ARTI

AMERICA'S RESTORATION TRAINING INSTITUTE

INDOOR ENVIRONMENTAL MANAGEMENT

Branden Adams: About me

- Amerestore
  - Director of Education
  - Chief Safety Officer
- America's Restoration Training Institute (ARTI)
  - Director of Education
- Indoor Environmental Management
  - Industrial Hygienist: Indoor Air Quality
- Purdue, BA Psychology
- Grew up in industry,12 years experience
- IICRC Triple Master
- IICRC Mold Remediation Specialist
- IICRC Instructor for HST
- ASP through BCSP
- ASHE ICRA 2.0 Train-the-trainer

Infection Control Risk Assessment (ICRA 2.0)

And why it’s important for our industry

Why does our industry want hospital work?

The Benefits

- Steady, reliable work
- Not seasonal
- Can be lucrative
- No insurance companies (that you'll deal with)
- If you can clean for Mold…
- Commercial setting; no homeowners!
- Bill in Time and Material, not Xactimate
- You get your steps in!

The Downsides

- Not for every restoration company
  - Clean standards vary
  - There is only one standard of clean, perfection
- Steady, reliable work
  - After hours and weekend calls/monitors
  - Small business may struggle
- Many hospitals want one stop shops
- Initial Investment on Equipment

Some Warnings

- Don’t get in over your head
- Getting approved as a vendor can take awhile
- It only takes one mistake to be removed
- It only takes one mistake to make someone sick or die
- Must adhere to strict infection control guidelines
- Not all hospitals will follow those strict guidelines…

Why is ICRA so important?

Our Immune System

- We are bombarded by microbes and pathogens!
- We don’t notice most of the time because of our immune system
- First time, makes us ill
  - It remembers, so no illness in the future
- We breathe mold outside all the time and don’t notice.
- Many bacteria found in Category 1 or 2 water damages, our body has already remembered.

The Immunocompromised

- Having a weakened immune system
- What building has the highest demographic of immunocompromised people?
  - Hospitals! And other healthcare facilities.
- To reduce infection rates and protect these people, a different approach is needed
- Enter, ICRA 2.0!
- But even with it, we're not perfect

What are HAIs?

"Healthcare-associated infections (HAIs) are infections people get while they are receiving health care for another condition. HAIs are a significant cause of illness and death — and they can have serious emotional, financial, and medical consequences."

What are HAIs?

- The CDC estimates that HAIs cause 722,000 infections and 75,000 deaths per year.
- As of today, HAI's are still in the top 10 leading causes of death in the US.
  - 8th, above nephrotic related deaths
- "At any given time, about 1 in 31 inpatients have an infection related to hospital care." Of those who get HAIs, 1 in 10 will die.

-US Department of Health and Human Services

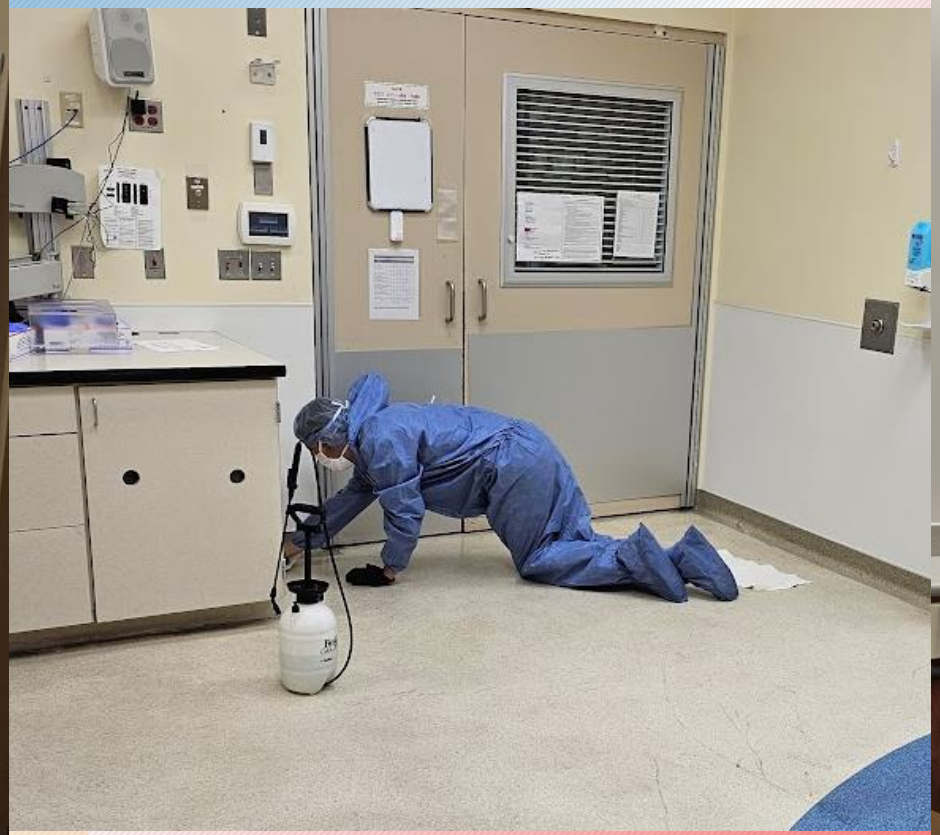
HAI Type Percentages

- UTI = 36%
- **Surgical Site Infections = 20%**
- Bloodstream Infections = 11%
- **Pneumonia = 11%**
- **Other = 22%**

