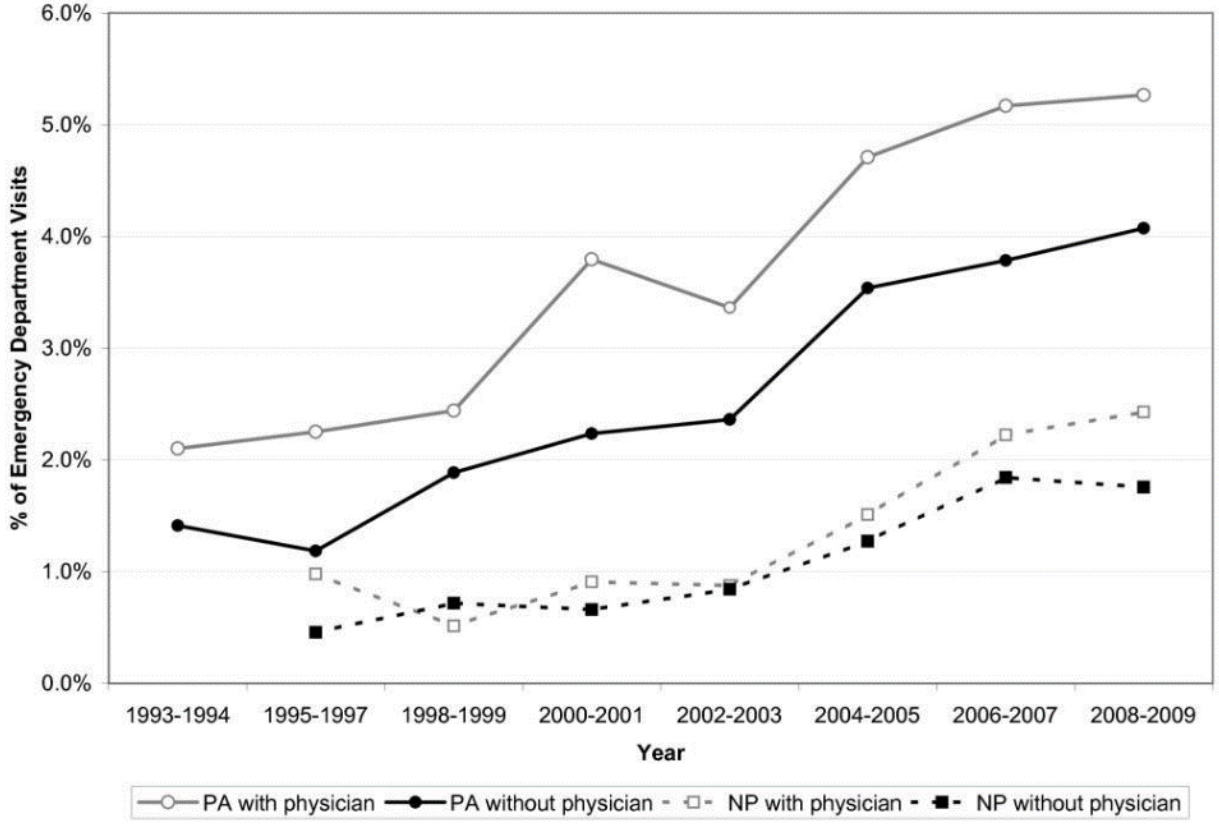
IPC Staff Roles in the US:

- Physicians
- Mid-Level Providers
  - Nurse Practitioners (Master or Doctorate of Nursing Practice)
  - Physician Assistant (Master or Doctorate of Medical Science)
- Nursing
- Pharmacists
- Other Health Professionals:
  - Microbiologists
  - Public Health Scientists
  - Epidemiologists

There is no US physician specialty in healthcare epidemiology or hospital hygiene.

- Instead a physician may…
  - Get a dual degree (MD/MPH, MD/PhD, MD/MS, etc)
  - Become Certified in Infection Control and Prevention (CIC) through the Certification Board of Infection Preventionists.

Mid Level Providers in the US



Nurse Practitioners and Physician Assistants now provide >25 % of ER care.

- From 2013 to 2019, ER care provided by NPs and Pas rose from 14% to 26%
- https://hms.harvard.edu/news/fourth-us-health-visits-now-delivered-non-physicians

- This shapes IPC departments as well
- Barring recent news, nurses have long been considered “professionals”
- Leadership roles often filled by Nurse Practitioners and Doctors of Nursing Practice

Future Directions

Future Directions

"…either brace yourself for elimination
or else your hearts must have the courage for the changing of the guards." *-Bob Dylan*

IPC in a changing America

Changes to the CDC, FDA, NHSN, and other public health institutions.

Changes to recognition of career-professionals.

