

The Cohort Paradigm

How to Repurpose EMR data - A syllabus for a four session Introduction to Clinical Looking Glass

A self tutorial Guide

Version 30 October 25, 2015

Eran Bellin, M.D.

Before the First Class

Required Reading

Before the first class please read:

1. Book: Eran Bellin, M.D. <u>Riddles in Accountable Healthcare: A primer to develop analytic</u> <u>intuition for medical homes and population health (available on Amazon as paperback</u> or kindle)

Read: Introduction and Chapters 1,3,4,5,8,11,19,21. Don't worry chapters are short and are a quick read. (\$22 a copy or share with a friend)

- 2. JC07.1 Appropriate Use of Clinical Looking Glass (Montefiore Policy and Procedure)
- 3. JC0.1a Practical Guidance in the use of CLG (Montefiore Policy and Procedure)
- 4. Instructions for Registering QI projects
- 5. Read Chapter 1 of this Syllabus the Cohort Paradigm. P 1 -15.

I am going to assume that you are familiar with the concepts as we will be going quickly to the application itself.

Print out this material before class.

Background/Objectives of the four session Core Training:

Clinical Looking Glass is a powerful data retrieval and analytic tool. The objective of the course is to enable you to build cohorts, extract information, and perform time to outcome analyses. It is expected that in the course of this work you will become familiar with the manuals and built in videos which you will read along at home so you will feel comfortable to continue your education on your own. To become a CLG expert requires time, experience, and investment of effort.

We have four manuals built into CLG which can be sent to you in advance of the class, if you send an email to <u>ebellin@montefiore.org</u> asking for the clg manuals. The manuals can be downloaded to your computer or if you have an ipad, download to an ipad and save as an ibook - a very convenient way to manage the manuals.

- 1. CLG User manual (775 pages) selections should be read after each class to solidify what you have learned and enhance it
- 2. Event Definition Manual Volume 3 Provides a nearly comprehensive listing of all the events and their attributes available for analysis at Montefiore.
- 3. Ad Hoc Reports User Manual
- 4. CLG Manual Addendum 4_3.pdf
- 5. Youtube Channel playlist with 34 recorded Tutorials following the lectures and notes. <u>https://www.youtube.com/watch?v=wPmjQmLoKS0&list=PLf7raPnmlLOeAWU2cNf2jIMDRq</u> <u>QuUTCum</u>

Resources:

- 1. Computers Enabled with CLG
 - a. Your mentors (you should arrange local access for practice at hours and off hours)
 - b. Montefiore Library (9-8:45 mon-Friday; Saturday 9-5)
 - If you want to play videos **bring earphones** and you will have to adjust the realtek program so that it is not muted. Remember to return it to its muted state afterwards).
 - c. CIS training room above the Montefiore Moses Cafeteria second floor you must make arrangements in advance to have access. I would suggest that you try to schedule as a group.
- Buddy System Each student should have a CLG buddy who should be the first person you
 call for help. CLG is a community of users and learning how to reach out to others and how
 to help others in this cooperative intellectual ecosystem is critical for community
 development.
- 3. Bring Earphones like those you use with iphone or ipod to connect into computer so you can listen to tutorial without anyone else hearing it.
- 4. Critique and recommended improvements to these study guides is appreciated. Please send comments to ebellin@montefiore.org.

Contents

Before the First Class
Chapter 1: What Questions do I want answered and Why do I need cohorts?5
Patient Centricity – the new goal
Pre Training Session 111
Build a Cohort in your mind11
In Class example – Class #1 Cohort Build15
Clinical Looking Glass Session Exercise: Build a cohort of Bad diabetics
Define an Event Condition
Define a New Event Definition20
Define an attribute condition21
Assignment:
Example #240
Develop Intuition – Index Event Line
Exercise: Build Good and Bad Diabetic Cohorts49
Build Cohort with Bad Repeat Test
Build Cohort with Good Repeat Test50
Build Two more Cohorts by Changing the Focus of the Index Event Line to the first line51
Now build a CHF example focused on admission53
Enter condition line name55
Define an Event Definition
Define an attribute condition56
Define a Set
Use Your New Set in Your Condition Definition64
Define Time Period65
Define Demographic Condition66
Build the Cohort
Additional Work in class:
Homework: Before the second class

Chapter 1: What Questions do I want answered and Why do I need cohorts?

Tutorial 1 Introduction to CLG self training: (PPTIntroduction) <u>https://www.youtube.com/watch?v=wPmjQmLoKS0&list=PLf7raPnmlLOeAWU2cNf2jIMDRqQu</u> <u>UTCum&index=1</u> Tutorial 2 The cohort paradigm: (PPT 1) <u>https://www.youtube.com/watch?v=_nun8rp6d7A</u>

Patient Centricity - the new goal

First a definition – Cohort.

