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Best Practice of Define-XML v2.1

Presented by Alice Liu



Meet the Speaker

Alice Liu

Title: Senior Manager, Clinical Programming Organization: Jiangsu Hengrui Pharmaceuticals Co., Ltd

Alice Liu, has over 9 years SAS programming experience for phase I/II/III clinical trials in various therapeutic areas. Alice also has abundant experience in CDISC standard implementation, including developing annotated CRF, SDTM, ADaM and define-xml.



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• The views and opinions expressed in this presentation are those of the author(s) and do not necessarily reflect the official policy or position of CDISC.



Agenda

- 1. Regulatory Requirements for Define-XML
- 2. Define-XML Introduction
- 3. Variable-level Metadata
- 4. Value-Level Metadata
- 5. Origin
- 6. Codelist

1. Regulatory Requirements for Define-XML

1.Regulatory Requirements for Define-XML

4.1.4.5 Data Definition Files for SDTM, SEND, and ADaM

The data definition file describes the metadata of the submitted electronic datasets, and is considered arguably the <u>most important part of the electronic dataset submission for</u> <u>regulatory review</u>. This data definition specification for submitted datasets defines the metadata structures that should be used to describe the datasets, variables, possible values of variables when appropriate, and controlled terminologies and codes. An insufficiently documented data definition file is a common deficiency that reviewers have noted. Consequently, the sponsor needs to provide complete detail in this file, especially for the specifications pertaining to derived variables. In addition, sponsors should also make certain that the code list and origin for each variable are clearly and easily accessible from the data definition file. The version of any external dictionary should be clearly stated both in the data definition file and in the full TS domain when it is submitted. The internal dataset label should also clearly describe the contents of the dataset. For example, the dataset label for an efficacy dataset might be 'Time to Relapse (Efficacy).'

Ref(FDA): Study data technical conformance guide, 2021.3





国家药品监督管理局

National Medical Products Administration

(三) 数据说明文件

递交的原始数据库和分析数据库必须有相应的数据说明文件。数据说明文件是一份用来描述递交数据的文件,至少应包 含递交数据库中各数据集名称、标签、基本结构描述及每一数 据集中各变量的名称、标签、类型、来源或衍生过程。

数据说明文件是监管机构审评时准确理解递交数据内容最 重要的文件之一。申办方应确保每个变量的编码列表和来源都 有清晰的定义,并且易于查找。如果使用外部词典,需要在数 据说明文件中指明所用的词典及版本。需要通过数据说明文件 建立起数据间良好的可追溯性(如:原始数据集与 CRF、分 析数据集与原始数据集之间),以便于监管机构的审阅。申办 方需要在数据说明文件中提供相关细节,尤其是和衍生变量相 关的详细说明,必要时可使用关键程序代码辅助说明。

Ref(NMPA): 药物临床试验数据递交指导原则, 2020.7

2. Define-XML Introduction

2.1 What is Define-XML

Define-XML, a metadata standard used to describe any tabular dataset structure. The primary use case for Define-XML is to describe CDISC Study Data Tabulation Model (SDTM), Standard for Exchange of Nonclinical Data (SEND), and Analysis Data Model (ADaM) datasets for the purpose of submissions to regulatory authorities.

A Define-XML document includes the following key content components:

- XML header, the ODM root element, Study, and MetaDataVersion
- Standards definitions
- Information about linked PDF documents (e.g., annotated case report forms, Supplemental Data Definitions)
- Dataset definitions
- Variable definitions
- Value definitions (including Where Clause definitions)
- Controlled Terminology definitions
- Computational Method definitions
- Comment definitions

External file Xlinks

Collapse all VLM





2.2 Metadata



Metadata

Artist: Vincent van Gogh Title: Three Sunflowers Objective Type: painting Date: 1888 Medium: oil on canvas Dimensions: Height: 73 cm; Width: 58 cm



2.3 Metadata for Define-XML

Method

Dictionaries

Reference	Name			Extern	nal Dictionary					Dictionary Version
Adverse Eve	nt Dictionary			MEDDR	A					8.0
Drug Diction	ary	WHODE	RUG					200204		
ISO3166		IS0316	56							
					Ŷ					
AEDECOD	Dictionary-Derived Term	Adverse En 1EDDRA 8	vent Dictionary 3.0		Assigne	d				
CMDECOD	Standardized Medication Name	text	3	0 Drug D WHOD	Drug Dictionary WHODRUG 200204				gned	
COUNTRY	Country	text	:	3 <u>ISO310</u> ISO310	<u>ISO3166</u> ISO3166			signed	I	
	Instructions)									
	<u>PARAMCD</u> = "ACTOT" (Adas-Cog(11) Subscore)	Analysis	Value	integer	3				Derived (Source: Sum of ADAS sco on adjusting for m Analysis Data Rev	Sponsor) res for items 1, 2, 4, 5, 6, 7, 8, 11, 12, 13, and 14, see ADRG for details nissing values. iewer's Guide [<u>3</u> 랴]



3. Variable-level Metadata

3.1 Null Dataset and Variable

SDTM IG V3.3/3.2, section 3.2

In the event that no records are present in a dataset (e.g., a small PK study where no subjects took concomitant medications), the empty dataset should not be submitted and should not be described in the Define-XML document. The annotated CRF will show the data that would have been submitted had data been received; it need not be re-annotated to indicate that no records exist.

SDTM IG V3.4

Section 3. S	ubmitting Data in a Standard Format	
3.2	<u>Using the CDISC Domain Models in</u> <u>Regulatory Submissions – Dataset</u> <u>Metadata</u>	 Removed the following paragraph as there are now guidelines in the MSG v2.0 and the Define-XML v2.1 standard: "In the event that no records are present in a dataset (e.g., a small PK study where no subjects took concomitant medications), the empty dataset should not be submitted and should not be described in the Define-XML document. The annotated CRF will show the data that would have been submitted had data been received; it need not be re- annotated to indicate that no records exist."



3.1 Null Dataset and Variable

"Yes"

Conditional Required in the context of a regulatory submission when the dataset variable defined in the associated ItemDef has no data values (ODM@def:Context ="Submission") Used to indicate that an ItemRef that represent a dataset's variable has no data. Note that variables refer to both standard and non-standard/ supplemental qualifiers variables (/ODM/Study/MetaDataVersion/ItemGroupD ef/ItemRef or /ODM/Study/MetaDataVersion/def:ValueList Def/ItemRef).
 Business Rule: A comment must be included to explain why no data is present for dataset's variables that were planned for use in the

study.

