



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

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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:

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- ▶ 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 Jan 2014

The standards focus on:

- ▶ **Equipment that functions properly, and a safe environment of care**
- ▶ **Qualified staff**
- ▶ **Processes to ensure safety and efficiency**

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

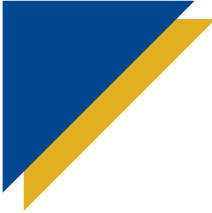
The standards were pulled back and additional research was conducted...

Who was involved?

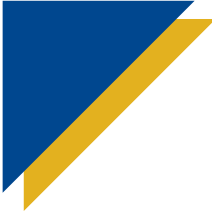
- Accredited customers
 - AAHP
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 - NMTCB
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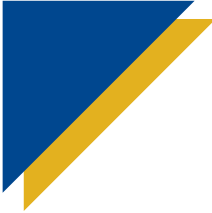
What was outcome?

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- 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/
 - New and revised imaging requirements are effective **July 1, 2015**

What are the standards?

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- ✓ **Accreditation requirements** – applicable to:
 - accredited ambulatory care orgs,
(including with ADI certification)
 - hospitals that provide dx imaging
 - ✓ Many 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
 - 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



The Joint Commission's New & Revised Diagnostic Imaging Standards

25 new/revised requirements
2 deletions



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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**.

Notes cont.



- ✓ This element of performance is **only applicable for** systems capable of calculating and displaying radiation dose indices.
- ✓ While the CTDIvol, DLP, and SSDE are useful indicators for monitoring radiation dose indices from the CT machine, they **do not represent the patient's radiation dose.**
- ✓ Medical physicists are accountable for these activities. They **may be assisted** with the testing and evaluation of equipment performance by individuals who have the required training and skills, as determined by the physicist.



- **Equipment that functions properly and a safe environment of care...**



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 – Obtaining patient history, patient screening, preventing entry of ferromagnetic objects, hearing protection...

Survey process:

- ✓ Staff interview – Patient screening procedures
- ✓ Direct observation of patient screening and intake procedures. Review of screening forms

Examples of compliance:

- ✓ Patient history is obtained, available, reviewed
- ✓ Screening process addresses MRI safety risks
- ✓ Hearing protection is available and offered to patients
- ✓ Staff can describe emergency procedures

Survey process:

- ✓ Staff interview –processes in place to restrict access? Responsibility for restricting access? Staff education on MRI safety?
- ✓ Direct observation –signage, other processes to restrict access, area under direct supervision?

Examples of compliance:

- ✓ Everyone screened or trained on MRI safety
- ✓ Signage appropriately posted, conveys risks

EC.02.02.01 EP 17

Review of dosimetry monitoring...

Survey process:

Staff interview – what processes are in place to monitor staff dosimetry badges, how often are they monitored? By whom?

Direct observation – Are dosimetry badges being worn? Review dosimetry badge monitoring log(s)

Examples of compliance:

Results of staff dosimetry monitoring are reviewed by the RSO, diagnostic medical physicist, or health physicist

EC.02.04.01 EP 10 and EC .02.04.03 EP 15

Identifying and implementing necessary QC and maintenance activities to maintain image quality...

Survey process:

- ✓ Staff interview – What equipment testing/ QC activities are needed? Frequency? By whom?
- ✓ Direct observation – Review of QC and testing log(s)

Examples of compliance:

- ✓ Equipment testing and QC logs indicate being performed in accordance with manufacturer's guidelines and organizational policy

EC.02.04.03 EP 17

Annual measurement and verification of CT radiation dose index...

Survey process:

- ✓ Staff interview – describe processes in place to measure and verify CT radiation dose output. Measurements are taken for which types of protocols? How often? By whom?
- ✓ Direct observation – Review of equipment testing reports, do they include dates & results?