A cohort is a group of patients each one of whom is associated with an index date:time. This index date:time is the time from which elapsed time to outcome is to be calculated. For example, if you have a group of patients who are diagnosed with hypertension, when you ask the outcome question, how long did it take to bring their hypertension under control, you measure the time from each person's index:date time.

To understand the importance of cohorts, we will compare analytic targets in fee for service world. We will compare **business volume-centric targets** with related **patient value centric goals** in the healthcare space.

Question Pair #1

Business Volume Centric: How many admissions were there in 2010?

Patient Value Centric: How many unique individuals were admitted in 2010?

In a fee for service world each time someone crosses the hospital threshold, the hospital's cash register rings and money is collected. In a patient centric frame, we are concerned with the experience of the individual patient. How many unique people are hospitalized? How many times was the same person readmitted? While the fee for service business model does not care who makes up the 100 admissions, the patient centric model makes a big distinction between *Hospital A* that admits 100 people one time, and "fixes them" on the first try, and *hospital B* that admits 1 patient 100 times, never getting it right. The unit of analysis in the patient centric mode is the patient as we are concerned with his longitudinal experience – experience across time.

Question Pair #2

Business Volume Centric: How many outpatient visits with the primary diagnosis of

Hypertension?

Patient Value Centric: How long does it take to control the individual's blood pressure?

In the volume question, we just count how much service we are delivering in the outpatient for hypertensives. It is a pure service volume question, not a patient value question. In the second question, we are looking at the individual patient and asking "how much time elapsed" before we brought his blood pressure under control. We look at the patients individually and then summarize across the whole patient group (cohort) how long it took for the cohort to be brought under control.

This summary of the individual cohort member's experience over elapsed time is called a **Time to Outcome Analysis**. It answers the question, what percent of the patients are brought under control by 6 months, 1 year, 1.5 years.

It compares the success across the years and across clinics by comparing graphs of the cumulative percent brought into a good state by each of these time intervals. This analytic pattern is exemplified in Chapter 3 of Eran Bellin: <u>Riddles in Accountable Health Care (available on Amazon as paperback or Kindle)</u>.

Question Pair #3	
Business Volume Centric:	How much did we spend on drug X?
Patient Value Centric:	How rapidly did patients improve on drug X?

The first question asks how much did we spend on drugs a pure volume of cost question. The Patient value question asks from the time we started the drug on an individual patient how long did it take before we saw improvement? We are asking a cohort value question where we are following each member of the cohort of patients taking the drug, what percent were brought to the clinical target in ½ a year, 1 year, and 1.5 years?

To really lock in your motivation for cohorts, we will now look at a cartoon evaluation of diabetes care.

Imagine you are working in a clinic in the year 2010. Over the course of a year 2010-2011, 10 people declare themselves to be diabetics:



Figure 1 Time of Onset of Diabetes in 10 patients in 2010

Note, implicit in Figure one is that each of these patients has an identifier – a medical record number and a date of onset of diabetes. This date of onset of diabetes is the index date:time of the patient. As a group, these patients constitute the **cohort** of patients whose care is to be evaluated.

This cohort can also be represented by two columns of data in a spreadsheet. The first column is the patient's medical record number identifier and the second column is the patient's index date:time from which elapsed time will be calculated.

Medical Record Number	Index Date:time
1	1/10/2010
2	2/13/2010
3	3/11/2010
4	3/11/2010
5	4/15/2010
6	6/1/2010
7	7/8/2010
8	9/15/2010
9	9/15/2010
10	10/6/2010

Figure 2 Spreadsheet representation of the cohort

Both illustration 1 and the two columns above equivalently represent a cohort of patients – a group of patients with a date:time associated with each member. In this case the date:time is only a date.

Now we want to illustrate, how rapidly these diabetics get their blood sugars under control. Achieving control is indicated by a plus sign. For the sake of simplicity, in this example, all patients achieve control.



Figure 2 Diabetics achieving blood sugar control

We note that each patient achieves control (+) at a **different calendar date** and after a **different elapsed time from diagnosis.**

Now how might you evaluate medical success for the entire cohort?

Traditionally, Hedis scores perform a calendar window cross-sectional analysis answering the question:

"of the 10 diabetics identified in 2010, what percent achieved the goal of sugar control in 2010?" Circle those patients who achieve success in 2010.



