Informatics for Integrating Biology & the Bedside

i2b2 Workbench Tutorial

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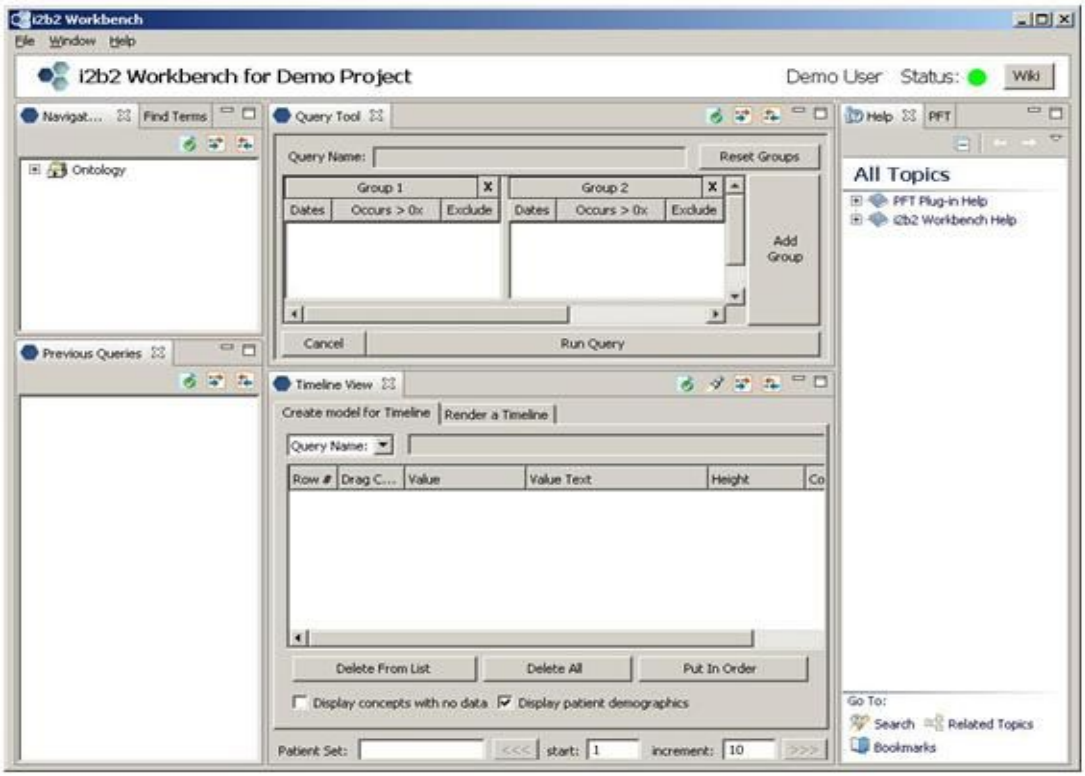
1. Introduction

Follow along for a step by step example of how to use the i2b2 Workbench Query Tool. For ease of use, please access this tutorial via the Help->Help Contents menu item when in the i2b2 Workbench application.

2. i2b2 Workbench Desktop



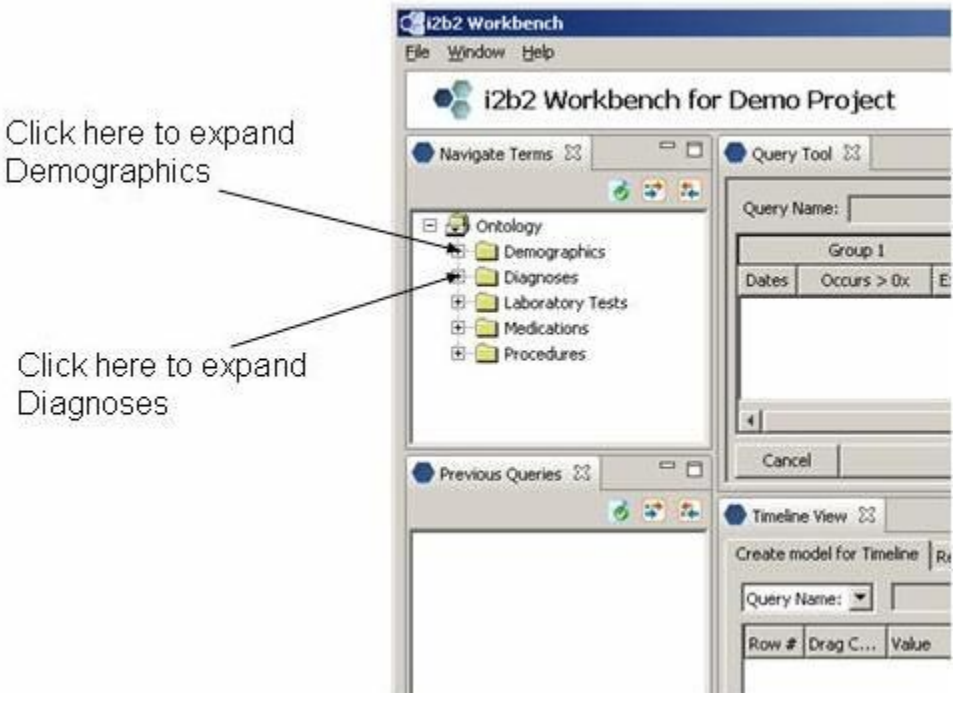
3. An Example

Suppose we wanted to search for women who were diagnosed at some time with Asthma.

4. Selecting Query Criteria

- In order to create your query, you will choose patient demographics and diagnoses from the Navigate Terms tab on the left and place them in the Query Tool Group Panels to the right.
- To choose Navigate Terms query items, click the '+' sign to the left of the item. This expands the tree menu for you to see the choices available. When you see the item you want to select, click on it and, while holding down the left mouse button, drag it to one of the Group Panels. Continue until all criteria of the population you want to include are in one of the Group Panels.
- The way to build your query with the Group Panels is this: If you add items to the same panel, you logically 'OR' the items (you broaden the population to include all patients who fit either one of those criteria). If you put items in a different panel, you logically 'AND' the items (you limit the population by requiring that the patients must fulfill both requirements).
- In our example, we want to find all female patients who have Asthma. These two items are dragged to two different Group Panels to limit our patient population to those two criteria.