Define specification v2.1

3.1 Basic Principles for Annotations

Sponsors may choose any available tool/application for creating annotations. Irrespective of the tool/application used, the CRF annotations should be searchable (i.e., text-based) to enhance the data package review process. Because the acrf.pdf supports the review process, annotations should reflect data intended to be submitted within the SDTM.

In the event that intended data were to be collected, but none actually were, the annotated CRF will represent the data that would have been submitted had they been collected. It is not necessary to re-annotate the acrf.pdf to indicate that no data were collected. <u>The fact that no data were collected will be indicated in the Define-XML</u> <u>document using the "HasNoData" attribute for datasets and variables.</u> Examples of this are included in the sample submission package; see the DM supplemental qualifier variables RACE4 and RACE5, and the NV, SUPPNV, and SUPPOE datasets. This can also be further described in the clinical study data reviewer's guide.

The purpose of the annotated CRF is to describe where each data item is represented in an SDTM dataset. The recommended dual bookmarking (see Section 3.2, <u>Bookmarking CRFs/eCRFs</u>) and table of contents will further provide the reviewer with an overview of the data collection design/structure for the study.

SDTM MSG V2.0

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def HasNoData

3.1 Null Dataset and Variable

Datasets

Null dataset

l	Dataset	D	Description		Class	Structu	re	Purpose	Keys	Documentation	Location
Ī	<u>B</u> [STDTMIG 3.3]	L	aboratory Test.	Results	FINDINGS	One reco subject	rd per analyte per visit per	Tabulation	STUDYID, USUBJID, LBCAT, LBTESTCD, LBDTC, VISITNUM		<u>lb.xpt</u> අ
1	I <u>V [STDTMIG</u> 3.3] [No Data]	[STDTMIG 3.3] Nervous System FINDINGS Findings		One reco subject	One record per finding per visit per subject		STUDYID, USUBJID, NVTESTCD, VISITNUM	Per protocol, electroencephalograms are only performed after such an event were to occur. No subjects within the trial had an occurrence of an electroencephalogram event. Therefore, no data exists for the NV dataset and as such was not submitted.			
	SUPPDM (Supple Related Parent Data	emental set: <u>DM</u> (C	Qualifiers f	for DM,	Demograpi	hics) - [STD	TMIG 3.3]	v	Null	Locatior	ា: <u>suppdm.xpt</u> ៤
	Variable	Label / Descript	tion	Type	Role	Length or Display Format	Controlled Terms or IS	O Format		Origin / Source / Method / Comment	
	QVAL <u>VLM</u>	Data Valu	ue	text (Result Qualifier	41					
	▶ <u>QNAM</u> = "RACE4" [No Data]	> QNAM = Race 4 text Result 41 "RACE4" No Data] audifier 41			Race • "AMERICAN INDIAN OR ALASKA NATIVE" = "American Indian Or Alaska Native" • "ASIAN" = "Asian" • "BLACK OR AFRICAN AMERICAN" = "Black Or African American" • "NATIVE HAWAIIAN OR OTHER PACIFIC ISLANDER" = "Native Hawaiian Or Other Pacific Islander" • "WHITE" = "White"			Collected (Source: Investigator) n Annotated CRF [5 값] Since no subjects had more than 3 Races, RACE4 was r	not used.		



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3.2 Variable Description

Derivations should be represented as humanreadable descriptions or pseudocode as opposed to executable programming statements.

ADLBC (Analysis Dataset Lab Blood Chemistry) - [ADaMIG 1.1]

Location: <u>adlbc.xpt</u> &

Location: <u>adlbc.xpt</u> &

Variable	Where Condition	Label / Description	Туре	Length or Display Format	Controlled Terms or ISO Format	Origin / Source / Method / Comment	
PARAM		Parameter	text	100	PARAM ADLBC [18 Terms]	Derived (Source: Sponsor) For PARAMN<100: strip(LB.LBTEST) ' (' strip(LB.LBSTRESU) ')'. For PARAMN>100: strip(LB.LBTEST) ' (' strip(LB.LBSTRESU) ')' ' change from previous relative to normal range'.	visit,

ADLBC (Analysis Dataset Lab Blood Chemistry) - [ADaMIG 1.1]

Variable	Where Condition	Label / Description	Туре	Length or Display Format	Controlled Terms or ISO Format	Origin / Source / Method / Comment
PARAM		Parameter	text	100	PARAM ADLBC [18 Terms]	Derived (Source: Sponsor) For PARAMN<100L same as LB.LBTEST concatenated with LB.LBSTRESU. For PARAMN>100: LB.LBTEST concatenated with LB.LBSTRESU concatenated with " change from previous visit, relative to normal range"



3.2 Variable Description

Variable derivation rule should not references to raw data variables.

Notice

- ➢ The regulatory review team do not see your raw data
- > Do NOT copy-paste ALL the info from your mapping spec into the define.xml

Variable	Where Condition	Label / Description	Туре	Role	Length or Display Format	Controlled Terms or ISO Format	Origin / Source / Method / Comment
TUDYID		Study Identifier	text	Identifier	12		Protocol (Source: Sponsor)
DOMAIN		Domain Abbreviation	text	Identifier	2	SDTM Domain Abbreviation, subset used for Adverse Events • "AE" = "Adverse Events"	Assigned (Source: Sponsor)
JSUBJID		Unique Subject Identifier	text	Identifier	8		Assigned (Source: Sponsor)
AESEQ		Sequence Number	integer	Identifier	3		Derived (Source: Sponsor) Unique sequence number within a subject, restarting at 1 for every subject, applied to sorted data.
AESPID		Sponsor-Defined Identifier	text	Identifier	50		Assigned (Source: Sponsor) AE.RECORDPOSITION
AELLT		Lowest Level Term	text	Variable Qualifier	1	Adverse Events Dictionary MedDRA 22.0	Assigned (Source: Sponsor) AE.AELLT
AEDECOD		Dictionary-Derived Term	text	Synonym Qualifier	1	Adverse Events Dictionary MedDRA 22.0	Assigned (Source: Sponsor) AE.AEDECOD
EBODSYS		Body System or Organ Class	text	Record Qualifier	1	Adverse Events Dictionary MedDRA 22.0	Assigned (Source: Sponsor) AE.AEBODSYS
EBDSYCD		Body System or Organ Class Code	text	Variable Qualifier	1	Adverse Events Dictionary MedDRA 22.0	Assigned (Source: Sponsor) AE.AEBDSYCD

