

DCCR Query Interface

Find Patients (Cohort Finder) Analysis Tools

The screenshot shows the i2b2 Query & Analysis Tool interface. The top bar includes the title "i2b2 Query & Analysis Tool", the project name "Project: RCDR", and the user "User: i2b2 User". The interface is divided into several main sections:

- Find Terms (Top Left):** A tree view showing a hierarchy of terms under "Ontology". Categories include Demographics (Age, Distance from HMC, Gender, Language, Marital Status, Race, Religion, Vital Status), Diagnoses, and Disposition. Red annotations point to "Find Terms" and "Navigate Terms" buttons.
- Query Tool (Top Right):** A workspace for building queries. It shows a "Query Name" field with "PATIENTSET@11:29:27" and a "Temporal Constraint" dropdown set to "Treat all groups independently". Below this are three "Group" tabs (Group 1, Group 2, Group 3) with columns for "Dates", "Occurs > 0x", and "Exclude". A red annotation points to the "Query Tool" header.
- Workplace (Middle Left):** A workspace for saving and managing queries. It shows a tree view with folders like "demo" and "Test", and specific query entries such as "HCO3 - BICARBONATE", "Inpatie-UWMC@10:37:23 [1-22-2013] [demo]", and "Patient Set for 'Inpatie-UWMC@11:00:46' - FINISHED". A red annotation points to the "Workplace" header.
- Previous Queries (Bottom Left):** A list of recently used queries, including "PATIENTSET@11:29:27 [1-22-2013] [demo]", "HMC-Inpatie@02:15:00 [1-22-2013] [demo]", and others. A red annotation points to the "Previous Queries" header.
- Query Status (Bottom Right):** A panel showing the results of the current query. It displays "Finished Query: 'PATIENTSET@11:29:27'" with a compute time of 85 seconds and a patient count of 42270. A red annotation points to the "Query Status" header.

Red annotations with arrows point to various UI elements: "Find Patients (Cohort Finder)" points to the "Find Patients" button in the top right; "Analysis Tools" points to the "Analysis Tools" button in the top right; "Find Terms" points to the "Find Terms" button in the top left; "Navigate Terms" points to the "Navigate Terms" button in the top left; "Display Options" points to a small icon in the top right of the "Find Terms" panel; "Workplace" points to the "Workplace" header in the middle left; "Previous Queries" points to the "Previous Queries" header in the bottom left; "Query Tool" points to the "Query Tool" header in the top right; and "Query Status" points to the "Query Status" header in the bottom right.

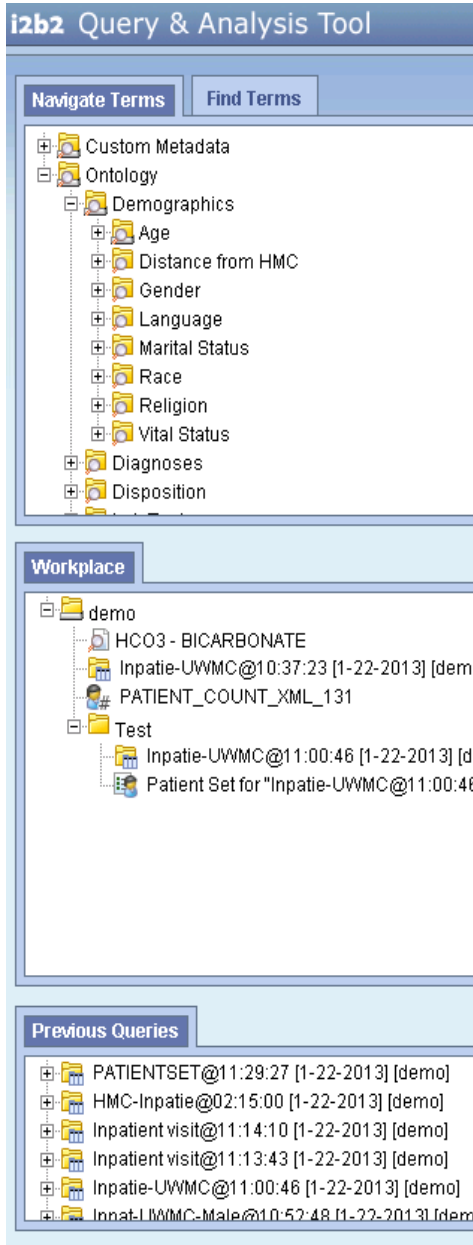
DCDR Query Interface – cont.