5. Navigate Terms Tab



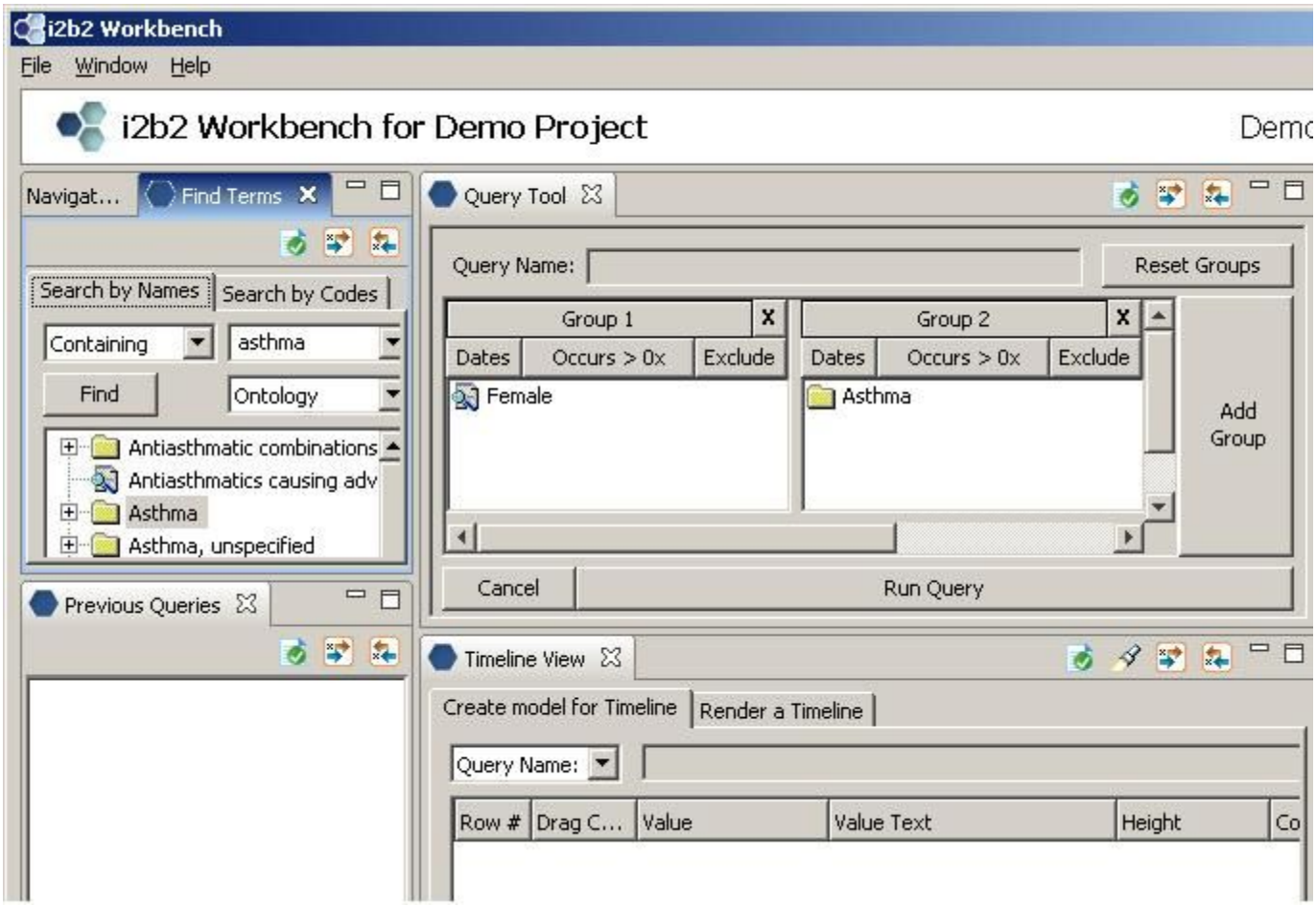
6. Selecting Demographics and Diagnoses

Since we want to find the intersection of the population of female patients with those patients diagnosed with Asthma, we place these items in separate Group panels.

- Click on 'Ontology', then on 'Demographics', then on 'Gender' and drag the item 'Female' to Group Panel 1.

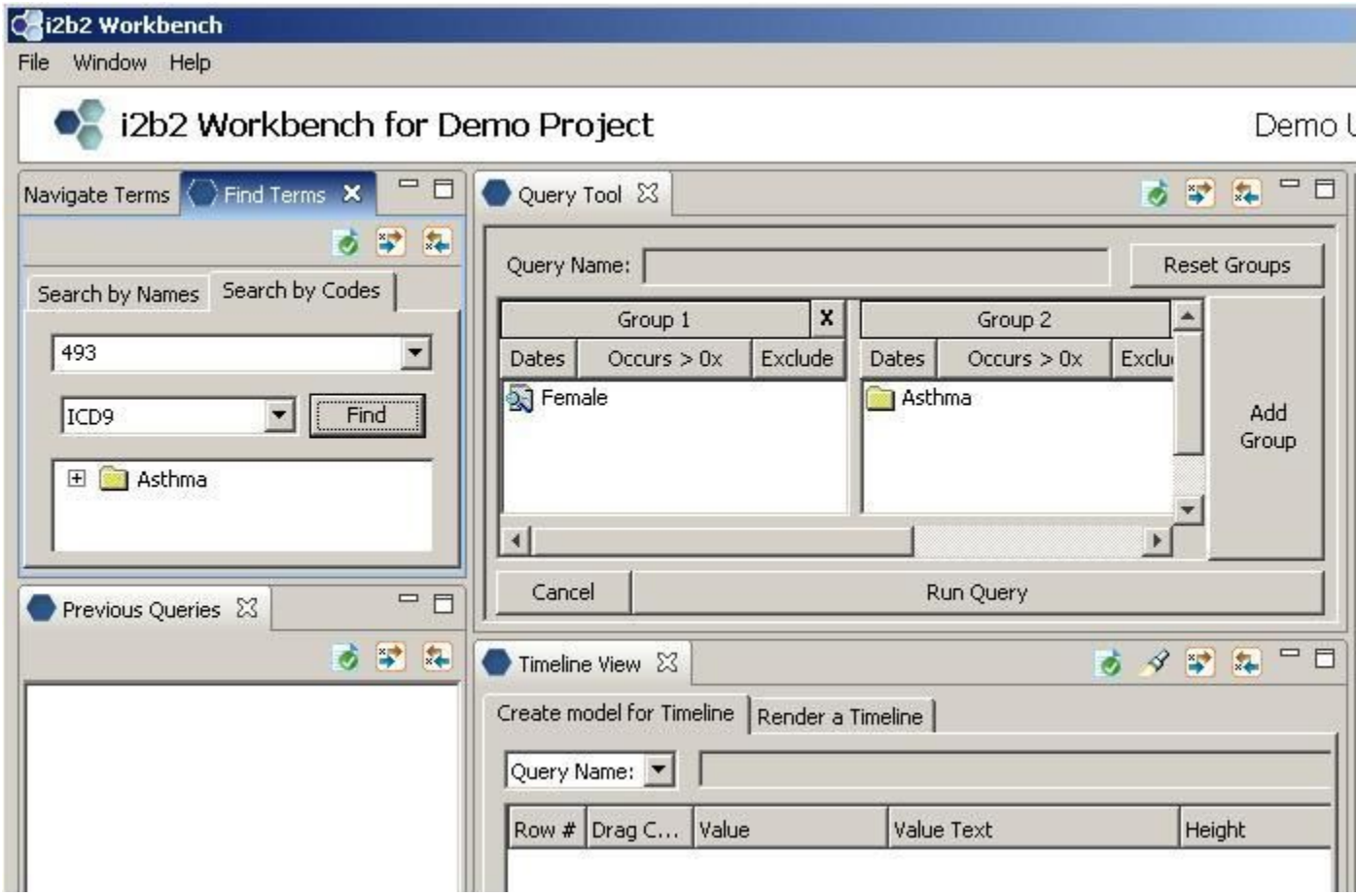
- Click on 'Diagnoses' then on 'Respiratory system', then on 'Chronic obstructive diseases, and drag the item 'Asthma' to Group Panel 2.

