



ARS in Action: An implementation in R

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Introduction

What if I told you...

Study - CDISC 360

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Table 14.3.1.1
Overall Summary of Treatment-Emergent Adverse Events
Safety Population

Categories, n (%)	Placebo (N=XX)	Xanomeline Low Dose (N=XX)	Xanomeline High Dose (N=XX)
Number of subjects with at least one event			
TEAE	XX (XX.X)	XX (XX.X)	XX (XX.X)
Related TEAE	XX (XX.X)	XX (XX.X)	XX (XX.X)
Serious TEAE	XX (XX.X)	XX (XX.X)	XX (XX.X)
Related Serious TEAE	XX (XX.X)	XX (XX.X)	XX (XX.X)
TEAE Leading to Death	XX (XX.X)	XX (XX.X)	XX (XX.X)
Related TEAE Leading to Death	XX (XX.X)	XX (XX.X)	XX (XX.X)
TEAE Leading to Dose Modification [a]	XX (XX.X)	XX (XX.X)	XX (XX.X)
TEAE Leading to Treatment Discontinuation	XX (XX.X)	XX (XX.X)	XX (XX.X)

each result

Study - CDISC 360

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Table 14.3.1.1
Summary of TEAE by System Organ Class and Preferred Term
Safety Population

System Organ Class Preferred Term (a), n (%)	Placebo (N=XX)	Xanomeline Low Dose (N=XX)	Xanomeline High Dose (N=XX)	Fisher's Exact p-values [b]	
				Placebo vs. Low Dose	Placebo vs. High Dose
Number of subjects with at least one event	XX (XX.X)	XX (XX.X)	XX (XX.X)	X.XXX	X.XXX
<SOC 1>	XX (XX.X)	XX (XX.X)	XX (XX.X)	X.XXX	X.XXX
<Preferred Term 1>	XX (XX.X)	XX (XX.X)	XX (XX.X)	X.XXX	X.XXX
...	XX (XX.X)	XX (XX.X)	XX (XX.X)	X.XXX	X.XXX
<Preferred Term n>	XX (XX.X)	XX (XX.X)	XX (XX.X)	X.XXX	X.XXX
<SOC 2>	XX (XX.X)	XX (XX.X)	XX (XX.X)	X.XXX	X.XXX
<Preferred Term 1>	XX (XX.X)	XX (XX.X)	XX (XX.X)	X.XXX	X.XXX
...	XX (XX.X)	XX (XX.X)	XX (XX.X)	X.XXX	X.XXX
<Preferred Term n>	XX (XX.X)	XX (XX.X)	XX (XX.X)	X.XXX	X.XXX

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Table 14.3.3.1b
Summary of Observed and Change from Baseline by Scheduled Visits - Vital Signs <Vertical Layout>
Safety Population

Parameter (Units) Visit	Placebo (N=XX)	Xanomeline Low Dose (N=XX)	Xanomeline High Dose (N=XX)
<Parameter 1> <unit>			
Baseline			
n	XX	XX	XX
Mean (SD)	XX.X (XX.XX)	XX.X (XX.XX)	XX.X (XX.XX)
Median	XX.X	XX.X	XX.X
Q1, Q3	XX.X, XX.X	XX.X, XX.X	XX.X, XX.X
Min, Max	XX, XX	XX, XX	XX, XX
< Visit n >			
n	XX	XX	XX
Mean (SD)	XX.X (XX.XX)	XX.X (XX.XX)	XX.X (XX.XX)
Median	XX.X	XX.X	XX.X
Q1, Q3	XX.X, XX.X	XX.X, XX.X	XX.X, XX.X
Min, Max	XX, XX	XX, XX	XX, XX
< Visit n Change from Baseline >			
n	XX	XX	XX
Mean (SD)	XX.X (XX.XX)	XX.X (XX.XX)	XX.X (XX.XX)
Median	XX.X	XX.X	XX.X
Q1, Q3	XX.X, XX.X	XX.X, XX.X	XX.X, XX.X
Min, Max	XX, XX	XX, XX	XX, XX
<Parameter n> <unit>			
...			

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Table 14.1.1
Summary of Demographics
Safety Population

Characteristics	Placebo (N=XX)	Xanomeline Low Dose (N=XX)	Xanomeline High Dose (N=XX)	p-value [1]
Age (years)				
n	XX	XX	XX	X.XXXX
Mean (SD)	XX.X (XX.XX)	XX.X (XX.XX)	XX.X (XX.XX)	
Median	XX.X	XX.X	XX.X	
Q1, Q3	XX.X, XX.X	XX.X, XX.X	XX.X, XX.X	
Min, Max	XX, XX	XX, XX	XX, XX	
Age Group, n (%)				
< 65 years	XX (XX.X)	XX (XX.X)	XX (XX.X)	X.XXXX
≥ 65 years	XX (XX.X)	XX (XX.X)	XX (XX.X)	
Gender, n (%)				
Male	XX (XX.X)	XX (XX.X)	XX (XX.X)	X.XXXX
Female	XX (XX.X)	XX (XX.X)	XX (XX.X)	
Ethnicity, n (%)				
Hispanic or Latino	XX (XX.X)	XX (XX.X)	XX (XX.X)	X.XXXX
Not Hispanic or Latino	XX (XX.X)	XX (XX.X)	XX (XX.X)	

What if I told you...

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Table 14.3.1.1
Overall Summary of Treatment-Emergent Adverse Events
Safety Population

Categories, n (%)	Placebo (N=XX)	Xanomeline Low Dose (N=XX)	Xanomeline High Dose (N=XX)
Number of subjects with at least one event			
TEAE	XX (XX.X)	XX (XX.X)	XX (XX.X)
Related TEAE	XX (XX.X)	XX (XX.X)	XX (XX.X)
Serious TEAE	XX (XX.X)	XX (XX.X)	XX (XX.X)
Related Serious TEAE	XX (XX.X)	XX (XX.X)	XX (XX.X)
TEAE Leading to Death	XX (XX.X)	XX (XX.X)	XX (XX.X)
Related TEAE Leading to Death	XX (XX.X)	XX (XX.X)	XX (XX.X)
TEAE Leading to Dose Modification [a]	XX (XX.X)	XX (XX.X)	XX (XX.X)
TEAE Leading to Treatment Discontinuation	XX (XX.X)	XX (XX.X)	XX (XX.X)

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Table 14.3.1.1
Summary of TEAE by System Organ Class and Preferred Term
Safety Population

System Organ Class Preferred Term (a), n (%)	Placebo (N=XX)	Xanomeline Low Dose (N=XX)	Xanomeline High Dose (N=XX)	Fisher's Exact p-values [b]	
				Placebo vs. Low Dose	Placebo vs. High Dose
Number of subjects with at least one event	XX (XX.X)	XX (XX.X)	XX (XX.X)	X.XXX	X.XXX
<SOC 1>	XX (XX.X)	XX (XX.X)	XX (XX.X)	X.XXX	X.XXX
<Preferred Term 1>	XX (XX.X)	XX (XX.X)	XX (XX.X)	X.XXX	X.XXX
...	XX (XX.X)	XX (XX.X)	XX (XX.X)	X.XXX	X.XXX
<Preferred Term n>	XX (XX.X)	XX (XX.X)	XX (XX.X)	X.XXX	X.XXX
<SOC 2>	XX (XX.X)	XX (XX.X)	XX (XX.X)	X.XXX	X.XXX
<Preferred Term 1>	XX (XX.X)	XX (XX.X)	XX (XX.X)	X.XXX	X.XXX
...	XX (XX.X)	XX (XX.X)	XX (XX.X)	X.XXX	X.XXX
<Preferred Term n>	XX (XX.X)	XX (XX.X)	XX (XX.X)	X.XXX	X.XXX

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Table 14.3.3.1a
Summary of Observed and Change from Baseline by Scheduled Visits - Vital Signs
Safety Population

Parameter (Units) Visit	Placebo (N=XX)		Xanomeline Low Dose (N=XX)		Xanomeline High Dose (N=XX)	
	Observed	Change from Baseline	Observed	Change from Baseline	Observed	Change from Baseline
<Parameter 1> (<unit>)						
Baseline						
n	XX		XX		XX	
Mean (SD)	XX.X (XX.XX)		XX.X (XX.XX)		XX.X (XX.XX)	
Median	XX.X		XX.X		XX.X	
Q1, Q3	XX.X, XX.X		XX.X, XX.X		XX.X, XX.X	
Min, Max	XX, XX		XX, XX		XX, XX	
...						
<Visit n>						
n	XX		XX		XX	
Mean (SD)	XX.X (XX.XX)		XX.X (XX.XX)		XX.X (XX.XX)	
Median	XX.X		XX.X		XX.X	
Q1, Q3	XX.X, XX.X		XX.X, XX.X		XX.X, XX.X	
Min, Max	XX, XX		XX, XX		XX, XX	
...						
<Parameter n> (<unit>)						
Baseline						
n	XX		XX		XX	
Mean (SD)	XX.X (XX.XX)		XX.X (XX.XX)		XX.X (XX.XX)	
Median	XX.X		XX.X		XX.X	
Q1, Q3	XX.X, XX.X		XX.X, XX.X		XX.X, XX.X	
Min, Max	XX, XX		XX, XX		XX, XX	
...						
<Parameter n> (<unit>)						
Baseline						
n	XX		XX		XX	
Mean (SD)	XX.X (XX.XX)		XX.X (XX.XX)		XX.X (XX.XX)	
Median	XX.X		XX.X		XX.X	
Q1, Q3	XX.X, XX.X		XX.X, XX.X		XX.X, XX.X	
Min, Max	XX, XX		XX, XX		XX, XX	
...						
<Parameter n> (<unit>)						
Baseline						
n	XX		XX		XX	
Mean (SD)	XX.X (XX.XX)		XX.X (XX.XX)		XX.X (XX.XX)	
Median	XX.X		XX.X		XX.X	
Q1, Q3	XX.X, XX.X		XX.X, XX.X		XX.X, XX.X	
Min, Max	XX, XX		XX, XX		XX, XX	
...						
<Parameter n> (<unit>)						
Baseline						
n	XX		XX		XX	
Mean (SD)	XX.X (XX.XX)		XX.X (XX.XX)		XX.X (XX.XX)	
Median	XX.X		XX.X		XX.X	
Q1, Q3	XX.X, XX.X		XX.X, XX.X		XX.X, XX.X	
Min, Max	XX, XX		XX, XX		XX, XX	
...						
<Parameter n> (<unit>)						

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Table 14.3.3.1b

Summary of Observed and Change from Baseline by Scheduled Visits - Vital Signs <Vertical Layout>
Safety Population

Parameter (Units) Visit	Placebo (N=XX)	Xanomeline Low Dose (N=XX)	Xanomeline High Dose (N=XX)
<Parameter 1> (<unit>)			
Baseline			
n	XX	XX	XX
Mean (SD)	XX.X (XX.XX)	XX.X (XX.XX)	XX.X (XX.XX)
Median	XX.X	XX.X	XX.X
Q1, Q3	XX.X, XX.X	XX.X, XX.X	XX.X, XX.X
Min, Max	XX, XX	XX, XX	XX, XX
< Visit n >			
n	XX	XX	XX
Mean (SD)	XX.X (XX.XX)	XX.X (XX.XX)	XX.X (XX.XX)
Median	XX.X	XX.X	XX.X
Q1, Q3	XX.X, XX.X	XX.X, XX.X	XX.X, XX.X
Min, Max	XX, XX	XX, XX	XX, XX
< Visit n Change from Baseline >			
n	XX	XX	XX
Mean (SD)	XX.X (XX.XX)	XX.X (XX.XX)	XX.X (XX.XX)
Median	XX.X	XX.X	XX.X
Q1, Q3	XX.X, XX.X	XX.X, XX.X	XX.X, XX.X
Min, Max	XX, XX	XX, XX	XX, XX
<Parameter n> (<unit>)			
Baseline			
n	XX	XX	XX
Mean (SD)	XX.X (XX.XX)	XX.X (XX.XX)	XX.X (XX.XX)
Median	XX.X	XX.X	XX.X
Q1, Q3	XX.X, XX.X	XX.X, XX.X	XX.X, XX.X
Min, Max	XX, XX	XX, XX	XX, XX
<Parameter n> (<unit>)			

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Table 14.1.1
Summary of Demographics
Safety Population

Characteristics	Placebo (N=XX)	Xanomeline Low Dose (N=XX)	Xanomeline High Dose (N=XX)	p-value [1]
Age (years)				
n	XX	XX	XX	X.XXXX
Mean (SD)	XX.X (XX.XX)	XX.X (XX.XX)	XX.X (XX.XX)	
Median	XX.X	XX.X	XX.X	
Q1, Q3	XX.X, XX.X	XX.X, XX.X	XX.X, XX.X	
Min, Max	XX, XX	XX, XX	XX, XX	
Age Group, n (%)				
< 65 years	XX (XX.X)	XX (XX.X)	XX (XX.X)	X.XXXX
≥ 65 years	XX (XX.X)	XX (XX.X)	XX (XX.X)	
Gender, n (%)				
Male	XX (XX.X)	XX (XX.X)	XX (XX.X)	X.XXXX
Female	XX (XX.X)	XX (XX.X)	XX (XX.X)	
Ethnicity, n (%)				
Hispanic or Latino	XX (XX.X)	XX (XX.X)	XX (XX.X)	X.XXXX
Not Hispanic or Latino	XX (XX.X)	XX (XX.X)	XX (XX.X)	

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each result for all outputs in a study

What if I told you...

**each result
for all outputs in a study
Can be calculated...**

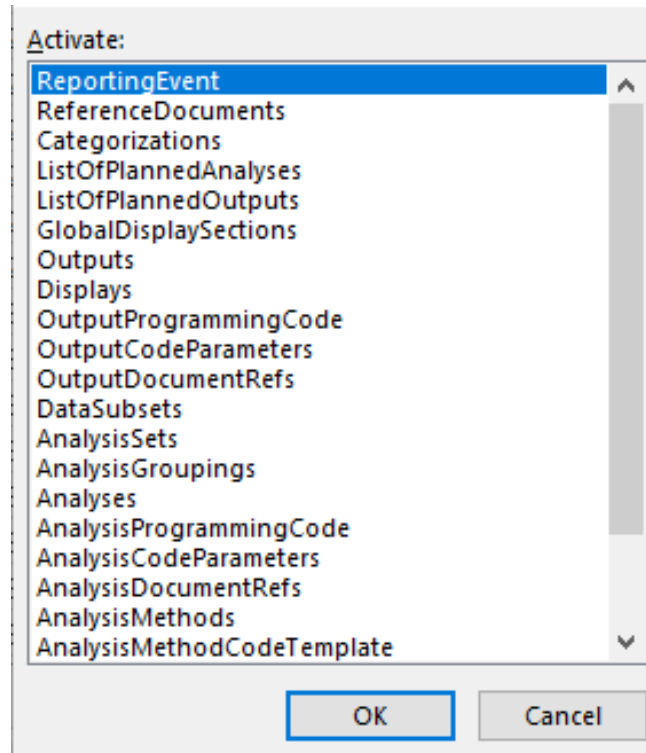
What if I told you...



**each result
for all outputs in a study
Can be calculated...**

- **with one click**

What if I told you...



**each result
for all outputs in a study
Can be calculated...**

- **with one click**
- **referencing only metadata**

What if I told you...



**each result
for all outputs in a study
Can be calculated...**

- with **one click**
- referencing **only metadata**
- using **open-source** technology

What if I told you...



**each result
for all outputs in a study
Can be calculated...**

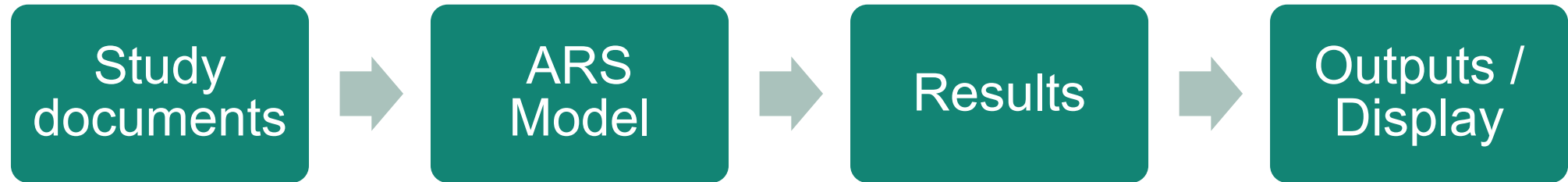
- with **one click**
- referencing **only metadata**
- using **open-source** technology

Now, it's possible!

