

# **RO-ILS: Radiation Oncology Incident Learning System™**

## **Congressional Briefing**

Thursday, June 19, 2014, 12:30 p.m. ET

Rayburn Building

Room B339

# **Colleen A.F. Lawton, MD, FASTRO**

**Chair, Board of Directors, American Society for  
Radiation Oncology (ASTRO)**

Vice-Chair, Department of Radiation Oncology,  
Clinical Director of Radiation Oncology,  
Director of the Radiation Oncology Residency Program,  
and Professor of Radiation Oncology

at the Froedtert & Medical College Clinical Cancer  
Center at the Medical College of Wisconsin, Milwaukee

# Housekeeping Notes

- Video and audio of today's Hill Briefing are live, online at: [www.astro.org/RO-ILSwebcast](http://www.astro.org/RO-ILSwebcast) and are being recorded for future access, so everything is on-the-record.
- Q&A is at the conclusion of all presentations, so please hold questions until the end.
- For RO-ILS press inquiries, please contact Michelle Kirkwood at ASTRO, 703-286-1600, or [michellek@astro.org](mailto:michellek@astro.org).

# What is Radiation Oncology?

- Radiation oncologists use radiation to cure cancer, to control tumor growth or to relieve pain.
- Radiation therapy works by damaging the DNA in cancer cells so that they cannot reproduce.
- New technology and improved techniques allow radiation oncologists to better target radiation to eliminate cancer cells while avoiding healthy cells.
- Radiation therapy is less invasive than many other cancer treatments.

# About ASTRO

- Nation's leading radiation oncology organization.
- Nearly 2/3 of all cancer patients receive radiation as a part of their cancer treatment plan, and we treat more than one million patients each year.
- We provide radiation oncology professionals with continuing medical education, health policy analysis, patient information resources and advocacy support to succeed in today's dynamic healthcare delivery system.

# About ASTRO

- Our mission is to advance the practice of radiation oncology by promoting excellence in patient care, providing opportunities for educational and professional development, promoting research, disseminating research results and representing radiation oncology in a rapidly evolving healthcare environment.

# *Target Safely* Patient Protection Plan

- ASTRO has developed a series of questions for patients to ask their doctors that cover all aspects of their treatment, including safety.
- ASTRO has developed a series of five quality assurance and safety white papers.
- ASTRO has developed an accreditation program to recognize high-quality radiation oncology centers by objectively evaluating a practice's performance.

# RO-ILS™

- Centerpiece of *Target Safely* plan.
- Only medical specialty society-sponsored incident learning system for radiation oncology.
- Mission 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™

- Patient Safety and Quality Improvement Act of 2005 (PSQIA):
  - Provides privilege and confidentiality protections for data submitted to a PSO.
  - PSOs create a secure, non-punitive environment where healthcare providers can collect, aggregate and analyze data in order to identify and reduce risks and hazards associated with patient care.

# RO-ILS™ Participation

- Download informational material from ASTRO's website: [www.astro.org/ROILS](http://www.astro.org/ROILS).
- Contract with Clarity PSO.
- Enter data into secure RO-ILS system.
- Data reviewed by radiation oncology experts.
- Aggregate reports are produced and shared with participants.
- Other publications will be produced to educate the broader radiation oncology and health care community.



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Advancing the Science, Education and Professional Practice of Medical Physics

# Why AAPM Supports the Radiation Oncology Incident Learning System “RO-ILS”

John Bayouth, Ph.D.

President, AAPM

Professor and Chief of Physics  
Department of Human Oncology  
University of Wisconsin

**RO•ILS**

RADIATION ONCOLOGY™  
INCIDENT LEARNING SYSTEM

*Sponsored by ASTRO and AAPM*



## AAPM - Medical Physicists

- AAPM is a scientific and professional organization of over 8,000 physicists working in medicine.
- Most AAPM members work in clinical practice in radiation therapy.
- Our **primary function is to ensure patient safety** by assuring that the equipment performs as expected and that the treatment plans developed kill the cancer while sparing as much normal tissue as possible.



# THE AMERICAN ASSOCIATION OF PHYSICISTS IN MEDICINE

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# Does AAPM Address Quality?

## Quality Assurance and Outcome Improvement Subcommittee

### Review and Extension of beam quality conversion factors for TG-51 Protocol

Task Group No. 117

Total Members: 8352

Task Group No. 118

Total Full Members: 5798

Task Group No. 126

Volunteers and staff serving on committees: 1261

Task Group No. 150

Percent of eligible Members who serve on committees: 21.75%

Task Group No. 151

Number of active committees:  
(that have at least one member) 260

Task Group No. 162

Research Software for 2D Image Quality Metrology

Task Group No. 178

Gamma Stereotactic Radiosurgery Dosimetry and Quality Assurance

Task Group No. 181

Calibration, Quality Control and Use of Radionuclide Calibrators in Medical Practice

