4.5.2.3. Patient study module

Patient study module information is all Type 3, but become mandatory operational conditions in some modalities. However, such information can be generated at a modality system, so it is not essential to obtain it from the IS.

The following items are obtained from MWM or generated at a modality system, and set to image data.

#27 Admitting diagnosis description
#28 Patient's age
#29 Patient's size
#30 Patient's weight
#31 Occupation
#32 Patient's Additional Medical History

4.5.2.4. General study module

The following data is obtained from an information system (IS) or generated by a modality system and transmitted as image data or MPPS data.

The following items are obtained from the MWM data, and the modality sets them to image data and MPPS data.

#57 Requested Procedure ID
#58 Scheduled Procedure Step Description
#59 Scheduled and Performed Item Code Sequence
#61 Scheduled Procedure Step ID

The following items are generated at a modality system, and set to image data and MPPS data.

#35 Modality
#36 Series Description
#37 Performing Physician's Name
#38 Operator's Name
#43 Protocol Name
#45 Series Instance UID
#50 Performed Procedure Step Start Date
#51 Performed Procedure Step Start Time
#52 Performed Procedure Step ID
#53 Performed Procedure Step Description
#54 Performed Procedure Item Code Sequence

5. Operation of Codes

5.1 Policies of Code Generation

To make the information transfer standards significant, it is desirable that not only the data ~~grammar~~format, but also the codes and terms used within, be common. To achieve this, the DICOM standards provide many terminology tables and describe many codes.

Compared with image study related information in the United State of America, study order contents are often segmented in Japan. Therefore, codes and terminology table contents for requesting studies prepared in accordance with the DICOM standards do not work well in Japan.

On the other hand, although a trial for generating detailed image study codes for common use throughout the nation had been performed in the past, the rapid progress in imaging system development made it difficult to reach the establishment. At the same time, if a local code is trusted, not only the merits of the standards are reduced, but there may be obstacles in comparing the same data at different facilities because it is expected that analysis of various data sets at image check sections will be more important.

Basic category codes were then generated to provide common terms regarding studies (techniques), regions, and directions so they can be used as the base if detailed local codes are further required.

5.2 Use of Existing Codes and Local Extension Codes

Although the descriptions for each code should be referred to for details, we do not think they can support all situations. It does not matter if, as required, detailed description is further given. At this time, it is desirable not only to give such detailed description, but also to find out what basic category (for common terms) corresponds to the description and add the description to the category to generate fine category codes locally.

For example, although "Contrast-enhanced CT (NOS)" is CT.02.00, some facilities add ".01" to the end, thus making code as CT.02.00.01, to differentiate dynamic contrast-enhanced CT from normal contrast-enhanced CT. This makes it possible to transfer detailed information locally. The contents are based on the category for common terms, and the minimum information can be transferred using common term "CT.02.00", enabling comparison of the same data at different facilities, etc. When a small region code category is classified into finer categories, the code shall be extended to ".01",".02",,, in the same manner as for the fine classification of modality.

To extend a large or small category instead of a fine ~~category~~classification, the following shall be ~~performed~~used:
Extension of large category for modality .51 .52 .53 ,,,,
Extension of small category for modality .51 .52 .53 ,,,,
Extension of small category for region .901 .902 .903 ,,,,

For example, if some facility differentiate normal CT examinationsystems from multislice CT examinationsystems when placing an order, CT.51.00 "Multislice CT, NOS" should be set because adding multislice CT examinationsystems belong tois an extension of a large category.

It is also recommended that the contents of an order (character string) displayed in the order screen be sent using the code meaning (character string). This is because the intention of the order issuer is communicated to the receiver more precisely. In addition, information can be communicated to a receiver who does not have the same code as the meaning can be understood by reading it.

Usually, "JJ1017P", "JJ1017T", etc. are entered as Coding Scheme Designators. If an extension like this is performed, the character string shall be followed by an arbitrary character string after the "/" as in "JJ1017P/HMU1.0" to identify the facility at which the extension was performed and the version number.

Although use of a code that has already been used locally is permitted, at this time the Coding Scheme Designators, for example, "L/HMU", which indicates "L" for local code, and the character string after the "/" indicating the facility.
It is recommended that the code meaning (character string) (0008,0104) be used to send not only the local code but the order contents as a character string at the same time.