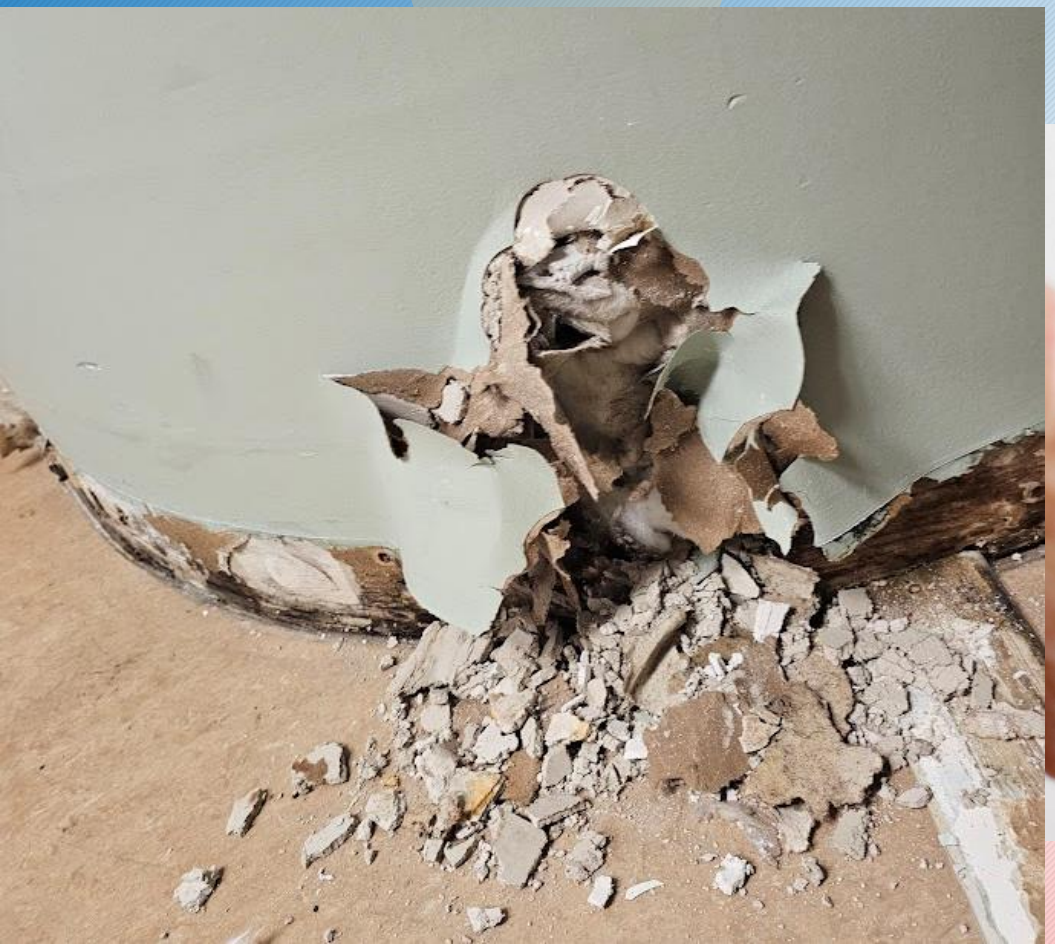
Working in Hospitals

Contractors are Notoriously Dirty

Hospitals Require Detail to Cleanliness



What activities can spread potential hazardous or pathogenic material?