Examples of compliance:

- ✓ Documentation indicating that annual equipment testing was done by **7/1/16**
- ✓ Reports are dated and indicate that the testing is performed at least annually by a diagnostic medical physicist for the specified protocols

EC.02.04.03 EPs 19-22

Annual performance evaluations of CT, MRI, Nuclear Med, and PET imaging equipment...

- ✓ Medical physicists are accountable, testing must be reviewed by the medical physicist
- ✓ They may be assisted with the testing and evaluation of equipment performance
- ✓ By individuals with required training and skills, as determined by the physicist.
- ✓ *Medical physicists are **not** required to be present during all data collection and testing*
- ✓ Examples of those who may assist include: biomed staff, imaging technologists, and vendor/manufacturer service personnel

EC.02.04.03 EPs 19-22 (cont'd)

Survey process:

- ✓ Staff interview – describe processes in place for CT, PET, Nuc Med and MRI performance evaluations. How often is this done? By whom?
- ✓ Direct observation – Review of performance evaluation reports. What tests were done? Were there any recommendations? If so, were they acted upon?

Examples of compliance:

- ✓ Performance evaluation reports indicate testing was done at least annually by a diagnostic medical physicist, MRI Scientist, or Nuc med physicist, as applicable
- ✓ Specified tests are conducted, and evaluation results, recommendations and follow-up are documented

EC.02.04.03 EP 23

Annual testing of image **acquisition** monitors...

Survey process:

- ✓ Staff interview – describe processes in place for testing of CT, PET, Nuc med and MRI **image acquisition** monitors. How often is this done? By whom?
- ✓ Direct observation – Review of performance evaluation reports. Do they include the specified tests?

Examples of compliance:

- ✓ Performance evaluation reports indicate that they were performed at least annually by a diagnostic medical physicist, MRI Scientist, or Nuc Med physicist, as applicable?
- ✓ Specified tests are conducted
- ✓ **Does not apply to monitors used for interpretation**

EC.02.06.05 EPs 4 & 6

Structural shielding design assessment and radiation protection survey...

Survey process:

- ✓ Staff interview –facility, engineering staff, or physicist. Any new installs, replacements, or modifications to CT, PET, or NM areas? If so, was structural shielding design assessment conducted? When? by whom? Was a post-installation radiation protection survey done?
- ✓ Direct observation – Review reports as applicable

Examples of compliance:

- ✓ Evidence that any required shielding design assessments or radiation protection surveys were conducted in accord with the EPs

*****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



HR.01.02.05 EP 20

Verification & documentation of medical physicists qualifications...

Diagnostic medical physicists who support CT services must:

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

HR.01.02.05 EP 20 (cont'd)

Verification & documentation of medical physicists qualifications...

...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

HR.01.02.05 EP 20 (cont'd)

Verification & documentation of medical physicist qualifications...

Survey process:

- ✓ Staff interview – physicist supporting CT services or HR staff. Discuss education, experience, credentials
- ✓ Direct observation- Review personnel files for required documentation

Examples of compliance:

- ✓ Personnel files indicate they meet required minimum qualifications
- ✓ “*Qualified MP*” concept is addressed in current HR standards (e.g. HR.01.02.05)

HR.01.05.03 EP 14

Verification and documentation of CT technologists' ongoing education and annual training...

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.

HR.01.05.03 EP 14 (cont'd)

Verification and documentation of CT technologists' ongoing education and annual training...

Survey process:

- ✓ Staff interview – what training content is provided to CT technologists? Is it provided annually and on an on-going basis? Discuss process for ensuring technologists receive training on the types of CT units they will use
- ✓ Direct observation – Review of personnel files for documentation of content and timing of education provided

Examples of compliance:

- ✓ Personnel files contain required documentation and training content addresses all specified topics

HR.01.05.03 EP 25

Verification and documentation of MRI technologists' ongoing education and annual training...

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

HR.01.05.03 EP 25 (cont'd)

Verification and documentation of MRI technologists' ongoing education and annual training...

