



September 23, 2019

The DICOM Secretariat is pleased to submit comments on behalf of DICOM stakeholders in response to the Office of the National Coordinator's (ONC) Request for Public Comments regarding the Interoperability Standards Advisory (ISA).

DICOM® (Digital Imaging and Communications in Medicine) is the international standard to transmit, store, retrieve, print, process, and display medical imaging information.

Individual comments have been posted to each section and included below.

Thank you for the opportunity to provide feedback and please contact me with any questions.

Lisa Spellman

DICOM General Secretary

[lsPELLMAN@dicomstandard.org](mailto:lsPELLMAN@dicomstandard.org)

### **Recommendations for Section II: Content/Structure Standards and Implementation Specifications**

1. Break this into two blocks – the new block would be titled: Interoperability Need: Format of Medical Images for Exchange and Distribution

In that block insert the:

| Type     | Standard/Implementation Specification                                  | Standards Process Maturity | Implementation Maturity | Adoption Level | Federally Required | Cost | Test Tool Availability |
|----------|--|----------------------------|-------------------------|----------------|--------------------|------|------------------------|
| Standard | <a href="#">Digital Imaging and Communications in Medicine (DICOM)</a> | Final                      | Production              | ● ● ● ● ●      | No                 | Free | <a href="#">Yes</a>    |

followed by a row:

Implementation Specification, PS3.3 Digital Imaging and Communications in Medicine (DICOM) Standard – Part 3: Image Object Definitions, Final, Production, 5 black circles, No, Free, Yes

2. For now, keep the 2<sup>nd</sup> block as is (same as the original block)

### **Section III: Standards and Implementation Specifications for Services/Transport/Exchange.**

#### **Recommendations:**

1. Change the title of the first block to be: Interoperability Need: Exchanging Images Outside of a Specific Health Information Exchange Domain
2. For this block, the standard is DICOM (not DICOMweb – DICOMweb is an implementation within the DICOM standard, and the XCA-I implementation does not rely on DICOMweb).
3. Suggest to leave the next two rows (IHE XCA-I and IHE-XCPD/IHE-PIX) the same.
4. Change the title of the second block to be: Interoperability Need: Exchanging Images Within a Specific Health Information Exchange Domain

Given the way the document is structured, the "Implementation Specification" rows should reference the implementation documentation that utilizes the "Standard" defined in the first row. So once again, the "Standard" is DICOM. If a Health Information Exchange is built on a VNA, or dedicated PACS acting as a VNA, then DICOM or DICOMweb provides the standard, and we reference Part 4, or Part 18 for the Implementation Specification.

### **Format of Radiation Exposure Dose Reports for Exchange and Distribution**

Recommend 1st row (X-ray) adoption be increased to 4 for CT, 2 for other x-ray modalities

Recommend 2nd row (Radiopharmaceutical) imp. maturity is pilot and adoption decreased to 1

Recommend 3rd row (Patient Dose) imp. maturity is pilot and adoption decreased to 0

Suggest IOD references in column 2 point to the module tables (subsection \*.3) instead of the IOD (subsection \*.1) to take people closer to the specification details in the first click.

To survey implementations, an internet search for the relevant SOP Class UID and the phrase "DICOM Conformance Statement" will typically return links to specific products. SOP Class UIDs can be found by searching for the SOP Class name (e.g. Radiation Dose) in Annex A of DICOM Part 6:

[http://dicom.nema.org/medical/dicom/current/output/chtml/part06/chapter\\_A.html](http://dicom.nema.org/medical/dicom/current/output/chtml/part06/chapter_A.html)

For example implementations of X-ray, Radiopharmaceutical and Patient Dose can be found with the following searches, respectively:

1.2.840.10008.5.1.4.1.1.88.67 "dicom conformance statement"

1.2.840.10008.5.1.4.1.1.88.68 "dicom conformance statement"

1.2.840.10008.5.1.4.1.1.88.75 "dicom conformance statement"

### **Exchanging Imaging Documents Within a Specific Health Information Exchange Domain**

Recommend XDS-I.b adoption be increased to 2?

Recommend listing IHE WIA which profiles the use of DICOMweb

Recommend DICOMweb adoption be increased to 3

To survey implementations of RESTful DICOMweb services to store, query, retrieve, an internet search for the relevant service (STOW-RS, QIDO-RS, WADO-RS) and the phrase "DICOM Conformance Statement" will typically return links to specific products.

STOW-RS "dicom conformance statement"

QIDO-RS "dicom conformance statement"

WADO-RS "dicom conformance statement"

To survey implementations of IHE profiles, a search at the IHE Connectathon Results database (connectathon-results.ihe.net) will return lists of vendors that have successfully tested either a product or a prototype product. An internet search for the profile acronym (WIA, MHD-I) and the phrase "integration statement" will often return links to specific products

### **Exchanging Imaging Documents Outside a Specific Health Information Exchange Domain**

Recommend addition of IHE PDI (Portable Data for Imaging) with an adoption of 5. Add a corresponding note to acknowledge that network transfers are clearly preferable to digital media, but when network solutions are not yet in place, transfer using digital media is preferable to no transfer at all. PDI does work and is successfully used widely.

