

MINUTES: ULTRASOUND DICOM WG – WG 12

PLACE OF MEETING: COAST PLAZA SUITES AT STANLEY PARK  
VANCOUVER, BRITISH COLUMBIA, CANADA

DATE AND TIME: WEDNESDAY, SEPTEMBER 27, 2000  
8:30 A.M.  
THURSDAY, SEPTEMBER 28, 2000  
8:30 A.M.

MEMBERS PRESENT :

Brian Ferguson	Acuson
Aaron Frank	VMI Medical
John Gericke	Camtronics *
Danny Grob	Siemens Medical Systems
David Heaney	ALI Technologies
Masao Kobayashi	Aloka
Lars Linmarker	GE Medical Systems
Pete Magsig	Acuson
Doug Sluis	ATL
Bernie Stumpf	Agilent Technologies

\*Wednesday only

MEMBERS ABSENT :

Masakuza Osada	Toshiba America Medical Systems
----------------	---------------------------------

OTHERS PRESENT:

Richard Eaton	NEMA Staff
---------------	------------

PRESIDING OFFICER: DAVID HEANEY, CHAIRMAN

I. REVIEW OF PREVIOUS MINUTES

The minutes of the May 11-12, 2000 meeting were approved as distributed.

## II. DISCUSSION OF STRUCTURED REPORTING ISSUES

It was announced that Dean Bidgood had resigned as chair of WG 8— Structured Reporting. WG 6, it was reported, would need to take up the workload until a new chair was elected.

Template development was then discussed. A problem was cited in that not many people really understood the mapping of templates. There were different ways of presenting measurements and observations. Templates should be designed for each subject area. The example of the series of templates in a tree structure used by Mammo was mentioned.

Templates were found in Supplement 53. It was stated that WG 8 Mammo Cad and other groups were reported to all be involved in development of templates in their own way. It was felt that it would be useful to have an overall template and then define an individual template for measurement of a subject area, such as gestational age. Everyone was urged to take a look at the Mammo Cad proposal. Templates, it was stated, were normative but the use of them was informative. In the SR SOP Class one could point to which templates must be used and what each template will point to.

It was stated also that templates were not needed for measurements but were necessary for conveying relationships. It was essential that areas be defined in which templates were needed, and standardized examples should be developed. Templates should display what is desired to be conveyed and how it is to be conveyed in a tree structure. A concern was raised that Supplement 53, which was in fact a template for templates, would be inflexible.

## III. OBSERVATION CONTEXT – GENERAL COMMENTS AND SPECIFIC RECOMMENDATIONS

Dave Heaney distributed David Clunie's work on "Observation Context, General Comments and Specific Recommendations," which was to be used as a discussion paper for this week's WG 6 meeting. Members agreed there was a need for rules regarding Observation Context, however, it was recognized that it would be difficult to come up with rules in the DICOM Supplement; consistency was urged. There was consensus that members of WG 12 should express to WG 6 whether this would be workable. A significant question raised was whether this proposal would make it difficult to parse data and achieve interoperability. The proposal should be examined off-line. Dave Heaney asked that members review it and respond with any comments to him prior to the October 30 WG 6 meeting.

A break was taken at 10:10 a.m. and the meeting began again at 10:40 a.m.

#### IV. REVIEW OF DEVELOPMENT OF ANATOMIC TERMINOLOGY

Rich Eaton reported that no codes had been received from anyone regarding vascular/neurology terminology. It was announced that the WG 6 directory on the NEMA website contained the codes on the SNOMED code list which SNOMED had agreed to give to DICOM royalty-free.

It was recommended that the DCMR code be placed in a separate part of the standard and a code table be available in a standard database format such as Excel. It was reported that vascular terminology, which had been obtained from Dr. Gregory Moneta, had been sent to Dr. Don Emerson. It was declared that references on the terms were needed. Dave Heaney agreed to contact Clem MacDonald to see if any progress had been made on incorporating terms which had been sent to him to be placed into LOINC. Don Emerson, it was reported, had expanded the number of vascular terms. It was noted that LOINC headings were ambiguous. Don had raised some pertinent questions regarding the lists.

Members felt that coding and terminology was too detailed, complex and extensive a task to be assigned to an Ad Hoc WG, associated with WG 6. Instead, it was felt that it would make the most sense to have this task delegated to WG 8. It was also stated that WG 6 was looking for an official representative from WG 12 to serve on the Ad Hoc Group. Representatives from industry, HIS/RIS, SNOMED and LOINC and professional societies should participate. Richard Crane was named as chair of this group. Janet Keyes of WG 15 was also serving on the WG.

A break was taken for lunch at 12:30 p.m. and the meeting resumed at 1:55 p.m.

#### V. DOCUMENT STRUCTURE

It was stated that a template was needed to measure Observation Context. Observation Context for fetus A and fetus B was cited as an example.

A specific action item was given to Peter Magsig to generate sample reports for ob/gyn and cardiac, for discussion at the next meeting. It should be e-mailed to everyone prior to the meeting. Dave Heaney agreed to try to generate other types of reports. Doug Sluis was asked to look at echocardiography reports.