AE (Adverse Events) - [STDTMIG 3.3]

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Variable	Where Condition	Label / Description	Туре	Role	Length or Display Format	Controlled Terms or ISO Format	Origin / Source / Method / Comment
STUDYID		Study Identifier	text	Identifier	12		Protocol (Source: Sponsor)
DOMAIN		Domain Abbreviation	text	Identifier	2	SDTM Domain Abbreviation, subset used for Adverse Events • "AE" = "Adverse Events"	Assigned (Source: Sponsor)
USUBJID		Unique Subject Identifier	text	Identifier	8		Assigned (Source: Sponsor)
AESEQ		Sequence Number	integer	Identifier	3		Derived (Source: Sponsor) Unique sequence number within a subject, restarting at 1 for every subject, applied to sorted data.
AESPID		Sponsor-Defined Identifier	text	Identifier	50		Assigned (Source: Sponsor) Unique record identifier from the raw database. Provides tracebility between raw, SDTM and ADaM data.
AELLT		Lowest Level Term	text	Variable Qualifier	1	Adverse Events Dictionary MedDRA 22.0	Assigned (Source: Sponsor)
AEDECOD		Dictionary-Derived Term	text	Synonym Qualifier	1	Adverse Events Dictionary MedDRA 22.0	Assigned (Source: Sponsor)
AEBODSYS		Body System or Organ Class	text	Record Qualifier	1	Adverse Events Dictionary MedDRA 22.0	Assigned (Source: Sponsor)
AEBDSYCD		Body System or Organ Class Code	text	Variable Qualifier	1	Adverse Events Dictionary MedDRA 22.0	Assigned (Source: Sponsor)

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3.3 Variable – Name and Value

Any variable in an ADaM dataset whose name is the same as an SDTM variable must be a copy of the SDTM variable, and its label, meaning, and values must not be modified. ADaM adheres to a principle of harmonization known as "same name, same meaning, same values." However, to optimize file size, it is permissible that the length of the variables differ (e.g., trailing blanks may be removed).

Reference: ADAM-IG v1.3, section 3.1.1.1

ADSL (Subject-Level Analysis Dataset) - SUBJECT LEVEL ANALYSIS DATASET

NATIONTY Ethnicity text \$11 Derived set to DM.NATIONTY, if not Han Chinese, then set to Others	Variable	Label / Description	Туре	Length or Display Format	Controlled Terms or ISO Format	Origin / Source / Method / Comment	/
	NATIONTY	Ethnicity	text	\$11		Derived set to DM.NATIONTY, if not Han Chinese, then set to Others	



3.4 Variable – Data Type

Define-XML Data Type	Submission Data Type	Length	Considerations
text	Char	Maximum allowable length	SAS v.5 Transport files restrict variable lengths to 200 characters.
integer	Num	The largest allowable integer width; note that for negative integers, the length will include the minus sign	Use for numeric or equivalent variables that have discrete whole values (non-fractional); can be positive, negative, or zero. ADaM numeric date variables are provided as integers.
float	Num	The largest allowable whole number width plus the maximum number of decimal digits	Use for numeric variables that may contain a fractional component. It represents the set of all the decimal numbers with arbitrary lengths.
datetime	Char	N/A	Use if values for SDTM or SEND variable represent Date Times (YYYY- MM-DDTHH:MM:SS).
date	Char	N/A	Use if values for SDTM or SEND variable represent complete (YYYY-MM-DD) dates.
time	Char	N/A	Use if values for SDTM or SEND variable represent complete (HH:MM:SS) times in ISO-8601 format.



3.5 Variable – Length

Define-XML Data Type	Submission Data Type	Length				- <u>-</u>
text	Char	Maximum allowable length	Attribute	Usage	Allowable Values	Description
integer	Num	The largest allowable integer width; note that for negative integers, the length will include the minus sign	SignificantDigits	Conditional Required if DataType is "Float"	Integer	 The number of digits following the decimal point in a floating point number Business Rule: When DataType is float, both Length and SignificantDigits must be provided.
float	Num	The largest allowable whole number width plus the maximum number of decimal digits				Datatype Length SignificantDigits
datetime	Char	N/A	VAR1	VAR2	VAR3	20
date	Char	N/A	NORMAL	12	12.7	2
dute	Chui	1071	ABNORMAL	183	2.55	
time	Char	N/A	123	-1756	199	
						E M

Current pinnacle 21 bug for the length of float



4. Value-Level Metadata

4.1 When to Use VLM?



Standard Use:

SDTM Finding domains to provide definitions for Variables (e.g., --ORRES, --ORRESU, --STRESC, --STRESU) that are specific to each test code (value of –TESTCD) ADaM BDS data Describes AVAL or AVALC in BDS data based on values of PARAMCD SDTM SUPPQUAL dataset Multiple Origins Multiple Codelist Items (e.g. DSDECOD with CT of NCOMPLT/PROTMLST) Additional Use:

Data Type Precision Comments Computational Methods Important Results



4.1 When to Use VLM?

	LBORRES VLM		Result or Finding in Original Units	text	8			Origin specified at Value Level Metadata
		LBTESTCD IN ("BILI" (Bilirubin), "GLUC" (Glucose)) and LBSPEC = "BLOOD"	Result or Finding in Orig Units - Set 1	float	3		Precision	Collected (Source: Vendor) From Central lab (LB.LBNAM NE "LOCAL LAB")
		LBTESTCD IN ("BUN" (Blood Urea Nitrogen), "HGB" (Hemoglobin), "LYM" (Lymphocytes)) and LBSPEC = "BLOOD"	Result or Finding in Orig Units - Set 2	float	4)	Collected (Source: Vendor) From Central lab (LB.LBNAM NE "LOCAL LAB")
•		LBTESTCD IN ("GLUC" (Glucose), "OCCBLD" (Occult Blood)) and LBSPEC = "URINE"	Result or Finding in Orig Units Set 3	text	8 Data type	•		Collected (Source: Vendor) From Central lab (LB.LBNAM NE "LOCAL LAB")
		<u>LBTESTCD</u> = "HCT" (Hematocrit) and <u>LBSPEC</u> = "BLOOD" and <u>LBNAM</u> ≠ "LOCAL LAB"	Hematocrit	float	4			Collected (Source: Vendor) From Central lab (LB.LBNAM NE "LOCAL LAB") Origin
		LBTESTCD = "HCT" (Hematocrit) and LBSPEC = "BLOOD" and LBNAM = "LOCAL LAB"	Hematocrit	float	4			Collected (Source: Investigator) From Local lab (LB.LBNAM="LOCAL LAB"). Note that the CRF page reference is given only for illustration purposes. The sample acrf.pdf does not include the local lab CRF page. Annotated CRF [1 &]



