Note: Section 6.1 - AG Domain underwent public review as part of SDTMIG 3.3 Batch 1 toward the end of 2013. The date in the footer of this copy reflects the most recent updates made since then.

6 Domain Models Based on the General Observation Classes

6.1 Interventions

Procedure Agents **(AG)**

Some tests involve administration of substances, and it has been unclear what domain these should be stored in. The Concomitant Medications domain seemed particularly inappropriate when the substance was one that would never been given as a medication. Even substances that are medications are not being used as such when they are given as part of a testing procedure. The Exposure domain also seemed inappropriate, since although the testing procedure might be part of the study plan, these data would not be used or analyzed in the same way as data about study treatments. The Procedure Agents domain was created to fill this gap. The Procedure Agents domain has advantages over the draft Procedures domain for this purpose. It allows recording of multiple substance administrations for a single testing procedure. It also separates data about substance administrations from data about procedures which do not involve substance administration.

AG – Description/Overview for Procedure Agents Domain Model

The Procedure Agents domain is a draft domain at the time of this publication. No CDISC controlled terminology definition exists for the domain yet.

Both the provisional Procedures domain and this draft Procedure Agents domain allow collection of doses administered during a procedure, and discussions are ongoing to provide guidance on deciding what data should be stored in which domain. The draft Procedure Agents domain can be used to provide data on several substance administrations within the same procedure, as shown in Example 2 below.

AG – Specification for Procedure Agents Domain Model

ag.xpt, Procedure Agents — Interventions, Version 3.x.x. One record per recorded intervention occurrence per subject, Tabulation.

Variable Name	Variable Label	Type	Controlled Terms, Codelist or Format	Role	CDISC Notes	Core
STUDYID	Study Identifier	Char		Identifier	Unique identifier for a study.	Req
DOMAIN	Domain Abbreviation	Char	AG	Identifier	Two-character abbreviation for the domain.	Req
USUBJID	Unique Subject Identifier	Char		Identifier	Identifier used to uniquely identify a subject across all studies for all applications or submissions involving the product.	Req
AGSEQ	Sequence Number	Num		Identifier	Sequence Number given to ensure uniqueness of subject records within a domain. May be any valid number.	Req
AGGRPID	Group ID	Char		Identifier	Used to tie together a block of related records in a single domain for a subject.	Perm