[https://www.ihe.net/uploadedFiles/Documents/Radiology/IHE\\_RAD\\_TF\\_Vol1.pdf](https://www.ihe.net/uploadedFiles/Documents/Radiology/IHE_RAD_TF_Vol1.pdf)

### **Format of Radiology Reports for Exchange and Distribution**

Recommend either removing the entry for MRRT or re-casting the purpose of this section. IHE Management of Radiology Report Templates provides a format for the exchange of *templates* between systems that radiologists use to author diagnostic reports. MRRT is not a format for the exchange of the actual diagnostic report document (which may or may not have used a template to guide the authoring) between repositories of patient reports.

## **Comments from Kinson Ho, Change Healthcare DICOM Comments**

- Section II:
  - Under “Clinical Decision Support”
    - For “Communicate Appropriate Use Criteria with the Order and Charge to the Filling Provider and Billing System for Inclusion on Claims”, the Adoption Level for IHE CDS-OAT should be 1
  - Under “Images”
    - For “Format of Radiation Exposure Dose Reports for Exchange and Distribution”, recommend to also include the following:
      - IHE Radiation Exposure Monitoring (REM) profile (Section 22 in [https://www.ihe.net/uploadedFiles/Documents/Radiology/IHE\\_RAD\\_TF\\_Vol1.pdf](https://www.ihe.net/uploadedFiles/Documents/Radiology/IHE_RAD_TF_Vol1.pdf) ). Adoption level should be 2.
      - IHE Radiation Exposure Monitoring for Nuclear Medicine (REM-NM) profile ([https://www.ihe.net/uploadedFiles/Documents/Radiology/IHE\\_RAD\\_Suppl\\_REM-NM.pdf](https://www.ihe.net/uploadedFiles/Documents/Radiology/IHE_RAD_Suppl_REM-NM.pdf)). Adoption level should be 1.
    - For “Format of Radiology Reports for Exchange and Distribution, recommend to also include the following
      - IHE Results Distribution (RD) profile ([https://www.ihe.net/uploadedFiles/Documents/Radiology/IHE\\_RAD\\_Suppl\\_RD.pdf](https://www.ihe.net/uploadedFiles/Documents/Radiology/IHE_RAD_Suppl_RD.pdf)). Adoption level should be 1

## **Examples with DICOMweb™ support**

- Agfa
  - Main page: [https://global.agfahealthcare.com/main/miscellaneous/interoperability/dicom\\_connectivity/](https://global.agfahealthcare.com/main/miscellaneous/interoperability/dicom_connectivity/)
  - Conformance statement mentioning DICOMweb: <http://www.agfahealthcare.com/global/en/he/library/libraryopen?!D=53821200>
- Sectra
  - Main page: <https://medical.sectra.com/knowledge-center/conformance-statements/>
  - Conformance statement mentioning QIDO/WADO: <https://sectramedical.blob.core.windows.net/uploads/2019/03/pacs-dicom-conformance-statement-21.1.pdf>
- GE
  - Main page: <https://www.gehealthcare.com/products/interoperability/dicom>
  - Conformance statement mentioning DICOMweb: <https://www.gehealthcare.com/-/media/7527e637d6ca478c8f94aca52580e75b.pdf?la=en-us>
- Vital
  - Main page: <https://www.vitalimages.com/customer-success-support-program/compliance-documents/>
  - Conformance statement mentioning DICOMweb: [https://www.vitalimages.com/wp-content/uploads/VLC-10295-A-Vitrea-View-7.5-DICOM-Conformance-Statement\\_.pdf](https://www.vitalimages.com/wp-content/uploads/VLC-10295-A-Vitrea-View-7.5-DICOM-Conformance-Statement_.pdf)
- Orthanc (open source)
  - Main page: <https://www.orthanc-server.com/static.php?page=documentation>
  - Page mentioning DICOMweb support: [https://docs.google.com/spreadsheets/d/e/2PACX-1vSBEymDKGZgskFEFF6yzge5JovGHPK\\_FlBEnW5a6SWUbPkX06tkoObUHH6T1XQhgj-HqFd0AWSnVFOv/pubhtml?gid=654036639&single=true](https://docs.google.com/spreadsheets/d/e/2PACX-1vSBEymDKGZgskFEFF6yzge5JovGHPK_FlBEnW5a6SWUbPkX06tkoObUHH6T1XQhgj-HqFd0AWSnVFOv/pubhtml?gid=654036639&single=true)
- DCM4CHEE (open source)
  - Main page: <https://dcm4chee-arc-cs.readthedocs.io/en/latest/introduction.html>
  - Page mentioning QIDO/WADO/STOW: <https://dcm4chee-arc-cs.readthedocs.io/en/latest/networking.html>

### **Examples with DICOMweb™ support but not in Conformance statement**

- Philips
  - Main page: <https://www.usa.philips.com/healthcare/resources/support-documentation>
  - Mentions DICOMweb here: <https://www.philips.ae/healthcare/product/HCAPP035/dicom-web>
- Merge
  - Main page: <https://www.merge.com/Support/Resources/DICOM-Conformance-Statements.aspx>
  - Mentions DICOMweb AND the latest supplement in DICOMweb on thumbnails:  
<https://www.merge.com/Solutions/Toolkits/Merge-DICOM-Toolkit.aspx>
- Inteleraad
  - Main page: <https://www.intelerad.com/en/resources/regulatory-compliance/>
  - Mentions DICOMweb support here: <https://www.intelerad.com/en/press-releases/intelerad-launches-cosmosone-living-medical-archive/>
- Hyland
  - Main page: <https://www.hyland.com/en/healthcare/conformance-and-standards>
  - Mentions DICOMweb support here: <https://www.hyland.com/en/healthcare/enterprise-imaging/acuo-vendor-neutral-archive>