Embedding Infection Prevention into Healthcare Construction Advancing Safety Through ICRA 2.0

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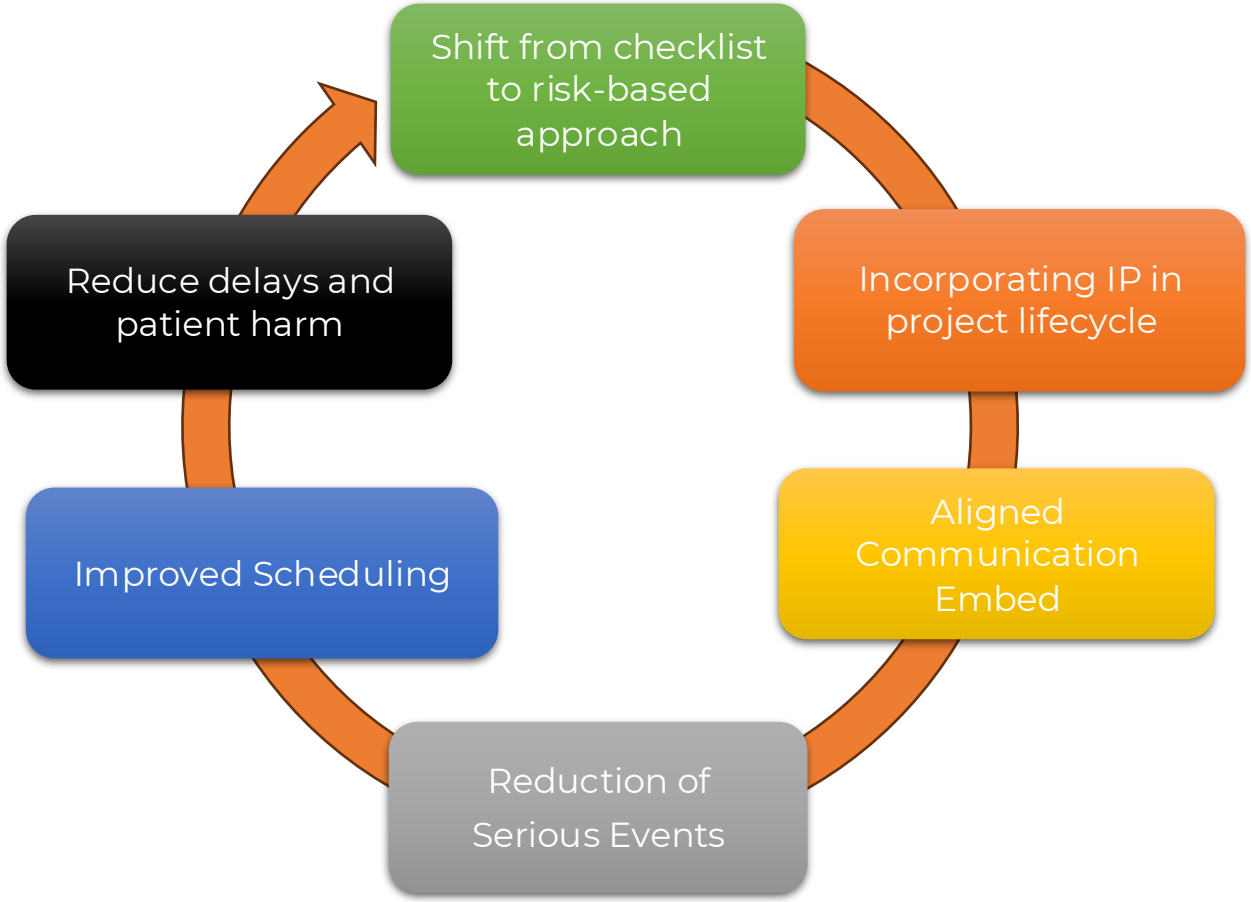
Objectives

Understand	How to apply ICRA 2.0 principles
Identify	Construction-related infection prevention (IP) risks
Describe	Integration of engineering & Infection Prevention controls
Understand	Principles to strengthen compliance and safety

Why This Matters Now

- ❑ Increased construction in occupied healthcare settings
- ❑ Vulnerable patient populations
- ❑ Regulatory scrutiny
- ❑ Construction = infection risk

Benefits of Infection Prevention (IP) as a Construction Partner



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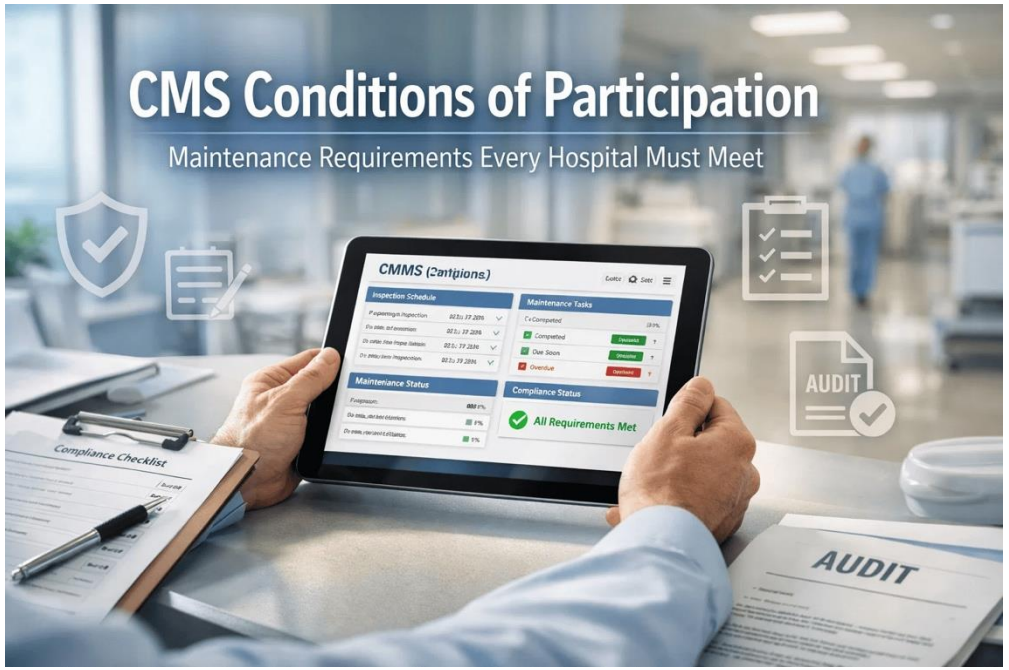
Regulatory & Accreditation Drivers