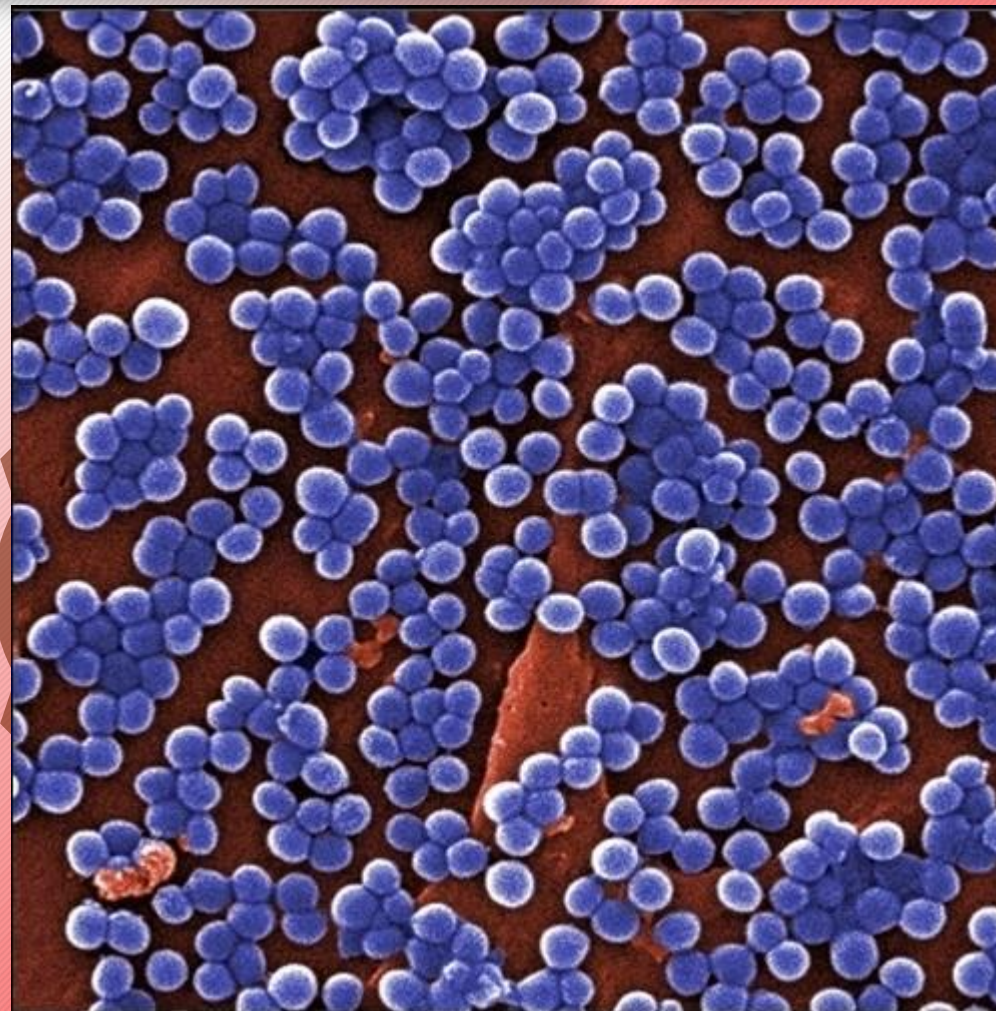


Main Pathogens to be Cognizant Of

- ***Clostridioides difficile (C. Diff)***
  - Infection that causes diarrhea, bloody stool, abdominal pain, vomiting, high fever
  - Bacterium spore
  - Can persist for 5 months
  - Extremely resilient
  - Responsible for about 12% of HAIs in the US

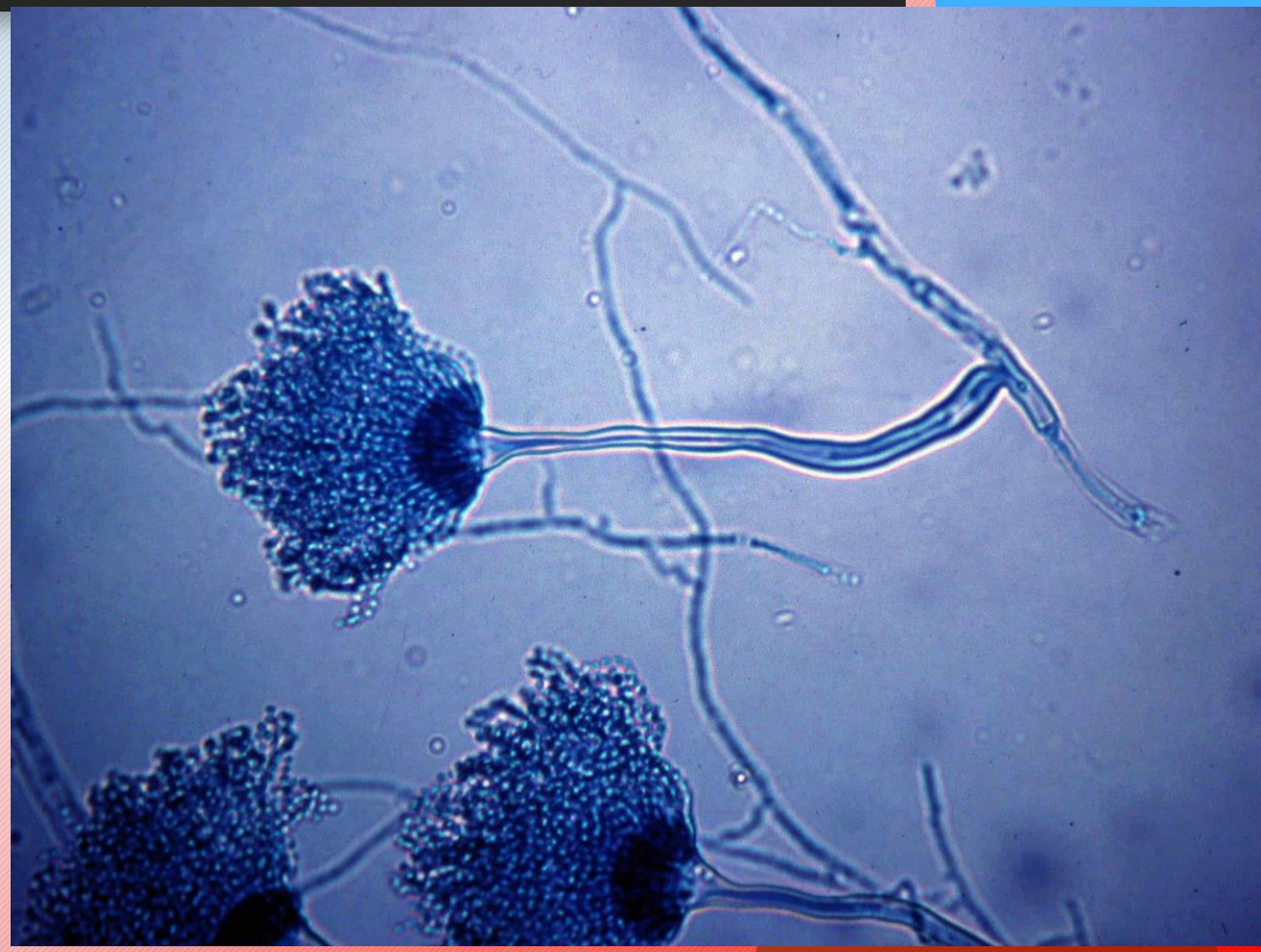
Main Pathogens to be Cognizant Of

- **(MRSA) *Staphylococcus aureus***
  - "Staph" infection
  - Methicillin (antibiotic) resistant
  - Gram positive bacteria
  - Strep throat, pneumonia, bloodstream infections, surgical site infections
  - Can persist up to 21 days
  - Responsible for 10% of HAIs in the US



Main Pathogens to be Cognizant Of

- **Molds:** Can all persist past 30 days; they're everywhere
- ***Aspergillus* sp.**
  - Carcinogenic mycotoxins, *aspergillosis* fumigatus which destroys lung tissue, and keratitis
- ***Candida* sp.**
  - Opportunistic fungus that can cause mouth and skin infections, diarrhea, abdominal pain, and nausea



Aspergillus under a microscope

Cross Contamination

- Carrying pathogens on clothes from a work area to a patient area
- Positive pressure or loss of negative pressure
- The lack of cleaning
- Improperly constructed containments
- Using contaminated equipment

Work Clothes Can and Will Spread Germs

- Healthcare facilities, especially hospitals, are cesspools of infectious diseases.
  - Use universal precautions.
- Germs can accumulate on your work clothes.
- Germs can survive on textiles from days to weeks to months!