What % of new diabetic patients were controlled in the year 2010? 4 / 10 = 40%

Figure 3 Successfully treated diabetics in 2010 (crossectional view)

We have a 40% success rate in this cross-sectional analysis. Is it fair to say that all the other patients were badly managed?

Look at patient #9. Look how fast he was brought under control. Why was he not called a success?

He was not called a success because his success occurred in the year 2011, and the cross-sectional analysis looks for success only in calendar year 2010. While his doctor achieved success in short time the success occurred in 2011 and therefore did not count. The patient presented to his doctor at the end of the year so there was no time in the same calendar year to demonstrate success.

What is the consequence of this? A sane doctor would never accept a diabetic patient at the end of the year, nor would he do blood tests. This cross-sectional metric creates perverse incentives.

Now consider how the cohort approach is much better. The cohort approach recognizes outcome relative to each patient's own start time, relative to the patient's own index date.

Every analysis begins at each patient's index date, the patient's own time zero. We now modify our question from do we have control in the year 2010, to do we achieve control within the first year of follow up.

This is what the cohort approach would graphically look like:



What % of new diabetic patients were controlled within 1 year?

Figure 4. Successfully treated diabetics in one year (cohort view)

Same data, but the illustration graphically represents that we are following elapsed time for every patient starting at his own zero time, sorted by elapsed time until diabetes control - the relevant metric of evaluation.

Note the time scale is no longer calenderic time but is elapsed time since presentation with outcome evaluated by year's end. Note how Five of the patients (Patient 3,8,9,1,4) 5/10 = 50% are successes whereas before only 40% were successes. Note, now, patient number 9 is recognized as an obvious success.

This cohort view, by respecting each patient's zero time (index date:time) and by evaluating success by elapsed date:time is a fairer representation of the care delivered.

Suggested reading is Riddles in Accountable Healthcare: Chapter 8: "Am I my brother's keeper" – the longitudinal healthcare paradigm.

Pre Training Session 1

Build a Cohort in your mind

Tutorial 3 Anatomy of a Multiple Event Simple Cohort: (PPT2)

https://www.youtube.com/watch?v=GenjnskwZ6E

First look at the representation of a cohort in Clinical Looking Glass on the event Canvas.

I am purposely choosing an inefficient example to make a number of teaching points.

You build your rules in a "Edit Selected Condition GUI" (Graphic User Interface), rule builder (to be shown in class.)

Updating this edited selected condition paints a condition line on the event canvas.

Suppose you wanted to find all those patients for whom we have a bone marrow and also carried the diagnosis of Monoclonal Paraproteinemia and Rheumatoid Arthritis.

After using the "Edit Selected Condition GUI", you eventually get the following conditions painted on the event canvas:

	- Event Canvas
i	
	E-C INDEX EVENT : [Earliest of BoneMarrowBiopsy (And)]
	📰 🛱 BoneMarrowBiopsy: [Earliest of [BoneMarrowBiopsy : ProcedureDate] WHEN IN [Duration2000_present] WITH [AgeGE18]]
	AND
	🗄 () MonoclonalParaProteinemia: [Earliest of Any (Or)]
	OR
	AND
	E. Rheumatoid Arthritis: [Earliest of Any (Or)]
	📲 💏 Inpatient with RA: [Earliest of [Inpatient_RA : InpatientAdmissionDate] WHEN IN [Duration2000_present] WITH [AgeGE18]]
	OR
	🛄 👬 Outpatient with RA: [Earliest of [Outpatient_RA : ClinicVisitDate] WHEN IN [Duration2000_present] WITH [AgeGE18]]
I	

Figure 5. Event Canvas – cohort of patients with Bone Marrow biopsy and diagnosis of Monoclonal paraproteinemia and Rheumatoid Arthritis.

Now we will review each line numbered for convenience:

Firent Capitas
E-C INDEX EVENT : [Earliest of BoneMarrowBiopsy (And)]
1 BoneMarrowBiopsy: [Earliest of [BoneMarrowBiopsy : ProcedureDate] WHEN IN [Duration2000_present] WITH [AgeGE18]]
- AND
2 🗄 () MonoclonalParaProteinemia: [Earliest of Any (Or)]
3 Inpatient_MP: [Earliest of [Inpatient_MP: InpatientAdmissionDate] WHEN IN [Duration2000_present] WITH [AgeGE18]]
4 Outpatient_MP: [Earliest of [Outpatient_MP: ClinicVisitDate] WHEN IN [Duration2000_present] WITH [AgeGE18]]
5 🗐 () Rheumatoid Arthritis: [Earliest of Any (Or)]
6 - The second s
7 - The Outpatient with RA: [Earliest of [Outpatient_RA : ClinicVisitDate] WHEN IN [Duration2000_present] WITH [AgeGE18]]

Lines 1-7 are called "condition lines".

