AN EXAMPLE COVID STUDY IN TRINETX

Try following along with these steps in TNX to become familiar with building a COVID-related query. Please also refer to the Tip Sheet "Building Queries".

Let's find answers to these questions in TriNetX!

QUESTION #1

> **How many COVID-19 patients were inpatients at Stony Brook Hospital between 01 March 2020 and 01 March 2021? Of these –**
>
> **a.   how many were male? how many were female?**
> **b.   what percentage were Black or African American?**

1. **Set the Network:** Choose Stony Brook University

2. How to ask TNX for SB patients diagnosed with COVID-19 between 01 March 2020 and 01 March 2021:

   a. Add the relevant COVID-19 terms to the query using the Must Have search field, and ensure logic is set to "OR" between each term:

   - Coronavirus Infection (B34.2)

   - Other coronavirus as the cause of diseases classified elsewhere (B97.29)

   - Pneumonia due to SARS-associated coronavirus (J12.82)

   - COVID-19 (U07.1)

   - COVID-19, virus not identified (WHO) (U07.1)

   - SARS coronavirus 2 and related RNA [Presence] (9088) – select the funnel to filter for Positive results only

   (note: this is a roll-up lab term offered by TNX to simply our queries)

b. **Add term to Cannot Have search field to exclude:**

> **Note:** This code is a special case due to the change from ICD-9 to ICD-10, and the older coding prior to the new diagnoses associated with the COVID-19 virus. Although we did not use this code at Stony Brook, other institutions in the networks did. I recommend including it, which gives you freedom to switch networks with the same query confidently.

- Other specified viral infection (079.89)
  To add this code, type "Other specified viral infection" in the Cannot Have search field. You will see many choices.

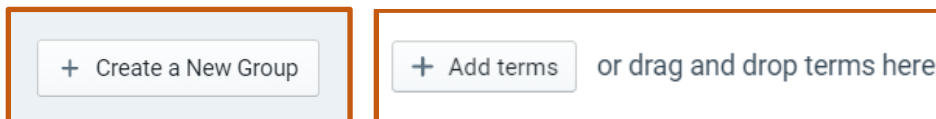 Click on the blue organization symbol next to one of the results.

- Click the checkbox to Show ICD-9 terms. Then click the blue arrow next to the top result to see the codes underneath. Select 079.89 Other specified viral infection and add it to your query.
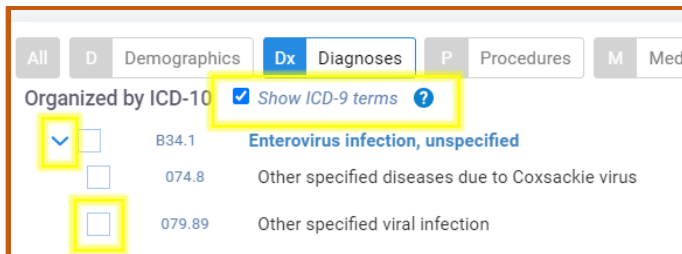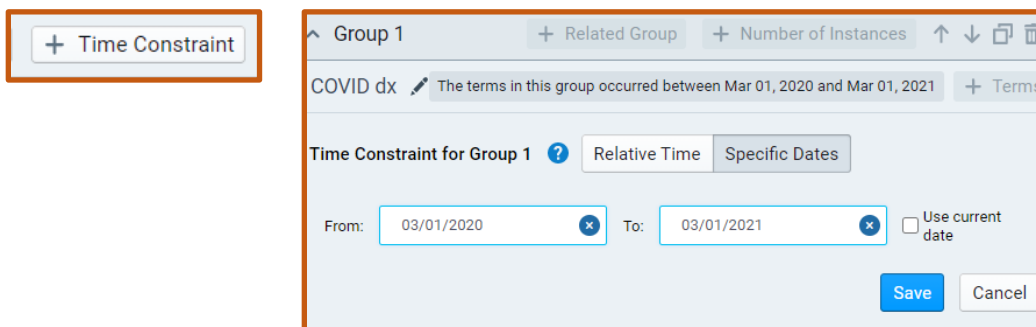

c. **Create constraints for the time period**

Create a New Group (Group 1) and add your COVID terms. Name the group "COVID Dx".