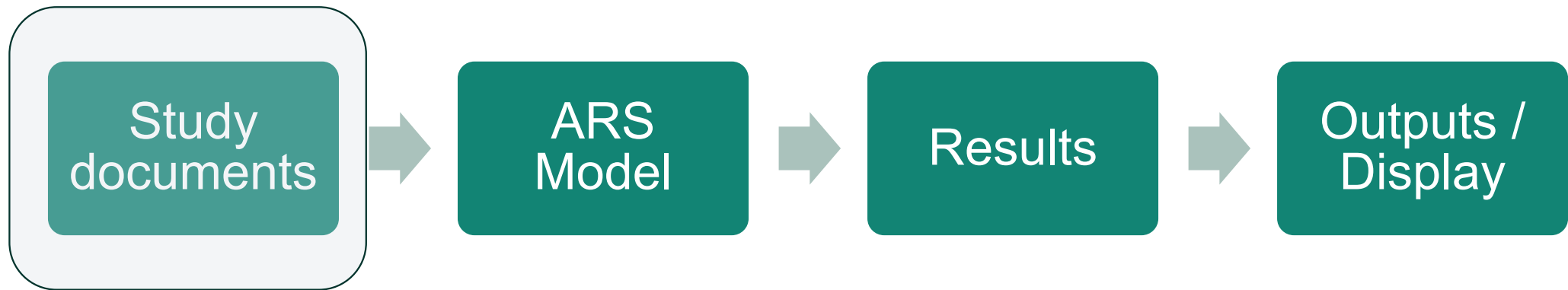


Process overview

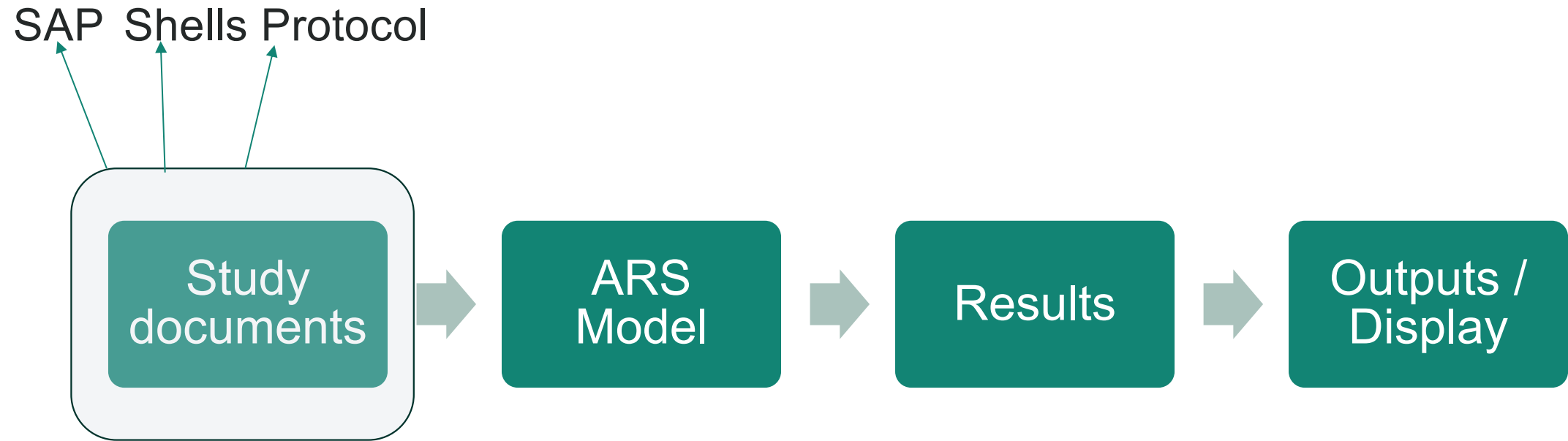
Process overview



Process overview

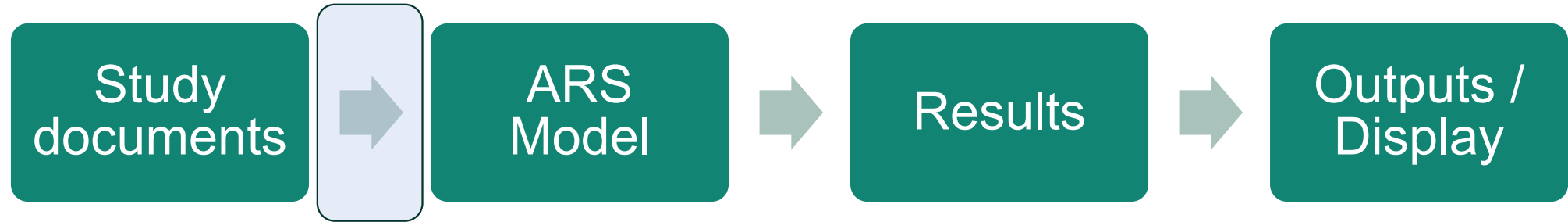


Process overview



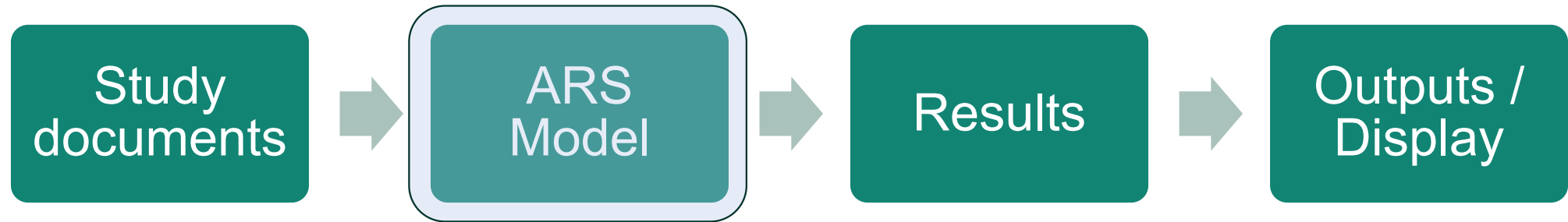
Process overview

SAP Shells Protocol

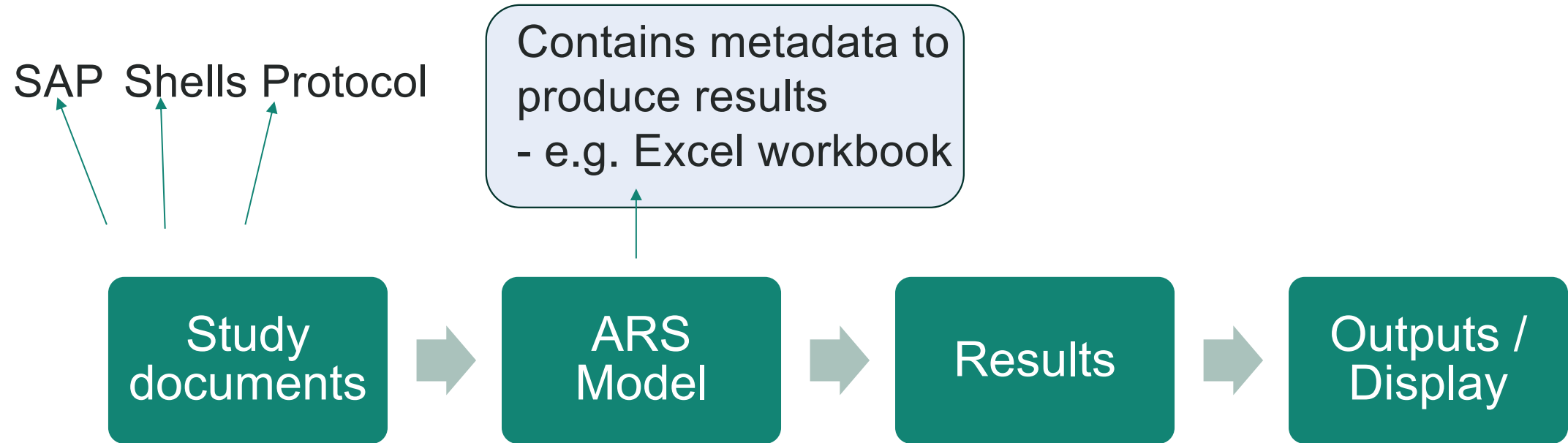


Process overview

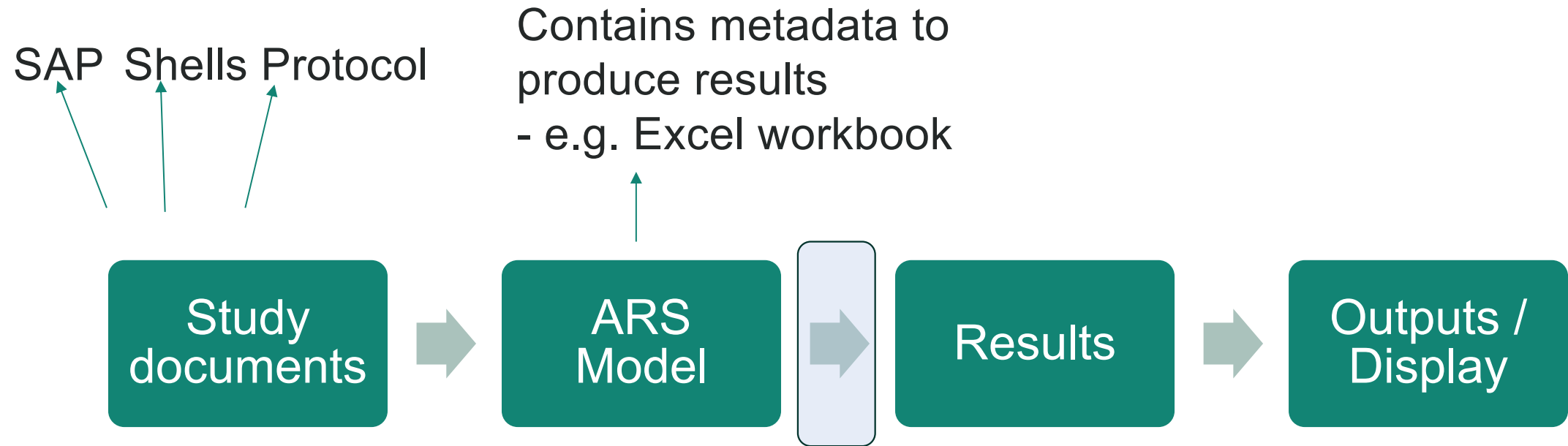
SAP Shells Protocol



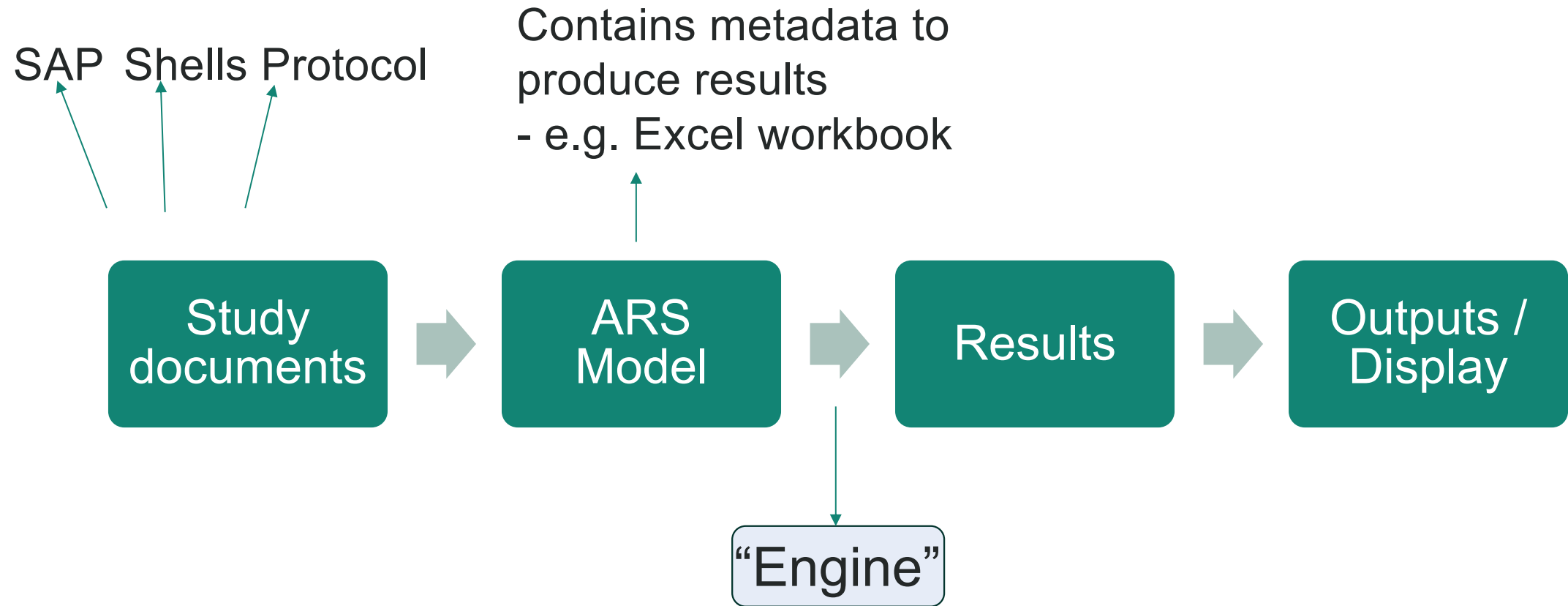
Process overview



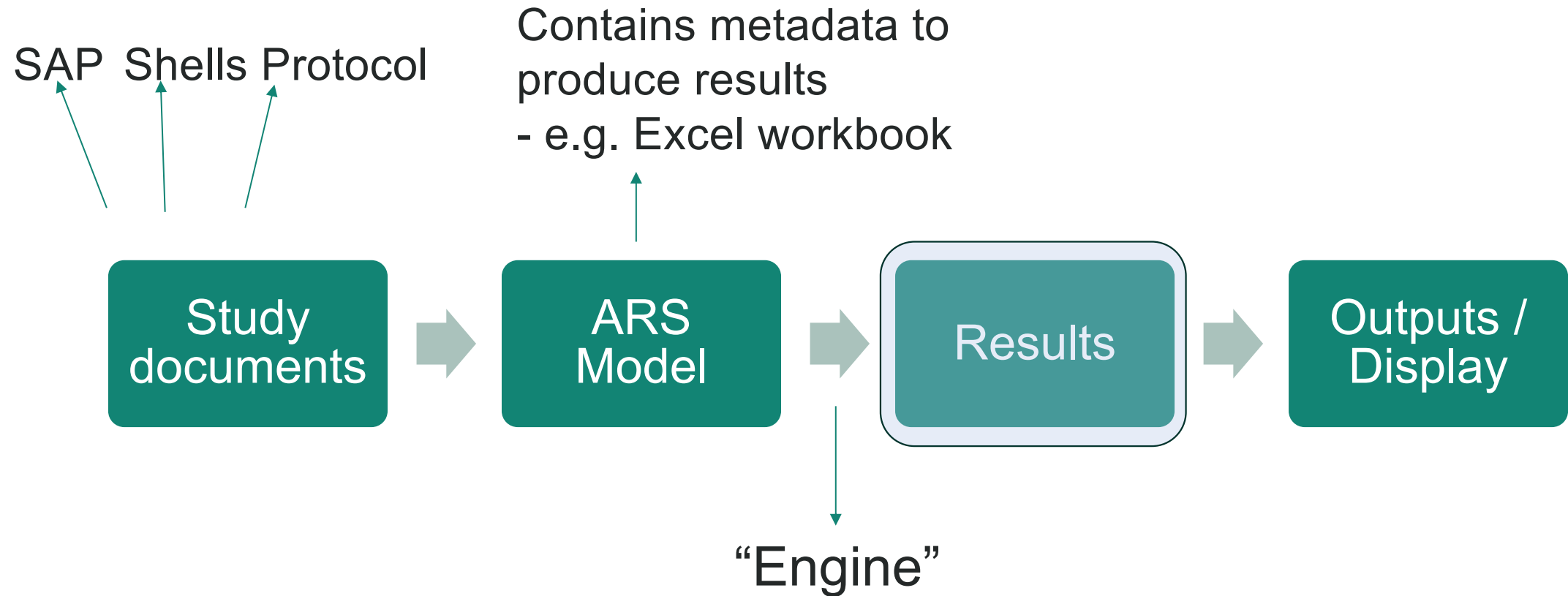
Process overview



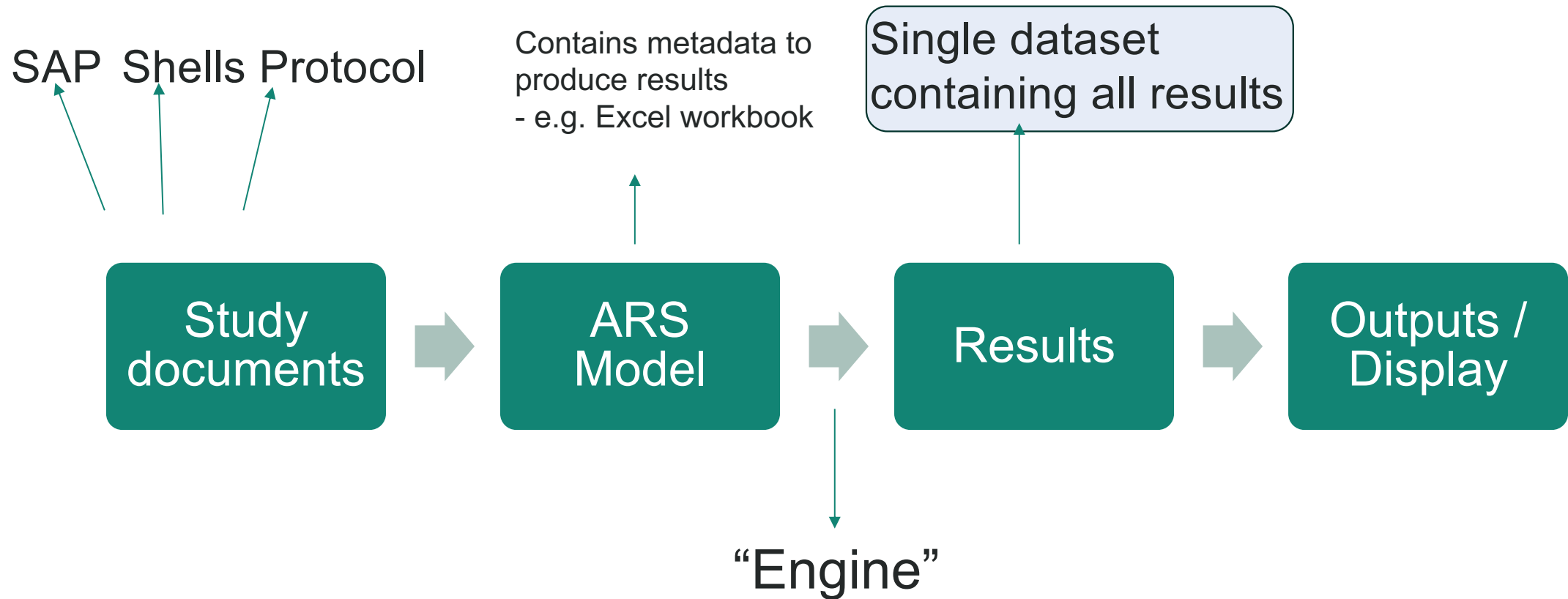
Process overview