The screenshot displays the i2b2 Query & Analysis Tool interface. The top navigation bar includes the tool name, project (RCDR), user (i2b2 User), and utility links (Find Patients, Analysis Tools, Message Log, Help, Logoff). The interface is divided into several main sections:

- Navigate Terms:** A tree view on the left showing a hierarchy of terms under 'Ontology' and 'Demographics'. Red text 'Navigate Terms' points to this section.
- Display Options:** A set of icons (back, forward, refresh, save) in the top right of the 'Navigate Terms' panel. Red text 'Display Options' points to these icons.
- Workplace:** A central workspace showing a tree of saved queries and patient sets. Red text 'Workplace' points to this section.
- Previous Queries:** A list at the bottom left showing a history of executed queries. Red text 'Previous Queries' points to this section.
- Query Tool:** A right-hand panel for building and running queries. It shows a query name, temporal constraints, and a visual query builder with three groups and an 'AND' connector. Red text 'Workplace' also points to the 'Workplace' section.
- Query Status:** A bottom right panel showing the results of the current query, including the number of patients (42270).

Red annotations include circles around the 'Navigate Terms' and 'Workplace' tabs, and arrows pointing from the text labels to their respective interface elements.

Navigate, Workplace, Previous Panels



Navigate Terms Panel

- Hierarchical display of the folders and concepts that can be used to query

Workplace Panel

- Save and organize items
- Any folders and concepts can be added

Previous Queries Panel

- Previous Query is automatically created when a query is run
- Can be used to run new queries or to populate other views

DCCR Query Interface – cont.

i2b2 Query & Analysis Tool Project: RCDR User: i2b2 User Find Patients | Analysis Tools | Message Log | Help | Logout

Navigate Terms **Find Terms**

Find Terms

- Custom Metadata
- Ontology
 - Demographics
 - Age
 - Distance from HMC
 - Gender
 - Language
 - Marital Status
 - Race
 - Religion
 - Vital Status
 - Diagnoses
 - Disposition

Workplace

- demo
 - HCO3 - BICARBONATE
 - Inpatie-UWMC@10:37:23 [1-22-2013] [demo]
 - PATIENT_COUNT_XML_131
 - Test
 - Inpatie-UWMC@11:00:46 [1-22-2013] [demo]
 - Patient Set for "Inpatie-UWMC@11:00:46" - FINISHED

Query Tool

Query Name: PATIENTSET@11:29:27

Temporal Constraint: Treat all groups independently

| Group 1 | | | Group 2 | | | Group 3 | | |
|--|-------------|---------|---------------------|-------------|---------|---------------------|-------------|---------|
| Dates | Occurs > 0x | Exclude | Dates | Occurs > 0x | Exclude | Dates | Occurs > 0x | Exclude |
| Treat Independently | | | Treat Independently | | | Treat Independently | | |
| Patient Set for "Inpatie-UWMC@11:00:46" - FINISHED | | | | | | | | |

one or more of these AND drop a term on here

Run Query Clear Print Query 1 Group New Group

Previous Queries

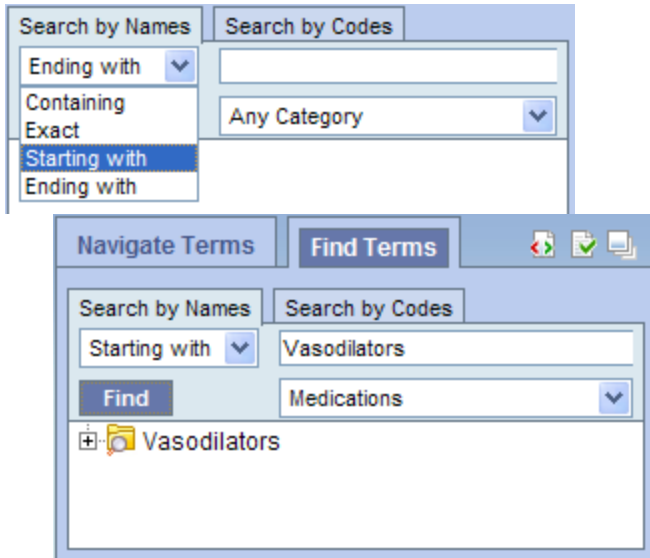
- PATIENTSET@11:29:27 [1-22-2013] [demo]
- HMC-Inpatie@02:15:00 [1-22-2013] [demo]
- Inpatient visit@11:14:10 [1-22-2013] [demo]
- Inpatient visit@11:13:43 [1-22-2013] [demo]
- Inpatie-UWMC@11:00:46 [1-22-2013] [demo]
- Innat-UWMC-Male@10:52:48 [1-22-2013] [demo]

