Incident Reporting and QA Committee Review at HFHS

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Henry Ford Hospital

Disclosures

- Henry Ford Health System has a research agreement with Varian Medical Systems
- Travel reimbursement and honorarium from Varian Medical Systems

Outline

- A Culture of Patient Safety
- HFHS In-house Incident Learning System
- QA Committee Review
  - Gather information. What? How? Why?
  - Develop plan of corrective action
- Summary

Motivation/Sources of Errors

January 23, 2010

Radiation Offers New Cures, and Ways to Do Harm

By WALT BOGDANICH

January 26, 2010

THE RADIATION BOOM

As Technology Surges, Radiation Safeguards Lag

By WALT BOGDANICH

February 24, 2010

Radiation Errors Reported in Missouri

By WALT BOGDANICH and REBECCA R. RUIZ

December 28, 2010

THE RADIATION BOOM

A Pinpoint Beam Strays Invisibly, Harming Instead of Healing

By WALT BOGDANICH and KRISTINA REBELO

January 27, 2010

THE RADIATION BOOM

Case Studies: When Medical Radiation Goes Awry

By WALT BOGDANICH

February 10, 2010

F.D.A. to Increase Oversight of Medical Radiation

By WALT BOGDANICH and REBECCA R. RUIZ

What can we do?

- Foster a Culture of Patient Safety
- Develop thorough QA policies and procedures
  - Develop Process Maps, identify Failure Modes, use Root Cause Analysis (RCA) and Failure Mode and Effects Analysis (FMEA)
  - Incident learning
  - Continually update through program review
  - Review vendor CTB's and product recalls
- Learn from experts

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Culture of Patient Safety

- **Start at the top**
  - Every process needs a leader who must lead by example
  - Everyone, including the leader, must look at their work with a critical eye
- Work as a Team
- Accountability without blame
- Policies and Procedures
- Measurement of Quality

Culture of Patient Safety

- Start at the top
- **Work as a Team**
  - **Therapist, Dosimetrist, Physicist, Physician, Nurse, IT Professionals, Administrators**
  - **Remove Hierarchy**
  - **Anyone on the team can prevent an error**
  - **Every member of the team needs to have the appropriate tools, training and time to do their job correctly**
  - **Communication; Flow of Information**
- Accountability without blame
- Policies and Procedures
- Measurement of Quality

Culture of Patient Safety

- Start at the top
- Work as a Team
- **Accountability without blame**
  - **Talk about errors as a learning experience**
  - **Must be a non-punitive, nurturing environment where individuals are held accountable**
- Policies and Procedures
- Measurement of Quality

Culture of Patient Safety

- Start at the top
- Work as a Team
- Accountability without blame
- **Policies and Procedures**
  - **Clear, consistent and thorough**
  - **Mandate delay of treatment if not safe**
  - **Continually updated and modified with feedback from staff and monitoring of reported incidents**
  - **Review of incidents when policies are not followed**
- Measurement of Quality

Culture of Patient Safety

- Start at the top
- Work as a Team
- Accountability without blame
- Policies and Procedures
- **Measurement of Quality**
  - **Incident Reporting and Error Analysis**
  - **Key Quality Indicators/Key Performance Indicators**

Henry Ford Health System

Process Improvement Form

You are logged in as bmiller5

Department of Radiation Oncology

[Create a New Process Improvement Ticket]

View / Update Reports

- Needs Dosimetry Review
- Needs Physician Review (Assigned Reports Only)
- Needs Physician Review (All Reports)
- Needs Dosimetry Sign Off
- Needs QAC Review
- QAC Meeting Review
- View/Update Reports by Category
- View Closed Reports by Category
- Chart report on All Reports by Category
- All Open Reports
- All Closed Reports

Henry Ford Hospital
Department of Radiation Oncology
Process Improvement Form

Department of Radiation Oncology

Location of occurrence: ▾ Category of Report: ▾

Date: 05/28/2015 (MM/DD/YYYY) Report creator: Miller, Brett ▾ Patient Physician: ▾

Patient MRN: Patient Last Name: Patient First Name:

Occurred at: ▾ Other specify:

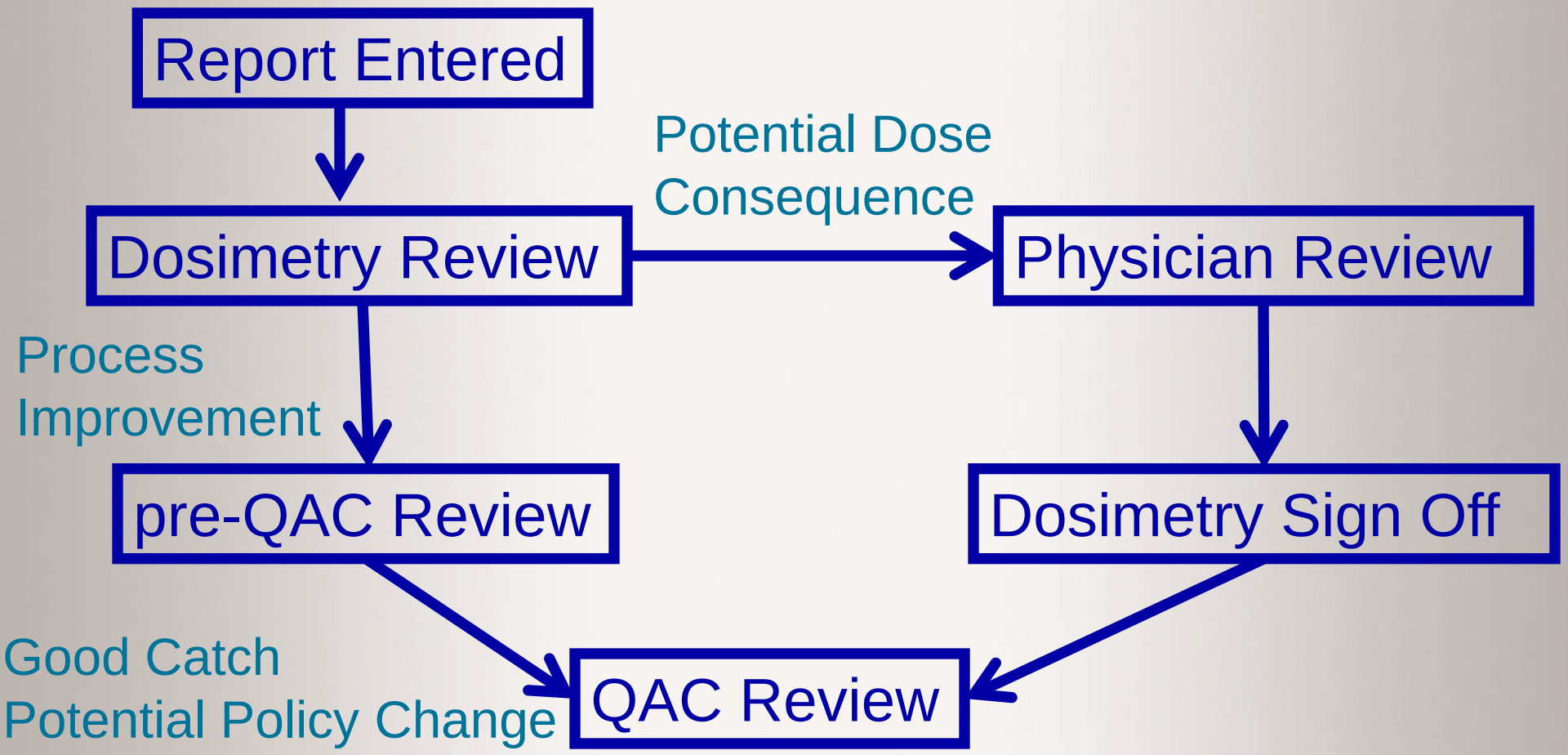
Discovered by: ▾ Other specify:

- Treatment Unit
- Therapist Initial Check
- Time Out
- V-Sim
- Therapist Final Check
- Imaging
- Physics Initial Check
- Physics Weekly Check
- Physics
- Dosimetry
- Self Audit
- Chart Rounds
- Physician
- Nursing
- Other

Description:

Send email notification of this report creation ☑

Incident Reporting System - Workflow



QAC Review

- Reports submitted at any of our 5 sites via the intra-department website.
- Reviewed by leads (physician, physicist and therapist) at each site.
  - Keeps leaders informed
  - Distributes workload
  - Allows for information gathering prior to QAC meeting
- Reviewed on a monthly basis by QAC.