With regard to the direction code, SNOMED code that can be used in DICOM is defined as SNM3 and therefore the code corresponding to it should be searched first. If the corresponding code is not found, the "JJ1017D" code shall be used.
In either case, if extension and fine classification have been performed, please send a report to the JJ1017 Committee via JIRA or JAHIS. As a result, we can immediately issue a common term for a new modality, etc.

5.3 Study Code

5.3.1 Description of study (technique) code

Regretfully, there are no study codes or technique codes for radiology departments that are widely used as a standard. Various codes are generated for each facility based on that facility's requirements, and they are set in the HIS, RIS, PACS, or a modality system as the master codes.

For the DICOM standards, the modality code is defined at (0008,0060). In Japan, however, it is difficult to actually install the connection function utilizing the attribute tag given in this document by using only the code because a requested study includes more detailed items in Japan. This committee therefore generated a lower-level code system based on the modality code.

This document neither enforces the use of codes defined here nor prevents the use of existing codes, if any. We are happy if the codes defined here are used as the basis for newly generated codes.

The Coding Scheme Designators of the study code shall be "JJ1017~~R~~I". For the code meaning, "modality", "large category", and "small category" shall be described by character strings and connected with a period ".".

The configuration of the "Study (technique) code table" in Tables D-1 and D-2 is described below.
<1> Modality
Modality items are classified matching the DICOM modality code level.

<2> Large category
Major studies and treatment types are classified for each modality.
"NOS" (Not Otherwise Specified)" is defined for each large category, assuming that there is a case where nothing is specified for a small category.

<3> Small category
A study or treatment type classified in <2> "Large category" is further classified to a level permitting the code to be used for expression of a technique.

<4> Code Value
Two characters are used to indicate each of the modality, large category, and small category, and they are connected with periods to constitute a code.

For a modality code, two alphabetical letters are used.
For a large category and a small category, a two-digit number is used.
NOS of a small category is coded to "00".

5.3.2 Study code extension method
It seems unnecessary to extend a modality code. For extension of a large category code, "51" onwards shall be used in the second code notification field. For extension of a small category code, "51" onwards shall be used in the third code notification field. When a small category code is segmented, a fourth field connected with a period shall be provided and "01" onwards shall be used.

When extension or segmentation is performed, the Coding Scheme Designator shall be assigned by following "JJ1017T" with a slash "/" and then the abbreviated name of the facility at which extension is performed. For example, when extension is performed at Hamamatsu University School of Medicine, the code identification is "JJ1017T/HMU", etc.

5.4 Region Code

5.4.1 Description of Region Code

Like the study (technique) codes, region codes that are widely used as standards do not yet exist. Although 909 terms are described as region codes in "SNOMED-DICOM Subset", they are unsuitable for use in Japan where requested studies include more detailed items. This committee then took out the region information from image study item codes actually used in Japanese hospitals to generate the region codes.

A region code in this document shall be a 6-digit code consisting of the large region (2 digits), organ-system region (1 digit), and small region (3 digits), with a period between regions to ensure it is handled as a code value (Tables E-1). Since a large region code and an organ-system region code are included, the code meaning is easily understood and extension can be performed easily at each facility.

The Coding Scheme Designator of the region code shall be "JJ1017P" and a description corresponding to the small region code shall be used as the Code Meaning.

(1) Large region code (Tables E-2)
This is a rough expression of the imaging (study) range used to indicate the body region to be projected on film. It is not just a simple term such as "chest" or "abdomen" but combinations used to express several regions such as "chest-abdomen" (meaning both chest & abdomen) are defined in order to take actual use into consideration.

(2) Organ-system region code (Table E-3)
Imaging (study) target organs are classified based on the organ system and expressed. Although NOS (Not Otherwise Specified) is defined for both the large region code and organ-system code, it is not used in this region code.

(3) Small region code
This is ~~not defined as~~ an actual region code. This is simply a three-digit number. ~~(901 onwards).~~

5.4.2 Region code extension method
Extension of large region codes and organ-system regions seems unnecessary. When a small region code is extended, "901" or later shall be used in the third field (3 digits) of the node notation. When a small region code is segmented, a fourth field (2 digits) separated by a period shall be set and "01" or later shall be used.

When extension or segmentation is performed, the Coding Scheme Designator shall be assigned by following "JJ1017P" with a slash "/" and then the abbreviated name of the facility at which extension shall be performed. For example, when extension is performed at Hamamatsu University School of Medicine, the code-system identification is "JJ1017T/HMU", etc.

