



2010 AAPM Summer School

Teaching Medical Physics: Innovations in Learning

immediately following the AAPM Annual Meeting

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What I find Useful in Teaching and How my SDEP Has Been Helpful

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What do we (teachers) want to teach?

- Basic theory – principles
- Update on new technologies
- Learning through collaboration
- Problem Based Learning
- Information Technology tools
- Feedback from the student

Basic theory - principles

- Radiation – matter interaction,
- X-ray imaging, fluoroscopy, acquisition detectors,
- US principles,
- MR principles,
- DVH,
- IMRT, etc.

Update on new technologies

- Multidetector CT,
- Hybrid imaging,
- Flat panel detectors,
- Molecular imaging,
- IGRT, etc.

Learning through collaboration

- Interdisciplinary collaboration:
 - Win – win process
 - Teach physics
 - Learn aspects of radiology, etc.
 - Participate together in problem solving trying to use a common language

Problem Based Learning (PBL)

- Learn through solving problems
- Simulate interesting situations
- Provide the basic principles that solve the problem
- Help students develop flexible knowledge – critical thinking? (strange situations)

Information Technology (IT) tools

- PowerPoint
- Asynchronous eLearning Platforms (i.e. <http://eclass.upatras.gr>):
 - Web based educational modules (AAPM-RSNA)
 - Video streaming (CE courses)
 - Variety of educational information available on the net
 - e-handouts
- Synchronous eLearning Platforms

Feedback from the student

- Makes us (teachers) better
- Corrects errors
- Makes our presentations more comprehensive

What do students want to be taught?

- Depending on their background different things
- Material directly connected to board certification
- Are we going to comply with this?

Self Directed Educational Project (SDEP)

- 'Improve my knowledge in Molecular Imaging, conduct research in the area of tumor angiogenesis imaging (VX2 sarcoma) and teach post graduate students' Research / Education (AAPM SS 2008)

Molecular Imaging (MI)

- MI: “in vivo characterization and measurement of biologic processes at the cellular and molecular level”
- Growing research discipline
- Small animal imaging: intermediate step between bench and clinic

How my SDEP has been helpful

- Agents that concentrate on specific areas
- Tracers used in different imaging modalities
- Collaborated with a variety of clinicians
- Perform research in the field [1, 2]
- Submitted grant proposals
- Lecture on MI
- Supervise a PhD student

References

1. Kagadis GC et al. 'Application of Molecular Imaging in the Monitoring of Angiogenesis of a Hindlimb Ischemia Model' presented at AAPM 2010
2. Loudos G, Kagadis GC, Psimadas D. 'Current status and future perspectives of in vivo small animal imaging using radiolabeled nanoparticles' EJR 2010, in press

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Local Organizers:

Dr George C. Kagadis and Prof George Nikiforidis

