AAPM Online Learning Services:

Educational resources and services provided to AAPM members

Mike Silosky, M.S. DABR
12/06/2018
Objectives

• To familiarize RMAAPM members with the resources and services provided by AAPM Online Learning Services

• To review the process by which quizzes used for Online Continuing Education are prepared and reviewed
Outline

• I. Introduction to Online Learning Services
  - Structure
  - Charge

• II. Services
  - Virtual Library
  - Online Continuing Education
  - SAMS

• III. Quiz writing and review
Online Learning Center

Board of Directors

- Education Council

- Continuing Professional Development Committee

- Online Learning Services Subcommittee

- Online Learning Center
OLSS or RDCE?

Online Learning Services

Remotely Directed Continuing Education
Online Learning Services Subcommittee Website

Online Learning Services Subcommittee Charge

The primary goal of the Online Learning Services Subcommittee will be to provide various Continuing Education (CE), Self Assessment Modules (SAM), and other online educational/learning opportunities to the AAPM membership and others as permitted by AAPM via the association website and/or digital products.

The Subcommittee shall be responsible for coordinating the efforts that pertain to such learning opportunities, which include activities such as:

- Oversight of the Online Continuing Education Program,
- Ensuring that credits earned on-line satisfy and are approved by ABR, CAMPEP, or other requirements, depending on the context,
- Recommending contracts with audio/visual contractors for video capture,
- Management the Virtual Library, other special learning events, and Webinars,
- Coordination of CE quizzes (journals, meetings, etc.)

The Subcommittee will work with organizers of AAPM (and AAPM-associated) ‘in person’ or face to face learning events to determine if content presented at such events should also be digitally available and if so, coordinate this effort.

The Subcommittee will also be responsible for the recommendation of participation fee schedules for online activities and pricing of related products

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Who cares?

• Are you ABR Certified?
  - 75 CE Credits
  - 25 must be SA-CME (SAMS, Enduring CAMPEP or AMA Category 1 CME, Self Directed Educational Projects)
  - All credits offered by OLS meet the SA-CME requirements

• Do you need modality or specialty specific CE credits?
  - 48 separate categories across Radiation Therapy, Diagnostic Imaging, Nuclear Medicine, General Medical Physics, and PACS
  - Ex: MQSA – 15 CE in 36 months
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Virtual Library – What is it?

• Repository for presentations given by AAPM members

• Video/Audio + Slides

• Free for members
AAPM VIRTUAL LIBRARY

Virtual Library

Unlimited access to the virtual library is included as a benefit of AAPM membership at no extra charge. Join the hundreds of other AAPM members who are using the AAPM Virtual Library for their continuing education, research, and information needs.

Presentations posted in the Virtual Library include:
- streaming video and/or audio of the speakers
- transcription of the audio for numerous presentations
- slides of the presentations

Medical Physics Continuing Education Credits (Members Only)

The AAPM Online Learning Services Subcommittee is actively posting continuing education question/answer sets for several of the Virtual Library presentations.

If you’re not familiar with the Online Learning Center program please review the information posted here.

Search the virtual library:

By Title: ________________

Submit Query

By Presenter: ________________

Submit Query

(includes institution information)

Browse the virtual library

- by CAMPEP category
- in a comprehensive list of all videos
- by choosing a tab below

New Available Meetings CME Case of the Day Items of Interest Educators Day USB Drives Physicians of Note