AGSPID	Sponsor-Defined Identifier	Char		Identifier	Sponsor-defined reference number. Perhaps pre-printed on the CRF as an explicit line identifier or defined in the sponsor's operational database. Example: Line number from the procedure or test page.	Perm
AGTRT	Reported Agent Name	Char		Topic	Verbatim medication name that is either pre-printed or collected on a CRF.	Req
AGMODIFY	Modified Reported Name	Char		Synonym Qualifier	If AGTRT is modified to facilitate coding, then AGMODIFY will contain the modified text.	Perm
AGDECOD	Standardized Agent Name	Char	*	Synonym Qualifier	Standardized or dictionary-derived text description of AGTRT or AGMODIFY. Equivalent to the generic medication name in WHO Drug. The sponsor is expected to provide the dictionary name and version used to map the terms utilizing the define.xml external codelist attributes. If an intervention term does not have a decode value in the dictionary then AGDECOD will be left blank.	Perm
AGCAT	Category for Agent	Char	*	Grouping Qualifier	Used to define a category of agent. Examples: CHALLENGE AGENT, or PET TRACER.	Perm
AGSCAT	Subcategory for Agent	Char	*	Grouping Qualifier	Further categorization of agent.	Perm
AGPRESP	AG Pre-Specified	Char	(NY)	Record Qualifier	Used to indicate whether (Y/null) information about the use of a specific agent was solicited on the CRF.	Perm
AGOCCUR	AG Occurrence	Char	(NY)	Record Qualifier	When the use of specific agent is solicited, AGOCCUR is used to indicate whether or not (Y/N) use of the agent occurred. Values are null for agents not specifically solicited.	Perm
AGSTAT	Completion Status	Char	(ND)	Record Qualifier	Used to indicate that a question about a pre-specified agent was not answered. Should be null or have a value of NOT DONE.	Perm
AGREASND	Reason Test Not Performed	Char		Record Qualifier	Describes the reason procedure agent was not collected. Used in conjunction with AGSTAT when value is NOT DONE.	Perm
AGCLAS	Agent Class	Char	*	Variable Qualifier	Drug class. May be obtained from coding. When coding to a single class, populate with class value. If using a dictionary and coding to multiple classes, then follow assumption 4.1.2.8.3 or omit AGCLAS.	Perm
AGCLASCD	Agent Class Code	Char	*	Variable Qualifier	Class code corresponding to AGCLAS. Drug class. May be obtained from coding. When coding to a single class, populate with class code. If using a dictionary and coding to multiple classes, then follow assumption 4.1.2.8.3 or omit AGCLASCD.	Perm
AGDOSE	Dose per Administration	Num		Record Qualifier	Amount of AGTRT taken.	Perm
AGDOSTXT	Dose Description	Char		Record Qualifier	Dosing amounts or a range of dosing information collected in text form. Units may be stored in AGDOSU. Example: 200-400, 15-20.	Perm
AGDOSU	Dose Units	Char	(UNIT)	Variable Qualifier	Units for AGDOSE and AGDOSTXT. Examples: ng, mg, or mg/kg.	Perm
AGDOSFRM	Dose Form	Char	(FRM)	Variable Qualifier	Dose form for AGTRT. Examples: TABLET, AREOSOL.	Perm
AGDOSFRQ	Doing Frequency per Interval	Char	(FREQ)	Variable Qualifier	Usually expressed as the number of repeated administrations of AGDOSE within a specific time period. Example: ONCE	Perm
AGROUTE	Route of Administration	Char	(ROUTE)	Variable Qualifier	Route of administration for AGTRT. Examples: ORAL.	Perm

VISITNUM	Visit Number	Num		Timing	1. Clinical encounter number. 2. Numeric version of VISIT, used for sorting.	Exp
VISIT	Visit Name	Char		Timing	1. Protocol-defined description of clinical encounter. 2. May be used in addition to VISITNUM and/or VISITDY.	Perm
VISITDY	Planned Study Day of Visit	Num		Timing	Planned study day of the visit based upon RFSTDTC in Demographics.	Perm
AGSTDTC	Start Date/Time of Agent	Char	ISO 8601	Timing		Perm
AGENDTC	End Date/Time of Agent	Char	ISO 8601	Timing		Perm
AGSTDY	Study Day of Start of Agent	Num		Timing	Study day of start of agent relative to the sponsor-defined RFSTDTC.	Perm
AGENDY	Study Day of End of Agent	Num		Timing	Study day of end of agent relative to the sponsor-defined RFSTDTC.	Perm
AGDUR	Duration of Agent	Char	ISO 8601	Timing	Collected duration for an agent episode. Used only if collected on the CRF and not derived from start and end date/times.	Perm
AGSTRF	Start Relative to Reference Period	Char	(STENRF)	Timing	Describes the start of the agent relative to sponsor-defined reference period. The sponsor-defined reference period is a continuous period of time defined by a discrete starting point and a discrete ending point (represented by RFSTDTC and RFENDTC in Demographics). If information such as "PRIOR", "ONGOING", or "CONTINUING" was collected, this information may be translated into AGSTRF.	Perm
AGENRF	End Relative to Reference Period	Char	(STENRF)	Timing	Describes the end of the agent relative to the sponsor-defined reference period. The sponsor-defined reference period is a continuous period of time defined by a discrete starting point and a discrete ending point (represented by RFSTDTC and RFENDTC in Demographics). If information such as "PRIOR", "ONGOING", or "CONTINUING" was collected, this information may be translated into AGENRF.	Perm
AGSTRTPT	Start Relative to Reference Time Point	Char	BEFORE, COINCIDENT, AFTER, U	Timing	Identifies the start of the agent as being before or after the reference time point defined by variable AGSTTPT.	Perm
AGSTTPT	Start Reference Time Point	Char		Timing	Description or date/time in ISO 8601 character format of the reference point referred to by AGSTRTPT. Examples: "2003-12-15" or "VISIT 1".	Perm
AGENRTPT	End Relative to Reference Time Point	Char	BEFORE, COINCIDENT, AFTER, ONGOING, U	Timing	Identifies the end of the agent as being before or after the reference time point defined by variable AGENTPT.	Perm
AGENTPT	End Reference Time Point	Char		Timing	Description or date/time in ISO 8601 character format of the reference point referred to by AGENRTPT. Examples: "2003-12-25" or "VISIT 2".	Perm