4.2 Value-Level Length

Value level length should <= variable level length

> 23。 恒心致远 瑞颐人生

•	RSORRES VLM		Result or Finding in Original Units	text	Result Qualifier	198		Collected (Source: Investigator) Annotated CRF [<u>19</u> &]
		<u>RSTESTCD</u> = "HAMD101" (HAMD1-Depressed Mood)	HAMD-17 Question	text		111	Hamilton Depression Rating Scale - 17 Item - Question 1 "Absent." "These feeling states indicated only on questioning." "These feeling states spontaneously reported verbally." "Communicates feeling states non-verbally, i.e. through facial expression, posture, voice and tendency to weep." "Patient reports virtually only these feeling states in his/her spontaneous verbal and non-verbal communication."	Collected (Source: Investigator) Annotated CRF [<u>19</u> 라]
		<u>RSTESTCD</u> = "HAMD102" (HAMD1-Feelings of Guilt)	HAMD-17 Question 2	text		93	Hamilton Depression Rating Scale - 17 Item - Question 2 "Absent." "Self reproach, feels he/she has let people down." "Ideas of guilt or rumination over past errors or sinful deeds." "Present illness is a punishment. Delusions of guilt." "Hears accusatory or denunciatory voices and/or experiences threatening visual hallucinations."	Collected (Source: Investigator) Annotated CRF [<u>19</u> 라]



4.3 Value-Level Data Type



VSORRES VLM		Result or Finding in Original Units	<u>text</u>	30		Collected (Source: Investigator) Annotated CRF [<u>11</u> 랴]
	VSTESTCD = "DIABP" (Diastolic Blood Pressure)	Diastolic Blood Pressure in Orig U	integer	2		Collected (Source: Investigator) Annotated CRF [<u>11</u> &]
	<u>VSTESTCD</u> = "FRMSIZE" (Body Frame Size)	Body Frame Size - Orig	text	6	<u>Size</u> • "SMALL" • "MEDIUM" • "LARGE"	Collected (Source: Investigator) Annotated CRF [11 &]
	VSTESTCD = "HEIGHT" (Height)	Height in Orig U	float	5.1		Collected (Source: Investigator) Annotated CRF [<u>11</u> &]
-						

It is common, that Value-Level Metadata DataType is different from the variable-level DataType. It does not violate the compatibility rule as some of the DataType can "include" other DataType values.





4.4 Value-Level Origin

Variable Level ≠ Value Level

					·	
AVAL 🗹	м	Analysis Value	integer	3		Variable
	PARAMCD IN ("ACITM01" (Word Recall Task), "ACITM02" (Naming Objects And Fingers (Refer To 5 C), "ACITM03" (Delayed Word Recall), "ACITM04" (Commands), "ACITM05" (Constructional Praxis), "ACITM06" (Ideational Praxis), "ACITM10" (Marce Solution), "ACITM10" (Spoken Language Ability), "ACITM11" (Spoken Language Ability), "ACITM13" (Word Finding Difficulty In Spontaneous Speech), "ACITM14" (Recall Of Test Instructions))	Analysis Value	integer	2	Predecessor: QS.QSSTRESN where QS.QSTESTCD=ADQSADAS.PARAMCD	level should be null!
	PARAMCD = "ACTOT" (Adas-Cog(11) Subscore)	Analysis Value	integer	3	Derived (Source: Sponsor) Sum of ADAS scores for items 1, 2, 4, 5, 6, 7, 8, 11, 12, 13, and 14, see ADRG for details on adjusting for missing values. Analysis Data Reviewer's Guide [3 @]	







5. Origin

5.1 Origin Definition

Origin is a metadata attribute defined for each dataset variable in the define document that refers to the source of a variable.

Туре	Definition
Collected	A value that is actually observed and recorded by a person or obtained by an instrument. Note that a collected entry translated to a synonymous controlled term still has a type Collected.
Derived	A value that is calculated by an algorithm or reproducible rule, and which is dependent upon other data values, including data values available within the dataset or externally provided data values. MethodDef must be used to document the algorithm or rule used for a derived value.
Assigned	Data that is either: Determined by individual judgment as provided by an evaluator, or Coded terms supplied as part of a coding process, or Values set independently of any subject-related data value in order to complete a dataset.
Protocol	Data that is defined as part of the study protocol, investigator instructions, standard operating procedures or trial design preparation
Predecessor	An entry that is copied from a variable in another dataset. The Description child element identifies the dataset and variable that is copied.



5.1 Origin Definition

T		So	urce		Notes		
Туре	Subject Investigator Vendor		Vendor	Sponsor	Notes		
Collected	ePro	CRF	Lab data, ECG	Х	This term should be used for clinical data that were actually observed or recorded by a person or received from an instrument; it should not be used for data that have been interpreted, calculated, or derived from other information.		
Derived	Derived X X		Lab data, SDTM ECG		Derivation examples include calculations performed during data collection (e.g.,DY). Other derivation examples: calculations within ePRO (e.g., questionnaire section scores) and calculations within EDC (e.g., BMI, BSA).		
Assigned	Х	х	Adjudicator	SDTM	Examples of this include third-party attributions by an adjudicator, coded terms that are supplied as part of a coding process, and values that are set independently of any subject-related data values in order to complete SDTM fields such as DOMAIN andTESTCD		
Protocol	х	Х	Х	SDTM	An example would be VSPOS (Vital Signs Position), which could be specified in the protocol and be provided by other means (e.g. CRF, eDT).		
Predecessor	Х	Х	Х	Х	Use when a value is an exact copy of another value in an SDTM dataset.		