- ❑ CMS Conditions of Participation
- ❑ The Joint Commission
- ❑ State Departments of Health
- ❑ Liability and reputational risk

JOINT COMMISSION™

CDPH
California Department of Public Health



What is ICRA 2.0?

- ❑ Risk-based framework
- ❑ Lifecycle approach
- ❑ Strong accountability
- ❑ Integrated workflows

ICRA 2.0 Team and Roles

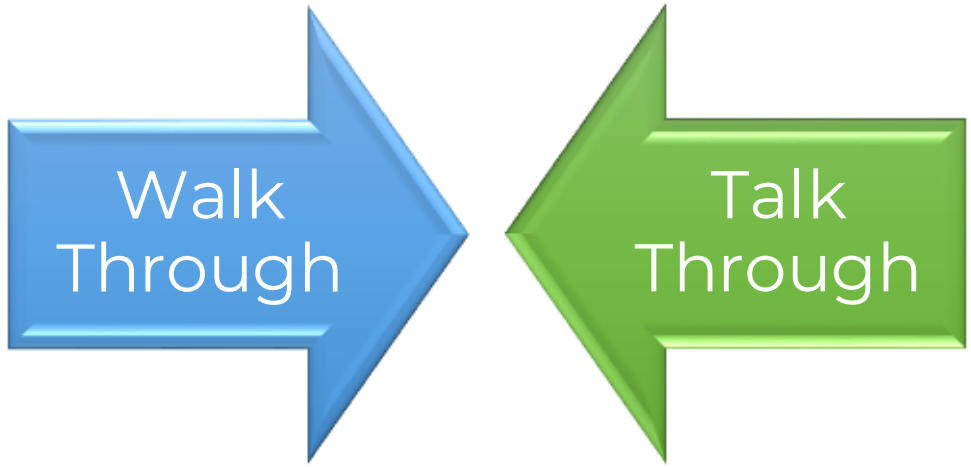
Stakeholders

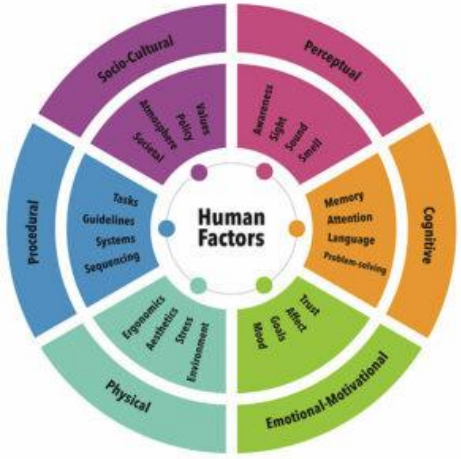
- ❑ Departments Affected
- ❑ Clinical Leaders
- ❑ Facility Leaders
- ❑ Biomed Leaders
- ❑ IT/Telecom Leaders
- ❑ Project Manager
- ❑ Life Safety Leaders
- ❑ Infection Prevention
- ❑ Risk Management
- ❑ Accreditation Regulatory & Licensure
- ❑ Environmental Services (EVS) Leaders

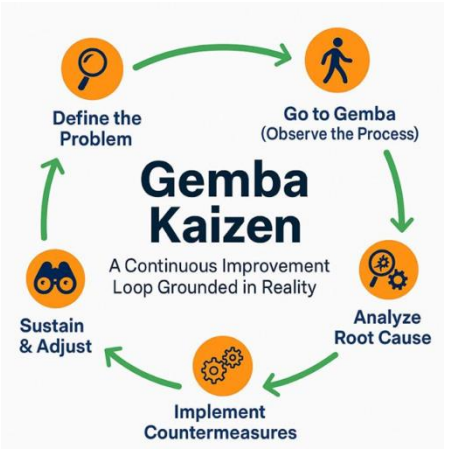
Human Factors and Risk Assessment Go to Gemba

Human factors engineering focuses on how systems work in actual practice, with human beings at the controls and utilizes what is learned to design systems/projects that optimize safety and minimize the risk of error.

"Go to gemba“ is a Japanese term meaning "the real place“ the actual spot where work is done, such as hospital or clinic.







