The Pre-Construction Risk Assessment

It Is The Right Thing to Do...
Our Premise......

The incomplete or ineffective implementation of the PCRA can increase the construction costs to the hospital and put patients, staff members and visitors at risk. It is much better to plan for any eventuality and manage the process from beginning to end.
How Can We Get This Important Tool Right?
Leo Gehring, CHFM, CHC, FASHE
Principal, GHFR
501-944-4422
leogehring@aol.com

Gehring Health Facility Resources
Does What We Do Matter to Our Patients?

A Safe Hospital Room of the Future

1. Double-sided linen closets allow staff to restock supplies without disturbing the patient.
2. Bar codes increase safety by matching the right medicine to the right patient.
3. A two-bin supply system ensures that providers don’t run out of critical supplies.
4. A hand washing station in every room gives providers a place to wash their hands.
5. A sliding glass door doubles as a whiteboard for information exchanges.
6. Hand bars on all sides of the bathroom help patients navigate more safely.
7. Bed alarms alert nurses that a patient may be attempting to get out of bed unassisted.
8. Disinfecting units use ultraviolet light to kill germs.
9. Checklists give providers a set of proven rules for preventing infections.
10. Vents suck the air out of the room of sick patients, filter it and then release it from the building.
11. “Smart” pumps deliver fluids, nutrients and medications to patients at precisely controlled rates.
12. Kits for fall prevention include color-coded non-slip socks, lap blanket and wristband for at-risk patients.
13. Frequently touched surfaces, such as IV poles, bed rail and faucets, are made with germ-resistant copper alloys, which are naturally antimicrobial.
14. Infrared technology lights up the sink to remind providers to wash hands.
15. Beds with translation technology help staff speak with all patients.
16. Real-time vital signs—heart rate, blood pressure—can be monitored from computers outside the room. —B.H.

transcription errors,” says Anthony J. Ardile, M.D., senior vice president for quality and patient safety at Lehigh Valley Health Network in Allentown, Pennsylvania. The system also has built-in safety alerts—for example, it won’t allow doctors to prescribe more medicine than is generally recommended. Since implementing the system and introducing bar coding, in which a patient’s bracelet is scanned to ensure the right patient is getting the right medication at the right dose, Lehigh Valley’s medication error rate has been reduced from 3 in 100,000 doses to 2 in 1 million doses.

Virginia Mason and Kaiser Permanente, which provide both outpatient doctor visits and in-hospital care, have integrated their CPOE systems with electronic medical record keeping, so new drug orders can be checked against the patient’s existing medication record for possible interactions and allergies. When a patient leaves the hospital,
What Our Customers Are Reading?

Top Hospitals for Safety

- Aalwyn Medical Center
- Baptist Hospital
- Brigham Hospital
- California Pacific Medical Center
- Central Medical Center
- Christ Hospital
- Cleveland Clinic
- Detroit Receiving Hospital/University Health Center
- Dugdale Methodist Hospital
- Egleston Hospital
- First Medical Hospital
- Good Samaritan Hospital
- Harvard Medical School
- Johns Hopkins Hospital
- Mayo Clinic
- Medical Center
- Mount Sinai Hospital
- Northwestern Memorial Hospital
- Ohio State University Hospital
- Oregon Health & Science University
- Presbyterian Hospital
- Rhode Island Hospital
- Stanford University Hospital
- Temple University Hospital
- University of California Davis Medical Center
- University of Michigan Hospitals and Health Centers
- University of Pennsylvania Hospital
- Washington University School of Medicine
- West Virginia University Hospital
- Wright State University

The system updates his or her medication list.

Infection control

Five to 10 percent of patients get a preventable infection in the hospital, and nearly 100,000 people die from one each year, reports the Centers for Disease Control and Prevention. To avert these tragedies, today's safest hospitals rely on checklists, such as those used by airline pilots. One such checklist, developed by Peter J. Pronovost, M.D., senior vice president for patient safety and quality at the Johns Hopkins Medical Center in Baltimore, has been tremendously successful in reducing central line infections, which occur when a catheter used to provide a patient with medicine or nourishment becomes contaminated. Up to 200,000 patients die each year from central line infections, according to an article in the journal Emerging Infectious Diseases. When the University of Michigan Hospitals and Health Centers introduced Pronovost’s five-item checklist—which includes such practical steps as washing your hands and cleansing patients’ skin before inserting a line—it was able to reduce central line infections by a whopping 60 percent.