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5.2 Origin - Collected

	3	Data collected on the CRF
Concomita (Concomita	nt and Prior Medications)	
CONCOMI	TANT MEDICATIONS	
Were any mee	INOT SUBMITTED	
Medication	CMTRT	
Indication	O Primary Study Condition O Pro	ophylaxis or Non-Therapeutic Use CMINDC
Dose	▼ [CMDOSE]	
Dose Unit	CMDOSU	

CM (Concomitant Medications) - [STDTMIG 3.3]

Location: <u>cm.xpt</u> &

Variable	Label / Description	Туре	Role	Length or Display Format	Controlled Terms or ISO Format	Origin / Source / Method / Comment
CMDOSU	Dose Units	text	Variable Qualifier	6	Unit, subset to be used for CMDOSU • "mg" = "Milligram" • "ng" = "Nanogram" • "TABLET" = "Tablet"	Collected (Source: Investigator) Annotated CRF [25 &]



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5.2 Origin - Collected

Data received via external data transfer

LB (Laboratory Test Results) - [STDTMIG 3.3]

Location: Ib.xpt 🖉

Variable	Where Condition	Label / Description	Туре	Role	Length or Display Format	Controlled Terms or ISO Format	Origin / Source / Method / Comment
LBORRES VLM		Result or Finding in Original Units	text	Result Qualifier	6		Collected (Source: Vendor)
	LBTESTCD IN ("ALB" (Albumin Measurement), "BILI" (Total Bilirubin Measurement), "CA" (Calcium Measurement), "CREAT" (Creatinine Measurement), "K" (Potassium Measurement), "PHOS" (Phosphate Measurement), "PROT" (Total Protein Measurement), "URATE" (Urate Measurement))	Lab Result or Finding in Original Units - Set 1	fioat		3		

5.3 Origin - Derived

Data are not directly collected on the CRF but are calculated by an algorithm or reproducible rule, which is dependent upon other data values.

VS (Vital Signs) - [STDTMIG 3.3]

Location: <u>vs.xpt</u> &

Variable	Where Condition	Label / Description	Туре	Role	Length or Display Format	Controlled Terms or ISO Format	Origin / Source / Method / Comment
VSSTRESC		Character Result/Finding in Std Format	text	Result Qualifier	200		Derived (Source: Sponsor) Data collected in conventional units (i.e. F, lbs, inches) is converted using standard conversion factors to standard units (C, kg, cm).
VSSTRESN		Numeric Result/Finding in Standard Units	float	Result Qualifier	8		Derived (Source: Sponsor) IfSTRESC represents a numeric value thenSTRESN is the numeric version ofSTRESC, else null. "" represents the domain code.
VSLOBXFL		Last Observation Before Exposure Flag	text	Record Qualifier	1	No Yes Response, subset for variables with only "Y" or null values • "Y" = "Yes"	Derived (Source: Sponsor) Set to "Y" for last record with non-null original result on or before the first dose date (RFXSTDTC). Null otherwise.
EPOCH		Epoch	text	Timing	9	Epoch • "SCREENING" = "Screening" • "TREATMENT" = "Treatment"	Derived (Source: Sponsor) EPOCH from SE where date > = SESTDTC and date < SEENDTC
VSDY		Study Day of Vital Signs	integer	Timing	8		Derived (Source: Sponsor) Study day relative to RFSTDTC. Date - RFSTDTC + 1 if on or after RFSTDTC. Date - RFSTDTC if date precedes RFSTDTC.



5.4 Origin - Assigned

Coded terms supplied as part of a coding process

AE (Adverse Events) - [STDTMIG 3.3]

Location: ae.xpt &

Variable	Where Condition	Label / Description	Туре	Role	Length or Display Format	Controlled Terms or ISO Format	Origin / Source / Method / Comment
AELLTCD		Lowest Level Term Code	text	Variable Qualifier	1	Adverse Events Dictionary MedDRA 22.0	Assigned (Source: Sponsor)
AEDECOD		Dictionary-Derived Term	text	Synonym Qualifier	1	Adverse Events Dictionary MedDRA 22.0	Assigned (Source: Sponsor)
AEPTCD		Preferred Term Code	text	Variable Qualifier	1	Adverse Events Dictionary MedDRA 22.0	Assigned (Source: Sponsor)
AEHLT		High Level Term	text	Variable Qualifier	1	Adverse Events Dictionary MedDRA 22.0	Assigned (Source: Sponsor)
AEHLTCD		High Level Term Code	text	Variable Qualifier	1	Adverse Events Dictionary MedDRA 22.0	Assigned (Source: Sponsor)
AEHLGT		High Level Group Term	text	Variable Qualifier	1	Adverse Events Dictionary MedDRA 22.0	Assigned (Source: Sponsor)
AEHLGTCD		High Level Group Term Code	text	Variable Qualifier	1	Adverse Events Dictionary MedDRA 22.0	Assigned (Source: Sponsor)
AEBODSYS		Body System or Organ Class	text	Record Qualifier	1	Adverse Events Dictionary MedDRA 22.0	Assigned (Source: Sponsor)
AEBDSYCD		Body System or Organ Class Code	text	Variable Qualifier	1	Adverse Events Dictionary MedDRA 22.0	Assigned (Source: Sponsor)



5.4 Origin - Assigned

Values set independently of any subject-related data value in order to complete a dataset

ADADAS (ADAS-Cog Analysis) - [ADaMIG 1.1]

Location: <u>adadas.xpt</u> &

Variable	Where Condition	Label / Description	Туре	Length or Display Format	Controlled Terms or ISO Format	Origin / Source / Method / Comment
AVISIT		Analysis Visit	text	16	Analysis Visit (ADADAS) • "Baseline" • "Week 8" • "Week 16" • "Week 24"	Derived (Source: Sponsor) Derived based on windowing algorithm described in SAP, Section 8.2
AVISITN		Analysis Visit (N)	integer	8	Analysis Visit (N) (ADADAS) • 0 = "Baseline" • 8 = "Week 8" • 16 = "Week 16" • 24 = "Week 24"	Assigned (Source: Sponsor) Numeric code for AVISIT
PARAMCD		Parameter Code	text	8	PARAMCD ADQSADAS [15 Terms]	Predecessor: QS.QSTESTCD
PARAMN		Parameter (N)	integer	8	PARAMN ADQSADAS [15 Terms]	Assigned (Source: Sponsor) Assign a numeric code for each value of PARAMCD (see codelist PARAMN_ADADAS)





5.5 Origin - Protocol

Data that is defined as part of the study protocol, investigator instructions, standard operating procedures or trial design preparation.

