RSNA 2014 Quality Story Boards QSE 110

Institution-wide Training & Educational Program for CT Technologists

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Training and Education for Technologists
BACKGROUND

- Safe, efficient, and effective operation of modern CT equipment requires
  - High level of technical knowledge
  - High level of operational skills by RTs
- Acquiring and sustaining CT competencies in academic Department is challenging:
  - Subspecialty Imaging with demanding protocol
  - Newly CT technology and applications introduced early and frequently
  - Quality and Safety Requirements
  - Yet Operation has to be efficient

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Training and Education for Technologists
BACKGROUND

CT Technologist

- Person who initiates the CT scan
  - Is the best safeguard against over-dosing
- Works with :
  - Patient
  - Attending MD's
  - Fellows
  - Residents

30% of the volume occurs on 3rd shift and during the weekend hours.

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Training and Education for Technologists
'TRADITIONAL TRAINING MODEL'

- Graduates as a RTs
- Start in night/weekend shifts
  - Cross covering radiography and CT
- See one, do one, teach one method
  - No formal training
- Certification in CT desired, not mandatory until 2015

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Training and Education for Technologists
'TRADITIONAL TRAINING MODEL'

- In-services
  - Sporadic and low attendance
- Application training on new equipment
  - Only available for a few employees during day-time, hoping that new information would 'trickle-down' to other shifts
- Knowledge on radiation dose and safety
  - Minimal

Overall: Little attention given to technologist training and education, particularly night/weekend.

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Training and Education for CT Technologists
MOTIVATION

- Initiated by CT technologists, we developed a new education and training program
- *GOAL*:
  Provide high-level training in latest CT technology, clinical applications, radiation dose and patient safety and communication
  - Including all sites (inpatient and outpatient facilities), and all shifts (day, night, weekend).

Training and Education for CT Technologists

PURPOSE

In this presentation we describe the structure of our new education system and present its effect on:

- Technologist knowledge
- Technologist job satisfaction
- Quality metrics on radiation dose
- Patient satisfaction ratings.

Training and Education for Technologists

Key Elements

- Semi-annual full-day Workshops*
  - 25 USD application fee, refundable upon attendance
- Monthly CT in-services*
  - In person and online participation
- Coaching program
  - 'Super-Tech' per shift/site
- Training rotation for new staff & continuous staff education

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ASRT approved*

Training and Education for Technologists

EVALUATION

- Technologist knowledge
  - Multiple choice questions before/after workshops and in-services
- Technologist satisfaction
  - Employee surveys, routinely applied by hospital administration
- Patient rating
  - Routinely gathered by hospital administration
- Radiation dose
  - Comparison of two index months pre/post program implementation

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Workshop

This is how it all began, in 2008 …

- 'Grass-roots' effort by CT technologists and radiologist
- No initial Hospital/administrative support
- No industry support (University rule)
- Volunteer speakers (MDs and RTs)
- Program combines basic principles with practical application and clinical examples
- Repeat workshop for night/weekend staff

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Workshop

- CT Workshops (two per year)
  - Full day; technical and clinical topics; pre/post evaluation
  - Presentations given by faculty, residents/fellows, technologists and nurses

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Workshop

- CT Workshops (two per year)
  - full day; technical and clinical topics; pre/post evaluation
  - presentations given by faculty, residents/fellows, technologists and nurses

  - Co-education with Radiology trainees:

July Workshop
- On a Saturday for all technologists
- Incoming Fellows

January Workshop
- On a Thursday for weekend technologists
- Pre on-call Residents (½day)

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Budget

	USD	
• Workshop		
■ Academic Recording software	179.-	One-time expense
■ Microphone	69.-	
■ ASRT accreditation	325	Annual fees
■ Testing software	49.-	
■ room rental	0.-	
■ student 20hrs recording/editing	500.-	
■ food	800.-	
• total	1922.-	

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** 2 FTE's dedicated to ½ Protocol/Education and ½ patient care.*