Several years ago Brigham and Women’s Hospital in Boston started a prevention protocol against C. difficile—a cause of infectious diarrhea in hospitals—featuring prominent door signs for affected patients, while also stepping up its C. difficile treatment regimen. The result: Incidence rates have dropped by 40 percent.

The University of Michigan system augments its regular room cleaning with disinfection units that use ultraviolet light (UV) to kill germs. And Methodist Hospital in Houston uses an electronic screening tool to pick up early signs of sepsis—a blood infection that kills 230,000 people annually.
The Most Important Elements

✓ Plan
✓ People
✓ Rules
✓ Communication
✓ Performance
✓ You
It *is* All About Process

- Check Lists
- Procedures
- Policies
- Standards
- Contract Language
- Leadership
- Money
Do You Feel Lucky?
Let’s Review the Basics......

Gehring Health Facility Resources
Major Referenced Codes

- NFPA 10 – Standard for Portable Fire Extinguishers
- NFPA 19 – Specifications for Motor Fire Apparatus
- NFPA 70 – National Electrical Code
- NFPA 72 – National Fire Alarm Code
- NFPA 80 – Standard for Fire Doors
- NFPA 110 – Standard for Emergency & Standby Power
- NFPA 241 - Standard for Safeguarding Construction, Alteration, and Demolition Activities
First Things First – Let’s Talk Risk Management

TJC Risk Assessment Process

1. Identify the issue.
2. Develop arguments that support the proposed process or issue.
3. Develop arguments that oppose the proposed process or issue.
4. Evaluate both arguments.
5. Reach a conclusion.
6. Document the process.
7. Monitor and reassess the conclusion
TJC Risk Icon

✓ Proximity to patient
✓ Probability of harm
✓ Severity of harm
✓ Number of patients at risk
The Hospital Manages its Environment during Demolition, Renovations, or New Construction to Reduce Risk... – EC.02.06.05

When Planning.....

- State Rules and Regulations
- Other Reputable Standards and Guidelines When the Above Do Not Meet “Specific Design Needs”

Preconstruction Risk Assessment (PRCA)

- Air quality
- Infection Control
- Utility Requirements
- Noise
- Vibration
- Other Hazards

Takes Action to Minimize Risks – Direct Impact
The Hospital Establishes and Maintains a Safe and Functional Environment – EC.02.06.01

- The Features of the Environment of Care Include:
  - Quality of Artificial and Natural Light
  - Privacy
  - Size and Configuration of Space
  - Security for Patients and Their Belongings
  - Ventilation, Temperature Control and Humidity
  - Clear Access to Internal and External Doors
  - Space to Allow Staff to Work Efficiently
  - Clean and Free of Offensive Odors

- Emergency Access to Locked and Occupied Spaces – Direct Impact

- Furnishings and Equipment Safe and in Good Repair

EP13 – The organization maintains ventilation, temperature and humidity levels suitable for the care, treatment and services provided.
Ventilation System is Able to Provide Appropriate Pressure Relationships, Air-Exchange Rates and Filtration Efficiencies EC.02.05.01 EP 6

- In areas designed to control airborne contaminants the ventilation systems provides appropriate pressure relationships, air exchange relationships and filter efficiencies......
  - Negative or positive pressures in relationship to adjacent areas
   - Reference 2010 Guidelines
   - The correct number of air changes per hour
   - Correct filtration
   - Direct Impact
2010 Guidelines for Design and Construction of Health Care Facilities

• 1.2-2.1-2 Functional Program Requirement
  • The Health Care Provider Shall Supply a Functional Program for Each Facility Project
  • The Functional Program for the Facility Shall Describe the Following:
    • Required Services
    • Environment of Care Components
    • Delivery of Care Model
    • Facility and Service Users (People)
    • System Design
    • Layout and Operational Planning
    • Physical Environment
Renovations, Alterations and Modernizations
LSC 18.1.1.4.5

