2023 Infection Prevention Update

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September 8, 2023

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Disclosures

- None

A refresher on the basics

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

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Quiz! Which of the following do not need droplet precautions according to CDC appendix A

A. Influenza
B. Parainfluenza
C. RSV
D. Human metapneumovirus

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Which conditions require contact precautions?

A. Anthrax
B. Cholera
C. Bacterial conjunctivitis
D. Cleaning up stool on a patient, C diff negative
E. Changing bandages on a wound in a patient with MSSA

Standard Precautions

- Hand hygiene
- Environmental cleaning and disinfection
- Injection and medication safety
- Use of appropriate personal protective equipment based on activities being performed
- Minimizing potential exposures
- Reprocessing of reusable medical equipment

Hand Hygiene – Perform for the following (CDC)

- Immediately before touching a patient
- Before performing an aseptic task or handling invasive medical devices
- Before moving from work on a soiled body site to a clean body site on the same patient
- After touching a patient or the patient's immediate environment
- After contact with blood, body fluids or contaminated surfaces
- Immediately after glove removal

Hand Hygiene – Perform for the following (WHO 5 moments)

1. Before touching a patient
2. Before clean/aseptic procedure
3. After body fluid exposure or risk
4. After touching a patient
5. After touching patient surroundings

https://cdn.who.int/media/docs/default-source/integrated-health-services-(ihs)/infection-prevention-and-control/hand-hygiene/d_allmoments_a2_en.pdf?sfvrsn=dfebffbf_11&download=true

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Two ways to clean your hands

1. Alcohol-based hand sanitizer
2. Soap and Water

- Alcohol-based hand sanitizers are the most effective products for reducing the number of germs on healthcare provider's hands
- Alcohol-based hand sanitizers are the preferred method for cleaning your hands in most clinical situations
- Alcohol-based hand sanitizers kill more organisms than soap and water, are easier to use during course of care, are easier on skin, and don't require a sink

Soap and Water – When to do

- Visibly soiled
- Before eating
- After using the restroom
- After caring for a person with suspected infectious diarrhea
- After known of suspected exposure to spores (e.g. anthrax or *C. difficile*)

Soap and Water – How to do

- Wet your hands with water
- Apply the amount of product recommended by the manufacturer
- Rub hands together vigorously for 15-20 seconds, covering all surfaces of hands and fingers
- Rinse your hands with water and use disposable towels to dry
- Use towel to turn off the faucet
- Avoid hot water to prevent drying of skin

Alcohol-based hand sanitizer – How to use

- Put the recommended amount of product on hands and rub together
- Cover all surfaces until hands feel dry
- Should take around 20 seconds

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When cleaning your hands, don’t forget

- Thumbs
- Fingertips
- Between fingers

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Glove use

- Wear gloves, according to Standard Precautions, when it can be reasonably anticipated that contact with blood or other potentially infectious materials, mucous membranes, non-intact skin, potentially contaminated skin or contaminated equipment could occur

•Gloves are not a substitute for hand hygiene.

- If your task requires gloves, perform hand hygiene prior to donning gloves, before touching the patient or the patient environment.
- Perform hand hygiene immediately after removing gloves.

Glove Use

- Change gloves and perform hand hygiene during patient care, if
  - gloves become damaged,
  - gloves become visibly soiled with blood or body fluids following a task,
  - moving from work on a soiled body site to a clean body site on the same patient or if another clinical indication for hand hygiene occurs.
- Never wear the same pair of gloves in the care of more than one patient.
- Carefully remove gloves to prevent hand contamination.

Environmental Cleaning and Disinfection

- Require routine and targeted cleaning of environmental surfaces – surfaces in close proximity to the patient and frequently touched surfaces should be cleaned more frequently than those farther away or touched less frequently
- Promptly clean and decontaminate spills of blood or other potentially infectious materials
- Select EPA-registered disinfectants that have microbicidal activity against pathogens most likely to contaminate the patient-care environment
- Follow manufacturer's instructions for proper use of cleaning and disinfecting products (dilution, contact time, material compatibility, storage, shelf-life, safe use and disposal)

