

*Synergy*Health  
St. Joseph's Hospital

**AHRQ Patient Safety & Health IT 2006  
Strengthening the Connections**

**Designing a Safe Hospital**

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# Managing the Risks of Organizational Accidents

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# Latent Conditions

Errors in the design, organization, training or maintenance that lead to operator errors and whose effects typically lie dormant in the system for lengthy periods of time.

Source: To Err is Human, Institute of Medicine

# Active Failures



An error that occurs at the level of the frontline operator and whose effects are felt almost immediately.

Source: To Err is Human, Institute of Medicine

# Design Recommendations

- Latent Conditions:
  - Noise reduction
  - Scalability, adaptability, flexibility
  - Visibility of patients to staff
  - Patients involved with their care
  - Standardization
  - Automate where possible
  - Minimize fatigue
  - Immediate accessibility of information, close to the point of service
  - Minimize Handoffs
  - Minimize Patient Movement

# Design Recommendations, con't

- Active Failures
  - Operative/Post-Op Complications/Infections
  - Events Relating to Medication Errors
  - Deaths of Patients in Restraints
  - Inpatient Suicides
  - Transfusion Related Events
  - Correct Tube-Correct Connector-Correct Hole
  - Patient Falls
  - Deaths Related to Surgery at Wrong Site
  - MRI Hazards

# Lean Principles

- Continuous Flow
- Pull vs. Push
- Standardize Work
- Visual Control
- Proven Technology
- Culture of stopping to fix problems
- Get quality right the first time



# Process Recommendations

- Matrix Development (post Learning Lab)
- FMEA at each stage of design
- Patients/Families involved in design process
- Equipment planning day 1
- Mock-ups day 1
- Design for the vulnerable patient
- Articulate a set of principles for measurement
- Establish a checklist for current/future design

# Creating a Culture of Safety

- Shared Values and Beliefs about Safety within the Organization
- Always Anticipating Precarious Events
- Informed Employees and Medical Staff
- Culture of Reporting
- Learning Culture
- “Just” Culture
- Blame-Free Environment Recognizing Human Infallibility
- Physician Team Work
- Culture of Continuous Improvement
- Empowering Families to Participate in Care of Patients
- Informed & Activated Patient

# 2005: Baseline Research

## *Guiding Principles, Methodology, Preliminary Findings*

<b>Noise Reduction</b>	<ul style="list-style-type: none"><li>•Sound meter readings (dBA)</li><li>•Observation</li></ul>	<ul style="list-style-type: none"><li>•<b>Med-Surg:</b><ul style="list-style-type: none"><li>–Range: 44 – 89</li><li>–Door slam: 76</li></ul></li><li>•<b>ICU:</b> 43 – 84 dBA</li><li>•<b>ER:</b><ul style="list-style-type: none"><li>–Range: 52 – 96</li><li>–Ambulance door alarm: 76 dBA</li></ul></li></ul>
<i>Design around precarious events:</i> <b>Medication Observation</b>	<ul style="list-style-type: none"><li>•Direct observation during med prep &amp; administration</li></ul>	<b>Med Error Rates:</b> <b>Med-Surg:</b> 11% <b>ICU:</b> 11% <b>ER:</b> 6%

<p><b><i>Design around precarious events:</i></b></p> <ul style="list-style-type: none"> <li>•Medication issues r.t. lack of integration across Synergy partners</li> </ul>	<ul style="list-style-type: none"> <li>•Focus group surveys with staff from Med-Surg, ICU, ER, Discharge Planners, Subacute, Clinics &amp; Cedar Community</li> </ul>	<ul style="list-style-type: none"> <li>•Many issues with medication reconciliation between partners</li> </ul>
<p><b><i>Standardization:</i></b></p> <ul style="list-style-type: none"> <li>•of medication processes between Synergy partners</li> </ul>	<ul style="list-style-type: none"> <li>•Focus group surveys</li> </ul>	<ul style="list-style-type: none"> <li>•Standardization needed in use of generic and brand names of drugs</li> </ul>
<p><b><i>Minimize Handoffs:</i></b></p> <ul style="list-style-type: none"> <li>•Without access to patient chart between partners</li> <li>•Med-Surg handoffs</li> </ul>	<ul style="list-style-type: none"> <li>•Focus group surveys</li> <li>•Surveys of leaders</li> </ul>	<ul style="list-style-type: none"> <li>•Examples of issues with inadequate handoffs: <ul style="list-style-type: none"> <li>–Weekend coverage</li> <li>–Chart access following transfer to another unit</li> </ul> </li> </ul>

