Failure Mode and Effects Analysis (FMEA): A Different Approach to Falls Reduction

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About Us:
Culture of Safety at Concord Hospital

- Systems approach

- Focus on identifying and dissecting system defects

- Interdisciplinary communication

- Preoccupation with failure
What Did we Test? ...FMEA

Failure Mode and Effects Analysis (FMEA) is a systematic method of identifying and preventing process and product problems before they occur.

→ Asks “what if” questions about “what could go wrong”
→ Aimed at preventing errors that lead to tragedy
→ Does NOT require occurrence of incident or near miss
→ Focuses on how to minimize risk of “the failure" and indicates how downstream processes can be affected
→ Clearly prioritizes which part of the process is at risk of failure.

The primary objective of systems design should be to make it difficult for accidents and errors to occur and to minimize the damage when they occur.
What Barriers Did We Encounter?

- After decreased inpatient fall rates in 2011 there was a 29% increase in fall rates in 2012
- Proactive culture became reactive
- The falls committee membership was changing
- Prioritization of action plans becoming difficult
…more Barriers we Encountered

• Current state?

• Are we with the evidence? Why? Why Not?

• Do we have the right committee membership?

• Organizational support – Falls Priority?
FMEA Specific Barriers

- FMEA preparation - **To Do or Not To Do**
- FMEA preparation for getting group together, timing, participant/team representation, leadership support/engagement
- FMEA system/process issues (1\textsuperscript{st} one, logistics to understand flow, momentum)
- Falls as a whole – *every* discipline is affected throughout the hospital
WHICH IS SAFE?

Safety Information

Safety Information and Barrier
Failure Mode of Information and Barrier
SAFEST?

Vehicle Access Barrier
**FMEA Terminology**

**Failure Mode:**

Process issues identified; different ways that a process or sub-process can fail to provide the anticipated result.

**Effects of Failure:**

A direct result of the failure mode occurring at that time in the process; effects can also be downstream failure modes.

**Effective Process Control:**

“Hard Stop” or “barrier” that eliminates or substantially reduces the likelihood of the failure mode.
Accident Causation Model (Swiss Cheese Theory)

The Reason Model and Accident Causal Chain

“Blunt End”

“Sharp End”

Source: Adapted from Reason, 1990

Patient Falls
How Did We Overcome These Barriers?

• persistence + preparation (training and understanding the FMEA process with key stakeholders, increased awareness of urgency, real-time observations)

• Dedication and engagement from team members

• content expert on-staff

• leadership support
How Are We Doing Now?

- Dissemination of Falls Current Data: prepared facts/data “at-a-glance” packages for the FMEA participants distributed prior to and at the actual event.
  - Current falls risk assessment
  - EMR documentation/screen shots
  - Falls rates/indicities; injury rate comparison
  - Falls demographics (ie. age, average frequency/time/date)
  - Education materials
Where Are We Now?

• FMEA journey has just begun
  ...It will be a “Living, Breathing” document
  – 16 process steps
  – 60 unique failure modes
  – 194 unique effects of failure
  – 429 unique possible causes or mechanisms for failure
### 2012 FMEA PATIENT FALLS

#### Process: PATIENT INPATIENT FALLS

<table>
<thead>
<tr>
<th>Step</th>
<th>Process Function/Requirements</th>
<th>Potential Failure Mode (What can go wrong?)</th>
<th>Potential Effect(s) of Failure</th>
<th>SEV</th>
<th>OCC</th>
<th>DET</th>
<th>Current Process Controls</th>
<th>Prevent</th>
<th>Detection</th>
<th>DPFN</th>
<th>Recommended Actions</th>
<th>Responsibility &amp; Target Care</th>
<th>Action Results / Actions Taken</th>
<th>Original</th>
<th>Updated</th>
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<tbody>
<tr>
<td>1</td>
<td>Patient Handoff (Prior to Patient coming)</td>
<td>Handoff Report (RN-RN) - face to verbal</td>
<td>Risk of Fall not identified</td>
<td>Low</td>
<td>Medium</td>
<td>High</td>
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<td>Risk of Fall not communicated</td>
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<td>Handoff RN not Communicated</td>
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<td>Receiving RN not Communicated</td>
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<td>Fall prevention interventions not communicated</td>
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<td>Standardized Clinical Communication Tool not used</td>
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<td>Source Information not communicated to floor</td>
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<td>Floors do not have access to some information regarding patient (e.g. ED)</td>
<td>Low</td>
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#### RPN Calculation

SEV x OCC x DET = RPN

RPN = Risk Priority Number or Resultant Process Number

- **Severity (SEV)**: Low, Medium, High
- **Occurrence (OCC)**: Low, Medium, High
- **Detection (DET)**: Low, Medium, High

**Resultant “RPN” helps the Team Prioritize Actions**

- **Severity, Occurrence, and Detection Ratings Assigned**
- **Process Flow step declared**
- **Each “Failure Mode” is listed**
What Can Others Learn From Our Journey?

• Content expert/facilitation
• Observers
• Do not be afraid – **trust the process**
• There’s no way to be prepared for being overwhelmed with the amount of discovery of possible failure; we will be learning to prioritize which failure modes to “attack” and to develop related action plans
• Trusted in process for direction/prioritization of actions