University of Michigan Medical School

Initiative for Medical Physics Practice Guidelines

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"Every patient with cancer deserves to receive the best possible management to achieve cure, long-term tumor control or palliation."

- Requires a commitment to quality throughout the entire treatment process.
- Requires organizational structure, defined responsibilities, procedures, processes and resources for assuring the quality of patient management.

"Radiation oncology in integrated cancer management," Report of the Inter-Society Council for Radiation Oncology (1986).
B. Thomadsen, Int. J. Radiation Oncology Biol. Phys., 71 (1), S166–S169 (2008).
AAPM TG-40

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Establishing Quality Standards

- Need to set quality standards – accepted criteria against which quality can be assessed
- Typically, these quality standards are established from:
  1. Consensus recommendations
  2. Learning from past errors

D.I. Thwaites, B.J. Mijnheer, and J.A. Mills, Radiation Oncology Physics: A handbook for teachers and students, chapter 12, IAEA (2007).

Challenges

- Numerous guidance documents
  - >100 AAPM TG reports and numerous NCRP, ICRP, and IAEA publications
  - Some very LENGTHY documents
  - Provides a thorough list of recommendations, but overwhelming and can be prohibitively time consuming.

J. Palta, Chihray, L., and J. Li, Int. J. Radiation Oncology Biol. Phys., 71 (1), S13–S17 (2008).
B. Thomadsen, Int. J. Radiation Oncology Biol. Phys., 71 (1), S166–S169 (2008).

Challenges

- Complexity of treatments
- Variation in clinical practice
- Level of automation
  - Technology has increased our capabilities, but has also created new kinds of failure modes.
- Clinical pressures – staffing, resources, and time to allot to develop in-house QA programs

J. Palta, Chihray, L., and J. Li, Int. J. Radiation Oncology Biol. Phys., 71 (1), S13–S17 (2008).
A. Gawande, The Checklist Manifesto – How to get things right, Metropolitan Books (2009).

Challenges

- Need timely guidance reports
- Guidelines are living documents
  - Must be regularly reviewed and updated

WHAT CAN WE DO?

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MPPG Initiative

- Medical Physics Practice Guidelines (MPPG)
  - Intended to provide the medical community with a clear description of the minimum level of medical physics support that the AAPM would consider to be prudent in all clinical practice settings.
    - Staffing, equipment, machine access, and training.
  - Not designed to replace extensive Task Group reports or review articles, but rather to describe the recommended *minimum level* of medical physics support for specific clinical services.

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Why consider MPPGs?

- There is a trend toward developing minimum practice standards
- Trend is accelerating – the time is now
- AAPM needs to own the medical physics related practice guidelines, and have the other entities reference our recommendations

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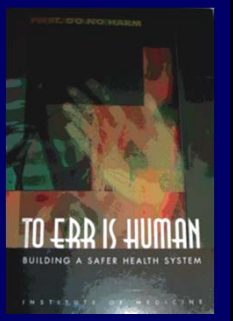
The Institute of Medicine

- In 2000, the Institute of Medicine published its first book in a series on healthcare quality, titled "To err is human".



The Institute of Medicine

- Concluded that ≈98,000 patients die each year as a result of medical errors.
- Two key recommendations:
  1. Standardize procedures
  2. Regularly validate professional competence.

Increased media focus


The New York Times

Health

WORLD | U.S. | N.Y. / REGION | BUSINESS | TECHNOLOGY | SCIENCE | HEALTH | SPORTS | OPINION

THE RADIATION BOOM

Radiation Offers New Cures, and Ways to Do Harm

By WALT BOGDANICH
Published: January 23, 2010

As Scott Jerome-Parks lay dying, he clung to this wish: that his fatal radiation overdose — which left him deaf, struggling to see, unable to swallow, burned, with his teeth falling out, with ulcers in his mouth and throat, nauseated, in severe pain and finally unable to breathe — be studied and talked about publicly so that others might not have to live his nightmare.

Sensing death was near, Mr. Jerome-Parks summoned his family for a final

SIGN IN TO RECOMMEND
TWITTER
SIGN IN TO E-MAIL
PRINT
SINGLE PAGE
REPRINTS
SHARE

Federal legislation

- CARE bill: Current House and Senate versions are identical – progress being made toward passage in this session.
- Charges the Secretary of the U.S. Dept of Health and Human Services (HHS) to implement regulations to enforce a minimum standard for clinical professionals in imaging and radiotherapy
- The draft regulations follow the AAPM definition of QMP

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CARE bill

111TH CONGRESS
2D SESSION

S. 3737

To amend the Public Health Service Act and title XVIII of the Social Security Act to make the provision of technical services for medical imaging examinations and radiation therapy treatments safer, more accurate, and less costly.

