Creating Sustainable Infrastructure for Safety Culture & Continuous Quality Improvement

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University of North Carolina at Chapel Hill

AAMD Regional Meeting
Charlotte, NC
April 6, 2019
Disclosure – Conflict of Interest

• Disclosures: none
Agenda

• Culture of Safety at UNC Radiation Oncology

• Improvement Work

• Engagement Metrics for Staff
UNC Medical Center Department of Radiation Oncology

- North Carolina Cancer Hospital (Chapel Hill, NC)

- 5 machines
  - Tomo & CK
  - 1 simulator
  - Protons coming soon

- HDR (Gyn Onc) and LDR (Prostate implants)

- Treat 100-120 patients per day
- 100+ staff
About Me

Alison Amos
Clinical Assistant Professor,
Division of Healthcare Engineering
Department of Radiation Oncology

• B.E. and Ph.D. in Biomedical Engineering
• Lean Kaizen Coach from UNC Healthcare
• Quality Leader and Improvement Coach
Culture of Safety in Radiation Oncology
Quality & Safety Program

To create infrastructure for continuous quality improvement through two major program components:

• GoodCatch
  • an event learning system

• A3 Approach to Problem-Solving
  • a 1 page tool for problem-solving
Model for Culture of Safety and Improvement

- Make better systems *it’s the process, not the person*
  - Get more people involved in improving systems
  - Team-work, cohesiveness, respect, job satisfaction
James Reason’s Swiss Cheese Model

Administrative
Latent failures: e.g. policies, supervision

Workplace
Latent failures: e.g. lighting, noise, workflows

People
Safety mindfulness

Actions

Harm

We need to focus here
We tend to focus here
Radiation Oncology Quality and Safety Committee
How do we sustain this?

• Celebrate improvement activities

• Provide psychologically safe environment, rewards & recognition, feedback

• Allocate time for improvement activities

• Lead by example
Program Timeline

• 2011 → the “GoodCatch Program” was implemented in the Department of Radiation Oncology in the NC Cancer Hospital (Chapel Hill, NC).

• 2012 → the “A3 Program” was implemented in the Department of Radiation Oncology in the NC Cancer Hospital (Chapel Hill, NC).

• 2013 → GC/A3 Program implemented in the Radiation Oncology location at Rex Hospital.

• 2014 → GC/A3 Program implemented in the Medical Oncology location at Rex Hospital.

• 2015 → GC/A3 Program implemented at High Point Hospital in the Radiation Oncology Department, and MOP Office at UNCMC.

• 2016 → GC/A3 Program implemented in Pediatric Oncology, Gynecology Oncology and Bone Marrow Transplant Outpatient at the NC Cancer Hospital.
Ways to Engage

• Daily Simulation review (peer review for Tx planning)
  • MDs, Physics, Dosimetry, Students
• Daily Department Huddle (at Sim review)
  • Folds in Nursing, Therapy and Admin (remaining items to be signed by MD, what to expect for the day)
• Weekly Chart Rounds (concurrent peer review for patients under Tx)
• Quarterly Safety Rounds
• Standardize practices where possible
Ways to Engage

• Incident Learning System
  • Submit good catches
  • Give context to good catches when they occur (SME, reviewer)

• Engage in Improvement Projects
  • Propose ideas
  • Lead an improvement
  • Participate in projects
  • Provide subject-matter expertise & feedback
  • Help drive and reinforce changes

• Monthly Departmental QA meeting
  • Led by Director of Patient Safety
Quality & Safety Program

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What is a Good Catch?

A condition defect event situation miscommunication

that could have or did result in

Near Misses

Misses

harm delay rework waste an error
After Good Catch Submitted

Good Catch dispatched to appropriate Quality & Safety Committee (QSC) Member

Preliminary Review

QSC member investigates & performs a Root Cause Analysis

Quality & Safety Committee Review

QSC meets weekly to review the previous week’s Good Catches

Determines Plan of Action

Monitor Just Do It

A3 → Kaizen

Notifies Submitter

What are the next steps?
Good Catches Over Time

2018 Monthly average: 40
2018 Annual total: 484
2018 Good Catch submissions by Team

- 79% submitted by non-QSC members
- 26% submissions by students and residents
- No anonymous submissions in 2018
- All new Residents, Students and Attendings submitted
AHRQ Patient Safety Culture Survey Results

In 2017 survey:
- 81% response rate of all staff
- 89% response rate of MDs (Attendings & Residents)

Participants by team:

<table>
<thead>
<tr>
<th>Team Description</th>
<th>2009</th>
<th>2011</th>
<th>2013</th>
<th>2015</th>
<th>2017</th>
<th>Overall</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physician (MD or DO)</td>
<td>16</td>
<td>16</td>
<td>18</td>
<td>18</td>
<td>18</td>
<td>18%</td>
</tr>
<tr>
<td>Physician Assistant, Nurse Practitioner, Clinical Nurse Specialist, Nurse Midwife, Advanced Practice Nurse, etc.</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2%</td>
</tr>
<tr>
<td>Management (Practice Manager, Business Manager, Office Manager, Nurse Manager, Office Administrator, Lab Manager, Other Manager)</td>
<td>8</td>
<td>8</td>
<td>8</td>
<td>8</td>
<td>8</td>
<td>9%</td>
</tr>
<tr>
<td>Administrative or clerical staff (Insurance Processor, Front Desk, Billing Staff, Receptionist, Referral Staff, Scheduler (appointments, surgery, etc.), Medical Records, Other administrative or clerical staff position)</td>
<td>17</td>
<td>17</td>
<td>17</td>
<td>17</td>
<td>17</td>
<td>13%</td>
</tr>
<tr>
<td>Nurse (RN), Licensed Vocational Nurse (LVN), Licensed Practical Nurse (LPN)</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>6%</td>
</tr>
<tr>
<td>Other clinical staff or clinical support staff (Medical Assistant, Technician (all types), Nursing Aide, Therapist (all types), Other clinical staff or clinical support staff)</td>
<td>46</td>
<td>46</td>
<td>46</td>
<td>46</td>
<td>46</td>
<td>52%</td>
</tr>
</tbody>
</table>
We began tracking self-reports in May 2018.
Quality & Safety Program

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### Example A3 Template

<table>
<thead>
<tr>
<th>Section</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>REASON FOR ACTION</td>
<td></td>
</tr>
<tr>
<td>GAP ANALYSIS</td>
<td></td>
</tr>
<tr>
<td>COMPLETION PLAN</td>
<td></td>
</tr>
<tr>
<td>CURRENT STATE &amp; TARGET STATE METRICS</td>
<td></td>
</tr>
<tr>
<td>SOLUTION APPROACH</td>
<td></td>
</tr>
<tr>
<td>CONFIRMED STATE</td>
<td></td>
</tr>
<tr>
<td>RAPID EXPERIMENTS</td>
<td></td>
</tr>
<tr>
<td>INSIGHTS</td>
<td></td>
</tr>
</tbody>
</table>
G2478

not Pt-specific:
We need a process involving all stakeholders to assess patients who "aren't setting up" at the treatment machine. Rapid turnaround re-plans, especially IMRT, cause a great deal of re-work that might be able to be avoided and rushing is known to be fraught with potential errors.

One idea - RTTs could call the CMD who planned the patient AND page the POD as well as the patient's attending to see the setup and assess why the patient is not setting up.
A3: Process for re-plans related to set-up issues
A3: Process for re-plans related to set-up issues

Problem Statement: Non-standard workflow for re-plans due to setup issues at the linac causes confusion and often results in ineffective communication between teams [therapy, dosimetry, physics, MDs].

Importance Statement: Lack of standard workflow leads to confusion, increases risk of error and increases amount of extra work.

Of participants surveyed:
- 70% are unsatisfied with current process.
- 67% spend 15 minutes or more getting information needed to address setup issue

Team Leads: Michael Dance, Heather Baliker
A3: Process for re-plans related to set-up issues

- Proposed Workflow
- Changes from current workflow in bold
A3: Tx Plan Approval Workflow

• Problem area: Physician approval of some tx plans may not be timely

• Current state: Tx plans should be approved by physician by 3pm the day before QA day. This occurs for the majority of tx plans. If not signed by 3pm, pt’s tx may be delayed (this is not being enforced)
  • Related GC (1450, 1453, 1455, 1459, 1473, 1476)
  • Lots of documentation and QA steps after a physician approves plan prior to QA day

• Considerations:
  • Do Physicians have enough time to approve the plan?
  • Do Dosimetrists have enough time to work on the plan?
  • Is 7-day turn around time from SIM to treatment start too fast?
  • Can there be better communication between Dosimetrist and Physicians?

We observed the current state and collected data
Cycle Times of QA Processes after MD signing of treatment plan

Average Cycle Times for DOS (post-MD signature paperwork), PHY (pre-Tx check), and RTT (chart write-up)

**Average Time:
- 30 min = 30 min or less
- 45 min = 31-60 min
- 60 min = 60 min or more

May 2016: 136 pre-Tx checks (photon only, not electron Tx's)
April 2016: 108 pre-Tx checks
A3: Tx Plan Approval Workflow

• Countermeasures
  • Adding one extra day to treatment planning workflow
  • 7 calendar days to 8 calendar days

• 48 hours between simulation and sim review
A3: Improving DRR Quality for Portal Comparison

**Importance:** Requested by RT’s & MD’s – need to see soft tissues and bone, Linacs have differing imaging systems; direct link to verifying isocenter and field placement; decreases “guestimating” of setup

**Countermeasures:**
- External contour turned on for every DRR, plus any ROI beneficial
- CMDs apply DRR template in Raystation before MD approves plan
- DRR template check added to Raystation script

**Experiments:**
- 10 patient sampling of default DRR setting images to a new DRR template → new template preferred
- Side by side comparison of default DRR image with new template image → new template preferred

**Outcomes:**
- Decreased waste in resources & time at Linac
- Opportunity to optimize non-visible reticule with Raystation upgrade