Survey process:

- ✓ Staff interview – what educational content is provided to MRI technologists? Is it provided annually and on an on-going basis? Explore content of staff education
- ✓ Direct observation – Review personnel files for timing and content of education provided

Examples of compliance:

- ✓ Personnel files contain documentation of on-going and annual education
- ✓ Content covers all specified topics



➤ **Processes to ensure safety
and efficiency...**

MM.06.01.01 EP 13

Radiopharmaceutical doses within 20% of prescribed dose or range...

Survey process:

- ✓ Staff interview – Discuss procedures for dose verification. When is it done? What is the process if the dose is out of range?
- ✓ Direct observation – review orders for prescribed dose. Do staff compare the dose to the prescribed dose or dose range? What equipment is used to verify dose?

Examples of compliance:

- ✓ Staff describe dose verification process
- ✓ Staff describe/demonstrate use of dose calibrator to measure dose prior to administration
- ✓ Dose is compared to prescribed dose/dose range

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:

- ✓ Staff interview – Discuss process for capturing radiation dose index. What measurement is used? Where is this information available?
- ✓ Direct observation – review of selected exams. Dose information exam specific? Is it summarized by series or anatomic area? Is it documented in a retrievable format?

Examples of compliance:

- ✓ Responses and observations indicate processes are in place to capture CT radiation dose indices

PC.01.02.15 EP 10

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

Survey process:

- ✓ Staff interview – Discuss verification processes, exam set-up, and patient positioning procedures. For CT exams, how are CT protocols and scanner parameters verified?
- ✓ Direct observation – of the exam set-up, patient positioning, and verification process

Examples of compliance:

- ✓ Responses and observations indicate processes are in place to ensure compliance

PC.01.02.15 EP 12

Patient's age and previous imaging exams are considered...

Survey process:

- ✓ Staff interview – What patient information is obtained prior to testing? What factors are considered when determining the type of imaging exam? Are there differing considerations for tests ordered for pediatric patients? How often are exams duplicated? Why?
- ✓ Direct observation – of the imaging order review, processing, patient intake process. If applicable, are the patient's prior imaging reports available?

Examples of compliance:

- ✓ Patient age and prior imaging exams are 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:

- ✓ Staff interview – How are protocols established? What criteria do they address? How often are they reviewed? Who is involved in the review? What is the process for selecting or modifying imaging protocols depending on patient diagnosis, age, and size?
- ✓ Direct observation – technologist set-up and/or performance of CT exam. Discuss changes or adjustments made to the imaging protocol. Review the protocol. Are expected dose index ranges identified?

Examples of compliance:

- ✓ Processes are in place to ensure compliance



PI.01.01.01 EPs 46 and 47

Collection of data on MRI incidents...

Survey process:

- ✓ Staff interview – Have there been any MRI incidents? If so, describe what happened. What is the process for capturing and collecting data on MRI incidents?
- ✓ Direct observation – Review of collected data, if available, and related guidelines or policies

Examples of compliance:

- ✓ Responses and review of data/documents indicate that a process is in place to consistently collect data on MRI incidents

PI.02.01.01 EP 6

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

Survey process:

- ✓ Staff interview – Have there been any incidents where the expected dose index was exceeded? If so, what happened? What was the follow-up? Describe process for review and analysis of incidents? Who is involved?
- ✓ Direct observation – Review collected data, if available. Discuss process for external benchmark comparison. Which ones are used?

Examples of compliance:

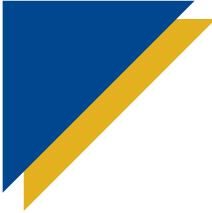
- ✓ Responses and review of data/documents indicate processes are in place to capture incidents
- ✓ External benchmarks have been identified.



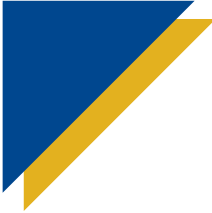
Resources:

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.

More resources:

- 
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.
 7. **CT diagnostic reference levels** - general information is available on the International Atomic Energy Agency (IAEA) website at <https://rpop.iaea.org> .
 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

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