From ATLAS to predictive modeling

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INTRO:

- Advanced AI/ML modeling require Analytic panel data-set, as the Directorate of government medical centers in Israel had to provide such capabilities, we design an app to extract data-set based on ATLAS defined Cohorts and Concept sets.

Main Objectives:

1. Tool for data analyst.
2. Extract based on cohort and concept definition.
3. Output – Analytic panel dataset ready for predictive study

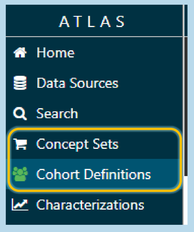
Prerequisites

1. IRB approval.
2. Defined cohorts.
3. Defined concept sets for each table.
4. Define concept sets for column definition.

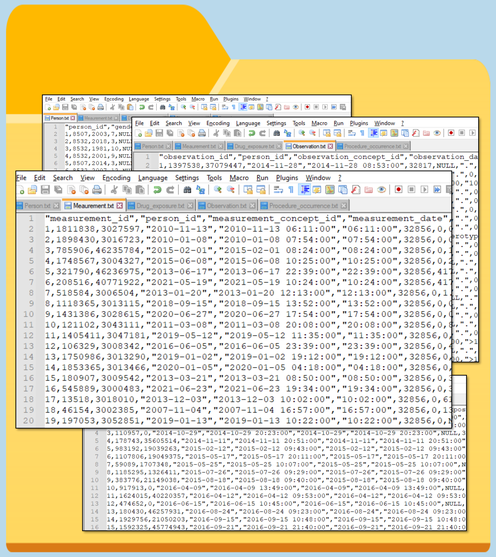
Execute flow

1. **Populate param file**
2. **Use Atlas API for concept set**
3. **Execute python to:**
   - **Extract each table data to CSV**
   - **Calculate Analytic panel CSV's dedicate to specific study and based on predefine concept sets.**

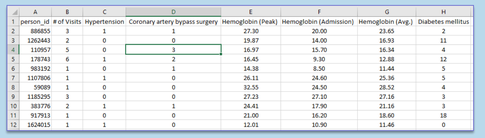
Create Analytical panel based on ATLAS definitions



1. Define cohorts and concept sets



2. Extract CSV from each table based on cohort and concept sets (OMOP table format)



3. Transform OMOP data set to '**Study dedicate Analytic panel**' based on concept sets (Per Person/Visit/Event)

User screens (illustration)

Extract data

Cohort number:	102,96		
Data required:	Concepts list (All for all)	Days before cohort entry date	Days after cohort entry date
Procedures occurrence	All		
Condition occurrence	StudyA_condition	100	50
Observation	StudyA_RiskFactors, StudyA_ChronicDisease	1056	
Drug exposure	All	0	3650
Death			
Visits_Occurrence	9201,9203		
Visit details			
Specimen			
Measurement			

Parameters file:

Source table	Concept list	Days_Before	Days_After
Procedure_occurrence	All	20000	20000
Condition_occurrence	StudyA_condition	100	50
Observation	StudyA_RiskFactors, StudyA_ChronicDisease	1056	20000
Drug_exposure	All	0	3650
Visits_Occurrence	9201,9203	20000	20000

Analytic panel

Analytic panel name:				
OMOP dataset location:				
Concept name:	Column name	Calculation (Count, sum, avg,..)	Days before cohort entry visit	Days after cohort entry visit
fine needle biopsy	Fine_needl_ biopsy_count	Count	0	0
....				

Extract concept set definition using OHDSi WebAPI

Parameters file:

Column name	Concept name	Source table	Concept list	Calculation	Days_Before	Days_After
Fine_needl_ biopsy_count	fine needle biopsy	Procedure_occurrence	4233645, 4106711, 4234685, 4171863	Count	0	0

Kineret web site

EHDEN portal

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kineret Israel hospitals data lake

OHDSI