Injection and Medication Safety

- Prepare medications in a designated clean medication preparation area that is separated from potential sources of contamination, including sinks or other water sources
- Use aseptic technique when preparing and administering medications
- Disinfect the access diaphragms of medication vials before inserting a device into the vial
- Use needles and syringes for one patient only (this includes manufactured prefilled syringes and cartridge devices such as insulin pens)
- Enter medication containers with a new needle and a new syringe, even when obtaining additional doses for the same patient

Injection and Medication Safety

- Ensure single-dose or single-use vials, ampules, and bags or bottles of parenteral solution are used for one patient only
- Use fluid infusion or administration sets (e.g., intravenous tubing) for one patient only
- Dedicate multidose vials to a single patient whenever possible. If multidose vials are used for more than one patient, restrict the medication vials to a centralized medication area and do not bring them into the immediate patient treatment area (e.g., operating room, patient room/cubicle)
- Wear a facemask when placing a catheter or injecting material into the epidural or subdural space (e.g., during myelogram, epidural or spinal anesthesia)

Use of appropriate personal protective equipment based on activities being performed

- Wear gloves when it can be reasonably anticipated that contact with blood or other potentially infectious materials, mucous membranes, non-intact skin, potentially contaminated skin or contaminated equipment could occur
- Wear a gown that is appropriate to the task to protect skin and prevent soiling of clothing during procedures and activities that could cause contact with blood, body fluids, secretions, or excretions
- Use protective eyewear and a mask, or a face shield, to protect the mucous membranes of the eyes, nose and mouth during procedures and activities that could generate splashes or sprays of blood, body fluids, secretions and excretions. Select masks, goggles, face shields, and combinations of each according to the need anticipated by the task performed

Use of appropriate personal protective equipment based on activities being performed

- Remove and discard PPE, other than respirators, upon completing a task before leaving the patient's room or care area. If a respirator is used, it should be removed and discarded (or reprocessed if reusable) after leaving the patient room or care area and closing the door
- Do not use the same gown or pair of gloves for care of more than one patient. Remove and discard disposable gloves upon completion of a task or when soiled during the process of care
- Do not wash gloves for the purpose of reuse
- Ensure that healthcare personnel have immediate access to and are trained and able to select, put on, remove, and dispose of PPE in a manner that protects themselves, the patient, and others

Minimizing Potential Exposures

- Have systems for early detection and management of potentially infectious persons at initial points of patient encounters
- Use respiratory hygiene and cough etiquette
- Prompt patients and visitors with symptoms of respiratory infections to contain their secretions and perform hand hygiene by providing tissues, masks, hand hygiene supplies, and instructional signage
- When space permits, separate patients with respiratory symptoms from others

- During periods of higher levels of community respiratory virus transmission, consider having everyone mask

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Reprocessing Reusable Medical Equipment

- Clean and reprocess reusable medical equipment (BP cuffs, oximeters, endoscopes, etc) prior to use on another patient or when soiled.
- Maintain separation between clean and soiled equipment to prevent cross contamination

Transmission-based precautions.

- Implement 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
- Implement transmission-based precautions based on the patient's clinical presentation and likely infection diagnoses (e.g., syndromes suggestive of transmissible infections such as diarrhea, meningitis, fever and rash, respiratory infection) as soon as possible then adjust or discontinue precautions when more clinical information becomes available
- Try and place patients in a single-room (or cohort them)
- Notify accepting facilities about the need for transmission-based precautions

Contact Precautions

- Barrier precaution to prevent spread of organisms on healthcare worker's clothes and hands
- Try and keep patient in a single room
- Wear appropriate PPE: gowns, gloves
- Minimize patient transport
- Use disposable or dedicated patient care equipment when possible

Enteric precautions

- Not a real recognized precaution from the CDC, but done at many places to ask staff to use gowns and gloves, but wash their hands rather than use an alcohol-based hand sanitizer

Droplet Precautions

- **for patients known or suspected to be infected with pathogens transmitted by respiratory droplets that are generated by a patient who is coughing, sneezing, or talking**
- **Source control: put a mask on the patient**
- **Try and keep one patient per room**
- **Wear a mask (with eye protection)**
- **Limit transport of the patient**

Airborne Precautions

- For patients known or suspected to be infected with pathogens transmitted by the airborne route (e.g., tuberculosis, measles, chickenpox, disseminated herpes zoster)
- Source control: put a mask on a patient
- Place in an airborne infection isolation room (AIIR), usually referred to a negative pressure rooms
- Restrict susceptible healthcare personnel from entering the room of patients known or suspected to have measles, chickenpox, disseminated zoster, or smallpox if other immune healthcare personnel are available
- Wear fit tested N95 or equivalent respirator
- Limit transport
- Vaccinate healthcare workers for vaccine preventable diseases

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What’s wrong with this picture?