Risk Assessment Steps

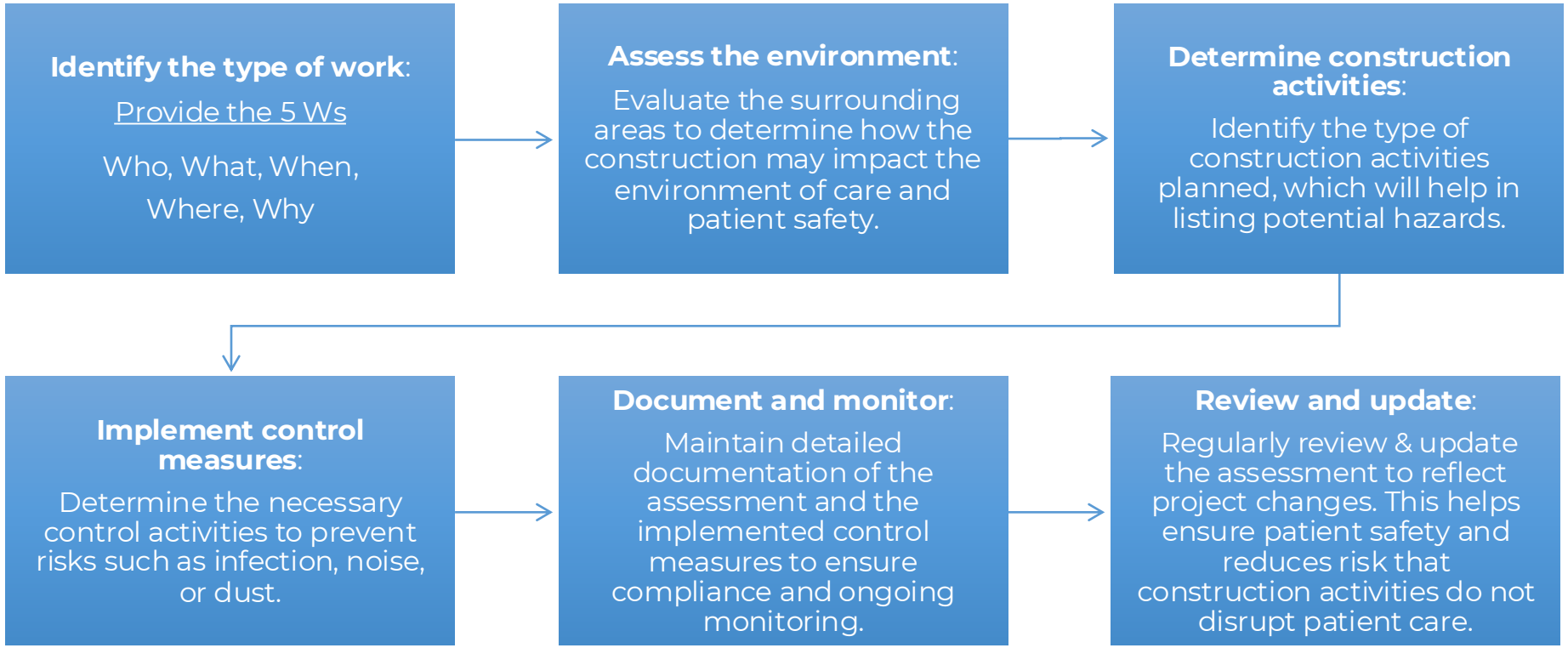
- Identify the hazards
- Decide who may be affected
- Evaluate the risk and determine precautions needed
- Document assessment and implement
- Continuous review and assessment and update ICRA as necessary

ICRA 2.0 Risk Assessment Steps

- Define the Activity
- Identify Patient Risk
- Define Class of Precautions
- Assess Surrounding Area
- Establish Mitigation Plan

ICRA 2.0 Core Principles

- ❑ Risk stratification
- ❑ Hazard identification
- ❑ Engineering controls
- ❑ Monitoring and sustainment



Process Steps for ICRA 2.0

Step 1

Is this project for HHS?

If yes proceed to step 2

Step 2

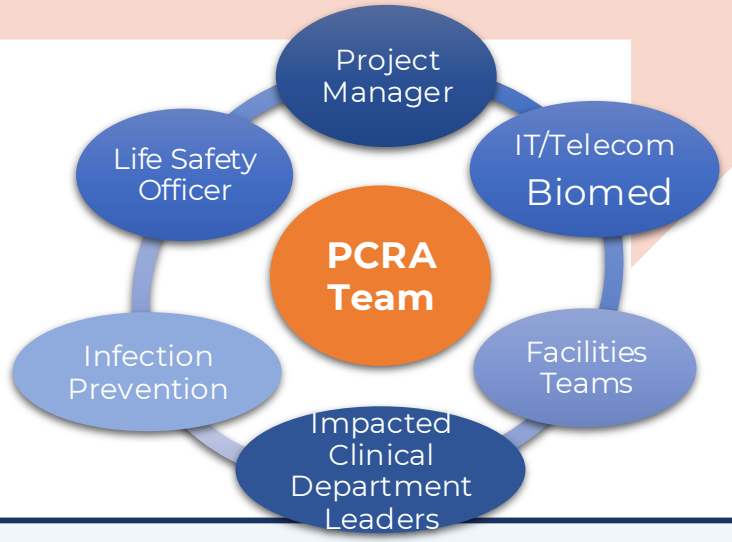
PCRA required complete section 1

Step 3

PCRA project Manager emails the Minimum **PCRA Team** Members

Step 4

Minimum PCRA Team review & IF errors, returns to Project Manager for corrections



High Risk Construction Activities

- ❑ Demolition
- ❑ Ceiling access
- ❑ HVAC modifications
- ❑ Plumbing tie-ins

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.

