MPPG 10: Scope of Practice for Clinical Medical Physics

Jessica Clements, MS, DABR, FAAPM
Chair, AAPM TG 287 / MPPG 10 and Clinical Practice Committee

Chief Physicist and Regional RSO
Southern California Permanente Medical Group

AAPM Annual Meeting | July 15, 2019

Objectives

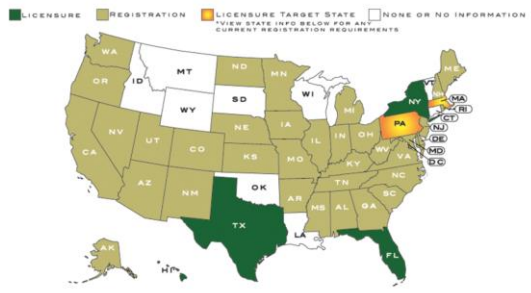
- Describe the goals and purpose of a SOP
- Review the AAPM structure, history of the SOP, and transition to a MPPG
- Review of supervision and delegation responsibilities
- Provide an overview of MPPG 10
- Share the next steps now that this project is complete

Scope of Practice

- Describes the procedures, actions and processes that a healthcare practitioner is permitted to perform. Competencies, ability and role.
- Usually under state law
- Defines a range of responsibility

GOVERNMENT AFFAIRS

State Regulations and Licensure



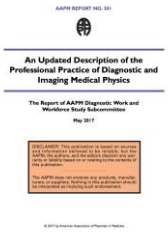
https://www.aapm.org/government_affairs/licensure/default.asp

Another issue: Our practice environments are different

- Ad Hoc Committee on Defining the Diagnostic QMP Practice Model
- MPPG 3: Levels of Supervision
- MPPG 7: Medical Physicist Assistants
- Diagnostic Workforce Subcommittee
- Issues:
  - Practice environments are different
  - Very difficult to list tasks that can be performed by individuals with specific training and credentials
  - State regulations
  - Accreditation program requirement

One approach to addressing different environments:

- AAPM Report 301 – An Updated Description of the Professional Practice of Diagnostic and Imaging Medical Physics creates a common language and perspective among DX and NM physicists by presenting a new taxonomy to describe their duties and services


AAPM REPORT NO. 301

An Updated Description of the Professional Practice of Diagnostic and Imaging Medical Physics

The Report of AAPM Diagnostic Work and Workforce Study Subcommittee

May 2017

History of the AAPM Scope of Practice

- Formerly a long, professional policy.
- https://www.aapm.org/org/policies/details.asp?type=PP&id=317
- Components:
  - Statement of basic responsibility
  - Definitions
  - Specifics of Practice (supervision, collaboration)
  - Tasks by subspecialty