Germs on Work Clothes

- Be cognizant
- Always keep a change of clothes
- Use PPE to protect work clothes
- Launder clothes after every use
- Keep a HEPA vacuum in anteroom
- Pathogens live and spread on/from clothes. If they don't make you sick, can make others sick.

Hand Hygiene

- Proper hand hygiene is the most effective way to decrease to spread of pathogens.
- Hand washing and/or alcohol-based sanitizers (at least 60%)
  - Sanitizers: 4-5 times then wash
- Should always wash hands when:
  - Using bathroom
  - Before/after eating
  - When hands are visibly dirty
  - Encountering known pathogens

Employee Health & Hygiene

- Health and Wellness
  - Employees that are sick can spread infection to patients.
  - Hospitals will almost always require the Flu Vaccine
  - Other vaccines to consider: Hepatitis A/B and Tetanus
  - Some healthcare facilities require COVID-19 vaccines.

Prevention & Control is Key

- In general:
  - Hand hygiene
  - Clean clothes
  - Vaccines
  - Stay home if sick

- Project related:
  - Enhanced Cleaning & Decon
  - Containments
  - Pressure differentials
  - PPE
  - HEPA filtration
  - Modified demo techniques
  - Monitoring

What kind of equipment do you need?

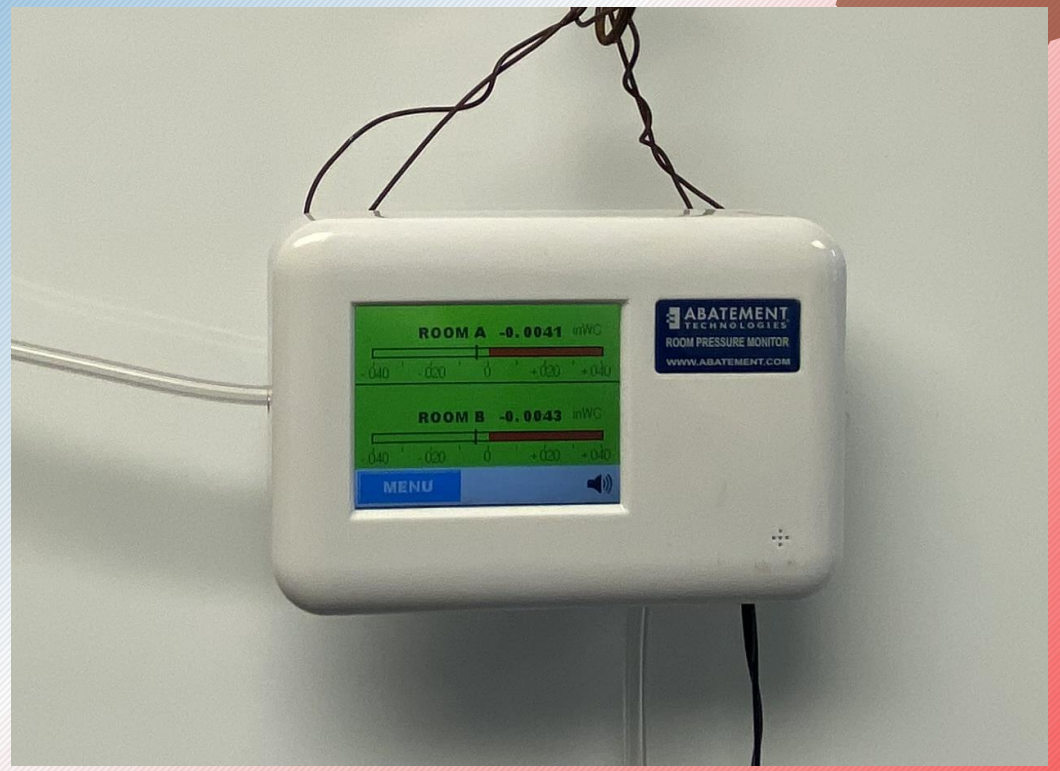
HEPA AFDs

- True HEPAs; you need to check!
- Clean, newer units
- Higher CFMs are helpful
- Variable speeds
- Space efficient
- Noise matters!
- Stackable/storable
- Be careful with power draws

Monitoring Tools

Moisture Meters

Manometers



Particle Counters

Manometers

- Need to be reliable
- Continuously on
- Water column
- Durable
- Careful with alarms
- Need one for every job
- Differentials logged daily

Particle Counters

- Preferably 6-channel
- 20 second test
- Reads down to 0.3 microns
- Handheld
- Requires multiple tests
- Average the results

Containment Systems

Metal studs/poly

Containment Carts

Hard barrier systems

Metal frame and poly

- Aluminum stud systems with tracks, preferably pressure fit
- White poly plastic is minimum 6mil FR
- Inexpensive
- Many limitations
  - Time consuming
  - No sound attenuation
  - Appearance
  - Excessive material waste
- Wood is not acceptable, do you know why?