Common Failure Points

- ❑ Poor containment
- ❑ Pressure loss
- ❑ Dust migration
- ❑ Lack of monitoring

Engineering Controls That Matter

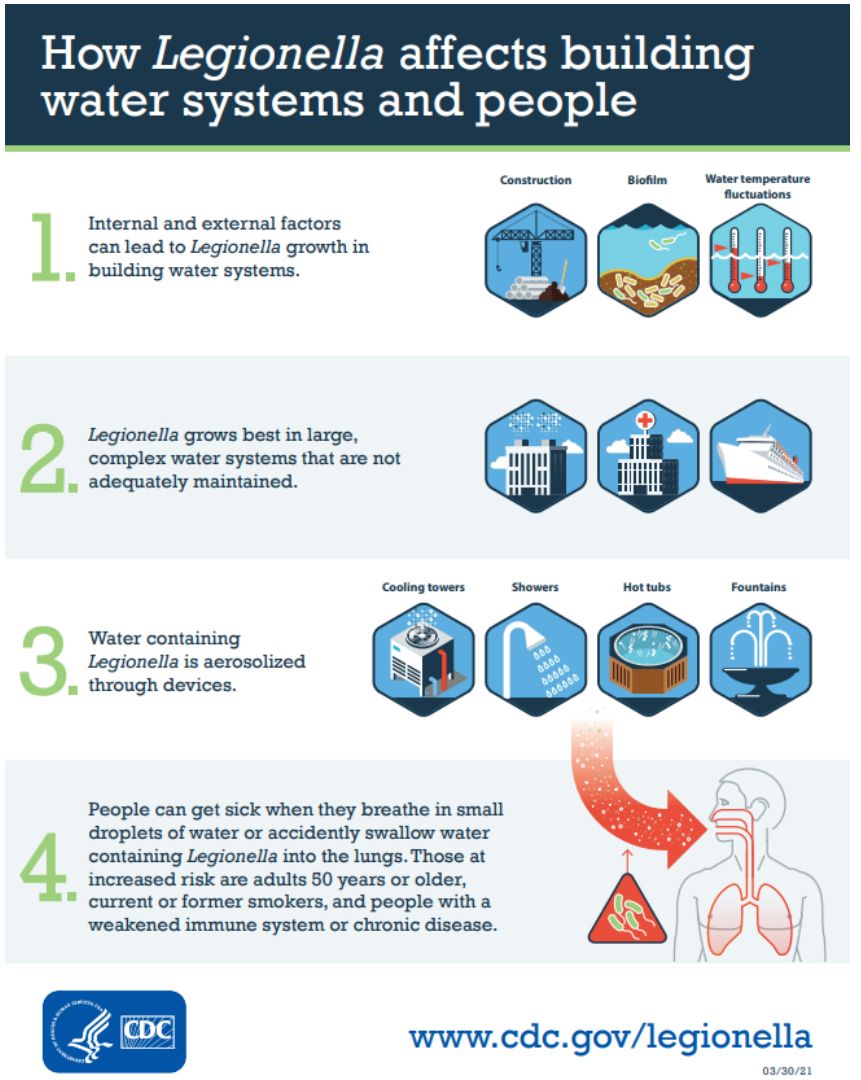
- ❑ Pressure differentials
- ❑ HEPA filtration
- ❑ Barriers & anterooms
- ❑ Water management

Ventilation & Pressure Control

- ❑ Protects patients
- ❑ Prevents contaminant spread
- ❑ Requires continuous monitoring

Water System Risks During Construction

- ❑ Legionella risk
- ❑ Flushing & recommissioning
- ❑ Stagnation
- ❑ Biofilm disruption



Monitoring & Documentation

- ❑ Barrier integrity
- ❑ Pressure readings
- ❑ Environmental controls
- ❑ Documentation = compliance

SCVH Operationalizing ICRA 2.0

- ❑ Standardized workflows
- ❑ Early IP engagement
- ❑ Stop-work authority
- ❑ Routine audits

Assessment for PCRA- Is it Needed?

Identify the type of work:

Is it for HHS?

If yes-Provide the 5 Ws

(Who, What, Where, When, Why)

Assess the environment:

Evaluate the surrounding areas to determine how the construction may impact the environment of care and patient safety.

Determine construction activities:

Identify the type of construction activities planned, which will help in listing potential hazards.

Next Steps-Follow Mitigation Strategies for PCRA

Implement control measures:

Determine the necessary control activities to prevent risks such as infection, noise, or dust.

Document and monitor:

Maintain detailed documentation of the assessment and the implemented control measures to ensure compliance and ongoing monitoring.

Review and update:

Regularly review and assess risk and update PCRA as needed to reflect any changes

This process is crucial for maintaining patient, visitor, and staff safety and ensuring that construction activities do not disrupt patient care or pose safety risks.

Let’s begin the PCRA Process

Project Managers contact Facility Engineering Leader for the following HHS Locations**:**

- Ambulatory & Community Health Services (ACHS)
- Custody Health Services (CHS)
- O’Connor Hospital (OCH)
- Regional Medical Center (RMC)
- St. Louise Regional (SLR)
- Valley Medical Center (VMC)

Facility Engineering Leader to loop in PCRA Team Members

Project Manager & PCRA Team Members Partner to Identify Any Additional Stakeholders for PCRA

