



# Multi-Slice CT Protocol Parameters and DOSE

Instructor:  
Dianna Cody, PhD

February 18, 2012 in Atlanta, GA

March 10, 2012 in Washington, DC

April 14, 2012 in Orlando, FL

June 2, 2012 in Philadelphia, PA

September 8, 2012 in New York, NY

October 13, 2012 in Denver, CO

November 3, 2012 in Boston, MA

# MTMI

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Medical Technology  
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## About the Seminar

The recent radiation over exposures to patients from CT imaging procedures at several medical facilities have increased awareness of the importance of CT scanning protocols and the control of radiation dose. As a result many imaging facilities are reviewing their CT scanning procedures to insure that the appropriate tradeoffs are being made between the image quality needed to diagnose the patient and the dose delivered. This seminar will review the considerations that should be used for selecting appropriate scanning parameters to achieve the best results with minimum risk to the patient. Improving your knowledge of the parameters and capabilities of multi-slice/multi-detector CT scanners will help you become a better CT technologist and provide better results for your patients.

### Who Should Attend

- CT technologists
- CT imaging specialists
- CT department managers/lead techs
- any technologist/manager interested in learning multi-slice/multi-detector CT protocol management and dose control

### Objectives

*At the completion of this seminar, participants will be able to:*

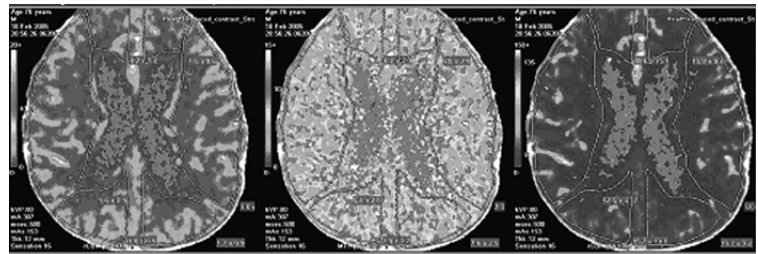
- Comprehend the various CT protocol parameter settings available on their CT scanners.
- Understand how adjusting those parameters affects both patient dose and image quality.
- Understand how automatic exposure control (AEC) works in CT.
- Understand under what conditions AEC works well and under what conditions it does not work well.
- Recognize situations when a tube voltage different from 120 might be optimal.
- Review CT perfusion protocols at their site for patient safety.
- Recognize standard practice protocol parameters for routine CT exams (brain, chest, abdomen, pelvis).

### About the Instructor



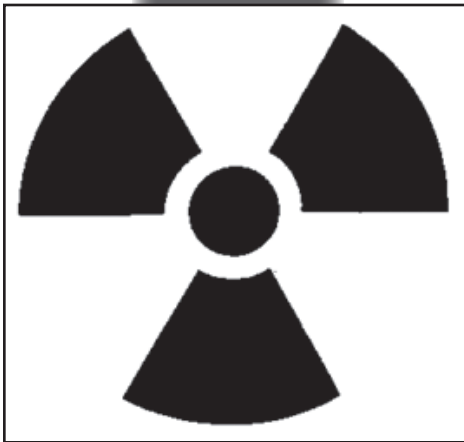
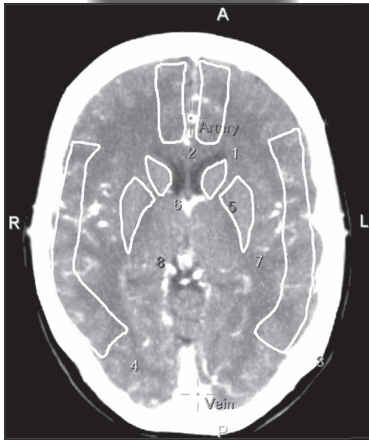
**Dianna Cody, Ph.D.,** is a Professor of Diagnostic Imaging Physics at The University of Texas M.D. Anderson Cancer Center.

She is board certified in Diagnostic Radiologic Physics and has a Ph.D. degree in bioengineering. Dianna has conducted CT research through grants from the NIH and industry, is active in consulting for the imaging community, and has written recent book chapters on multi-slice CT. Dianna has been an MTMI instructor of technologist programs for several years. She combines her experience as an educator with her experience in CT scanning to present an informative, practical and enjoyable seminar.