RESTRICTED AREA
AUTHORIZED PERSONNEL ONLY

Containment Carts

- Portable
- Negatively pressurized
- Great for ceiling tile work
- Great for above ceiling grids
- Quick to set up
- Can only access 1 tile at a time
- Expensive

Hard Barrier Systems

- The preferred containment system
- Portable
- Quick to set up
- Easy to clean
- Extremely durable
- Security
- Looks great
- One major downside, it’s expensive


7
DANGER


CAUTION
CAUTION


EXIT
Floor 3 Indiana University
Central Elevato
Cellular Therapy


EXIT
CAUTION
WET
FLOOR

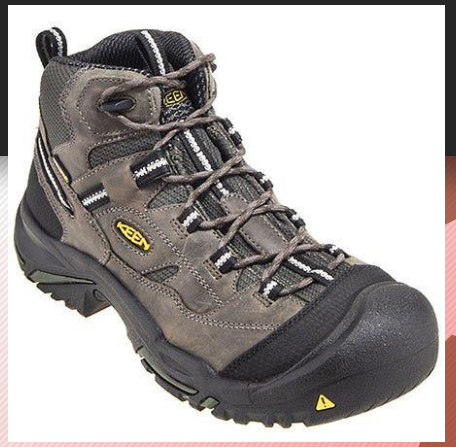

6 6
DANGER
CONSTRUCTION
AREA


-0.065

HEPA Vacuums

What doesn’t count as a HEPA vacuum?

PPE



ICRA 2.0

The new infection control standard from ASHE.

What is ICRA?

- Infection Control Risk Assessment
- Using a multidisciplinary team approach, it is designed to limit or halt the spread of infectious diseases in healthcare settings during CRM activities
- Helps create an SOP/G, but every facility is different
- ICRA “1.0” came out in 2015
- ICRA 2.0 was published in 2022

What is PCRA?

- Pre-Construction Risk Assessment: Created before work begins
- Tool to identify and evaluate potential hazards, unplanned interruptions, and ILSMs.
  - Fire, explosion, utility outage, mechanical breakdown
- Hazards can put people, systems, equipment, building, and reputations at risk.
  - Could result in casualties, HAIs, property damage, environmental contamination, lawsuits, and more.
- Analyze risks and help design a scope of work that addresses any and all hazards.

PCRAs and ICRAs

- The PCRA is usually completed by facility managers
- The ICRA is designed, written, and completed by infection preventionists.
- The ICRA takes the PCRA into account and also addresses infection prevention control measures.
- Given at the start of a project.
- The stage that PCRAs and ICRAs are written are facility dependent

What does ICRA 2.0 Encompass?

Construction

Renovation

Maintenance

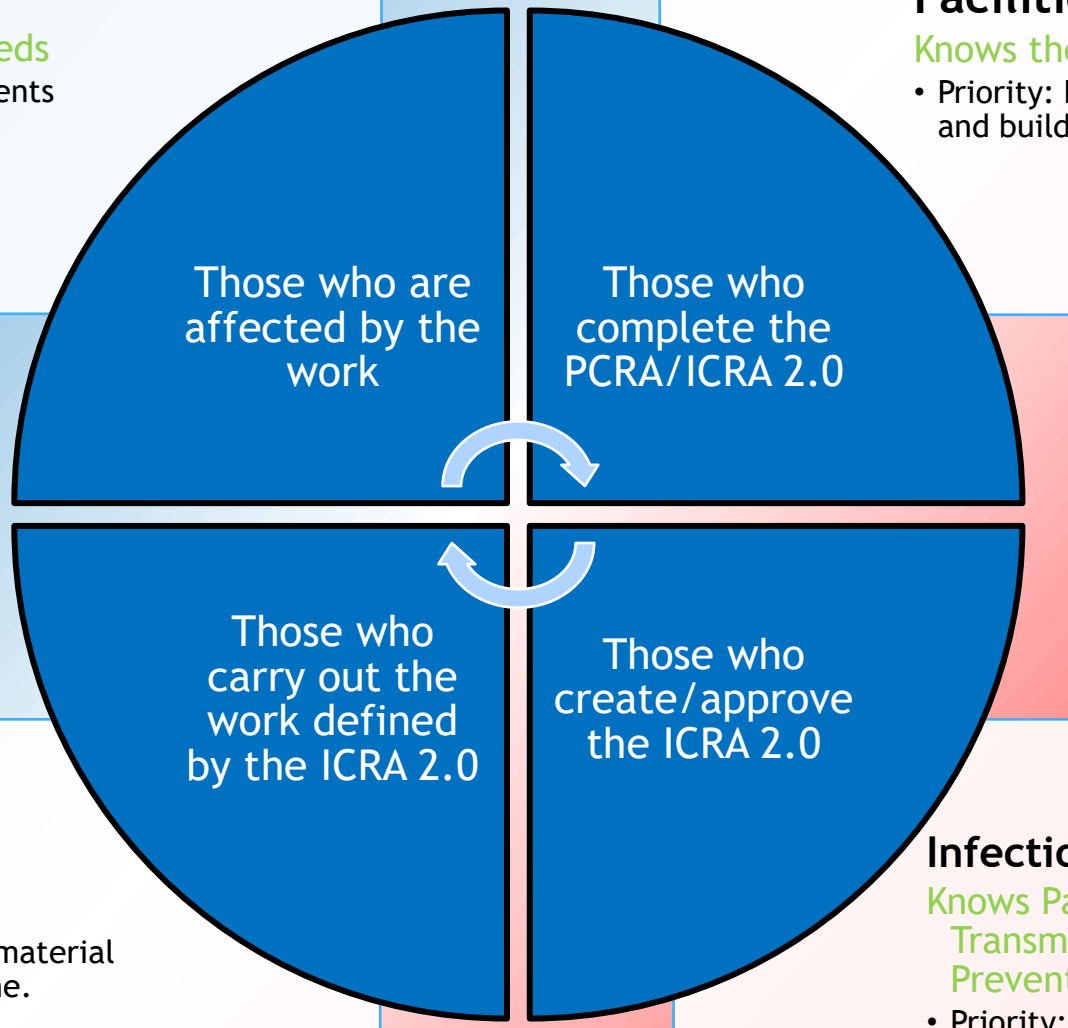
Emergency situations

ICRA Team: Core Four

Nursing Staff

Knows the Patient Needs

- Priority: Caring for Patients



Facilities Manager

Knows the Facility

- Priority: Keep systems operating and building safe

Contractor

Knows the Work

- Priority: Meet staff and material needs to get the job done.