5.5 Description of directional code

The Coding Scheme Designator (0008,0102), the Code Value (0008,0100), and the Code Meaning (0008,0104) of the directional codes to be described in the Scheduled Action Item Code Sequence (0040,0008) are described in Table F. The Coding Scheme Designator shall be "JJ19017D" or "JJ1017D/SNM3". To perform extension or fine classification~~segmentation~~, "51" onwards shall be used as the Code Value. When extension or segmentation is performed, the code identification shall be assigned by appending "JJ1017T" with a slash "/" and the abbreviated name of the facility at which extension is performed. For example, when extension is performed at Hamamatsu University School of Medicine, the code identification is "JJ1017T/HMU", etc.

Note: Table F is generated based on the directional codes of Toyama Medical and Pharmaceutical University Hospital.

Directional codes handled in DICOM PS3.3-2000 are described below for reference purposes.

Annex E Explanation of patient orientation (Normative)
A (anterior), P (posterior), R (right), L (left), H (head), and F (foot) are the six basic orientation codes. The following examples of combinations are given: AL, PR, RA, LP, RH, LF, HR, FL, HP, FA, HR, FL, AR, PL, AF, PH, RF, and LH.

Table C.8-1 CR Series Module Attributes
AP, PA, LL (= left lateral), RL, RLD, LLD (= left lateral decubitus), RLO, and LLO (= left lateral oblique) are defined as View Position (0018,5101).

Table C.8-11 NM Detector Module Attributes
Context ID 26 - Nuclear Medicine Projections are defined as View Code Sequence (0054,0220).

Table C.8-18 US Image Module Attributes
Context ID 5 - Transducer Approach is defined as Transducer Position Modifier Sequence (0008,2242), Context ID 6 - Transducer Orientation is defined as Transducer Orientation Sequence (0008,2244), and ID 7 -Ultrasound Beam Path is defined as Transducer Orientation Modifier Sequence (0008,2246).

C.8.11.5.1.1 View Code Sequence
Context ID 4010 - DX View is defined.

C.8.11.5.1.2 View Modifier Code Sequence
Context ID 4011 - DX View Modifier is defined.

C.8.11.5.1.3 Patient Orientation Code Sequence
Context ID 19 - Patient Orientation is defined.

C.8.11.5.1.4 Patient Orientation Modifier Code Sequence
Context ID 20 - Patient Orientation Modifier is defined.

C.8.11.5.1.5 Patient Gantry Relationship Code Sequence
Context ID 21 - Patient Gantry Relationship is defined.

C.8.11.5.1.6 Projection Eponymous Name Code Sequence
Context ID 4012 - Projection Eponymous Name is defined.

C.8.11.7.1.2 View Code Sequence
Context ID 4014 - View for Mammography is defined.

C.8.11.7.1.3 View Modifier Code Sequence
Context ID 4015 - View Modifier for Mammography, etc. is defined.

6. Use of Japanese

Chapter 5 Annex H of the DICOM standards gives details on the method for using multiple-byte characters in the DICOM standards. It is recommended that this method always be used when using Japanese for describing personal names, facility names, etc. With regard to personal names, Annex H contains 1-byte Katakana usage. However, 1-byte Katakana should be avoided as far as possible, considering network data transfer.

From the viewpoint of prevention of accidents at clinical sites in addition to the above case, the use of Japanese should be encouraged.

7. Version Management and Management Systems in the Future

Of the codes, the change in study technique will be particularly significant in the future due to the progress of equipment. In this case, it is feared that standard terms will be extended separately in up-to-date equipment introduced at various sites.

Both Associations (JAHIS and JIRA) act as leader to call up the JJ1017 committee as required to maintain this document. If a user thinks that the codes to be used as a common language should be extended, please report on what is required to either Association.