Task Group No. 182

AAPM Recommendations on Electronic Brachytherapy Quality Management

### Task Group No. 201 - Quality Assurance of External Beam Treatment Data Transfer

### Task Group No. 219 - Independent Dose and MU Verification for IMRT Patient Specific Quality Assurance

Task Group No. 236

AAPM Recommendations on 3D Image-based Treatment Planning, Dosimetry and Quality Management for Intracavitary Brachytherapy

Task Group No. 245

Tomosynthesis Quality Control

### Working Group on Magnetic Resonance Testing and Quality Assurance

### Working Group on Model Quality Assurance Programs in Radiation Oncology and Radiology

### Working Group on Recommendations for Radiotherapy External Beam Quality Assurance



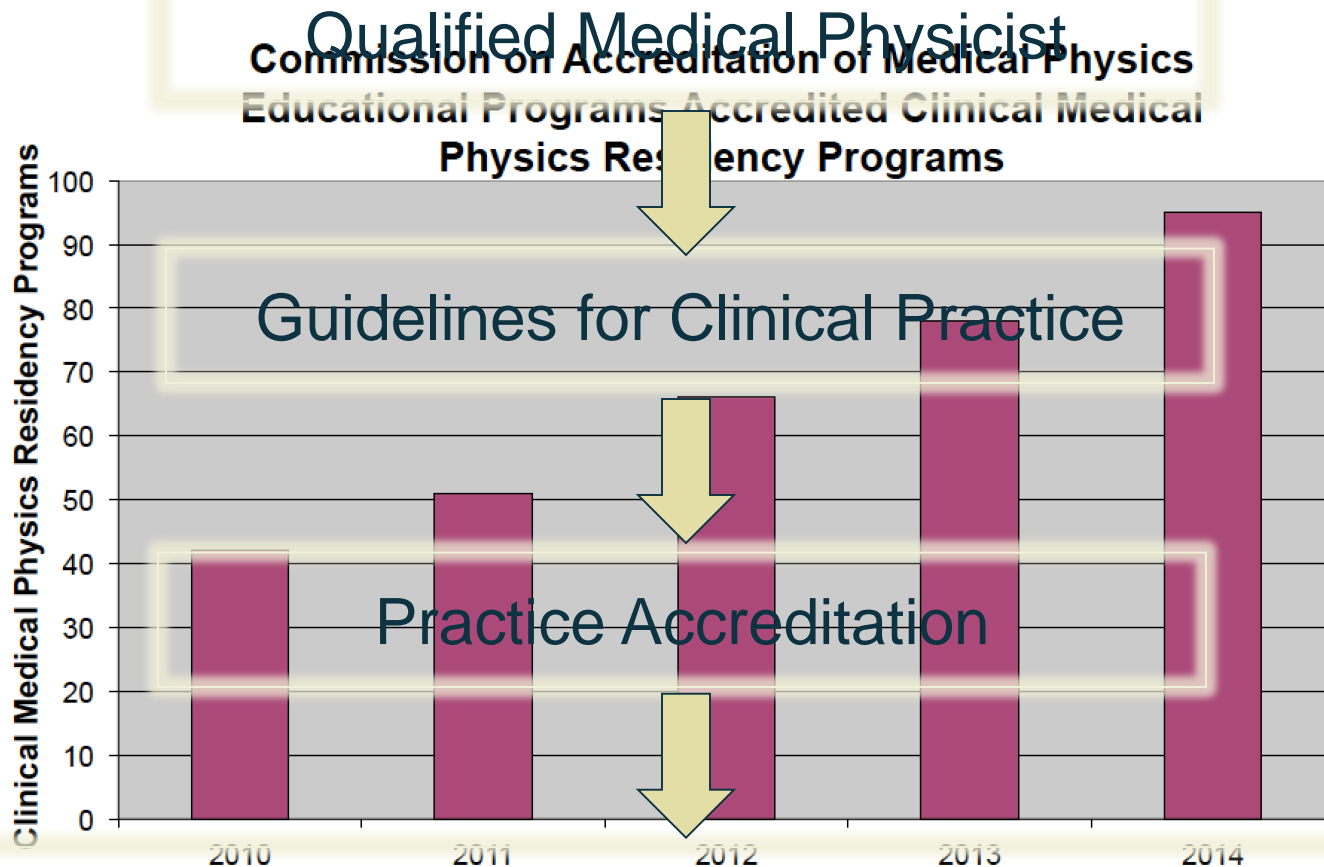
Feb 26, 2010

<http://www.aapm.org/publicgeneral/StatementBeforeCongress.asp>

1. Provide robust, consistent, and financially-stable education, training and clinical experience for the Qualified Medical Physicist in clinical practice.
2. Strive for nationally consistent recognition of the Qualified Medical Physicist and equivalent competency for all medical radiation team members.
3. Provide national practice guidance in radiation oncology and medical imaging based on consensus and consistent minimum quality standards.
4. Establish a rigorous minimum standard for accrediting clinical practices that specifically includes the oversight of dose and quality assurance for medical imaging and radiation therapy technology.
5. Link Centers for Medicare & Medicaid (CMS) reimbursement to rigorous practice accreditation for all medical imaging and radiation therapy practices to insure steps one through four above are followed.
6. Create a national data collection system to learn from actual and potential adverse events in the medical use of radiation.
7. Improve the effectiveness of product clinical quality, application and integration review in the regulatory equipment clearance process by partnering with the U.S. Food and Drug Administration (FDA), the International Electrotechnical Commission, (IEC) and manufacturers.