Infection Preventionist

Knows Pathogen Transmission, Contagion, & Prevention

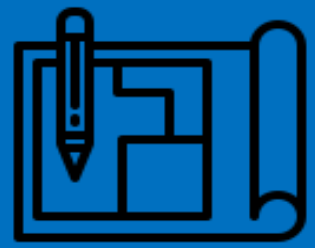
- Priority: Prevent infection and risk to patient and facility

Assessment Elements

1. Define the Activity

2. Identify Patient Risk

3. Define Class of Precautions



4. Assess Surrounding Area

5. Establish Mitigation Plan

Scan to get your free handout!

1. Define the Activity

Key Questions:

- What is the scope of the CRM activity?
- How invasive/disruptive is it?
- How long will the work take?
- What sub-work can we expect?
- What is the level of effort?

- Types of work classifications range from Type A-D.

Activity Types

Type A	**Inspection and non-invasive activities** Includes but is not limited to: • Removal of ceiling tile for visual inspection-limited to 1 tile per 50 square feet with limited exposure time • Limited building system maintenance (e.g., pneumatic tube station, HVAC system, fire suppression system, electrical and carpentry work to include painting without sanding) that does not create dust or debris • Clean plumbing activity limited in nature
Type B	**Small-scale, short duration activities that create minimal dust and debris** Includes but is not limited to: • Work conducted above the ceiling (e.g., prolonged inspection or repair of firewalls and barriers, installation of conduit and/or cabling, and access to mechanical and/or electrical chase spaces) • Fan shutdown/startup • Installation of electrical devices or new flooring that produces minimal dust and debris • The removal of drywall where minimal dust and debris is created • Controlled sanding activities (e.g., wet or dry sanding) that produce minimal dust and debris
Type C	**Large-scale, longer duration activates that create a moderate amount of dust and debris** Includes but is not limited to: • Removal of preexisting floor covering, walls, casework or other building components • New drywall placement • Renovation work in a single room • Non-existing cable pathway or invasive electrical work above ceilings • The removal of drywall where a moderate amount of dust and debris is created • Dry sanding where a moderate amount of dust and debris is created • Work creating significant vibration and/or noise • Any activity that cannot be completed in a single work shift
Type D	**Major demolition and construction activities** Includes but is not limited to: • Removal or replacement of building system component(s) • Removal/installation of drywall partitions • Invasive large-scale new building construction • Renovation work in two or more rooms

2. Identify Patient Risk

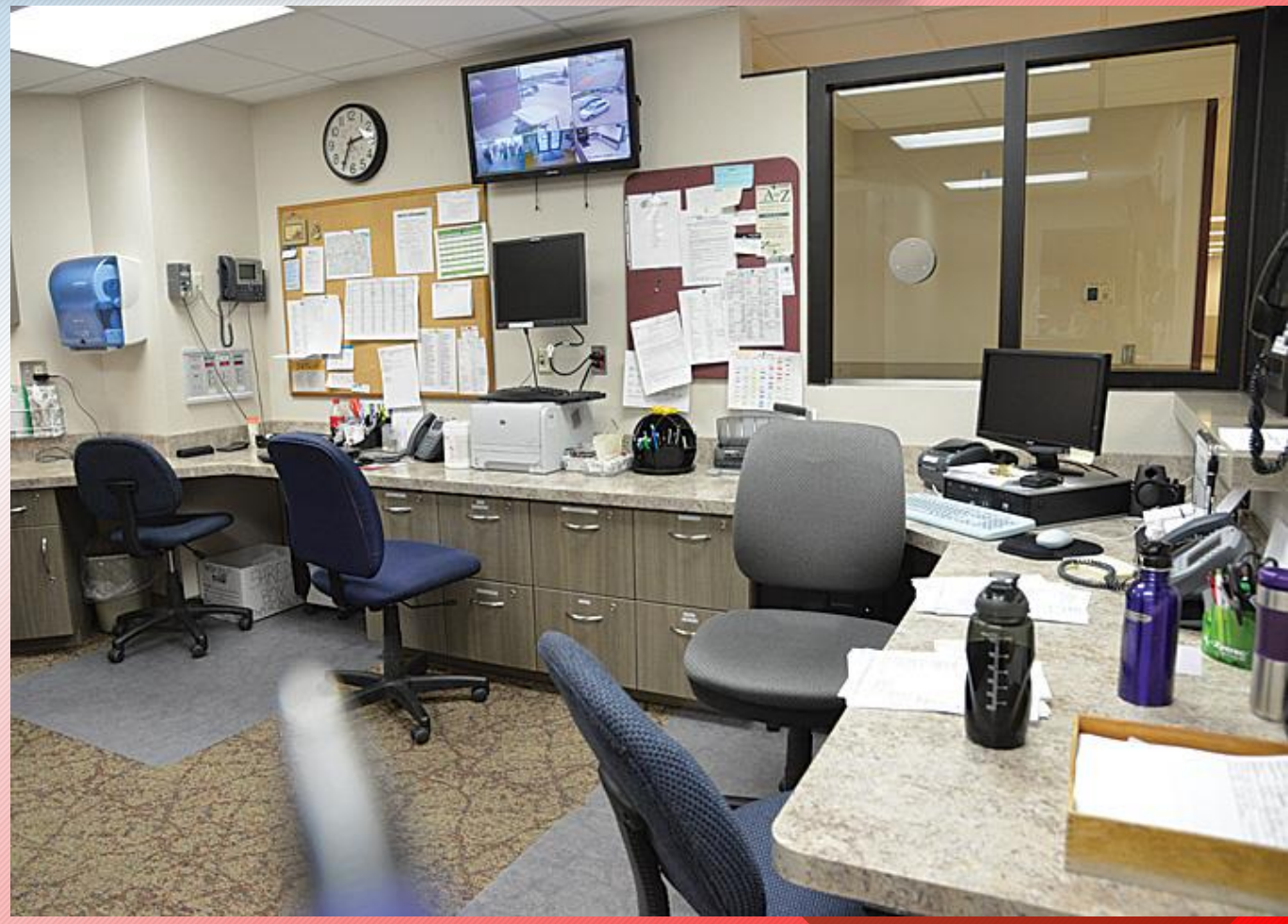
- CRM activities in healthcare and increased patient infection is well documented and recognized.
- Can not only impact patients, but also staff and visitors!
- Many factors can increase patient risk
- Not only determined by what type of patients, but also where the activity is being conducted
- From Low, Medium, High, to Highest

