An Overview of The Joint Commission’s New and Revised Diagnostic Imaging Standards

Andrea Browne, PhD, DABR
Medical Physicist, Dept. of Engineering

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- Andrea Browne
- Leslie Laballe
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Objectives:

1. Provide an overview of The Joint Commission’s new and revised diagnostic imaging standards

2. Describe how surveyors will assess compliance during the on-site survey

3. Provide examples of compliance

Background:

Increasing radiation to public from medical uses, mainly CT
Background:

CT Perfusion Oversprays

Increasing number of incidents reported

Background:

Headlines: Kids’ CT Scans Boost Cancer Risks

State and federal government agencies, other imaging stakeholders- expect Joint Commission to comprehensively evaluate
Conducted research/ GAP analysis – were risks areas sufficiently addressed in current standards or survey process?
Developed and posted new and revised imaging standards in December 2013
Background:
- Conducted research to identify risks related to diagnostic imaging
- Conducted a GAP analysis – were risks areas sufficiently addressed in current standards or survey process?
- Developed and posted new and revised imaging standards in December 2013

What happened?
Concerns were raised and we listened…
- The role of the medical physicist, what's expected?
- Logistics and implications of documenting radiation dose
- Minimum qualifications for technologists performing CT exams

The standards were pulled back and additional research was conducted…

Who was involved?
- Accredited customers
  - AAHP
  - ABR
  - ACR
  - ARRT
  - ASRT
  - MITA
  - NMTCB
  - SNMMI
  - Payors
What was outcome?

- Based on feedback received, several standards were revised and two were deleted.
- Entire set was re-posted in Jan 2015. See link: [www.jointcommission.org/prepublication_standards_diagnostic_imaging_services_requirements/](http://www.jointcommission.org/prepublication_standards_diagnostic_imaging_services_requirements/)
- New and revised imaging requirements are effective **July 1, 2015**

What are the standards?

- Accreditation requirements – applicable to:
  - accredited ambulatory care orgs, (including with ADI certification)
  - hospitals that provide diagnostic imaging
- Focus on MRI and CT
- Research underway – what additional standards & survey process changes are needed?
  - cone beam CT
  - fluoroscopy
  - other risk areas…

What is not included in these standards?

- Requirements that address minimum qualifications for technologists performing diagnostic CT exams
  (The Joint Commission’s requirements that address CT technologist qualifications remains under review. We are considering requiring registration and certification through ARRT, and draft standards for public comment are posted on the JC website.)
- Requirements that address minimum qualifications for individuals interpreting diagnostic CT exams
  *Work on these requirements will continue throughout 2015*

What was deleted? Documentation of the radiation dose in interpretive report and transmission via PACS
Will the survey process change?

- No changes to the on-site survey agenda
- Compliance will be assessed as part of the current survey activities, (e.g. EC, Competence Assessment, Data Management, etc…)
- Will be incorporated into the current patient tracer processes

Notes...

This element of performance does not apply to dental cone beam CT radiographic imaging studies performed for diagnosis of conditions affecting the maxillofacial region or to obtain guidance for the treatment of such conditions.

This element of performance does not apply to CT systems used for therapeutic radiation treatment planning or delivery, or for calculating attenuation coefficients for nuclear medicine studies.

The Joint Commission’s New & Revised Diagnostic Imaging Standards

25 new/revised requirements
2 deletions
New/Revised Standards Focus on:

- Equipment that functions properly and a safe environment of care...
- Qualified Staff
- Processes to ensure safety and efficiency

Environment of Care (EC) requirements:

- Annual imaging equipment performance evaluations
- Imaging equipment quality control and maintenance activities
- MRI environmental risks – access control and patient screening
- Structural shielding design assessments
- Radiation protection surveys
- Staff dosimetry monitoring
- Testing of image acquisition monitors
EC.02.01.01 EP 14: Managing MR safety risks – Patient safety

Survey process/Examples of compliance:
- Interview: MRI staff
  - Procedures in place to ensure pt safety?
  - Emergency procedures
- Observation:
  - patient intake process/ history, screen
  - screening forms
  - Hearing protection offered

EC.02.01.01 EP 16: Restricting access... to magnet room & area

Survey process/ Examples of compliance:
- Interview:
  - Processes & responsibility
  - Education/ what, how, when
- Observation:
  - restricted area entry/ door, observation
  - Screening / training documentation
  - Appropriate signage (Doesn’t require 4 zone)

What does restricted access mean?