111TH CONGRESS
1ST SESSION

H. R. 3652

To amend the Public Health Service Act and title XVIII of the Social Security Act to make the provision of technical services for medical imaging examinations and radiation therapy treatments safer, more accurate, and less costly.

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CARE bill

"SEC. 355. QUALITY OF MEDICAL IMAGING AND RADIATION THERAPY.

"(a) ESTABLISHMENT OF STANDARDS.—

"(1) IN GENERAL.—The Secretary, in consultation with recognized experts in the technical provision of medical imaging and radiation therapy services, shall establish standards to ensure the safety and accuracy of medical imaging studies and radiation therapy treatments. Such standards shall pertain to the personnel who perform, plan, evaluate, or verify patient dose for medical imaging studies and radiation therapy procedures and not to the equipment used.

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CARE bill

"(3) REGULATIONS FOR DELIVERY OF OR PAYMENT FOR SERVICES.—Not later than 36 months after the date of enactment of this section, the Secretary shall promulgate the regulations described in subsection (h). The Secretary may withhold the provision of Federal assistance as provided for in subsection (h) beginning on the date that is 48 months after the date of enactment of this section.

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The CARE bill will:

- Recognize state licensure standards that meet or exceed the federal standard.
- Require HHS to examine each state's existing program to ensure it meets the federal standard.
- Direct HHS to ensure that no later than 3 years after the date of enactment of the legislation, all programs under HHS jurisdiction adhere to the standards including payment for medical imaging or radiation therapy procedures.

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MIPPA

- Medicare Improvements for Patients and Providers Act of 2008:
  - Signed into law in July 2008
  - Requires practice accreditation for the "advanced imaging" modalities which includes CT, MR, and Nuclear Medicine
  - Does not include x-ray, fluoroscopy, sonography, or anything in radiation oncology
  - Does not apply to hospitals

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Accrediting bodies under MIPPA:

- American College of Radiology
- Intersocietal Accreditation Commission
- The Joint Commission
- *The Problem/Concern*
  - All have different requirements for personnel - AAPM is on record indicating concern with not requiring board certification for medical physicists

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Possible national solution:

- US Congress follows MIPPA's lead and requires accreditation for all imaging and radiation therapy services in order to receive federal dollars (MediCare).
- ASTRO, ACR and AAPM have committed to strengthening accreditation programs

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Practical Radiation Oncology (2011) 1, 16–21

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www.practicalradonc.org

ASTRO-AAPM: Patient safety

Special Article

Improving patient safety in radiation oncology

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Received 5 November 2010; accepted 12 November 2010

Abstract Beginning in the 1990s, and emphasized in 2000 with the release of an Institute of Medicine report, health care providers and institutions have dedicated time and resources to reducing errors that impact the safety and well-being of patients. However, in January 2010, the first of a series of articles appeared in *The New York Times* that described errors in radiation oncology that grievously impacted patients. In response, the American Association of Physicists in Medicine and the American Society for Radiation Oncology sponsored a working meeting entitled "Safety in Radiation Therapy: A Call to Action." The meeting attracted 400 attendees, including medical physicists, radiation oncologists, medical dosimetrists, radiation therapists, hospital administrators, regulators, and representatives of equipment manufacturers. The meeting was co-hosted by 14 organizations in the United States and Canada. The meeting yielded 20 recommendations that provided a pathway to reducing errors and

- Staffing levels
- FMEA
- Error reporting
- Accreditation
- Standardizati
- Checklists

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Path forward?

- Minimum standards for practicing clinical medical physics will likely have the force of regulation in most states within a decade.
- Major components:
  - Minimum education & training requirements
  - Board certification
  - Peer review at regular intervals
  - Continuing professional development (MOC)
- Error prevention programs will gain more prominence.

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Medical Physics Practice ~~Standards~~

Need: Consistent Practice Standards

- Medical Physics Practice Standards would ensure a consistent minimum standard across the US for quality assurance and patient safety – these could be mandated.
- Such standards should be concise and should specify the minimum level of QA for specific technologies and clinical applications.
- The development of these standards should be led by the AAPM in collaboration with other professional societies.

FDA-AAPM 6/10/2010
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Medical Physics Practice Guidelines

AMERICAN ASSOCIATION OF PHYSICISTS IN MEDICINE
PROFESSIONAL POLICY:
PROCESS FOR CREATION, APPROVAL, AND REVISION OF
MEDICAL PHYSICS PRACTICE GUIDELINES

INTRODUCTION

The American Association of Physicists in Medicine (AAPM) has long advocated a consistent level of medical physics practice, and has published many guidelines and position statements toward that goal, such as Science Council Task Group reports related to calibration and quality assurance, Education Council and Professional Council Task Group reports related to education, training, and peer review, and Board-approved Position Statements related to the scope of practice, physicist qualifications, and other aspects of medical physics practice. Despite these concerted and enduring efforts, the profession does not have a clear and concise statement of the acceptable practice guidelines for routine clinical medical physics. As accreditation of clinical practices becomes more common, Medical Physics Practice Guidelines (MPPGs) will be crucial to ensuring a consistent benchmark for accreditation programs.