## Pathway for Patient Safety and Quality of Care



Centers for Medicare & Medicaid reimbursement





THE AMERICAN ASSOCIATION OF PHYSICISTS IN MEDICINE

Advancing the Science, Education and Professional Practice of Medical Physics

# **Competency for all medical radiation team members**

Consistency, Accuracy, Responsibility, and  
Excellence in Medical Imaging and Radiation  
Therapy Act of 2013

H.R. 1146





## Improve Patient Safety in the Medical Use of Radiation – Item # 6

- Create a national data collection system to learn from actual and potential adverse events in the medical use of radiation.



## Why AAPM supports RO-ILS: Radiation Oncology Incident Learning System

- Modern radiation therapy is complex and rapidly evolving.
- Patient safety and quality care are inseparable.
- Modern radiation therapy requires individuals with expert training to assure the equipment operates correctly.
- A M.S. or PhD and board certification are required to be a Qualified Medical Physicist.
- Capabilities to provide this level of service are available at academic and community based facilities, both in hospitals and private practices.



# Example of Complexity of Radiation Therapy

The screenshot displays a radiation therapy control console interface. On the left, a sagittal CT scan of a patient's chest shows a target area outlined in blue and a red spot. The top left panel, 'Treatment Controls', includes buttons for 'Pause' and 'End Treatment Early'. The top right panel, 'Treatment Status', features a 'SLAM HOLD' indicator, a 'Target Out of Bounds' warning, and a circular diagram of the treatment field. Below this, the 'Beams' section shows three beam configurations with their respective angles and segments. The 'Treatment Time' section displays a progress bar and a table of beam parameters. The bottom section, 'Plan and Machine', provides details on the treatment plan and machine settings.

Beam 1		Beam 2		Beam 3	
Angle	Segment	Angle	Segment	Angle	Segment
180.0	1 of 1	180.0	1 of 1	180.0	1 of 1

Plan Type	Set		Hazard		Actual		Target	
	Value	Unit	Value	Unit	Value	Unit	Value	Unit
Fraction Number	18				18.0		18.0	
Inclination Primary Coll	100				100	cm	100	cm
Patient Orientation					180	cm	180	cm



# Why AAPM supports RO-ILS: Radiation Oncology Incident Learning System

- It is important to understand:
  - safety, quality, and their relationship.
  - how quality and safety work within a system and a culture.
  - how actions fail and how and why incidents and events happen.
  - how to use risk-assessment to identify potentially hazardous parts of procedures, and how to reduce the likelihood of incidents and mistakes.



# Why AAPM supports RO-ILS: Radiation Oncology Incident Learning System

- It is important to:
  - Understand the principles of quality assurance, quality control and quality management, and how to develop an effective program for an individual facility.
  - Learn how to establish an incident reporting system for a facility, and how national reporting databases help prevent future events.
  - Understand how to perform root cause analysis.
  - Learn the tools for addressing safety and quality problems.

**RO-ILS**

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# RO-ILS: Radiation Oncology Incident Learning System Benefits Patients

- Capture information regarding near-misses.
- Identify early potential gaps in patient safety.
- Identify limitation of equipment.
- Identify the need of more robust safety barriers for new complex treatments.
- Establish mechanisms for sharing information through AAPM reports.
- Reduce patient risk to radiation utilization errors.





## Conclusions

- The Radiation Oncology Incident Learning Systems (RO-ILS) is a powerful tool that can identify potential incidents by analyzing near misses.
- RO-ILS can be used to share information with the public, the radiation therapy community, Congressional members, regulators, and equipment manufacturers.
- RO-ILS can be used to identify and prevent incidents that can harm the patient.



# RO-ILS: Radiation Oncology Incident Learning System Benefits Patients

This is a team effort, and we are glad for Congressional support in improving patient safety!

AAPM is proud to be a sponsor of RO-ILS: Radiation Oncology Incident Learning System!



# **Jeff Brady, MD, MPH**

Captain, United States Public Health Service

Director, Center for Quality Improvement

and Patient Safety,

Agency for Healthcare Research and Quality (AHRQ)

Thank you joining us today and supporting RO-ILS.

We are excited to launch this important RO-ILS, an important patient safety initiative for radiation oncology.

For questions about RO-ILS: [ROILS@astro.org](mailto:ROILS@astro.org)

For media/press inquiries: [michellek@astro.org](mailto:michellek@astro.org)