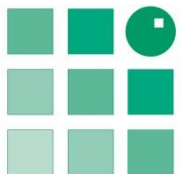# GUF CDISC

Octobre 2019, Rennes

Retour d'expérience sur la validation de l'outil Pinnacle 21 Community pour le SDTM IG 3.2

Karine Provost, Claire Mignot, Corentin Brandy - Biotrial

Agenda

- Study Data Validation Rules

- Pinnacle 21 Validator

- Pinnacle 21 Community - Validation of the version 2.1.3 (PMDA)/2.2.0(FDA)

- Pinnacle 21 Community - Validation of the version 3.0 (FDA)
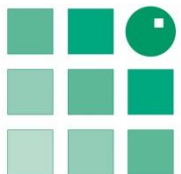
- Conclusion

Agenda

- **Study Data Validation Rules**

- Pinnacle 21 Validator

- Pinnacle 21 Community - Validation of the version 2.1.3 (PMDA)/2.2.0(FDA)

- Pinnacle 21 Community - Validation of the version 3.0 (FDA)

- Conclusion

Study Data Validation Rules

Study data validation helps to ensure that the study data are compliant, useful, and will support meaningful review and analysis

Study Data Validation Rules

cdisc

https://www.cdisc.org/standards/foundational/sdtmig
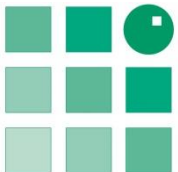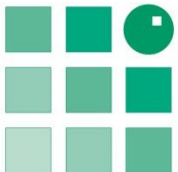
SDTM Implementation Guide v3.2/SDTM v1.4

4.1.1.5 CDISC Core Variables

The concept of core variable is used both as a measure of compliance, and to provide general guidance to sponsors. Three categories of variables are specified in the "Core" column in the domain models:

- A **Required** variable is any variable that is basic to the identification of a data record (i.e., essential key variables and a topic variable) or is necessary to make the record meaningful. Required variables must always be included in the dataset and cannot be null for any record.

SDTMIG Conformance Rules (including a user guide)

Rule ID	Class	Domain	Variable	Rule	Condition	Guide	Section	Item	Cited Guidance	IG Versions	Batch ID	Programmable
CG0014	ALL	ALL	GEN	Variable present in dataset and ^= null	Variable Core Status = Required	IG v3.2	4.1.1.5		Required variables must always be included in the dataset and cannot be null for any record.	3.2	1.00	Y

Study Data Validation Rules

https://www.fda.gov/ForIndustry/DataStandards/StudyDataStandards/default.htm

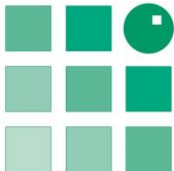## FDA Study Data Technical Conformance Guide

Whenever --DTC, --STDTC or --ENDTC, which have the role of timing variables, are included in a general observation class domain, the matching Study Day variables (--DY, --STDY, or --ENDY, respectively) should be included. For example, in most Findings domains, --DTC is Expected, which means that --DY should also be included. In the SDTM Subject Visits domain, SVSTDTC is Required and SVENDTC is Expected; therefore, both SVSTDY and SVENDY should be included.

FDA Business Rules

FDA Business Rule ID	FDA Business Rule
Clinical and Nonclinical	
FDAB016	Collection Study Day should be populated when Date/Time of Collection is available.

FDA Validator Rules

FDA Business Rule ID	FDA Business Rule	FDA Validator Rule	Domains	SDTM 3.1.2	SDTM 3.1.3	SDTM 3.2	SEND 3.0
FDAB016	Collection Study Day should be populated when Date/Time of Collection is available.	Collection Study Day (--DY) variable should be included into dataset, when Collection Study Date/Time (--DTC) variable is present.	INTERVENTIONS, EVENTS, FINDINGS, CO, SE, SV	X	X	X	X

Study Data Validation Rules

*http://www.pmda.go.jp/english/review-services/reviews/advanced-efforts/0002.html*