- ❑ Departments Affected
- ❑ Clinical Leaders
- ❑ Facility Leaders
- ❑ Biomed Leaders
- ❑ IT/Telecom Leaders
- ❑ Life Safety Leaders
- ❑ Infection Prevention
- ❑ Risk Management
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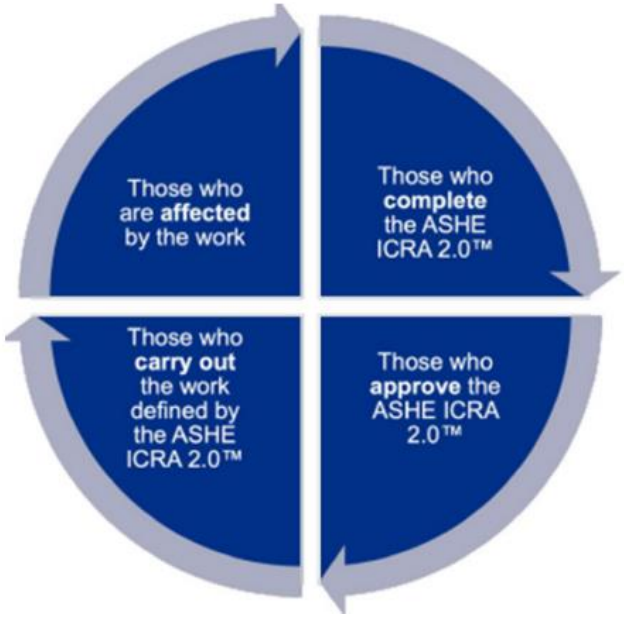


Project Managers Complete PCRA Sections 1 & 2

Hospital Preconstruction Risk Assessment (HPCRA) Form						
Click for instructions	**Section 1: Project Information**					
Item	**Details**					
Project Name						
Project Number or Work Order Number			WBS Element		Facilities Support Needed?	Select
Location	Campus	Select	Building	Select	Select Floor	Select
Department(s) where work is to be performed	Select		Project Coordinator			
Location of Work						
Project Start Date			Project Start Time			
Anticipated Completion Date			When will work be performed?			
Type of Work	Select		How many phases will project have?		Select	
Is AHJ Permit Required?	Select		Has a site walk been performed?		Yes	
Project Description: Write a brief narrative that captures the scope of work to be performed.						

Project Manager completes Section 1 & Section 2 Prior to Submitting to PCRA Project Team

Section 2: Team Members Reviewing PCRA				
Role	Title	Name	Department	Date
Emergency Management Leader				
Environmental Health and Safety Leader				
Fire Alarm Technician				
Facilities Operations Management				
Fire Alarm and Suppression Technician				
Biomed Leader				
Infection Prevention				
IT/Telecom (TSS)				
Nursing Representative				
Project Manager				
Risk Manager				
Safety Officer				
Security				

PROJECT MANAGER & PCRA TEAM REVIEW THE AREAS OF RISK IN SECTION 3

- ❑ 3.1 Infection Control Risk Assessment (ICRA)
- ❑ 3.2 Interim Life Safety Measures (ILSM)
- ❑ 3.3 Method of Procedure (MOP)
- ❑ 3.4 Noise and Vibration Impact
- ❑ 3.5 Security Considerations
- ❑ 3.6 Environment Considerations
- ❑ 3.7 Interruption to Patient Services
- ❑ 3.8 Low Voltage Systems/Med Equipment

3.1 Infection Control Risk Assessment (ICRA)

Consideration	Risk Level	Mitigation Measures Required	Comments
Dust generation and containment	Select	❑ ICRA Required for all dust generation	
Impact on air handling systems	Select	❑ Supply air adjustment ❑ Exhaust fan adjustments	
Water system disruption (e.g., Legionella risk)	Select	❑ Flushing protocols ❑ Testing post-project	
Waste removal and containment	Select	❑ Sealed transport ❑ Defined pathways	
Immunocompromised patient proximity	Select	❑ Schedule off-hours ❑ Relocate patients	
Construction worker infection risk to Pts	Select	❑ PPE ❑ Vaccinations ❑ Entry Screen	

3.2 Interim Life Safety Measures (ILSM)

Consideration	Yes / No	Mitigation Measures Required	Comments
Egress route interruption	Select	❑ ILSM Required for Yes answer	
Fire suppression systems affected	Select	❑ ILSM Required for Yes answer	
Alarm systems impaired	Select	❑ ILSM Required for Yes answer	
Use of flammable materials	Select	❑ Safe storage ❑ Provide additional fire extinguisher	

3.3 Method of Procedure (MOP)

Utility Affected	Yes / No	Mitigation Measures	Comments
Power	Select	❑ Backup generator test ❑ Work during off-peak hours	
Water or Steam	Select	❑ Temporary supply ❑ Post-restoration flushing	
Medical Gases, WAGD, Med Vacuum	Select	❑ System shutdown plan ❑ Staff notification	
Energized Work	Select	❑ Temporary rerouting ❑ IT support on standby	

3.4 Noise and Vibration Impact

Impact Area	Assessment	Controls Implemented	Comments
Patient care areas	Select	❑ Time restrictions ❑ Physical noise reduction	
Diagnostic/treatment zones	Select	❑ Coordinate with departments	
Sensitive equipment	Select	❑ Pre/post testing of devices	

3.5 Security Considerations

Area of Concern	Risk Level	Controls	Comments
Access to sensitive areas	Select	Badged access Escort required	
Contractor ID compliance	Select	Daily check-in Logs maintained	
Impact on emergency response	Select	Notify security Alternate response plans	
Area where radioactive material is stored or potentially transported	Select		

3.6 Environment Considerations

Is a portion of work in:	Yes or No	Communication Plan	Action Approved?	Comments
Is hot work to be performed?	Select	Select	Select	
Confined space	Select	Select	Select	
Above Ceiling	Select	Select	Select	
Areas with Asbestos	Select	Select	Select	
Rooftop / Helipad	Select	Select	Select	