Infection Risks to Patients

Low Risk Non-patient care areas such as:	Medium Risk Patient care support areas such as:	High Risk Patient care areas such as:	Highest Risk Procedural, invasive, sterile support and highly compromised patient care areas such as:
• Public hallways and gathering areas not on clinical units. • Office areas not on clinical units • Breakrooms not on clinical units • Bathrooms or locker rooms not on clinical units • Mechanical rooms not on clinical units • EVS closets not on clinical units	• Waiting areas • Clinical engineering • Materials management • Sterile processing department – dirty side • Kitchen, cafeteria, gift shop, coffee shop, and food kiosks	• Patient care rooms and areas • All acute care units • Emergency department • Employee health • Pharmacy – general work zone • Medication rooms and clean utility rooms • Imaging suites: diagnostic imaging • Laboratory	• All transplant and intensive care units • All oncology units • OR theaters and restricted areas • Procedural suites • Pharmacy compounding • Sterile processing department – clean side • Transfusion services • Dedicated isolation wards/units • Imaging suites: invasive imaging

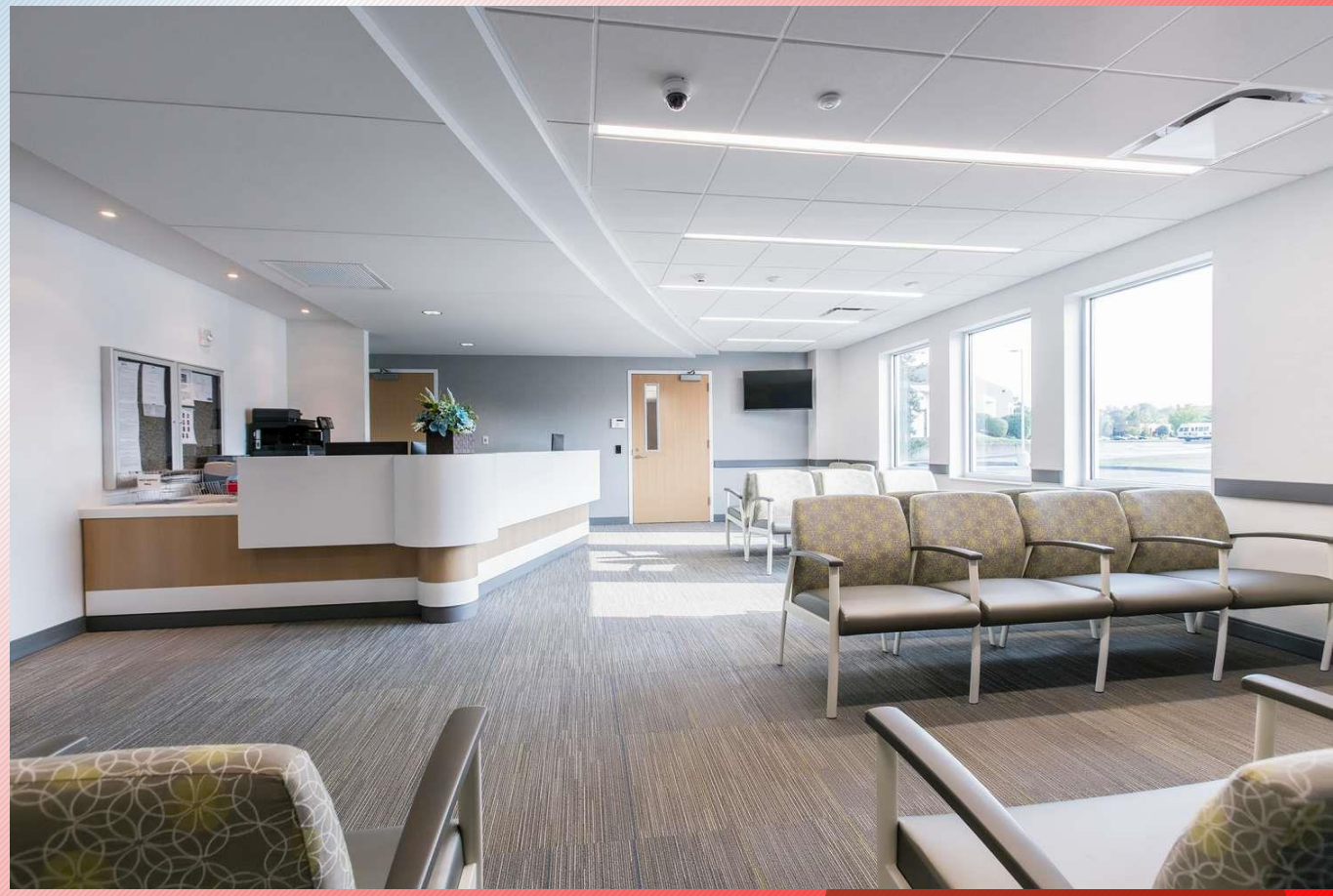
Low Risk: Non-Patient Care Areas

- Public hallways and gathering areas *not on clinical units*
- Office areas *not on clinical units*
- Breakrooms *not on clinical units*
- Bathrooms or locker rooms *not on clinical units*
- Mechanical rooms *not on clinical units*



