Safety - Prevention of Errors in Radiation Oncology:
Current Strengths and Opportunities

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AAPM 61th Annual Meeting, July 16, 2019
• Member of AAPM Task Group 275

• Member of AAPM Work Group on Radiation Oncology Incident Learning System (RO-ILS)

• Chair of AAPM Work Group on Prevention of Errors in Radiation Oncology (Parent WG of TG-100, TG-275 etc.)
CELEBRATING MILESTONES - SAFETY INITIATIVES

ANNOUNCEMENTS
RO-ILS hits 10,000th event and continues to imp...

Hits 10,000th event
500 facilities enrolled

• TG100 Implementation Guide
• Radiation Oncology - Incident Learning System (RO-ILS)
• Safety Profile Assessment (SPA)
• Reference lists etc.

320 video
The Joint Commission, Standard LD.03.09.01, EP 7: At least every 18 months, the hospital selects one high-risk process and conducts a proactive risk assessment.

- Benefits of a proactive approach to patient and resident safety includes increased likelihood of the following:
  - Identification of actionable common causes
  - Avoidance of unintended consequences
  - Identification of commonalities across dept./services/units
  - Identification of system solutions
PROACTIVE RISK ASSESSMENT – ICRP 112 (2009)

• As technology & processes change
  • Retrospective approaches are not sufficient
  • All-inclusive QC checks may not be Feasible
  • Develop proactive approaches to anticipation of failure modes
  • Evaluation and comparison potential risks from each failure mode

• Resources
  • Process trees
  • Design of a quality management system
  • Failure modes, Risk (FMEA, Probabilistic safety assessment, Risk matrix)
  • Closing the loop and applying prospective methods
SAFETY IS NO ACCIDENT

- Reference guide for patient safety and high-quality care during radiation therapy treatment.
- Additional efforts btw v.2012 and v.2019
  - Radiation Oncology Incident Learning System
  - ASTRO launched APEx (focus on CQI)
  - AAPM reports and guidelines
    - Task Group 263
    - MPPG 4.a.
    - Task Group 100
  - Major advances in the radiation oncology
• Process Map
• FMEA
• Fault Tree
• Corrective / Preventive action
  • From the greatest risk and most severe
  • Use the most effective tools
• Test and validate
Ad Hoc Committee for the implementation of TG-100 Report

Initiate mechanisms to present the concepts for the TG-100 report and execute an implementation plan for the next generation of radiation therapy quality management.
Benefits

• Can be utilized as a departmental ILS

• Education

• PQI template: qualified for physicians and physicists by ABR

• MACRA: CMS rule for the Quality Payment Program, RO-ILS participation will satisfy CPIA (clinical proactive improvement activities)
RO-ILS DATA

Aggregate Sum: Workflow Step Where Event Discovered

<table>
<thead>
<tr>
<th>Workflow Step</th>
<th>2018 Report 2018 Report</th>
</tr>
</thead>
<tbody>
<tr>
<td>Before Simulation</td>
<td>4%</td>
</tr>
<tr>
<td>Pre-Planning Imaging and Simulation</td>
<td>5%</td>
</tr>
<tr>
<td>Treatment Planning</td>
<td>0%</td>
</tr>
<tr>
<td>Post-Treatment QA Review</td>
<td>20%</td>
</tr>
<tr>
<td>Treatment Delivery</td>
<td>4%</td>
</tr>
<tr>
<td>After Treatment Canceled/Finishing</td>
<td>3%</td>
</tr>
</tbody>
</table>

Aggregate Sum: Workflow Step Where Event Occurred

<table>
<thead>
<tr>
<th>Workflow Step</th>
<th>2018 Report 2018 Report</th>
</tr>
</thead>
<tbody>
<tr>
<td>Before Simulation</td>
<td>8%</td>
</tr>
<tr>
<td>Pre-Planning Imaging and Simulation</td>
<td>12%</td>
</tr>
<tr>
<td>Treatment Planning</td>
<td>30%</td>
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<tr>
<td>Post-Treatment QA Review</td>
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</tr>
<tr>
<td>Treatment Delivery</td>
<td>5%</td>
</tr>
<tr>
<td>After Treatment Canceled/Finishing</td>
<td>2%</td>
</tr>
</tbody>
</table>

RO-ILS Q1-Q2 2018 Report
January 1, 2018 – June 30, 2018
• The operation of an institutional ILS
• Practical Advice for developing and maintaining an ILS
• A system view of error
• Responding to incidents of harm
• ROILS User Guideline
• AAPM WG RO-ILS Recommended Curriculum on Quality Improvement and Incident Learning
• Task Group 327: Crowd-sourced solutions to the problem of wrong shift instructions
YOUR CONTRIBUTIONS! – TG327

We need your support!