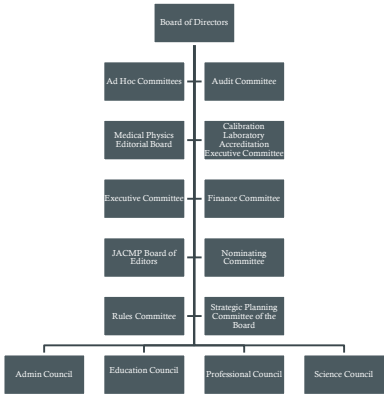
aapm.org/org/policies

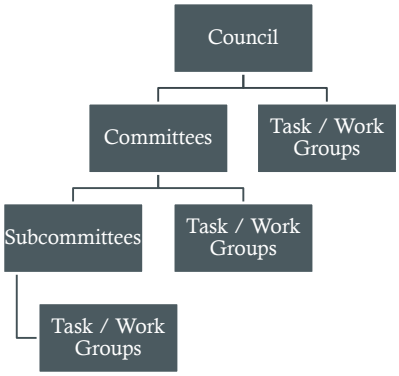
AAPM Policies

THE AAPM

Professional/Education/Science Policies

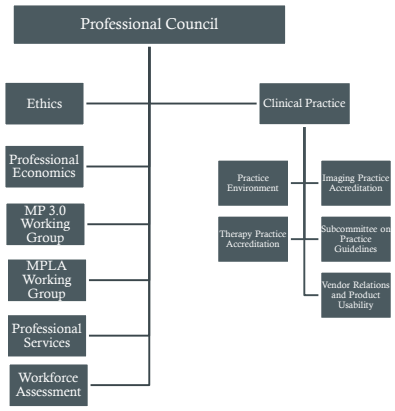
POLICY NUMBER	POLICY NAME	APPROVAL DATE	SUNSET DATE
PP 1-J	Definition of A Qualified Medical Physicist	8/2/2018	12/31/2023
PP 2-D	Licensure and The Medical Physicist's Role in the Practice of Medicine - A Guide for Administrators and Regulators	7/31/2008	12/31/2019
PP 3-D	Medical Physicist Expert Witness	7/14/2014	12/31/2019
PP 7-E	Process for Selection of AAPM Nominees for the ABR Physics Trustee	10/17/2016	12/31/2021
PP 11-C	Guidelines for Solicitation of Funds in the Name of the AAPM	11/29/2008	12/31/2019
PP 12-C	Policy on CT Whole Body Screening	12/3/2014	12/31/2019
PP 13-B	Dose Management in Diagnostic Radiology	11/29/2017	12/31/2022
PP 15-C	Conflict of Interest	12/2/2015	12/31/2020
PP 16-C	Medical Physics and JACMP Policies and Procedures for Reviewing and Adjudicating Individual Cases of Alleged Violations of Standards for Scientific Integrity and Conduct	11/25/2018	12/31/2023
PP 17-C	Scope of Practice for Clinical Medical Physics	8/2/2018	12/31/2023





Professional Council (PC)

- PC shall act as a clearinghouse for professional inquiries addressed to the Corporation by members or outside groups and shall route inquiries to the appropriate categorical Professional Committees. PC shall consider and make recommendations of professional policy to the Board. It shall formulate specific charges for the guidance and direction of the categorical committees.



CPC Charge

- Creating channels of communication with other organizations
- Proposing activities upgrading knowledge and skill
- Informing the public about the contribution to society of medical physicists

SOP Project Members – CPC with some additions

- Jessica Clements
- Christopher Baird
- Steven de Boer
- Lynne Fairobent
- Tyler Fisher
- James Goodwin
- Dustin Gress
- Jennifer Johnson
- Kathryn Kolsky
- Gig Mageras
- Rebecca Marsh
- Melissa Martin
- Brent Parker
- Dan Pavord
- Michael Schell
- Tony Seibert
- Donna Stevens
- Russ Tarver
- Christopher Waite-Jones
- Nicholai Wingreen (AAPM staff)

Revising AAPM's SOP

- Reviewed several SOPs
- Held a F2F meeting July 17-19, 2016 in Pasadena, CA
- Discussed formats and outline for the SOP and chose to transition into the MPPG format
  - SOP isn't exactly a policy statement
  - AAPM should be the authoritative body on the clinical scope of practice for medical physics
  - Revised every 5 years (or less), published in open source JACMP, easier to keep current and adopted (by reference) by various regulatory bodies and professional societies

SOP: Subspecialties

- Qualified Medical Physicists practice in the following subfield(s)
  - Therapeutic
  - Diagnostic
  - Nuclear Medical
  - Medical Health
  - Magnetic Resonance Imaging

AAPM QMP Definition

1. ***For the subfield of Therapeutic Medical Physics***, certification by:
   - The American Board of Radiology; or
   - The American Board of Medical Physics; or
   - The Canadian College of Physicists in Medicine.
2. ***For the subfield of Diagnostic Medical Physics***, certification by:
   - The American Board of Radiology; or
   - The American Board of Medical Physics; or
   - The Canadian College of Physicists in Medicine.
3. ***For the subfield of Nuclear Medical Physics***, certification by:
   - The American Board of Radiology; or
   - The American Board of Medical Physics; or
   - The Canadian College of Physicists in Medicine; or
   - The American Board of Science in Nuclear Medicine.
4. ***For the subfield of Medical Health Physics***, certification by:
   - The American Board of Radiology, any subfield of medical physics; or
   - The American Board of Science in Nuclear Medicine, Radiation Protection; or
   - The American Board of Medical Physics, Medical Health Physics; or
   - The American Board of Health Physics including a minimum of three years relevant experience in the subfield of medical health physics.
5. ***For the subfield of Magnetic Resonance Imaging Physics***, certification by:
   - The American Board of Radiology, Diagnostic Medical Physics; or
   - The American Board of Medical Physics, Magnetic Resonance Imaging Physics.
   - The Canadian College of Physicists in Medicine, Magnetic Resonance Imaging Physics.