For a patient to qualify as a member of the cohort all conditions 1-7 must be met. Once the conditions are met, the medical record number representing that patient is included in the cohort.

As you know a cohort is made of two columns. A medical record number and an index date:time unique for each patient. The index date:time is the time from which elapsed time is to be calculated. You need to decide which condition line event (1-7) is going to provide the date:time to associate with the patient's MRN in the cohort.

Line 8 is called the Index:Event Line.

The Index:Event Line chooses the events that result from application of all the condition lines painted on the Event Canvas below. Once condition lines 1-7 are run, the resulting set of events are acted on by the **index event line which** chooses those events and date:time to be associated with the qualified cohort member. In our case the date: time is taken from line 1 bone marrow patients who also satisfied condition lines 2-7 below. You can see that the Index:Event line is pointing to the earliest bone marrow for patients who have both Paraproteinemia and Rheumatoid Arthritis.

Condition Line 1 Looks for the Earliest bone marrow from the year 2000 to the present whose "bone marrowed patient" was 18 or greater at the time of the bone marrow. The *event* is a *procedure* and the procedure type is *Bone Marrow Biopsy.*

If the Index:Event line chooses a condition line that has more than one event per person as in the case when the condition line has the word "all" in its condition instead of "earliest" or "latest", then the Index:Event line chooses not only the condition line but the event within the condition line. It chooses

either the "Earliest" or "Latest" event so that each patient, each Medical Record Number has only one date:time associated with it. At the end of the build, in a cohort build we need each Patient (each Medical record number) represented only once, so if there is a possibility of more than one date:time, the Index:Event line must choose which event for that patient in the cohort.

Let's now go to the next three lines painted on the event canvas – condition lines 2,3,4.



Condition Line numbers 2,3,4 are what is called collectively a *subgroup*. A subgroup is like having a parenthesis around a series of conditions. We want to find people who carry the diagnosis of paraproteinemia either by

Condition line 3 - inpatient admission with an icd9 code of paraprotenemia

Or

Condition line 4 - outpatient clinic visit with an ICD9 code of paraproteinemia

Condition line 2 is **called the subgroup index line** runs condition lines 3 and 4, applies a rule to the resulting set of events to choose e*arliest*

inpatient **OR** outpatient event to represent the subgroup on the event canvas. You can intuit that condition line 2 controls lines 2,3 because lines 2,3 are indented and line 2 is preceded by a (parenthesis) warning you that line 2 **owns and controls** the parenthetical subgroup.

Further down the event canvas we see condition lines 5,6,7.

We have a second subgroup of condition lines led by **subgroup index** condition line 5 with indented lines 6,7 below.



This second subgroup finds patients with Rheumatoid Arthritis by searching through all inpatient and outpatient events for the ICD9 diagnosis of Rheumatoid Arthritis

Condition line 6 - inpatient admission with an icd9 code of Rheumatoid Arthritis

Or

Condition line 7 - outpatient clinic visit with an ICD9 code of Rheumatoid Arthritis

Subgroup index condition line 5 "owns and controls" condition lines 6,7 choosing the earliest evidence of Rheumatoid Arthritis as recorded in an inpatient admission or outpatient visit.

In summary, the totality of condition lines, find patients with a bone marrow, paraproteinemia by icd9 diagnosis, and rheumatoid arthritis by diagnosis.

More sensitive analyses would use laboratory tests to determine paraproteinemia but this example serves its purpose.

Our first worked example in class will be much simpler.

In Class example – Class #1 Cohort Build

Clinical Looking Glass Session Exercise: Build a cohort of Bad diabetics

Tutorial 4 The Diabetic Cohort

https://www.youtube.com/watch?v=_KEl9pqDAdE

General Principle:

Hover over – highlights and shows the area is primed for activation

Right Click – opens a menu

Left click - selects. Often it opens a "GUI editor" at the bottom of the screen. GUI = Graphical User interface.

1. Hover mouse over collections and cohorts

A box appears around the phrase cohort and collection" letting you know that the system is now ready for another action.