** Indicates variable may be subject to controlled terminology, (Parenthesis indicates CDISC/NCI codelist code value)*

AG – Assumptions for Procedure Agents Domain Model

1. AG Definition and Structure
    a. CRF data that captures the agents administered to the subject as part of a procedure or assessment as opposed to drugs, medications and therapies administered with therapeutic intent. An example is a short-acting bronchodilator administered as part of a reversibility assessment. Other examples of substance administrations that could be submitted in this domain include contrast agents and radio labeled substances used in imaging studies. Discussions are ongoing on the handling of radiation (e.g., x-rays or visible light) in SDTM interventions domains.

   b. The structure of the AG domain is one record per agent intervention episode, or pre-specified agent assessment per subject. It is the sponsor's responsibility to define an intervention episode. This definition may vary based on the sponsor's requirements for review and analysis.
2. Procedure Agent Description and Coding
   a. AGTRT captures the name of the agent and it is the topic variable. It is a required variable and must have a value. AGTRT should include only the agent name, and should not include dosage, formulation, or other qualifying information. For example, ALBUTEROL 2 PUFF is not a valid value for AGTRT. This example should be expressed as AGTRT = ALBUTEROL, AGDOSE = 2, AGDOSU = PUFF, and AGDOSFRM = AEROSOL
   b. AGMODIFY should be included if the sponsor‘s procedure permits modification of a verbatim term for coding.
   c. AGDECOD is the standardized agent term derived by the sponsor from the coding dictionary. It is possible that the reported term (AGTRT) or the modified term (AGMODIFY) can be coded using a standard dictionary. In this instance the sponsor is expected to provide the dictionary name and version used to map the terms utilizing the define.xml external codelist attributes.
3. Pre-specified Terms; Presence or Absence of Procedure Agents
   a. AGPRESP is used to indicate whether an agent was pre-specified.
   b. AGOCCUR is used to indicate whether a pre-specified agent was used. A value of Y indicates that the agent was used and N indicates that it was not.
   c. If an agent was not pre-specified the value of AGOCCUR should be null. AGPRESP and AGOCCUR are permissible fields and may be omitted from the dataset if all agents were collected as free text. Values of AGOCCUR may also be null for pre-specified agents if no Y/N response was collected; in this case, AGSTAT = NOT DONE, and AGREASND could be used to describe the reason the answer was missing.
4. Additional Permissible Interventions Qualifiers
   a. The variables --INDC, --DOSTOT, and --DOSRGM from the Interventions general observation class would not generally be used in the AG domain because AG should only contain agents used as part of a procedure or an assessment.
   b. Other additional Qualifiers from the SDTM Interventions Class may be added to this domain.

AG – Examples for Procedure Agents Domain Model

Example 1

This example shows the administration of a procedure agent administered as part of a reversibility assessment with the associated spirometer results, as well as the spirometry measurements (RE domain) obtained before and after agent administration. Depending on the study design, the route of bronchodilator administration (via meter dose inhaler (MDI) or nebulizer) and dose per actuation (puff) or nebule may also be collected.

