

DICOM Correction Proposal

STATUS	Letter Ballot
Date of Last Update	2024/03/21
Person Assigned	Silvia Winkler
Submitter Name	silvia.winkler@sigmasoft.at on behalf of WG-32
Submission Date	2023/10/20

Correction Number	CP-2367
Log Summary:	Retire Sleep Stage Codes
Name of Standard	PS3.16, PS 3.6
Rationale for Correction:	The sleep stages I-IV are obsolete, by now, there are only 3 NREM stages, labelled N1, N2 and N3. If possible: add a Note describing the mapping: old stages III and IV → N3
Correction Wording:	

Add to PS3.16 2.1 General

[Berry] Berry RB, Brooks R, Gamaldo CE et al (2012) The AASM Manual for the scoring of sleep and associated events: rules, terminology and technical specifications. Version 2.0. <http://www.aasmnet.org>, Darien, Illinois, American Academy of Sleep Medicine

Change PS3.16 CID 3035 EEG Annotation – Neurophysiologic Enumeration: Move sleep stage codes to new CID 30xx Sleep Stage and omit the obsolete codes for Sleep Stage I, II, III, IV

Resources: HTML | FHIR JSON | FHIR XML | HIS SVS XML
 Keyword: EEGAnnotationNeurophysiologicEnumeration
 FHIR Keyword: dicom-cid-3035-EEGAnnotationNeurophysiologicEnumeration
 Type: Extensible
 Version: 20200623yyyymmdd
 UID: 1.2.840.10008.6.1.1333

Table CID 3035. EEG Annotation – Neurophysiologic Enumeration

Coding Scheme Designator	Code Value	Code Meaning	ISO/IEEE 11073 MDC Equivalent Reference ID (Informative)
...			
MDC	2:23656	Sleep stage unspecified	MDC EEG CLS CRTX SLP STG
MDC	2:23664	Sleep stage unstageable	MDC EEG CLS CRTX UNSTGABLE
MDC	2:23672	Sleep stage wake	MDC EEG CLS CRTX WAKE STG
MDC	2:23680	Sleep stage REM	MDC EEG CLS CRTX SLP REM

<u>MDC</u>	<u>2:23688</u>	<u>Sleep stage REM with sleep spindle</u>	<u>MDC EEG CLS CRTX SLP REM SPINDLE</u>
<u>MDC</u>	<u>2:23696</u>	<u>Sleep Stage I</u>	<u>MDC EEG CLS CRTX SLP STG I</u>
<u>MDC</u>	<u>2:23704</u>	<u>Sleep Stage II</u>	<u>MDC EEG CLS CRTX SLP STG II</u>
<u>MDC</u>	<u>2:23712</u>	<u>Sleep Stage III</u>	<u>MDC EEG CLS CRTX SLP STG III</u>
<u>MDC</u>	<u>2:23720</u>	<u>Sleep stage IV</u>	<u>MDC EEG CLS CRTX SLP STG IV</u>
<u>MDC</u>	<u>2:23728</u>	<u>Alphadelta Sleep</u>	<u>MDC EEG CLS CRTX SLP STG ALPHA DELTA</u>
<u>MDC</u>	<u>2:23736</u>	<u>Sleep activity and event</u>	<u>MDC EEG CLS CRTX SLP ACTIV</u>
<u>MDC</u>	<u>2:23744</u>	<u>Sleep spindle</u>	<u>MDC EEG CLS CRTX SLP SPINDLE</u>
<u>MDC</u>	<u>2:23752</u>	<u>Sleep V wave</u>	<u>MDC EEG CLS CRTX WV V</u>
<u>MDC</u>	<u>2:23760</u>	<u>Sleep F wave</u>	<u>MDC EEG CLS CRTX WV F</u>
<u>MDC</u>	<u>2:23768</u>	<u>Sleep K complex</u>	<u>MDC EEG CLS CRTX CMLX K</u>
<u>MDC</u>	<u>2:23776</u>	<u>Sleep post occipital sharp transient</u>	<u>MDC EEG CLS CRTX POSTOCCIP TRANS SHARP</u>
<u>MDC</u>	<u>2:23784</u>	<u>Sleep sawtooth wave</u>	<u>MDC EEG CLS CRTX WV SAW</u>
<u>MDC</u>	<u>2:23792</u>	<u>Sleep stage shift</u>	<u>MDC EEG CLS CRTX SLP STG SHIFT</u>
<u>MDC</u>	<u>2:23800</u>	<u>Sleep arousal</u>	<u>MDC EEG CLS CRTX AROUSAL</u>
<u>MDC</u>	<u>2:23808</u>	<u>Sleep awakening</u>	<u>MDC EEG CLS CRTX AWAKENING</u>
...			
<i>Include CID 30xx "Sleep Stage"</i>			

PS3.16 Insert new CID 30xx Sleep Stage and change one Code Meaning

CID 30xx Sleep Stage

This context group comprises codes to classify sleep stages. MDC codes come from table "EEG Annotations – Neurophysiologic Enumeration" of ISO/IEEE 11073-10101. MDC terms included in the table below may not constitute the complete list; see the ISO/IEEE Standard.

