INCIDENT LEARNING SYSTEMS

Background and strategies for successful implementation
Objectives

- To discuss the role of incident learning
- To discuss cultural challenges for implementing effective incident learning
- To describe the process for creating better/safer clinical operations from incident reports
Background – Global Problem

“...it calls into question the integrity of hospital systems and their ability to pick up errors and the capability to make sustainable changes.”

Sir Liam Donaldson, Chief Medical Officer, Department of Health


WHO DRAFT GUIDELINES FOR ADVERSE EVENT REPORTING AND LEARNING SYSTEMS

FROM INFORMATION TO ACTION
Benefit to every size facility?

- Relatively good communications
- Streamlined processes
- Great collective memory
- Perhaps a limited benefit

Single Machine Facility
Benefit to every size facility?

- Non-uniform communications
- Complex processes
- Pockets of reliable memory
- Potentially significant benefits
Benefit to every size facility?

- Still silos
- Non-uniform processes
- Unawareness
- Potentially significant benefits

Networks
Error Spectrum – Publicized

- One side of the spectrum
- Usually large dosimetric errors
  - NY Times Articles
Error Spectrum – Semi-Publicized

- **RPC Data**
  - ~30% of participating institutions fail to deliver the planned IMRT dose
    - To an anthropomorphic phantom
    - 7% or 4mm
  - *IJROBP. 2008;71(1 Suppl):S71-5*
Error Spectrum – Unpublicized

- Everyday occurrences
  - “Small” dosimetric errors and geographic misses
  - Suboptimal treatment plans
    - Contouring and dose distributions
  - Care coordination issues
  - Unnecessary treatment delays
Event Reporting

- Not airline industry nor nuclear power
- Perfection in complex systems across hundreds of diverse clinics is impossible
- Reporting for the sake of reporting alone squanders resources and demoralizes staff
- Event reporting as a part of broader process improvement efforts can be very valuable
DMAIC Cycle – Continuous Improvement
Opportunities

- Better insight into processes
- Education – “I did not know that!”
- Resource and effort allocation – hot to utilize care paths
- Overall quality improvement
  - Definition of quality?
    - Safe treatments, minimal variations, benchmarking
    - Positive patient/employee experience
What to Report or Track

- Explicit events – frequent events
- Random events
- Actual errors
- Potential errors (near misses)
- Corrective measures
Errors and Near Misses

- **Error**
  - "The failure of planned action to be completed as intended (i.e., error of execution) or the use of a wrong plan to achieve an aim (i.e., error of planning)."

*Institute of Medicine. To Err is Human: Building a Safer Health System, 2000.*
Errors and Near Misses

- Near Misses
  - Near Hits
  - Free Lessons
  - Close Calls
  - Near Collisions
Small to Sentinel Events

“...single events are rare...people must wait until some crisis actually occurs before they can diagnose a problem, rather than be in a position to detect a potential problem before it emerges.”

K.E. Weick, “The vulnerable system: an analysis of the Tenerife air disaster” in P.J. Forst et al Reframing Organizational Culture
Error Process

- Errors are product of a chain of causes
Explicit Events

- These are potentially low severity - high frequency events
  - Missing patient weight, Incomplete prescription, Incomplete simulation order, Missing weekly SSDs, etc.
- All solvable with better clinical organization and checklists
- Need to know what and where to implement and if it is working
Incident Reporting

- Mandatory (statutory) – Not addressed here
  - Reporting required by law
  - NRC in U.S.
  - State requirements
  - Mainly concentrated on well defined treatment delivery errors
  - Guidelines for near-miss reporting typically not provided
Incident Reporting

- Voluntary – This is what we are discussing
  - Mainly at institutional level
  - Some states in the U.S. have voluntary reporting systems – utility for radiation therapy not clear
  - Errors and near misses tracked
Voluntary Reporting

- Depends on many factors
  - Culture
  - Reporting system and guidelines
  - Competence to interpret reported data
  - Willingness to implement
    - Changes based on collected data and analyses
  - Ability to share data and provide feedback
Organizational Culture

- “Shared values (what is important) and beliefs (how things work) ... produce behavioral norms...”
  Uttal, B., Fortune. 17 October 1983

- Safety culture
  - Reporting culture
  - Just culture
## Organizational Culture