Query Status

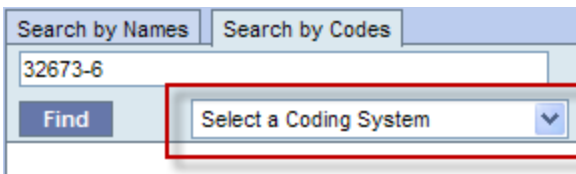
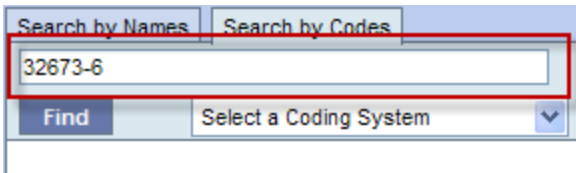
Finished Query: "PATIENTSET@11:29:27" [68.2 secs]
Compute Time: 65 secs

Number of patients for "PATIENTSET@11:29:27"
patient_count: 42270

Find Terms



- Search by Name
 - Select one of the search options
 - Select **Category** to narrow your search
 - Click on the **Find button**



- Search by Code
 - Enter the search in the text box
 - Select **coding system** from the drop-down list
 - Click on the **Find button**

DCCR Query Interface – cont.

The screenshot displays the i2b2 Query & Analysis Tool interface. The top navigation bar includes "Project: RCDR", "User: i2b2 User", and links for "Find Patients", "Analysis Tools", "Message Log", "Help", and "Logout".

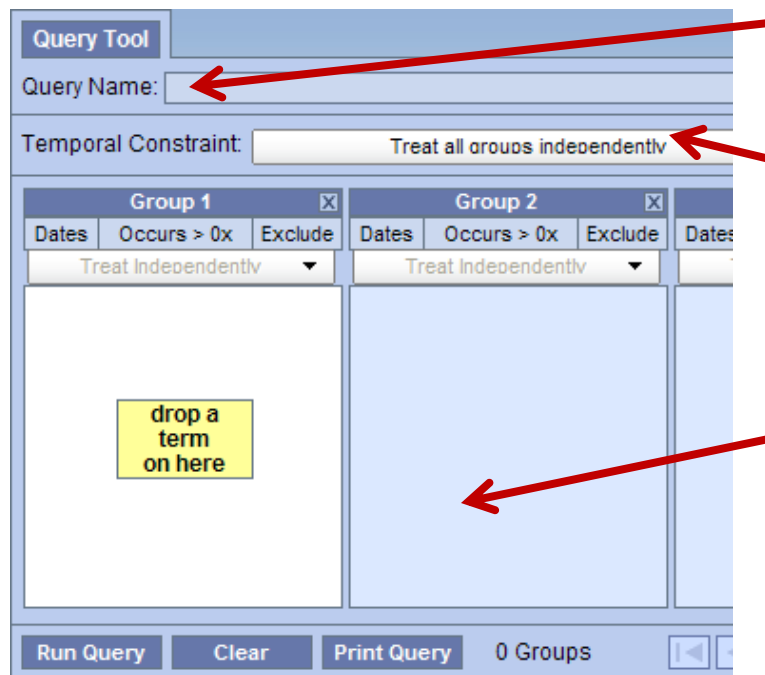
The main interface is divided into several sections:

- Navigate Terms / Find Terms:** A tree view on the left showing a hierarchy of terms under "Ontology", including "Demographics" (Age, Distance from HMC, Gender, Language, Marital Status, Race, Religion, Vital Status) and "Diagnoses" (Disposition).
- Workplace:** A central workspace showing a tree view of query results, including "demo", "HCO3 - BICARBONATE", "Inpatie-UWMC@10:37:23 [1-22-2013] [demo]", "PATIENT_COUNT_XML_131", "Test", "Inpatie-UWMC@11:00:46 [1-22-2013] [demo]", and "Patient Set for 'Inpatie-UWMC@11:00:46' - FINISHED".
- Previous Queries:** A list of recent queries at the bottom left, such as "PATIENTSET@11:29:27 [1-22-2013] [demo]", "HMC-Inpatie@02:15:00 [1-22-2013] [demo]", and "Inpatient visit@11:14:10 [1-22-2013] [demo]".
- Query Tool:** A central panel for building queries. It features a "Query Name" field (PATIENTSET@11:29:27), a "Temporal Constraint" dropdown (Treat all groups independently), and a table for defining query groups. The table has columns for "Group 1", "Group 2", and "Group 3", each with sub-columns for "Dates", "Occurs > 0x", and "Exclude". A "Patient Set for 'Inpatie-UWMC'" is listed under Group 1. Below the table, there are instructions: "one or more of these" (green box), "AND" (blue box), and "drop a term on here" (yellow box). At the bottom of the Query Tool are buttons for "Run Query", "Clear", "Print Query", and "New Group".
- Query Status:** A panel at the bottom right showing the results of the query. It displays "Finished Query: 'PATIENTSET@11:29:27'" with a compute time of 85 seconds and a patient count of 42270.