Technical Conformance Guide on Electronic Study Data Submissions

If the dataset contains --DTC, --STDTC, and --ENDTC variables, the corresponding Study Day variables (--DY, --STDY, and --ENDY)
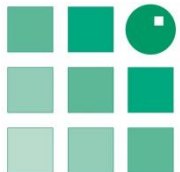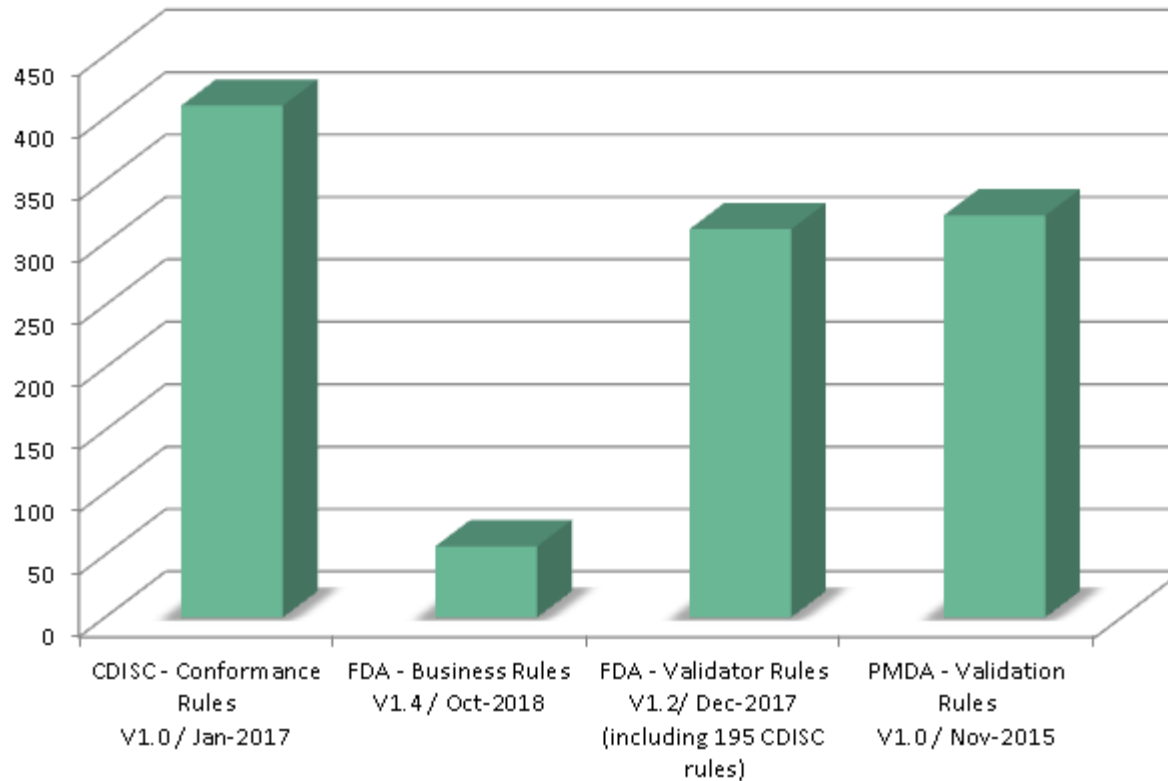
PMDA Study Data Validation Rules

| RULE ID	MESSAGE	DESCRIPTION	DOMAINS	PMDA Severity	3.1.2	3.1.3	3.2	PMDA NOTES
SD1083	Missing --DY variable, when --DTC variable is present	Collection Study Day (--DY) variable should be included into dataset, when Collection Study Date/Time (--DTC) variable is present.	INTERVENTIONS, EVENTS, FINDINGS, CO, SE,	Warning	X	X	X	
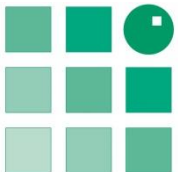
Study Data Validation Rules

Number of SDTM IG 3.2 rules

Agenda

- Study Data Validation Rules

- **Pinnacle 21 Validator**

- Pinnacle 21 Community - Validation of the version 2.1.3 (PMDA)/2.2.0(FDA)

- Pinnacle 21 Community - Validation of the version 3.0 (FDA)

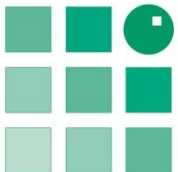- Conclusion
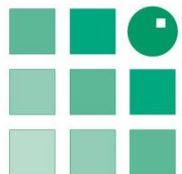
Pinnacle 21 Validator

- **2 applications:**

  PINNACLE²¹ COMMUNITY   **PINNACLE²¹ ENTERPRISE**

- **Rules developped in the tool**

PINNACLE²¹   PRODUCTS ▾   SERVICES ▾   COMMUNITY ▾   About Us ▾   Q

SDTM   SEND   ADAM   DEFINE-XML

sd1083   ALL   FDA   PMDA

| Rule ID ▲	Publisher ID ⇕	Message ⇕	Description ⇕	FDA Severity ⇕	PMDA Severity ⇕	3.1.2 ⇕	3.1.3 ⇕	3.2 ⇕	Notes ⇕
SD1083	FDAB016	Missing --DY variable, when --DTC variable is present	Collection Study Day (--DY) variable should be included into dataset, when Collection Study Date/Time (--DTC) variable is present.	Warning	Warning	X	X	X	