7. Using Find Terms Search by Names Tab to Locate Diagnoses



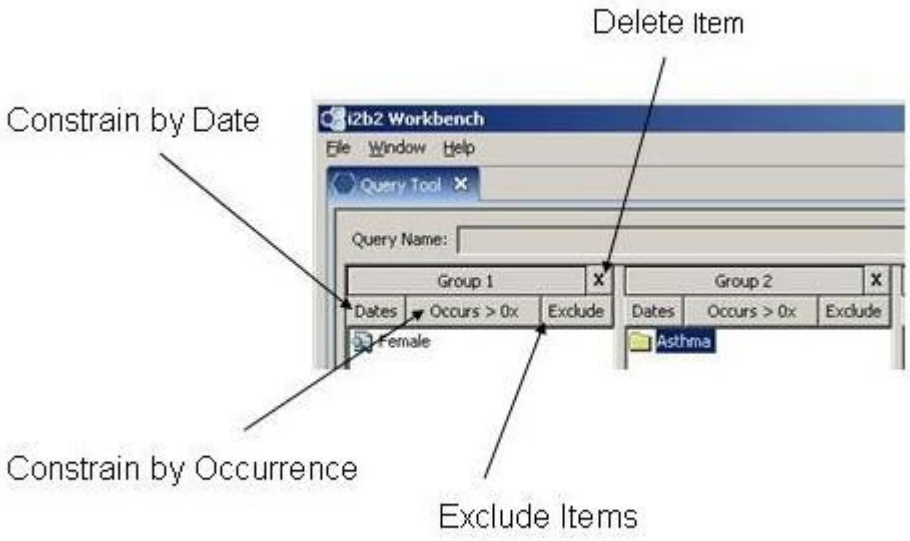
Choose 'Ontology' from the drop-down box, type in a text string (like 'Asthma' in our example), and click on 'Find'.

8. Using Find Terms Search by Codes Tab to Locate Diagnoses



Enter 'ICD-9' from the drop-down box, type in a text string (like '493' in our example), and click on 'Find'.

9. Constraining Items in the Group Panels



Constrain by Date: Specify a date range for an item by clicking on 'Dates'

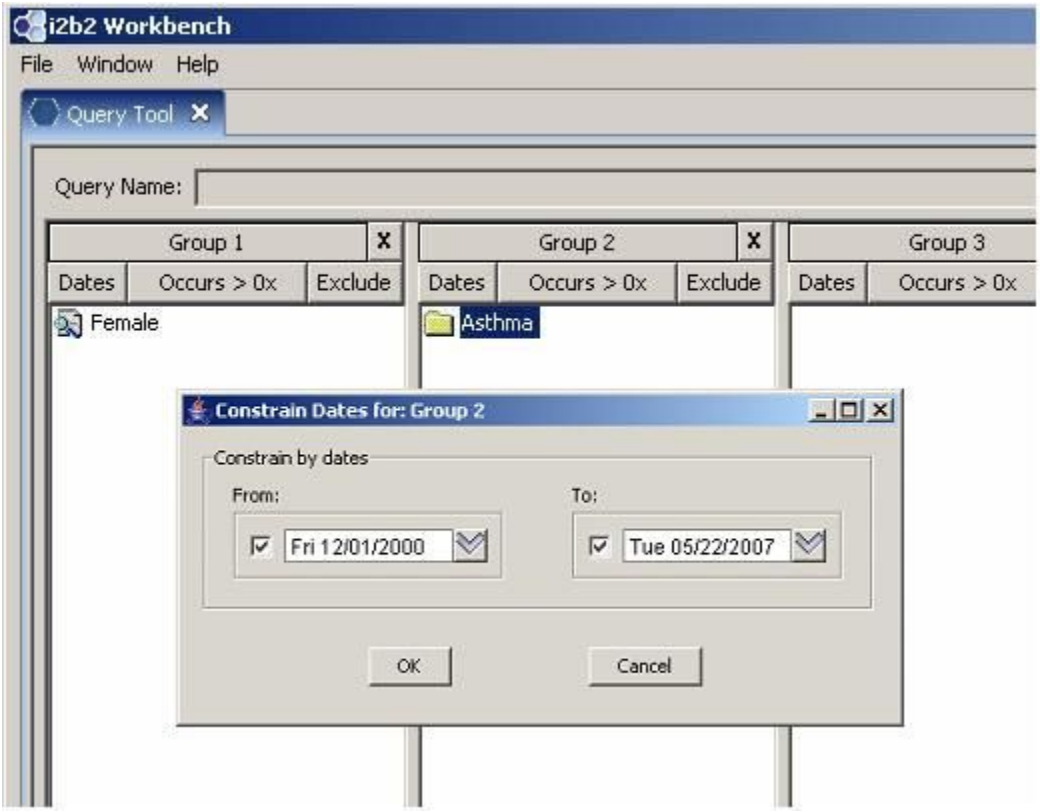
Constrain by Occurrence: Specify minimum number of occurrences for an item by clicking on 'Occurs > 0x'