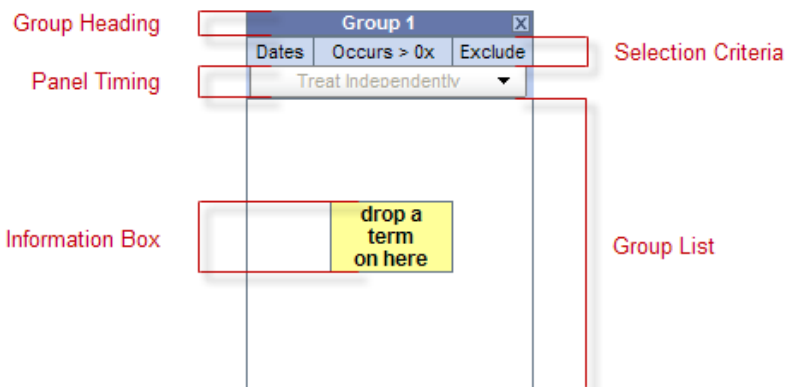
Red annotations highlight specific elements:

- A red circle around the "Query Tool" tab in the top navigation bar.
- A red circle around the "Query Status" tab in the bottom navigation bar.
- A red arrow pointing from the "Query Tool" tab to the "Query Tool" panel.
- A red arrow pointing from the "Query Status" tab to the "Query Status" panel.
- Red text "Query Tool Option" is placed near the "Query Tool" panel.
- Red text "Query Status" is placed near the "Query Status" panel.

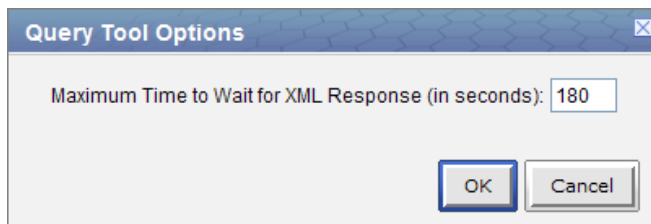
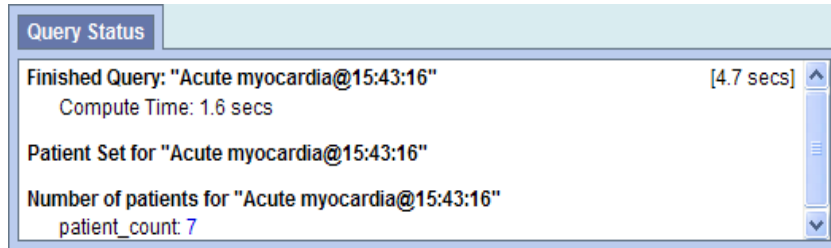
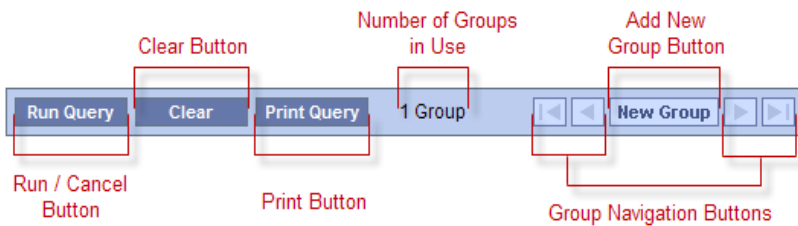
Query Tool



- Query Name
 - Name assigned to a query
- Temporal Constraint
 - Visit level constraint
- Panel
 - Contains information about a group of concepts
 - Group Heading
 - Selection Criteria: define constraints
 - Panel Timing: defines temporal constraint
 - Group List: contains the terms that will be used
 - Information Box: information about query terms

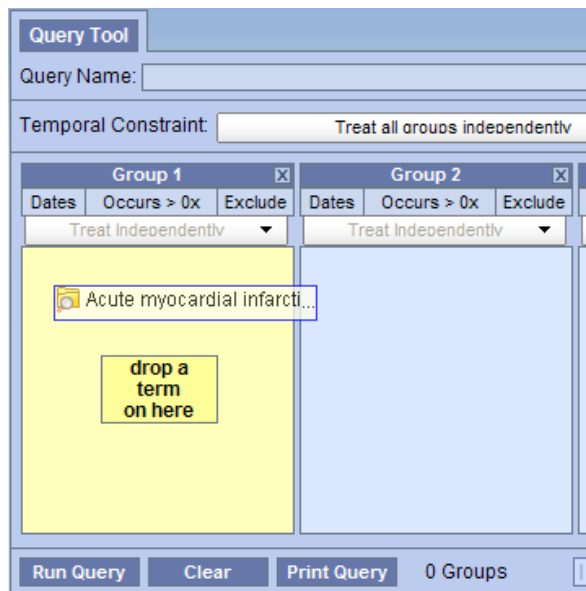


Query Tool – cont.