QAC Review

- Review Selected Incident Reports
- Review Statistics Looking for Trends
  - By site
  - By category
- Identify “Good Catches”
- Discuss Policy Updates
- Open Discussion

QAC Review - Statistics

Site/ Category	Site 1	Site 2	Site 3	Site 4	Site 5	Totals
Category 1						
Category 2						
Category 3						
⋮						
⋮						
Other						

Root Cause Analysis

- Gather information about the event
  - Must be done in a non-punitive manner
  - accountability needs to exist
  - Buy in from entire department
- Develop a process map
- Look for cause and effect relationships
- Identify holes in your clinical process

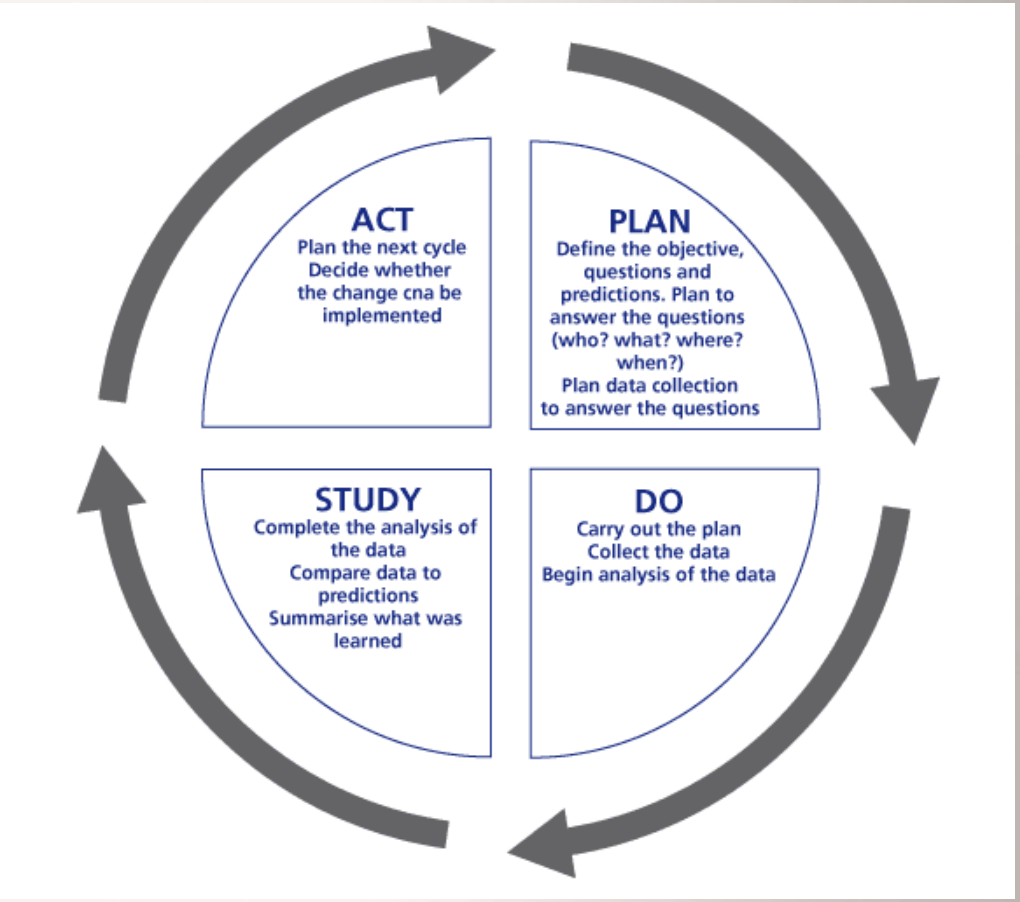
Root Cause Analysis

- Process Step – Identify where the incident occurred
- Failure Mode – Collect information on what happened
- Failure Pathway – How and why did it happen?
- Develop a plan of corrective action
- FMEA – RPN calculated prior to and after corrective action