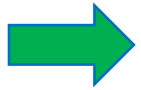
3.7 Interruption to Patient Services

Service Affected	Expected Impact	Communication Plan	Action Approved?	Comments
Diagnostic Imaging	Select	Select	Select	
Lab/Pharmacy	Select	Select	Select	
OR/Procedure Areas	Select	Select	Select	
Patient Rooms	Select	Select	Select	
Access to Facility	Select	Select	Select	
Outpatient Services	Select	Select	Select	

3.8 Low Voltage Systems/Med Equipment

Patient Care Equipment, Nurse Call	Select	☐ Temporary rerouting ☐ Loaner equipment	
IT Systems	Select	☐ Temporary rerouting ☐ IT support on standby	

After Review of PCRA Process Sections 1-3

- ❑ Additional information may be required (e.g., need for WICRA, MICRA permits)
- ❑ Identification of additional stakeholders to review PCRA
- ❑ Elaboration of project scope (e.g., adding more details)
- ❑ Once all the above is complete  Project Managers proceed to obtaining authorization on all required permits

Section 4 Project Manager sends required permits for authorization –via Docusign

PCRA Team will assist Project Manager:

- ❑ Work with project manager to fill out permit
- ❑ Provide any required training/education
- ❑ Approve permit for use
- ❑ Monitor project to ensure compliance
- ❑ Modify permit when necessary
- ❑ File permit with issuer's department once complete

Permit / Form	Link	Required?	Approved?	User Orientated
		No	Select	Select
Interim Life Safety Measures		No	Select	Select
Infection Control Risk Assessment		No	Select	Select
Water Intrusion Response		No	Select	Select
Mold Remediation Permit		Yes	Select	Select
Utility Impact Notice		Yes	Select	Select
Confined Space Permit		No	Select	Select
Above Ceiling Permit		Yes	Select	Select
LOTO permit		No	Select	Select
Asbestos Abatement		No	Select	Select
Hot work Permit		Yes	Select	Select
Method of Procedure (MOP)		Yes	Select	Select

Sustaining Safety Post-Construction

- ❑ HVAC recommissioning
- ❑ Water system flushing
- ❑ Environmental cleaning

Renovation in Occupied Unit

- ❑ Risk classification
- ❑ Required controls
- ❑ Monitoring plan
- ❑ Escalation triggers

Clinical Overview of Aspergillosis

For Health Care Providers
APRIL 24, 2024

AT A GLANCE

- Transmission occurs through inhaling airborne *Aspergillus* spores.
- People with weakened immune systems or lung diseases are most at risk.
- Aspergillosis treatment depends on the type of infection.
- *Aspergillus fumigatus* (*A. fumigatus*) that is resistant to azole antifungal medications is emerging in the U.S.

How it spreads

Transmission occurs through inhaling airborne spores. Healthcare-associated infections are sporadic and associated with dust exposure during building renovation or construction. Occasional outbreaks of cutaneous infection have been linked to contaminated medical devices.

Dust from hospital construction can expose people to *Aspergillus* spores.

SCVH Infection Prevention Fundamentals

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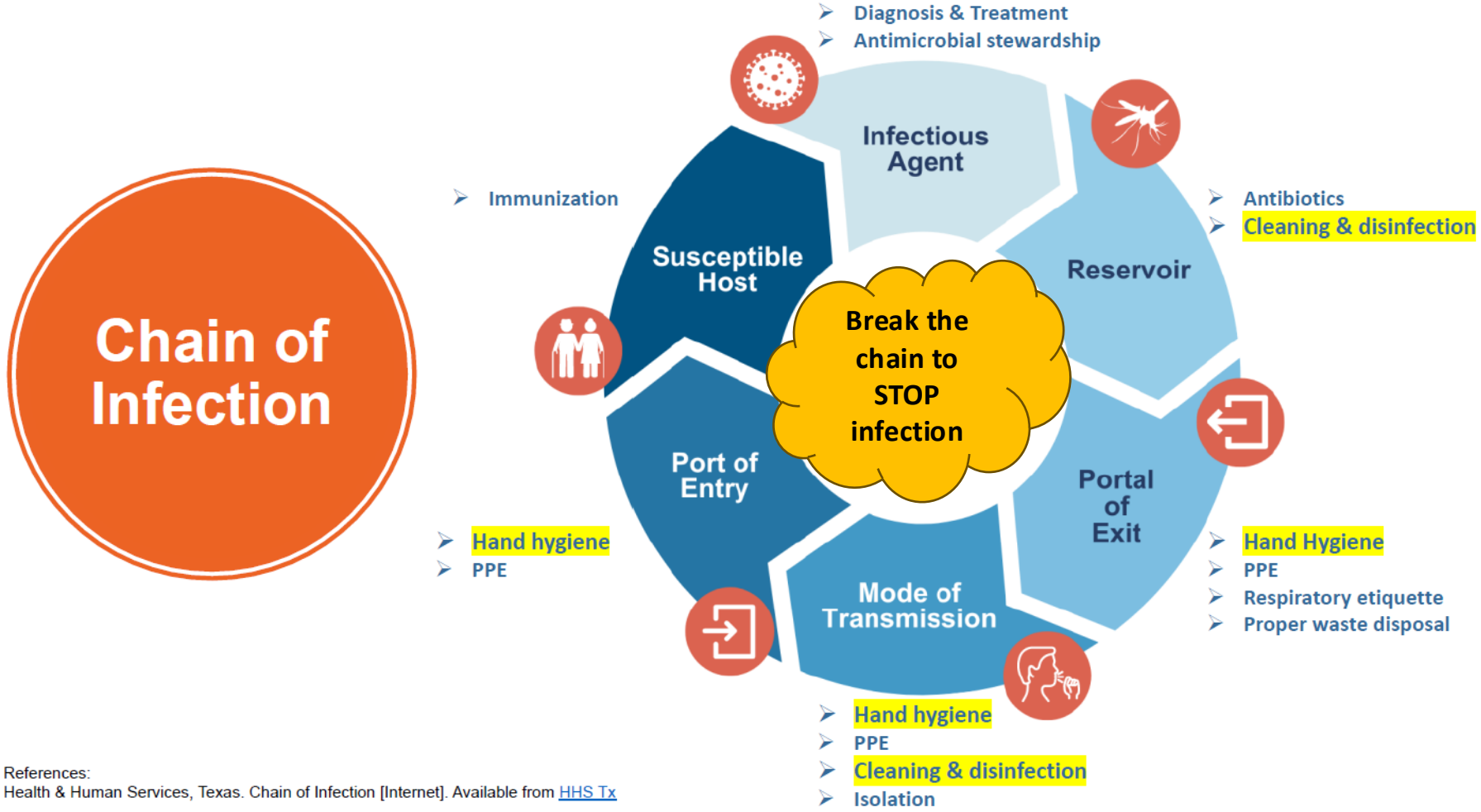
Who's Responsible for Infection Prevention & Control?