- A major rehabilitation shall involve the modification of more than 50 percent, or more than 420 m$^2$ (4500 ft$^2$), of the area of the smoke compartment.
- A minor rehabilitation shall involve the modification of not more than 50 percent, and not more than 420 m$^2$ (4500 ft$^2$), of the area of the smoke compartment.
Means and Methods Issue

A term used in construction to describe the day-to-day activities a contractor employs to complete construction. In some cases, these activities may require incidental design or engineering elements; the rigging of scaffolding for a particular purpose or minor modifications of plans to solve on-the-spot construction difficulties (e.g., moving a door a few inches to avoid interference with another door) are just a couple of examples of such "means and methods." Means and methods of construction are ordinarily understood to be covered under general liability policies, rather than professional liability policies.
Why is the Design Community Reluctant to Specify Means and Methods?

• Some Say It About Insurance

• Does This Stance Really Absolve Them Of Responsibility? - Nope

• Remember **The Golden Rule** – He Who Has the Gold Makes The Rules

• Why Shouldn’t We Specify, Engineer and Draw the Mitigation Requirements?

• Shouldn’t We Specify, Engineer and Draw the Mitigation Requirements?
Preconstruction Risk Assessment Requirement

When *Planning* for demolition, construction or renovation the hospital conducts a preconstruction risk assessment (*EC.02.06.05*)

- Does it really happen during planning?
- When does it usually happen, if at all?
- Why?
- Does the ICRA take the place of the PCRA?
- *This Is The Subject Of Our Conversation....*
PRCA Process Sample

- PCRA.doc
Pre Construction Risk Assessment

“During The Planning Phase Of A Project”

• Why Is This So Important?

• Why Is There Always Time To Do It Over - But Never Time to Do It Right In The First Place?

• When Should The Assessment Be Conducted?

• How Can It Save Us Time and Money?
Step By Step Process

What is Your Policy?

• Air Quality
• Infection Control
• Utility Requirements
• Noise and Vibration
• Other Requirements
How to Develop an Effective Preconstruction Risk Assessment Policy

- Use the TJC Standard as a Guide
- Use the Guidelines for Design and Construction of Healthcare Facilities as a Guide
- Consider adopting the “Guidelines” as your policy
Air Quality Requirements

• How Do We Provide The Appropriate Air Quality During The Project?
  • Temperature
  • Humidity
  • Pressure Relationships
  • Cleanliness
  • Protection Of Systems
  • Comfort
Infection Control

• Infection Control Risk Assessment (ICRA)
• Infection Control Mitigation Requirements (ICMR)
• Multidisciplinary team
• Barriers
• Pressurization
• Housekeeping
• Debris Removal
ICRA Elements

- Classification of Work
- Patient Risk Group
- Required Procedures
- Oversight and Documentation
# ICRA Matrix

<table>
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<tr>
<th>PATIENT Risk Group</th>
<th>TYPE A</th>
<th>TYPE B</th>
<th>TYPE C</th>
<th>TYPE D</th>
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<tr>
<td><strong>LOW</strong> Risk Group</td>
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<td>II</td>
<td>II</td>
<td>III / IV</td>
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<tr>
<td><strong>MEDIUM</strong> Risk Group</td>
<td>I</td>
<td>II</td>
<td>III</td>
<td>IV</td>
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<tr>
<td><strong>HIGH</strong> Risk Group</td>
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<td>II</td>
<td>III / IV</td>
<td>IV</td>
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<tr>
<td><strong>HIGHEST</strong> Risk Group</td>
<td>II</td>
<td>III / IV</td>
<td>III / IV</td>
<td>IV</td>
</tr>
</tbody>
</table>
It Is All About Barriers!
Can We Do Better?
Can We Add Value?
Required Procedures CLASS IV

• Isolate the Site for barrier construction

• Complete all critical barriers before construction begins.

• Maintain negative air pressure within work site utilizing HEPA equipped air filtration units.

