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

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Step 2:

**Event 1**
Define Event 1: Colon cancer diagnosis via ICD-9 codes AND patients under 55yr
Step 3:

**Event 2**
Define Event 2: Colectomy via CPT procedures

Step 4:

**Define order of events**
Event 2 (colectomy) occur from 1 to 14 days after Event 1 (colon cancer)