Virtual Library Presentations
- 50th AAPM Annual Meeting - Nashville, TN - 2018
- AAPM Summer School - Nashville, TN - 2018
- AAPM Workshop on Improving the Teaching and Mentoring of Medical Physics - Nashville, TN - 2018 (available to Members March 2018)
- AAPM Training at CRCPD - Shielding Up Close and Personal
  Presented at the CRCPD Annual Meeting - Charleston, SC - 2018
- AAPM Spring Clinical Meeting - Las Vegas, NV - 2018
- 59th AAPM Annual Meeting - Denver, CO - 2017
- AAPM Summer School - Portland, OR - 2017
- AAPM Training at CRCPD - Digital Radiography & Cone Beam CT
  Presented at the CRCPD Annual Meeting - Scottsdale, AZ - 2017
- Quality, Safety and TG100 - New Orleans, LA - 2017
- AAPM Spring Clinical Meeting - New Orleans, LA - 2017
- 58th AAPM Annual Meeting - Washington, DC - 2016
- AAPM Summer School - Chantilly, VA - 2016
- AAPM Training at CRCPD - CT: A Refresher
  Presented at the CRCPD Annual Meeting - Lexington, KY - 2016
- AAPM Spring Clinical Meeting - Salt Lake City, UT - 2016
- SRT/SBRT Meeting - Detroit, MI - 2015
- 57th AAPM Annual Meeting - Anaheim, CA - 2015
- AAPM Summer School - Colorado Springs, CO - 2015
- AAPM Training at CRCPD - The Changing Face of Radiation Protection in Medical Use of Radioactive Materials and Machines that Produce Radiation
  Presented at the CRCPD Annual Meeting - St. Louis, MO - 2015
- AAPM Spring Clinical Meeting - St. Louis, MO - 2015
- Incident Learning Workshop - San Diego, CA - 2015
- 56th AAPM Annual Meeting - Austin, TX - 2014
- AAPM Summer School - Burlington, VT - 2014
- AAPM Spring Clinical Meeting - Denver, CO - 2014
- Radiation Oncology Program Accreditation Meeting - Denver, CO - 2014
- AAPM Training at CRCPD - Real Time Imaging in a Real Time World Fluoroscopy
  Presented at the CRCPD Annual Meeting - Atlanta, GA 2014
- 55th Annual Meeting - Indianapolis, IN - 2013
- AAPM Spring Clinical - Phoenix, AZ - 2013
- AAPM Summer School - Colorado College, Colorado, CO - 2013
- Quality and Safety in Radiotherapy: Learning the New Approaches in TG100 and Beyond
- AAPM 3rd CT Dose Summit: Strategies for Scan Parameter Optimization - Phoenix, AZ - 2013
- AAPM Training at CRCPD - Radiation Therapy Inspector Training/Safety Culture in the Clinical Environment
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Virtual Library Presentations
<table>
<thead>
<tr>
<th>AAPM Training Program/CRCPD Annual Meeting:</th>
</tr>
</thead>
<tbody>
<tr>
<td>- AAPM Training at CRCPD - Shielding-Up Close and Personal</td>
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<tr>
<td>Presented at the CRCPD Annual Meeting - Charleston, SC - 2018</td>
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<td>Presented at the CRCPD Annual Meeting - Portland, OR 2013</td>
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<tr>
<td>- AAPM Training at CRCPD - Radiation Therapy Inspector Training/Update on New Technology</td>
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<tr>
<td>Presented at the CRCPD Annual Meeting - Orlando, FL 2012</td>
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<tr>
<td>- AAPM Training at CRCPD - Brachytherapy</td>
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<tr>
<td>Presented at the CRCPD Annual Meeting - Newport, RI 2010</td>
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<tr>
<td>- AAPM Training QA/QC for CR/DR Systems for Medical Imaging and Overview of Proton Therapy: Technical and Clinical Perspective</td>
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<tr>
<td>Presented at the CRCPD Annual Meeting - Columbus, OH 2009</td>
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<tr>
<td>- Radiation Dose and Quality Control for SPECT/CT and PET/CT Clinical Studies</td>
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<tr>
<td>Presented at the CRCPD Annual Meeting - Greensboro, NC 2008</td>
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<tr>
<td>- Dose Management in CR, DR and other imaging modalities: Adult and Pediatric Considerations and Topical Training Session</td>
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<tr>
<td>Presented at the CRCPD Annual Meeting - Spokane, WA - 2007</td>
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<tr>
<td>- Model Quality Assurances (QA)/Quality Controls (QC) for Medical Modalities</td>
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<tr>
<td>Presented at the 2006 CRCPD Annual Meeting - Detroit, MI</td>
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<tr>
<td>- Current Topics in Clinical Radiation Protection</td>
</tr>
<tr>
<td>Presented at the 2005 CRCPD Annual Meeting - Kansas City, MO</td>
</tr>
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</table>
What Else?

• Case of the day

• Educators Day presentations

• USB Drives (Non-virtual library?)