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INSERVICES

- Once a month
- Regular schedule began in April 2012
- In-person and online participation via web conference
- ASRT accredited
- Topics
  - Cardiac CT
  - Cardiac anatomy & function
  - Chest CT
  - TAVR
  - Lower Extremity CTA
  - PE
  - CT dose management
  - Acute neuro CT
  - Acute body CT,
  - CT Urography,
  - Xenon CT,
  - T-bone CT

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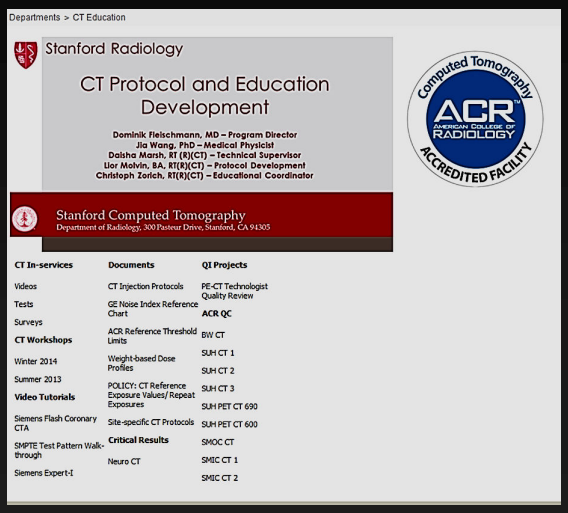
SHAREPOINT SITE

- Video archive of lectures and tutorials
- Document library
- Quality control tools
- Standard Work
- Quizzes & surveys



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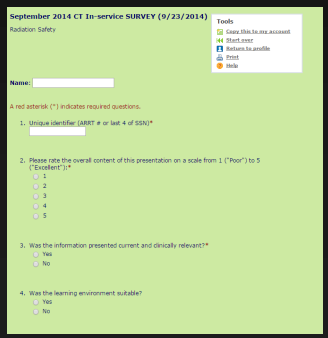
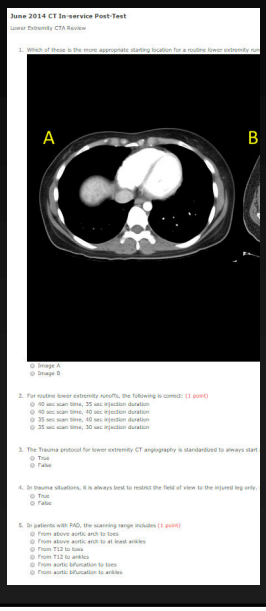
Knowledge Testing

- Online pre- and post-tests
- Electronic knowledge assessment
- Surveys





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Training and Education for Technologists
RESULTS

- Workshops (total: 12, full day)
  - Last three workshops combined attendance: 141
- In-services:
  - Total 19 inservices held (in-room and online-participation)
- Radiation dose
  - 99.99% target dose rates, with over 10,000 acquisitions a month
  - Dose lower than ACR (e.g. CTDI for renal delay acquisitions decreased from 13.50mGy to 8.53mGy over the training period).

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Training and Education for Technologists
RESULTS

- Technologist satisfaction
  - Department wide employee surveys, routinely applied by hospital administration
  - 94% agree/strongly agree that job satisfaction has improved
  - 94% agree/strongly agree that quality of training has improved
- Patient satisfaction
  - Proportion of patients rating overall care in CT as "very good" gradually increased from 65.2% to 82.1%,
  - Proportion of patients "very likely to recommend" CT services increased from 71.4% to 85.5%.

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Training and Education for CT Technologists
Conclusion

- An institution-wide program with resources dedicated for CT technologist training and education yields measurable benefits.
- It improves knowledge and job satisfaction among staff, creates an environment conducive to learning, reduces radiation dose, and – most importantly – contributes to positive patient experiences.

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Training and Education for CT Technologists

THANK YOU FOR YOUR INTEREST !

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