Authors: Heather Baliker & Tong Zhu
How do we know if we’re getting there?
<table>
<thead>
<tr>
<th>Outcome</th>
<th>Metric</th>
<th>Measurement Tool</th>
<th>Responsible Party</th>
<th>Target State Metric</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;Big Picture&quot; Surveys</td>
<td>Press-Ganey: Standard Overall</td>
<td>survey</td>
<td>Site Manager</td>
<td>Compare to Peer Group Ranking--If equal to or exceeding target is met.</td>
</tr>
<tr>
<td></td>
<td>Workforce Engagement Survey</td>
<td>survey</td>
<td>Site Manager</td>
<td>Tier 1</td>
</tr>
<tr>
<td></td>
<td>WES Specific Question: This organization promotes a culture of patient safety</td>
<td>survey</td>
<td>Site Manager</td>
<td>4.15 or higher</td>
</tr>
<tr>
<td>People Development</td>
<td>Is there dedicated internal program support?</td>
<td>n/a</td>
<td>Site Manager</td>
<td>Y</td>
</tr>
<tr>
<td></td>
<td>Dedicated internal support means that there is FTE dedicated time to support the program and coach projects. For clinics with &lt;25 staff, 0.15 (6 hours per week) FTE = yes; &lt;50 staff, 0.2 FTE (8 hours per week) = yes; 50-100 staff FTE, 0.33 FTE (13 hours per week) = yes</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td># of A3 Leaders</td>
<td>n/a</td>
<td>Implementation Coach or Internal A3 Leader</td>
<td>At least 1 per 30 staff</td>
</tr>
<tr>
<td></td>
<td>% completed A3 Training Site-Wide</td>
<td>training records</td>
<td>Site Manager</td>
<td>100% (over time)</td>
</tr>
<tr>
<td></td>
<td>% completed Yellow Belt Training Site-Wide</td>
<td>training records</td>
<td>Site Manager</td>
<td>100% (over time)</td>
</tr>
<tr>
<td></td>
<td>% completed Purple Belt Training</td>
<td>training records</td>
<td>Site Manager / Implementation Coach</td>
<td>10% (over time)</td>
</tr>
<tr>
<td></td>
<td># completed Blue Belt Training</td>
<td>training records</td>
<td>Site Manager / Implementation Coach</td>
<td>at least 1 (to be able to sponsor PB projects)</td>
</tr>
<tr>
<td>Feedback &amp; Recognition</td>
<td>Feedback Mechanisms in Place?</td>
<td>n/a</td>
<td>Site Manager</td>
<td>high</td>
</tr>
<tr>
<td></td>
<td>Low=1, Moderate=2, High=3 of the following: Dedicated QA time, Close the loop with submitters, Send out QSC minutes to entire site</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Formal Recognition in Place?</td>
<td>n/a</td>
<td>Site Manager</td>
<td>high</td>
</tr>
<tr>
<td></td>
<td>Low=1, Moderate=2, High=3 of the following: Rewards, Visual recognition, Active recognition</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Program Sustainability</td>
<td>How often does QSC Meet?</td>
<td>n/a</td>
<td>Site Manager</td>
<td>Weekly for departments with &gt;50 staff; Biweekly for departments with &lt;50 staff</td>
</tr>
<tr>
<td>------------------------</td>
<td>--------------------------</td>
<td>-----</td>
<td>--------------</td>
<td>------------------------------------------------------------------</td>
</tr>
<tr>
<td></td>
<td>QSC has a Vice Chair?</td>
<td>n/a</td>
<td>Site Manager</td>
<td>Y</td>
</tr>
<tr>
<td></td>
<td>Active Physician Champion?</td>
<td>n/a</td>
<td>Site Manager</td>
<td>Y</td>
</tr>
<tr>
<td></td>
<td>Level of Physician Engagement?</td>
<td>n/a</td>
<td>Site Manager</td>
<td>High</td>
</tr>
<tr>
<td></td>
<td>Attendance at QSC meeting</td>
<td>n/a</td>
<td>Site Manager</td>
<td>well attended</td>
</tr>
<tr>
<td></td>
<td>How many Good Catches were submitted this quarter?</td>
<td>GoodCatch Website</td>
<td>Implementation Coach</td>
<td>at least 100 for departments with &gt;50 staff; at least 50 for departments with &lt;50 staff</td>
</tr>
<tr>
<td></td>
<td>How many A3s were in progress this quarter?</td>
<td>A3 Database</td>
<td>Implementation Coach or Internal A3 Leader</td>
<td>at least 2 for departments with &gt;50 staff; at least 1 for departments with &lt;50 staff</td>
</tr>
<tr>
<td></td>
<td>How many A3s were completed this quarter?</td>
<td>A3 Database</td>
<td>Implementation Coach or Internal A3 Leader</td>
<td>Reference Point for Follow Through</td>
</tr>
<tr>
<td></td>
<td>If you hired new employees this quarter, did they receive information about the GoodCatch &amp; A3 Program as part of their orientation?</td>
<td>site records</td>
<td>Site Manager</td>
<td>Y</td>
</tr>
<tr>
<td></td>
<td>QSC shares learning from cqi efforts beyond their site?</td>
<td>n/a</td>
<td>Site Manager</td>
<td>Y</td>
</tr>
</tbody>
</table>
Thank You!