## VI. WAVEFORM ISSUES

At the last WG 6 meeting, the Ultrasound Waveform Supplement was presented. Comments had been generally favorable. It was stated that phonocardiogram should be able to be handled. There would not likely to be much resistance if the IOD mandated inclusion of both image and waveform data.

A question was raised whether it would be desirable to push for a new Ultrasound Image IOD. Complexity existed in linking separate SOP classes. In addition, it was questioned whether there should be another SOP class for Image Data.

Several options were discussed:

-Standalone HF waveform object or new Comprehensive IOD which mandates both single frame and multi-frame and waveform. A new IOD would be all-encompassing and would have a new SOP class. Without audio one would use an old SOP class, but with audio a new SOP class would be used.

It was argued that having a separate waveform object would make implementation easier. This was deemed to be an issue of interest to all of DICOM and feedback should be obtained.

A motion was duly made and seconded to move forward with submission of a draft with a new ultrasound waveform data only IOD. The motion carried with 8 in favor and 1 abstaining. Dave Heaney agreed to take an action item on waveforms for the next meeting.

A break was taken at 3:10 p.m. and the meeting began again at 3:35 p.m.

## VII. STATUS REPORT ON MPEG COMPRESSION

Aaron Frank reviewed the discussion on MPEG at the last meeting. MPEG was stated to be five times better than JPEG. MPEG should be an improvement over JPEG 2000, although this view was not shared by David Clunie.

A Mayo Report had reported that in its study JPEG with a 12:1 – 15:1 compression was found to yield acceptable ultrasound quality for multi-frame clips. Aaron stated that he hoped to have a study of MPEG vs. JPEG available for review at the next meeting.

## VII. (Cont'd.)

It was stated that CBR was the advisable way to go. ABR/VBR bitstreams were said to offer few advantages.

The meeting recessed for the day at 5:00 p.m. and began at 8:45 a.m. on the next day.

## VIII. MPEG DISCUSSION

Further discussion ensued on MPEG. It was stated that customers would want to see at a minimum 30 FPS. MPEG should be used for particularly long clips, and for longer studies. MPEG would need to be accepted as VCR declined in use, although it was noted that Motion JPEG 2000 would likely become part of DICOM. Dave Heaney agreed to talk with Dave Clunie regarding MPEG images in DICOM media using the Part 10 format.

The advantages and disadvantages of the various versions of MPEG were reviewed. It was stated that MPEG versions # 7, # 21 would be used only in the long-range future. MPEG 2 seemed to be the preferred version. There was no advantage of MPEG 4 over MPEG 2 unless one was dealing with objects.

A break was taken at 10:35 a.m. and the meeting resumed at 11:00 a.m.

Aaron recommended that JPEG still be used for stills and short loops, while MPEG be employed in storing longer sequences of images. MPEG was not intended to be a replacement for JPEG for general imaging use.

Concern was raised about support of 18 versions of MPEG. After considerable discussion, Aaron recommended that the following be employed:

- MPEG 1 Generic Bitstream
- MPEG 2 ATSC all 18 views
- MPEG 2 ATSC subset
- MPEG 2 Generic Bitstream for future use

A proposal was made to use a photometric interpretation of YBR\_Full\_420. In Part V of the standard would be explained what headers were meaningful.

Aaron agreed to try to unearth further information on digital VCR and continue the MPEG study. He also asked for member companies to send him additional images, especially those dealing with visible light and ophthalmology images. Dave Heaney will try to obtain these uncompressed images from Lloyd Hildebrand.

VIII. (Cont'd.)

Aaron was asked to write a change proposal on MPEG adaptation to DICOM with supporting rationales. This change proposal should include an explanation on how to handle advanced compression issues.

IX. PROTOCOL DATA MANAGEMENT DISCUSSION

Dave Heaney explained the proposal on protocol data management. He stated that Action Item Code Sequences were very vague and should be made explicit to indicate protocol codes. Protocol codes and stage codes had been submitted to SNOMED.

At the WG 6 meeting, Dave reported that the proposal to change Scheduled Action Item Code Sequence to be Scheduled Protocol Code Sequence was likely to succeed. Stage Code Sequences would be added. Stage Name would be included as a new element. SNOMED would need to assign a Context ID, but this was not yet completed, although a Context Group Name had been assigned.

The Baseline Context Groups should be refined for ultrasound or a new Ultrasound Series Module should be adopted. Coding issues should be added to a change proposal. These should be royalty-free in accordance with the existing agreement with SNOMED.

X. TIME AND PLACE OF NEXT MEETING

The next meeting was scheduled for Thursday and Friday, November 16-17, 2000 in New Orleans, Louisiana, at the Holiday Inn Chateau Le Moyne, located at 300 Rue Dauphine. Members were informed how to make reservations prior to the cutoff date of October 15.

XI. ADJOURNMENT

The meeting was adjourned at 12:30 p.m.

REPORTED BY:

Richard Eaton,  
Industry Manager,  
(October 2, 2000)

REVIEWED BY COUNSEL