Collections and Cohorts

2. Right click to expose menu



3. Hover over New...

	New	իր	Folder
	Order By	Ý	Cohort
	Save TreeView Layout		Event Collection
	Refresh		
	Show Legend		
4. Hover over Folder			1
	New	•	Folder

	New		Folder
	Order By		Cohort
	Save TreeView Layout		Event Collection
	Refresh		
	Show Legend		
	-	- I	

5. Left click on Folder

Management	Edit Selected Save As	
Filtered by: Type 💌 Status 💌 🚺	Name: New Folder bbb8] +
Collections and Cohorts	<u> </u>	
in New Folder bbb8		

6. Type in Name TDiabetes

(Edit Selected	Save As		
	Name:	TDiabetes	×	+
U				

7. Click on Save Icon

Edit Selected	Save As	
Name:	TDiabetes	× +

Note the next icons are:

Edit Selected	Save As 🗐 🔲→X 💌	Save and exit
Edit Selected	Save As 🔋 🖙 🗙	<u>1</u>
Name: TDiab	etes	Exit

8. Click on exit Icon

Event Canvas		Analysis
- Management - Filtered by: Type ▼ Status ▼ ひ		
Collections and Cohorts	~	

- 9. Hover Over folder TDiabetes
- 10. A box appears around the folder TDiabetes indicating that the program is ready to accept instructions



11. Right click on the activated spot TDiabetes and see a drop down menu



12. Hover over New The Menu expands to the right

CLG	event Canvas	
- Management		
Filtered by: Type 🔹	Status 🔻 🕑	
⊡	Cohorts	
TDiabetes		
	New 🕨	Folder
	Order By 🔸	Cohort
×.	Edit	Event Collection
×	Delete pl	nOnly
	DooMov/2014baul/oo	
13. Left click on Conori	-	

1. *Event Canvas* launches in a new window and a new blank Cohort is loaded with the *Event Condition Editor* open.

Event Canvas		Analysis	Smart Reports	Tools	Help	Home	Log Out
Management Fitered by: Type Status S Fitered by: Type Status S C C USR: New Cohort 4a87 C USR: concer 2010MediaPre2015LstContact C USR: cancer 2010MediaPre2015 C USR: cancer 2010MediaPre2015 C USR: cancer 2010MediaPre2015 C USR: cancer 2010MediaPre2015 C USR: New Cohort 5261 anneMearaPopulationBasedReadmission C USR: MedicaldDischarge 08 C USR: outpatient/VisIt08MedicalFistDischarge C C C C C C C C C C C C C	Edit Selected BUILD Save As Save As Name: New Cohort db2f Event Canvas C INDEX EVENT : [Earliest of Any (And)] C INDEX EVENT : [Earliest of Any (And)] C INDEX EVENT : [All of] WHEN IN]] Edit Selected Condition Event1 New Event Def. NOT [All of] ``New Event Def. WHEN IN New Duration Def. WITH No Demographics] +					
EC USR: New EventCollection	Please Select an Event Definition Please Select an Duration Definition						

14. Name your new cohort.

Edit Selected BUILD Save As	
Name: Bad Diabetes	× +
Event Canvas	
E-C NINDEX EVENT : [Earliest of Any (And)]	
Event1: [All of [] WHEN IN []]	

15. Go to the bottom of the Event Canvas to find an opened "Edit Selected Condition" GUI \climet{U}

	Edit Selected Condition	_
	Event1	
	□ NOT All of V New Event Def. ▼	
	WHEN IN New Duration Def. ▼ WITH No Demographics ▼	
	Update Update and Close Close	
	» Please Select an Event Definition	_
Editor.	» Please Select an Duration Definition	

Define an Event Condition

16. Name the condition line.

Edit Selected Condition
DiabetesHgbA1cGe9.5 ×
□ NOT All of V New Event Def. ▼
WHEN IN New Duration Def. ▼ WITH No Demographics ▼
Update Update and Close Close

Notice the GUI editor "Edit select condition" has two boxes outlined in red. This tells you that the minimal data that must be entered to define a condition line on the event canvas are two:

- a. New Event Definition: The event which qualifies the individual for inclusion in the condition line.
- b. New Duration Definition: the time over which the event is to be sought.

Define a New Event Definition

17. Left Click on **New Event Def.** to expand the menu and select "New Event Def."



18. The Event Definition Palette opens in a new window.

9		Event Definition Palette Web	page Dialog	X
https://clg.emerginghe	ealthit.com/CLGNET/Modules/EventDefini	tionBuilder/EventDefinitionBuilder.aspx?DefType=EVENT	&SelMenuOption=NewEventDefinition&Entityl	D=ewEventDefinition&guid=aacc8e7c-86dc-4487 🔒
Edit Options Name EV Cc6e1 Update Update and	Event Type Please Select Close Close	✓ Find Point Event Please Select.	v	
Event Definition Options				

19. Name the new event "HgbA1c ge 9.5"

<u>@</u>		Event Definition Palette Webpage	e Dialog
https://clg.emerginghea	lthit.com/CLGNET/Modules/EventDefinition	onBuilder/EventDefinitionBuilder.aspx?DefType=EVENT&SelN	/lenuOptio
dit Options Name HgbA1c ge 9.5	x vent Type Please Select ose Close	✓ End Point Event Please Select	~
Event Definition Options			

20. After the words **Event Type** left click on the please select box and choose **Lab Test** as the **Event Type** in the dropdown menu.