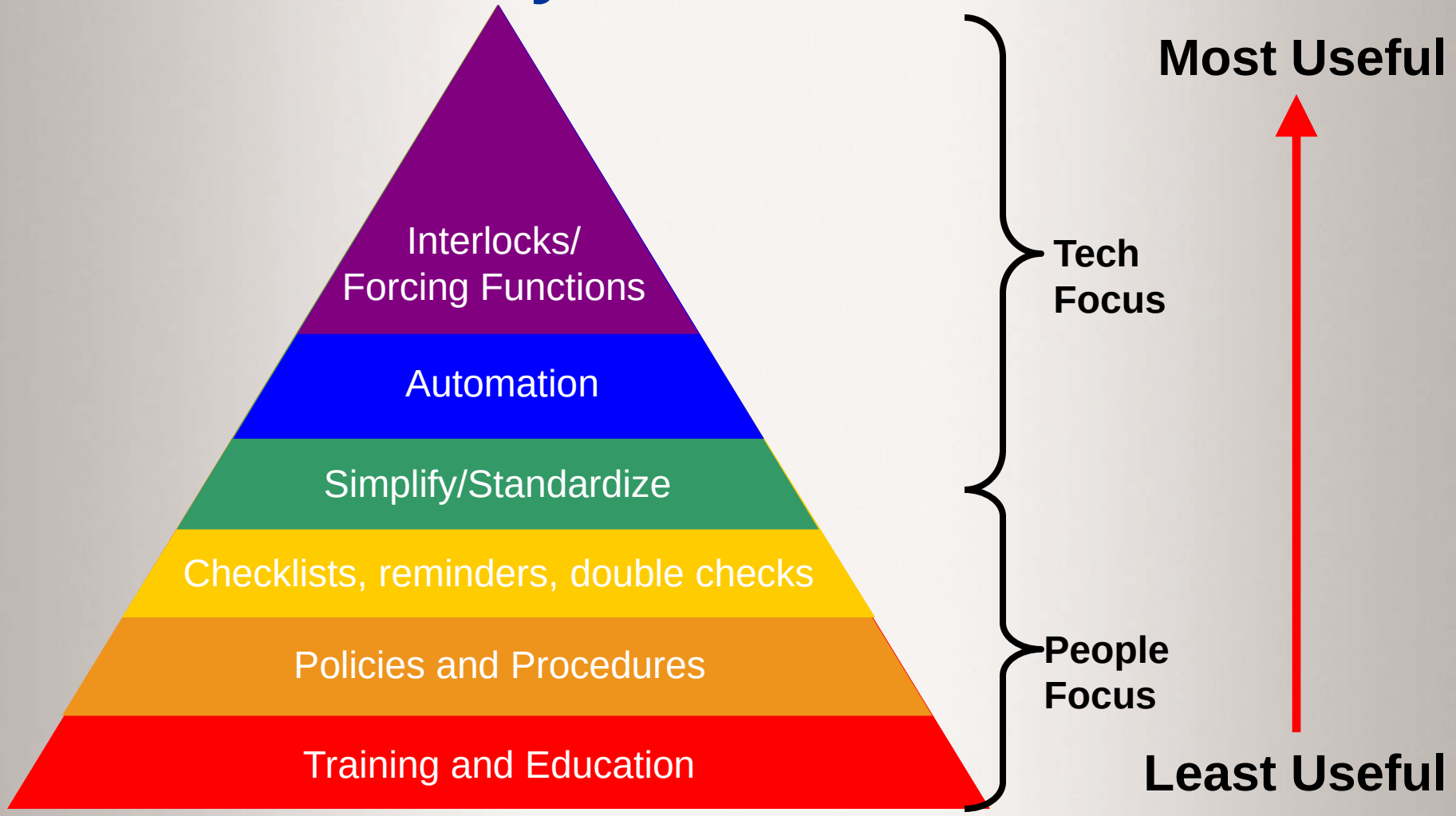
FMEA and Deming Cycle

Implement change:

- Decrease the probability the incident will reoccur
- Increase the probability of detecting the incident
- Severity remains unchanged



Hierarchy of Effectiveness



Institute for Safe Medical Practices, 1999

Example - RCA

- **Failure Mode: Couch model inserted into the plan but at the incorrect location**
- Discussed with dosimetry and physics to determine why couch model was inserted incorrectly.
- Failure Pathway
  - New clinical process
  - Inadequate checklists