Refer to the Newsletter article in Nov/Dec 2018 for more details.
WORK GROUP ON PREVENTION OF ERRORS (WGPE)

- Develop and disseminate tools to improve safety and quality in all the clinical areas of medical physics
- Foster collaborative safety initiatives and projects with other professional societies
- Facilitate interactive sharing of knowledge and experience in the areas of patient safety and quality.
- Disseminate information to the AAPM membership and the radiological community
- Oversee and coordinate societal and intersocietal initiatives on the areas of patient safety and quality improvement
- Participate and provide guidance on distributed incident learning systems
WGPE

TG100

SPA

MPPG 4a

TG275

TG275 Education Module

TG314

TG288

Resource Page
• **92** questions to assess performance in key, safety-critical areas.
• Summary of your clinic’s performance via visual pie charts.
• Bar graphs allowing you to benchmark your performance against other participants.
• Downloadable Quality/Safety Improvement Log to guide safety improvement initiatives.
• Qualified by ABR as PQI project for Maintenance of Certification
WGPE

Safety Profile Assessment

There are 57 assessments in the system. The pie charts and bar graphs for each section below are based on your current answers only.

1. INSTITUTIONAL CULTURE
   - Most of the time / Agree
   - Sometimes / Neutral
   - Always / Strong

2. INSTITUTIONAL CULTURE
   - Most of the time
   - Sometimes / N.
   - Rarely / Disagree
   - Never / Strong
   - Do not know / ...

17. Clinical staff are informed of corrective actions arising from the review of reports of errors and near misses. You answered Sometimes / Neutral for a score of 3

(Shorter lines are better)
Web-based Survey

Risk Assessment

Provide recommendations

AAPM COMMITTEE TREE
Task Group No. 275 - Strategies for Effective Physics Plan and Chart Review in Radiation Therapy (TG275)

Chair

Charge
1. To review existing data and recommendations that support the use of physics plan and chart review, and to review the current recommendations on the qualifications for performing these.
2. To provide survey information on current practices in the community with respect to physics plan and chart review.
3. To provide risk-based recommendations for the effective use of the following physics review: initial plan and chart check, weekly chart check, and end-of-treatment chart check.
4. To provide recommendations to software vendors for systems design and operations that best facilitate physics plan and chart review.

Committee Website | Directory: Committee | Membership

Email
You may email this group now using google or outlook.
- or -
You may save the address 2019.TG275@aapm.org
to your local address book. This alias updates hourly from the AAPM Directory.
QUALITY & SAFETY RESOURCES
Quality & Safety Resources: This site highlights quality and safety tools developed by AAPM committees for use by our members.

- PSYCHOLOGY OF HUMAN ERROR
- INCIDENT REPORTS AND DESCRIPTIONS
- GUIDELINES
- SAFETY CULTURE – GENERAL
- SAFETY CULTURE – CHECKLIST
- SAFETY CULTURE – TEAMWORK
- SAFETY CULTURE – PEER REVIEW
- SAFETY CULTURE – TRAINING
- SAFETY CULTURE – INCIDENT LEARNING
- RISK ASSESSMENT TOOLS – PROCESS MAPPING
- RISK ASSESSMENT TOOLS – FAILURE MODE AND EFFECTS ANALYSIS
- RISK ASSESSMENT TOOLS – FAULT TREE ANALYSIS
- RISK ASSESSMENT TOOLS – ROOT CAUSE ANALYSIS
- RELATED QUOTES
SUMMARY

• Proactive risk management is becoming an integral part of patient safety.

• RO-ILS continues to steadily grow and leveraging lessons learned from the program to ensure ongoing quality improvement and patient safety in radiation oncology.

• The AAPM has many initiatives to assist the members to improve the quality and safety in radiation oncology.