EX (Exposure) - [STDTMIG 3.3]

Location: ex.xpt &

Variable	Label / Description	Туре	Role	Length or Display Format	Controlled Terms or ISO Format	Origin / Source / Method / Comment
STUDYID	Study Identifier	text	Identifier	12		Protocol (Source: Sponsor)
DOMAIN	Domain Abbreviation	text	Identifier	2	SDTM Domain Abbreviation, subset used for Exposure • "EX" = "Exposure"	Assigned (Source: Sponsor)
EXDOSE	Dose	integer	Record Qualifier	8		Derived (Source: Sponsor) EXDOSE = ECDOSE * ECPSTRG expressed in mg.
EXDOSU	Dose Units	text	Variable Qualifier	2	<u>Unit, subset to be used for EXDOSU</u> • "mg" = "Milligram"	Protocol (Source: Sponsor)



5.6 Origin - Predecessor

An entry that is copied from a variable in another dataset. The description child element identified the dataset and variable that is copies.

EX (Exposure) - [STDTMIG 3.3]

Location: <u>ex.xpt</u> &

Vai	riable	Label / Description	Туре	Role	Length o Display Format	or Co	ontrolled Terms	s or ISO Format	Ongin / Source / Method / Comment	
STU	JDYID	Study Identifier	text	Identifier		12			Protocol (Source: Sponsor)	
DOM	MAIN	Domain Abbreviation	text	Identifier		2 <u>SD</u> • "[<u>TM Domain Abbre</u> EX" = "Exposure"	eviation, subset used for Exposure	Assigned (Source: Sponsor)	
USU	JBJID	Unique Subject Identifier	text	Identifier		8			Assigned (Source: Sponsor)	
SPD	DEVID	Sponsor Device Identifier	text	Identifier		200			Predecessor: EC.SPDEVID	
EXS	εQ	Sequence Number	integer	Identifier		3			Derived (Source: Sponsor) Unique sequence number within a subject, restarting at 1 for every subject, applied to sorted data.	
EXT	RT	Name of Treatment	text	Торіс		10 <u>Stu</u> • "F	Study Treatment • "PLACEBO" = "Placebo" • "ZANOMALINE" = "Zanomaline"		Predecessor: ECTRT	
AD	OCIBC ((CIBIC+ Analysis) - [ADaM	IG 1.1]					Location: adcibo	<u>xpt</u> &
V	ariable	Where Condition	La	bel / Descript	ion	Туре	Length or Display Format	Controlled Terms or ISO Format	Origin / Source / Method / Comment	
ST	TUDYID		Stu	ıdy Identifier		text	12		Predecessor: ADSL.STUDYID	
SI	ITEID		Stu	ıdy Site Identifie	r	text	3		Predecessor: ADSL.SITEID	
SI	ITEGR1		Poo	oled Site Group 1		text	3		Predecessor: ADSL.SITEGR1	



5.7 Origin for the Same Variable May Differ

In TA, the values are mapped from Protocol Origin should be Protocol

TA (Trial Arms) - [STDTMIG 3.3]

Location: <u>ta.xpt</u> &

Variable	Label / Description	Туре	Role	Length or Display Format	Controlled Terms or ISO Format	Origin / Source / Method / Comment
EPOCH	Epoch	text	Timing	9	Epoch • "SCREENING" = "Screening" • "TREATMENT" = "Treatment"	Protocol (Source: Sponsor) EPOCH from SE where date >= SESTDTC and date < SEENDTC

In other datasets, the EPOCH values are derived based on the element start date and end date Origin should be Derived

CM (Concomitant Medications) - [STDTMIG 3.3]

Location: se.xpt @

Variable	Label / Description	Туре	Role	Length or Display Format	Controlled Terms or ISO Format	Origin / Source / Method / Comment
EPOCH	Epoch	text	Timing	9	Epoch • "SCREENING" = "Screening" • "TREATMENT" = "Treatment"	Derived (Source: Sponsor) EPOCH from SE where date >= SESTDTC and date < SEENDTC



5.8 Collected or Assigned?

Common practice has been that if a variable is annotated on the CRF, it has to have an origin of "Collected". However, there are scenarios where additional annotations, for variables which are not considered "Collected", could help to clarify the data collection to a reviewer.

		DS (Dispos INFOR Informed DM (Demog DEMO Birth Yea	ition) RMED (d Consen raphic OGRAP	CONSENT t Date s) HICS BRTHDT AGEU	DSCAT = PR DSTERM / DS INFORMED DSSTDTC RFICDTC	DTOCOL MILESTONE	
DS (Disposit	ion) - [STDTM	IIG 3.3] Age		years			Location: <u>ds.xpt</u> ៤
Variable	Where Condition	Label / Description	Туре	Role	Length or Display Format	Controlled Terms or ISO Format	Origin / Source / Method / Comment
DSCAT		Category for Disposition Event	text	Grouping Qualifier	18	Category for Disposition Event • "DISPOSITION EVENT" = "Disposition Event" • "PROTOCOL MILESTONE" = "Protocol Milestone"	Assigned (Source: Sponsor) Annotated CRF [5 & 27 & 28 &] Variable is Assigned but there are annotations to help understand the data and so references to the proper pages are included





Controlled terminology should be displayed for variables that have CDISC controlled terminology per SDTM IG/ADaM IG.

EG (ECG Test Results) - FINDINGS

Location: eg.xpt &

Related Supplemental Qualifiers Dataset: <u>SUPPEG</u> (Supplemental Qualifier	rs for EG)	

Variable	Where Condition	Label / Description	Туре	Length or Display Format	Controlled Terms or ISO Format	Origin / Source / Method / Comment		
EGORRES VLM		Result or Finding in Original Units	text	38		CRF Annotated Case Report Form [42 성]		
	EGTESTCD = "EGHRMN" (ECG Mean Heart Rate)		text	3		CRF Annotated Case Report Form [42 량]		
	EGTESTCD = "INTP" (Interpretation)		text	38		CRF Annotated Case Report Form [42 양]		
	EGTESTCD = "PRAG" (PR Interval, Aggregate)		text	3		CRF Annotated Case Report Form [42 양]		
	EGTESTCD = "QTAG" (QT Interval, Aggregate)		text	3		CRF Annotated Case Report Form [42 양]		
	EGTESTCD = "QTCAG" (QTc Interval, Aggregate)		text	3		CRF Annotated Case Report Form [42 성]		
EGORRESU		Original Units	text	9		CRF Annotated Case Report Form [42 🖉]		



For variables with CDISC codelist, should firstly check whether the value can map to a standard codelist, codelist only can be extended when no standard synonym.