Within the group, click Time Constraint and enter the specific dates – 03/01/2020 - 03/01/2021.

d. Now add the hospital admission to your query, and associate it with the COVID diagnosis.

   Add, at minimum, this hospital admission term for Stony Brook
   Visit: Inpatient Encounter

   To expand results, you might also consider adding:

   Initial Inpatient Consultation Services (1013699)
   Initial Hospital Inpatient Care Services (1013660)
   Visit: Short Stay

   **Tell TNX that the admission term is associated with the COVID diagnosis**

   - Click on "Related Group" in Group 1. In this new box, choose "Add Terms", and select the hospital admission term. Now you see we have 1A and 1B boxes in Group 1. Name the 1B Group: Inpatient.

   - "Set the Relationship" between the COVID dx and the admission, so that any instance of 1B occurred within 4 days before and up to 4 days after the FIRST instance of 1A. You might choose a different time range or instance status that best fits your clinical picture.

e. Count your patients and name your Query! Perhaps something like "COVID Admit SB Mar2020-Mar2021".

3. Let's answer our sub-questions.

   a. How many were men? How many were women?
      There are 2 ways to get these numbers.

      Method 1: A simple method is to create a New Query, and specify the sex of the patients returned. Click to create a New Query, then choose to Import a query. Select this current study, and choose the query you just created. Click to Import.

      Now, you just edit that imported query by selecting by sex, saving, and naming your query to indicate the change. Do this two times, once for male and again for female, to make two additional queries.
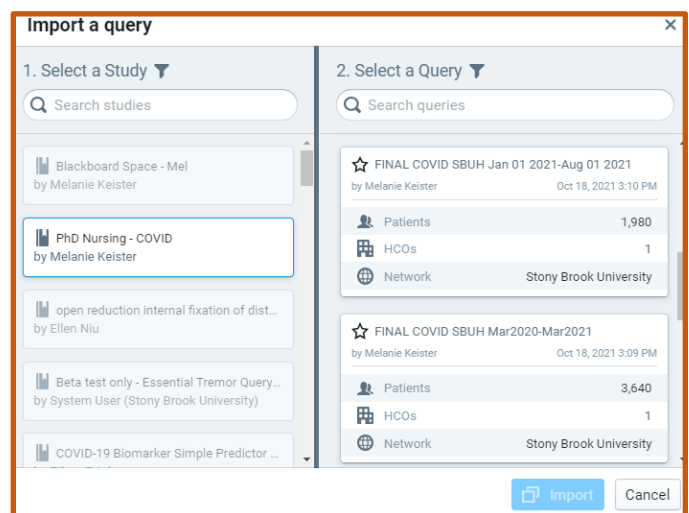
Method 2: Another way to get these numbers is to
Run "Explore Cohort" from the menu on the left side. Within Demographics, you will
see the percentages of Male versus Female for the patients in your cohort. You can
calculate the numbers based on the percentages displayed and the total patient
count.

b. **What percentage were Black or African American?**

In your original query including all sexes, click Explore Cohort, and Run it. In the
demographics section, you will find the percentages of patients in your cohort by
race and ethnicity as documented in our EMR.

QUESTION #2

**How many COVID-19 patients were inpatients at Stony Brook
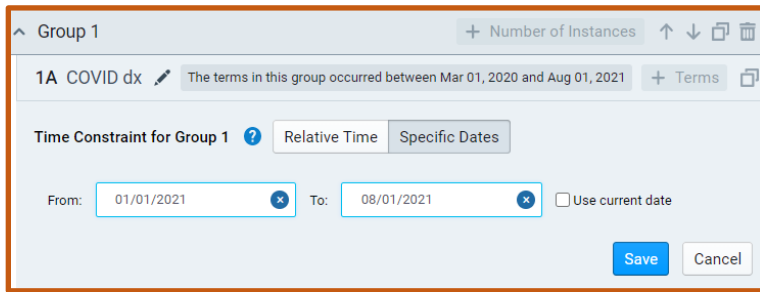Hospital between 01 January 2021 and 01 August 2021? Of these –**

a. what is their mean age?

b. how many were over aged 80?

c. how many had a length of stay over 30 days ?