Reversibility Assessment

Date of assessment: DD-MMM-YYYY
Was the subject administered a short-acting bronchodilator in the previous 4 hours? Yes No
Pre-Bronchdilator Spirometry (5 Minutes before Albuterol Dosing)
    Time of Assessment: HH:MM
    Forced Expiratory Volume in 1 Second (FEV1) Result: _____L
Albuterol Administration
    Was the subject administered Albuterol? Yes No
    Time of Assessment: HH:MM
    Number of Puffs administered: ____

Post-Bronchdilator Spirometry (20 Minutes after Albuterol Dosing)
Time of Assessment: HH:MM
Forced Expiratory Volume in 1 Second (FEV1) Result: _____L
Percentage Reversibility: _____ %

Row 1: Shows the administration data of an agent (Albuterol) which was pre-specified on the CRF as part of the reversibility procedure.

ag.xpt

Row	STUDYID	DOMAIN	USUBJID	AGSEQ	AGTRT	AGPRESP	AGOCCUR	AGDOSE	AGDOSU	AGDOSFRM	AGDOSFRQ	AGROUTE	VISIT	AGSTDTC
1	XYZ	AG	XYZ-001-001	1	ALBUTEROL	Y	Y	2	PUFF	AEROSOL	ONCE	ORAL	VISIT 2	2013-06-18T10:05

Row 1: Shows the record where the question as to whether a short-acting bronchodilator was administered in the 4 hours prior to the reversibility assessment. A short-acting bronchodilator administered prior to the reversibility test, is used with therapeutic intent so is tabulated in the CM domain. Note that AGTRT has been populated with a description of a kind of medication rather than a single medication.

cm.xpt

Row	STUDYID	DOMAIN	USUBJID	CMSEQ	CMTRT	CMPRESP	CMOCCUR	CMEVLINT
1	XYZ	CM	XYZ-001-001	1	SHORT-ACTING BRONCHODILATOR	Y	N	-PT4H

Row 1: Shows the data in original and standardized units of measure in REORRES, RESTRESC and RESTRESN for FEV1 of a pre-bronchodilator-administration spirometry test performed as part of a reversibility assessment with the associated timing reference variables RETPT, RETPTNUM, REELTM, RETPTREF, and RERFTDTC. This test was performed 5 minutes before the bronchodilator challenge.

Row 2: Shows the data in original and standardized units of measure in REORRES, RESTRESC and RESTRESN for FEV1 of a post-bronchodilator administration spirometry test performed as part of a reversibility assessment with the associated timing reference variables RETPT, RETPTNUM, REELTM, RETPTREF, and RERFTDTC. This test was performed 20 minutes after the bronchodilator challenge.

Row 3: Shows the data in original and standardized units of measure in REORRES, RESTRESC and RESTRESN for the percentage reversibility where this is collected.

re.xpt

Row	STUDYID	DOMAIN	USUBJID	SPDEVID	RESEQ	REGRPID	RETESTCD	RETEST	REORRES	REORRESU	RESTRESC	RESTRESN
1	XYZ	RE	XYZ-001-001	ABC001	1	1	FEV1	Forced Expiratory Volume in 1 Second	2.43	L	2.43	2.43
2	XYZ	RE	XYZ-001-001	ABC001	2	1	FEV1	Forced Expiratory Volume in 1 Second	2.77	L	2.77	2.77
3	XYZ	RE	XYZ-001-001	ABC001	3	1	PCTREV	Percentage Reversibility	13.99	%	13.99	13.99