Doma	r 🖅 🛛 Re	ecord 🔽	Count 💌	Variables	Value	s 🔽 P	innacle 21 II 🔽	Message		Category	X
TU			4 TUI	LOC	LYMPH NODES	CT	2002 TULOC va	alue not found in 'Anatomical Location' exte	nsible codelist	Terminology	
					4	Ъ					V
	Code	Codelist Code	Codelist Extensible (Yes/No) –	Codelist N	ame	CDISC S	Submission Value	CDISC Synonym(s)	-		
	C12745	C74456		Anatomical Location		LYMPH NODE]	Lymphatic Gland			





The complete set of values relevant to the study must be provided regardless of whether they are referenced within the study data.

AE (Adverse Events)

ADVERSE EVENTS

Were any adverse events experienced?	
If yes please provide details below.	
AE Identifier	AELNKID
What is the adverse event term?	AETERM
Start Date	• / • / • AESTDTC
Severity	Mild Moderate Severe

AE (Adverse Events) - [STDTMIG 3.3]

Location: ae.xpt

Variable	Where Condition	Label / Description	Туре	Role	Length or Display Format	Controlled Terms or ISO Format	Origin / Source / Method / Comment
AESEV		Severity/Intensity	text	Record Qualifier	8	Severity/Intensity Scale for Adverse Events • "MILD" = "Mild" • "MODERATE" = "Moderate"	Collected (Source: Investigator) Annotated CRF [22 @ 23 @]



When a domain or dataset specification includes a codelist for a variable, not every value in that codelist may have been part of planned data collection; only values that were part of planned data collection should be included in the define.xml document.

EC (Exposure as Collected) - INTERVENTIONS

Location: <u>ec.xpt</u> &

 Related Sup	plemental Qualifiers Da	taset: <u>SUPPEC</u>	(Supplemental	Qualifiers for EC)						
Variable	Label / Description	n Type	Length or Display Format	Controlled Terms or ISO Format	Origin / Source / Method / Comment					
 ECDOSU	Dose Units	text	2	<u>Unit</u> [177 Terms]	CRF Annotated Case Report Form [52 & 72 & 95 & 111 & 132 & 148 & 167 & 183 & 205 & 221 & 240 & 256 & 277 & 293 & 313 & 329 & 351 & 367 & 386 & 402 & 425 & 441 & 485 &]					
 EC (Exposure as Collected) - INTERVENTIONS										
 Related Sup	plemental Qualifiers Data	aset: <u>SUPPEC</u> ((Supplemental Q	ualifiers for EC)						
 Variable	Label / Description	Type Ler Dis For	ngth or Cor Iplay For Imat	ntrolled Terms or ISO mat	Origin / Source / Method / Comment					
 ECDOSU	Dose Units	text	2 <u>Unit</u> • "m	t <u>, subset used for EX</u> ng"	CRF Annotated Case Report Form [71 & 79 &]					



When a domain or dataset specification includes a codelist for a variable, not every value in that codelist may have been part of planned data collection; only values that were part of planned data collection should be included in the define.xml document.

Variable Name	Variable Label	Туре	Controlled Terms, Codelist or Format ¹	Role	CDISC Notes Codelist Extensible (Yes/No)	Codelist Name	CDISC Submission Value
CMPRESP	CM Pre-specified	Char	(NY)	Qualifier	CRF. No	Relation to Reference Period	STENRF
CMSTRTPT	Start Relative to Reference Time Point	Char	(<u>STENRF</u>)	Timing	Identifies the sta defined by varia Not all values of Variables.	Relation to Reference Period Relation to Reference Period	AFTER BEFORE BEFORE
CMSTTPT	Start Reference Time Point	Char		Timing	Description or d CMSTRTPT, Ex	Relation to Reference Period	COINCIDENT
CMENRTPT	End Relative to Reference Time Point	Char	(STENRF)	Timing	Identifies the en defined by varia Not all values of Variables.	Relation to Reference Period Relation to Reference Period Relation to Reference Period	DURING DURING/AFTER ONGOING
CMENTPT	End Reference Time Point	Char		Timing	Description or de CMENRTPT. Ex	Relation to Reference Period	UNKNOWN

4.4.7 Use of Relative Timing Variables

--STRTPT, --STTPT, --ENRTPT, and --ENTPT

If the reference time point corresponds to the date of collection or assessment:

- Start values: An observation can start BEFORE that time point, can start COINCIDENT with point, or it can be UNKNOWN when it started
- End values: An observation can end BEFORE that time point, can end COINCIDENT with t can be known that it did not end but was ONGOING, or it can be UNKNOWN when it ended or in it was ongoing
- AFTER is not a valid value in this case because it would represent an event after the date of collection.



4.5.7 Presence or Absence of Prespecified Interventions and Events

Interventions (e.g., concomitant medications) and events (e.g., medical history) can generally be collected in 2 different ways, by recording either verbatim free text or the responses to a prespecified list of treatments or terms. Because the method of solicitation for information on treatments and terms may affect the frequency at which they are reported, whether they were prespecified may be of interest to reviewers. The --PRESP variable is used to indicate whether a specific intervention (--TRT) or event (--TERM) was solicited. The --PRESP variable has controlled terminology of "Y" (for "Yes") or a null value.

For cases where the Define-XML includes multiple sponsor-defined subsets of parent CDISC Controlled Terminology Codelist, the Name attribute of the subset Codelist element should begin with the Name of parent Codelist. The CodeList Name must be unique within the set of Codelist elements.