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What’s wrong with this picture?

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Newer ideas

What to do with COVID

- CDC says source control remains an important intervention during periods of higher respiratory virus transmission.
- Healthcare facilities should identify local metrics that could reflect increasing community respiratory viral activity to determine when broader use of source control in the facility might be warranted – *i.e. do it yourself*
- Benefit greatest when higher rates of respiratory infections in the community
- All who want to mask, based on their own risk tolerance, should be able
- Some centers may choose to mask during respiratory viral season (October - April)

COVID

- Northwest Healthcare Response Network helped coordinate a shared policy statement amongst most healthcare organizations west of the Cascades in March after the end of the Emergency Health Order on masking in healthcare.
- This advised continued universal masking that lasted until the early to mid-summer
- Principle was that patients remain at risk from COVID and we have a duty to try and protect them
- Currently the Network is working on an updated version for when to go back to universal masking for not just COVID but also RSV and influenza

COVID Isolation - Healthcare

- Has not changed recently
- 7 days (with negative antigen testing on D5 and D7) or through 10 days if not testing (if if repeat testing positive) if not immunocompromised
- Severe COVID (hypoxic) – 20 days
- Immunocompromised – at least 20 days with 2 negative antigen tests 24 hours apart
- Healthcare workers have same guidance, but if operating under contingency staffing status, can bring staff back at day 5 wearing a mask.

Enhanced Barrier Precautions

- New CDC category of transmission-based precautions for nursing homes/long-term care facilities
- Recognizes the role of nursing homes in transmission of multidrug resistant organisms
- Attempt to provide targeted gown and glove use during high contact resident care activities
- May be considered when caring for patients with indwelling devices or wounds
- Doesn’t need a private room
- Doesn’t need dedicated medical equipment

Enhanced Barrier Precautions – Examples of MDROs

- Pan-resistant organisms
- Carbapenemase-producing carbapenem-resistant Enterobacterales,
- Carbapenemase-producing carbapenem-resistant *Pseudomonas* spp.,
- Carbapenemase-producing carbapenem-resistant *Acinetobacter baumannii*, and
- *Candida auris*

Not exactly the same, but also could be considered:

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

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Enhanced Barrier Precautions – Examples of High Contact Activities

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

CDC Updated Guidance on the Nastiest of the Nasties

- Dec 2022
- Interim Guidance for a public health response to contain novel or targeted MDROs

Epidemic Stages	No cases identified Limited spread	Limited to moderate spread	Moderate to advanced spread	Endemic
Tiers with definitions	**Tier 1** Organisms or resistance mechanisms never or very rarely identified in the United States	**Tier 2** Mechanisms and organisms not regularly found in a region. Pan-not susceptible organisms with the potential for wider spread in a region	**Tier 3** Mechanisms and organisms regularly (i.e., frequently) found in a region but not endemic.	**Tier 4** Mechanisms and organisms that are endemic.