@	Event Definition Palette Webpage Dialog
Attps://clg.emerginghealthit.com/CLGNET/Modu	lles/EventDefinitionBuilder/EventDefinitionBuilder.aspx?DefType=EVENT&SelMenuOption
https://clg.emerginghealthit.com/CLGNET/Modul Edit Options Name [HgbA1c ge 9.5] Update Update and Close Close Ambula Assessi Event Definition Options Cancer Death - Death - Death - Death - Death - Death -	Ies/EventDefinitionBuilder/EventDefinitionBuilder.aspx?DefType=EVENT&SelMenuOption Select tory Surgery Admit tory Surgery Discharge ment - Functional ADL Registry - First Recurrence Date Registry-Site Spec Factors-Init Dx rocedure Date Birth In House Death Date Social Security Dath Date Social Security or In House Death Date social Security or In House Death Date sharge n ge s attom der Stant wei Admit
Medicat Medicat Microbi	ion Allergies Start Date ion Allergies Stop Date olory CollertDate

Define an attribute condition

- 21. Hover over the word definition ⁻⁻⁻⁻ Definition</sup>
- 22. on the definition canvas. Note how a box appears around the word definition clueing you into the fact that the area is now primed for a new action.

9	Definition Canvas Webpage Dialog
Https://clg.emerginghealthit.com/CLGNET/Modules/EventD	efinitionBuilder/EventDefinitionBuilder.aspx?DefType=EVENT&SelMenuOp
Edit Options	
Name HgbA1c ge 9.5 Event Type	~
Update Update and Close Close	
Event Definition Options	
\sim	

23. Right click on the activated definition button to open a menu. This is the definition index line controlling the canvas.

Edit Options	
Name HgbA1c ge 9.5 Event Type	Lab Test 🗸
Update Update and Close Close	
Event Definition Options	
Definiti Add Condition	
Add Sub-Group	

24. Left click on Add condition. The condition GUI control opens below.

Edit Options		
Name HgbA1c ge 9.5	rent Lab Test	/
Update Update and Close	Close	
Event Definition Options		
⊡ Definition		
□ NOT Please Select ✓ ✓		
Update Update and Close	Close	
» Please Enter the Required Data		

25. Left click on the downward arrow next to please select

Edit Options				
Name HgbA1c ge 9.5	Event Type	Lab Test		\checkmark
Update Update and Clos	se Close			
Event Definition Options				
Definition				
Please Select Categoric Lab Test Value]			
NOT Lab Test Type	Please Select 🗸			
Test Clinic	e Close			
True First				
Lab Text			WHEN	IN New

26. Left click on Lab Test Type

□ NOT Lab Test Type	Please Select	
Update Update and Close	= IN SET	45

- 27. Now you can choose a single lab test by choosing the "=" sign or build a set of lab tests by using the "IN SET" option. We are going to be using a single lab test so we will choose the "=" sign.
- 28. Left click on the "=" sign.

	1		
	□ NOT Lab Test Type =	✓ Please Select	~
	Update Update and Close	Close	
29.			

30. Left click on the next arrow over to see all the available lab tests.

	CROSSMATCH RESULT CRP HI SENSITIVITY
	CRP HIGH SENSITIVITY
	CRYO REQUEST
	CRYOGLOB QUANT ID
	CRYOGLOB.SCREEN
	CRYOGLOBULIN SCREEN
	CRYPTOCOCC AG SERUM
	CRYPTOCOCC ANTIGEN
	Cryptococcal Ag Titr
Update Update and Close Close	CRYPTOSPORIDIUM AG
	Crystal Ident
	Crystal, Fluid Type
	CRYSTALS CRI
USR: outpatientVisit08MedicaidFirstDi	CRYSTALS, OTHER
anesthesia	CSF
	CSF AdenoV qPCR
EC B USR: New EventCollection	
	CSF BAND COUNT-T1
	CSF BAND COUNT-T4
	CSF BANDS %-T1
	CSF BLAST COUNT_T1
	CSF BLAST COUNT-T4

31. Either slide down the window to Hemoglobin A1c or simply type "Hemoglobin A1c" and the menu will advance to the test Hemoglobin A1c. Note the space between words "Hemoglobin" and "A1c"