Exclude Items: Specify the query criteria to be the inverse of the selected items by clicking on 'Exclude'

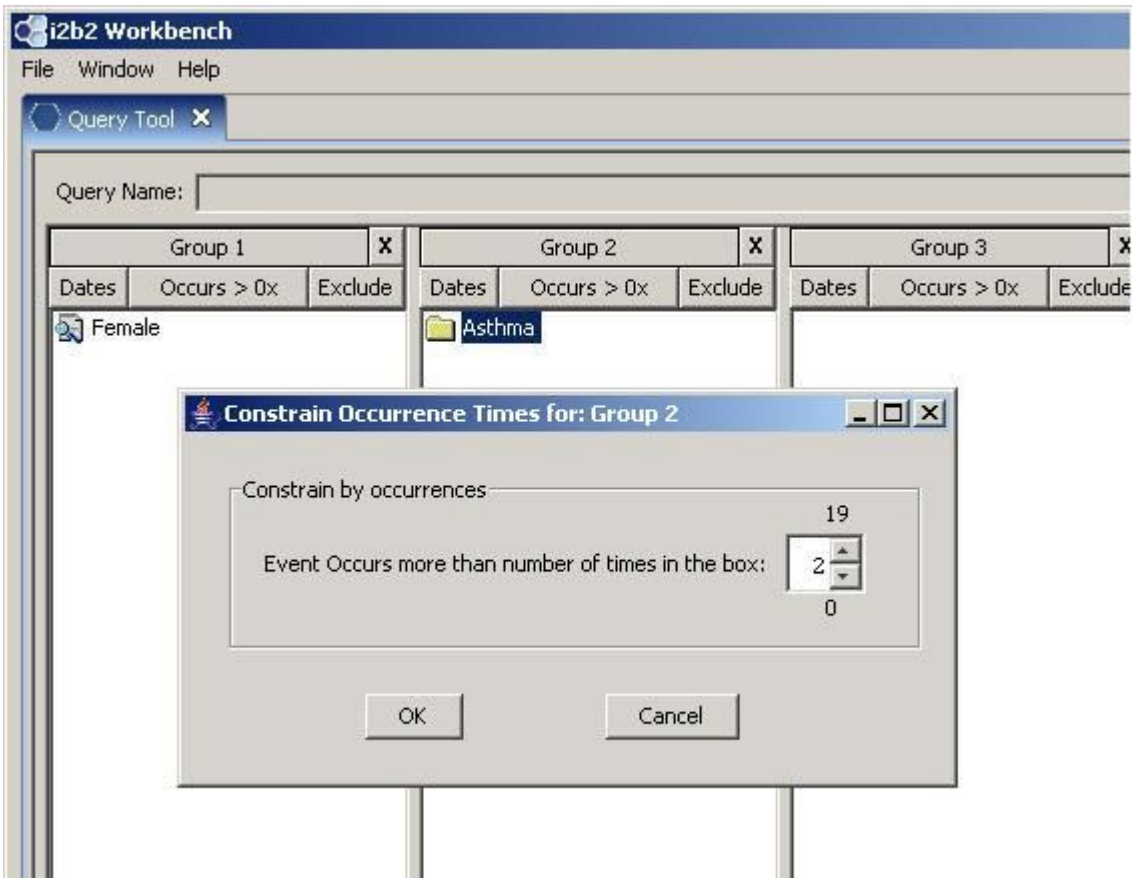
Delete Item: Right click on item to remove from the Group Panel or select item and click on 'X'

10. The Constraint Panel

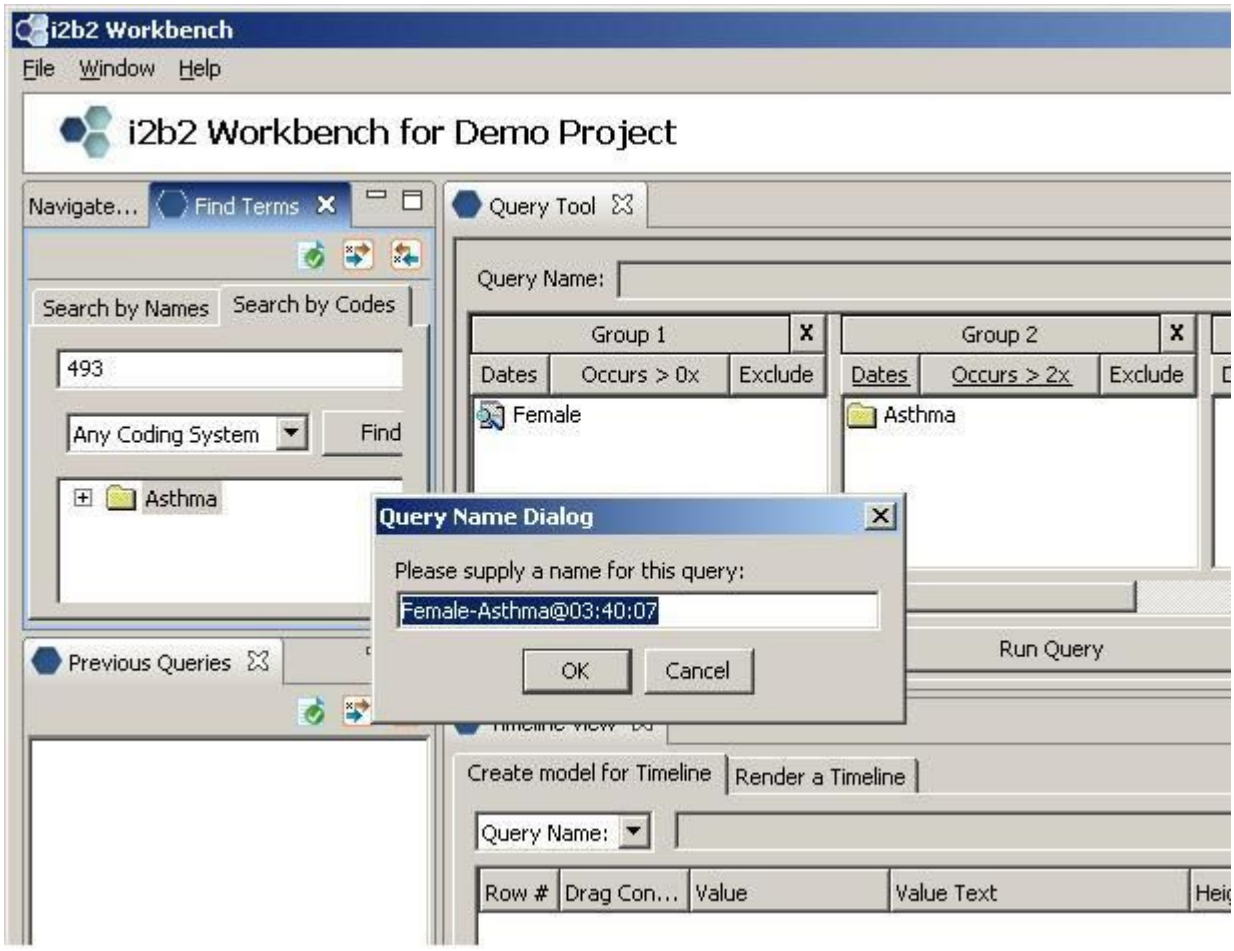
You can constrain the dates on an item by clicking in the From: and To: check boxes and specifying the dates, either by selecting the month/day/year and typing over them or by clicking the triangle and then clicking on dates in the drop-down calendar. You can choose to not constrain by dates From: or To: by un-checking the check boxes in front of the dates.