Medium Risk: Care Support Areas

- Waiting areas
- Clinical engineering
- Materials management
- Sterile processing department-dirty side
- Kitchen, cafeteria, gift shop, coffee shop, food kiosks
- Areas that patients are, but not being cared for



High Risk: Patient Care Areas

- Patient care rooms
- All acute care units
- Emergency department
- Employee health
- Pharmacy (general work zone)
- Imaging suites: diagnostic imaging
- Laboratory
- Any area where patients are receiving care

Highest Risk: Procedural, invasive, sterile support and highly compromised areas

- All transplant and intensive care units
- All oncology units
- O.R. theaters and restricted areas
- Procedural suites
- Pharmacy compounding
- Sterile processing department, clean side
- Transfusion services.
- Dedicated isolation wards/units
- Imaging suites: invasive imaging

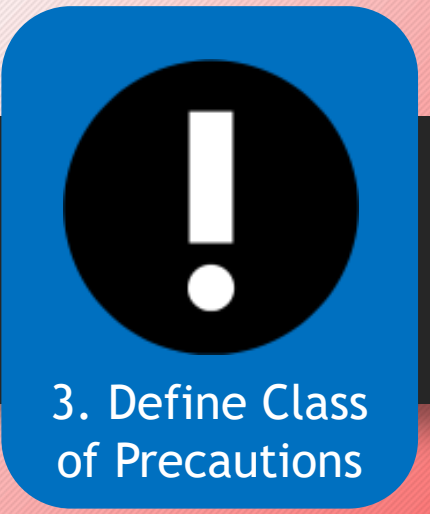
Infection Risks to Patients

- Outdated Building Materials
  - Lead
  - Asbestos
- Silica Dust
- Water Stagnation
  - How long wet and what category
  - Growth of bacteria, mold, and/or other harmful microbes
  - Water damages building materials
  - Biofilms
- Ambient Air & Dust control
  - Humidity
  - Air changes per hour (ACH)
  - Dust as a vehicle

Infection Risks to Patients: Dust

- Dust, Debris, and Dirt:
  - Contractor's job to stop/halt the spread of this!
- PPE, containment, pressure differentials, and air filtration.
- The contractor's job is not to worry about the infectious diseases, but the vehicles and vectors they travel on.

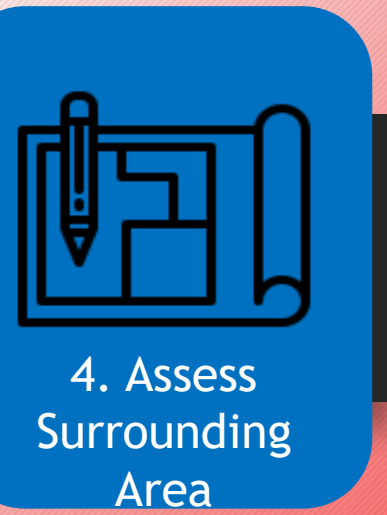
3. Class of Precautions



- How do we determine which precautions will be necessary?
- Precaution classes range from I-V (roman numerals).
- **If sewage, mold, asbestos, etc. are present, LOW and MEDIUM is automatically a IV. HIGH and HIGHEST are automatically a V.**

Patient Risk Group	Type A	Type B	Type C	Type D
LOW Risk Group	I	II	II	III
MEDIUM Risk Group	I	II	III	IV
HIGH Risk Group	I	III	IV	V
Highest Risk Group	III	IV	V	V

4. Assess Surrounding Area



- It’s the IP’s and FM’s job to assess surrounding areas/rooms. Will be listed if a sensitive room is next to the work area.
- It’s the contractor's job to be cognizant of these areas in how they perform the work.
- Work Control examples include:
  - Noise
  - Vibration
  - Drilling, hammering or equipment movement causes spread of dust
  - Actions that could result in the loss of negative pressure
  - Vertical connections between floors
  - Disruption of any building systems (water, data, medical gas, etc.)

Infection Prevention Controls

- Protections that are used to keep the work safer for both workers and occupants.
  - PPE (shoe covers, suits, respirators, etc.)
  - HEPA Air filtration
  - Impact reduction (using minimal hammer strikes, not using hammer drills, etc.)
  - Barriers (hard panel walls)
  - Critical Barriers (sealing air returns)
  - Ventilation and airflow/Exhaust and air filtration (air scrubbers and pressure differentials)
  - Trash and debris containment (bags in trash containers)
  - Anterooms (exit chambers, will elaborate in later slide)
  - Rerouted traffic flow and egress (anterooms, signage, showing alternative exits)
  - Enhanced cleaning in the areas (KEEP IT CLEAN)

Project Work Elements

- Make sure all control precautions are in place (i.e. containment, pressure differentials, critical barriers, etc.)
- Content:
  - Containments
  - Anterooms
  - The Work Area
  - Pressure Differentials
  - Monitoring
  - Equipment
  - Cleaning
  - Reconstruction
  - PPE

5. Establish Mitigation Plan

- Establishing a mitigation plan takes a combination of 3 key elements:
  - Precaution class
  - Project work elements
  - Surrounding area assessment
- Precaution class determines what infection controls to use.
- Selecting contractors that have all of the equipment, materials, and training is imperative for proper execution of ICRA projects.

Concluding Thoughts

- Healthcare is NOT commercial restoration
- Healthcare work can be a great avenue for business
- Make sure your team is trained and have the proper equipment
- Help mitigate the spread of HAIs
- Be familiar with ICRA 2.0, major healthcare organizations, and how to conduct the work
- The first step in any venture, purchase, or service is **education.**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Additional Questions?