Organization defines.
The intent of the standard is the safety of individuals entering the magnet room.
**Staff safety: Review of staff dosimetry quarterly**

**Survey of compliance:**

- **Interview:**
  - Dosimeter review process; by whom
  - Frequency
  - ALARA

- **Observation:**
  - Dosimeters worn
  - Reviewed reports available
  - Reports reviewed by RSO, diagnostic medical physicist, health physicist

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**How is ALARA (As Low As Reasonably Achievable) assessed?**

- Recommendations for ALARA values available in Nuclear Regulatory Commission documents
- Literature review
- Organization’s history

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**EC.02.04.01 EP 10 and EC.02.04.03 EP 15**

**Identifying (EP10) and implementing (EP15) QC and maintenance activities to maintain image quality…**

**Survey process/ Examples of compliance:**

- **Interview: Staff**
  - Equipment and activities (How do you know MI equipment is functioning properly?)
  - Who checks, how, when?

- **Observation:**
  - QC/testing logs
  - Tests: manufacturer guidelines (required for imaging equipment)
  - Organizational policy
Patient safety: Annual measurement and verification of CT radiation dose index...

**Survey process/Examples of compliance:**

- **Interview:**
  - processes to measure/verify CT radiation output
  - which protocols (patient exam recipes)?
  - Who does it, how often?

- **Observation:**
  - Testing reports: dates & results completed by 7/1/16; by a diagnostic medical physicist

Medical physicists are accountable and must review results
May be assisted by individuals with required training and skills (determined by physicist)
Medical physicists not required to be present during all data collection and testing
Examples of assistants: biomed staff, imaging technologists, and vendor/manufacturer service personnel

Survey process/Examples of compliance:

- **Interview:**
  - processes for performance evaluations
  - Who does it, how often?
  - What do you do if there are performance failures?

- **Observation:**
  - Testing reports: dates/results completed by 7/1/16; by appropriate medical physicist/scientist
  - Recommendations/follow-up documented
EC.02.04.03 EP 23
Annual testing of image acquisition monitors...

Survey process/ Examples of compliance:

➢ Interview:
  • process for testing CT, PET, NM and MRI image acquisition monitors
  • Who, how often?

➢ Observation:
  • testing reports: dates/results completed by 7/1/16;
  • by appropriate medical physicist/scientist
  • Recommendations/follow-up documented

Does not apply to monitors used for interpretation
(EC.02.04.03: Organization inspects, tests and maintains medical equipment)

EC.02.06.05 EPs 4 & 6
Structural shielding design assessment and radiation protection survey...

Survey process/ Examples of compliance:

➢ Interview:
  • new installs, replacements, or modifications to CT, PET, or NM areas?
  • structural shielding design assessment conducted?
  • when? by whom?
  • post-installation radiation protection survey done?

➢ Observation:
  • review reports as applicable

***Note: These EPs are not retroactive***

➢ Qualified staff…
Requirements in the HR chapter address:

- Minimum qualifications for medical physicists supporting CT services
- Ongoing and annual training for staff performing CT exams
- Ongoing and annual training for staff performing MRI exams

Diagnostic medical physicists who support CT services:

- Board certification:
  - Diagnostic radiologic physics, radiologic physics by the American Board of Radiology, or
  - Diagnostic Imaging Physics by the American Board of Medical Physics, or
  - Diagnostic Radiological Physics by the Canadian College of Physicists in Medicine, or ...

...meet all of the following requirements:

- Graduate degree: physics, medical physics, biophysics, radiologic physics, medical health physics, or a closely related science/engineering discipline from an accredited college or university
- College coursework in: biological sciences (at least one course in biology/radiation biology and one course in anatomy, physiology, or similar topic related to the practice of medical physics
- Documented experience in a clinical CT environment conducting at least 10 CT performance evaluations under direct supervision of a board-certified medical physicist
Survey process/ Examples of compliance:

- **Interview:** physicist supporting CT services/ HR staff
  - education, experience, credentials

- **Observation:**
  - Review personnel files; meet required minimum qualifications
  - “Qualified MP” concept is addressed in current HR standards
  - (e.g. HR.01.02.05: Organization verifies staff qualifications)

Annual training must address:

- Radiation dose optimization techniques and tools for pediatric and adult patients
- Safe procedures for operation of the types of CT equipment they will use

**Note:**
Image Gently and Image Wisely serve as good resources, however, vendor-provided training and other training tools may also be used.

Survey process/ Examples of compliance:

- **Interview:**
  - content, method, tools
  - frequency

- **Observation:**
  - review documentation of content and frequency
  - verify training content addresses all specified topics
Annual training must address:

- Patient screening criteria
- Patient and equipment positioning
- MR safe or conditional equipment and supplies
- MRI safety response procedures
- MRI system emergency shutdown procedures
- Patient hearing protection
- Management of patients with claustrophobia, anxiety, or emotional distress

Survey process/Examples of compliance:

- **Interview:**
  - training content, method, tools
  - frequency

- **Observation:**
  - review documentation of content and frequency
  - training content addresses all specified topics

Processes to ensure safety and efficiency...
**MM.06.01.01 EP 13**

Patient safety: Diagnostic radiopharmaceutical doses within 20% of prescribed dose or range...

