USING PINNACLE 21 ENTERPRISE FOR DEFINE.XML
TIPS AND TRICKS FROM A CRO PERSPECTIVE

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Frank Menius

BIOGRAPHY

Frank Menius is a graduate of the University of North Carolina at Chapel Hill with a BA in International Studies, and was recently conferred a graduate certificate in Applied Statistics and Data Management at NC State University.

Mr. Menius is a former police officer, having served on the line for 12 years prior to fulfilling his lifelong dream of putting his uber computer-geek skills to good use. He is a SAS-certified programmer with extensive experience in data standards and define.xml creation.

Frank is currently an Associate Statistical Programmer at Covance, where his primary interests include training and process improvement. He has recently worked to develop processes and structures for the roll out of Pinnacle 21 Enterprise at Covance.
About Covance

Covance Inc., the drug development business of Laboratory Corporation of America Holdings (LabCorp), is the world’s most comprehensive drug development company.

We are dedicated to advancing healthcare and delivering Solutions Made Real® by providing high quality nonclinical, clinical, commercialization and informatics services to pharmaceutical and biotechnology companies to help increase the speed, precision and effectiveness of drug development.

Covance is currently working on about half of all active clinical trials globally and has been involved in all top 50 best-selling drugs on the market.
How we use P21 Enterprise

At Covance P21 Enterprise is currently contracted with the client on a per study basis.

- P21E is used for submission based deliverables (validation checks, Data Fitness Score, define creation, compiling a Reviewer’s Guide)
- Covance uses a modified P21 define template (spec) for specification writing
Creating a Define – Where to Start
Creating a Define – Where to Start

Step 1: Create Option

Create Options
Please select a method to create define.xml

- Start from Scratch
- Copy from Standard
- Copy from Define
- Import Excel Specification
- Import Define.xml
- Create from a Validation
Creating a Define – Where to Start
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Step 1: Create Option

Create Options
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- Start from Scratch
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Creating a Define – Where to Start
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Pinnacle21 Enterprise

Create Options
Please select a method to create define.xml

Step 1: Create Option
Step 2: Data Package
Step 3: Select Details
Step 4: Confirm

Create from a Validation
Editing the Define – Properties

Define: P21 > P21-OQ > SDTM

Properties
- Name: P21-OQ
- Description: SAMPLE STUDY DEVELOPED TO DEMONSTRATE A SAMPLE SUBMISSION
- Protocol
- Standard: SDTMv1.0
- SDTM CT: 2017-06-30
- Language: English

Dictionaries
- ID: 1
  - Name: MedDRA Adverse Event Dictionary
  - Data Type: text
  - Dictionary: MedDRA
  - Version: 20.0
- ID: 2
  - Name: NDF-RT Pharmacological Class Dictionary
  - Data Type: text
  - Dictionary: NDF-RT
  - Version: 2017-06-14
- ID: 3
  - Name: SNOMED Trial Indication Dictionary
  - Data Type: text
  - Dictionary: SNOMED
  - Version: 2017-03-01
- ID: 4
  - Name: UNII Treatment Dictionary
  - Data Type: text
  - Dictionary: UNII
  - Version: 2017-04-28

Documents
- ID: acrf
  - Title: Annotated Case Report Form
  - Href: acrf.pdf
- ID: reviewersguide
  - Title: Study Data Reviewer’s Guide
  - Href: reviewersguide.pdf
Editing the Define – Properties

Define: P21 > P21-OQ > SDTM

Define Properties

Name: P21-OQ
Description: SAMPLE STUDY DEVELOPED TO DEMONSTRATE A SAMPLE SUBMISSION
Protocol: Protocol?
Standard: SDTMAIG 3.2
SDTM CT: 2017-06-30
Language: English

Dictionaries

- WHODrug
- MedDRA Adverse Event Dictionary
- NDF-RT Pharmacological Class Dictionary
- SNOMED Treatment Dictionary

Documents

- reviewersguide: Study Data Reviewer’s Guide
- CSDRG: reviewersguide.pdf
Editing the Define – PAUSE TO SAVE

Save before clicking on another tab. ALWAYS

Issue: You clicked on another tab without saving and now it wont let you.
Solution: Copy/Cut what you last typed into Excel. Then remove it from module. Then Save. Then Paste back into module. Then Save.

Save your data

You must save changes before continuing in another tab!
Issue: You try to save and receive a message that says it can’t save because the item has been recently changed by X user.