□ NOT Lab Test Type =	HEMOGLOBIN A1c	\checkmark
Update Update and Close	Close	

32. Left click on update and close

a	Definition Canvas Webpage Dialog
https://clg.emerginghealthit.com/CLGN	${\sf ET/Modules/EventDefinitionBuilder/EventDefinitionBuilder.aspx?DefType={\sf EVENT} \& {\sf SelMenuOpt} \\ {\sf S$
Edit Options	
Name HgbA1c ge 9.5	Lab Test 🗸
Update Update and Close Close	
Event Definition Options	
Definition IX=VI tab Test Type Found HEMOGLOBIN A1c	

33. Congratulations! You have painted your first condition line on the **Definition Canvas.**

Now you must add another condition. You have already required that the event be a HgbA1c, you must now require that the test have a value >= (greater than or equal to) 9.5.

34. To add another condition, hover over the **Definition icon** and Right click on the definition icon. This opens a menu, now you left click on **Add a condition** and you see the following:

vas Webpage Dialog
?DefType=EVENT&SelMenuOp

- 35. Left click on please select
- 36. And then hover over **lab test** value

	Please Select		Please Select V
Up	Categoric Lab Test Value Grouped Numeric Labs		e Close
	Lab Test Type	1	
	Lab Test Value	N	
	Test Clinic	h	
	Test MD	6	ModicaidEiretDisch
~ <u></u>	True First	ľ	medicalul li scolsci
anesth	Lab Text		
37. Juneau	L	_	

38. Left click on Lab Test Value

NOT Lab Test Value	Please Select	
Update Update and Close	= >	뉵
	>= < <=	
C BUSR: outpatientVisit08	BETWEEN	is

39. Now hover over ">=" and left click

□ NOT Lab Test Value V >= V	
Update Update and Close Close	
	-

40. Type in the box 9.5 and then left click on Update and close yielding:

9	Definition Canvas Webpage Dialog
Attps://clg.emerginghealthit.com/CLGNET/Modules/Eve	entDefinitionBuilder/EventDefinitionBuilder.aspx?DefType=EVENT&SelMenuO
Edit Options	
Name HgbA1c ge 9.5 Event Lab Test	V
Update Update and Close Close	
Event Definition Options	
-[X=Y] Lab Test Type Equal HEMOGLOBIN A1c	
[X=y] Lab Test Value GreaterThanOrEqual 9.5	

- 41. Congratulations! You have painted your second condition line on the definition canvas
- 42. Now Left click update and close.
- 43. You are returned to the **Event Canvas** to the editing GUI with the Event definition populated with the event definition you just built:

Edit Selected BUILD Save As CAR S
Name: Bad Diabetes +
Event Canvas
Event Canvas
Event1: [All of [] WHEN IN []]
Edit Selected Condition
UNOI All of ✓ HgbA1c ge 9.5 : LabTestDate ▼
WHEN IN New Duration Def. WITH No Demographics
Update Update and Close Close
» Please Select an Duration Definition

44. Now you are ready to define the **New Duration Definition.** Left click on New Duration Definition and a menu opens:

	New D	uration Def.			
Dishetasl lah	Select	from	•		
DiabetesHgb □ NOT All Select Syst WHEN IN New Durati		rom	•		1
		System Duration	>	bTestDate ▼	
		uration Def. V	WIT	H No Demogra	phics ▼
Updat	e	Update and Clo	se	Close	
» Please Select an Duration Definition					

45. Left click on New Duration Def. and

<u>@</u>		Du	ration Definitio	n Palette	Webpage Dialog
Attps://clg.emerginghealthit.com/CLGNET/Mo	odules/Event[DefinitionBuilder/EventD	efinitionBuilder.asp	x?DefType=D	URATION&SelMenuOptic
Edit Options					
Name: QDR1 C318d from		🖾 to 🗆		Ø	
Update Update and Close Close					

- 46. a duration definition Palette opens. A palette is just another type of canvas.
- 47. Type in a name: Je 02 to Je 03

48. Put in the starting date next to the "from" 6/1/02

- 49. Put in the end date next to the "to" 6/1/03
- 50. Left click the box to the right of the word "from" which will tell the program to include that day in the interval. The absence of a check in the box after "to" will tell the program to

include time up to but not including that date. If time is not included, the program assumes midnight.