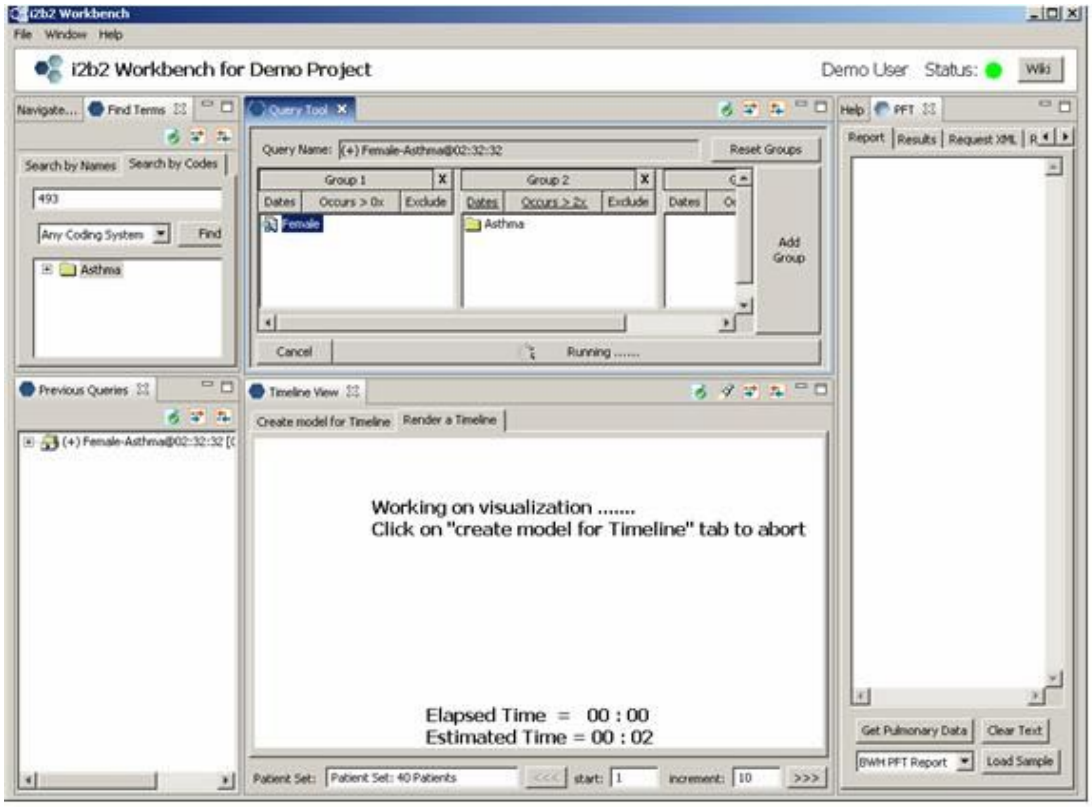
You can constrain an item by occurrence (only show events occurring more times than the number entered) by clicking the arrows or entering the number directly.


i2b2 Workbench
File Window Help
Query Tool
Query Name:
Group 1
Group 2
Group 3
Dates
Occurs > 0x
Exclude
Female
Asthma
Constrain Occurrence Times for: Group 2
Constrain by occurrences
19
Event Occurs more than number of times in the box:
2
0
OK
Cancel