Code	Codelist Code	Codelist Extensible	Codelist Name	CDISC Submission Value	CDISC Synonym(s)
-	-	(Yes/No) 🚽		. T	
C71113		Yes	Frequency	FREQ	Frequency
C64526	C71113		Frequency	1 TIME PER WEEK	One Time Per Week
C139179	C71113		Frequency	10 DAYS PER MONTH	10 Days Monthly
C176288	C71113		Frequency	2 TIMES PER CYCLE	
C64497	C71113		Frequency	2 TIMES PER WEEK	BIS; Twice per week
C98861	C71113		Frequency	2 TIMES PER YEAR	2 Times Per Year

CM (Concomitant Medications) - [STDTMIG 3.3]

Location: <u>cm.xpt</u> ៤

Variable	Label / Description	Туре	Role	Length or Display Format	Controlled Terms or ISO Format	Origin / Source / Method / Comment
CMDOSFRQ	Dosing Frequency per Interval	text	Variable Qualifier	3	<u>Frequency, subset used for CM</u> [6 Terms]	Collected (Source: Investigator) Annotated CRF [<u>25</u> &]

EC (Exposure as Collected) - [STDTMIG 3.3]

Location: <u>ec.xpt</u> &

Related Sup	kelated Supplemental Qualifiers Dataset: SUPPEC (Supplemental Qualifiers for EC)									
Variable	Label / Description	Туре	Role	Length or Display Format	Controlled Terms or ISO Format		Origin / Source / Method / Comment			
ECDOSFRQ	Dosing Frequency per Interval	text	Variable Qualifier	2	Frequency, subset used for EC and EX • "QD" = "Daily"		Assigned (Source: Sponsor)			



When variables have the same list of allowed values and same meaning across different domains, they are united into one codelist.

DM (Demographics) - [STDTMIG 3.3]

Location: <u>dm.xpt</u> &

Related Supplemental Qualifiers Dataset: <u>SUPPDM</u> (Supplemental Qualifiers for DM)

Variable	Where Condition	Label / Description	Туре	Role	Length or Display Format	Controlled Terms or ISO Format	Origin / Source / Method / Comment
DTHFL		Subject Death Flag	text	Record Qualifier	1	<u>No Yes Response, subset for variables with only</u> <u>"Y" or null values</u> • "Y" = "Yes"	Derived (Source: Sponsor) If DTHDTC is populated then DTHFL='Y'

LB (Laboratory Test Results) - [STDTMIG 3.3]

Location: <u>lb.xpt</u> &

Variable	Where Condition	Label / Description	Туре	Role	Length or Display Format	Controlled Terms or ISO Format	Origin / Source / Method / Comment
LBLOBXFL		Last Observation Before Exposure Flag	text	Record Qualifier	1	No Yes Response, subset for variables with only "Y" or null values • "Y" = "Yes"	Derived (Source: Vendor) Set to "Y" for last record with non-null original result on or before the first dose date (RFXSTDTC). Null otherwise.



Sponsor-specific controlled terminology is recommended. Codelist usually be provided for variables and value-level definitions which have a predefined and finite set of categorical allowable values, free-text fields should not use codelist.

			Unsched	uled Single Te	st VISIT		
Unscheduled	l single test: 0	Not done	[NOT SUB	MITTED]			
No.: XTS	PID						
Test item:	QVAL whe	n SUPP)	(T.QNAM=)	TORITEM			
Reason for test: • AE • Others QVAL when SUPPXT.QNAM=XTREAS							
AE no.: Q	AL when	SUPPXT	.QNAM=XT	AEID			
Other reasor	s: QVAL w	hen SU	PPXT.QNAI	M=XTREASO	т		
Test date:	(I	DD-MM-YY	(YY) XTDT	C SVSTD	тс		
Result: _X	ORRES					QVAL WI SUPPXT	ien .QNAM=XTC:
Clinical sign	ificance: ○ No	rmal ⊖ Abn	ormal without o	linical significan	ce o Abnormal y	with clinical s	significance

XT (Extra Test Results) - FINDINGS

Location: xt.xpt 🖉

Related Supple	elated Supplemental Qualifiers Dataset: SUPPAT (Supplemental Qualifiers for XI)										
Variable	Where Condition	Label / Description	Туре	Length or Display Format	Controlled Terms or ISO Format	Origin / Source / Method / Comment					
XTSTRESC		Character Result/Finding in Std Format	text	200	<u>Character</u> <u>Result/Finding in Std</u> <u>Format</u> [1499 Terms]	Derived Equal to XTORRES.					
1.1.1.1	adiaa										



Sponsor-specific controlled terminology is recommended. Codelist usually be provided for variables and value-level definitions which have a predefined and finite set of categorical allowable values, free-text fields should not use codelist.



RS (Disease Response and Clin Classification) - [STDTMIG 3.3]

ariable	Where Condition	Label / Description	Туре	Role	Length or Display Format	Controlled Terms or ISO Format	Origin / Source / Method / Comment
SORRES VLM		Result or Finding in Original Units	text	Result Qualifier	198		Collected (Source: Investigator) Annotated CRF [19 &]
	<u>RSTESTCD</u> = "HAMD101" (HAMD1-Depressed Mood)	HAMD-17 Question	text		111	Hamilton Decression Rating Scale - 17 Item - Question 1 * "Absent." These feeling states indicated only on questioning." • These feeling states spontaneously reported verbally." • "Communicates feeling states non-verbally, i.e. through facial expression, posture, voice and tendency to weep." • "Patient reports virtually only these feeling states in high/ser spontaneous verbal and non-verbal communication."	Collected (Source: Investigator) Annotated Ch5 [12 순]
	RSTESTED = "HAMD102" (HAMD1-Feelings of Guilt)	HAMD-17 Question 2	text		93	Hamilton Decreasion Rating Scale - 17 Item - Question 2 * "Absent." Self reproach, feels he/she has let people down." * "Ideas of guilt or rumination over past errors or sinful deeds." • Presen tillness is a punishment. Delusions of guilt." • "Hears accusatory or denunciatory voices and/or reportences threatening visual hallurignations."	Collected (Source: Investigator) Annotated CRF [12 @]

Location: rs.xpt &

ADaM Codelist

If there is a codelist for the variable coming from the SDTM dataset, then applicable values from the same codelist must be carried forward into ADaM.

Example:

Variable	Label/Description	Туре	Controlled Terms	Origin / Source / Method / Comment
AESEV	Severity/Intensity	text	AESEV	Predecessor: AE.AESEV

If the same variable exists in multiple ADaM datasets and has an associated codelist, then the associated codelist name should be differentiated if the list of allowed values is different from one dataset to another.

Ref: ADaM MSG v1.0



Reference

- PHUSE, Define-XML+Version+2.0+Completion+Guidelines
- CDISC, <u>CDISC Define-XML Specification Version 2.1</u>
- CDISC, <u>SDTM IG V3.4</u>
- CDISC, <u>SDTM MSG V2.0</u>
- CDISC, <u>ADAM MSG V1.0</u>
- FDA, STUDY DATA TECHNICAL CONFORMANCE GUIDE v5.0
- FDA, FDA Validator Rules v1.6





Thank You!