### Continuing Education Credit

This program provides **8 hours of Category A continuing education credit** recognized by the ARRT for radiologic technologists. A certificate of attendance will be provided for each individual upon completion of the seminar. All attendees must attend the entire seminar to receive full credit.



## Seminar Schedule

8:00 am

### **Registration and Coffee**

8:30 am

### **Helical and MSCT Basics**

- Review

- Axial platforms

- Basic image recon - no math

- CT number - definition, contrast scale, effects of kVp, mA, time

- Conventional Helical platforms

- Pitch - image width and beam width (married)

- MSCT

- Detectors

- Differences in image recon (interpolations overview - no math)

- Pitch - image width and beam width (divorced)

10:00 am

### **Informal Discussion and Break**

10:10 am

### **MSCT Terminology by Vendor**

- Thesaurus

- Parameters - what they are called & what does it mean?

### **Tube Current Modulation Approaches**

- Importance of patient centering

- GE: Noise Index (Interface, Scout impact)

- Siemens: Reference mAs

- Philips

- Toshiba

- What is it really good for? (head/neck, PET/CT, peds)

- What is it not so good for? (head, CT perfusion)

11:15 am

### **Lunch (on your own)**

12:00 pm

### **MSCT Dose**

- Headline news, what's the real story?

- Technical factors that affect MSCT dose

- New technology designed to reduce dose

- How "dose" is determined

- Concept of Effective Dose vs. background radiation

- "Dose" value displayed at operator's console

- Patient dose report

- NOT patient dose but dose to plastic phantom

- Manual technique -> small variability in reported 'dose'

- TCM technique -> large variability in reported 'dose'

- How does patient size affect absorbed dose?

2:00 pm

### **kVp Options**

- When is 120kV NOT the best option?

- Pediatric patients, smaller adults w/IV contrast (liver)

- When is 120kV the best option?

- Pre-contrast scans (liver)

- Is 140kV ever a good idea?

- X-ray tube limited situations - head?

### **CT Perfusion and Brain Exams**

- Brain Perfusion

- Protocol parameters (by vendor)

- What to watch out for (images)

- What can happen (patients)

- Brain Scans

- "Routine" standard practice protocol parameters

- Optional protocol parameters

3:00 pm

### **Informal Discussion and Break**

3:10 pm

### **Chest - Abd - Pelvis Exams**

- What is a "routine" exam?

- Target goal for each segment (motion, contrast)

- Standard practice protocol parameters






- Options to consider

4:30 pm

### **Adjourn**

## Registration

### To register for this seminar:

-  go to [www.mtmi.net](http://www.mtmi.net) or
-  complete the registration form below and
-  mail it with your tuition to **MTMI**, or
-  call **(800) 765-6864** using MasterCard or Visa, or
-  fax the form to **(262) 717-9171** w/credit card info

- Refunds, minus a \$30 processing fee, will be granted for cancellations received prior to the Tuesday before the seminar.
- Cancellations received after the Tuesday preceding the seminar will receive a credit toward a future **MTMI** seminar, minus the \$30 processing fee. No refunds will be made after the seminar.

### Registration Discounts:

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  - 6+ attendees receive a 10% discount on each registration
- The discount is not applicable if the tuition is paid by purchase order. For student rates, contact **MTMI**. Members of **MTMI** receive a 10% discount.

**MTMI** reserves the right to cancel any scheduled program because of low advance registration or other reasons.

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- Check the membership box  on the registration form or call **MTMI** at 800-765-6864.
- Seminar discount effective immediately.
- Annual membership dues for technologists are \$39.

## Location and Accommodations

**Specific location and  
accommodation information will be  
listed on our website  
as soon as arrangements  
have been made.**

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Registration Form *Multi-Slice CT Protocol Parameters and Dose* City/date: \_\_\_\_\_

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\* registration confirmation will be sent to this e-mail address - **print clearly**

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### Please enclose payment by credit card or check made payable to **MTMI**:

- \$39 Yes! Enroll me in an Annual **MTMI** membership (discount effective immediately)

Regular price:  \$195 (**MTMI** members \$175) - within 14 days of seminar

Advance price:  \$185 (**MTMI** members \$166) - 14+ days before seminar

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- 6 or more attendees (10%)

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