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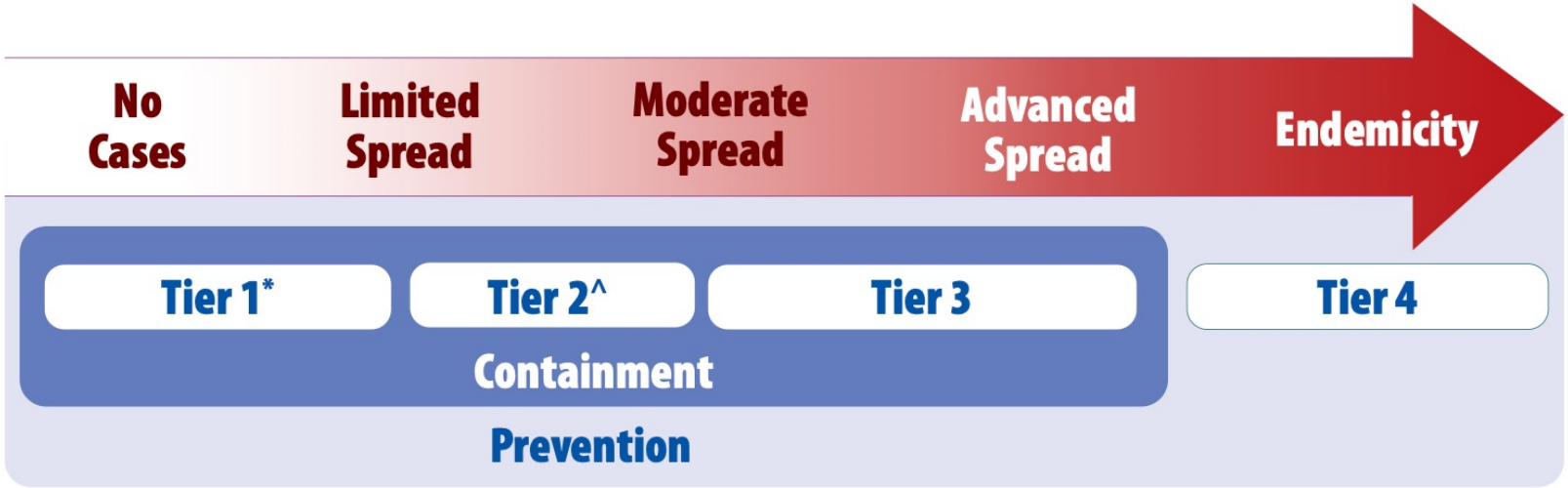
https://www.cdc.gov/hai/pdfs/mdro-guides/Health-Response-Contain-MDRO-H.pdf



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Elements	Tier 1	Tier 2	Tier 3	Tier 4
Healthcare Investigation[1]				
Review the patient's healthcare exposures prior to and after the positive culture[1]	ALWAYS Typical review period: 30 days prior to culture collection to present	ALWAYS Typical review period: 30 days prior to culture collection to present	ALWAYS Typical review period: Current admission and sometimes immediately prior admission	**Prioritize prevention;** containment principles generally do not apply.
Contact Investigation[1]				
Screening of healthcare contacts (i.e., residents and patients)[2]	ALWAYS	ALWAYS	USUALLY	**Prioritize prevention;** containment principles generally do not apply.
Household contact screening	USUALLY	RARELY	RARELY	
Healthcare personnel screening	USUALLY	RARELY	RARELY	

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Elements	Tier 1	Tier 2	Tier 3	Tier 4
Infection Control Measures				
Notify healthcare providers; promptly implement appropriate transmission-based precautions	ALWAYS	ALWAYS	ALWAYS	
Infection control assessment with observations of practice	ALWAYS	ALWAYS	SOMETIMES	**Prioritize prevention;** containment principles generally do not apply.
Clear communication of patient status with transferring facilities	ALWAYS	ALWAYS	ALWAYS	

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Proposed changes to CDC guidance

- Pathogens spread by Air and those spread by Touch

***DRAFT:* Transmission-Based Precautions to Prevent Transmission by Air**

Category	Facemask or Respiratory Protection	Eye Protection	Airborne Infection Isolation Room (AIIR)	Example Pathogens
Routine Air Precautions	Medical/Surgical Facemask	Per Standard Precautions	Not routinely recommended	Seasonal coronavirus, Seasonal influenza
Novel Air Precautions	N95 respirator	Yes	Not routinely recommended	MERS, SARS-CoV-1, Pandemic-phase respiratory viruses (*e.g.*, influenza, SARS-CoV-2)
Extended Air Precautions	N95 respirator	Per Standard Precautions	Yes	Tuberculosis, measles, varicella

Standard Precautions applies to all situations regardless of Transmission-Based Precautions used

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Water Management

- Due to increased awareness of infections from plumbing, all facilities are required to have water management programs looking at their water for Legionella and other organisms.
- New focus on sinks, drains, toilets, and hoppers are potential sources of bacterial spread