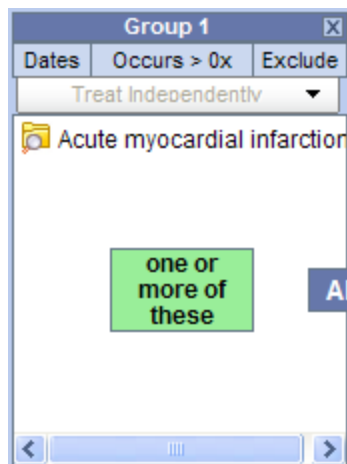


- **Toolbar**
 - Run/Cancel, Clear, Print Query
 - New Group: adds additional panels
 - Group Navigation Buttons
- **Query Status View**
 - Name of the query, patient count result, and length of time took to retrieve data
- **Options**
 - Can define how long to wait before a query will time out (default: 180 seconds)
 - Once time out is reached, query status will display a message saying the query has timed out and **will continue to run** in the background

Query Tool – Adding concepts



- Concepts can be added from Navigate Terms, Find Terms, Workgroup, and Previous query
 1. Highlight the concept
 2. While holding the left mouse button down, drag the item over to the Query Tool view
 3. Drop the item into the panel

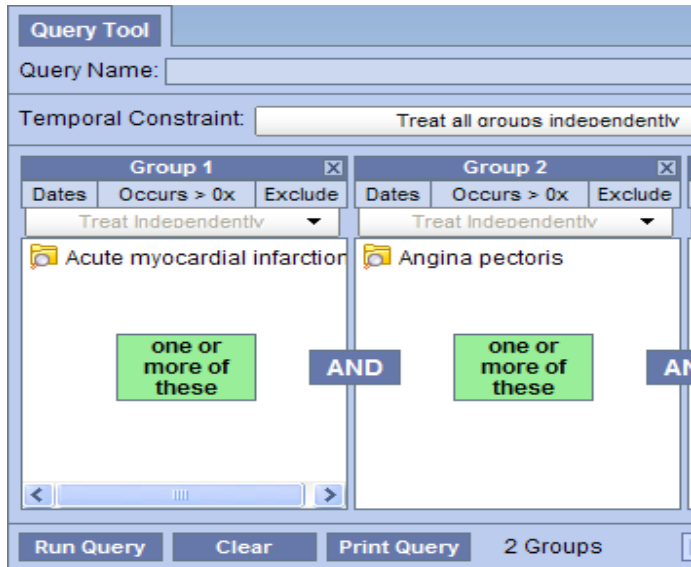


NOTE:

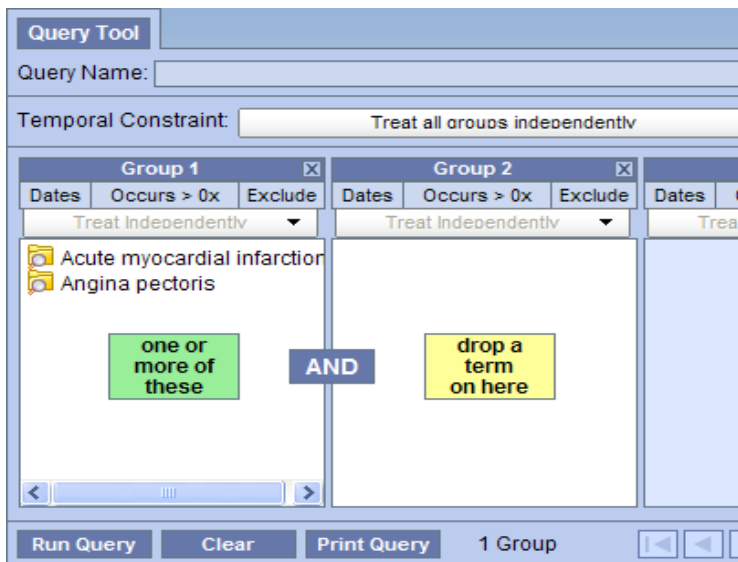
When adding from Previous Query, please make sure to reset “temporal constraint”