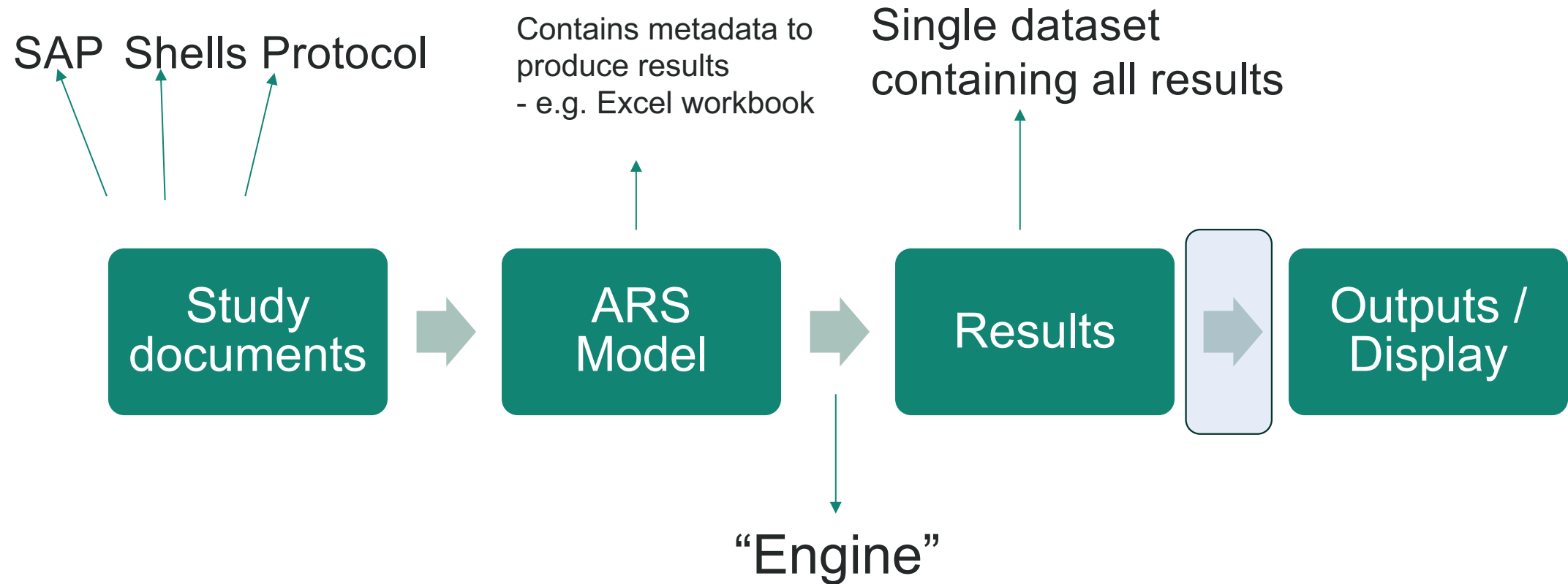
Process overview



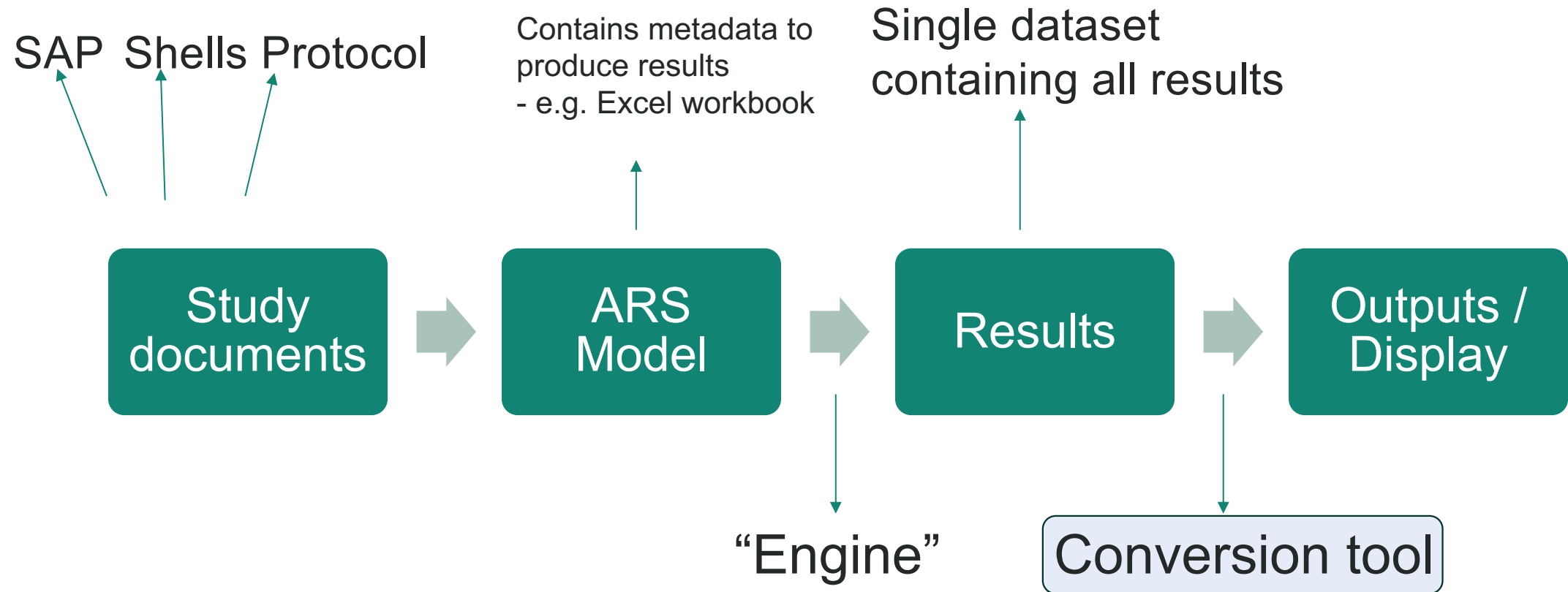
Process overview



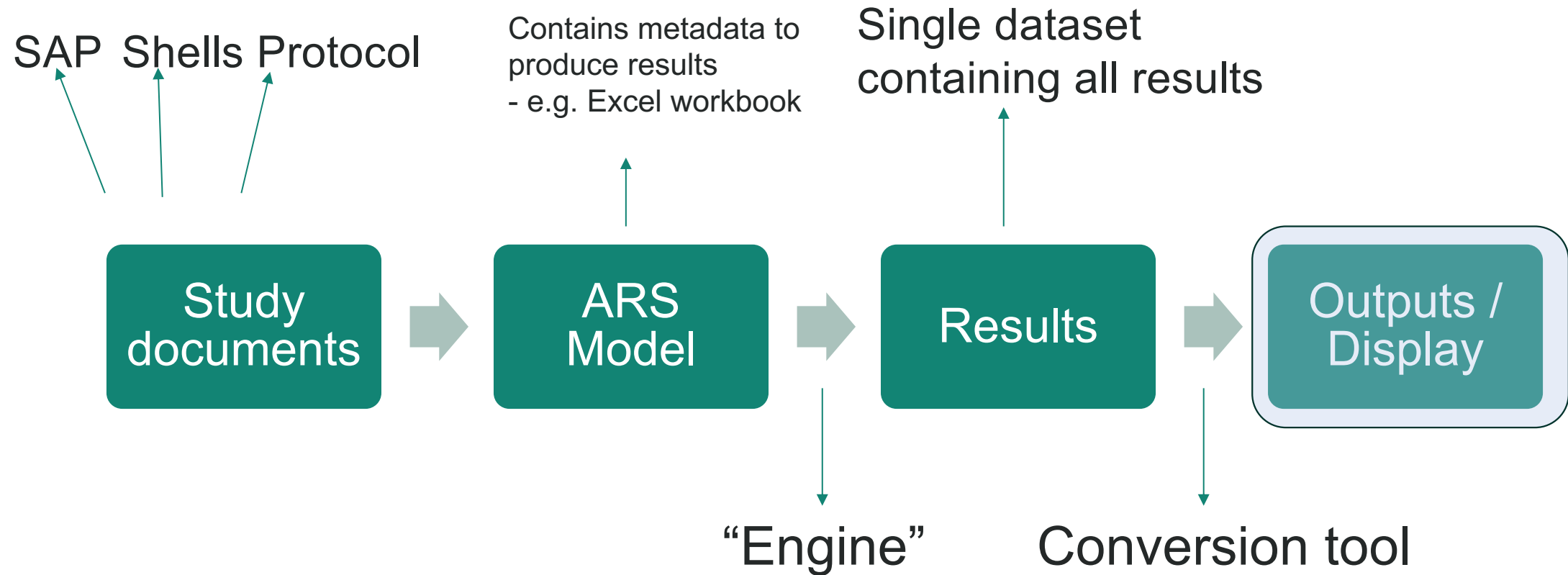
Process overview



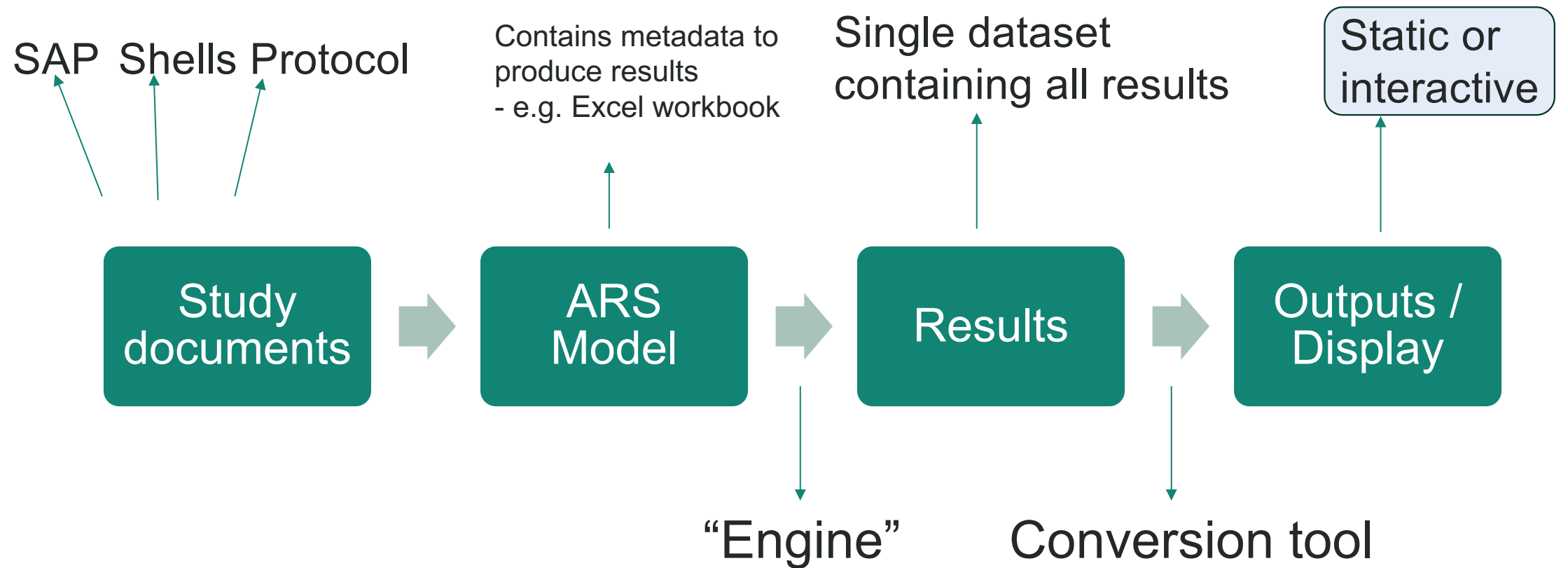
Process overview



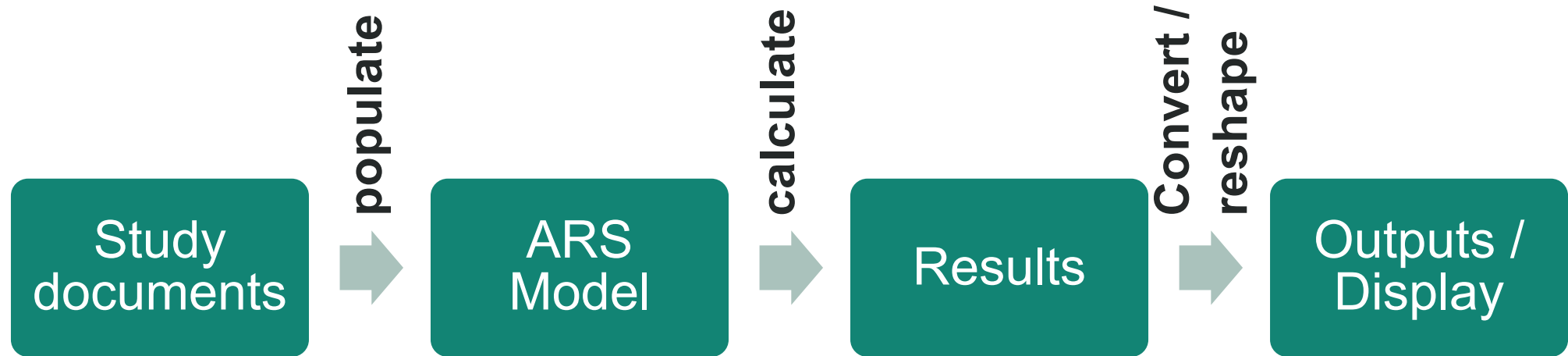
Process overview



Process overview



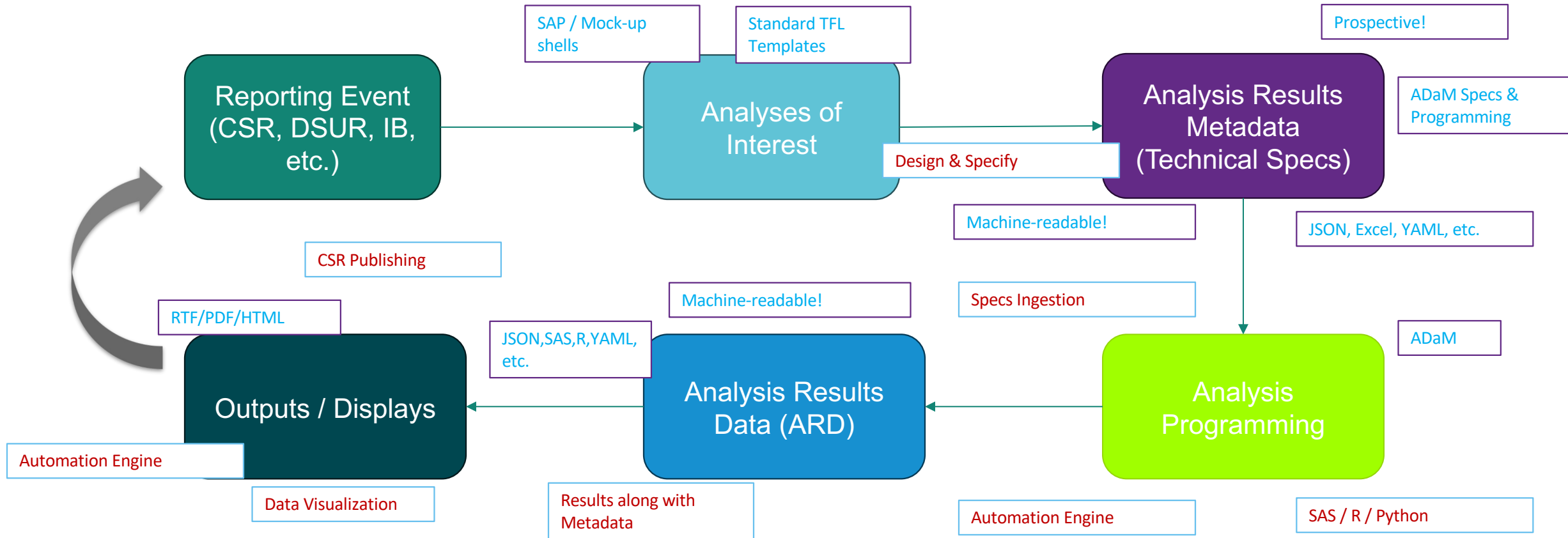
Process overview



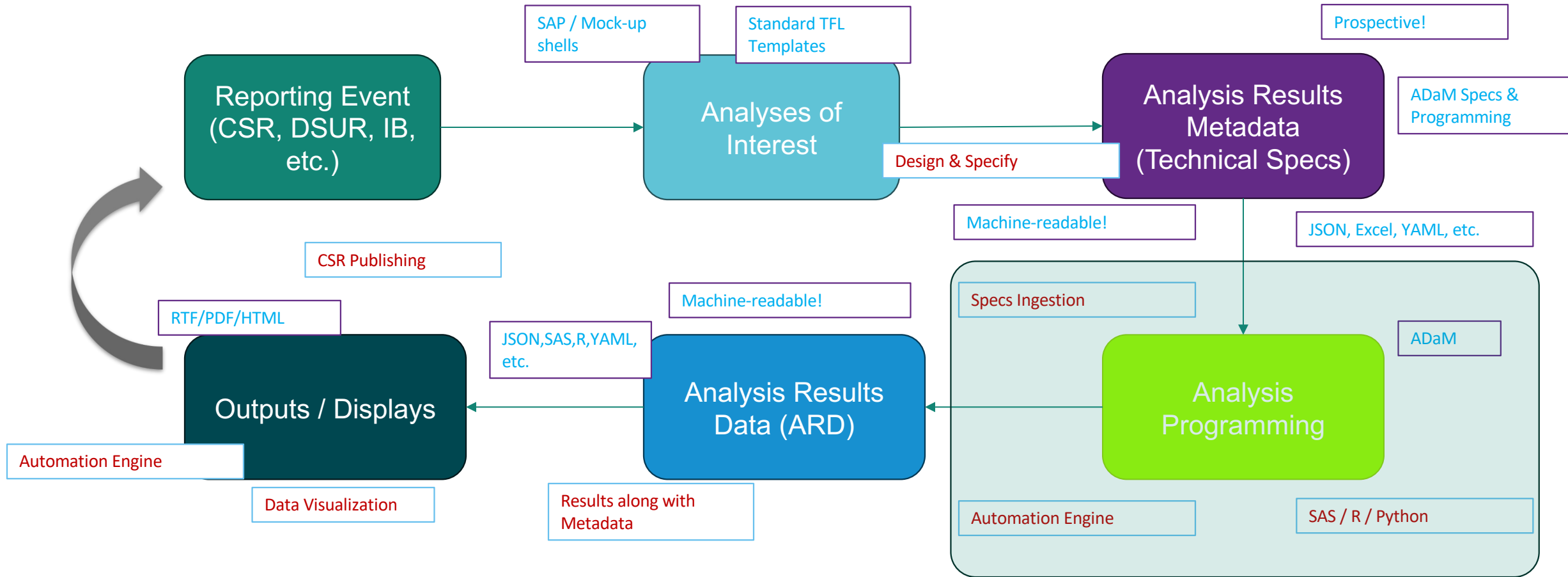


Hackathon project: ARS in action

Hackathon project




Hackathon project



Hackathon project

Example study:

 [cdisc-org / sdtm-adam-pilot-project](#) Public

Hackathon project

Example study:

 [cdisc-org / sdtm-adam-pilot-project](https://cdisc.org/sdtm-adam-pilot-project) Public

Objective: Calculate all results (formatted) required for the safety outputs

Hackathon project

Example study:

 [cdisc-org / sdtm-adam-pilot-project](https://cdisc-org/sdtm-adam-pilot-project) Public

Objective: Calculate all results (formatted) required for the safety outputs

1. Demographics table

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Table 14.1.1
Summary of Demographics
Safety Population

Characteristics	Placebo (N=XX)	Xanomeline Low Dose (N=XX)	Xanomeline High Dose (N=XX)	p-value [1]
Age (years)				
n	XX	XX	XX	X.XXXX
Mean (SD)	XX.X (XX.XX)	XX.X (XX.XX)	XX.X (XX.XX)	
Median	XX.X	XX.X	XX.X	
Q1, Q3	XX.X, XX.X	XX.X, XX.X	XX.X, XX.X	
Min, Max	XX, XX	XX, XX	XX, XX	
Age Group, n (%)				
< 65 years	XX (XX.X)	XX (XX.X)	XX (XX.X)	X.XXXX
≥ 65 years	XX (XX.X)	XX (XX.X)	XX (XX.X)	
Gender, n (%)				
Male	XX (XX.X)	XX (XX.X)	XX (XX.X)	X.XXXX
Female	XX (XX.X)	XX (XX.X)	XX (XX.X)	
Ethnicity, n (%)				
Hispanic or Latino	XX (XX.X)	XX (XX.X)	XX (XX.X)	X.XXXX
Not Hispanic or Latino	XX (XX.X)	XX (XX.X)	XX (XX.X)	

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Objective: Calculate all results (formatted) required for the safety outputs

2. Summary of Treatment-Emergent Adverse Events

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Table 14.3.1.1
Overall Summary of Treatment-Emergent Adverse Events
Safety Population

Categories, n (%)	Placebo (N=XX)	Xanomeline Low Dose (N=XX)	Xanomeline High Dose (N=XX)
Number of subjects with at least one event			
TEAE	XX (XX.X)	XX (XX.X)	XX (XX.X)
Related TEAE	XX (XX.X)	XX (XX.X)	XX (XX.X)
Serious TEAE	XX (XX.X)	XX (XX.X)	XX (XX.X)
Related Serious TEAE	XX (XX.X)	XX (XX.X)	XX (XX.X)
TEAE Leading to Death	XX (XX.X)	XX (XX.X)	XX (XX.X)
Related TEAE Leading to Death	XX (XX.X)	XX (XX.X)	XX (XX.X)
TEAE Leading to Dose Modification [a]	XX (XX.X)	XX (XX.X)	XX (XX.X)
TEAE Leading to Treatment Discontinuation	XX (XX.X)	XX (XX.X)	XX (XX.X)

Hackathon project

Example study:

[cdisc-org / sdtm-adam-pilot-project](#) Public

Objective: Calculate all results (formatted) required for the safety outputs

3. Summary of TEAE by System Organ Class and Preferred Term

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Table 14.3.1.1
Summary of TEAE by System Organ Class and Preferred Term
Safety Population

System Organ Class Preferred Term [a], n (%)	Placebo (N=XX)	Xanomeline Low Dose (N=XX)	Xanomeline High Dose (N=XX)	Fisher's Exact p-values [b]	
				Placebo vs. Low Dose	Placebo vs. High Dose
Number of subjects with at least one event	XX (XX.X)	XX (XX.X)	XX (XX.X)	X.XXX	X.XXX
<SOC 1>	XX (XX.X)	XX (XX.X)	XX (XX.X)	X.XXX	X.XXX
<Preferred Term 1>	XX (XX.X)	XX (XX.X)	XX (XX.X)	X.XXX	X.XXX
...	XX (XX.X)	XX (XX.X)	XX (XX.X)	X.XXX	X.XXX
<Preferred Term n>	XX (XX.X)	XX (XX.X)	XX (XX.X)	X.XXX	X.XXX
<SOC 2>	XX (XX.X)	XX (XX.X)	XX (XX.X)	X.XXX	X.XXX
<Preferred Term 1>	XX (XX.X)	XX (XX.X)	XX (XX.X)	X.XXX	X.XXX
...	XX (XX.X)	XX (XX.X)	XX (XX.X)	X.XXX	X.XXX
<Preferred Term n>	XX (XX.X)	XX (XX.X)	XX (XX.X)	X.XXX	X.XXX

Hackathon project

Example study:

[cdisc-org / sdtm-adam-pilot-project](https://cdisc-org/sdtm-adam-pilot-project) Public

Objective: Calculate all results (formatted) required for the safety outputs

4. Summary of Observed and Change from Baseline by Scheduled Visits – Vital Signs

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Table 14.3.3.1a
Summary of Observed and Change from Baseline by Scheduled Visits - Vital Signs
Safety Population

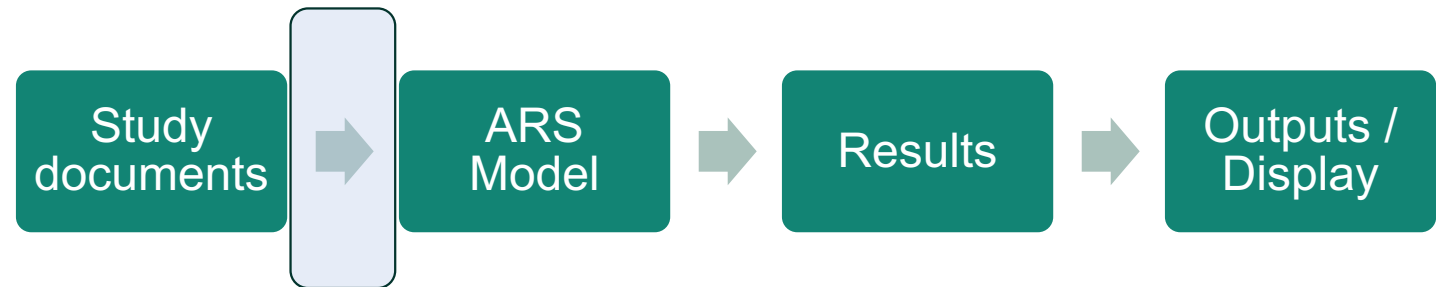
Parameter (Units) Visit	Placebo (N=XX)		Xanomeline Low Dose (N=XX)		Xanomeline High Dose (N=XX)	
	Observed	Change from Baseline	Observed	Change from Baseline	Observed	Change from Baseline
<Parameter 1> <unit> Baseline						
n	XX		XX		XX	
Mean (SD)	XX.X (XX.XX)		XX.X (XX.XX)		XX.X (XX.XX)	
Median	XX.X		XX.X		XX.X	
Q1, Q3	XX.X, XX.X		XX.X, XX.X		XX.X, XX.X	
Min, Max	XX, XX		XX, XX		XX, XX	
...						
<Visit n>						
n	XX	XX	XX	XX	XX	XX
Mean (SD)	XX.X (XX.XX)	XX.X (XX.XX)	XX.X (XX.XX)	XX.X (XX.XX)	XX.X (XX.XX)	XX.X (XX.XX)
Median	XX.X	XX.X	XX.X	XX.X	XX.X	XX.X
Q1, Q3	XX.X, XX.X	XX.X, XX.X	XX.X, XX.X	XX.X, XX.X	XX.X, XX.X	XX.X, XX.X
Min, Max	XX, XX	XX, XX	XX, XX	XX, XX	XX, XX	XX, XX
<Parameter n> <unit> ...						

Study - CDISC 360 Page x of y

Table 14.3.3.1b
Summary of Observed and Change from Baseline by Scheduled Visits - Vital Signs <Vertical Layout>
Safety Population

Parameter (Units) Visit	Placebo (N=XX)	Xanomeline Low Dose (N=XX)	Xanomeline High Dose (N=XX)
<Parameter 1> (<unit>) Baseline			
n	XX	XX	XX
Mean (SD)	XX.X (XX.XX)	XX.X (XX.XX)	XX.X (XX.XX)
Median	XX.X	XX.X	XX.X
Q1, Q3	XX.X, XX.X	XX.X, XX.X	XX.X, XX.X
Min, Max	XX, XX	XX, XX	XX, XX
< Visit n >			
n	XX	XX	XX
Mean (SD)	XX.X (XX.XX)	XX.X (XX.XX)	XX.X (XX.XX)
Median	XX.X	XX.X	XX.X
Q1, Q3	XX.X, XX.X	XX.X, XX.X	XX.X, XX.X
Min, Max	XX, XX	XX, XX	XX, XX
< Visit n Change from Baseline >			
n	XX	XX	XX
Mean (SD)	XX.X (XX.XX)	XX.X (XX.XX)	XX.X (XX.XX)
Median	XX.X	XX.X	XX.X
Q1, Q3	XX.X, XX.X	XX.X, XX.X	XX.X, XX.X
Min, Max	XX, XX	XX, XX	XX, XX
<Parameter n> (<unit>) ...			

Documents -> Model



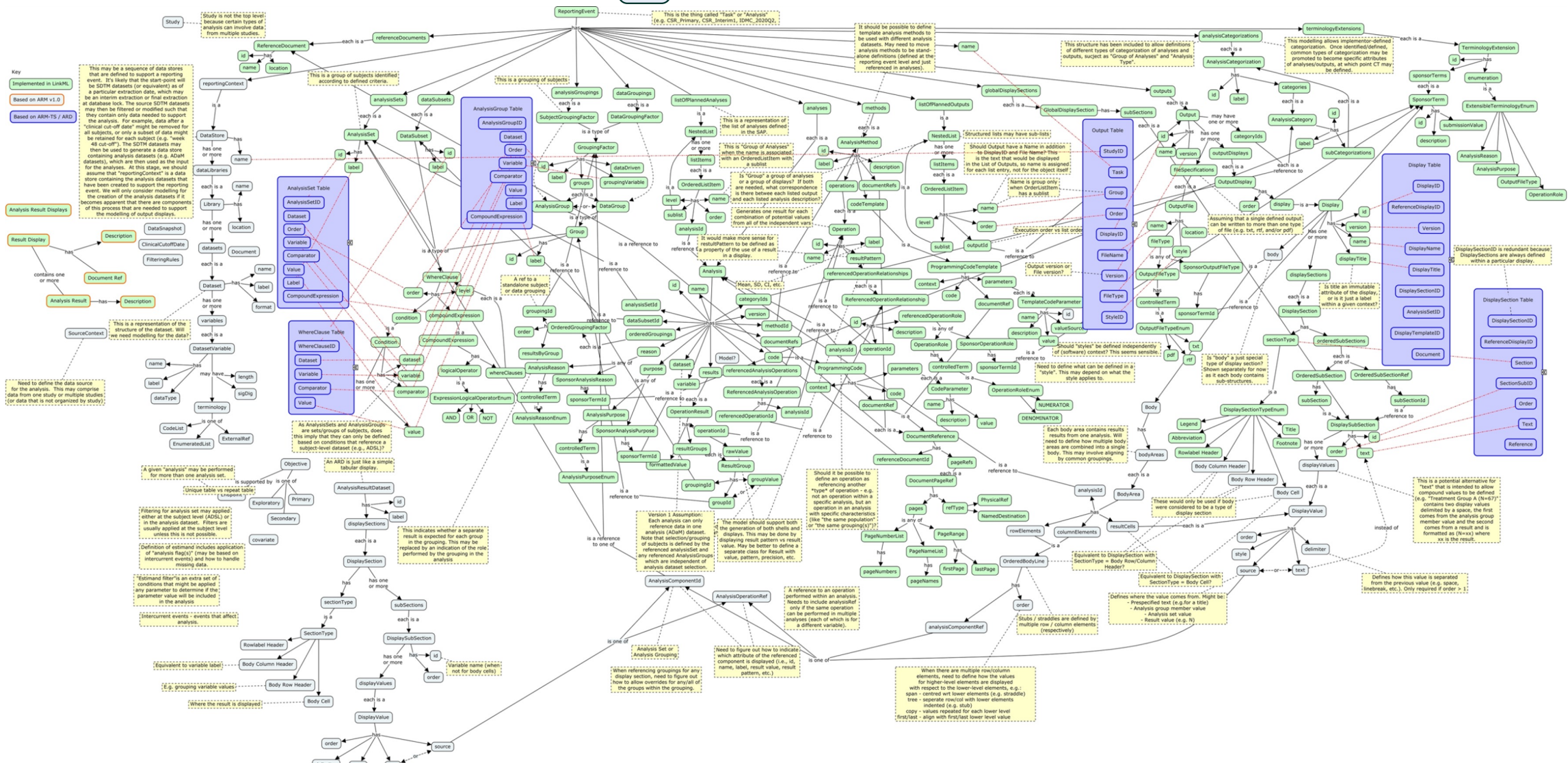
Documents -> Model

Study documents

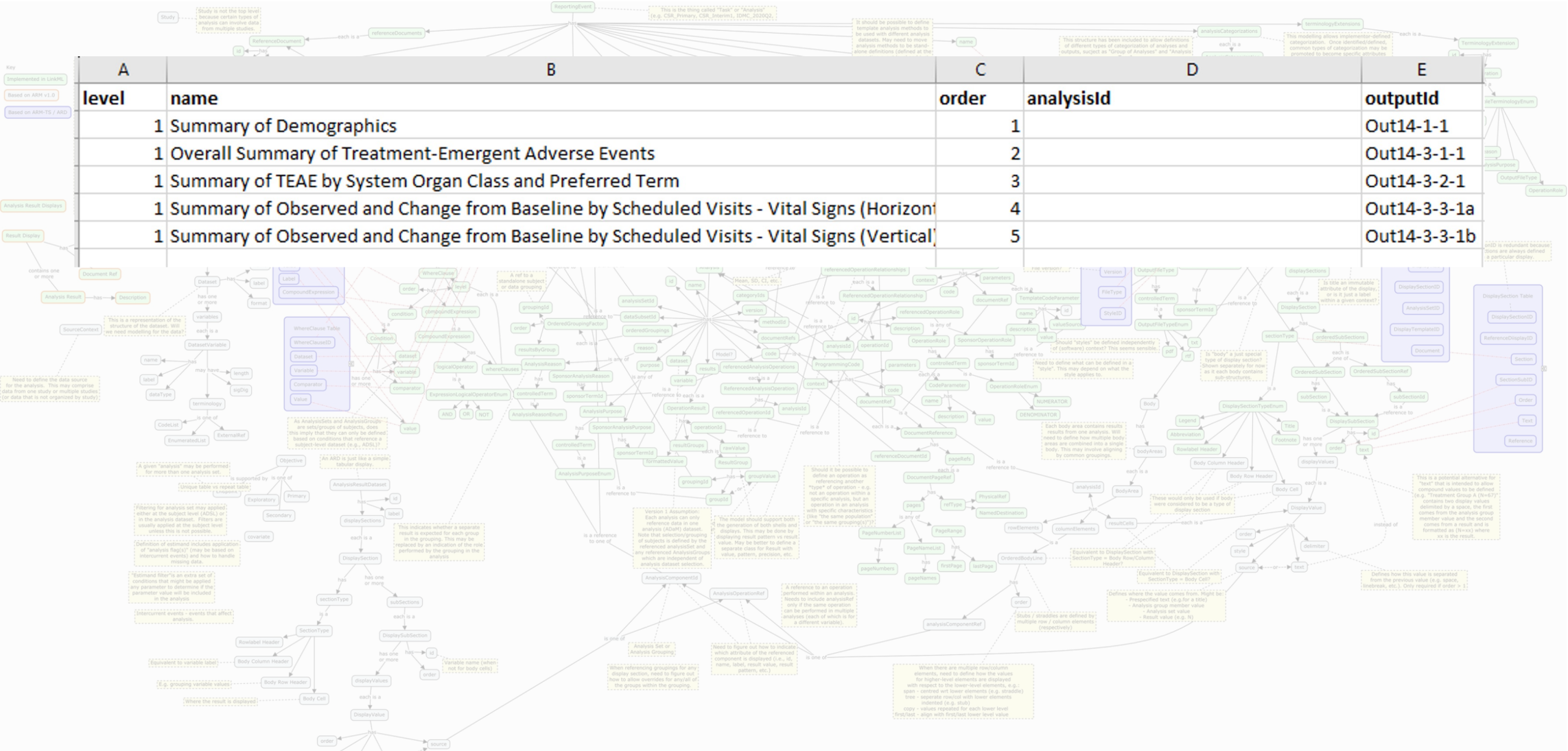
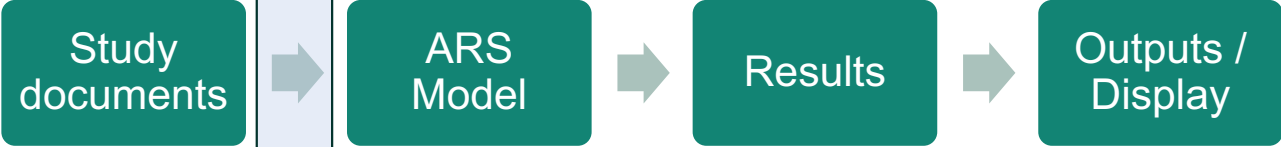
ARS Model