• Construct anteroom?
Utility Requirements

- The hospital designs and installs utility systems that meet patient care and operational needs. EC.02.05.01
- The hospital inspects tests and maintains utility systems. EC.02.05.01
- These standards are not suspended during construction projects
- Shutdowns
- Connection to existing systems
- Protection of systems
- Keeping accurate records
Life Safety Code Foundations

- Prevention
- Point of Origin
- Detection
- Compartmentalization
- Suppression
- Egress

* Everything Starts with Design and Construction – Source Documents*
The Hospital Designs and Manages the Physical Environment to Comply with the *Life Safety Code - LS.01.01.01*

- Electronic Statement of Conditions – Direct Impact
- Plan for Improvement Time Frames – *Situational Decision Rule*
  - PFI’s That Have Been Accepted by TJC
  - Automatic 6 Month Extension
  - 45 Day Rule
- Fire Control Agency Reports
Life Safety Process

- When a Hospital Finds that it is out of Compliance with Standards LS.02.02.20 – LS.04.02.50 they either resolve the issues immediately or manage it through one of the following options:
  - A Process that Corrects the Deficiency within 45 days
  - A PFI thru the SOC Process
  - A LSC Equivalency Approved by TJC
The Hospital Protects Occupants During Periods When the Life Safety Code is Not Met or During Periods of Construction - LS.01.02.01

- Fire Department Notification & Fire Watch – Direct Impact
- Alternate Exits – Direct Impact
- ILSM – Situational Decision Rule
- ILSM Measures – (3) Are Direct Impact
- Training to Compensate – Direct Impact
ILSM Mitigation Measures

• Ensuring exits provide free and unobstructed egress. Personnel shall receive training if alternative exits must be designated.

• Ensuring free and unobstructed access to emergency departments/services and for emergency forces.

• Ensuring fire alarm, detection, and suppression systems are not impaired. A temporary, but equivalent, system shall be provided when any fire system is impaired. Temporary systems must be inspected and tested monthly.

• Ensuring temporary construction partitions are smoke tight and built of noncombustible materials.

• Providing additional fire-fighting equipment and use training for personnel.
ILSM Mitigation Measures

• Prohibiting smoking in or adjacent to all construction areas.

• Developing and enforcing storage, housekeeping, and debris-removal policies and procedures that reduce the flammable and combustible fire load to the lowest level necessary for daily operations.

• Conducting a minimum of two fire drills per shift per quarter.

• Increasing hazard surveillance of buildings, grounds, and equipment with special attention to excavations, construction areas, construction storage, and field offices.

• Training personnel when structural or compartmentation features of fire safety are compromised.

• Conducting organization wide safety education programs to ensure awareness of any LSC deficiencies, construction hazards, and these ILSMs.
Noise and Vibration

• Must predict and have a proactive plan for construction events that will cause disruption to sensitive areas:
  • Hammer drilling
  • Sheet and pile driving
  • Demolition
  • Heavy equipment
  • Normal noise
  • Normal vibration
Other Hazards

• Hardest to predict
• Past events?
• Murphy’s law
• Flood
• Earthquake
• Tornado
• Lightning strike
• Are we prepared?
• Are you sure?
Emergency Management

- Applies to hospitals, critical access hospitals, long term care
- Emphasis on “scalable approach” to help manage response to combination of escalating events
- Define capabilities to self-sustain for 96 hours
- What can we really do and for how long?
- *Can construction activities cause an emergency situation?*
- Effective 1 January 2014 Enhanced Oversight and designation of responsible individual
The Hospital Has an Emergency Operations Plan
EM.02.01.01

- Emergency Operations Plan (EOP)
  - The Hospitals Leaders Participate in Planning
  - The Plan is Written
  - The Hospital establishes response efforts when organization cannot be supported by community for at least 96 hours in six critical areas
  - What do you do when it all falls apart?
The Hospital has an Emergency Operations Plan - EM.02.01.01

In preparation for any occurrence plan for managing six critical areas of emergency response:

- Communications
- Resources and assets
- Safety and security
- Staff responsibilities
- Utilities management
- Patient clinical and support activities
In Summary......

The incomplete or ineffective implementation of the PCRA can increase the construction costs to the hospital and put patients, staff members and visitors at risk. It is much better to plan for any eventuality and manage the process from beginning to end.
How Lucky Are You?
Thank You!

GHFR

Leo M. Gehring, CHFM, CHC, FASHE
Principal - Gehring Health Facility Resources
PO Box 1771
Benton, Arkansas 72018-1771
501-944-4422
leogehring@aol.com

Helping Healthcare Facility Management Services Reach Full Service Potential