8. List of the JJ101~~0~~7 committee

[] Chairman	Michio Kimura	Hamamatsu University School of Medicine []
	Yutaka Ando	Keio University
	Akira Ito	Cancer Institute, Japanese Foundation for Cancer Research
	Kiyonari Inamura	Osaka University Medical School
	Makoto Kuranishi	Toyama Medical and Pharmaceutical University
	Yoshiharu Sukenobu	Osaka University Medical School Hospital
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	~~——~~Makoto Aga	Fujitsu Limited
	Tsutomu Igarashi	Toshiba Medical Systems Engineering Co., Ltd.
	Hisashi Endo	GE Yokogawa Medical Systems, Ltd.
	Masaaki Otsuka	Fuji Photo Film Co., Ltd.
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[] Steward	Syhun Kabata	Hitachi Medico Technology Corporation []
	Hiroyuki Kubo	Konica Corporation
	Isamu Gunji	Hitachi Medico Technology Corporation
	Toshiyuki Kouyama	NEC Corporation
	Hidenori Shinoda	Toshiba Corporation Medical Systems Company
	Hiroshi Takano	Yokogawa Electric Corporation
	Shigekazu Takahashi	Shimadzu Corporation
	Masahiro Tamegai	Canon Inc.
	Hajime Nagai	NEC Corporation
	Takashi Nakashima	Toshiba Corporation Medical Systems Company
	Masayuki Hata	Konica Medical Inc.
	Makoto Hara	J-MAC System, Inc.
	Shinju Horiguchi	NTT Software Corporation
	Syuhei Mori	Siemens-Asahi Medical Technologies Ltd.
[] Steward	Shinya Morimura	ALOKA Co., Ltd. []
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Table B: MPPS List