Results

Outputs / Display



Documents -> Model



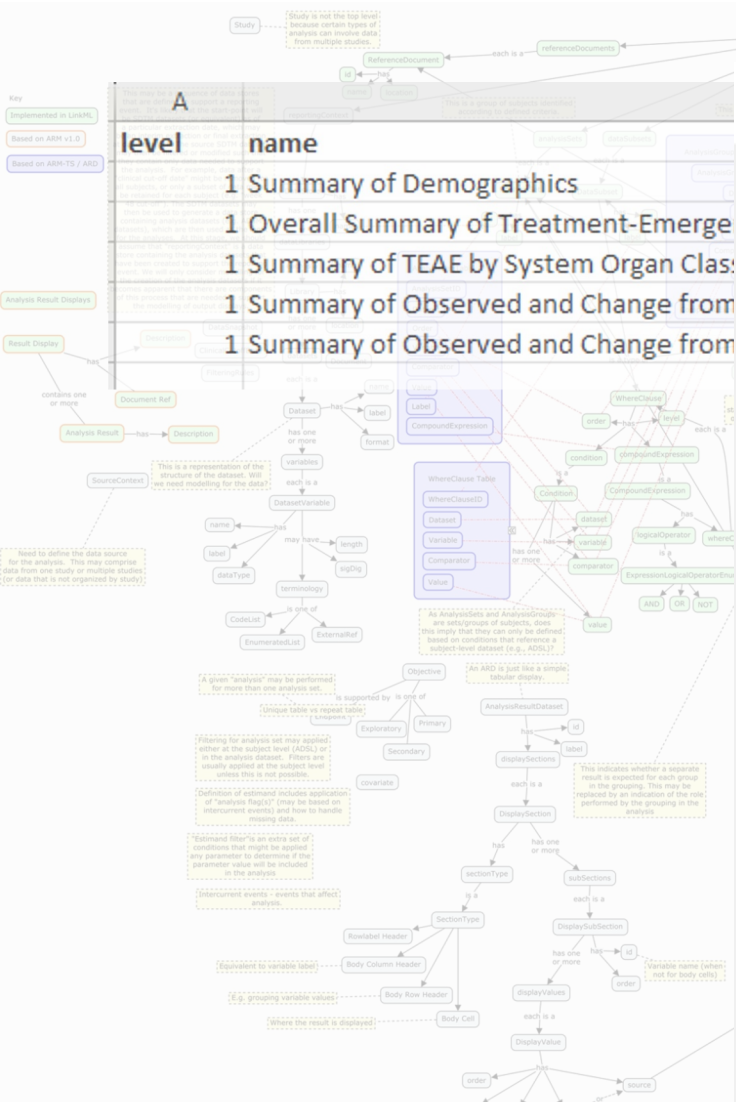
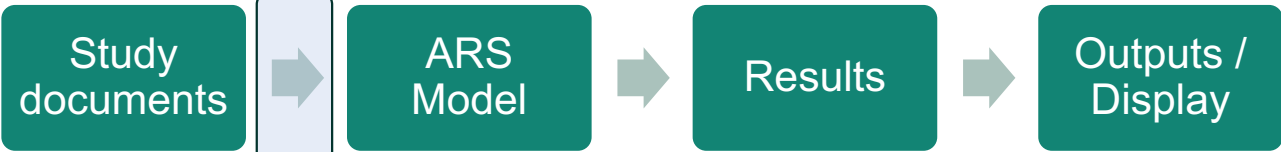
Documents -> Model



level	name	order	analysisId	outputId
1	Summary of Demographics	1		Out14-1-1
2	Summary of Subjects by Treatment	1	An01_05_SAF_Summ_ByTrt	
2	Age	2		
3	Summary by Treatment	1	An03_01_Age_Summ_ByTrt	
3	Comparison by Treatment	2	An03_01_Age_Comp_ByTrt	
2	Age Group	3		
3	Summary of Subjects by Treatment	1	An03_02_AgeGrp_Summ_ByTrt	
3	Comparison of Subjects by Treatment	2	An03_02_AgeGrp_Comp_ByTrt	
2	Sex	4		
3	Summary of Subjects by Treatment	1	An03_03_Sex_Summ_ByTrt	
3	Comparison of Subjects by Treatment	2	An03_03_Sex_Comp_ByTrt	
2	Ethnicity	5		
3	Summary of Subjects by Treatment	1	An03_04_Ethnic_Summ_ByTrt	
3	Comparison of Subjects by Treatment	2	An03_04_Ethnic_Comp_ByTrt	
2	Race	6		
3	Summary of Subjects by Treatment	1	An03_05_Race_Summ_ByTrt	
3	Comparison of Subjects by Treatment	2	An03_05_Race_Comp_ByTrt	
2	Height	7		
3	Summary by Treatment	1	An03_06_Height_Summ_ByTrt	
3	Comparison by Treatment	2	An03_06_Height_Comp_ByTrt	



Documents -> Model



Activate

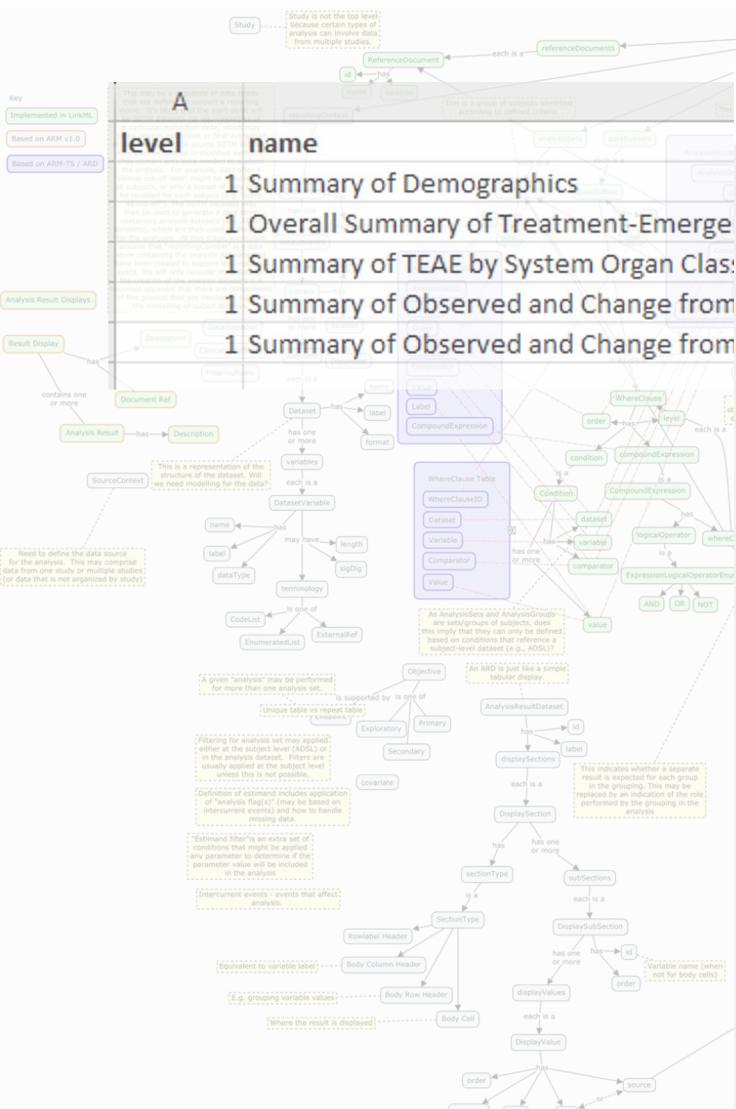
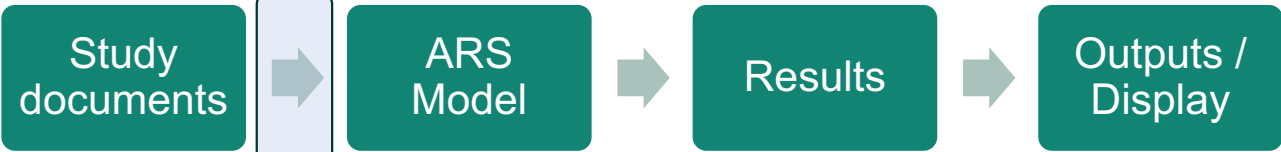
Activate:

- ReportingEvent
- ReferenceDocuments
- Categorizations
- ListOfPlannedAnalyses
- OperationDisplayLibrary
- ListOfPlannedOutputs
- GlobalDisplaySections
- Outputs
- Displays
- OutputProgrammingCode
- OutputCodeParameters
- OutputDocumentRefs
- DataSubsets
- AnalysisSets
- AnalysisGroupings
- Analyses**
- AnalysisProgrammingCode
- AnalysisCodeParameters
- AnalysisDocumentRefs
- AnalysisMethods

OK Cancel

analysisid	outputid	
	Out14-1-1	
	Out14-3-1-1	
	Out14-3-2-1	
	Out14-3-3-1a	
	Out14-3-3-1b	
order	analysisid	outputid
1	An01_05_SAF_Summ_ByTrt	Out14-1-1
2	An03_01_Age_Summ_ByTrt	
3	An03_01_Age_Comp_ByTrt	
4	An03_02_AgeGrp_Summ_ByTrt	
5	An03_02_AgeGrp_Comp_ByTrt	
6	An03_03_Sex_Summ_ByTrt	
7	An03_03_Sex_Comp_ByTrt	
8	An03_04_Ethnic_Summ_ByTrt	
9	An03_04_Ethnic_Comp_ByTrt	
10	An03_05_Race_Summ_ByTrt	
11	An03_05_Race_Comp_ByTrt	
12	An03_06_Height_Summ_ByTrt	
13	An03_06_Height_Comp_ByTrt	

Documents -> Model



Activate

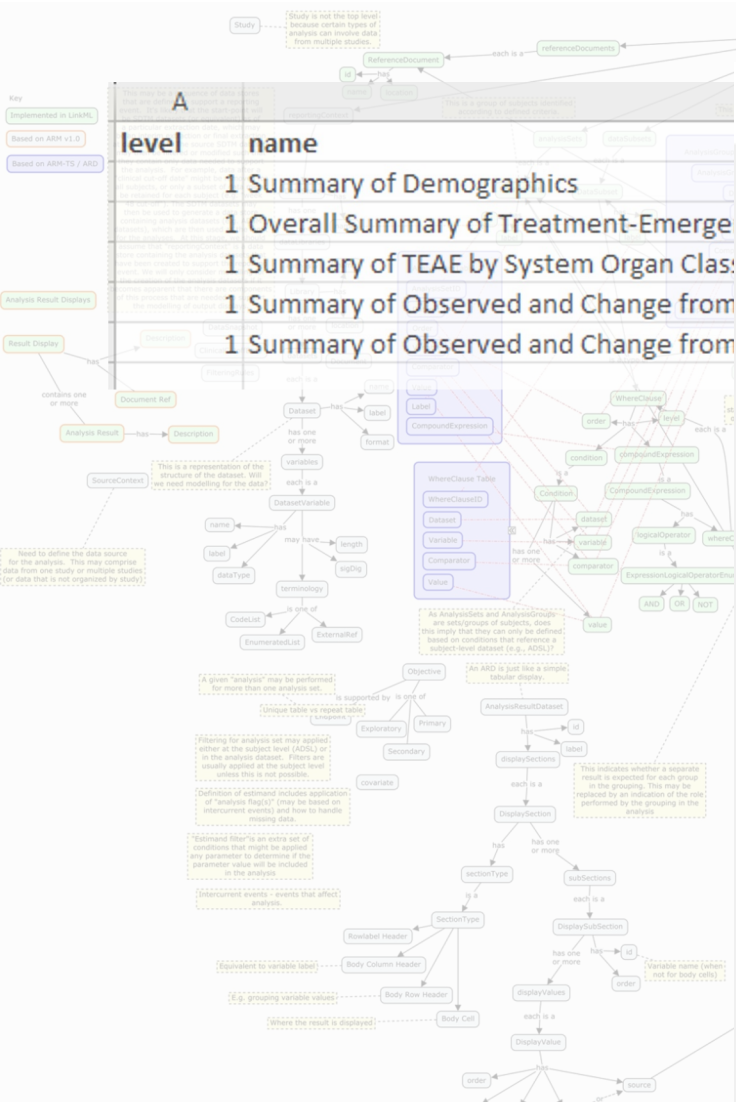
Activate:

- ReportingEvent
- ReferenceDocuments
- Categorizations
- ListOfPlannedAnalyses
- OperationDisplayLibrary
- ListOfPlannedOutputs
- GlobalDisplaySections
- Outputs
- Displays
- OutputProgrammingCode
- OutputCodeParameters
- OutputDocumentRefs
- DataSubsets
- AnalysisSets
- AnalysisGroupings
- Analyses
- AnalysisProgrammingCode
- AnalysisCodeParameters
- AnalysisDocumentRefs
- AnalysisMethods

OK Cancel

analysisid	outputid	
	Out14-1-1	
	Out14-3-1-1	
	Out14-3-2-1	
	Out14-3-3-1a	
	Out14-3-3-1b	
order	analysisid	outputid
1	An01_05_SAF_Summ_ByTrt	Out14-1-1
2	An03_01_Age_Summ_ByTrt	
3	An03_01_Age_Comp_ByTrt	
4	An03_02_AgeGrp_Summ_ByTrt	
5	An03_02_AgeGrp_Comp_ByTrt	
6	An03_03_Sex_Summ_ByTrt	
7	An03_03_Sex_Comp_ByTrt	
8	An03_04_Ethnic_Summ_ByTrt	
9	An03_04_Ethnic_Comp_ByTrt	
10	An03_05_Race_Summ_ByTrt	
11	An03_05_Race_Comp_ByTrt	
12	An03_06_Height_Summ_ByTrt	
13	An03_06_Height_Comp_ByTrt	

Documents -> Model



Activate

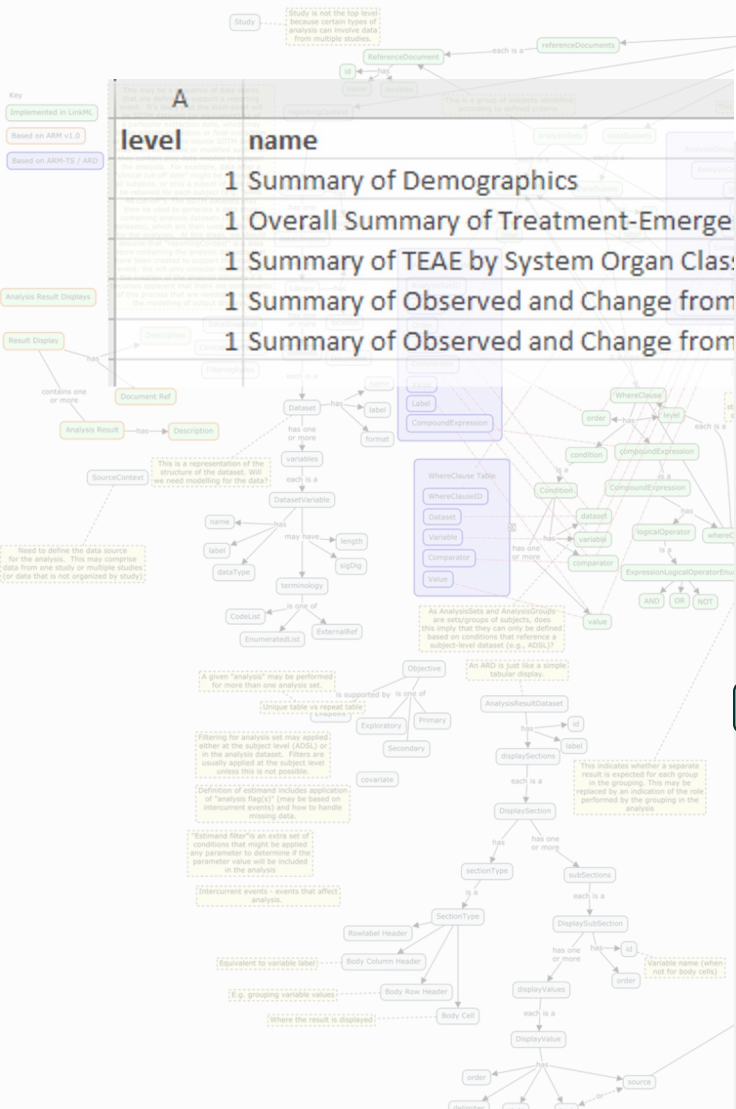
Activate:

- ReportingEvent
- ReferenceDocuments
- Categorizations
- ListOfPlannedAnalyses
- OperationDisplayLibrary
- ListOfPlannedOutputs
- GlobalDisplaySections
- Outputs
- Displays
- OutputProgrammingCode
- OutputCodeParameters
- OutputDocumentRefs
- DataSubsets
- AnalysisSets
- AnalysisGroupings
- Analyses**
- AnalysisProgrammingCode
- AnalysisCodeParameters
- AnalysisDocumentRefs
- AnalysisMethods

OK Cancel

analysisid	outputid	
	Out14-1-1	
	Out14-3-1-1	
	Out14-3-2-1	
	Out14-3-3-1a	
	Out14-3-3-1b	
order	analysisid	outputid
1	An01_05_SAF_Summ_ByTrt	Out14-1-1
2	An03_01_Age_Summ_ByTrt	
3	An03_01_Age_Comp_ByTrt	
4	An03_02_AgeGrp_Summ_ByTrt	
5	An03_02_AgeGrp_Comp_ByTrt	
6	An03_03_Sex_Summ_ByTrt	
7	An03_03_Sex_Comp_ByTrt	
8	An03_04_Ethnic_Summ_ByTrt	
9	An03_04_Ethnic_Comp_ByTrt	
10	An03_05_Race_Summ_ByTrt	
11	An03_05_Race_Comp_ByTrt	
12	An03_06_Height_Summ_ByTrt	
13	An03_06_Height_Comp_ByTrt	

Documents -> Model



Activate

Activate:

- ReportingEvent
- ReferenceDocuments
- Categorizations
- ListOfPlannedAnalyses
- OperationDisplayLibrary
- ListOfPlannedOutputs
- GlobalDisplaySections
- Outputs
- Displays
- OutputProgrammingCode
- OutputCodeParameters
- OutputDocumentRefs
- DataSubsets
- AnalysisSets
- AnalysisGroupings
- Analyses
- AnalysisProgrammingCode
- AnalysisCodeParameters
- AnalysisDocumentRefs
- AnalysisMethods

OK Cancel

sid	analysisid	outputid
		Out14-1-1
		Out14-3-1-1
		Out14-3-2-1
		Out14-3-3-1a
		Out14-3-3-1b
order	analysisid	outputid
1	An01_05_SAF_Summ_ByTrt	Out14-1-1
2	An03_01_Age_Summ_ByTrt	
3	An03_01_Age_Comp_ByTrt	
4	An03_02_AgeGrp_Summ_ByTrt	
5	An03_02_AgeGrp_Comp_ByTrt	
6	An03_03_Sex_Summ_ByTrt	
7	An03_03_Sex_Comp_ByTrt	
8	An03_04_Ethnic_Summ_ByTrt	
9	An03_04_Ethnic_Comp_ByTrt	
10	An03_05_Race_Summ_ByTrt	
11	An03_05_Race_Comp_ByTrt	
12	An03_06_Height_Summ_ByTrt	
13	An03_06_Height_Comp_ByTrt	