• Physicist of Note
Future of Virtual Library Content

- Virtual Library content is growing rapidly
- Some materials are outdated
- Some presentations (like this one) simply aren’t very good
Online Continuing Education

• ~ 500 educational activities available for CE credit (CAMPEP)

• 1.0 CE credits released for each activity
  - View presentation or read reference
  - Complete Quiz with 80% or greater

• Over 50% of the AAPM membership are signed up for OCE

• $75 annual sign up fee ($10 Junior members, residents, students)
<table>
<thead>
<tr>
<th>QUIZ CATEGORIES</th>
<th>NUMBER OF QUIZZES</th>
<th>QUIZZES COMPLETED</th>
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<th>QUIZZES COMPLETED</th>
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<td>Radiation Therapy: None</td>
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<td>Radiation Therapy: Imaging</td>
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<td>Radiation Therapy: Nuclear Medicine</td>
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<td>Diagnostic Radiology: Patient Safety</td>
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<td>Radiation Therapy: Cardiovascular</td>
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<td>Diagnostic Radiology: Quality Management</td>
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<td>Nuclear Medicine: Radiation Protection</td>
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<td>Nuclear Medicine: Quality Management</td>
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<td>PACS: Imaging</td>
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<td>General Medical Physics: Education</td>
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<td>General Medical Physics: Regulatory/Accreditation</td>
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SAMS

• 25 Self Assessment Continuing Education Credits every 3 years (ABR)

• Meetings

• Virtual Library
How does it work?

1. Sign up for online CE ($75)

2. Access and view SAM presentations
   - Quiz won’t be available until all have been viewed

3. Take the associated quiz. (100% required for pass)
   - Results immediately available
   - 24 hours between repeat quizzes

4. View results through CME Gateway.
<table>
<thead>
<tr>
<th>Module ID</th>
<th>Title</th>
<th>Approved?</th>
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<tbody>
<tr>
<td>2641</td>
<td>Planning for Uncertainty: Disaster Recovery and Business Continuity Planning</td>
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<tr>
<td>2642</td>
<td>The Translation of Quantitative Imaging to Clinical Research and Precision Medicine: Goals and Challenges</td>
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<td>2643</td>
<td>Technical and Professional Preparations for Medical Physicists in the Upcoming MRgRT Era</td>
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<td>2644</td>
<td>Experimental and Computational Dosimetry for MRgRT</td>
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<tr>
<td>2645</td>
<td>Motion Management in SBRT: Principles, Advances and Clinical Implementations</td>
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<td>2646</td>
<td>Management of Irregular Respiration in 4DCT</td>
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<tr>
<td>2647</td>
<td>Errors and Data Mining in EMR</td>
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<td>2648</td>
<td>Beyond Conventional CT Simulation: PET-CT, PET-MR, MR-Only, and Multi-Energy CT</td>
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<td>2649</td>
<td>Physics Testing Gamma Cameras and PET Scanners: Reports from TG 117 and TG 126</td>
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<tr>
<td>2650</td>
<td>Deep Learning with Medical Images (Session 6 of the Certificate Series)</td>
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<td>Hands-On Solutions to Every Day Teaching Challenges in Medical Physics: Panel Discussion</td>
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<td>2652</td>
<td>An Interactive Session to Share Education Ideas: How Do You Teach Quality and Safety to Residents?</td>
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<td>2653</td>
<td>Point/Counterpoint Live Debate: Artificial Intelligence Will Soon Change the Landscape of Medical Physics Research and Practice</td>
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<tr>
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<td>Radiation Dose and Image Quality in Fluoroscopy: Part 2</td>
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<td>2655</td>
<td>High Dose, Small Field Radiation Therapy: Lessons from the HyTEC Project and the ICRU 91 Report</td>
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<td>Monte Carlo Dose Calculation and Review of TG127</td>
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<td>2657</td>
<td>Novel Molecular Imaging Techniques to Personalize Cancer Treatment</td>
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<tr>
<td>2658</td>
<td>3D Printing</td>
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<tr>
<td>2659</td>
<td>Radiation Dose and Image Quality in Fluoroscopy: Part 1</td>
<td>N</td>
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</table>
What’s the difference?

• Self Assessment Quizzes are based on the questions submitted by SAMs presenters

• SAMS – 100% needed for credit

• OLCE – 80% needed for credit

• Ideas for OLCE (presentations or manuscripts) may be submitted at any time
Outline

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OLC Quizzes – What’s the deal?

• What is the purpose?

• What is the process?