*Survey process/ Examples of compliance:*

- **Interview:** NM staff
  - procedures for dose verification?
  - when, what if the dose is out of range?

- **Observation:**
  - review orders; staff prepare and deliver dose
  - dose verification; demonstrate use of dose calibrator or calculation

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**PC.01.02.15 EP 5**

Documentation of CT radiation dose index...

***Note: This EP only applies to systems capable of calculating and displaying radiation dose indices***

*Survey process/ Examples of compliance:*

- **Interview:** CT staff, medical physicist
  - process for capturing radiation dose index?
  - measurement used?
  - how do you retrieve data?

- **Observation:**
  - review selected exams
  - Information: exam specific, summarized (series or anatomic area)
  - documented in retrievable format?

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**PC.01.02.15 EP 10**

Verification of correct patient, imaging site, patient positioning, CT protocol and CT scanner parameters...

*Survey process/ Examples of compliance:*

- **Interview:** CT staff
  - what is verification process?
  - where are exam set-up, patient positioning procedures?
  - how CT protocols and scanner parameters verified?

- **Observation:**
  - exam set-up, patient positioning, and verification process
  - review patient intake policy or procedure that includes elements
PC.01.02.15 EP 12
Patient safety: Patient’s age and previous imaging exams are considered…

Survey process/ Examples of compliance:

➢ Interview: CT staff
  • patient information obtained prior to testing?
  • considerations when determining type of imaging exam;
    pediatric patients
  • patient scheduling/preparation/ intake
  • discuss frequency and reasons for duplicated exams

➢ Observation:
  • review imaging order, intake and processing
  • availability of prior imaging reports
  • patient age/ prior imaging exams considered (recent and relevant imaging exams)

PC.01.03.01 EPs 25 and 26
Establishes or adopts CT protocols; CT protocols are reviewed and kept current…

Survey process/ Examples of compliance:

➢ Interview: CT staff, radiologist, physicist
  • Process/ criteria for establishing protocols
  • Frequency of review/ review personnel
  • Process for selecting/ modifying imaging protocols depending diagnosis, age, and size

➢ Observation:
  • Protocols established/ contain all elements (expected dose range identified)
  • Set-up and/or performance of CT exam

PI.01.01 EPs 46 and 47
Collection of data on MRI incidents: thermal injuries, ferromagnetic material incidents, injuries

Survey process/ Examples of compliance:

➢ Interview: MRI staff
  • Any MRI incidents? What happened?
  • How do you collect data on MRI incidents?
  • Where does it go?

➢ Observation:
  • Review guidelines or policies /robust process to collect data and incidents
  • Review collected data, if any
PI02.01.01 EP 6

Review and analysis of incidents where the dose index exceeds expected limits; comparison to external benchmarks...

Survey process/Examples of compliance:

- **Interview: CT staff, physicist, radiologist**
  - Any incidents that exceeded the expected dose index?
  - Describe process for review and analysis of incidents;
    - Who is involved? Action taken?
  - How is data benchmarked?

- **Observation:**
  - Review collected data, if any
  - Review results of analysis

Resources:

1. **Shielding designs and radiation protection surveys** - For additional guidance see National Council on Radiation Protection and Measurements Report No. 147 (NCRP-147).
2. **Image Gently and Image Wisely** — for more information go to www.imagegently.org or www.imagewisely.org.
3. **MRI safety** - Terminology for defining the safety of items in the magnetic resonance environment is provided in ASTM F2503 Standard Practice for Marking Medical Devices and Other Items for Safety in the Magnetic Resonance Environment (http://www.astm.org).
4. **CT protocols and Alert Level guidance** - information on suggested scan protocol, alert levels, and dose check guidelines can be found at the American Association of Physicists in Medicine (AAPM) website www.aapm.org/CTProtocols.
5. **Scan protocols, reference dose level and radiation dose log information and examples** - found on the Conference of Radiation Control Program Directors (CRCPD) website at www.crcpd.org under Medical Radiation tab.
6. **American College of Radiology (ACR) Dose Index Registry** - found at www.acr.org under the Quality & Safety tab.
8. **Verification of Medical Physicist qualifications** – go to the Conference of Radiation Control Program Director (CRCPD) or American Board of Radiology (ABR) websites.
9. **The Joint Commission’s Standards Interpretation Group** (630) 792-5900

More Resources
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