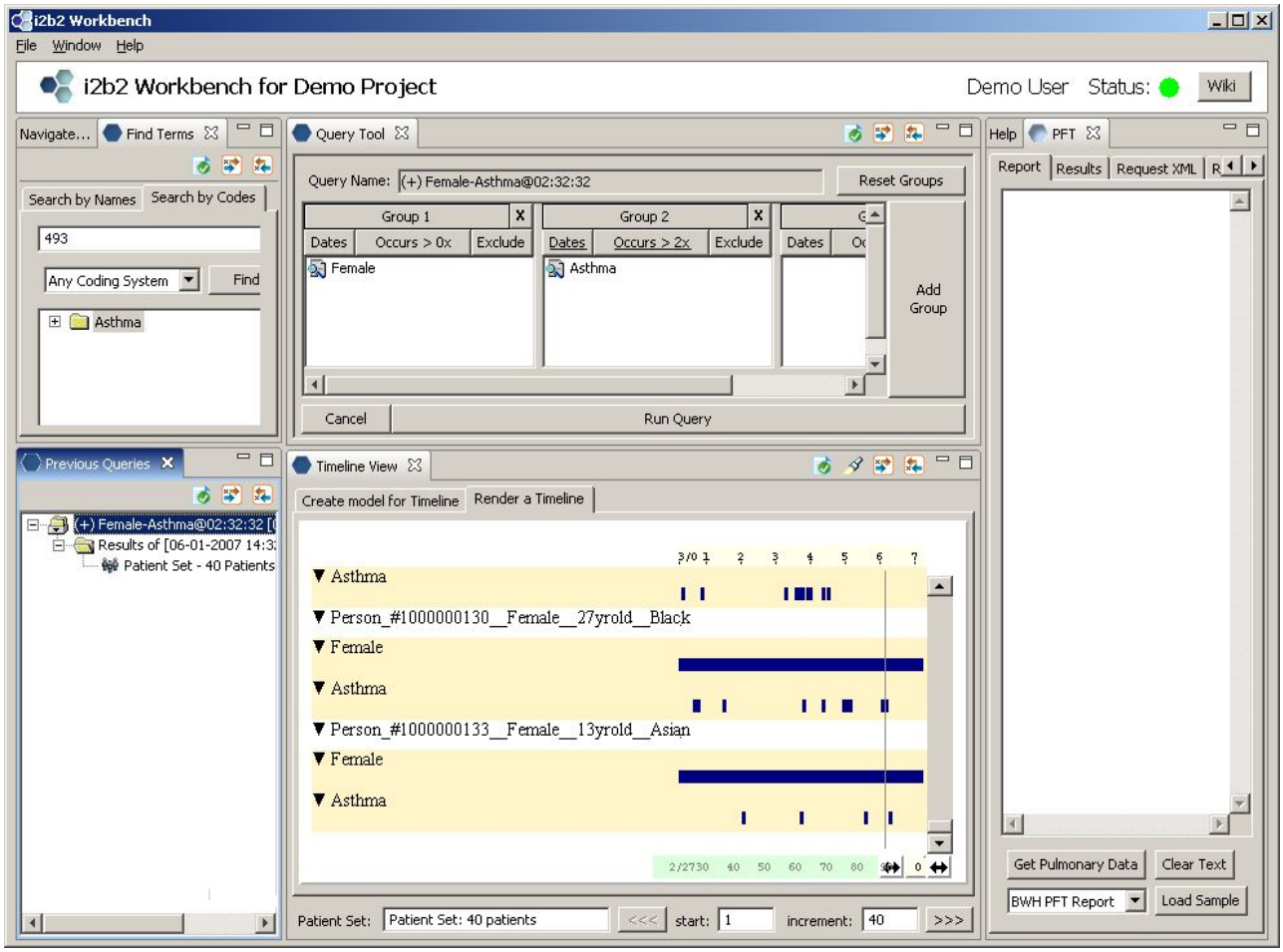
11. Running the Query



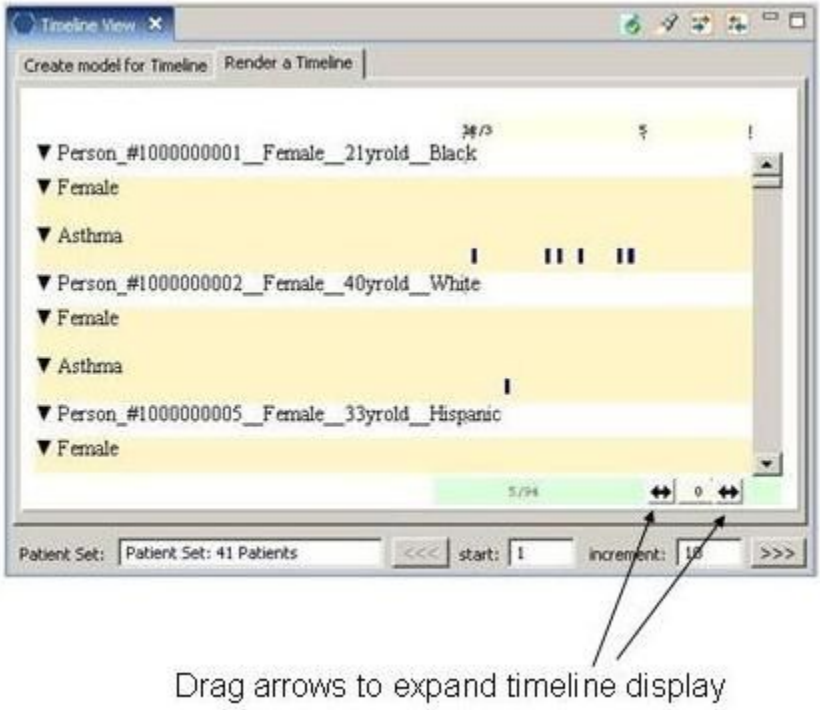
12. While the Query is Running



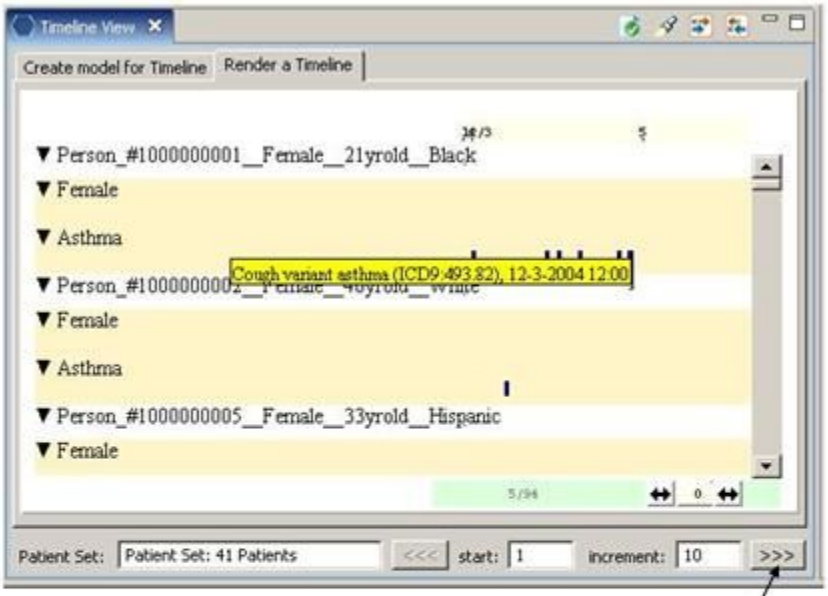
13. Query Results



14. The Timeline Display



Place cursor over timeline tick to get event details.