Documents -> Model

Study documents



ARS Model



Results



Outputs / Display

Activate

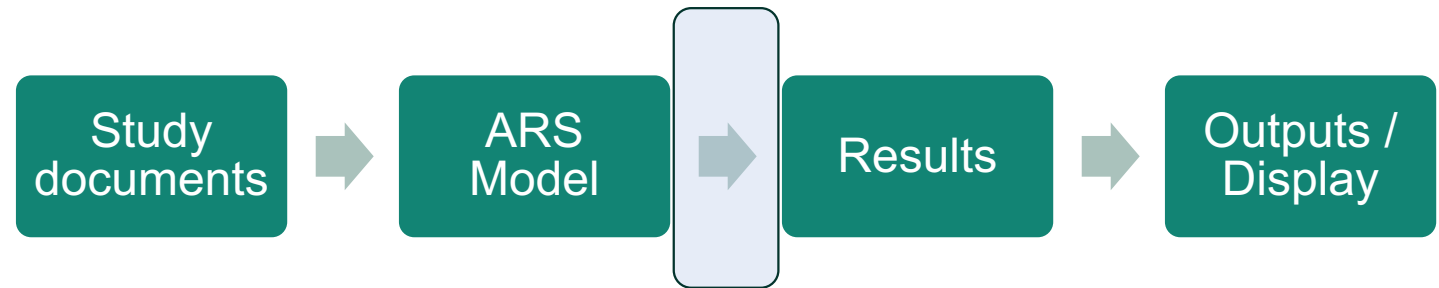
Activate:

- ReportingEvent
- ReferenceDocuments
- Categorizations
- ListOfPlannedAnalyses
- OperationDisplayLibrary
- ListOfPlannedOutputs
- GlobalDisplaySections
- Outputs
- Displays
- OutputProgrammingCode
- OutputCodeParameters
- OutputDocumentRefs
- DataSubsets
- AnalysisSets
- AnalysisGroupings
- Analyses**
- AnalysisProgrammingCode
- AnalysisCodeParameters
- AnalysisDocumentRefs
- AnalysisMethods

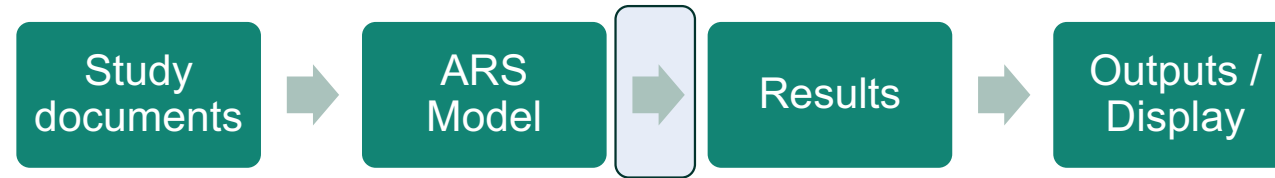
OK **Cancel**

analysisid	outputid
1 An01_05_SAF_Summ_ByTrt	Out14-1-1
2 An03_01_Age_Summ_ByTrt	Out14-3-1-1
3 An03_01_Age_Comp_ByTrt	Out14-3-2-1
4 An03_02_AgeGrp_Summ_ByTrt	Out14-3-3-1a
5 An03_02_AgeGrp_Comp_ByTrt	Out14-3-3-1b
6 An03_03_Sex_Summ_ByTrt	
7 An03_03_Sex_Comp_ByTrt	
8 An03_04_Ethnic_Summ_ByTrt	
9 An03_04_Ethnic_Comp_ByTrt	
10 An03_05_Race_Summ_ByTrt	
11 An03_05_Race_Comp_ByTrt	
12 An03_06_Height_Summ_ByTrt	
13 An03_06_Height_Comp_ByTrt	

Model -> Results



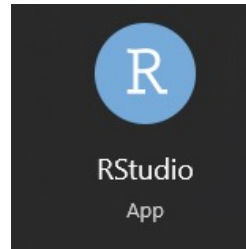
Model -> Results



Method used:

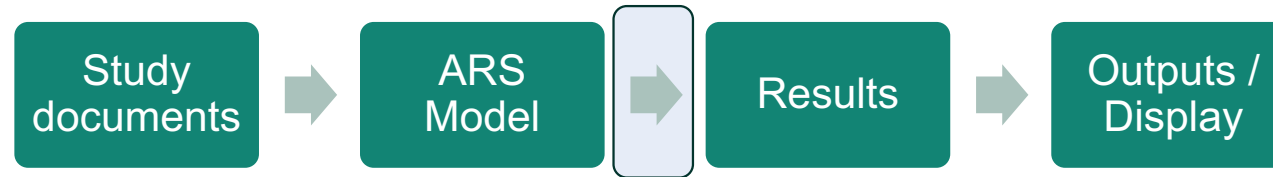
	A	B	C
1	id	version	name
2	CSD	1	Common Safety Displays
3			

“Common Safety displays.xlsx”



```
1 # title: excel_to_r
2 # purpose: Reads in reporting event in xlsx format and produces analysis results dataset
3 # Author: Malan Bosman
4 # Date: 27JUL2023
```

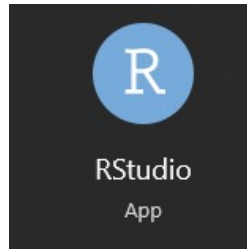
Model -> Results



Method used:

	A	B	C
1	id	version	name
2	CSD	1	Common Safety Displays
3			

“Common Safety displays.xlsx”

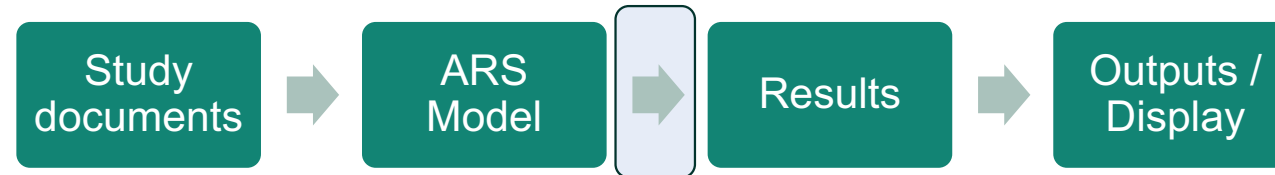


```
1 # title: excel_to_r
2 # purpose: Reads in reporting event in xlsx format and produces analysis results dataset
3 # Author: Malan Bosman
4 # Date: 27JUL2023
```

Group1	res	method	operation	output	label	pattern	Group2	Group3	analysis	dec	rnd	disp
Placebo	86.0000000	Mth01_CatVar_Count_ByGrp	Mth01_CatVar_Count_ByGrp_1_n	Out14-1-1	n	(N=XX)			An01_05_SAF_Summ_ByTrt	0	86.0000	(N=86)
Xanomeline High Dose	84.0000000	Mth01_CatVar_Count_ByGrp	Mth01_CatVar_Count_ByGrp_1_n	Out14-1-1	n	(N=XX)			An01_05_SAF_Summ_ByTrt	0	84.0000	(N=84)
Xanomeline Low Dose	84.0000000	Mth01_CatVar_Count_ByGrp	Mth01_CatVar_Count_ByGrp_1_n	Out14-1-1	n	(N=XX)			An01_05_SAF_Summ_ByTrt	0	84.0000	(N=84)
Placebo	86.0000000	Mth02_ContVar_Summ_ByGrp	Mth02_ContVar_Summ_ByGrp_1_n	Out14-1-1	n	XX			An03_01_Age_Summ_ByTrt	0	86.0000	86
Xanomeline High Dose	84.0000000	Mth02_ContVar_Summ_ByGrp	Mth02_ContVar_Summ_ByGrp_1_n	Out14-1-1	n	XX			An03_01_Age_Summ_ByTrt	0	84.0000	84
Xanomeline Low Dose	84.0000000	Mth02_ContVar_Summ_ByGrp	Mth02_ContVar_Summ_ByGrp_1_n	Out14-1-1	n	XX			An03_01_Age_Summ_ByTrt	0	84.0000	84
Placebo	75.2093023	Mth02_ContVar_Summ_ByGrp	Mth02_ContVar_Summ_ByGrp_2_Mean	Out14-1-1	Mean	XXX			An03_01_Age_Summ_ByTrt	1	75.2000	75.2
Xanomeline High Dose	74.3809524	Mth02_ContVar_Summ_ByGrp	Mth02_ContVar_Summ_ByGrp_2_Mean	Out14-1-1	Mean	XXX			An03_01_Age_Summ_ByTrt	1	74.4000	74.4
Xanomeline Low Dose	75.6666667	Mth02_ContVar_Summ_ByGrp	Mth02_ContVar_Summ_ByGrp_2_Mean	Out14-1-1	Mean	XXX			An03_01_Age_Summ_ByTrt	1	75.7000	75.7
Placebo	8.5901671	Mth02_ContVar_Summ_ByGrp	Mth02_ContVar_Summ_ByGrp_3_SD	Out14-1-1	SD	(XX.XX)			An03_01_Age_Summ_ByTrt	2	8.5900	(8.59)

Results dataset

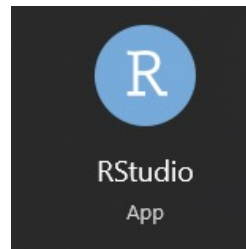
Model -> Results



Method used:

	A	B	C
1	id	version	name
2	CSD	1	Common Safety Displays
3			

“Common Safety displays.xlsx”

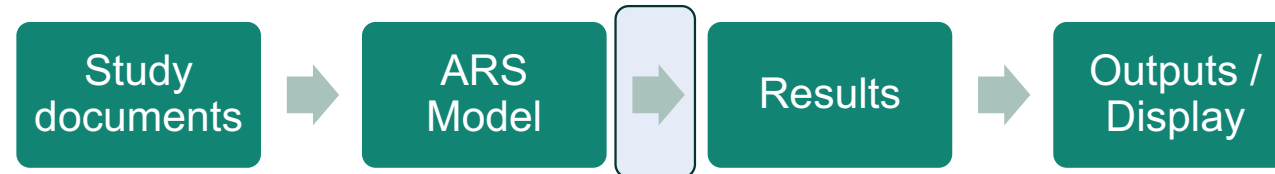


```
1 # title: excel_to_r
2 # purpose: Reads in reporting event in xlsx format and produces analysis results dataset
3 # Author: Malan Bosman
4 # Date: 27JUL2023
```

Group1	res	method	operation	output	label	pattern	Group2	Group3	analysis	dec	rnd	disp
Placebo	86.0000000	Mth01_CatVar_Count_ByGrp	Mth01_CatVar_Count_ByGrp_1_n	Out14-1-1	n	(N=XX)			An01_05_SAF_Summ_ByTrt	0	86.0000	(N=86)
Xanomeline High Dose	84.0000000	Mth01_CatVar_Count_ByGrp	Mth01_CatVar_Count_ByGrp_1_n	Out14-1-1	n	(N=XX)			An01_05_SAF_Summ_ByTrt	0	84.0000	(N=84)
Xanomeline Low Dose	84.0000000	Mth01_CatVar_Count_ByGrp	Mth01_CatVar_Count_ByGrp_1_n	Out14-1-1	n	(N=XX)			An01_05_SAF_Summ_ByTrt	0	84.0000	(N=84)
Placebo	86.0000000	Mth02_ContVar_Summ_ByGrp	Mth02_ContVar_Summ_ByGrp_1_n	Out14-1-1	n	XX			An03_01_Age_Summ_ByTrt	0	86.0000	86
Xanomeline High Dose	84.0000000	Mth02_ContVar_Summ_ByGrp	Mth02_ContVar_Summ_ByGrp_1_n	Out14-1-1	n	XX			An03_01_Age_Summ_ByTrt	0	84.0000	84
Xanomeline Low Dose	84.0000000	Mth02_ContVar_Summ_ByGrp	Mth02_ContVar_Summ_ByGrp_1_n	Out14-1-1	n	XX			An03_01_Age_Summ_ByTrt	0	84.0000	84
Placebo	75.2093023	Mth02_ContVar_Summ_ByGrp	Mth02_ContVar_Summ_ByGrp_2_Mean	Out14-1-1	Mean	XX.X			An03_01_Age_Summ_ByTrt	1	75.2000	75.2
Xanomeline High Dose	74.3809524	Mth02_ContVar_Summ_ByGrp	Mth02_ContVar_Summ_ByGrp_2_Mean	Out14-1-1	Mean	XX.X			An03_01_Age_Summ_ByTrt	1	74.4000	74.4
Xanomeline Low Dose	75.6666667	Mth02_ContVar_Summ_ByGrp	Mth02_ContVar_Summ_ByGrp_2_Mean	Out14-1-1	Mean	XX.X			An03_01_Age_Summ_ByTrt	1	75.7000	75.7
Placebo	8.5901671	Mth02_ContVar_Summ_ByGrp	Mth02_ContVar_Summ_ByGrp_3_SD	Out14-1-1	SD	(XX.XX)			An03_01_Age_Summ_ByTrt	2	8.5900	(8.59)

Results dataset

Model -> Results



Method used:

	A	B	C
1	id	version	name
2	CSD	1	Common Safety Displays
3			



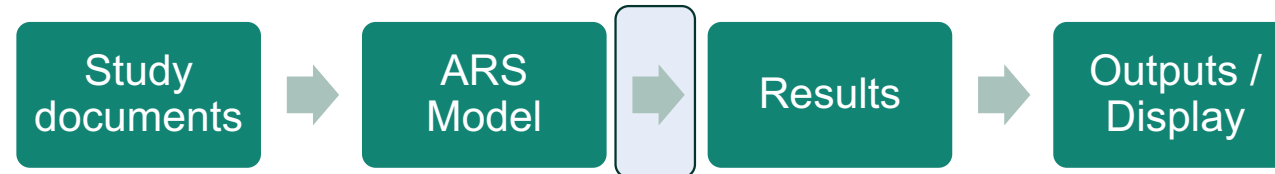
```
1 # title: excel_to_r
2 # purpose: Reads in reporting event in xlsx format and produces analysis results dataset
3 # Author: Malan Bosman
4 # Date: 27JUL2023
```

“Common Safety displays.xlsx”

Group1	res	method	operation	output	label	pattern	Group2	Group3	analysis	dec	rnd	disp
Placebo	86.0000000	Mth01_CatVar_Count_ByGrp	Mth01_CatVar_Count_ByGrp_1_n	Out14-1-1	n	(N=XX)			An01_05_SAF_Summ_ByTrt	0	86.0000	(N=86)
Xanomeline High Dose	84.0000000	Mth01_CatVar_Count_ByGrp	Mth01_CatVar_Count_ByGrp_1_n	Out14-1-1	n	(N=XX)			An01_05_SAF_Summ_ByTrt	0	84.0000	(N=84)
Xanomeline Low Dose	84.0000000	Mth01_CatVar_Count_ByGrp	Mth01_CatVar_Count_ByGrp_1_n	Out14-1-1	n	(N=XX)			An01_05_SAF_Summ_ByTrt	0	84.0000	(N=84)
Placebo	86.0000000	Mth02_ContVar_Summ_ByGrp	Mth02_ContVar_Summ_ByGrp_1_n	Out14-1-1	n	XX			An03_01_Age_Summ_ByTrt	0	86.0000	86
Xanomeline High Dose	84.0000000	Mth02_ContVar_Summ_ByGrp	Mth02_ContVar_Summ_ByGrp_1_n	Out14-1-1	n	XX			An03_01_Age_Summ_ByTrt	0	84.0000	84
Xanomeline Low Dose	84.0000000	Mth02_ContVar_Summ_ByGrp	Mth02_ContVar_Summ_ByGrp_1_n	Out14-1-1	n	XX			An03_01_Age_Summ_ByTrt	0	84.0000	84
Placebo	75.2093023	Mth02_ContVar_Summ_ByGrp	Mth02_ContVar_Summ_ByGrp_2_Mean	Out14-1-1	Mean	XX.X			An03_01_Age_Summ_ByTrt	1	75.2000	75.2
Xanomeline High Dose	74.3809524	Mth02_ContVar_Summ_ByGrp	Mth02_ContVar_Summ_ByGrp_2_Mean	Out14-1-1	Mean	XX.X			An03_01_Age_Summ_ByTrt	1	74.4000	74.4
Xanomeline Low Dose	75.6666667	Mth02_ContVar_Summ_ByGrp	Mth02_ContVar_Summ_ByGrp_2_Mean	Out14-1-1	Mean	XX.X			An03_01_Age_Summ_ByTrt	1	75.7000	75.7
Placebo	8.5901671	Mth02_ContVar_Summ_ByGrp	Mth02_ContVar_Summ_ByGrp_3_SD	Out14-1-1	SD	(XX.XX)			An03_01_Age_Summ_ByTrt	2	8.5900	(8.59)

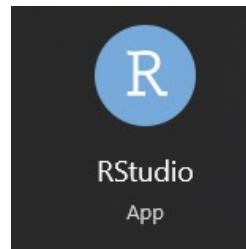
Results dataset

Model -> Results



Method used:

	A	B	C
1	id	version	name
2	CSD	1	Common Safety Displays
3			



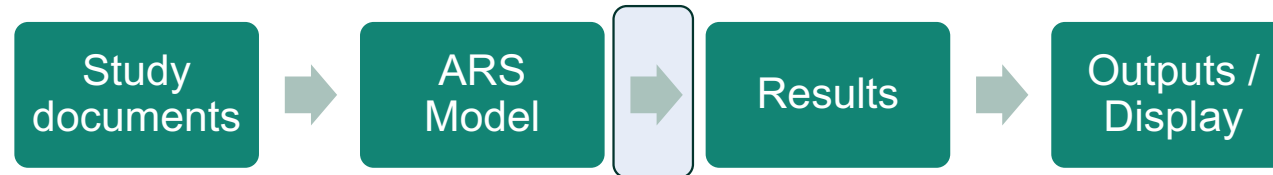
```
1 # title: excel_to_r
2 # purpose: Reads in reporting event in xlsx format and produces analysis results dataset
3 # Author: Malan Bosman
4 # Date: 27JUL2023
```

“Common Safety displays.xlsx”