Example – Corrective Action

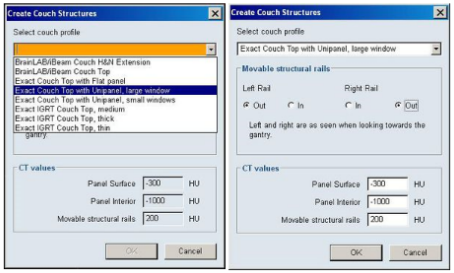
- **Failure Mode: Couch model inserted into the plan but at the incorrect location**
- Additional checklist items related to the couch insertion
- Update policies and procedures
- Staff education

Example – Wiki Page

http://hfhsroweb03/mediawiki/index.php/Rapid_Arc — RapidArc - RT Wiki

File Edit View Favorites Tools Help

AAPM ASTRO ABR ACR HENRY Apps HENRY ARIA Platform Server HFHS Rad Onc ChartCheckLists CMEgateway ROSSI ESR Google iPlan Mich - LARA-RSS MyVarian New Start Audit NRC - 10CFR35 PSQA Tools Redmine Useful Wiki pages Yahoo



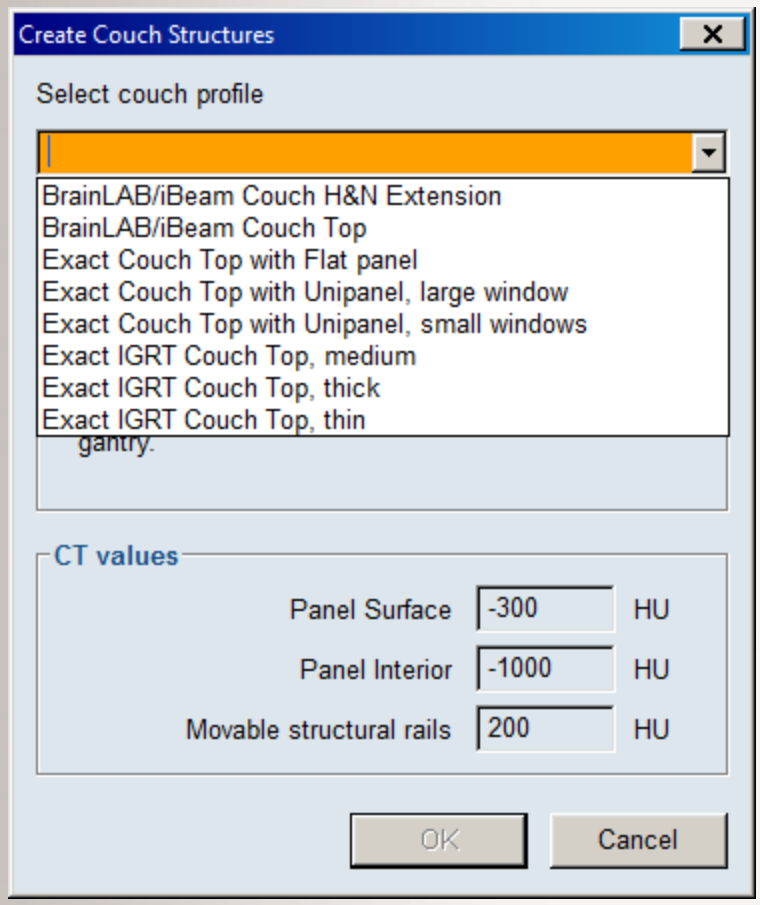
Machine	Recommendations

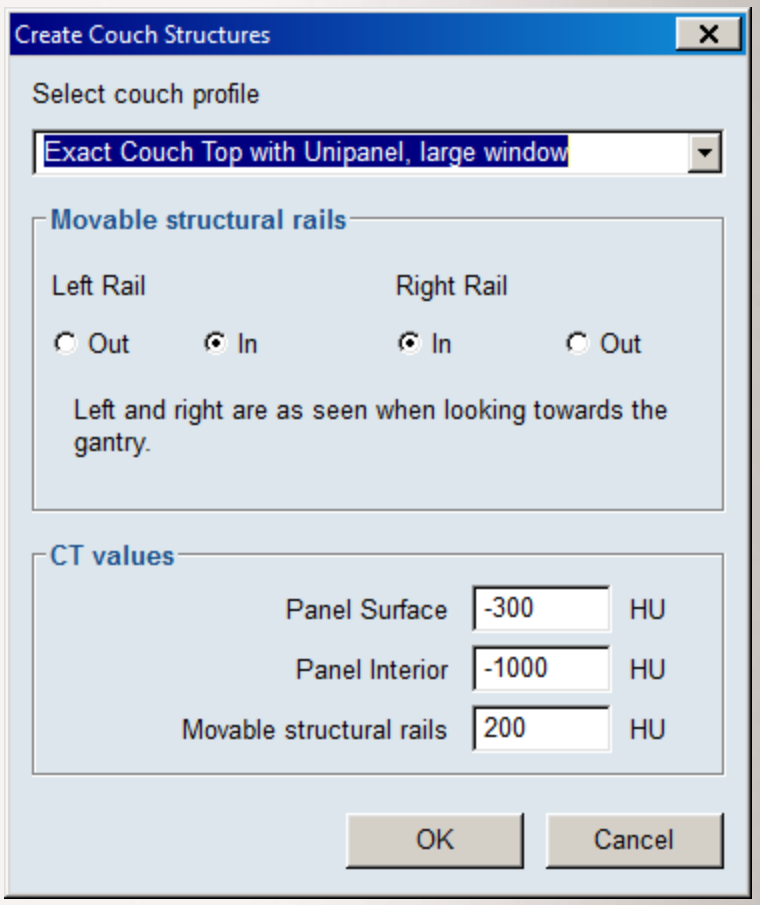
HFH Rm1 Edge	QFix kVue Calypso-compatible couch top: the default position for rails is 'Rails In'. This allows for largest gantry clearance and allows the rails to be visualized on treatment imaging such as CBCT and kV imaging. Click on the following link for procedures to implement the couch model:
	Procedure for Implementing Qfix kVue Couch Top in Eclipse
	• Use the following CT number values for the couch components:
	  • Rails: 250 HU
	  • Couch Surface: -500 HU
	  • Couch Interior: -930 HU
	All body sites — include couch structures
	All H&N Sites — do not use couch structures; H&N board attaches to end of couch

HFH Rm2	Exact Couch: Therapists on Rm2 always treat with the tennis racquet oriented with the single large opening toward the feet and the smaller panel with the divider toward the head. They also do not manipulate the couch rails, so the rails should always be out. • use **"Exact Couch Top with Unipanel, large window"** • set rail positions to **"Out"** • use **default** CT values for the panel surface, interior, and rails RapidArc prostate — include couch structures RapidArc H&N — do not use couch structures; H&N board attaches to end of couch
HFH Rm4 WBC RM1	Exact IGRT Couch: • use **"Exact IGRT Couch Top, thick"** • rail positions do not apply • change the CT values for the outer part of the couch to **-700 HU** and the inner part to **-960 HU** RapidArc prostate — include couch structures RapidArc H&N — do not use couch structures; H&N board attaches to end of couch **Exception:** if the patient is treated ON the tabletop using the overlay board rather than off the end of the table with the attachment, use the **Exact IGRT Couch Top, thin** couch model
WBC RM2	BrainLAB/iBeam Couch Top (**keep the default CT Values**): RapidArc prostate — include couch structures RapidArc H&N — do NOT use couch structures; H&N board on top of BrainLAB couch but extends beyond the end of couch.