Solution: Export the define to Excel Spec. Immediately Import the Excel Spec. Make changes that were previously attempted. Saving should work now.
# Editing the Define – Datasets

<table>
<thead>
<tr>
<th>Dataset</th>
<th>Description</th>
<th>Class</th>
<th>Structure</th>
<th>Purpose</th>
<th>Key Variables</th>
</tr>
</thead>
<tbody>
<tr>
<td>AE</td>
<td>Adverse Events</td>
<td>EVENTS</td>
<td>One record per adverse event per subject</td>
<td>Tabulation</td>
<td>STUDYID, USUBJID, AEDECOD,</td>
</tr>
<tr>
<td>CM</td>
<td>Concomitant Medications</td>
<td>INTERVENTIONS</td>
<td>One record per recorded medication occurrence or constant-dosing interval per subject</td>
<td>Tabulation</td>
<td>STUDYID, USUBJID, CMTRT, CA</td>
</tr>
<tr>
<td>DA</td>
<td>Drug Accountability</td>
<td>FINDINGS</td>
<td>One record per drug accountability finding per subject</td>
<td>Tabulation</td>
<td>STUDYID, USUBJID, DATESTCD</td>
</tr>
<tr>
<td>DM</td>
<td>Demographics</td>
<td>SPECIAL PURPOSE</td>
<td>One record per subject</td>
<td>Tabulation</td>
<td>STUDYID, USUBJID</td>
</tr>
<tr>
<td>DS</td>
<td>Disposition</td>
<td>EVENTS</td>
<td>One record per disposition status or protocol milestone per subject</td>
<td>Tabulation</td>
<td>STUDYID, USUBJID, DSDECOD</td>
</tr>
<tr>
<td>EG</td>
<td>ECG Test Results</td>
<td>FINDINGS</td>
<td>One record per ECG observation per time point per visit per subject</td>
<td>Tabulation</td>
<td>STUDYID, USUBJID, EGTESTCD</td>
</tr>
<tr>
<td>EX</td>
<td>Exposure</td>
<td>INTERVENTIONS</td>
<td>One record per constant dosing interval per subject</td>
<td>Tabulation</td>
<td>STUDYID, USUBJID, EXTRT, EX</td>
</tr>
<tr>
<td>IE</td>
<td>Inclusion/Exclusion Criteria Not Met</td>
<td>FINDINGS</td>
<td>One record per inclusion/exclusion criterion not met per subject</td>
<td>Tabulation</td>
<td>STUDYID, USUBJID, IETESTCD</td>
</tr>
<tr>
<td>LB</td>
<td>Laboratory Test Results</td>
<td>FINDINGS</td>
<td>One record per analyte per planned</td>
<td>Tabulation</td>
<td>STUDYID, USUBJID, LBTESTCD</td>
</tr>
</tbody>
</table>
- Is this correct?
- Is this worded the way you want it?
- Is this consistent with other deliverables in your package?
### Editing the Define – Variables

<table>
<thead>
<tr>
<th>Order</th>
<th>Dataset</th>
<th>Variable</th>
<th>Label</th>
<th>Type</th>
<th>Length</th>
<th>Digits</th>
<th>Mandatory</th>
<th>Codelist</th>
<th>Origin</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>AE</td>
<td>STUDYID</td>
<td>Study Identifier</td>
<td>text</td>
<td>7</td>
<td></td>
<td>Yes</td>
<td>Protocol</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>AE</td>
<td>DOMAIN</td>
<td>Domain Abbreviation</td>
<td>text</td>
<td>2</td>
<td></td>
<td>Yes</td>
<td>Assigned</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>AE</td>
<td>USUBJID</td>
<td>Unique Subject Identifier</td>
<td>text</td>
<td>14</td>
<td></td>
<td>Yes</td>
<td>Derived</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>AE</td>
<td>AESEQ</td>
<td>Sequence Number</td>
<td>integer</td>
<td>1</td>
<td></td>
<td>Yes</td>
<td>Derived</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>AE</td>
<td>AESPID</td>
<td>Sponsor-Defined Identifier</td>
<td>integer</td>
<td>1</td>
<td></td>
<td>Yes</td>
<td>Derived</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>AE</td>
<td>AETERM</td>
<td>Reported Term for the Adverse Event</td>
<td>text</td>
<td>25</td>
<td></td>
<td>Yes</td>
<td>Assigned</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>AE</td>
<td>AEMODIFY</td>
<td>Modified Reported Term</td>
<td>text</td>
<td>9</td>
<td></td>
<td>No</td>
<td>Assigned</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>AE</td>
<td>AEDECOD</td>
<td>Dictionary-Derived Term</td>
<td>text</td>
<td>18</td>
<td></td>
<td>Yes</td>
<td>MedDRA</td>
<td>Assigned</td>
</tr>
<tr>
<td>9</td>
<td>AE</td>
<td>AEBODSYS</td>
<td>Body System or Organ Class</td>
<td>text</td>
<td>52</td>
<td></td>
<td>Yes</td>
<td>MedDRA</td>
<td>Assigned</td>
</tr>
<tr>
<td>10</td>
<td>AE</td>
<td>AESEV</td>
<td>Severity/Intensity</td>
<td>text</td>
<td>8</td>
<td></td>
<td>Yes</td>
<td>AESEV</td>
<td></td>
</tr>
</tbody>
</table>
Start Here by Importing the aCRF
Editing the Define – Variables

Start Here by Importing the aCRF
Editing the Define – Variables

Origins:

- All variables must be assigned an origin of CRF, eDT, Assigned, Derived, Protocol or Predecessor
- Variables can only be assigned 1 of the above
- If there are multiple origins for a variable our solution is to pick one, and then make a comment for the remainder. If one is CRF then you want to use that in the origin box so that the hyperlinks populate
- If variable has value level metadata that comes from more than one source then the variable origin is left blank and origin is assigned at the value level. There can not be conflict between Variable level and Value level
Editing the Define – Variables

Origins:

• If the variable has an origin of Derive P21E requires a method to be populated.
• If the variable has an origin of Assigned it is recommended that a comment be populated.
Editing the Define – Variables

Comments and Methods:

• Creating comments and methods is done similarly on their respective tabs.
• The ID column is the link between the comment/method and the variable
• Comments and Methods can be used more than once if applicable
Editing the Define – Variables

Comments and Methods:
Editing the Define – Variables

Comments and Methods:
Assigning Origins to Value Level works the exact same way as at the Variable.

Just note again - If variable has value level metadata that comes from more than one source then the variable origin is left blank and origin is assigned at the Value Level. There can not be conflict between Variable and Value Level.
If you need to build more complex where clause statements P21E version 3.4 has a where clause builder accessible by hovering over window.

<table>
<thead>
<tr>
<th>Order</th>
<th>Dataset</th>
<th>Variable</th>
<th>Where Clause</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>31</td>
<td>QSCS</td>
<td>QSORRES</td>
<td>QSTESTCD EQ CSDD15</td>
<td>Suicide</td>
</tr>
<tr>
<td>33</td>
<td>QSCS</td>
<td>QE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>35</td>
<td>QCS</td>
<td>QE</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Where Clause Builder

<table>
<thead>
<tr>
<th>Variable</th>
<th>Comparator</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>QSTESTCD</td>
<td>EQ</td>
<td>CSDD16</td>
</tr>
</tbody>
</table>

Where Clause

QSTESTCD EQ CSDD16
Editing the Define – Codelists

P21E will auto populate the codelists for you

- It may not be an exhaustive list – you will need to add
P21E will auto populate the codelists for you

- It may not be an exhaustive list – you will need to add
- You may need to delete some that are meaningless

<table>
<thead>
<tr>
<th>ID</th>
<th>Codelist</th>
<th>Term</th>
<th>NCI Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>LBORRES LB LTESTCD EQ BLI</td>
<td>Blood Urea Nitrogen</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>LBORRES LB LTESTCD EQ BUN</td>
<td>Blood Urea Nitrogen</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>LBORRES LB LTESTCD EQ GLUC</td>
<td>Glucose</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>LBORRES LB LTESTCD EQ HCT</td>
<td>Hematocrit</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>LBORRES LB LTESTCD EQ HGB</td>
<td>Hemoglobin</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>LBORRES LB LTESTCD EQ LYM</td>
<td>Lymphocytes</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>LBORRES LB LTESTCD EQ OCCBILD</td>
<td>Occult Blood</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>LBORRES LB LTESTCD EQ PH</td>
<td>pH</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>LBORRES LB LTESTCD EQ VTB12</td>
<td>Vitamin B12</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>LBORRES LB LTESTCD EQ VTB9</td>
<td>Vitamin B9</td>
<td></td>
</tr>
</tbody>
</table>
Codelists in P21E consist of 3 parts.

1. The Codelists Tab – ID, Name, NCI Code, and Type of codelists. Must be completed first
2. The Terms Tab – Order, Codelist (ID from Codelists Tab), Term, NCI Code, Decoded Value
3. The link in the Variable/Value Level Tab (ID Codelists Tab)
Work Arouneds:

Issue - Sometimes the NCI Code does not populate on the Terms Tab.
Solution – Export the define to Excel Spec and then reimport the define from Excel Spec
Work Arounuds:

Issue – The Terms are sorted in random/illogical order

Solution – Copy and paste into Excel or even create the terms list in Excel, use the tools in Excel to sort appropriately, then copy and past into P21E
What if the Data Changes?

P21 has the ability to import the changed metadata after it has been validated and merge it with the define. HOWEVER, I strongly urge AGAINST this.

-P21 redoes the auto-population replacing the links/overwriting anything that was changed by the user from original version.

Links to codelists, comments, and methods will be affected.
Deleted codelists will return.
Expect to spend significant time fixing this.
What if the Data Changes?

Alternatives?
If changes are minor, get a change list and make updates manually.

If changes are large and you must merge in a new validation, use the history tab to compare The pre-import and after import versions. This report can be exported to excel and will show all differences between the versions allowing you to pinpoint your corrections.
Define Completion and the P21 Report

When define is complete, export the define.xml and stylesheet to the location of the data.

Note: To properly view the define.xml, the stylesheet, and all linked documents must be in the same folder. Right click the define.xml file and open with browser.

Revalidate the study to produce the report with cross validation checks with the define.xml.
Questions?

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