The AAPM will lead the development of MPPGs in collaboration with other professional societies. The MPPGs will be freely available to the general public. Accrediting organizations, regulatory agencies and legislators will be encouraged to reference these

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How do we respond?

- If we (AAPM) do not define our profession, others will do it for us.
- Current efforts:
  - Licensure / registration with strong template
  - ASTRO/ACR/IAC/TJC – strong accreditation
  - Develop Medical Physics Practice Guidelines
  - Work with CRCPD (SSRs) & FDA (devices)
  - Congress:
    - CARE bill for Training & Education standards
    - Tie Medicare funding to accreditation

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Medical Physics Practice Guidelines: WHAT

- Define the minimum level of medical physics *support* for a given scope of clinical services
- *Support* includes staffing, equipment, time, authority, oversight /peer review, safety program, and minimum QC standards

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Medical Physics Practice Guidelines: What it is NOT

- A competing set of "Science Council TG reports"
- "Me too ACR Technical Standards"

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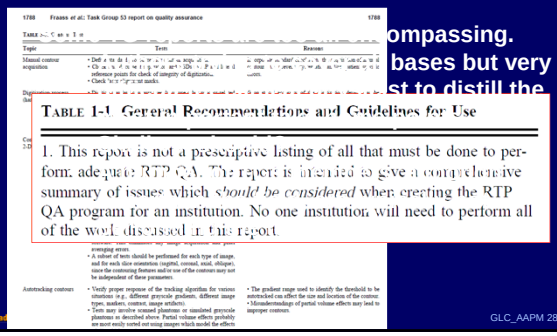
Medical Physics Practice Guidelines: What it is NOT



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bases but very
st to distill the

TABLE 1-1 General Recommendations and Guidelines for Use

1. This report is not a prescriptive listing of all that must be done to perform adequate RTP QA. The report is intended to give a comprehensive summary of issues which *should be considered* when creating the RTP QA program for an institution. No one institution will need to perform all of the work discussed in this report.

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How is this accomplished?

- The AAPM formally approved the Subcommittee on Practice Standards in November 2007
- Specific Charges (related to MPPGs):
  - Evaluate all draft TG reports to determine whether a Clinical Implementation Guide would be appropriate and of benefit to AAPM members.
  - For TG reports in need of a Clinical Implementation Guide, generate and publish the Guide through a collaborative effort with the originating TG.
- AAPM Board of Directors approved initiative to develop MPPGs during Vancouver AAPM meeting.

Radiation Oncology http://www.aapm.org/org/charges/spg.asp

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SPG Membership

- 18 members + 3 consultants
- Chair (Maria Chan), one vice chair of imaging guidelines (Jeff Shepard) and one vice chair of therapy guidelines (Joann Prisciandaro)
- Makeup of SPG:
  - Diagnostic, nuclear medicine, and therapy physicists
  - Representatives from Therapy Physics Committee (Art Olch), Imaging Physics Committee of Science Council (Jeff Shepard), and the Government and Regulatory Affairs Committee of Administrative Council (Jerry White).

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Goal

- Identify areas/topics in need of MPPGs
- Prioritize topics
- Form MPPG task groups
- Oversee timely development of MPPG TG report - goal is to develop draft within 6 months of forming TG and report within 12 months
- Set a 5 year sunset date for reports

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MPPG Topics

- Initial topics will be identified and prioritized by SPG, and will need approval by Clinical Practice Committee (CPC) and Professional Council (PC).
- In the future, nomination forms will be available to AAPM medical physics community at large.

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Current State

- SPG completed a 2 day workshop last weekend
  - Defined the framework for MPPGs
- Identified the inaugural topics
  - IMAGING: Scan protocol management and review for CT.
  - THERAPY: Linac-based imaging systems – guidance for implementation and clinical use of MV and kV based radiologic imaging systems.

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Future

- MPPG TG proposals have been sent to CPC and PC for approval.
- Once approved, announcement of MPPG TG topics and solicitation for TG members will be made through AAPM yellow book.
  - Goal:
    - Seek individuals with significant and current clinical experience for the topic.
    - Identify individuals that can commit to the aggressive timeline for development of the Guidelines.
    - Begin developing first set of MPPG TG reports.

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