Agenda

- Study Data Validation Rules
- Pinnacle 21 Validator
- **Pinnacle 21 Community - Validation of the version 2.1.3 (PMDA)/2.2.0(FDA)**
- Pinnacle 21 Community - Validation of the version 3.0 (FDA)
- Conclusion
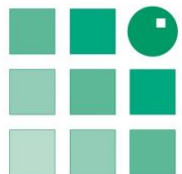
Pinnacle 21 Community - Validation of the version 2.1.3 (PMDA)/2.2.0(FDA)

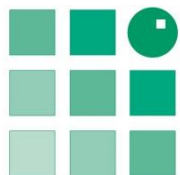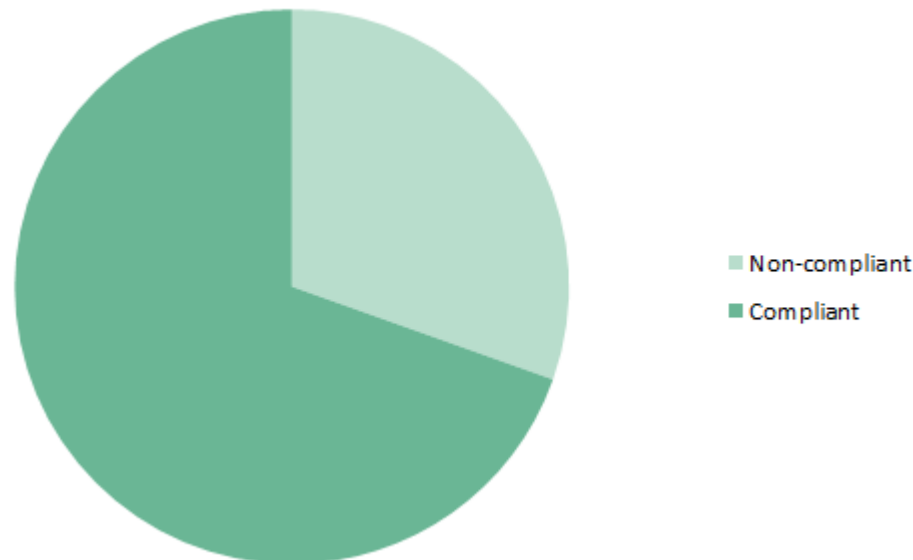Rules in PINNACLE 21 Validator - SDTM IG 3.2
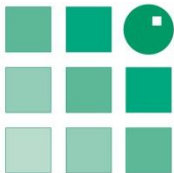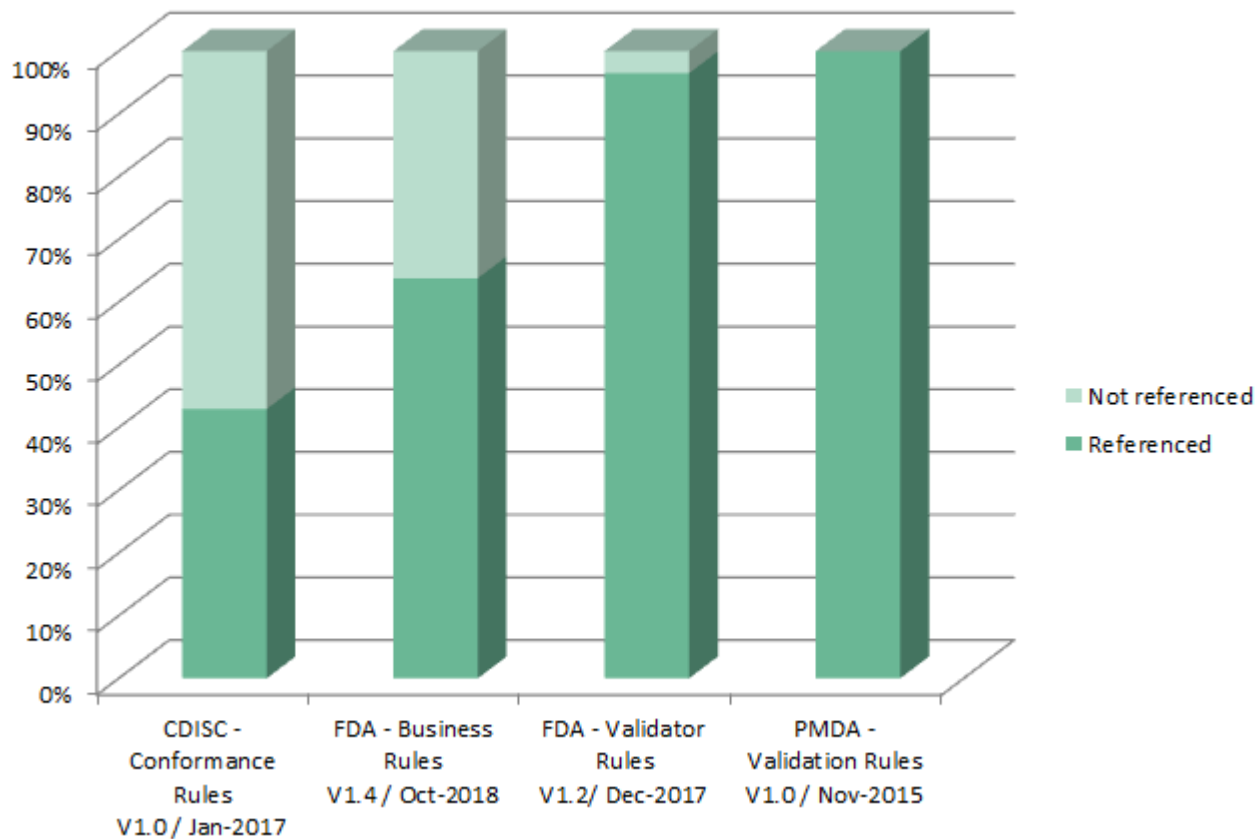
Pinnacle 21 Community Validation of the version 2.1.3 (PMDA)