The easiest way start this query is to Import your original query for the time period of
March2020-March2021 and modify it. This way, you don't need to re-enter all the codes and re-
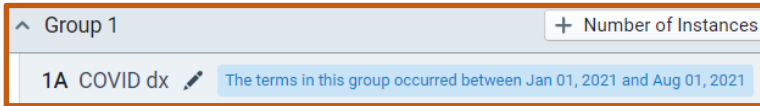create groups.

1. **Click New Query, and select Import Query**. Choose your study, then choose the query you
    named **"COVID Admit SB Mar2020-Mar2021"** to import.

2. **Rename your new query to COVID Admit SB Jan2020-Aug2021**.

3. **Edit your original time constraints to reflect the new dates.**
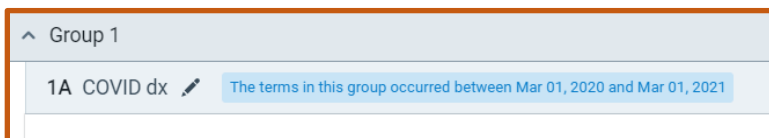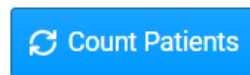
Click on the blue bar to edit the time
constraint.

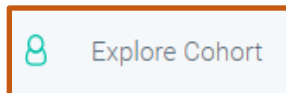Edit the dates to 01/01/2021 thru 08/01/2020, then Save.

Looks good now!

4. **Count your patients!**

5. **Now let's answer our sub-questions.**

   a. What is the mean age of our patients?

   Click Explore Cohort on the left side menu, and click to Run.
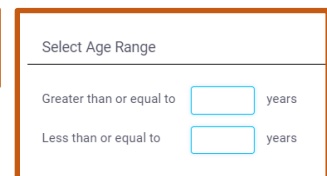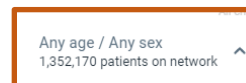
   In the Demographics section, the mean age is displayed.

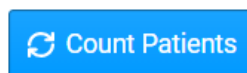   b. How many were over the age of 80?

   Here are the two methods to get this answer:

   Method 1: Create a new query by importing **COVID Admit SB Jan2020-Aug2021**. Change the name of this new query to **COVID >80 Admit SB Jan2020-Aug2021.**
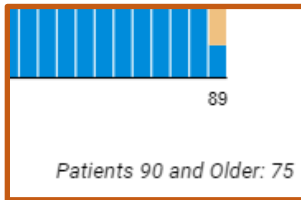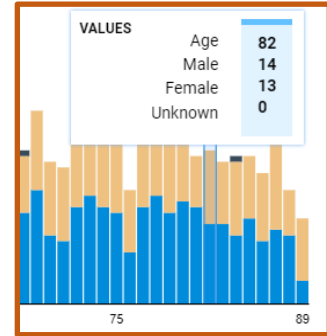
   Click to edit the age inclusion, enter the ages for your query, and Save Criteria.

   Count your patients!

<u>Method 2</u>: Count the numbers on each age bar on the Demographics graph in Explore Cohort. This will give you totals for patients up to age 89.

Then, add the number given for patients over age 90 in the lower right of the graph to get your final number.

c. How many had a length of stay over 30 days?

For best results from queries related to length of hospital stay, I recommend using a downloaded dataset from your query cohort.

The TNX term "Visit: Inpatient Encounter" is only one instance for as long as that patient is in hospital, and the length of that encounter cannot be successfully queried in TNX. Within the dataset, however, you will find columns for the start and end dates of Inpatient Encounters on the encounter tab. Filter for "type = IMP" to exclude other encounter types experienced by your cohort, limiting to those with a start date of **20210101.** You should also ensure that you take note of multiple entries per TNX synthetic patient ID.