MPPG 10 Approach

- Create a table of activities in category areas and define if the activity:
  - Must be performed by a QMP
  - Must be performed or supervised by a QMP
  - Should include a QMP
- Category areas:
  - Administrative, clinical, educational, informatics, equipment performance evaluations, quality and safety

If supervision is required,

- Follow AAPM Professional Policy 18-B, which references CMS definitions:
  - Personal – QMP must be in the room, watching
  - Direct – QMP must be in the facility and immediately available to furnish assistance and direction throughout the procedures. QMP does not have to be in the room.
  - General – Under the QMP's overall direction and control. QMP does not have to be in the building.

*ACR added clarifying language for direct supervision in their accreditation programs in July 2018: "... direct supervision, meaning physically present in the building or group of buildings in close proximity. This does not allow a satellite facility across town, video or teleconferencing."

Also in the table

- If there is an existing standard or guideline related to the task or activity, it is referenced.
- The position of the AAPM may be different than other organizations.
- QMP is responsible for following any local or state regulations or accreditation standards that may be different than MPPG 10.

Delegation / Supervision

- The QMP may delegate certain tasks to other non-QMP individuals.
- The QMP is:
  - responsible for ensuring that those individuals are adequately trained.
  - responsible for overseeing the delegated work performed by those individuals.
  - responsible for all work delegated and must review, approve and sign all delegated work

Administrative Tasks – May be applicable to all subspecialties

Description of Practice	Activity must be performed by a QMP	Activity must be performed or supervised by a QMP	Activity should include a QMP	Existing standards or guidelines related to the task. The position of the AAPM may be different than the referenced reports and standards.
Participates in operations management (e.g. establish client expectations, allocate personnel, ensure expectations are met)			x	1, 2
Participates in staffing and budget discussions and decisions that impact clinical medical physics services			x	1, 2
Participates in initial and ongoing facility planning (e.g. facility layout optimization, life cycle management of imaging equipment)			x	1, 2, 3
Consults on selection of new equipment prior to purchase, including review and comparison of equipment specifications and performance			x	3
Supervises medical physics staff, including physicists, medical physicist assistants, medical physics residents, and medical physics students in compliance with all relevant regulatory requirements and appropriate professional documents (e.g. AAPM reports)	x			1, 2, 4
Ensures that all local and national regulations and accreditation requirements as relating to medical physics are met and maintained	x			
Oversees quality assurance and quality control programs to meet local and national regulations, accreditation organization(s) standards, and national recommendations	x			10, 11, 12, 13, 14, 15, 16

Clinical Services Tasks – May be Applicable to all QMP subspecialties

Description of Practice	Activity must be performed by a QMP	Activity must be performed or supervised by a QMP	Activity should include a QMP	Existing standards or guidelines related to the task. The position of the AAPM may be different than the referenced reports and standards.
Develops procedures for initial acceptance testing and ongoing equipment testing (e.g. annual testing, post-service testing), including who performs the test, the frequency of testing, tolerance levels, and what to do if the test is out of tolerance	x			1, 2, 3
Ensures that measurement equipment is calibrated according to manufacturer recommendations and regulatory guidelines		x (general)		5, 6, 7, 8
Maintains appropriate documentation of all quality assurance and calibration results		x (general)		
Participates in research and development either individually or as part of a broader clinical team including support for clinical trials			x	3, 4
Participates in the development of products and procedures relevant to medical physics through collaboration with equipment manufacturers and Research and Development scientists			x	10
Participates in evaluation of emerging technologies and incorporating technology innovations into clinical practice	x			3