- Results of the validation- dummy data created for each rule present in the tool

SDTMIG 3.2 Rules (PMDA)

- Non-compliant
- Compliant

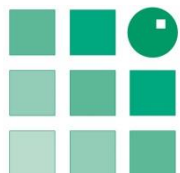# Pinnacle 21 Community Validation of the version 2.1.3 (PMDA)

- Categories of non-compliant rules
  - Not checked for a specific class:

  For example: SD0022 not checked for the Events class

Rule ID	Publisher ID	Message	Description	FDA Severity	PMDA Severity	3.1.2	3.1.3	3.2	Notes
SD0022	FDAB038	Missing Start Time-Point value	One Start Time-Point variable is expected to be populated when an event or intervention occurred. (E.g., Start Date/Time of Event or Intervention (--STDTC), or Start Relative to Reference Period (--STRF), or Start Relative to Reference Period (--STRTPT) should not be missing, or Occurrence (--OCCUR) = 'N' or Completion Status (--STAT) != '').	Warning	Warning	X	X	X	

RULE ID	MESSAGE	DESCRIPTION	DOMAINS	PMDA Severity	3.1.2	3.1.3	3.2
SD0022	Missing Start Time-Point value	One of Start Time-Point variables values is expected to be populated when an event an intervention occurred. (E.g., one of Start Date/Time of Event or Intervention (--STDTC), Start Relative to Reference Period (--STRF), and Start Relative to Reference Period (--STRTPT) variables values should not be missing, or Occurrence (--OCCUR) variable value should be 'N').	INTERVENTIONS, EVENTS	Warning	X	X	X

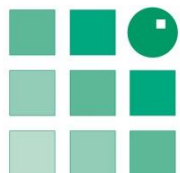# Pinnacle 21 Community Validation of the version 2.1.3 (PMDA)

- Categories of non-compliant rules
  - Not checked for a specific domain:

  For example: SD0049 not checked for the domains DD, DS, EC, HO, IS, MI, MO, PR, RP, SR, SS

Rule ID	Publisher ID	Message	Description	FDA Severity	PMDA Severity	3.1.2	3.1.3	3.2
SD0049	FDAB044	Missing value for --STTPT, when --STRTPT is populated	Start Reference Time Point (--STTPT) must not be NULL, when Start Relative to Reference Time Point (--STRTPT) is provided.	Warning	Warning	X	X	X

RULE ID	MESSAGE	DESCRIPTION	DOMAINS	PMDA Severity	3.1.2	3.1.3	3.2
SD0049	Missing value for --STTPT, when --STRTPT is populated	Start Reference Time Point (--STTPT) must not be NULL, when Start Relative to Reference Time Point (--STRTPT) is provided.	INTERVENTIONS, EVENTS, FINDINGS, SE, SV	Warning	X	X	X

Pinnacle 21 Community Validation of the version 2.1.3 (PMDA)
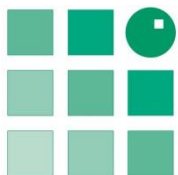
- Categories of non-compliant rules
  - Not checked for a specific variable:

  For example: SD0002 not checked for the variable USUBJID

Rule ID ▲	Publisher ID ⇕	Message ⇕	Description ⇕	FDA Severity	PMDA Severity ⇕	3.1.2 ⇕	3.1.3 ⇕	3.2 ⇕
SD0002	FDAB027, CG0014	NULL value in variable marked as Required	Required variables (where Core attribute is 'Req') cannot be NULL for any records.	Error	Reject	X	X	X

RULE ID	MESSAGE	DESCRIPTION	DOMAINS	PMDA Severity	3.1.2	3.1.3	3.2
SD0002	NULL value in variable marked as Required	Required variables (where Core attribute is 'Req') cannot be NULL for any records.	ALL	Reject	X	X	X