<p><i>Design around precarious events:</i></p> <p><b>Adverse drug events</b></p>	<ul style="list-style-type: none"><li>•Retrospective chart review using the *IHI trigger tool</li></ul> <p>*Institute for Healthcare Improvement</p>	<p>Med-Surg:</p> <ul style="list-style-type: none"><li>•ADEs/1000 doses = 2.7</li></ul> <p>ICU:</p> <ul style="list-style-type: none"><li>•ADEs/1000 doses = 3</li></ul>
<p><i>Visibility of patients to staff</i></p>	<ul style="list-style-type: none"><li>•Direct observation of Med-Surg patient rooms</li></ul>	<ul style="list-style-type: none"><li>•Average time caregivers spent with patients over 6 hours = 1 hour</li></ul>

<b><i>Immediate accessibility of information to staff</i></b>	<ul style="list-style-type: none"><li>•Interview of Med-Surg staff</li></ul>	<ul style="list-style-type: none"><li>•Med-Surg caregivers carry out handoffs, calls &amp; faxes without access to the patient chart 25% of the time</li></ul>
<b><i>Standardization</i></b>	<ul style="list-style-type: none"><li>•Interviews of leaders &amp; Med-Surg staff</li><li>•Direct observation, measurement &amp; photography of Med-Surg units</li></ul>	<ul style="list-style-type: none"><li>•Significant variation in:<ul style="list-style-type: none"><li>•patient room size &amp; layout</li><li>•Handrails</li><li>•location &amp; type of supplies &amp; equipment</li><li>•most work processes</li></ul></li></ul>

<b><i>Automate where possible</i></b>	<ul style="list-style-type: none"><li>•Interviews with leaders &amp; Med-Surg staff</li></ul>	<ul style="list-style-type: none"><li>•Baseline automation was mostly limited to databases (e.g., HBOC)</li></ul>
<b><i>Scalability &amp; Adaptability</i></b>	<ul style="list-style-type: none"><li>•Interviews with leaders</li><li>•Direct observation</li></ul>	<ul style="list-style-type: none"><li>•No space in patient rooms to allow for expansion</li><li>•No capacity in the structure to add rooms</li></ul>

***Minimize fatigue***

•Staff surveys for Med-Surg, ICU & ER using an adaptation of the Piper Fatigue Scale

% of staff that felt amount of decision-making contributed to fatigue to a moderate or maximum extent:

- Med-Surg: 54%
- ICU: 50%
- ER: 44%

***Patient involvement with care***

•Surveys of Med-Surg patients

•84% said they were invited to participate in decisions about their care

•88% said they would question the need for tests, treatments or meds

•7% refused a test, tx or med



## ***Reduce Active Failures:***

- Complications:
  - op & post-op
  - op & post-op infections
- Falls
- Transfusion events
- Deaths in restraints
- IP suicides
- Wrong site surgeries
- Correct tube-connector-hole events
- MRI hazards

•Retrospective trending of data since 2002

•Post-op infections decreased significantly since '02 to 0.8% in '05

- No** instances of:
  - Transfusion events
  - Deaths in restraints
  - Suicides
  - Wrong tube-connector-hole events
  - Wrong site surgeries
  - MRI hazards

***Hospital  
Outcomes:***

- ***Patient satisfaction***
- ***Staff safety culture survey***
- ***Length of stay***
- ***Cost***

• Trending of hospital survey data and financial data since 2002

• No significant trends noted yet

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