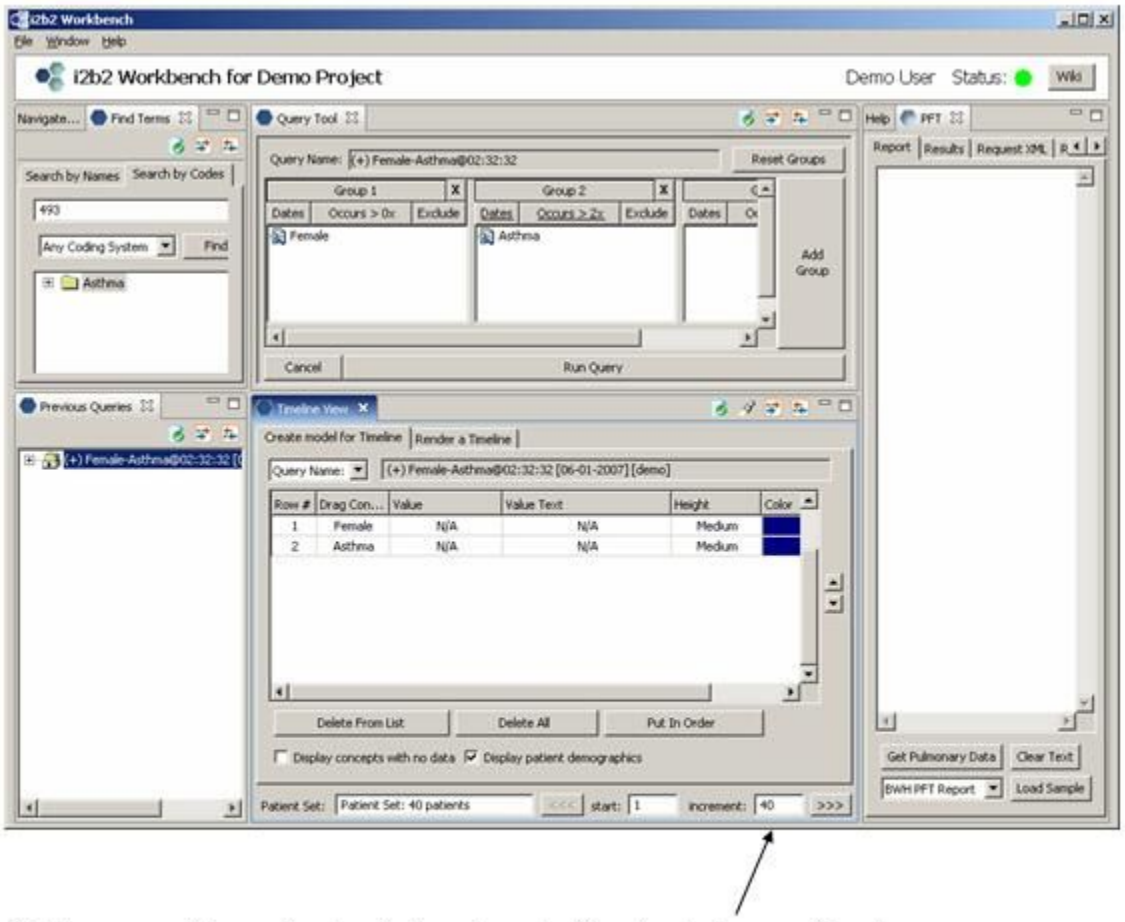


Click on increment button to get next 10 patients

15. Displaying a Previous Query

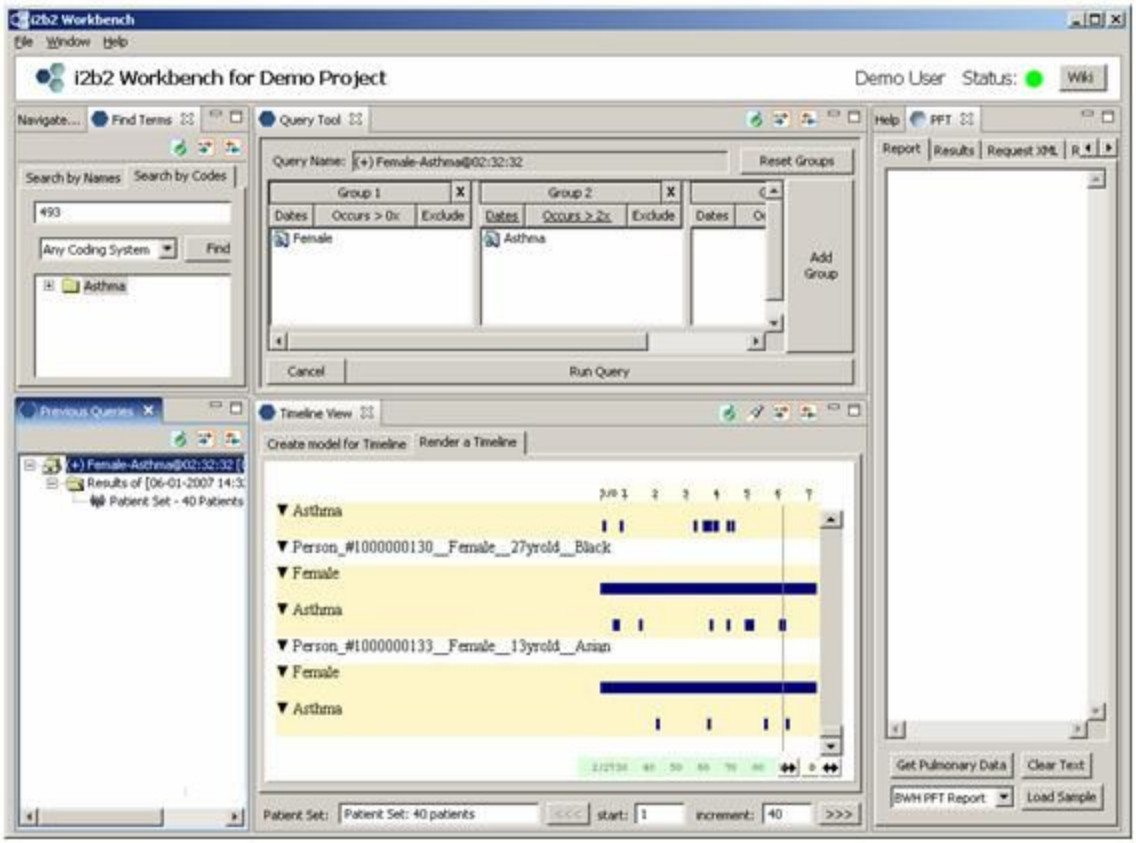
Suppose we want to revisit a previous query and display all the patients in the query

- Click on the previous query, and drag it to the Create model for Timeline tab in the Timeline.
- Default setting is Display patient demographics. This provides a title containing gender, age and race for each patient.
- In order to view all patients in one timeline, set the increment field equal to the total number of patients (40).