Rule ID	Class	Domain	Variable	Rule	Condition	Guide	Section	Item	Cited Guidance	IG Versions	Batch ID	Programmable	Programmable Flag Comment	FDA Rule ID (v 1.0)
CG0014	ALL	ALL	GEN	Variable present in dataset and ^= null	Variable Core Status = Required	IG v3.2	4.1.1.5		Required variables must always be included in the dataset and cannot be null for any record.	3.2	1.00	Y		FDAC017, FDAC018

Pinnacle 21 Community Validation of the version 2.1.3 (PMDA)
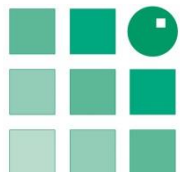
- ## Categories of non-compliant rules
  - ### Rule not checked:

  For example: SD1045

Rule ID ▲	Publisher ID ⬍	Message ⬍	Description ⬍	⬍	FDA Severity	PMDA Severity ⬍	3.1.2 ⬍	3.1.3 ⬍	3.2 ⬍
SD1045	CG0175	Inconsistent values for IEORRES/IECAT	I/E Criterion Original Result (IEORRES) must equal 'Y', when Inclusion/Exclusion Category (IECAT) is 'EXCLUSION'.		Error	Error	X	X	X

RULE ID	MESSAGE	DESCRIPTION	DOMAINS	PMDA Severity	3.1.2	3.1.3	3.2
SD1045	Inconsistent values for IEORRES/IECAT	I/E Criterion Original Result (IEORRES) must equal 'Y', when Inclusion/Exclusion Category (IECAT) is 'EXCLUSION'.	IE	Error	X	X	X

| Rule ID	Class	Domain	Variable	Rule	Condition	Guide	Section	Item	Cited Guidance	IG Versions	Batch ID	Programmable	Programmable Flag Comment	FDA Rule ID (v 1.0)
CG0175	FND	IE	IEORRES	IEORRES = 'Y'	IECAT = 'EXCLUSION'	IG v3.2	6.3	Assumption 2	The intent of the domain model is to collect response to only those criteria that the subject did not meet, and not the responses to all criteria.	3.2	1.00	Y		FDAC095

Pinnacle 21 Community Validation of the version 2.2.0 (FDA)

- Results of the validation- dummy data created for each rule present in the tool

SDTMIG 3.2 Rules (FDA)
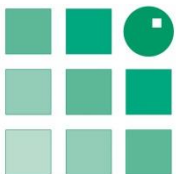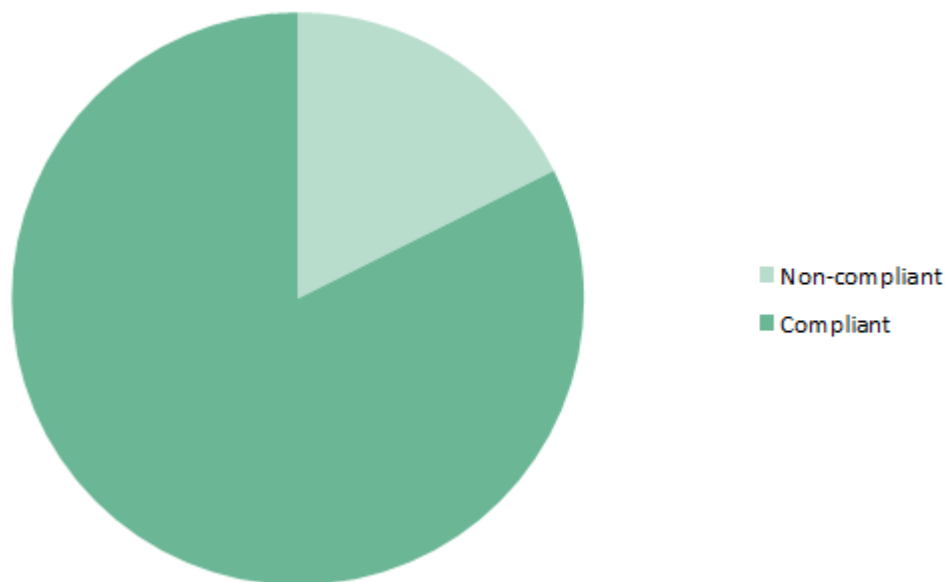
- Non-compliant
- Compliant

Pinnacle 21 Community Validation of the version 2.2.0 (FDA)
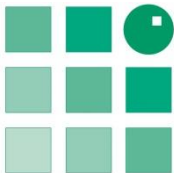
- Categories of non-compliant rules
  - Not checked for a specific class:

  For example: SD0012 not checked for the Findings class

Rule ID	Publisher ID	Message	Description	FDA Severity	PMDA Severity	3.1.2	3.1.3	3.2
SD0012	FDAB034	--STDY is after --ENDY	Study Day of Start of Event, Exposure or Observation (--STDY) must be less or equal to Study Day of End of Event, Exposure or Observation (--ENDY).	Error	Error	X	X	X