- Concepts can be removed by right clicking and delete or delete the group

Query Tool View – Creating a Query



- **AND** operator returns a record if **both** the first and the second conditions are true
 - Used when concepts are **listed in different panels**
- **OR** operator returns a record if **either** the first or the second conditions are true
 - Used when concepts are listed in **a same panel**



Note: Speeding up query

- Query builds “sequentially”
- Putting a constraint that will result in the least # of patients in the first panel will speed up your query

Query Tool View – Temporal Constraint

Query Tool

Query Name:

Temporal Constraint:

| Group 1 | | | Group 2 | | | Group | |
|------------------------------|-------------|---------|-------------------------------|-------------|---------|--------------|----------|
| Dates | Occurs > 0x | Exclude | Dates | Occurs > 0x | Exclude | Dates | Occurs : |
| Treat Independently | | | Treat Independently | | | Treat Indepe | |
| s [Medication Dose > 500 mg] | | | Frequency = ("Once per day")] | | | | |

1. Treat all groups independently
 - The items (facts) can occur at **any time** in the patient's history

Query Tool

Query Name:

Temporal Constraint:

| Group 1 | | | Group 2 | | | Group | |
|------------------------------|-------------|---------|-------------------------------|-------------|---------|----------------|--------|
| Dates | Occurs > 0x | Exclude | Dates | Occurs > 0x | Exclude | Dates | Occurs |
| Occurs in Same Encounter | | | Occurs in Same Encounter | | | Occurs in Same | |
| s [Medication Dose > 500 mg] | | | Frequency = ("Once per day")] | | | | |

2. Select items occur in the same financial encounter

- The items (facts) occur during the **same visit**
- The default *panel timing constraint* can be changed to Treat Independently

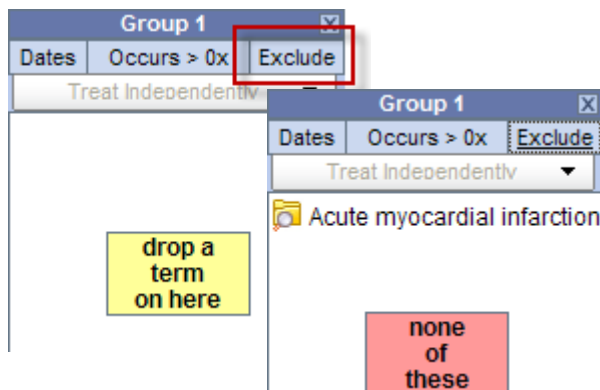
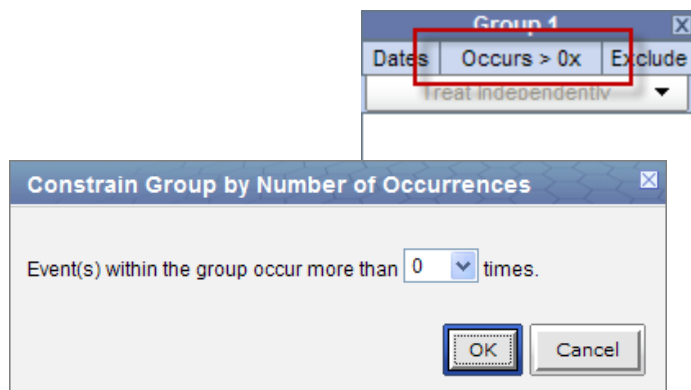
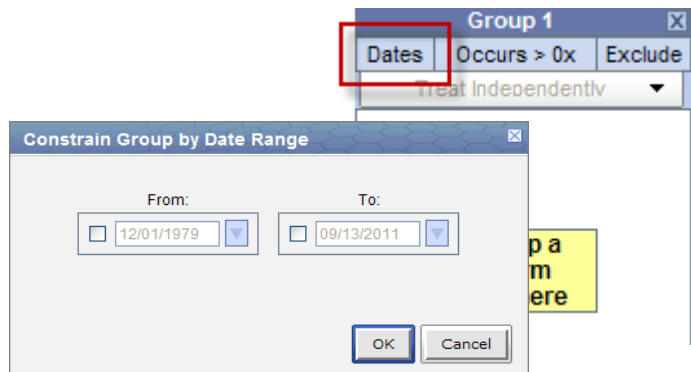
Query Tool

Query Name:

Temporal Constraint:

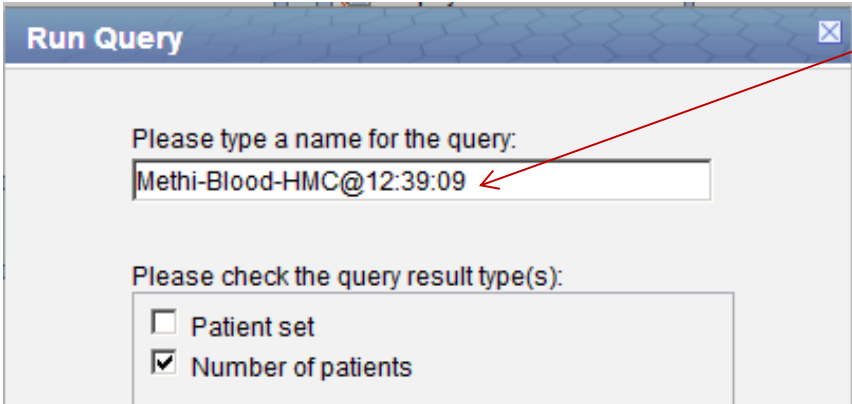
| Group 1 | | | Group 2 | | | Group 3 | |
|-----------------------------|-------------|---------|------------------------------|-------------|---------|-----------------------|-------------|
| Dates | Occurs > 0x | Exclude | Dates | Occurs > 0x | Exclude | Dates | Occurs > 0x |
| Treat Independently | | | Occurs in Same Encounter | | | Occurs in Same Encour | |
| Acute myocardial infarction | | | s [Medication Dose > 500 mg] | | | Frequency = ("Once pe | |

Query Tool View – Other Constraints



- **Date Constraint**
 - Click on the **Dates** button and type in the date or click on the drop arrow to open the calendar to set a desired date range
- **Occurrences Constraint**
 - Define the number of times an item has to occur in order to be considered a positive "hit"
 - Click on **Occurs > 0x** button and select a number from the list
- **Exclude Constraint**
 - Will not include patients with the item(s) listed in the panel
 - Click on the **Exclude** button and the information box will change to "none of these"

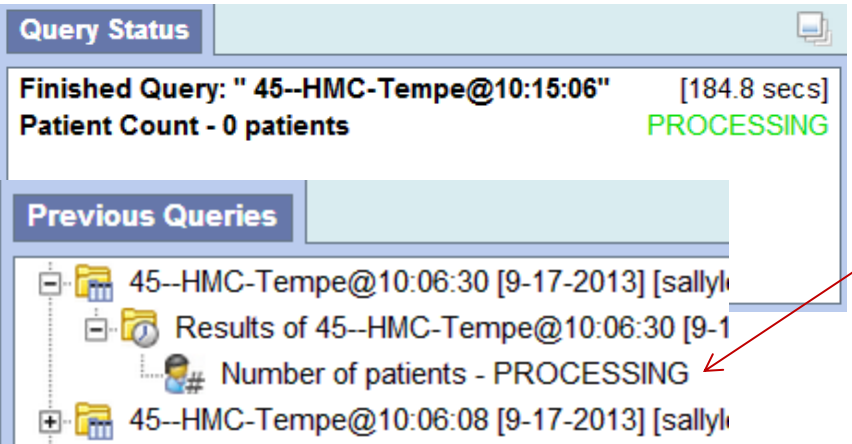
Query Tool View – Running a Query



- Query Name
 - Type in an appropriate name for the query (otherwise, a default name will be assigned – harder to search for)
- Output selection
 - Number of patients:
 - Provides the total number of patients who met the search criteria
 - Patient set:
 - Creates a patient set who meet the search criteria
 - For analysis tools only (will be described in the later section)

The page at <https://dcd.iths.org> says:

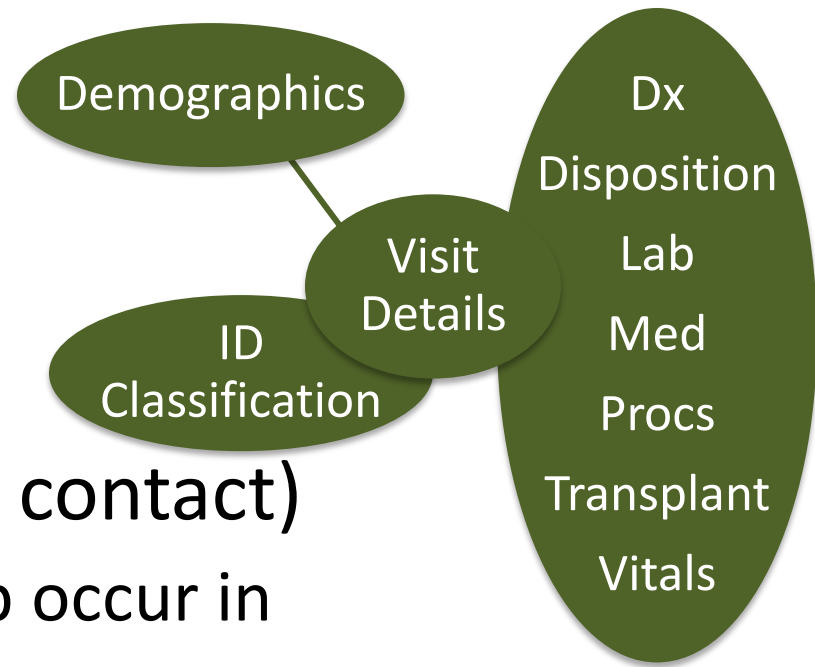
Your query has timed out and has been rescheduled to run in the background. The results will appear in "Previous Queries"