NC=N-Create, NS=N-Set, NG=N-Get

#	Attribute Name	DICOM Tag	Attribute Description	VR	NC	NS	NG	WM	necessity	Employment name	MWM	Modality
SOP COMMON MODULE												
1	Specific Character Set	(0008,0005)	Character Set that expands or replaces the Basic Graphic Set. Required if an expanded or replacement	CS	1C/1C	failure	3/1C	1C	Ac		●	
PERFORMED PROCEDURE STEP RELATIONSHIP MODULE												
2	Patient's Name	(0010,0010)	Patient's full name	PN	2/2	failure	3/2	1	B	Patient's Name	●	●
3	Patient ID	(0010,0020)	Primary hospital identification number or code for the patient	LO	2/2	failure	3/2	1	A	Patient ID	●	●
4	Patient' s Birth Date	(0010,0030)	Date of birth of the named patient	DA	2/2	failure	3/2	2	B	Patient's Birth Date	●	●
5	Patient's Sex	(0010,0040)	Sex of the named patient. Enumerated Values:M = male F = female O = other	CS	2/2	failure	3/2	2	A	Patient's Sex	●	●
6	Referenced Patient Sequence	(0008,1120)	Uniquely identifies the Patient SOP Instance that relates to the Visit SOP Instance. Only a single Item shall be permitted in this Sequence.	SQ	2/2	failure	3/2	2	C			
7	>Referenced SOP Class UID	(0008,1150)	Uniquely identifies the referenced SOP Class.	UI	1C/1	failure	-/1C	2	C			
8	>Referenced SOP Instance UID	(0008,1155)	Uniquely identifies the referenced SOP Instance.	UI	1C/1	failure	-/1C	2	C			
9	Scheduled Step Attribute Sequence	(0040,0270)	Sequence containing attributes that are related to the scheduling of the Procedure Step. The Sequence may have one or more Items.	SQ	1/1	failure	3/1		C			
10	>Study Instance UID	(0020,000D)	Unique identifier for the Study.	UI	1/1	failure	-/1	1	B		●	
11	>Referenced Study Sequence	(0008,1110)	Uniquely identifies the Study SOP Instance associated with this Scheduled Procedure Step. This Sequence shall have only one Item.	SQ	2/2	failure	-/2	2	B		●	
12	>>Referenced SOP Class UID	(0008,1150)	Uniquely identifies the SOP Class.	UI	1C/1	failure	-/1C	1C	B		●	
13	>>Referenced SOP Instance UID	(0008,1155)	Uniquely identifies the SOP Instance.	UI	1C/1	failure	-/1C	1C	B		●	
14	>Accession Number	(0008,0050)	A departmental IS generated number which identifies the order for the Study.	SH	2/2	failure	-/2	2	B		●	
15	>Placer Order Number/Imaging Service Request	(0040,2016)	The order number assigned to the Imaging Service Request by the party placing the order.	LO	3/3	failure	-/3	3	B			
16	>Filler Order Number/Imaging Service Request	(0040,2017)	The order number assigned to the Imaging Service Request by the party filling the order.	LO	3/3	failure	-/3	3	B			
17	>Requested Procedure ID	(0040,1001)	Identifier of the related Requested Procedure.	SH	2/2	failure	-/2	1	B		●	
18	>Requested Procedure Description	(0032,1060)	Institution-generated administrative description or classification of Requested	LO	2/2	failure	-/2	1C	B			
19	>Scheduled Procedure Step ID	(0040,0009)	Identifier of the related Scheduled Procedure Step.	SH	2/2	failure	-/2	1	B		●	
20	>Scheduled Procedure Step Description	(0040,0007)	Institution-generated description or classification of the Scheduled Procedure Step to be performed.	LO	2/2	failure	-/2	1C	B		●	
21	>Scheduled Action Item Code Sequence	(0040,0008)	Sequence describing the Scheduled Action Item(s) following a specific coding scheme. This sequence contains one or more Action Items.	SQ	2/2	failure	-/2	1C	B	examination code.	●	
22	>>Code Value	(0008,0100)	See Section 8.1. Required if a sequence item is present.	SH	1C/1	failure	-/1C	1C				
23	>>Coding Scheme Designator	(0008,0102)	See Section 8.2. Required if a sequence item is present.	SH	1C/1	failure	-/1C	1C				
24	>>Coding Scheme Version	(0008,0103)	See Section 8.2. Required if a sequence item is present and the value of Coding Scheme Designator (0008,0102) is not sufficient to identify the Code Value (0008,0100) unambiguously.	SH	3/3	failure	-/3					
25	>>Code Meaning	(0008,0104)	See Section 8.3. Required if a sequence item is present.	LO	3/3	failure	-/3					
PERFORMED PROCEDURE STEP INFORMATION MODULE												
26	Performed Station AE Title	(0040,0241)	AE title of the modality on which the Performed Procedure Step was performed.	AE	1/1	failure	3/1		A	Device name.	●	
27	Performed Station Name	(0040,0242)	An institution defined name for the modality on which the Performed Procedure Step was performed.	SH	2/2	failure	3/2		B	examinaton Facilities name.		●
28	Performed Location	(0040,0243)	Description of the location at which the Performed Procedure Step was performed.	SH	2/2	failure	3/2		B	examinaton department.		●
29	Performed Procedure Step Start Date	(0040,0244)	Date on which the Performed Procedure Step started.	DA	1/1	failure	3/1		A	Study Date.	●	
30	Performed Procedure Step Start Time	(0040,0245)	Time at which the Performed Procedure Step started.	TM	1/1	failure	3/1		A	Study Start time.	●	
31	Performed Procedure Step ID	(0040,0253)	User or equipment generated identifier of that part of a Procedure that has been carried out within this step.	CS	1/1	failure	3/1		B			●
32	Performed Procedure Step End Date	(0040,0250)	Date on which the Performed Procedure Step ended.	DA	2/2	3/1	3/2		B			●
33	Performed Procedure Step End Time	(0040,0251)	Time at which the Performed Procedure Step ended.	TM	2/2	3/1	3/2		B			●
34	Performed Procedure Step Status	(0040,0252)	Contains the state of the Performed Procedure Step. Enumerated Values: IN PROGRESS = Started but not complete DISCONTINUED = Canceled or unsuccessfully terminated COMPLETED = Successfully completed	CS	1/1	3/1	3/1		A			●
35	Performed Procedure Step Description	(0040,0254)	Institution-generated description or classification of the Procedure Step that was performed.	DA	2/2	3/2	3/2		C		●	●
36	Comments on the Performed Procedure Step	(0040,0280)	User-defined comments on the Performed Procedure Step.	ST	2/2	3/2	3/3		C		●	●