RULE ID	MESSAGE	DESCRIPTION	DOMAINS	PMDA Severity	3.1.2	3.1.3	3.2
SD0012	--STDY is after --ENDY	Study Day of Start of Event, Exposure or Observation (--STDY) must be less or equal to Study Day of End of Event, Exposure or Observation (--ENDY).	INTERVENTIONS, EVENTS, FINDINGS	Error	X	X	X

FDA Business Rule ID	FDA Business Rule	FDA Validator Rule	Domains	SDTM 3.1.2	SDTM 3.1.3	SDTM 3.2	SEND 3.0
FDAB034	Study Start and End Dates must be submitted and complete.	End Date/Time of Treatment (EXENDTC) should be less than or equal to the Start Date/Time of the latest Disposition Event (DSSTDTC).	EX	X	X	X	X
		Study Day of Start of Event, Exposure or Observation (--STDY) must be less or equal to Study Day of End of Event, Exposure or Observation (--ENDY).	INTERVENTIONS, EVENTS, FINDINGS	X	X	X	X

Pinnacle 21 Community Validation of the version 2.2.0 (FDA)

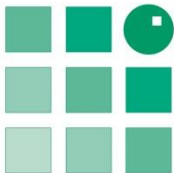- ## Categories of non-compliant rules
  - ### Not checked for a specific domain:

    For example: SD0032 not checked for the domain DS

Rule ID ▲	Publisher ID	Message	Description	FDA Severity	PMDA Severity	3.1.2	3.1.3	3.2
SD0032	CG0091	Missing value for --TPT, when --TPTNUM is provided	Planned Time Point Name (--TPT) should not be NULL, when Planned Time Point Number (--TPTNUM) is populated.	Warning	Warning	X	X	X

RULE ID	MESSAGE	DESCRIPTION	DOMAINS	PMDA Severity	3.1.2	3.1.3	3.2
SD0032	Missing value for --TPT, when --TPTNUM is provided	Planned Time Point Name (--TPT) should not be NULL, when Planned Time Point Number (--TPTNUM) is populated.	INTERVENTIONS, EVENTS, FINDINGS, CO	Warning	X	X	X

Rule ID	Class	Domain	Variable	Rule	Condition	Guide	Section	Item	Cited Guidance	IG Versions	Batch ID	Programmable	Programmable Flag Comment	FDA Rule ID (v 1.0)
CG0091	ALL	ALL	--TPT	--TPT present in dataset	--TPTNUM present in dataset	Model v1.4	2.2.5 Timing Variables for All Classes	Specification	(--TPT) Text description of time when a measurement or observation should be taken as defined in the protocol. This may be represented as an elapsed time relative to a fixed reference point, such as time of last dose. See --TPTNUM and --TPTREF.	3.2	1.00	Y		FDAC123

Pinnacle 21 Community Validation of the version 2.2.0 (FDA)

- ## Categories of non-compliant rules
  - ### Not checked correctly:

For example:CT2004

Rule ID	Publisher ID	Message	Description	FDA Severity	PMDA Severity	3.1.2	3.1.3	3.2	Notes
CT2004	CG0021	Variable value not found in non-extensible codelist when value-level condition occurs	Variable must be populated with terms from its CDISC controlled terminology codelist, when its value level condition is met. New terms cannot be added into non-extensible codelists.	Error	Reject	X	X	X	💬

RULE ID	MESSAGE	DESCRIPTION	DOMAINS	PMDA Severity	3.1.2	3.1.3	3.2	PMDA NOTES
CT2004	\<Variable Name> value not found in '\<Codelist Name>' non-extensible codelist	Variable must be populated with terms from its CDISC controlled terminology codelist, when its value level condition is met. New terms cannot be added into non-extensible codelists.	QS, TS	Reject	X	X	X	Violation of CT2004 for the following variable/codelist pairs will be considered part of Rejection criteria. All others will be considered Errors. \<Variable Name (Codelist Name)> TSVAL when TSPARMCD value is SEXPOP (SEXPOP) TSVAL when TSPARMCD value is ADDON (NY) TSVAL when TSPARMCD value is RANDOM (NY)

Rule ID	Class	Domain	Variable	Rule	Condition	Guide	Section	Item	Cited Guidance	IG Versions	Batch ID	Programmable
CG0021	ALL	ALL	GEN	Value in associated codelist or 'OTHER'	Variable associated with extensible codelist and the use of value 'OTHER' is appropriate to the data being represented	IG v3.2	3.2.2 4.1.2.7.1	Specification	Conformance with the SDTMIG Domain Models is minimally indicated by following SDTM-specified controlled terminology and format guidelines for variables, when provided When the CRF includes a list of values for a qualifier field that includes "Other" and the "Other" is supplemented with a "Specify" free text field,	3.2	1.00	Y