Answer = Everyone ☺

Speak up for hand hygiene! Clean 20 is our motto

What Are Standard Precautions?

The Role of the Environment



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Pathogens Can Survive on Surfaces for Long Periods of Time and Cause HAIs!

Organisms Attributed to HAIs Such as CAUTIs, CLABSIs, VAEs, SSIs....	Environmental Survival Time
Enterococcus faecalis	1 day to 16 weeks
Vancomycin-resistant Enterococcus (VRE)	5 days to 4 months
Staphylococcus aureus, including MRSA	7 days to 7 months
Escherichia coli	4 hours to >300 days
Klebsiella pneumoniae	2 hours to >30 months

HAND HYGIENE, ENVIRONMENTAL AND EQUIPMENT CLEANING AND DISINFECTION, AND ADHERENCE TO CARE BUNDLES ARE ESSENTIAL!

Don’t Tape - Laminate

The Joint Commission (TJC) does not explicitly forbid tape on walls, but adhesive residue is a major finding under infection control standards because it acts as a reservoir for contaminants increasing the risk of healthcare-associated infections (HAIs)

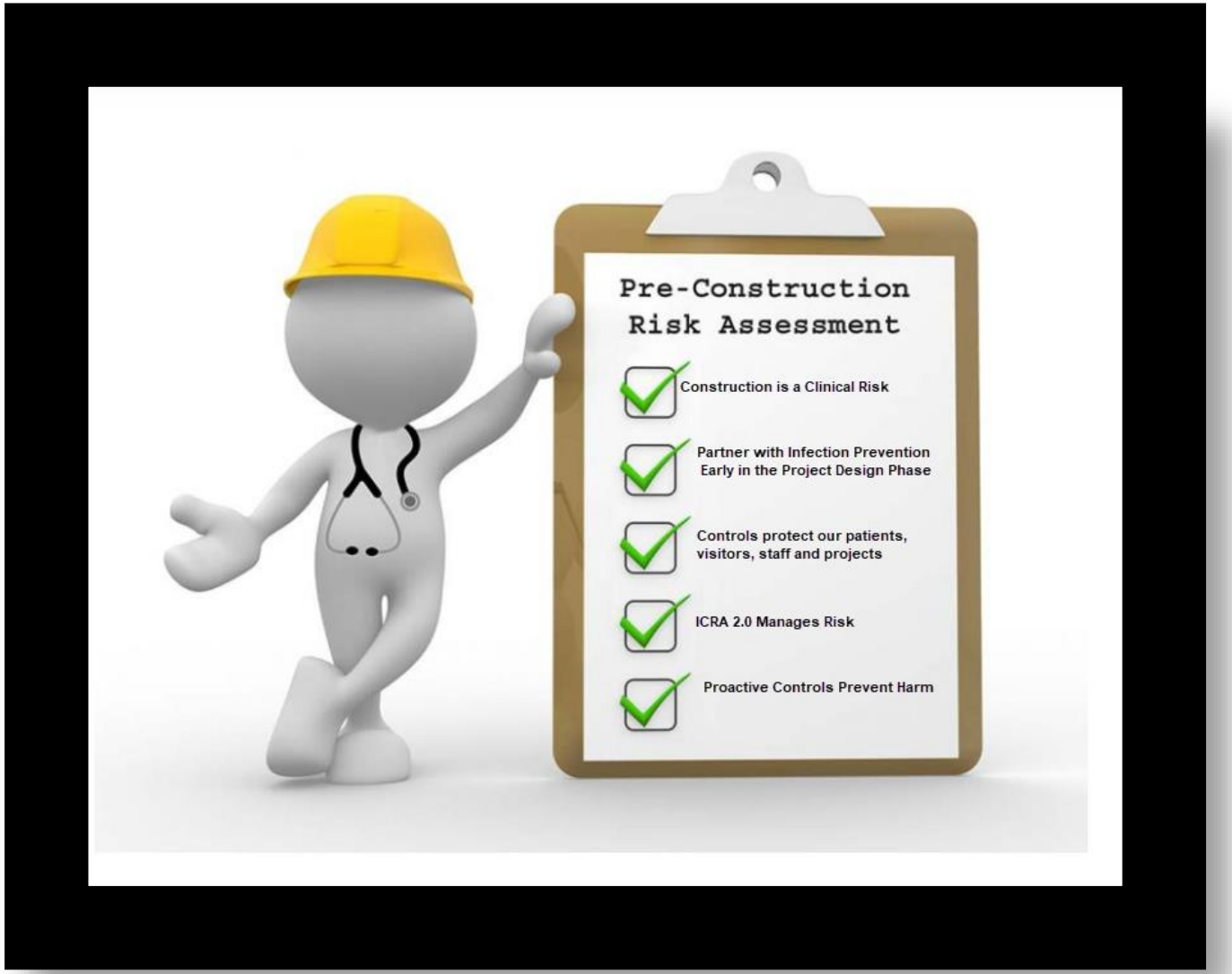
Tape also cannot obscure or interfere with the operation of fire doors, which is a major life safety violation