Table B: MPPS List

#	Attribute Name	DICOM Tag	Attribute Description	VR	NC	NS	NG	WM	necessity	Employment name	MWM	Modality
37	Performed Procedure Type Description	(0040,0255)	A description of the type of procedure performed.	LO	2/2	3/2	3/2		B			●
38	Procedure Code Sequence	(0008,1032)	A sequence that conveys the (single) type of procedure performed.	SQ	2/2	3/2	3/2		B		●	●
39	>Code Value	(0008,0100)	See Section 8.1. Required if a sequence item is present.	SH	1C/1	1C/1	-/1C	1C			●	●
40	>Coding Scheme Designator	(0008,0102)	See Section 8.2. Required if a sequence item is present.	SH	1C/1	1C/1	-/1C	1C			●	●
41	>Coding Scheme Version	(0008,0103)	See Section 8.2. Required if a sequence item is present and the value of Coding Scheme Designator (0008,0102) is not sufficient to identify the Code Value (0008,0100) unambiguously.	SH	3/3	3/3	-/3					
42	>Code Meaning	(0008,0104)	See Section 8.3. Required if a sequence item is present.	LO	3/3	3/3	-/3					
IMAGE ACQUISITION RESULTS MODULE												
43	Modality	(0008,0060)	##	CS	1/1	failure	3/1	1	A	Modality	●	●
44	Study ID	(0020,0010)	User or equipment generated Study Identifier.	SH	2/2	failure	3/2		B			●
45	Performed Action Item Sequence	(0040,0260)	Sequence describing the Action Items performed for this Procedure Step. This sequence may have zero or more Items.	SQ	2/2	3/2	3/2		B	Execution examination code.		
46	>Code Value	(0008,0100)	See Section 8.1. Required if a sequence item is present.	SH	1C/1	1C/1	-/1C					
47	>Coding Scheme Designator	(0008,0102)	See Section 8.2. Required if a sequence item is present.	SH	1C/1	1C/1	-/1C					
48	>Coding Scheme Version	(0008,0103)	See Section 8.2. Required if a sequence item is present and the value of Coding Scheme Designator (0008,0102) is not sufficient to identify the Code Value (0008,0100) unambiguously.	SH	3/3	3/3	-/3					
49	>Code Meaning	(0008,0104)	See Section 8.3. Required if a sequence item is present.	LO	3/3	3/3	-/3					
50	Performed Series Sequence	(0040,0340)	Attributes of the Series that comprise this Modality Performed Procedure Step. The Sequence may have zero or more Items.	SQ	2/2	3/1	3/2		A			●
51	>Performing Physician's Name	(0008,1050)	Name of the physician administering this Series.	PN	2C/2	2C/2	-/2C		A			●
52	>Operator's Name	(0008,1070)	Name of the operator who performed this Series.	PN	2C/2	2C/2	-/2C		A			●
53	>Protocol Name	(0018,1030)	User-defined description of the conditions under which the Series was performed.	LO	1C/1	1C/1	-/1C		B			●
54	>Series Instance UID	(0020,000E)	Unique Identifier of the Series.	UI	1C/1	1C/1	-/1C		A			●
55	>Series Description	(0008,103E)	User provided description of the Series	LO	2C/2	2C/2	-/2C		C			●
56	>Retrieve AE Title	(0008,0054)	Title of the DICOM Application Entity where the Images and Standalone SOP Instances in this Series may be retrieved on the network. Note: The duration for which this location remains valid is unspecified.	AE	2C/2	2C/2	-/2C		C			●
57	>Referenced Image Sequence	(0008,1140)	A Sequence that provides reference to one or more sets of Image SOP Class/SOP Instance pairs. The sequence may have zero or more Items.	SQ	2C/2	2C/2	-/2C		B			●
58	>>Referenced SOP Class UID	(0008,1150)	Uniquely identifies the referenced SOP Class.	UI	1C/1	1C/1	-/1C		B			●
59	>>Referenced SOP Instance UID	(0008,1155)	Uniquely identifies the referenced SOP Instance.	UI	1C/1	1C/1	-/1C		B			●
60	>Referenced Standalone SOP Instance Sequence	(0040,0220)	Uniquely identifies Standalone IODs such as LUTs, Curves or Overlays related to these images. The sequence may have zero or more Items.	SQ	2C/2	2C/2	-/2C		B			●
61	>>Referenced SOP Class UID	(0008,1150)	Uniquely identifies the referenced SOP Class.	UI	1C/1	1C/1	-/1C		B			●
62	>>Referenced SOP Instance UID	(0008,1155)	Uniquely identifies the referenced SOP Instance.	UI	1C/1	1C/1	-/1C		B			●
RADIATION DOSE MODULE												
63	Anatomic Structure, Space or Region Sequence	(0008,2229)	Anatomic structure, space or region that has been exposed to ionizing radiation. The sequence may have zero or one Items.	SQ	3/3	3/3	3/3		B			
64	>Include 'Code Sequence Macro' Table 8.8-1	-	No Baseline Context ID is defined.		3/3	3/3	3/3					
65	Total Time of Fluoroscopy	(0040,0300)	Total duration of X-Ray exposure during fluoroscopy in seconds (pedal time) during this Performed Procedure Step.	US	3/3	3/3	3/3		Ac			●
66	Total Number of Exposures	(0040,0301)	Total number of exposures made during this Performed Procedure Step. The number includes nondigital and digital exposures.	US	3/3	3/3	3/3		Ac			●
67	Distance Source to Detector(SID)	(0018,1110)	Distance in mm from the source to detector center; SID: Source Image Distance.	DS	3/3	3/3	3/3		Bc			●