Agenda

- Study Data Validation Rules

- Pinnacle 21 Validator

- Pinnacle 21 Community - Validation of the version 2.1.3 (PMDA)/2.2.0(FDA)

- **Pinnacle 21 Community - Validation of the version 3.0 (FDA)**
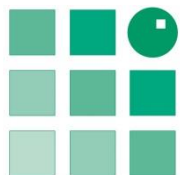
- Conclusion
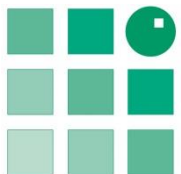
Pinnacle 21 Community Validation of the version 3.0 (FDA)

- Change log from version 2.2.0- SDTM rules:
  - Added 142 rules from CDISC and FDA in SDTM-IG 3.2
  - Fix algorithms for 28 rules

  ...

Pinnacle 21 Community Validation of the version 3.0 (FDA)

- **New Constraint: Auto-updates**
  - Controlled Terminology and Dictionary Updates

    Updates for CTs, UNII and NDF-RT (MED-RT not yet implemented in the application) - will automatically be available for you to choose in the dropdown selection within 5 business days of publication.

  - Validation Engine Updates

    Patch - bug fixes and cosmetic refinements (up to once per month) and New rules and standards (up to twice per year) - will be automatically downloaded and available for you to select in the Engine dropdown

Engine	FDA (1903.1) ▼

  - Application Updates

    will be automatically updated when a new version is available

    => Impact analysis of all updates
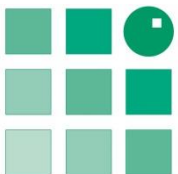
Pinnacle 21 Community Validation of the version 3.0 (FDA)
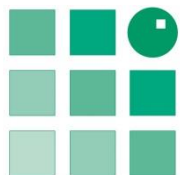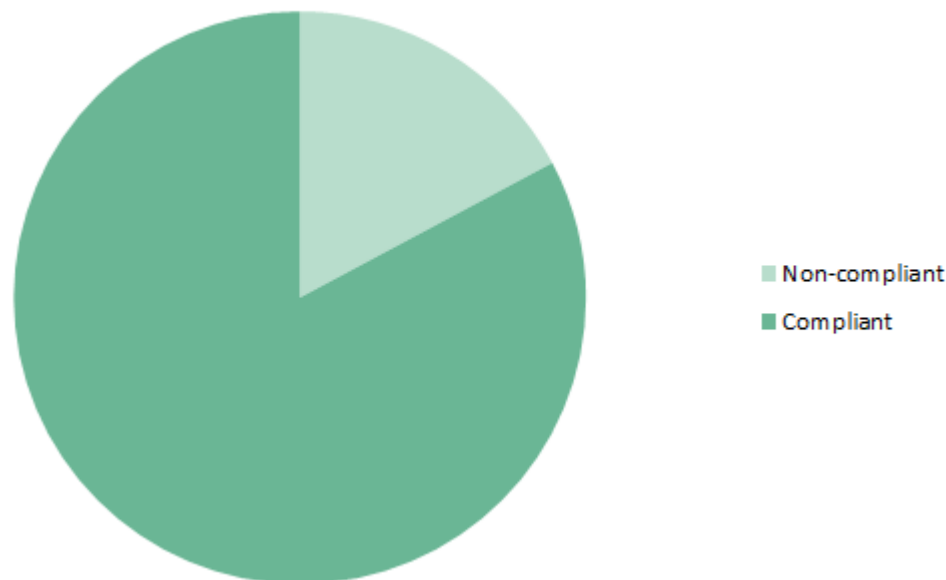