Infection control requires removing residue promptly using adhesive removers or oil-based solutions and then disinfecting the area with the IP approved healthcare disinfectant

Our Mottos

- **Clean 20!**
  - Encourage EVERYONE to **speak up** for patient safety and hand hygiene compliance
- **If We Touch It, We Move It, We Clean It**
- **Polish to Protect**
  - Once contact time has elapsed, remove residue on all clear surfaces (monitors, stainless steel, glass) with a clean damp paper towel/cloth
  - Note: *If APPROVED by IP to use another disinfectant wipe, **always** check the container for contact time*

Leadership Takeaways



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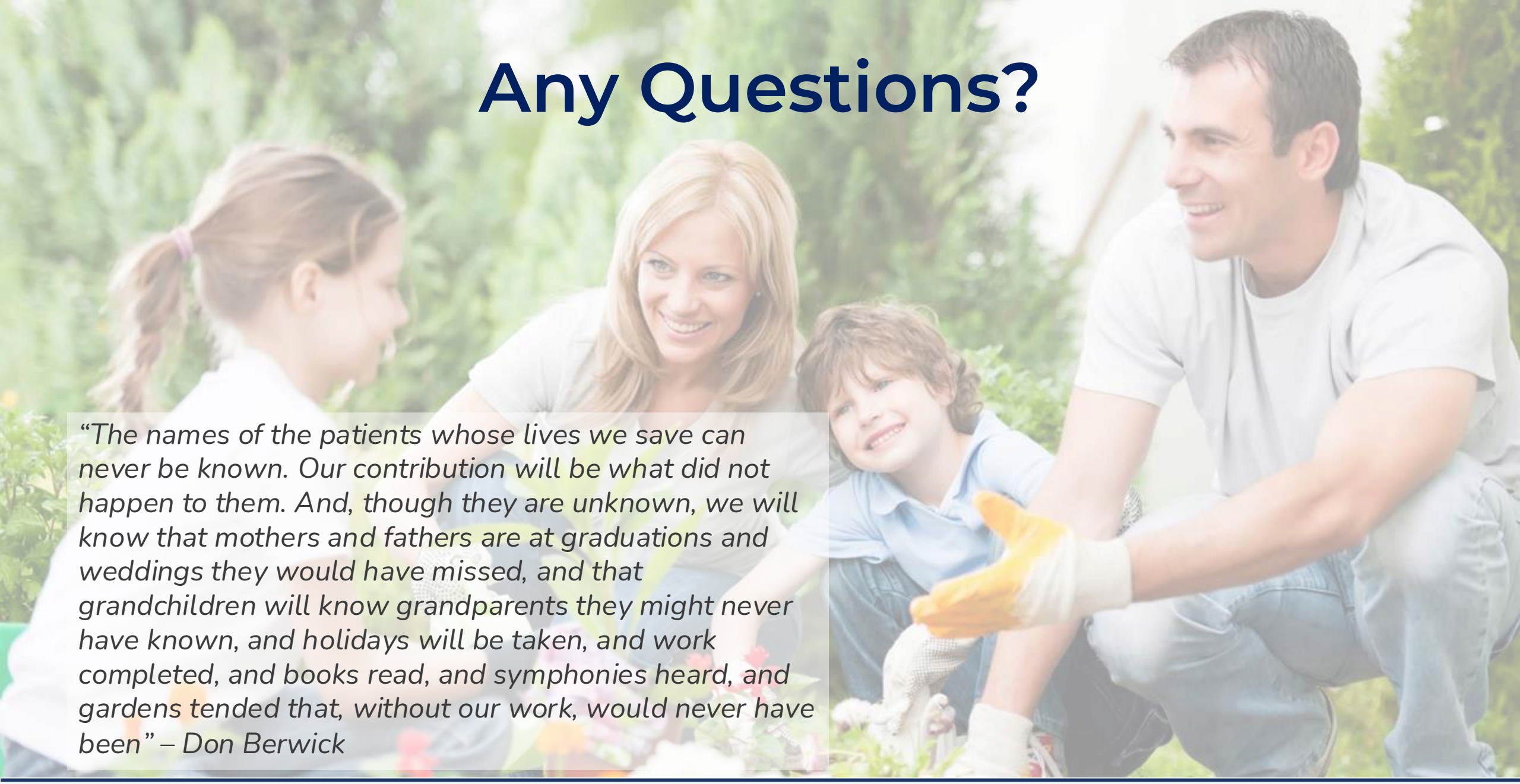
Any Questions?



"The names of the patients whose lives we save can never be known. Our contribution will be what did not happen to them. And, though they are unknown, we will know that mothers and fathers are at graduations and weddings they would have missed, and that grandchildren will know grandparents they might never have known, and holidays will be taken, and work completed, and books read, and symphonies heard, and gardens tended that, without our work, would never have been" – Don Berwick