Table B: MPPS List

#	Attribute Name	DICOM Tag	Attribute Description	VR	NC	NS	NG	WM	necessit y.	Employment name	MWM Modality
68	Distance Source to Entrance	(0040,0306)	Distance in mm from the source to the surface of the patient closest to the source during this Performed Procedure Step. Note: This may be an estimated value based on assumptions about the patient' s body size and habitus.	DS	3/3	3/3	3/3		Bc		●
69	Entrance Dose	(0040,0302)	Average entrance dose value measured in dGy at the surface of the patient during this Performed Procedure Step. Note: This may be an estimated value based on assumptions about the patient' s body size and habitus.	US	3/3	3/3	3/3		C		●
70	Entrance Dose in mGy	(0040,8302)	Average entrance dose value measured in mGy at the surface of the patient during this Performed Procedure Step. Note: This may be an estimated value based on assumptions about the patient' s body size and habitus.	DS	3/3	3/3	3/3		C		●
71	Exposed Area	(0040,0303)	Typical dimension of the exposed area at the detector plane. If Rectangular: row dimension followed by column; if Round: diameter. Measured in mm. Note: This may be an estimated value based on assumptions about the patient' s body size and habitus.	US	3/3	3/3	3/3		C		●
72	Image Area Dose Product	(0018,115E)	##########	DS	3/3	3/3	3/3		C		●
73	Comments on Radiation Dose	(0040,0310)	User-defined comments on any special conditions related to radiation dose encountered during this Performed Procedure Step.	ST	3/3	3/3	3/3		C		●
74	Exposure Dose Sequence	(0040,030E)	Exposure Dose Sequence will contain "Total number of exposures (0040, 0301)" items plus an item for each fluoroscopy episode not already counted as an exposure.	SQ	3/3	3/3	3/3		Ac		●
75	>Exposure Type	(0018,115A)	Enumerated Values: SINGLE FLUORO	CS	3/3	3/3	3/3		Ac		●
76	>KVp	(0018,0060)	Peak kilo voltage output of the x-ray generator used. An average in the case of fluoroscopy.	DS	3/3	3/3	3/3		Ac		●
77	>X-ray Tube Current in μA	(0018,8151)	X-ray Tube Current in μA. An average in the case of fluoroscopy.	DS	3/3	3/3	3/3		Ac		●
78	>Exposure Time	(0018,1150)	Time of x-ray exposure or fluoroscopy in msec.	IS	3/3	3/3	3/3		Ac		●
79	>Filter Type	(0018,1160)	Type of filter(s) inserted into the X-Ray beam (e.g. wedges). See C.7.10 for Defined Terms.	LO	3/3	3/3	3/3		Ac		●
80	>Filter Material	(0018,7050)	The X-Ray absorbing material used in the filter. May be multi-valued. See C.7.10 for Defined Tems.	CS	3/3	3/3	3/3		Ac		●
BILLING AND MATERIAL MANAGEMENT CODE MODULE											
81	Billing Procedure Step Sequence	(0040,0320)	Contains billing codes for the Procedure Type performed within the Procedure Step. The sequence may have zero or more Items.	SQ	3/3	3/3	3/3		B		
82	>Include 'Code Sequence Macro' Table 8.8-1	-	No Baseline Context ID is defined.		3/3	3/3	3/3				
83	Film Consumption Sequence	(0040,0321)	Information about the film consumption for this Per-formed Procedure Step. The sequence may have zero or more Items.	SQ	3/3	3/3	3/3		B		
84	>Number of Films	(2100,0170)	Number of films actually printed.	IS	3/3	3/3	3/3		B		
85	>Medium Type	(2000,0030)	Type(s) of medium on which images were printed. For Defined Terms see Table C.13-1.	CS	3/3	3/3	3/3		B		
86	>Film Size ID	(2010,0050)	Size(s) of film on which images were printed. For Defined Terms see Table C.13-3.	CS	3/3	3/3	3/3		B		
87	Billing Supplies and Devices Sequence	(0040,0324)	Chemicals, supplies and devices for billing used in the Performed Procedure Step. The sequence may have one or more Items.	SQ	3/3	3/3	3/3		C		
88	>Billing Item Sequence	(0040,0296)	Code values of chemicals, supplies or devices required for billing. The sequence may have zero or one Items.	SQ	3/3	3/3	3/3		C		
89	>>Include 'Code Sequence Macro' Table 8.8-1	-	No Baseline Context ID is defined.		3/3	3/3	3/3				
90	>Quantity Sequence	(0040,0293)	Sequence containing the quantity of used chemicals or devices. The sequence may have zero or one Items.	SQ	3/3	3/3	3/3		C		
91	>>Quantity	(0040,0294)	>>Quantity	DS	3/3	3/3	3/3		C		
92	>>Measuring Units Sequence	(0040,0295)	Unit of measurement. The sequence may have zero or one Items.	SQ	3/3	3/3	3/3		C		
93	>>>Include 'Code Sequence Macro' Table 8.8-1	-	Baseline Context ID is 82.		3/3	3/3	3/3				