Rules in PINNACLE 21 Validator - SDTM IG 3.2
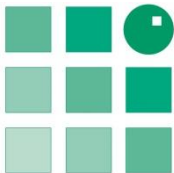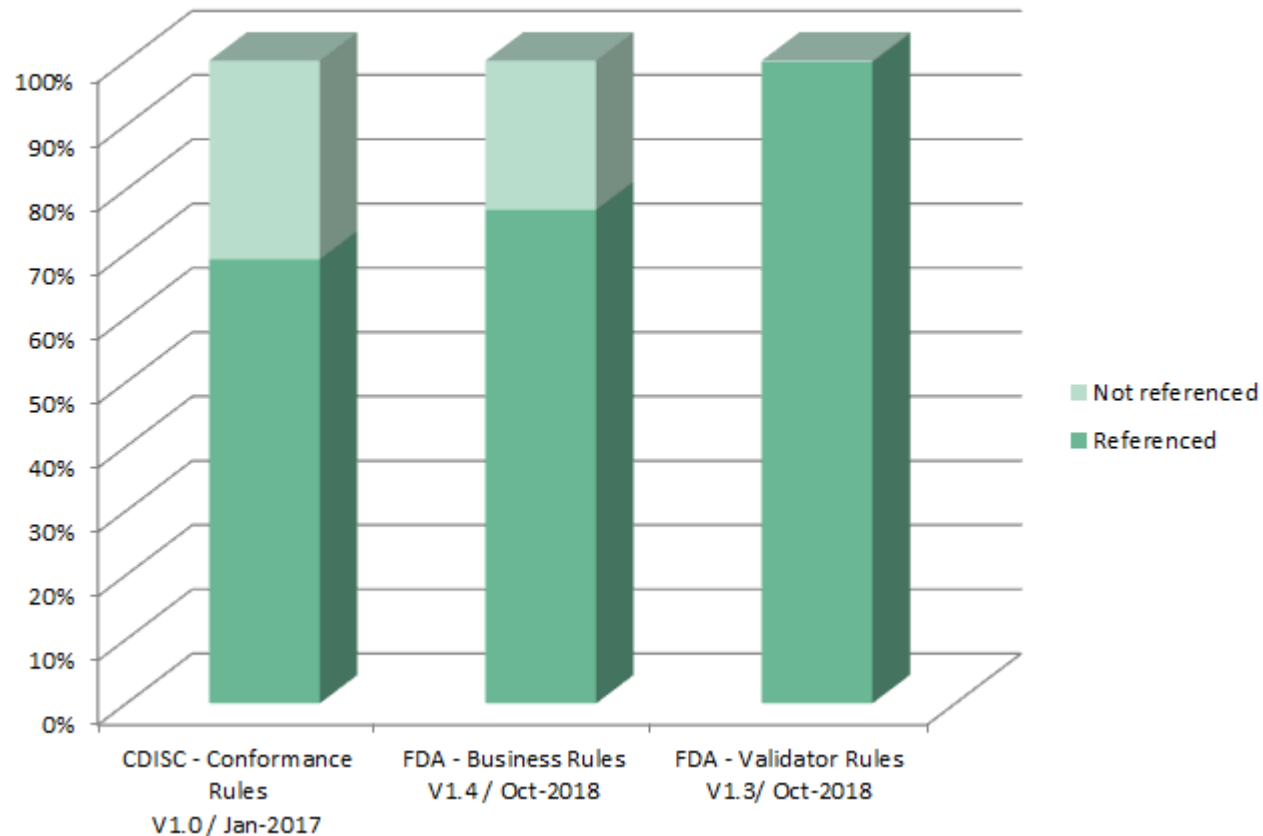
Pinnacle 21 Community Validation of the version 3.0 (FDA)

- Results of the validation- dummy data created for each rule present in the tool – Rules already present in the version 2.2.0
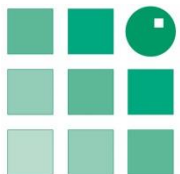
SDTMIG 3.2 Rules (FDA)
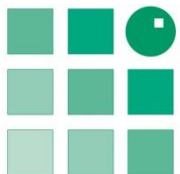

- Non-compliant
- Compliant

Agenda

- Study Data Validation Rules

- Pinnacle 21 Validator

- Pinnacle 21 Community - Validation of the version 2.1.3 (PMDA)/2.2.0(FDA)

- Pinnacle 21 Community - Validation of the version 3.0 (FDA)
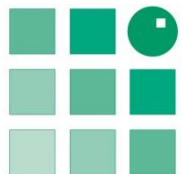
- **Conclusion**

Conclusion

- Difficulties to validate the rules:
  - Some of the rules are not clear
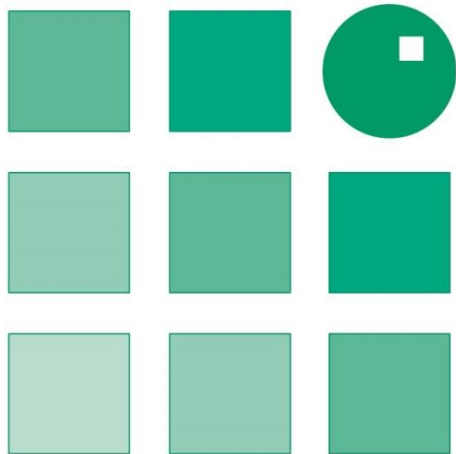 - You can't see how the rules were implemented in the software

Conclusion

- Validation of the New rules in Pinnacle 3.0

- Development of the non-conformant rules to validate the database and insert the issues reports in the csdrg

- Question: Difference between rules in Pinnacle 21 Community and in Pinnacle 21 Enterprise?

GUF CDISC

Octobre 2019, Rennes

Retour d'expérience sur la validation de l'outil Pinnacle 21 Community pour le SDTM IG 3.2

Karine Provost, Claire Mignot, Corentin Brandy - Biotrial