• How do you write a good question?
What is the purpose of these quizzes?

From CAMPEP Online Continuing Education Requirements:

“Requires that for each single educational activity a set of at least 10 questions unique to the subject and designed to test the participants understanding of the subject matter. Individuals taking the online test must answer at least 80% of the questions correctly in order to obtain the one credit for the presentation.”

We are not simply verifying that the user has read or viewed the material!

https://www.campep.org/OCEProgramReqs.asp
Who is involved in quiz writing?

• Writer
  - Expert who can write questions on the quiz resource
  - Invite authors or presenter of the resource first
  - ollc@aapm.org
• Reviewer
  - Expert who understand the quiz resource
  - Reviewer/writer pool separated into specialties
• Admin Reviewer - Online Learning Services Subcommittee (OLSS) member
• AAPM Staff
1. Invitation sent to potential writer by staff or OLSS. Reassign if declined

2. Invitation Accepted & Quiz Written

3. Assign a quiz reviewer by staff

4. Review completed

5. Staff review & correct errors & adds to admin review list

6. Admin reviewer assigns quiz to self from list

7. Publish the quiz

Invitation Not Accepted

Assign a new writer

Assign a new reviewer

Send auto reminder (2 times)

Correct minor errors

Send back to the writer with specific comments if necessary

Send back to the reviewer if errors are not easily fixable.

Correct minor errors

Send auto reminder (2 times)
What does the quiz writer need to submit?

• Two learning objectives specific to the source material

• 10 multiple choice questions with 3 to 5 answers

ABR Radiological Physics Question Writing Guide is the recommended resource

User feedback

• Quizzes may be updated based on comments by users

Ex:
1. Great overview on this clinically relevant topic

2. Question 9 does not have any correct answer options

3. My choice was B and I was told it is incorrect. Can you explain why I am wrong?
What is the definition of weekly workload (W) of a medical imaging x-ray tube?

A. Time integral of the tube current
B. Product of the time an x-ray beam is pointed at a barrier and the x-ray tube current
C. Average number of patients examined in a radiographic suite
D. Product of the average number of patients examined in a radiographic suite
Question-Writing Tips

1. Avoid True/False questions.

2. All questions should have 3-5 responses. (Most have 4)

3. There should be only one correct option shown. Avoid using “all of the above” or “Both A and D” as possible answers.

4. Ask a complete question.

5. The question stem should pass the “cover test.” (i.e., the person answering the question should have a good idea of what the answer is before even looking at the alternate responses).
6. Avoid using negatives in the question.

7. Separate quantitative responses by a reasonable amount.

8. All alternate responses should be plausible (i.e., don’t make up terms).

9. The alternate responses should be similar in style so there are no obvious “outliers.”

10. Questions should test understanding/serve the objectives.
The CTDI\textsubscript{vol} for an adult abdomen exam is estimated using a \textbf{___} cm phantom.

*can be rewritten as*

What is the size of the phantom used to estimate CTDI\textsubscript{vol} for an adult abdomen exam?
Ex: The Cover Test

How is image quality defined? *(i.e., if you “cover up” the alternate responses, you should still be able to answer the question.)*

A. Contrast
B. Spatial Resolution
C. Noise
D. Signal Intensity

What image quality metric describes the signal difference between two objects in an image?
Ex: Avoid using negatives in the stem

According to TG-18, which of the following is not considered to be a secondary display? 
A. Radiologist Review Workstation  
B. Acquisition Workstation  
C. Clinical Workstation  

According to TG-18, what type of workstation is considered to be a primary display?
What is the approximate dose to a fetus from a single-phase abdomen/pelvis CT exam of the mother?

A. 15 mGy  
B. 20 mGy  
C. 25 mGy  
D. 30 mGy

*can be rewritten as...*

A. 5 mGy  
B. 25 mGy  
C. 45 mGy  
D. 65 mGy
What type of artifact is shown in the following image?

A. Susceptibility
B. Wraparound
C. Larmorian
D. Radiofrequency

This isn’t a type of artifact and although the Larmor frequency is a fundamental MR concept, the term “Larmorian” is completely made up.
Objectives

• To familiarize RMAAPM members with the resources and services provided by AAPM Online Learning Services

• To review the process by which quizzes used for Online Continuing Education are prepared and reviewed
Who wants to join the OLSS/RDCE?!