Table B: MPPS List

Ⅲ. MERIT-9 version 2 (pre-release)

MERIT-9 001:2001

MERIT-9 version 2 (pre-release)

MERIT-9 001-1 : 2001

- Part 1 Patient Referral

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CONTENT

1 Foreword

日本医療情報学会課題研究会「MERIT-9 研究会」は医療情報交換規格 MERIT-9 (Medical Record, Image, and Text Information Exchange) を策定した.

MERIT-9 は 2002 年★★月に医療情報標準化推進協議会 (HELICS Board : Health Information and Communication Standards Board)に登録された.

本規格は以下の分冊より構成され，本規格書は分冊 1 である：

分冊 1　紹介状文書（一患者の診療履歴の授受）
分冊 2　分野別拡張に関する規約
分冊 3　検査依頼と結果報告（医療機関と検査請負業者間の一括授受）
分冊 4　複数患者の診療履歴の一括管理
分冊 5　処方文書と薬歴文書

附属文書に関するコメント ＜copy right : normative/informative ...＞

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平成 9 年度厚生科学研究費補助金情報技術開発研究事業「標準化の国際協調に関する研究」，平成 10 年度厚生科学研究医療技術評価総合研究事業「診療施設間医療情報交換の標準化に関する研究（H10－医療－056)，平成 11 年度厚生科学研究厚生科学特別研究事業「診療施設間医療情報交換の実装に関する研究」(H11-特別-016)，平成 12 年度および平成 13 年度厚生科学研究費補助金医療技術評価総合研究事業「診療施設間患者情報交換と情報収集形式の標準化に関する研究」(H12-医療-012) の，各研究費補助金助成について，旧厚生省ならびに厚生労働省に謝意を表する.

2 Introduction

診療データを施設間で相互に電子的に交換するための記述形式は 1994 年から検討され，SGML（Standard Generalized Markup Language）の応用による一応の成果が公開された．しかし対象とする診療データが多岐にわたる場合，全てのデータ種の記述形式を詳細に定めるには非常な労力を要することとなるうえに，そのような記述形式全体の更新管理には困難を伴うこととなる．一方，HL7 や DICOM では個々のデータ種に特化した記述形式は定められているものの，患者の病歴として多種多時点にわたるデータを記述することには不向きである．

双方の欠点を補い利点を活かすには Markup Language にて診療履歴を記述し，この文書から HL7，DICOM などで記述された個別の診療データを参照する手法が合理的である．この手法ならば文書群全体としてユーザが求める任意の記述深さを実現することができる．また，個々の文書規格は更新管理が困難となるほど大きくせずに済む．なお診療履歴の概要のみを記述交換する場合でも，交換規格への準拠性を保証する必要のあることから，Markup Language にはデータ型を指定できる表現力が求められる．したがって SGML ではなく XML Schema を採用することとした．

この手法を実現するには，診療履歴を記述するための XML 文書のエレメントとその構造の決定，XML インスタンスから HL7，DICOM などで記述された外部インスタンスを参照する方法，個々のデータ形式を整合的統合的に利用する方法，ならびに XML エレメント内で記述するべきアトリビュートその他を定める必要がある．そしてこれらの諸規定の総体が MERIT-9 である．

診療履歴情報の構成要素には医療施設，診療従事者，患者基本情報はもとより，診断病名，所見，処置，検体検査結果，画像，処方などが挙げられる．MERIT-9 は可搬性と準拠性を重視するので，実用的な程度にまで明確な記述形式が定められたデータ種のみを参照すべきデータ種としている．