Group1	res	method	operation	output	label	pattern	Group2	Group3	analysis	dec	rnd	disp
Placebo	86.0000000	Mth01_CatVar_Count_ByGrp	Mth01_CatVar_Count_ByGrp_1_n	Out14-1-1	n	(N=XX)			An01_05_SAF_Summ_ByTrt	0	86.0000	(N=86)
Xanomeline High Dose	84.0000000	Mth01_CatVar_Count_ByGrp	Mth01_CatVar_Count_ByGrp_1_n	Out14-1-1	n	(N=XX)			An01_05_SAF_Summ_ByTrt	0	84.0000	(N=84)
Xanomeline Low Dose	84.0000000	Mth01_CatVar_Count_ByGrp	Mth01_CatVar_Count_ByGrp_1_n	Out14-1-1	n	(N=XX)			An01_05_SAF_Summ_ByTrt	0	84.0000	(N=84)
Placebo	86.0000000	Mth02_ContVar_Summ_ByGrp	Mth02_ContVar_Summ_ByGrp_1_n	Out14-1-1	n	XX			An03_01_Age_Summ_ByTrt	0	86.0000	86
Xanomeline High Dose	84.0000000	Mth02_ContVar_Summ_ByGrp	Mth02_ContVar_Summ_ByGrp_1_n	Out14-1-1	n	XX			An03_01_Age_Summ_ByTrt	0	84.0000	84
Xanomeline Low Dose	84.0000000	Mth02_ContVar_Summ_ByGrp	Mth02_ContVar_Summ_ByGrp_1_n	Out14-1-1	n	XX			An03_01_Age_Summ_ByTrt	0	84.0000	84
Placebo	75.2093023	Mth02_ContVar_Summ_ByGrp	Mth02_ContVar_Summ_ByGrp_2_Mean	Out14-1-1	Mean	XX.X			An03_01_Age_Summ_ByTrt	1	75.2000	75.2
Xanomeline High Dose	74.3809524	Mth02_ContVar_Summ_ByGrp	Mth02_ContVar_Summ_ByGrp_2_Mean	Out14-1-1	Mean	XX.X			An03_01_Age_Summ_ByTrt	1	74.4000	74.4
Xanomeline Low Dose	75.6666667	Mth02_ContVar_Summ_ByGrp	Mth02_ContVar_Summ_ByGrp_2_Mean	Out14-1-1	Mean	XX.X			An03_01_Age_Summ_ByTrt	1	75.7000	75.7
Placebo	8.5901671	Mth02_ContVar_Summ_ByGrp	Mth02_ContVar_Summ_ByGrp_3_SD	Out14-1-1	SD	(XX.XX)			An03_01_Age_Summ_ByTrt	2	8.5900	(8.59)

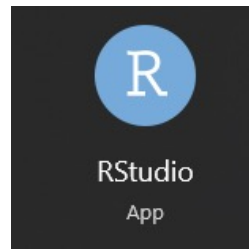
Results dataset

Model -> Results



Method used:

	A	B	C
1	id	version	name
2	CSD	1	Common Safety Displays
3			



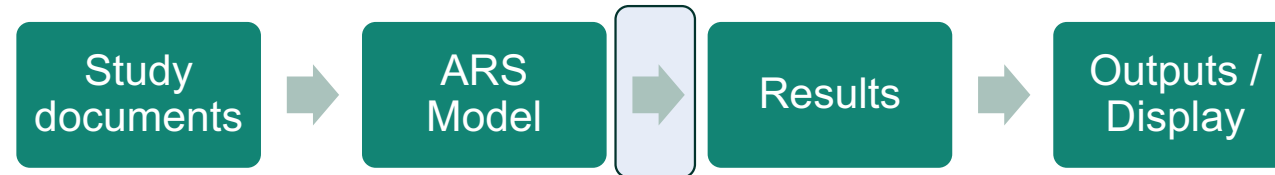
```
1 # title: excel_to_r
2 # purpose: Reads in reporting event in xlsx format and produces analysis results dataset
3 # Author: Malan Bosman
4 # Date: 27JUL2023
```

“Common Safety displays.xlsx”

Group1	res	method	operation	output	label	pattern	Group2	Group3	analysis	dec	rnd	disp
Placebo	86.0000000	Mth01_CatVar_Count_ByGrp	Mth01_CatVar_Count_ByGrp_1_n	Out14-1-1	n	(N=XX)			An01_05_SAF_Summ_ByTrt	0	86.0000	(N=86)
Xanomeline High Dose	84.0000000	Mth01_CatVar_Count_ByGrp	Mth01_CatVar_Count_ByGrp_1_n	Out14-1-1	n	(N=XX)			An01_05_SAF_Summ_ByTrt	0	84.0000	(N=84)
Xanomeline Low Dose	84.0000000	Mth01_CatVar_Count_ByGrp	Mth01_CatVar_Count_ByGrp_1_n	Out14-1-1	n	(N=XX)			An01_05_SAF_Summ_ByTrt	0	84.0000	(N=84)
Placebo	86.0000000	Mth02_ContVar_Summ_ByGrp	Mth02_ContVar_Summ_ByGrp_1_n	Out14-1-1	n	XX			An03_01_Age_Summ_ByTrt	0	86.0000	86
Xanomeline High Dose	84.0000000	Mth02_ContVar_Summ_ByGrp	Mth02_ContVar_Summ_ByGrp_1_n	Out14-1-1	n	XX			An03_01_Age_Summ_ByTrt	0	84.0000	84
Xanomeline Low Dose	84.0000000	Mth02_ContVar_Summ_ByGrp	Mth02_ContVar_Summ_ByGrp_1_n	Out14-1-1	n	XX			An03_01_Age_Summ_ByTrt	0	84.0000	84
Placebo	75.2093023	Mth02_ContVar_Summ_ByGrp	Mth02_ContVar_Summ_ByGrp_2_Mean	Out14-1-1	Mean	XX.X			An03_01_Age_Summ_ByTrt	1	75.2000	75.2
Xanomeline High Dose	74.3809524	Mth02_ContVar_Summ_ByGrp	Mth02_ContVar_Summ_ByGrp_2_Mean	Out14-1-1	Mean	XX.X			An03_01_Age_Summ_ByTrt	1	74.4000	74.4
Xanomeline Low Dose	75.6666667	Mth02_ContVar_Summ_ByGrp	Mth02_ContVar_Summ_ByGrp_2_Mean	Out14-1-1	Mean	XX.X			An03_01_Age_Summ_ByTrt	1	75.7000	75.7
Placebo	8.5901671	Mth02_ContVar_Summ_ByGrp	Mth02_ContVar_Summ_ByGrp_3_SD	Out14-1-1	SD	(XX.XX)			An03_01_Age_Summ_ByTrt	2	8.5900	(8.59)

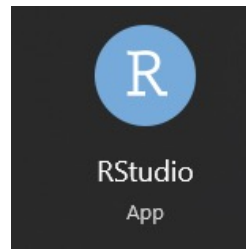
Results dataset

Model -> Results



Method used:

	A	B	C
1	id	version	name
2	CSD	1	Common Safety Displays
3			



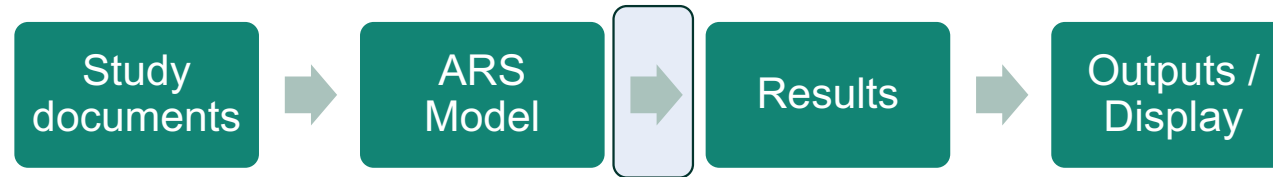
```
1 # title: excel_to_r
2 # purpose: Reads in reporting event in xlsx format and produces analysis results dataset
3 # Author: Malan Bosman
4 # Date: 27JUL2023
```

“Common Safety displays.xlsx”

Group1	res	method	operation	output	label	pattern	Group2	Group3	analysis	dec	rnd	disp
Placebo	86.0000000	Mth01_CatVar_Count_ByGrp	Mth01_CatVar_Count_ByGrp_1_n	Out14-1-1	n	(N=XX)			An01_05_SAF_Summ_ByTrt	0	86.0000	(N=86)
Xanomeline High Dose	84.0000000	Mth01_CatVar_Count_ByGrp	Mth01_CatVar_Count_ByGrp_1_n	Out14-1-1	n	(N=XX)			An01_05_SAF_Summ_ByTrt	0	84.0000	(N=84)
Xanomeline Low Dose	84.0000000	Mth01_CatVar_Count_ByGrp	Mth01_CatVar_Count_ByGrp_1_n	Out14-1-1	n	(N=XX)			An01_05_SAF_Summ_ByTrt	0	84.0000	(N=84)
Placebo	86.0000000	Mth02_ContVar_Summ_ByGrp	Mth02_ContVar_Summ_ByGrp_1_n	Out14-1-1	n	XX			An03_01_Age_Summ_ByTrt	0	86.0000	86
Xanomeline High Dose	84.0000000	Mth02_ContVar_Summ_ByGrp	Mth02_ContVar_Summ_ByGrp_1_n	Out14-1-1	n	XX			An03_01_Age_Summ_ByTrt	0	84.0000	84
Xanomeline Low Dose	84.0000000	Mth02_ContVar_Summ_ByGrp	Mth02_ContVar_Summ_ByGrp_1_n	Out14-1-1	n	XX			An03_01_Age_Summ_ByTrt	0	84.0000	84
Placebo	75.2093023	Mth02_ContVar_Summ_ByGrp	Mth02_ContVar_Summ_ByGrp_2_Mean	Out14-1-1	Mean	XX.X			An03_01_Age_Summ_ByTrt	1	75.2000	75.2
Xanomeline High Dose	74.3809524	Mth02_ContVar_Summ_ByGrp	Mth02_ContVar_Summ_ByGrp_2_Mean	Out14-1-1	Mean	XX.X			An03_01_Age_Summ_ByTrt	1	74.4000	74.4
Xanomeline Low Dose	75.6666667	Mth02_ContVar_Summ_ByGrp	Mth02_ContVar_Summ_ByGrp_2_Mean	Out14-1-1	Mean	XX.X			An03_01_Age_Summ_ByTrt	1	75.7000	75.7
Placebo	8.5901671	Mth02_ContVar_Summ_ByGrp	Mth02_ContVar_Summ_ByGrp_3_SD	Out14-1-1	SD	(XX.XX)			An03_01_Age_Summ_ByTrt	2	8.5900	(8.59)

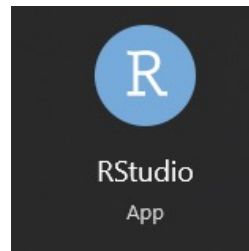
Results dataset

Model -> Results



Method used:

	A	B	C
1	id	version	name
2	CSD	1	Common Safety Displays
3			



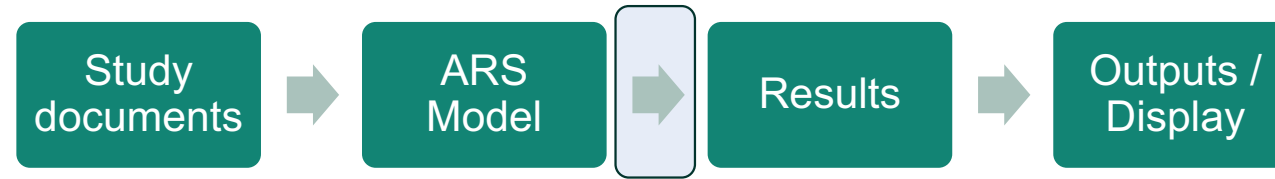
```
1 # title: excel_to_r
2 # purpose: Reads in reporting event in xlsx format and produces analysis results dataset
3 # Author: Malan Bosman
4 # Date: 27JUL2023
```

“Common Safety displays.xlsx”

Group1	res	method	operation	output	label	pattern	Group2	Group3	analysis	dec	rnd	disp
Placebo	86.0000000	Mth01_CatVar_Count_ByGrp	Mth01_CatVar_Count_ByGrp_1_n	Out14-1-1	n	(N=XX)			An01_05_SAF_Summ_ByTrt	0	86.0000	(N=86)
Xanomeline High Dose	84.0000000	Mth01_CatVar_Count_ByGrp	Mth01_CatVar_Count_ByGrp_1_n	Out14-1-1	n	(N=XX)			An01_05_SAF_Summ_ByTrt	0	84.0000	(N=84)
Xanomeline Low Dose	84.0000000	Mth01_CatVar_Count_ByGrp	Mth01_CatVar_Count_ByGrp_1_n	Out14-1-1	n	(N=XX)			An01_05_SAF_Summ_ByTrt	0	84.0000	(N=84)
Placebo	86.0000000	Mth02_ContVar_Summ_ByGrp	Mth02_ContVar_Summ_ByGrp_1_n	Out14-1-1	n	XX			An03_01_Age_Summ_ByTrt	0	86.0000	86
Xanomeline High Dose	84.0000000	Mth02_ContVar_Summ_ByGrp	Mth02_ContVar_Summ_ByGrp_1_n	Out14-1-1	n	XX			An03_01_Age_Summ_ByTrt	0	84.0000	84
Xanomeline Low Dose	84.0000000	Mth02_ContVar_Summ_ByGrp	Mth02_ContVar_Summ_ByGrp_1_n	Out14-1-1	n	XX			An03_01_Age_Summ_ByTrt	0	84.0000	84
Placebo	75.2093023	Mth02_ContVar_Summ_ByGrp	Mth02_ContVar_Summ_ByGrp_2_Mean	Out14-1-1	Mean	XX.X			An03_01_Age_Summ_ByTrt	1	75.2000	75.2
Xanomeline High Dose	74.3809524	Mth02_ContVar_Summ_ByGrp	Mth02_ContVar_Summ_ByGrp_2_Mean	Out14-1-1	Mean	XX.X			An03_01_Age_Summ_ByTrt	1	74.4000	74.4
Xanomeline Low Dose	75.6666667	Mth02_ContVar_Summ_ByGrp	Mth02_ContVar_Summ_ByGrp_2_Mean	Out14-1-1	Mean	XX.X			An03_01_Age_Summ_ByTrt	1	75.7000	75.7
Placebo	8.5901671	Mth02_ContVar_Summ_ByGrp	Mth02_ContVar_Summ_ByGrp_3_SD	Out14-1-1	SD	(XX.XX)			An03_01_Age_Summ_ByTrt	2	8.5900	(8.59)

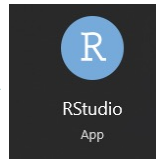
Results dataset

Model -> Results



Method used:

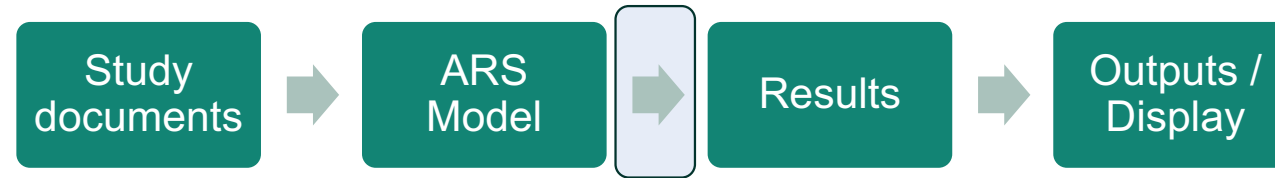
	A	B	C
1	id	version	name
2	CSD		1 Common Safety Displays
3			



Group1	res	method	operation	output	label	pattern	Group2	Group3	analysis	dec	rnd	disp
Placebo	86.0000000	Mth01_CatVar_Count_ByGrp	Mth01_CatVar_Count_ByGrp_1_n	Out14-1-1	n	(N=XX)			A=01_D1_SAF_Summ_ByTt	0	86.0000	(N=86)
Xanomeline High Dose	84.0000000	Mth01_CatVar_Count_ByGrp	Mth01_CatVar_Count_ByGrp_1_n	Out14-1-1	n	(N=XX)			A=01_D1_SAF_Summ_ByTt	0	84.0000	(N=84)
Xanomeline Low Dose	84.0000000	Mth01_CatVar_Count_ByGrp	Mth01_CatVar_Count_ByGrp_1_n	Out14-1-1	n	(N=XX)			A=01_D1_SAF_Summ_ByTt	0	84.0000	(N=84)
Placebo	86.0000000	Mth02_ContVar_Summ_ByGrp	Mth02_ContVar_Summ_ByGrp_1_n	Out14-1-1	n	XX			A=02_D1_Age_Summ_ByTt	0	86.0000	86
Xanomeline High Dose	84.0000000	Mth02_ContVar_Summ_ByGrp	Mth02_ContVar_Summ_ByGrp_1_n	Out14-1-1	n	XX			A=02_D1_Age_Summ_ByTt	0	84.0000	84
Xanomeline Low Dose	84.0000000	Mth02_ContVar_Summ_ByGrp	Mth02_ContVar_Summ_ByGrp_1_n	Out14-1-1	n	XX			A=02_D1_Age_Summ_ByTt	0	84.0000	84
Placebo	75.2098023	Mth02_ContVar_Summ_ByGrp	Mth02_ContVar_Summ_ByGrp_2_Mean	Out14-1-1	Mean	XXX			A=02_D1_Age_Summ_ByTt	1	75.2000	75.2
Xanomeline High Dose	74.3809834	Mth02_ContVar_Summ_ByGrp	Mth02_ContVar_Summ_ByGrp_2_Mean	Out14-1-1	Mean	XXX			A=02_D1_Age_Summ_ByTt	1	74.4000	74.4
Xanomeline Low Dose	75.6666667	Mth02_ContVar_Summ_ByGrp	Mth02_ContVar_Summ_ByGrp_2_Mean	Out14-1-1	Mean	XXX			A=02_D1_Age_Summ_ByTt	1	75.7000	75.7
Placebo	8.5901471	Mth02_ContVar_Summ_ByGrp	Mth02_ContVar_Summ_ByGrp_3_SD	Out14-1-1	SD	(XXX)			A=02_D1_Age_Summ_ByTt	2	8.5900	(8.59)

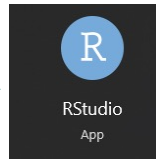
Highlights:

Model -> Results



Method used:

	A	B	C
1	id	version	name
2	CSD	1	Common Safety Displays
3			



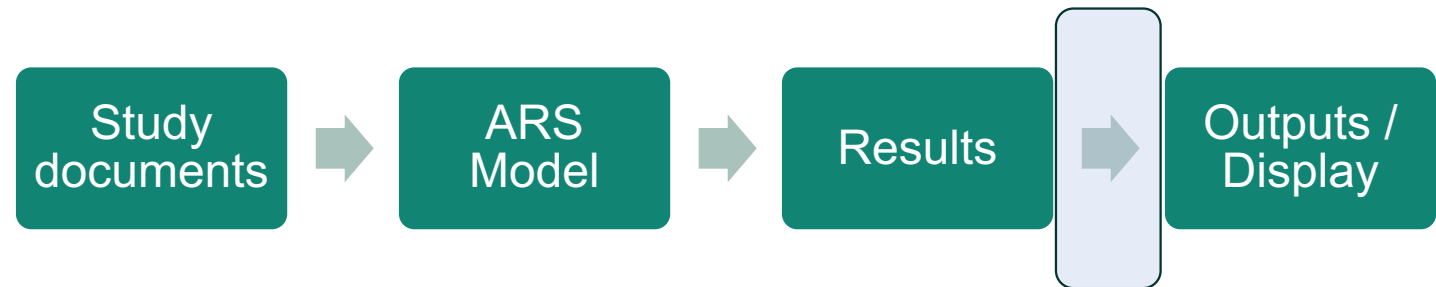
Group1	res	method	operation	output	label	pattern	Group2	Group3	analysis	dec	rnd	disp
Placebo	86.0000000	Mth01_CatVar_Count_ByGrp	Mth01_CatVar_Count_ByGrp_1_n	Out14-1-1	n	(N+XX)			A+01_D1_SAF_Summ_ByTt	0	86.0000	(N+86)
Xanomeline High Dose	84.0000000	Mth01_CatVar_Count_ByGrp	Mth01_CatVar_Count_ByGrp_1_n	Out14-1-1	n	(N+XX)			A+01_D1_SAF_Summ_ByTt	0	84.0000	(N+84)
Xanomeline Low Dose	84.0000000	Mth01_CatVar_Count_ByGrp	Mth01_CatVar_Count_ByGrp_1_n	Out14-1-1	n	(N+XX)			A+01_D1_SAF_Summ_ByTt	0	84.0000	(N+84)
Placebo	86.0000000	Mth02_ContVar_Summ_ByGrp	Mth02_ContVar_Summ_ByGrp_1_n	Out14-1-1	n	XX			A+02_D1_Age_Summ_ByTt	0	86.0000	86
Xanomeline High Dose	84.0000000	Mth02_ContVar_Summ_ByGrp	Mth02_ContVar_Summ_ByGrp_1_n	Out14-1-1	n	XX			A+02_D1_Age_Summ_ByTt	0	84.0000	84
Xanomeline Low Dose	84.0000000	Mth02_ContVar_Summ_ByGrp	Mth02_ContVar_Summ_ByGrp_1_n	Out14-1-1	n	XX			A+02_D1_Age_Summ_ByTt	0	84.0000	84
Placebo	75.2098023	Mth02_ContVar_Summ_ByGrp	Mth02_ContVar_Summ_ByGrp_2_Mean	Out14-1-1	Mean	XXXX			A+02_D1_Age_Summ_ByTt	1	75.2000	75.2
Xanomeline High Dose	74.3809834	Mth02_ContVar_Summ_ByGrp	Mth02_ContVar_Summ_ByGrp_2_Mean	Out14-1-1	Mean	XXXX			A+02_D1_Age_Summ_ByTt	1	74.4000	74.4
Xanomeline Low Dose	75.6666667	Mth02_ContVar_Summ_ByGrp	Mth02_ContVar_Summ_ByGrp_2_Mean	Out14-1-1	Mean	XXXX			A+02_D1_Age_Summ_ByTt	1	75.7000	75.7
Placebo	8.5901471	Mth02_ContVar_Summ_ByGrp	Mth02_ContVar_Summ_ByGrp_3_SD	Out14-1-1	SD	(XXX)			A+02_D1_Age_Summ_ByTt	2	8.5900	(8.59)

Highlights:

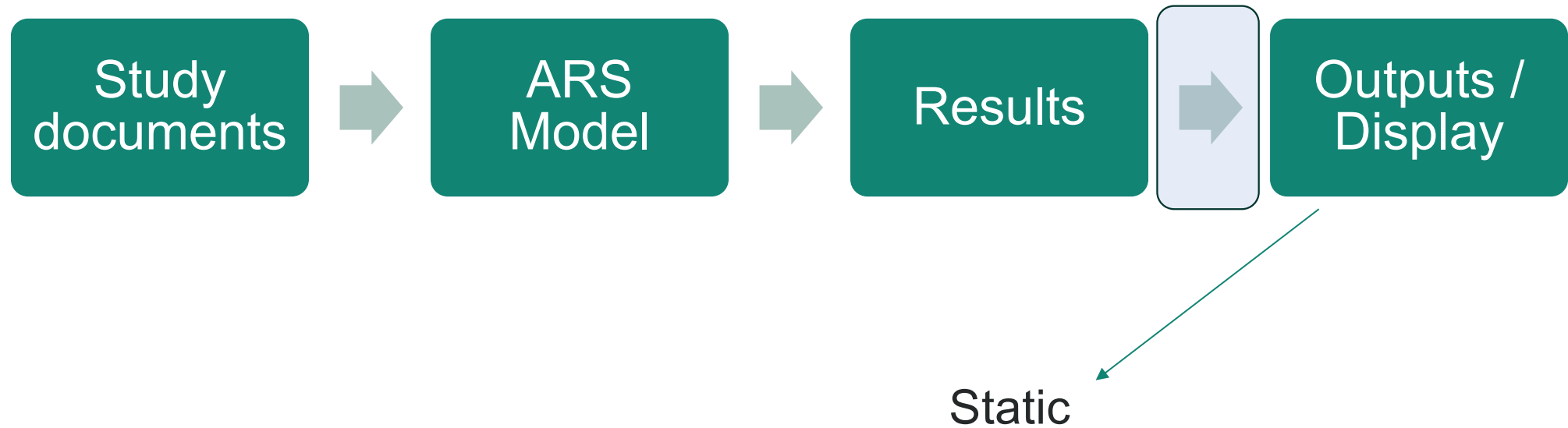
- Performs groupings
- Subsets data
- Basic method: Nested loops through “ListOfPlannedAnalyses”, then each Operation linked to the AnalysisMethod (linked to each Analysis)
- Chunk of code performing each operation appends rows after each operation to create Analysis Results dataset
- Applies correct pattern / format to result



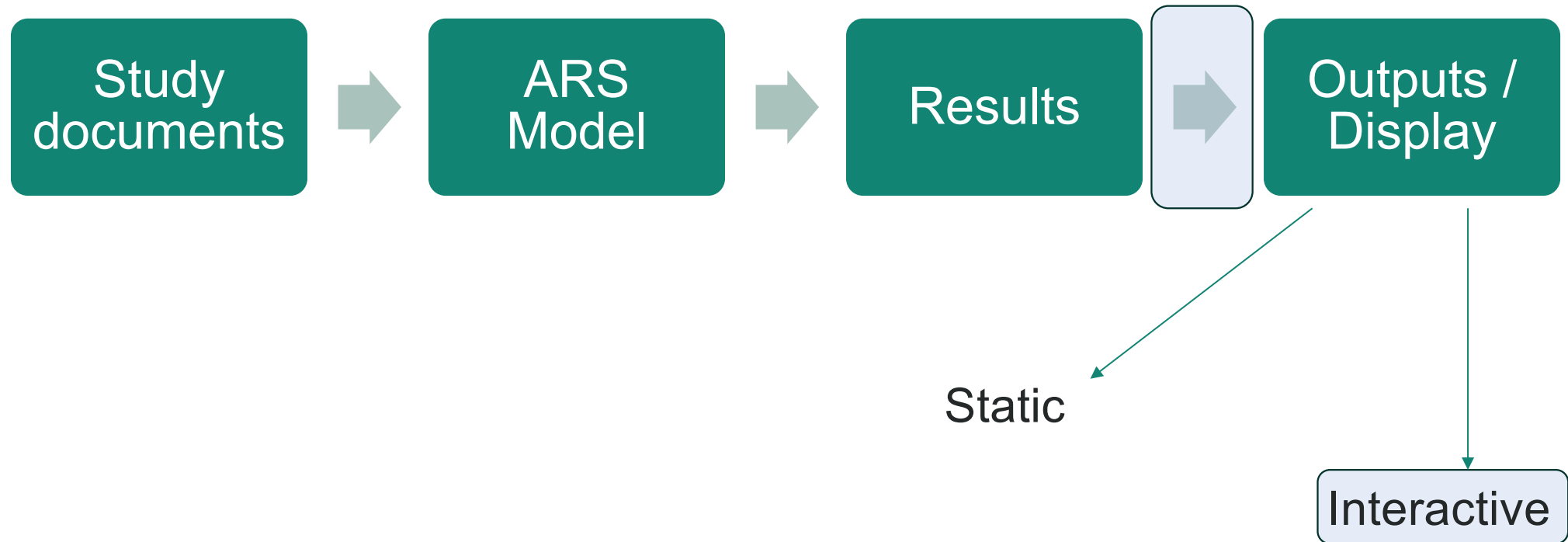
Results -> Outputs / display



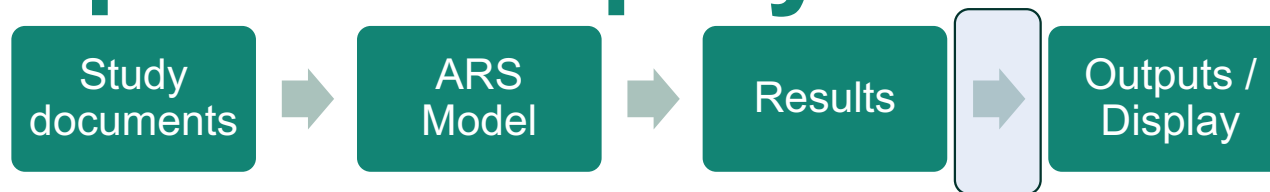
Results -> Outputs / Display



Results -> Outputs / Display



Results -> Outputs / Display



Basic R-Shiny

Common Safety Displays

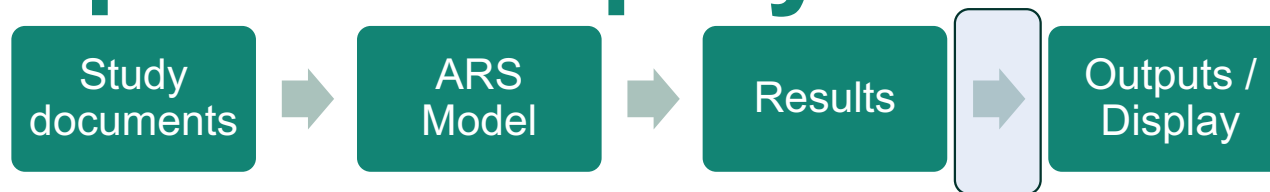
Select output:

Out14-1-1

Show 100 entries

Analysis	Characteristic	Placebo	Xanomeline High Dose	Xanomeline Low Dose	p-value
		(N=86)	(N=84)	(N=84)	
Age (Years)	- p-value				0.59340000000000004
Age (Years)	n	86	84	84	
Age (Years)	Mean	75.2	74.4	75.7	
Age (Years)	SD	(8.59)	(7.89)	(8.29)	
Age (Years)	Median	76.0	76.0	77.5	
Age (Years)	Q1	69.0	70.0	71.0	
Age (Years)	Q3	82.0	80.0	82.0	
Age (Years)	Min	52	56	51	
Age (Years)	Max	89	88	88	

Results -> Outputs / Display



Shell:

Study - CDISC 360 Page x of y

Table 14.1.1
Summary of Demographics
Safety Population

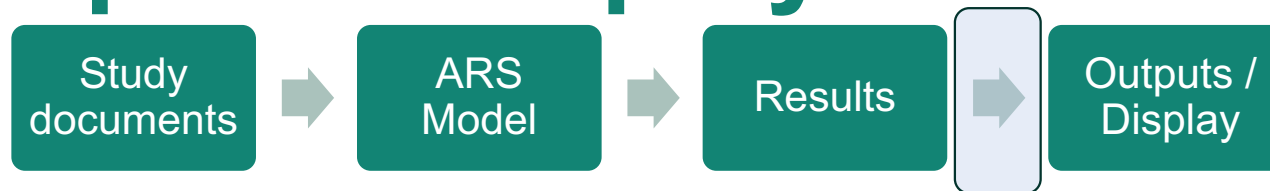
Characteristics	Placebo (N=XX)	Xanomeline Low Dose (N=XX)	Xanomeline High Dose (N=XX)	p-value [1]
Age (years)				
n	XX	XX	XX	X.XXXX
Mean (SD)	XX.X (XX.XX)	XX.X (XX.XX)	XX.X (XX.XX)	
Median	XX.X	XX.X	XX.X	
Q1, Q3	XX.X, XX.X	XX.X, XX.X	XX.X, XX.X	
Min, Max	XX, XX	XX, XX	XX, XX	
Age Group, n (%)				
< 65 years	XX (XX.X)	XX (XX.X)	XX (XX.X)	X.XXXX
≥ 65 years	XX (XX.X)	XX (XX.X)	XX (XX.X)	
Gender, n (%)				
Male	XX (XX.X)	XX (XX.X)	XX (XX.X)	X.XXXX
Female	XX (XX.X)	XX (XX.X)	XX (XX.X)	
Ethnicity, n (%)				
Hispanic or Latino	XX (XX.X)	XX (XX.X)	XX (XX.X)	X.XXXX
Not Hispanic or Latino	XX (XX.X)	XX (XX.X)	XX (XX.X)	

Basic R-Shiny app:

Show entries

Analysis	Characteristic	Placebo	Xanomeline High Dose	Xanomeline Low Dose	p-value
		(N=86)	(N=84)	(N=84)	
Age (Years)					0.5934000000000004
	- p-value				
Age (Years)	n	86	84	84	
Age (Years)	Mean	75.2	74.4	75.7	
Age (Years)	SD	(8.59)	(7.89)	(8.29)	
Age (Years)	Median	76.0	76.0	77.5	
Age (Years)	Q1	69.0	70.0	71.0	
Age (Years)	Q3	82.0	80.0	82.0	
Age (Years)	Min	52	56	51	
Age (Years)	Max	89	88	88	

Results -> Outputs / Display



Shell:

Study - CDISC 360

Page x of y

Table 14.1.1
Summary of Demographics
Safety Population

Characteristics	Placebo (N=XX)	Xanomeline Low Dose (N=XX)	Xanomeline High Dose (N=XX)	p-value [1]
Age (years)				
n	XX	XX	XX	X.XXXX
Mean (SD)	XX.X (XX.XX)	XX.X (XX.XX)	XX.X (XX.XX)	
Median	XX.X	XX.X	XX.X	
Q1, Q3	XX.X, XX.X	XX.X, XX.X	XX.X, XX.X	
Min, Max	XX, XX	XX, XX	XX, XX	
Age Group, n (%)				
< 65 years	XX (XX.X)	XX (XX.X)	XX (XX.X)	X.XXXX
≥ 65 years	XX (XX.X)	XX (XX.X)	XX (XX.X)	
Gender, n (%)				
Male	XX (XX.X)	XX (XX.X)	XX (XX.X)	X.XXXX
Female	XX (XX.X)	XX (XX.X)	XX (XX.X)	
Ethnicity, n (%)				
Hispanic or Latino	XX (XX.X)	XX (XX.X)	XX (XX.X)	X.XXXX
Not Hispanic or Latino	XX (XX.X)	XX (XX.X)	XX (XX.X)	

Basic R-Shiny app:

Show entries

Analysis	Characteristic	Placebo	Xanomeline High Dose	Xanomeline Low Dose	p-value
		(N=86)	(N=84)	(N=84)	
Age (Years)	- p-value				0.5934000000000004
Age (Years)	n	86	84	84	
Age (Years)	Mean	75.2	74.4	75.7	
Age (Years)	SD	(8.59)	(7.89)	(8.29)	
Age (Years)	Median	76.0	76.0	77.5	
Age (Years)	Q1	69.0	70.0	71.0	
Age (Years)	Q3	82.0	80.0	82.0	
Age (Years)	Min	52	56	51	
Age (Years)	Max	89	88	88	



Concluding thoughts

Concluding thoughts

Automation

- Aim for automation
- Across industry

Open-source

- Quicker adoption
- Easier collaboration

User Experience

- Make it a priority
- Part of design

Next steps:

Common Safety Displays

Select output:

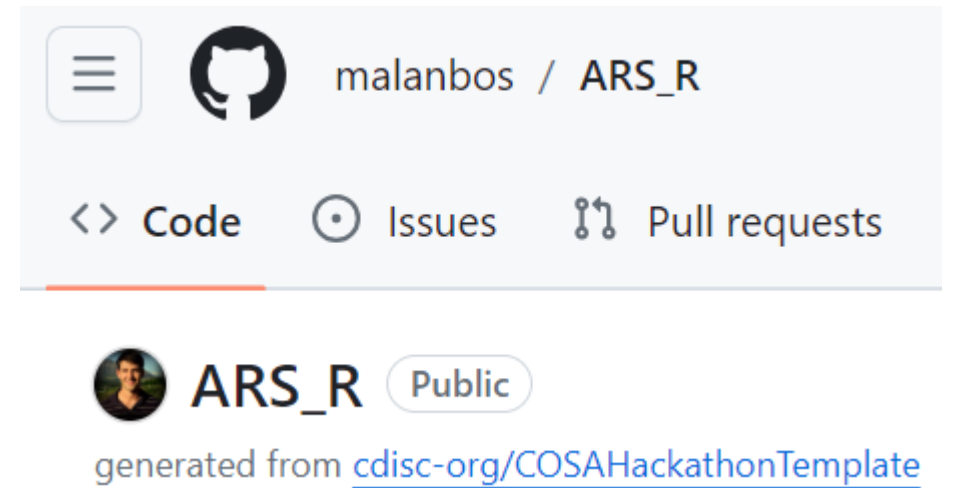
Out14-1-1

Show 100 entries

Analysis	Characteristic	Placebo	Xanomeline High Dose	Xanomeline Low Dose	p-value
		(N=86)	(N=84)	(N=84)	
Age (Years)					0.59340000000000004
	- p-value				
Age (Years)	n	86	84	84	
Age (Years)	Mean	75.2	74.4	75.7	
Age (Years)	SD	(8.59)	(7.89)	(8.29)	
Age (Years)	Median	76.0	76.0	77.5	
Age (Years)	Q1	69.0	70.0	71.0	
Age (Years)	Q3	82.0	80.0	82.0	
Age (Years)	Min	52	56	51	
Age (Years)	Max	89	88	88	



Github repo:



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