A Safer Tomorrow: Understanding and Improving the Safety Culture Within a Large Academic Radiation Oncology Department

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Overview

• What is RO-ILS
• Safety culture at Emory
• Quality Projects
• Moving Forward
EMORY UNIVERSITY HEALTHCARE

• Photons: main campus, 4 satellite locations
  • 1 Chief dosimetrist, 13 staff dosimetrists
  • Average 90 patients per day at main campus, 50/70/35/30 at satellites

• Protons: 3 gantries currently open
  • 1 Chief dosimetrist, 5 dosimetrists
  • Currently treating 40 patients/day

Emory Healthcare: 2 Safety Systems
WHAT IS RO-ILS

• A standardized system provides an opportunity for shared learning across all radiation oncology institutions and may be an added value to institutions that track incidents independently.

• ASTRO partnered with the American Association of Physicists in Medicine (AAPM) to develop RO-ILS: Radiation Oncology Incident Learning System, the only medical specialty society-sponsored incident learning system for radiation oncology.

• The mission of RO-ILS™ is to facilitate safer and higher quality care in radiation oncology by providing a mechanism for shared learning in a secure and non-punitive environment.

• RO-ILS facilitates patient safety reporting and serves as a national incident learning system to build awareness about radiation oncology practice risks. ASTRO serves as the gateway for providers interested in RO-ILS participation.

How do we use RO-ILS at Emory?
RO-ILS at Emory

**PROS**

- Establish a baseline and allow goals to be set for improvement
- Learn from not just mistakes but also potential mistakes
- Provide environment for transparent discussion
- Track issues to find trends in issues; know what to change/target in the future

**CONS**

- Reporting of events is seen as punitive
- Misunderstanding regarding what should be reported and how it should be categorized
- Overall negative culture due to RCAs and not seeing/understanding results
- Belief that it takes too much time to submit

RO-ILS Accessibility

- EVERYONE should feel comfortable submitting; everyone has the ability to submit
  - One general “submitter” login for everyone
- Weekly emails with instructions on accessing RO-ILS and SAFE
- Easy access on departmental intranet page
- Handouts with RO-ILS submitter information posted at treatment machines and around the department
- Can be done anonymously

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**Amending RO-ILS**

1. Go to the internet webpage
2. Click on Departments and Groups
3. Click on Radiation Oncology (left hand column, % of the way down)
4. Click on RO-ILS (right hand column)
5. Click on
6. Click SUBMIT EVENT, located in the center of the page, and button.

**Amending SAFE**

1. Go to the internet webpage
2. Click on Quality at MEC
3. Under BRC Features, right hand side towards the bottom of the page, choose SAFE-Street reporting system
4. Click on REPORT button / View SAFE event
Accessibility

What should be submitted?

- An event or situation that could have resulted in an accident, injury, or illness but did not either by chance or through timely intervention
- Incorrect plan, prescription, calculations
- Missing critical information on important documentation
- Failure to obtain a signed consent
- Failure to perform time-out
- Documentation issues
- Scheduling issues
- Equipment malfunction
- Lack of handoff between staff
- Lack of patient education
What is Actually Submitted?

- 425 RO-ILS submissions 2014-2019
  - 40% unsafe condition
  - 28% operational/process improvement
  - 13% near miss
  - 13% therapeutic radiation incident

What happens post-submission?

- Biweekly peer review meetings by an interdisciplinary committee (administrator, dosimetrist, physicist, physician, nurse, therapist)
- Reports are reviewed and re-categorized within the RO-ILS system as needed
- Follow up required within 48 hours of reported event
- Root cause analysis (RCA) for some cases
- Submission to SAFE
- Follow up documentation for events
Quality Projects

Quality Improvement Projects: Examples

- Tracking consents signed prior to patient’s arrival for simulation
- Try to reduce delays in treatment planning process (from simulation to start of treatment)
- Prescription standardization
  - bolus placement
  - image guidance
  - gating/breath hold techniques
  - cardiac devices
- Planning standardization
- More accurate bolus setup on patients
- Ensuring IMRT QA before all patients are treated
- SBRT peer review before patient plan is approved
- New patient handouts and nursing teaching appointments to ensure no issues at simulation
- Higher incidences of hand washing and foaming in/out of patient areas
- Better Doctor of the Day handoff procedures
Consents Signed Prior to Arrival for Simulation Project

**PROBLEM**
- Patients arrive for their simulation appointment and consent has not been signed
  - Causes sim delays – especially with full sim schedule
  - MDs not always available to sign consent

