Quality and Safety Considerations You Haven’t Thought About
Learning Objectives

• Understand safety from a systems view.

• Understand & give examples of safety barriers.

• Be able to take actions to improve safety and quality immediately upon return to your clinic.
Issues with Safety Culture

• No explicit definition or expectations of safety
  – Lack of leadership

• Unrealistic understanding & assessment of risk
  – Denial
Create a Safety Policy

• Reflects how the department (or you) value safety for your patients

• Needs to be easy to understand and operationalize

• Establishes basic principles of your safety culture
  – Staff know how you make decisions
Example Safety Policy

• All injuries and accidents are preventable.

• We (I) will not compromise safety to achieve any other objective.

• Each staff member has a responsibility for patient safety.

• We (I) will empower and encourage all staff members to stop, correct, and report any unsafe condition.
What is Safety?

- Complexity
- Human Factors

Tools to view and import data into patient records were cumbersome.

Data perceived as not useful enough to warrant additional time to access and review, particularly during time-pressed patient visits.
Task Load Index (TLX)

• Human-center approach to evaluate a situation imposed on an operator to achieve a task (workload)
• Performance, Effort, Frustration, and Demands (mental, physical, temporal)

Quantitative assessment of workload and stressors in clinical radiation oncology.
Mazur et al  IJROBP 2012
University of North Carolina
MD Cross-Coverage Example

Quantifying the impact of cross coverage on physician’s workload and performance in radiation oncology.

Mosaly et al  PRO 2013
University of North Carolina

• Cross-coverage significantly increases workload and degrades performance
• Better tools will be part of the solution
Complexity

Big Bay bummer blamed on software glitch

Jul 05, 2012 11:32 -0700

SAN DIEGO -- The company hired to put on the annual "Big Bay Boom" fireworks display blamed Wednesday’s spectacular failure on bad software.
Are fireworks more complex than radiotherapy treatments?
Effect of complexity in our field

The New York Times

Radiation Offers New Cures, and Ways to Do Harm

By WALT BOGDANICH
Published: January 23, 2010

Failing to appreciate complexity
Thinking About Errors

- Accidents happen in the context of a complex and dynamic process
  - Interactions among humans, machines, environment
Analysis After an Incident

1) Collect information
   • What happened?

2) Identify causes
   • Understand the mental model

3) Recommendations for remediation
   • Proportional response within your sphere of influence

4) Implement and Monitor
Human failure is *never* a reason for an error or near-miss.
Understanding the Mental Model
Dual Process Theory

Dual-processing accounts of reasoning, judgment, and social cognition.


Intuitive thinking (~95%)
Safety as a Problem of Control

• Identify risk and safety constraints, then design barriers to control system behavior.

• Enforce control:
  – System design (inherent safety)
  – Operations
  – Management
  – Social interactions

Adapted from Nancy Leveson, Ph.D.
Professor of Aeronautics and Astronautics at MIT
Example of a Safety Barrier

• Consider typing an email

• There is no functional reason to show the word on the screen when you type

• However, showing the words allows you to immediately identify an error

From Nancy Leveson, Ph.D.
Professor of Aeronautics and Astronautics at MIT
Another Safety Barrier

Implementation of a “No Fly” safety culture in a multicenter radiation medicine department.

Potters and Kapur PRO 2012
North Shore-LIJ Health System
Potters’ No-Fly Policy

Figure 2  Average number of slip days (delays) and standard deviations of the combined enhanced quality checklist (QCL) tasks shown in Table 2 before and after the introduction of the No Fly Policy (NFP). The baseline phase covers a period of 1 year and the NFP phase covers 6 months.

Figure 4  Transition from a reactive to a proactive delay culture with the No Fly Policy.
And Another Safety Barrier

Courtesy of Dr. Marks, Univ of North Carolina

Consult → CT Simulation → Image Segmentation → Treatment Planning → Treatment

Daily Pre-Treatment Peer Review

Weekly During-Treatment Peer Review
Marks’ Morning-Huddle Policy

Data from Kathy Burkhardt
Updated version from Chera et al 2012, Seminars Radiation Oncology
A Routine Safety Issue
The effects of interruptions on oncologists’ patient assessment and medication ordering practices.

Trbovich et al. Healthc Eng 2013
University Health Network, Toronto, Ontario, Canada

A Simple Safety Barrier
Improving patient safety using the sterile cockpit principle during medication administration: a collaborative, unit-based project.

Fore et al. J Nurs Manag 2013
Department of Veterans Affairs, National Center for Patient Safety
Safety Summary

• Whatever you do – get commissioning right
  – Time for your technical team
  – Phone a friend
  – Outside audits

• Focus on process deviations
  – Add simple interventions (safety barriers)
What is Quality?

Technology Breakthroughs

Making good decisions & Consistent performance
Improving Quality

• Quality tools
  – Structured problem solving

• Requires training & practice
  – Part ‘science’ and part ‘art’

• Data-based decisions
  – If you’re not keeping score, it’s just practice
Quality/Safety Improvement

• Learning from incidents and near misses
  – Explicit support from leadership

• RO•ILS
  RADIATION ONCOLOGY INCIDENT LEARNING SYSTEM
  Sponsored by ASTRO and AAPM

• Appropriate organizational culture
  – Safety, Reporting, Just
Organizational Culture

• Shared values and beliefs produce behavioral norms
  – Shared values → What is important
  – Shared beliefs → How things work

• Safety culture
  – Reporting culture
  – Just culture
Reporting Culture

- Efficient method to submit all event types

- Indemnity against retribution for reporting
  - Separate data collection from those with authority to discipline

- Feedback to the reporting community
Just Culture

• Not all errors result from acceptable actions

• Blanket immunity sends the wrong message

• Establish performance standards and expectations of behavior
Key Take Home Points

• Identify risk and safety constraints then design safety barriers to mitigate the risk

• Create the time and resources for your technical/medical support team

• Do something as soon as you return to your clinic
  • NIZ, Create a Safety Policy, Potters’ No-Fly, Marks’ Morning Huddle, Join RO•ILS (June 2014)