75%

Example – Wiki Page





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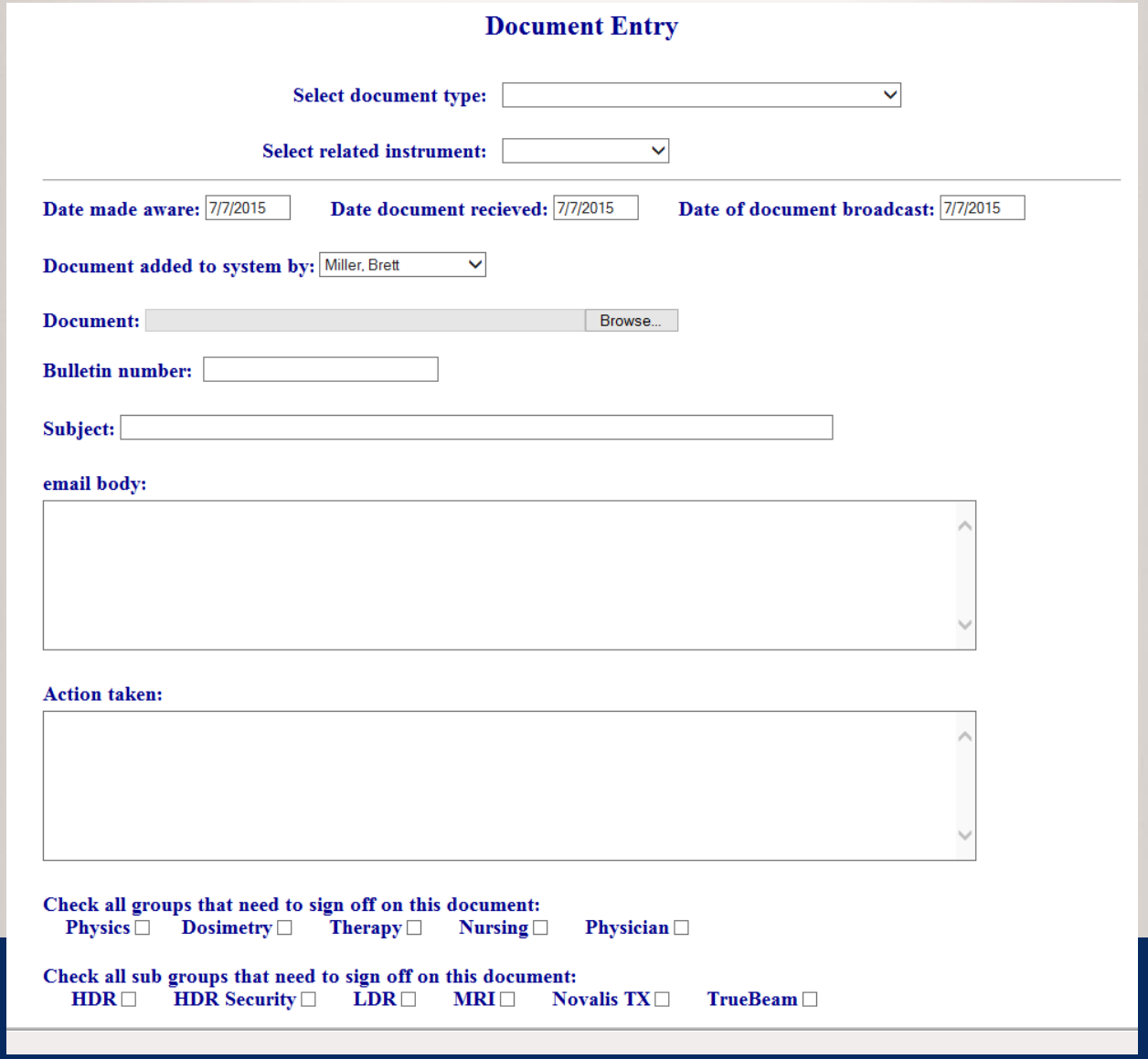
Example – Staff Update



Document Entry

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Check all sub groups that need to sign off on this document:
HDR ☐ **HDR Security** ☐ **LDR** ☐ **MRI** ☐ **Novalis TX** ☐ **TrueBeam** ☐

Vendor Customer Technical Bulletins

- Information from vendors to identify areas of weakness previously not known by the end user.
- When you receive a Custom Technical Bulletin (CTB) from a vendor it will have several components:
  - Description of the issue
  - User recommended corrective action
  - Vendor corrective action
- Need to understand how YOUR CLINIC'S WORKFLOW is affected by each bulletin

Summary

- Develop a Culture of Patient Safety
- Develop and use an Incident Learning System
- QAC Review
  - RCA, FMEA
  - PDSA cycle
- Feedback to Staff

Thank You

- Ben Movsas, MD. Department Chair
- Indrin Chetty, PhD. Physics Division Chief
- Salim Siddiqui, MD, PhD. QAC Chair
- Michelle Dickinson, BS RT(T). QA Therapist
- etc.

