Hands-on Fluoroscopy Testing Workshop

2-day Workshop
September 14-15, 2019
in Wichita, KS

NEW LAB:
Train the Trainer:
How to teach Hands-on Fluoroscopy Safety Class to a Clinical Staff

~ AAPM endorses the educational component of this program. ~
It does not however, endorse any product used or referred to in the program.

MTMI
Medical Technology Management Institute
A Continuing Education Division of CHCP
# Workshop Schedule

## Day One

### 7:15 am
Registration and Coffee

### 8:00 am
**Review of Fluoroscopic Systems: Configuration/Performance Characteristics (SAM) ...**
- Thomas
  - Conventional
  - Vascular
  - Hybrid room/procedures
  - Mobile/OR
  - Digital flat panel units
  - Analog image intensifiers

### 9:30 am
Informal Discussion and Break

### 9:50 am
**Fluoroscopic Image Quality (SAM) ...**
- Pfeiffer
  - Performance criteria
  - Techniques for measuring fluoroscopic image quality
  - Variation by manufacturer
  - Expected Performance
  - Acceptance testing vs annual testing
  - Imaging protocols

### 10:50 am
**Fluoroscopy Image Post Processing**
- Advanced imaging techniques

### 11:50 am
Questions and Discussion

### 12:00 pm
Lunch (provided)

### 12:45 pm
**3D Rotational Angiography**
- Colby
  - 3D acquisition
  - Post processing
  - Workstation post processing
  - Configuration
  - Performance testing
  - Dose measurements

### 1:15 pm
**The Annual Physicist Fluoroscopy Unit Performance Evaluation (SAM) ...**
- Thomas
  - Exposure rate measurements
  - Measuring patient exposure
  - Validating dose indices / DAP, CAK
  - Image quality testing
  - Collimation/Alignment

### 2:15 pm
**Radiation Safety of Fluoroscopy Systems ...**
- Colby
  - Primary and scatter
  - Shielding of systems and personnel
  - Personnel monitoring

### 3:00 pm
Informal Discussion and Break

### 3:15 pm
**Managing Patient Dose (SAM) ...**
- Vanderhoek
  - Factors affecting patient dose
  - Dose rate limits
  - Optimization of input air kerma rate to image receptor
  - Monitoring and tracking patient doses
  - Trigger levels, sentinel events, QA-PA program

### 4:15 pm
**Biological Radiation Responses ...**
- Pfeiffer
  - CDC table of biological responses

### 4:45 pm
**Training Fluoroscopy Users ...**
- Vanderhoek
  - Training regulations and requirements
  - Suggested training program
  - Fluoroscopy safety class with real-time patient and staff dosimetry
  - Training resources

### 5:15 pm
**Introduction to Lab Sessions**

### 5:30 pm
Questions and Discussion

### 5:45 pm
Adjourn for the Day

## Day Two

### 7:00 am
Coffee

### 7:30 am
Lab Session One

### 8:40 am
Lab Session Two

### 9:50 am
Informal Discussion and Break

### 10:10 am
Lab Session Three

### 11:20 am
Lunch (provided)

### 12:00 pm
Lab Session Four

### 1:10 pm
Lab Session Five

### 2:20 pm
Informal Discussion and Break

### 2:40 pm
Lab Session Six

### 3:50 pm
Discussion and Wrap - Up

### 4:20 pm
Adjourn Workshop

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### Labs:

**Lab A:** Mini-C arm/C arm Fluoroscopy Units (GE/OEC and Hologic)

**Lab B:** 0-arm Fluoroscopy Unit (Medtronic)

**Lab C:** 3D Rotation Angiography Units (Philips and Siemens)

**Lab D:** Train the Trainer: How to teach Hands-on Fluoroscopy Safety Class to a Clinical Staff

**Lab E:** Overtable Unit (Siemens)

**Lab F:** Vascular Lab - Biplane (GE)

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~ schedule subject to change ~
About this Workshop

The performance of fluoroscopy systems has become more sophisticated as the technology continues to evolve. The radiation dose from these systems can be significant and requires continued management and control. The medical physicist plays a key role in assuring the fluoroscopy systems are performing well and radiation dose to the patient and personnel is managed. This workshop will provide an in-depth review of state-of-the-art fluoroscopic equipment technology and appropriate methods of assessing image quality and machine performance. Criteria for assessing patient exposure levels, potential biological responses and management of radiation safety will also be addressed. You will participate in hands-on demonstrations of testing and evaluation of a variety of fluoroscopy systems from several manufacturers conducted by a well-qualified and experienced medical physics faculty.

Who Should Attend

Medical physicists interested in an in-depth review of the physics of fluoroscopy systems will find this workshop very beneficial. The workshop will also be useful for physics assistants, medical physics residents and students, as well as vendor personnel working with these systems. Experienced QC technologists looking for more understanding of fluoroscopic QA testing may also find the workshop of value.

Workshop Format

The first half of the workshop is a comprehensive review of the physics of clinical fluoroscopy systems presented in didactic format with slides and a printed and electronic syllabus. The second half of the workshop will be hands-on laboratory sessions of testing procedures on a variety of fluoroscopic systems from various manufacturers including GE, Siemens, Philips, Medtronic and Hologic. Attendees will be divided into small groups and rotated through all six hands-on lab sessions.

Educational Objectives

Participation in this workshop will provide:

- A review of current fluoroscopy system technology.
- An understanding of techniques for assessing image quality.
- Insight into fluoroscopy image post processing and advanced imaging techniques.
- Procedures for conducting and evaluating the annual fluoroscopy unit inspection.
- Techniques for insuring adequate radiation safety for fluoroscopy systems.
- How to measure, monitor and track patient radiation doses.
- Hands-on demonstrations of testing a variety of fluoroscopy systems typically found in a hospital setting.
- Techniques on teaching a Hands-on Fluoroscopy class to clinical staff (Train-the-Trainer).
- A demonstration on fluoroscopy safety principles and students will have the opportunity to operate a fluoroscopy system, a patient dosimetry system and the instructor will provide methods/techniques to effectively teach fluoroscopy safety concepts and principles to clinical staff.
To register for this seminar:

- go to www.mtmi.net or
- complete the registration form attached and
  mail it with your tuition to MTMI, or
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- fax the form to (414) 238-2740 w/credit card info

- Refunds, minus a $50 processing fee, will be granted for cancellations received prior to 10 days before the program.
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MTMI reserves the right to cancel any scheduled program because of low advance registration or other reasons. MTMI's liability is limited to a refund of any tuition fee paid.

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Registration Form: Hands-on Fluoroscopy Testing Workshop

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