**SOLUTION**
- Start tracking the data
- Set goals
- Understand limitations

- Inpatients who have not been in the dept before
- Patients who had not decided on treatment at time of consult
- Consents that are too old, need to be resigned
Delays in the Treatment Planning Process Project

THE PROBLEM

• 5 business days simulation → start (standard)
  • Contours due 24 hrs after simulation
• Late contours to dosimetry = less time for planning, review, QA, doublecheck
  • IMRT/VMAT QA must be done PRIOR to starting treatment
  • SBRT peer review must be done prior to official plan approval (printing, QA, DC included)
Contouring: Understanding the Problem

Tracking data:
- 2017: over 30% of contours were given to dosimetry overdue
- 2018-2019: 38% of contours were given to dosimetry overdue

Do MDs need more time?
- On average, contours are 26 hours overdue

Does this affect plan review being done on time?
- 40% of plan reviews are completed after the deadline
Overdue contours

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THE SOLUTION(S)

• Extend time from sim to start to 6 or 7 business days
• Move patients who do not have QA done the day before tx starts
• Reduce time for dosimetry and physics in the planning process

Keep residents and MDs accountable for late contours

How do we keep people accountable?

CARE PATHS!
Care Paths

- Care paths give finite deadlines for each task
  - Allows for all tasks to be tracked to determine where holdups occur
  - Downside: once a patient’s tasks are late, they do not reset (will stay overdue unless time is made up in one aspect of the process)

SBRT Care Path

Patient cannot be treated until SBRT review has been done
Standardization Project

ASTRO white paper on standardization

CHALLENGES OF STANDARDIZATION

a) “Failure to initiate a standardization effort;

b) Failure to reach consensus leading to deadlock;

c) Failure to contain the scope of the effort, leading to “feature creep”; and

d) Failure of acceptance by the field (eg, because of standardization that is incompatible with current/evolving practice).”

WHY IS IT NECESSARY?

• SAFETY – knowing what to look for and where keeps everyone on the same page
• Lack of standards = worse outcomes for patients
• Allow for accreditation
Prescription Standardization at Emory

THINGS TO CLARIFY

- Breath hold vs non breath hold
- Gating
  - Upper and lower thresholds
- Bolus/No bolus
  - Bolus location
- Cardiac device
- Imaging
  - Type
  - Frequency
- Fractionation
  - Timing (fractions/week)
  - Dose
- Has consent been signed?
- Target volume delineation
  - How were volumes drawn? MRI/PET?
- Prior radiation/overlapping fields
- Special requests
  - Full bladder, empty rectum, empty stomach
Planning/Nomenclature Standardization

- Help support data collection
- Clinical trials
- Inter/Intra departmental research
- Allow for easier peer review
- QA of dosimetry plans
- Easier handoff
- Easier to contour using pre-made templates

Planning/Nomenclature Standardization at Emory

CONTOUR NAMES AND COLORS

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A Standard

Level Set: 100.0

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50.0  | Red   | 2          |
20.0  | Yellow| 2          |
10.0  | Blue  | 2          |
5.0   | Green | 2          |
2.0   | Purple| 2          |

Emory
Bolus Placement Project

THE PROBLEM

• ROILS submission regarding improper bolus placement on patient
• Hard to determine exact size and location of virtual bolus using screen shots from Eclipse
  • Dependent on pictures and measurements from dosimetrists

THE SOLUTION

• Create bolus setup fields for patients in their treatment plan with fields and MLCs fit to the shape of the bolus
• Therapists can mode up fields and use the light field to determine exact size and location of bolus
Bolus Setup Fields

[Images of medical setups and equipment]
Moving Forward

How can we improve the culture?

- National RO-ILS group suggested department wide safety survey
  - Establish baselines within the department to grow from
  - Understand where the flaws are and what needs to be improved
  - Show employees that their opinions matter
Room for Improvement — How do we fix this?

- Try to understand WHY people are afraid/unwilling/unable to submit reports
  - RO-ILS survey could be distributed to entire department

- Use this information to re-introduce the RO-ILS program altogether
  - Staff meeting, coffee conversations, open discussions about how important a POSITIVE safety culture can be

- Better communication between safety committee and staff
  - Bi monthly or quarterly updates or newsletter with information on incidents that have been discussed and what changes have been made as a result
  - Make results of RCAs available to staff

Thank you

- Natia Esiashvili, MD – Chief Safety Officer
- RO-ILS Safety committee members
- Daisy Whitaker, Chief Dosimetrist
Questions?