Note:

Codes reprinted by permission of IEEE, Copyright 2004 by IEEE. ISO/IEEE 11073-10102 available through <http://standards.ieee.org/>.

Resources: [HTML](#) | [FHIR JSON](#) | [FHIR XML](#) | [IHE SVS XML](#)

Keyword: [SleepStage](#)

FHIR Keyword: [dicom-cid-30xx-sleepstage](#)

Version: [yyyyymmdd](#)

UID: [1.2.840.10008.6.1.30xx](#)

Table CID 30xx Sleep Stage

Coding Scheme Designator	Code Value	Code Meaning	ISO/IEEE 11073 MDC Equivalent Reference ID (Informative)
MDC	2:23656	Sleep stage unspecified	MDC_EEG_CLS_CRTX_SLP_STG
MDC	2:23664	Sleep stage unstageable	MDC_EEG_CLS_CRTX_UNSTGABLE
MDC	2:23672	Sleep stage wake	MDC_EEG_CLS_CRTX_WAKE_STG
MDC	2:23680	Sleep stage REM	MDC_EEG_CLS_CRTX_SLP_REM
MDC	2:23688	Sleep stage REM with sleep spindle	MDC_EEG_CLS_CRTX_SLP_REM_SPINDLE
MDC	2:23728	Alphadelta Sleep	MDC_EEG_CLS_CRTX_SLP_STG_ALPHA_DELTA
MDC	2:23736	Sleep activity and event	MDC_EEG_CLS_CRTX_SLP_ACTIV
MDC	2:23744	Sleep spindle	MDC_EEG_CLS_CRTX_SLP_SPINDLE
MDC	2:23752	Sleep V wave	MDC_EEG_CLS_CRTX_WV_V
MDC	2:23760	Sleep F wave	MDC_EEG_CLS_CRTX_WV_F
MDC	2:23768	Sleep K complex	MDC_EEG_CLS_CRTX_CMPLX_K
MDC	2:23776	Sleep post occipital sharp transient Positive occipital sharp transient of sleep	MDC_EEG_CLS_CRTX_POSTOCCIP_TRANS_SHARP
MDC	2:23784	Sleep sawtooth wave	MDC_EEG_CLS_CRTX_WV_SAW
MDC	2:23792	Sleep stage shift	MDC_EEG_CLS_CRTX_SLP_STG_SHIFT
MDC	2:23800	Sleep arousal	MDC_EEG_CLS_CRTX_AROUSAL
MDC	2:23808	Sleep awakening	MDC_EEG_CLS_CRTX_AWAKENING
DCM	code-xxx1	Sleep Stage N1	
DCM	code-xxx2	Sleep Stage N2	
DCM	code-xxx3	Sleep Stage N3	

Note: CID 3035 defined four sleep stage codes which may be mapped in the following way:
 (MDC, 2:23696, Sleep Stage I) maps to (DCM, code-xxx1, "Sleep Stage N1")
 (MDC, 2:23704, Sleep Stage II) maps to (DCM, code-xxx2, "Sleep Stage N2")
 (MDC, 2:23712, Sleep Stage III) maps to (DCM, code-xxx3, "Sleep Stage N3")
 (MDC, 2:23720, Sleep Stage IV) maps to (DCM, code-xxx3, "Sleep Stage N3")

Change PS3.16 Annex D Table D-1. DICOM Controlled Terminology Definitions

Code Value	Code Meaning	Definition	Notes
-------------------	---------------------	-------------------	--------------

...			
<u>code-xxx1</u>	<u>Sleep Stage N1</u>	<u>Non-REM Sleep Stage 1 is the transition between wakefulness and sleep</u> <u>See [Berry].</u>	
<u>code-xxx2</u>	<u>Sleep Stage N2</u>	<u>Non-REM Sleep Stage 2 is light sleep</u> <u>See [Berry].</u>	
<u>code-xxx3</u>	<u>Sleep Stage N3</u>	<u>Non-REM Sleep Stage 3 is deep sleep</u> <u>See [Berry].</u>	
...			

PS 3.6 Add new Context Group UID Value to Table A-3:

Context UID	Context Identifier	Context Group Name	Comment
...	
<u>1.2.840.10008.6.1.30xx</u>	<u>CID 30xx</u>	<u>Sleep Stage</u>	
...			