What are ways we can improve quality and safety in radiation therapy?

1%	1. Encourage research on quality
1%	2. Educate leadership
0%	3. Collaborate with vendors
0%	4. Adopt a patient view on quality
99%	5. All of the above

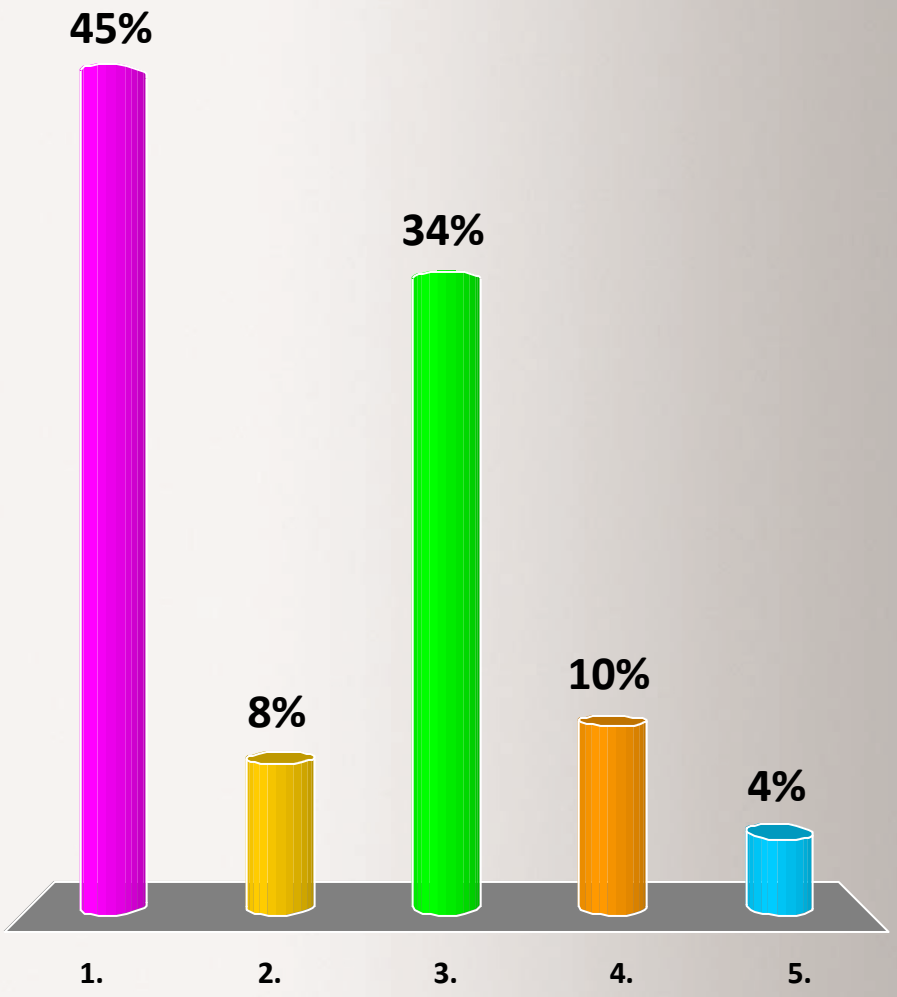
What are ways we can improve quality in radiation therapy?

1.
2.
3.
4.
5. All of the above

Pawlicki and Mundt, Med. Phys. 34 (2007) 1529-1534

FMEA…

1. Focuses on the entire process
2. Calculates a single RPN for all failure modes
3. Requires understanding of the process
4. Calculates a RPN which is an absolute measure of risk
5. According to TG-100, is useless



FMEA…

1.
2.
3. Requires understanding of the process
4.
5.

Huq, et al. IJROBP 71 (2008) S170-S173
Ford, et al. IJROBP 74 (2009) 852-858

A culture of patient safety…

2%

1. Does not require effective communication between staff members

4%

2. Ensures only physicists are active in improving the clinical process

4%

3. Is punitive when responding to reported incidents

62%

4. Utilizes human factors engineering

29%

5. Utilizes an informal QA Committee

A culture of patient safety…

1.
2.
3.
4. Utilizes human factors engineering
5.

ASTRO “Safety is No Accident” (2012)