Gram negatives implicated from drains

- *Pseudomonas aeruginosa*
- *Pseudomonas putida-P. fluorescens*
- *Burkholderia cepcia* complex *(B. cepacia, B. cenocepacia*, at least 8 other genomospecies)
- *Cupriavidus (Ralstonia) pauculus*
- *Herbaspirillium*
- *Methylobacterium* spp
- *Ralstonia pickettii, Ralstonia mannitolilytica*
- *Sphingomonas paucimobilis, Sphingomonas mucosissima*, other *Sphingomonas* spp
- *Stenotrophomonas maltophilia*
- *Acinetobacter baumannii*, complex *A. calcoaceticus*
- *Alcaligenes xylosoxidans, A. faecalis*
- *Aeromonas hydrophila, Aeromonas* spp
- *Elizabethkingia anophelis, E. meningosepticum*
- *Legionella pneumophila*

Other organisms

Non fecal coliforms

- *Enterobacter cloacae*
- *Klebsiella* spp
- *Pantoae aggloerans*
- *Rahnella aquatilis*
- *Serratia liquifaciens, Serratia marcescens*

Atypical mycobacteria

Fungi

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Ways to protect from drain bacteria

- Major mechanism of spread is splash-droplets, not aerosol
- Don’t store anything within 3 feet from the edge of a sink
- Clean the surfaces around the sink regularly
- Don’t have water come out directly onto the drain – offset faucets
- Use sinks with adequate depth and not too much water flow
- Have toilet and hopper covers; use them when flushing. If not able, close door when flushing
- Do not discard IV’s, medications, nutrition products, drinks, food down sinks

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Candida auris

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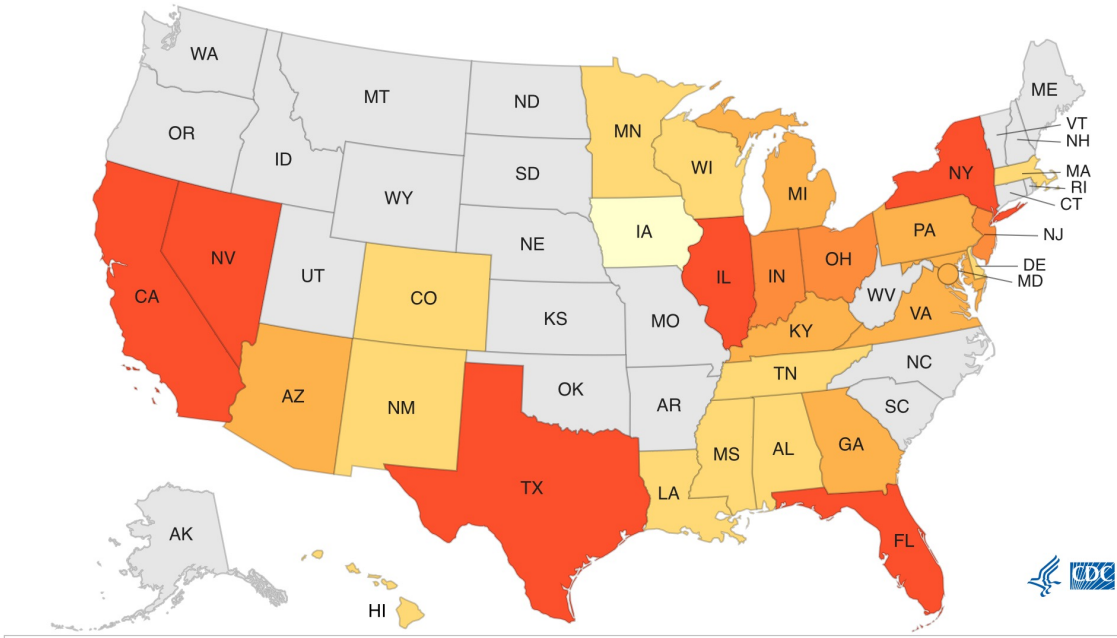
C auris

- Often multidrug resistant yeast spreading throughout the world and the US
- Initially identified in 2009
- First Washington case identified this year
- Can cause invasive disease like blood stream infections (and in those 1/3 died)
- Can also just colonize and not make sick
- Risk factors include indwelling devices, prolonged hospitalizations, stays in long-term care facilities, healthcare internationally or in areas of the US with significant numbers of cases. Also colonized with carbapenem-resistant bacteria
- Be aware not all disinfectants kill *C auris*. EPA list P

US *C auris* hot spots



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Thank you

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