Row	RESTRESU	VISIT	REDTC	RETPT	RETPTNUM	REELTM	RETPTREF	RERFTDTC
1 (cont)	L	VISIT 2	2013-06-18T10:00	PRE-BRONCHODILATOR ADMINISTRATION	1	-PT5M	BRONCHODILATOR ADMINISTRATION	2013-06-18T10:05
2 (cont)	L	VISIT 2	2013-06-18T10:25	POST-BRONCHODILATOR ADMINISTRATION	2	PT20M	BRONCHODILATOR ADMINISTRATION	2013-06-18T10:05
3 (cont)	%	VISIT 2	2013-06-18T10:25				BRONCHODILATOR ADMINISTRATION	2013-06-18T10:05

Row 1: Shows the device type that was used for the pulmonary function tests as part of the reversibility procedure.

di.xpt

Row	STUDYID	DOMAIN	SPDEVID	DISEQ	DIPARMCD	DIPARM	DIVAL
1	XYZ	DI	ABC001	1	TYPE	Device Type	SPIROMETER

Rows 1-3: Shows the relationship of the test agent to the spirometry measurements obtained before and after its administration and to the prior occurrence of short acting bronchodilator administration.

relrec.xpt

Row	STUDYID	RDOMAIN	USUBJID	IDVAR	IDVARVAL	RELTYPE	RELID
1	XYZ	AG	XYZ-001-001	AGSEQ	1		1
2	XYZ	RE	XYZ-001-001	REGRPID	1		1
3	XYZ	CM	XYZ-001-001	CMSEQ	1		1

Example 2

This example captures data about the allergen used by the subject as part of a bronchial allergen challenge (BAC) test. Initially, the subject had a skin prick allergen test to help identify the allergen to be used for the BAC test. The allergens tested were cat dander, house dust mite, and grass. For this subject, grass provided the largest skin test reaction and was the allergen chosen to be used in the BAC test. A predetermined set of ascending doses of the chosen allergen are used in the screening BAC test. The results of the screening BAC are used to choose the allergen dose that will be used in subsequent BAC tests (not shown).

Allergen Used?
☐ Cat Dander
☐ House Dust Mites
☐ Grass

Inhalation End Time	Allergen Concentration SQ-u/mL		Time of FEV1	FEV1 (L)
___:___	Saline=0	0	___:___	__.__
___:___	Dose1	250	___:___	__.__
___:___	Dose2	1000	___:___	__.__
___:___	Dose3	2000	___:___	__.__

Rows 1-3: Correspond to the first part of the CRF. The skin response results corresponding to these allergen administrations were used to choose grass as the allergen for the BAC.
Rows 4: The first dose given in the BAC was saline.
Rows 5-6: Three successively higher doses of grass allergen were given.

ag.xpt

Row	STUDYID	DOMAIN	USUBJID	AGSEQ	AGTRT	AGPRESP	AGOCCUR	AGDOSE	AGDOSU	AGROUTE	VISIT	AGENDTC
1	XYZ	AG	XYZ-001-001	1	CAT DANDER	Y	N			INTRAEPIDERMAL	SCREENING	2010-10-31
2	XYZ	AG	XYZ-001-001	1	HOUSE MITE DUST	Y	N			INTRAEPIDERMAL	SCREENING	2010-10-31
2	XYZ	AG	XYZ-001-001	1	GRASS	Y	Y			INTRAEPIDERMAL	SCREENING	2010-10-31
3	XYZ	AG	XYZ-001-001	1	SALINE	Y	Y	0	SQ-u/mL	RESPIRATORY (INHALATION)	SCREENING	2010-11-07T10:56:00
4	XYZ	AG	XYZ-001-001	1	GRASS	Y	Y	250	SQ-u/mL	RESPIRATORY (INHALATION)	SCREENING	2010-11-07T11:19:00
5	XYZ	AG	XYZ-001-001	1	GRASS	Y	Y	1000	SQ-u/mL	RESPIRATORY (INHALATION)	SCREENING	2010-11-07T11:43:00
6	XYZ	AG	XYZ-001-001	1	GRASS	Y	Y	2000	SQ-u/mL	RESPIRATORY (INHALATION)	SCREENING	2010-11-07T12:06:00