Clinical Services Tasks - Applicable to therapeutic medical physics QMP subspecialty

Approves radiation oncology technical procedures prior to clinical use	x			29, 30, 21
Works with the medical practitioner to develop the dosimetric component of treatment plans. Reviews radiation oncology dosimetry information noted in patient records.	x			31, 32, 33, 34, 35
Provides written reports as needed to assure accurate and appropriate choice of dose delivery for radiation therapy	x			
Is involved with the development and delivery of special radiotherapy procedures		x (direct)		

Education Tasks - May be applicable to all QMP subspecialties

Description of Practice	**Activity must be performed by a QMP**	**Activity must be performed or supervised by a QMP**	**Activity should include a QMP**	**Existing standards or guidelines related to the task. The position of the AAPM may be different than the referenced reports and standards.**
Participates in clinical education and training programs as needed to provide appropriate clinical training and supervision required for students.			x	1
Provides MRI safety training to health care team members and emergency responders			x	
Provides formal and informal radiation physics training for all members of the care team necessary for safe and effective care of patients and employee safety			x	2
Additional information may be found in the following resources.				
1. AAPM Report 249: Essentials and Guidelines for Clinical Medical Physics Residency Training Programs				
2. ACR Guide to Medical Physics Practice				

Informatics Tasks - May be applicable to all QMP subspecialties

Description of Practice	**Activity must be performed by a QMP**	**Activity must be performed or supervised by a QMP**	**Activity should include a QMP**	**Existing standards or guidelines related to the task. The position of the AAPM may be different than the referenced reports and standards.**
Participates in informatics technology resource management			x	1
Participates in developing policies and procedures for electronic medical information security and privacy			x	1, 2, 3, 4, 5
Develops and manages a quality assurance program for data transfer between clinical systems in radiation oncology	x			1, 6, 7
Additional information may be found in the following resources.				
1. AAPM Report 201: Information Technology Resource Management in Radiation Oncology				
2. AAPM Report 30: E-Mail and Academic Computer Networks				
3. AAPM Report OR01: Information Transfer from Beam Data Acquisition Systems				
4. CAMPEP Standards for Accreditation of Residency Educational Programs in Medical Physics				
5. ACR-AAPM-SIIM Practice Parameter for Electronic Medical Information Privacy and Security				
6. ASTRO Safety is No Accident				
7. ACR-ASTRO Practice Guideline for 3-D External Beam Radiation Planning and Conformal Therapy				

Equipment Performance Evaluation (EPE) Tasks - Applicable to diagnostic medical physics QMP subspecialty

Description of Practice	Activity must be performed by a QMP	Activity must be performed or supervised by a QMP	Activity should include a QMP	Existing standards or guidelines related to the task. The position of the AAPM may be different than the referenced reports and standards.
Performs EPE for primary interpretation displays and modality displays, excluding displays used in mammography				1, 2, 3, 4, 5, 6, 7
*acceptance, annual, post-repair, and continuous quality assurance**		x (general)		
Performs EPE for primary interpretation displays and modality displays used in mammography				1, 5, 6
acceptance, annual, post-repair	x			
*continuous quality assurance**		x (general)		
Performs EPE for dental x-ray systems (Excluding dental CT)				8, 9
acceptance	x			
annual, post-repair		x (general)		
*continuous quality assurance**		x (general)		

Equipment Performance Evaluation (EPE) Tasks - Applicable to nuclear medical physics QMP subspecialty

Performs EPE for gamma cameras and SPECT systems				1, 2, 3, 4, 30, 31
acceptance	x			
annual, post-repair		x (direct)		
*continuous quality assurance**		x (general)		
Performs EPE for PET systems				1, 2, 3, 4, 32, 33
acceptance	x			
annual, post-repair		x (direct)		
*continuous quality assurance**		x (general)		
Performs EPE for non-imaging nuclear medicine equipment (e.g., dose calibrators, uptake probes, well counters)				1, 2, 3, 4, 34
acceptance		x (general)		
annual, post-repair		x (general)		
*continuous quality assurance**		x (general)		