<table>
<thead>
<tr>
<th>Pathological Culture</th>
<th>Bureaucratic Culture</th>
<th>Generative Culture</th>
</tr>
</thead>
<tbody>
<tr>
<td>Do not want to know</td>
<td>May not find out</td>
<td>Actively seek it</td>
</tr>
<tr>
<td>Messengers (whistle blowers) are “shot”</td>
<td>Messengers are listened to if they arrive</td>
<td>Messengers are trained and rewarded</td>
</tr>
<tr>
<td>Responsibility is shirked</td>
<td>Responsibility is compartmentalized</td>
<td>Responsibility is shared</td>
</tr>
<tr>
<td>Failure is punished or concealed</td>
<td>Failures lead to local repairs</td>
<td>Failures lead to far reaching reforms</td>
</tr>
<tr>
<td>New ideas are actively discouraged</td>
<td>New ideas often present problems</td>
<td>New ideas are welcomed</td>
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</tbody>
</table>
Reporting Culture

- Indemnity against retribution
- Confidentiality
- Separate responsibilities
  - Collecting event data from those with the authority to impose disciplinary actions
- An efficient method for event submission
- Method for feedback to the reporting community
Just Culture

- Acceptable and unacceptable actions
  - Vast majority of errors due to factors and actions where attribution of blame is not appropriate
Just Culture

- Rare events are due to:
  - Recklessness
  - Negligent or malevolent behavior

- The tendency is to attribute errors to acceptable actions

- Impossible to give a blanket immunity
Lessons Learned

- Homegrown products should always have a name
- Brand new web-based system was named “Process Improvement Logs”
  
  - Staff quickly provided a nickname
  
  “E-Snitch”
Deemphasize “Snitch” Part

- Collect “Accolades” as well as Events
- Publicize Accolades and Events together
- Public statements:
  - “Individuals do not make errors – The organization is responsible for environment which allowed an error”
  - Always use “We” – no individuals or groups
Learning From Mistakes

- Radiation Oncology Reporting Survey
  - Multi-institutional,* IRB-approved
  - Surveymonkey®, Anonymous, Dec-Jan 2011
  - Johns Hopkins
  - Washington University
  - University of Miami
  - North Shore-Long Island Jewish Hospital

Harris et al
Voluntary Reports: Dec-Jul, 2010

- Dosimetry: 1%
- Physics: 5%
- Nurses: 20%
- Radiation Therapists: 74%

- Attending physicians: 0
- Resident physicians: 0

*Combined data from all four sites. Total number of reports = 916
Perceived Barriers to Reporting

<table>
<thead>
<tr>
<th></th>
<th>Get my colleagues in trouble</th>
<th>Admitting liability</th>
<th>Embarrass-ment</th>
<th>Affect reputation</th>
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<tr>
<td>Nurse</td>
<td>40</td>
<td>20</td>
<td>32</td>
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<tr>
<td>Radiation therapist</td>
<td>47</td>
<td>18</td>
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p=0.0089  p=0.0271  p=0.0019  p=0.0467
## Missed Reporting Opportunities

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<tr>
<th></th>
<th>Minor Near-miss</th>
<th>Minor Error</th>
<th>Major Near-miss</th>
<th>Major Error</th>
<th>p-value</th>
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<tr>
<td>Radiation therapist</td>
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<td>9</td>
<td>13</td>
<td>0</td>
<td></td>
</tr>
</tbody>
</table>
Reporting Systems

- **Hospital** - Electronic, not RT specific, difficult to collect feedback and near misses
- **Paper** - RT specific, can be slow and tedious
- **Homegrown electronic solutions** - Efficient but need resources for development
- Combination of paper and electronic
EVENT REPORT

Event Date: ______________           Event Report Date: ______________
Patient Name: ____________  Patient ID: _______________  Other: ________
Reporting Person: _______________________________________ (optional)
Event Narrative:
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

☐ I would like to receive feedback on this report.
Initial Analysis

- Location – process maps
- Severity – priority
- Factors – RCA
- Classification - DMAIC
Final disposition

- Resolution\corrective action
- Responsible person
- Implementation plan
- Evaluation plan
- Follow up plan
ILS Process

- Explicit events
- Random events
- Corrective measures
Summary

- Operating an ILS requires institutional commitment
- Need champions at all levels and groups
- Must create a safety and reporting culture
- Perfect compliance in a voluntary system is not necessary to be effective
Questions/Comments