

Architecture for Research Computing in Health (ARCH)

Using i2b2 to Find Patient Cohorts of Interest

Three Basic Query Types

- 1. Treat all groups Independently (any point in time)
- 2. Selected groups occur in the same financial encounter (same visit)
- 3. Define sequence of events

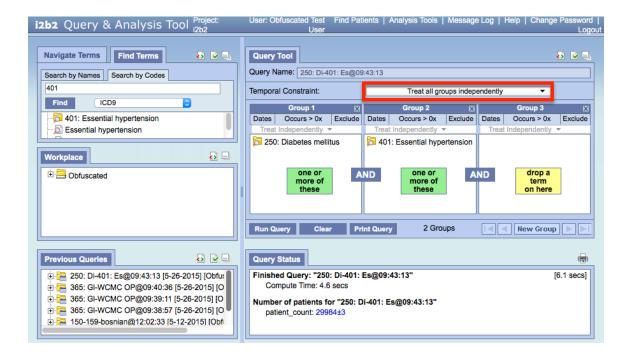
TREAT ALL GROUPS INDEPENDENTLY

• Did event occur at **any point in time** in the history of the patient's EMR?

EXAMPLES

"How many patients have been seen at the 2315 Broadway Interventional Radiology clinic and have had a colectomy at some point in their medical history?"

"How many patients have been diagnosed with both diabetes and hypertension at some point in their medical history?"





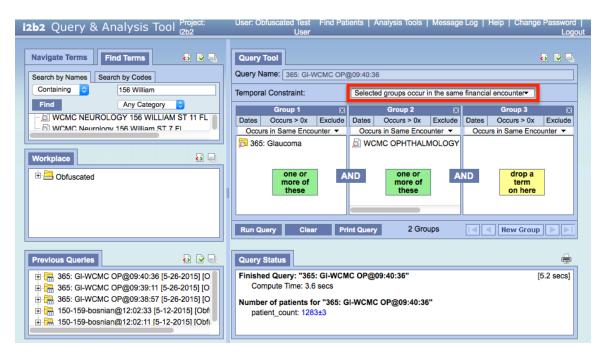
SELECTED GROUPS OCCUR IN THE SAME FINANCIAL ENCOUNTER

• Did the events occur at the same time and in the same visit in the history of the EMR?

EXAMPLES

"During the same visit, how many patients were diagnosed with both glaucoma and diabetes?"

"During the same visit, how many patients were diagnosed with glaucoma and were seen at the 156 William Street Weill Cornell Medical College Ophthalmology clinic."



DEFINE SEQUENCE OF EVENTS

• Did event A occur at a specific point in time in relation to event B, event C, ...?

EXAMPLE

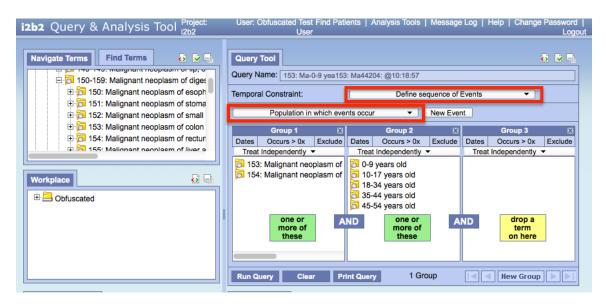
"How many patients were diagnosed with early onset (<55yr) colon cancer and had a colectomy after diagnosis and within 14 days after diagnosis?"



Step 1

Population in which events occur

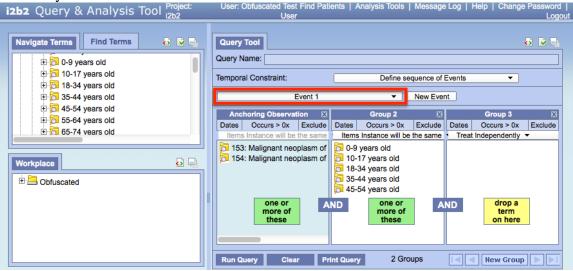
Define query population: Colon cancer diagnosis via ICD-9 codes AND patients under 55yr



Step 2:

Event 1

Define Event 1: Colon cancer diagnosis via ICD-9 codes AND patients under 55yr



3



Step 3:

Event 2

Define Event 2: Colectomy via CPT procedures i2b2 Query & Analysis Tool Proje Navigate Terms **Find Terms** 6 🗗 🗏 Query Tool Query Name: ⊕ 同 0-9 years old ⊕ 7 10-17 years old Temporal Constraint: Define sequence of Events 18-34 years old ± 35-44 years old Event 2 New Event ± 3 45-54 years old ⊕ 55-64 years old Occurs > 0x Exclude Occurs > 0x Exclude Dates Occurs > 0x Exclude Treat Independently ▼ Treat Independently 44204: Laparo partial colecto 44207: L colectomy/coloproc □ Workplace 44213: Lap mobil splenic fl a Dbfuscated one or AND drop a more of these term 2 Groups Run Query Clear Print Query | ◀ New Group | ▶

<u>Step 4</u>:

Define order of events

Event 2 (colectomy) occur from 1 to 14 days after Event 1 (colon cancer)

