1300 North 17th Street, Suite 900
Arlington, VA 22209, USA
+1-703- 841-3259
https://www.dicomstandard.org/
dicom@dicomstandard.org

# DICOM WORKING GROUP TWENTY-SIX (Pathology)
# December 10, 2019 - Minutes

| Attendance | Members and Guests | Representing | Member Type |
|---|---|---|---|
| **Yes** | Kevin Schap | CAP | DICOM Secretariat |
| **Yes** | Sarah Dudgeon | FDA | DICOM |
| **Yes** | Brandon Gallas | FDA | DICOM |
| **Yes** | Weichung Chang | FDA | DICOM |
| **Yes** | Markus Herrmann | Mass General Hospital | DICOM |
| **Yes** | Mandel Mickley | Leica Biosystems | DICOM |
| **Yes** | David Clunie | PixelMed | DICOM |
| **Yes** | Norman Zerbe | Charite | DICOM |
| **Yes** | Gabor Garanyi | 3DHISTECH | DICOM |
| **Yes** | Matthew Hanna | Kettering Cancer Center | DICOM |
| **Yes** | Nick Haarselhorst | Phillips | DICOM |
| **Yes** | Fusheng Wang | Stony Brook University | DICOM |
| **Yes** | Simon Doran | Institute of Cancer Research | DICOM |
| **Yes** | Ulli Wagner | National Institute of Health | DICOM |

**Opening:**
David Clunie, called the meeting to order at 9:00 am Central Time. http://dicom.nema.org/Dicom/DICOMWSI/

**Previous meeting minutes** - No previous meeting for this project group

**DICOM Annotations for WSI**

Specific deliverables of this group are expected to include:

1. informative guidance (+/- template and code set improvements) to leverage existing DICOM mechanisms (e.g., SEG, SR) for semantically interoperable (i.e., not PS) annotations of relatively small numbers of objects
2. new DICOM IOD for encoding vast numbers (millions) of locations or contours for cellular structures +/- associated measurements and observations (similar perhaps to the MR tractography approach) +/- appropriate compression mechanisms prn.
3. explore the use cases for interactive retrieval of selective annotations or frames +/- define a DICOMweb API extension

This effort will entail:

1. documenting use cases
2. surveying existing proprietary and open source approaches (and the scientific literature)
3. surveying other industry solutions for similar problems (esp., GIS and spatial query databases)
4. exploring options for encouraging adoption in open source commercially reusable implementations (libraries, proprietary converters and viewing and annotation tools)
5. including testing and demonstration of standard annotation creation, storage and visualization in upcoming DICOM WG26 Connectathons
6. liaising with other stakeholder organizations including The Alliance, DPA, API, FDA, IHE, SIIM, NCI, etc
7. liaising with other DICOM WGs, esp. WG 23 AI/ML, WG 27 Web Services

**Call Highlights**

- 3D Histech and Cytomine have provided their annotation information to the group.

1300 North 17th Street, Suite 900
Arlington, VA 22209, USA
+1-703- 841-3259
https://www.dicomstandard.org/
dicom@dicomstandard.org

- Next call will focus holes and 2D vs 3D images. Markus Herrman will circulate the documentation his team has developed regarding holes.
- Creating a reference implementation will be a high priority for the group.
- The group started to review 3D Histech's annotation documentation.
- There was substantial discussion around using code sets for the measurements different AI's may produce. Group comments included:
    - It will be difficult to standardize on a set of measurement codes due to the thousands of different types of measurements that could be taken.
    - We could focus on a subset of measurement codes that will be most clinically relevant and able to be billed for.
    - The features determined by CNN's may be new and not able to be associated with a particular code.
- The group had an initial discussion on how holes might be handled.
    - There is existing DICOM documentation related to holes already, however it maybe not be appropriate for WSIs.

**Action items**

- Vendors are asked to submit their annotation documentation if they have not already done so.

**Documentation**

The Group has started this GoogleDoc for documenting use cases and the perceived limitations of the current standard in regards to annotations:
https://docs.google.com/document/d/171AddB_Q8Fpg4lG_KxpZDKbCH_xcQ-KL7VPztCy2tms/edit?usp=sharing

**Next Meeting**

- January 7th at 9:00 AM CST via GoToMeeting (Link Below)
- https://global.gotomeeting.com/join/462533829

**Adjournment**

The meeting was adjourned at 10:00 CST.

Submitted by Kevin Schap, Secretary
Reviewed by Luiza Kowalczyk, DICOM Secretariat
Reviewed by counsel: Clark Silcox, 12-16-2019.