Equipment Performance Evaluation (EPE) Tasks - Applicable to therapy medical physics QMP subspecialty

Performs EPE for equipment used for external beam therapy, brachytherapy, simulation, image guidance, treatment planning, radiation measurement, including associated computer systems, algorithms, data and output.				35, 36, 37, 38, 39
acceptance	x			
annual, post-repair	x			
*continuous quality assurance**		x (general)		

Equipment Performance Evaluation (EPE) Tasks - Applicable to diagnostic and therapy medical physics QMP subspecialties

Performs EPE for CT systems used only for radiation therapy simulations or as part of an image-guided radiotherapy system, including CT-on-rails, fan-beam megavoltage CT, and kilovoltage CT				16
acceptance	x			
annual, post-repair		x (direct)		
*continuous quality assurance**		x (general)		

Equipment Performance Evaluation (EPE) Tasks - Applicable to diagnostic and nuclear medical physics QMP subspecialties

Performs EPE for diagnostic CT systems, including the CT portion of PET/CT scanners that are used to obtain a diagnostic CT scan				1, 2, 3, 4, 17, 18, 19
acceptance	x			
annual, post-repair		x (direct)		
*continuous quality assurance**		x (general)		

Quality Tasks - May be applicable to all QMP subspecialties

Description of Practice	Activity must be performed by a QMP	Activity must be performed or supervised by a QMP	Activity should include a QMP	Existing standards or guidelines related to the task. The position of the AAPM may be different than the referenced reports and standards.
Ensures all medical physics tasks and duties are in compliance with all applicable regulations related to the use of ionizing and non-ionizing radiation	x			
Is involved with the recommended action and patient health effects analysis from radiation medical events or near misses	x			1, 2
Participates in an ongoing peer-to-peer review program. This may be performed with another QMP within the practitioner's institution or an extramural QMP	x			3, 4, 5

Quality Tasks - Applicable to therapy medical physics QMP subspecialty

Develops and manages a comprehensive Quality Management Program that monitors, evaluates, and optimizes radiation oncology processes	x			1, 14, 15

Safety Tasks - May be applicable to all QMP subspecialties

Description of Practice	Activity must be performed by a QMP	Activity must be performed or supervised by a QMP	Activity should include a QMP	Existing standards or guidelines related to the task. The position of the AAPM may be different than the referenced reports and standards.
Plans and specifies thickness, material, and placement of shielding needed to protect patients, workers, the general public and the environment from radiation produced incident to diagnosis or treatment in consultation with the architect and facility representatives	x			1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11
Verifies and documents that the required shielding was properly installed and that the shielding design goals were met	x			1, 2
Participates in radiation disaster planning and recovery			x	
Performs safety assessments (Failure Mode Effects Analysis, etc.) for process improvement			x	

Timeline

July, 2016 Kick-off → August, 2016 MPPG 10 formed → July, 2017 Report approved by SPG, CPC and PC → August, 2017 Report approved by BOD → October, 2017 Submitted to JACMP → November, 2017 JACMP comments received → Spring, 2018 Comments addressed → August, 2018 Revisions approved by BOD → October, 2018 Published by JACMP

PP-17-C

AAPM

Professional/Education/Science Policies

THIS POLICY REPLACES PP-17-B - THIS IS THE LATEST VERSION OF THE POLICY			
POLICY NUMBER	**POLICY NAME**	**POLICY DATE**	**SUNSET DATE**
PP 17-C	Scope of Practice for Clinical Medical Physics	8/2/2018	12/31/2023

Policy source

Policy text

Professional Policy 17 was re-written in 2017 using the Medical Physics Practice Guideline (MPPG) process. It is listed with other published MPPGs on the AAPM MPPG webpage. It was published in JACMP November 2018.

Next Steps for SOP

- Joint project with HPS to define the scope for Medical Health Physics
  - Michael Sheetz
  - Dan Pavord
  - Marc Felice
  - Jessica Clements
  - Cari Borras
  - Steven King
  - Melissa Martin
  - Larry Dauer
  - Linda Kroger