Incident Reporting and QA Committee Review at HFHS

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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

Radiation Offers New Cures, and Ways to Do Harm
By WALT BOGDANICH
January 29, 2010

As Technology Surges, Radiation Safeguards Lag
By WALT BOGDANICH
January 26, 2010

Radiation Errors Reported in Missouri
By WALT BOGDANICH and REBECCA R. RUIZ
February 24, 2010

A Pinpoint Beam Strays Invisibly, Harming Instead of Healing
By WALT BOGDANICH and KRISTINA REBBLO
December 28, 2010

Case Studies: When Medical Radiation Goes Awry
By WALT BOGDANICH
January 27, 2010

F.D.A. to Increase Oversight of Medical Radiation
By WALT BOGDANICH and REBECCA R. RUIZ
February 10, 2010
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
What can we do?

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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
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
Incident Reporting System - Workflow

Report Entered

Dosimetry Review

Pre-QAC Review

Dosimetry Sign Off

Physician Review

QAC Review

Potential Dose Consequence

Process Improvement

Good Catch

Potential Policy Change
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

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<thead>
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<th>Site/Category</th>
<th>Site 1</th>
<th>Site 2</th>
<th>Site 3</th>
<th>Site 4</th>
<th>Site 5</th>
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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

Least Useful

Training and Education

Policies and Procedures

Checklists, reminders, double checks

Simplify/Standardize

Automation

Interlocks/Forcing Functions

Most Useful

Tech Focus

People Focus

Least Useful

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

[Image of a computer screen showing a Wiki page with a table and a diagram]
Example – Wiki Page
# Example – Wiki Page

| 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 | |
Example – Staff Update

Document Entry

Select document type:  
Select related instrument:  

Date made aware: 7/7/2015  Date document received: 7/7/2015  Date of document broadcast: 7/7/2015

Document added to system by: Miller, Brett

Document:  
Bulletin number:  
Subject:  

email body:

Action taken:

Check all groups that need to sign off on this document:
  Physics  Dosimetry  Therapy  Nursing  Physician

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. Encourage research on quality
2. Educate leadership
3. Collaborate with vendors
4. Adopt a patient view on quality
5. All of the above
What are ways we can improve quality in radiation therapy?

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

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.

Ford, et al. IJROBP 74 (2009) 852-858
A culture of patient safety…

1. Does not require effective communication between staff members
2. Ensures only physicists are active in improving the clinical process
3. Is punitive when responding to reported incidents
4. Utilizes human factors engineering
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)