16. Display All Patients in a Query

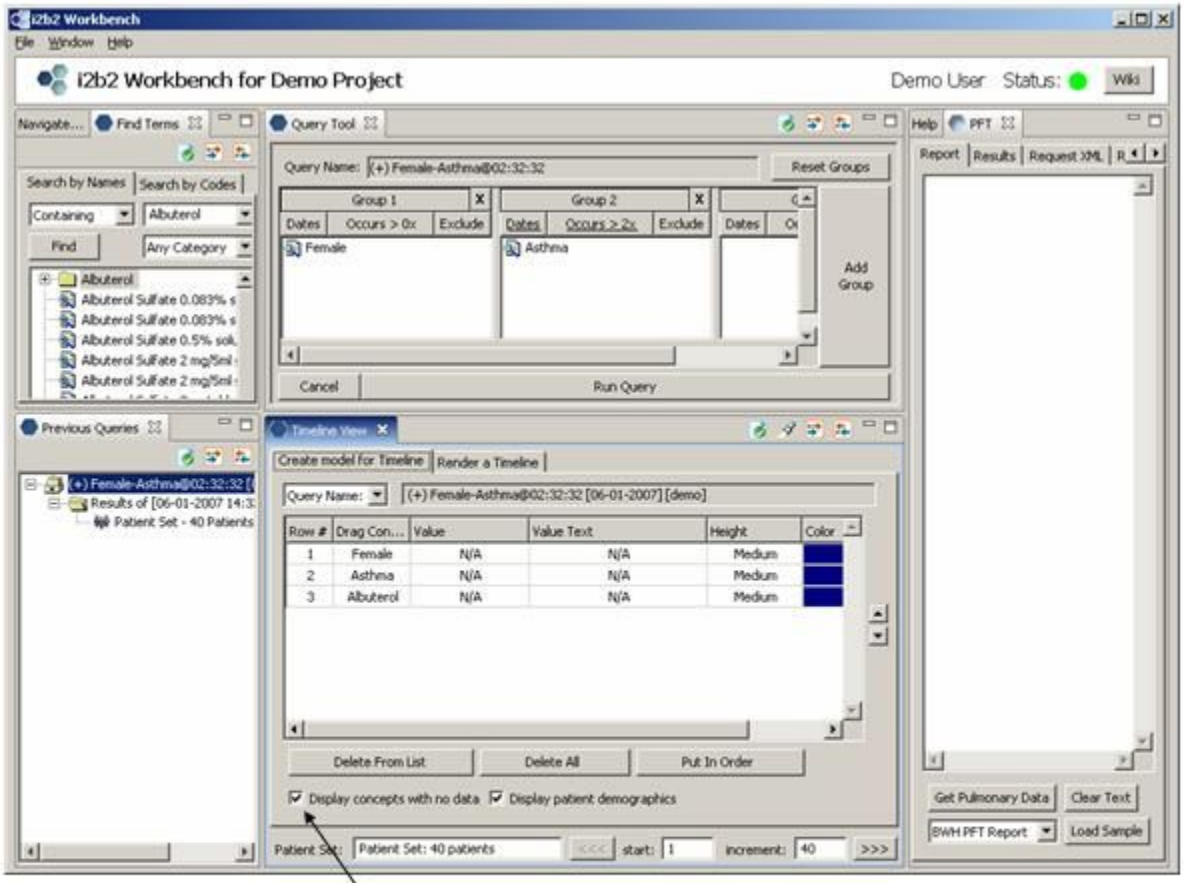
After we create the model, click on the Render a Timeline tab.
Scroll to see all 40 patients. Each patient is labeled with gender, age and race.



17. Refining a Previous Query

Suppose we want to refine a previous query and determine which patients were prescribed Albuterol.

- Start by dragging our previous query into the Create model for Timeline tab.
- Click on the Find Terms Search by Names tab, enter Albuterol and select 'Find'.
- Drag the Albuterol folder into the Create model for Timeline tab. Select Display concepts with no data. This provides an 'Albuterol' label for all patients, even those that have not been prescribed it.
- In order to view all patients in one timeline, set the increment field equal to the total number of patients (40). Double click on the Timeline View tab to expand the timeline's viewing area



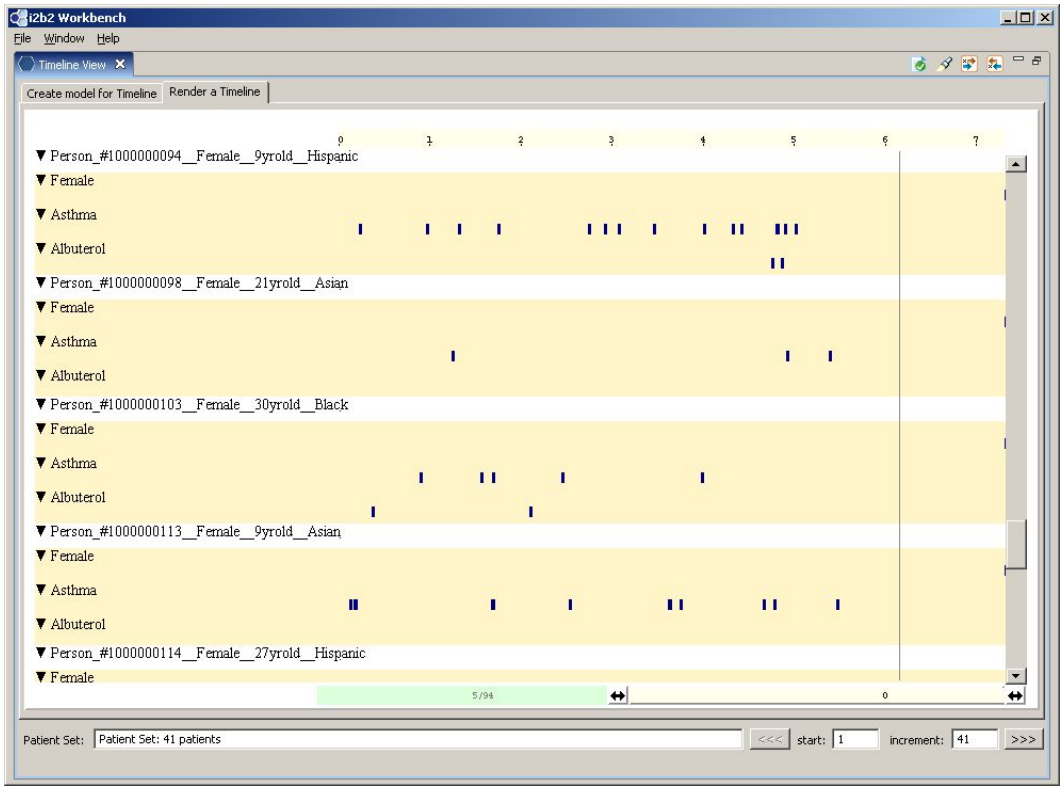
Set Display concepts with no data

18. Render the Refined Previous Query

Click on the 'Render a Timeline' tab

Scroll to see all patients.

In our example, Person#1000000094 has two occurrences of Albuterol. Person#1000000098 has no occurrences.



Double click on the Timeline View tab to return to the normal workbench display.