ATLAS Training Guide

Background

To understand variations in populations based on a host of characteristics, characterizing populations using descriptive statistics is an important first step in generating hypotheses about the determinants of health and disease. Characterization can answer questions about disease natural history, treatment utilization, and quality improvement. Cohort characterization describes the baseline and post-index start date characteristics of patients in a cohort. These observations should be present in the person's history to be able to create a meaningful characterization analysis for them. Examples:

1. Conditions
2. Drug exposures
3. Device exposures
4. Procedures

Before you Begin

Cohort Definition

A set of persons which satisfy one or more inclusion criteria.

Cohort Characterization

The process of generating cohort level descriptive summary statistics from person level covariate data.

Feature Analyses

 A tool to summarize and describe features such as (gender, race, and age, etc.) from clinical observations in selected cohort(s).

Subgroup

A sample population under study based on different criteria(s).

Type of questions characterizations can answer

- What is the total count of patients in this database?

- What is the age distribution for patients?

- How long are patients in this database observed for?

- What is the proportion of patients having a treatment in a specific cohort?

- What are the conditions or procedures recorded over time for our patients under study?

Methods of Characterizations

Database-level characterization

Provides a top-level set of summary statistics to understand the data profile of a database in its totality.

Cohort characterization

Describes a population in terms of its aggregate medical history.

Treatment pathways

Describes the sequence of interventions a person received for a duration of time.

Incidence rate

Amongst the patients in target cohort who experienced the outcome cohort during the time at risk. For example, from patients newly diagnosed with atrial fibrillation, what is the chance of pneumonia in patients over 65?

How to define a Cohort Characterization

1. Click on the **C**haracterizations tab from the *Navigation Menu* in ATLAS.
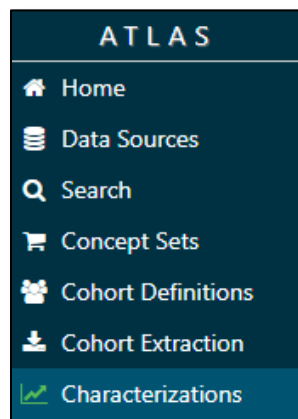
2. Click the **New Characterization** button on the top right.
3. Give the characterization a name on the top and click the green button to **save** it.

4. In the **Cohort Definitions** section, click **Import** to select a pre-defined cohort to use for your characterization analysis. Select a cohort of interest from the pop-up search window.

5. Next, we need to select analysis features so that ATLAS can characterize the data in your cohort. For example, if we wanted to see the demographic makeup of your cohort, you would select *Demographics* as a feature.

6. In the **Feature Analyses** section, click **Import** to choose the desired feature analyses. A list of preset features should appear in a pop-up window.

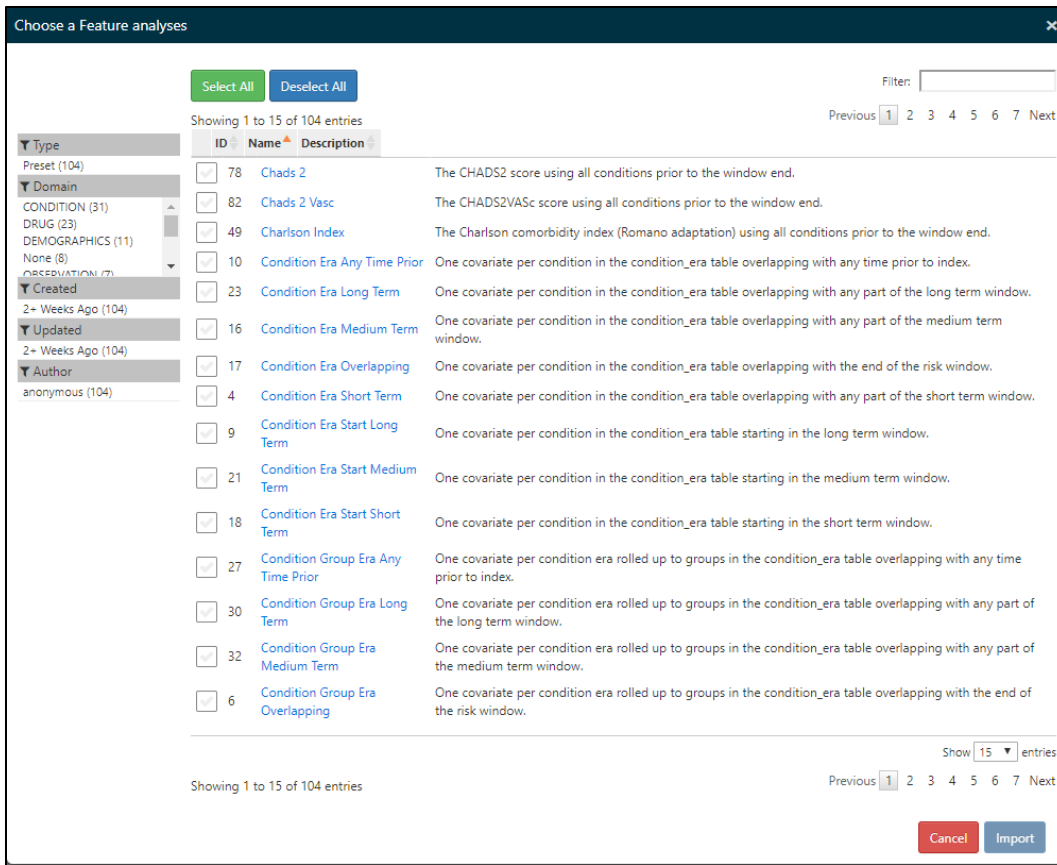7. From the pop-up window, select the feature you want to use by checking of the appropriate features you want to import. You can filter from the available list by domain or use the search bar on the top right. Click on the **Import** button to finalize your selection.

8. **Save** the changes using the green button on the top by your characterization name.

9. Now to see your characterizations, you will need to use the **Executions** tab and select **Generate** in order to create your analyses.

10. If you are interested in creating different characterizations based on different criteria you can also use **subgroup analyses** by adding criteria to the subgroup analyses section.

How to Do Subgroup Analysis

1. In **Subgroup Analyses** section click on the **New Subgroup** button.

2. Choose a name for your subgroup analyses.

3. Click **Add criteria to group** button in order to add criteria to your subgroup. You can filter from the available list by domain.
4. Next, if you are interested in investigating only the subgroup of interest separately from the original target cohort, you should mark the **Calculate subgroup analyses only** tab. Otherwise, keep that box empty to see an overall view of your analyses in reports.

5. Click the green **Save** button as before.
6. In order to view your results, select the **Executions** tab, select **Generate** to run the new subgroup analyses.
7. From the **View Latest Results** button, find the desired generated reports.

8. On the top left side of report use the **export** tab to download your results as a CSV file if needed.

   Note: Subgroup analyses in ATLAS are not the same as strata. Strata are mutually exclusive while subgroup may include the same patients based on the criteria chosen.

11. Additionally, the top of the page **Utilities** provides a JSON code format for the created characterization scenario in case you would like to share the characterization logic with another ATLAS user. If you want to share your code, copy and paste the JSON code and send to your collaborator. If you would like to use someone else's code, create your characterization record and save it. Instead of manually designing the characterization, you can go to the utilities page select the **Import** button and paste your collaborators code in the box. To finalize, click the white **Import** button.