- Query Timeout
 - Normal query will run for ~180 sec, then prompt “Your query has timed out and has been rescheduled to run in the background. The results will appear in "Previous Queries"”
 - If you would like more time, please adjust time through the “Query Tools Option”

Querying Tips

- Demographic data is at the patient level, which means it is not tied to any specific financial encounter (patient contact)
 - Do not select “selected group occur in same financial encounter”



Query Name: _____

Temporal Constraint: Selected groups occur in the same financial encounter

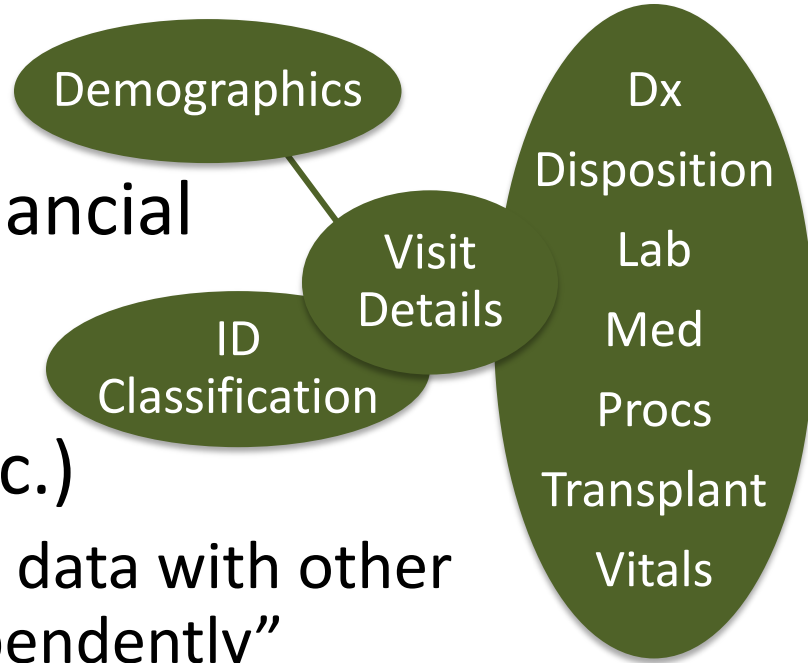
| Group 1 | | | Group 2 | | | Group 3 | | |
|---------------------|-------------|---------|--------------------------|-------------|---------|--------------------------|-------------|---------|
| Dates | Occurs > 0x | Exclude | Dates | Occurs > 0x | Exclude | Dates | Occurs > 0x | Exclude |
| Treat Independently | | | Occurs in Same Encounter | | | Occurs in Same Encounter | | |
| Female - 329630 | | | ID Note - 5524 | | | STAPHYLOCOCCUS | | |

Run Query Clear Print Query 3 Groups New Group 14

Querying Tips – cont.

- ID Classification data is not financial encounter (patient contact) linked to other clinical data (e.g. Dx, Labs, Meds, Procs, etc.)

- When querying ID classification data with other clinical data, select “treat independently” option for any items outside ID Classification and Visit Details folder



Query Name: _____

Temporal Constraint: Selected groups occur in the same financial encounter

| Group 1 | | | Group 2 | | | Group 3 | | |
|--------------------------|-------------|---------|--------------------------|-------------|---------|---------------------|-------------|---------|
| Dates | Occurs > 0x | Exclude | Dates | Occurs > 0x | Exclude | Dates | Occurs > 0x | Exclude |
| Occurs in Same Encounter | | | Occurs in Same Encounter | | | Treat Independently | | |
| ID Note - 5524 | | | STAPHYLOCOCCUS | | | Vancomycin - 23614 | | |

Questions...?

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