Increasing isolationism. Withdrawal from WHO.

https://eu.usatoday.com/picture-gallery/news/politics/2024/11/07/robert-f-kennedy-jr-a-political-career-in-photos/76110044007/

npr · 5d

CDC advisers vote to overturn decades-long policy on hepatitis B vaccine for infants

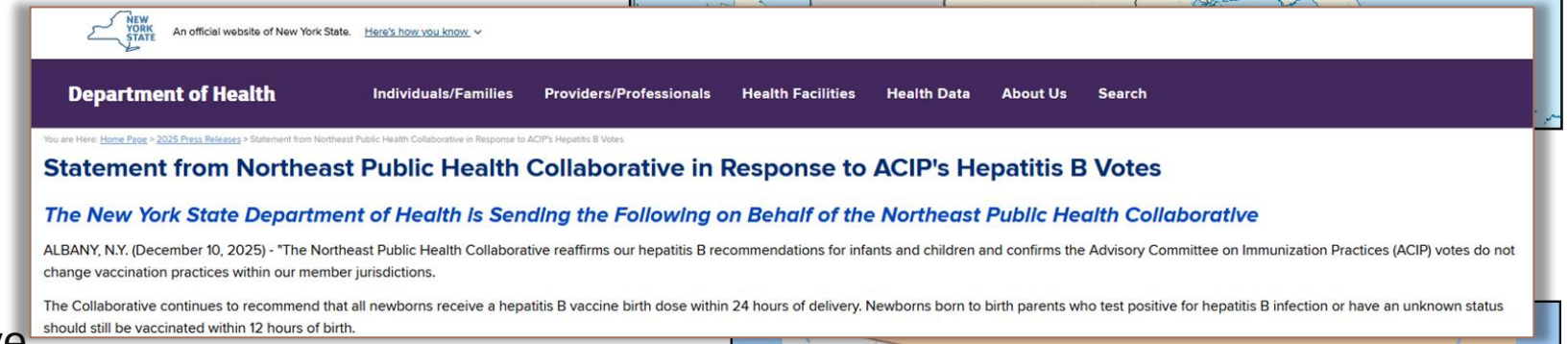
In a controversial move, the vaccine advisory group reversed a recommendations for universal immunizing of newborns intended ...

https://en.wikipedia.org/wiki/West_Coast_Health_Alliance

What are we to do?

Embrace multilateralism! Embrace cooperation!

- States have rebuked the federal withdrawal from public health with new interstate cooperations.
- New coalitions have formed:
  - Share data
  - Develop guidelines
  - Coordinate regional health threats



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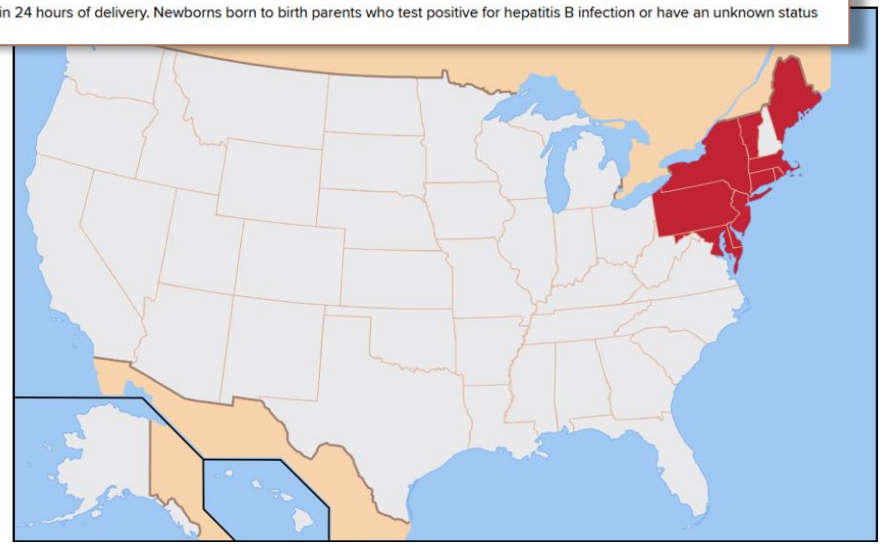
Statement from Northeast Public Health Collaborative in Response to ACIP's Hepatitis B Votes

The New York State Department of Health Is Sending the Following on Behalf of the Northeast Public Health Collaborative

ALBANY, N.Y. (December 10, 2025) - "The Northeast Public Health Collaborative reaffirms our hepatitis B recommendations for infants and children and confirms the Advisory Committee on Immunization Practices (ACIP) votes do not change vaccination practices within our member jurisdictions.

The Collaborative continues to recommend that all newborns receive a hepatitis B vaccine birth dose within 24 hours of delivery. Newborns born to birth parents who test positive for hepatitis B infection or have an unknown status should still be vaccinated within 12 hours of birth.

1. Northeast Public Health Collaborative
   - Connecticut, Maine, Massachusetts, New Jersey, New York, Pennsylvania, Rhode Island.
2. West Coast Health Alliance
   - California, Oregon, Washington
3. Governor's Public Health Alliance
   - National coordination between 15 different states



https://www.diseasedaily.org/2025/11/17/u-s-states-form-health-alliances-in-response-to-federal-public-health-landscape/

https://en.wikipedia.org/wiki/Northeast_Public_Health_Collaborative

Questions?

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