51. The resulting image is:

a	Duration Definition Pa	alette Webpage Dialog
https://clg.emerginghealthit.com/C	LGNET/Modules/EventDefinitionB	Builder/EventDefinitionBuilder.aspx?DefType=D
Edit Options		
Name: Je 02 to Je 03 from 🗹 e	5/1/2002 × 🗐 12:00 AM 💟	to 🗌 6/1/2003 🗐 12:00 AM 🔞
Update Update and Close Close	1	
Event Definition Options		

52. Left Click on Update and close. This returns you to the event canvas and the GUI editor below.

•		Event Canvas
		E. NINDEX EVENT : [Earliest of Any (And)]
1	4	
	* * * *	
	* * * *	
	4	
	'	
		DiabetesHgbA1cGe9.5
		□ NOT All of ✓ HgbA1c ge 9.5 : LabTestDate ▼
*		WHEN IN Je 02 to Je 03 V WITH No Demographics V
		Update Update and Close Close

53. The duration is automatically filled with the duration you just built.

- 54. We now will go to Demographics and restrict the cohort to patients aged 21 or older.
- 55. Left click on arrow next to Demographics

	No Demographics		
Diabetes HabAlaGe9 5	New Demographics Def.		
	Select from		
	No Demographics		
opuate opuate and close	CIOSE		

56. Left click on New Demographic Def.

The demographic definition palette opens

Demographics Definition Palette -
https://clg.emerginghealthit.com/CLGNET/Modules/EventDefinitionBuilder/EventDefinitionBuilder.aspx?DefType=DEM
Edit Options Name DEMOGRAPHICS1 C16d7 Update Update and Close Close
Definition

57. As you did in all previous palettes and canvases. type a name. In this case type the name "Age 21 to 65" and then hover over the definition on the palette until it is activated with a box around it.

Edit Options	
Name Age 21 to 65	
Update Update	e and Close Close
Event Definition Options	
Definition	

58. Right click on the "boxed definition" thereby opening a drop down menu.

59. Left click on "Add condition" — Definition and a condition line is created on the

"domographic definition polette" and a CIII editor energy hele	
	Definition Canvas Webpage Dialog
https://clg.emerginghealthit.com/CLGNET/Modules/EventDefinitionBuilder/f	EventDefinitionBuilder.aspx?DefType=DEMOGRAPHICS&
Edit Options	
Name Age 21 to 65	
Update Update and Close Close	
Event Definition Options	
Condition	
NOT Please Select	
Update Definition Update and Close Close	
» Please Enter the Required Data	

60. Left click on the please select arrow



61. Left click on age

	NOT Age Update Definition Update and Close	~	Please Select = > >=	5
62.	Expired Edi	ts	< <= BETWEEN	ıdi

- 63. Left click on please select which opens a drop down menu
- 64. Left click on between

	□ NOT Age	✓ BETWEEN	✓ FROM ✓	то
65	Update Definition Update and Close	Close		

66. Type in the ages of 21 to 65 inclusive of 21 by checking the box near 21. This results in the following image:

	► BETWEEN	✓ FROM	√ 21	то 65	×
Update Definition Update and Close	Close				

67. Left click on update and close.

Objective Conversion Conversio
Stress://clg.emerginghealthit.com/CLGNET/Modules/EventDefinitionBuilder/EventDefinitionBuilder.aspx?DefType=DEMOGRAPHICS
Edit Options Name Age 21 to 65 Update Update and Close Event Definition Options
Image: Second and Second an

You have successfully painted your condition line restricting demographics to age 21 to 65

68. Now left click update and close

Edit Selected BUILD Save As	
Name: Bad Diabetes	+
Event Canvas	
C NINDEX EVENT : [Earliest of Any (And)]	
<u>م</u>	
Edit Selected Condition	
DiabetesHgbA1cGe9 5	
□ NOT All of	
WHEN IN Je 02 to Je 03 V WITH Age 21 to 65 V	
Update Update and Close Close	
You are now back in the event canvase with the demographic defined	

70. Now click update and close

-	Edit Selected BUILD Save As		
	Name: Bad Diabetes	+	
	Event Canvas		
	C N INDEX EVENT : [Earliest of Any (And)]		
	DiabetesHgbA1cGe9.5: [All of [HgbA1c ge 9.5 : LabTestDate] WHEN IN [Je 02 to Je 0)3] WITH [Age 21 to 65]]	
71.			

Your gui editor closes and you now have a condition line painted on the event canvas. The Index Event line specifies "Earliest" so it is looking for the first event for the mrn in the condition line it is pointing to. However, it does not point to a specific condition line. It points to "Any" of the condition lines on the canvas. Since there is only one condition line on the canvas, it is functionally pointing to only the one line named "DiabetesHgbA1cGe.5". That one condition

line has "All" as its criteria so there may be more than one HgbA1c lab test for an individual patient. Because the Index Event line states "Earliest", it will choose the "Earliest" of "All" the HgbA1c results greater than or equal to 9.5 for an individual patient thereby yielding a single

event per person, a single mrn and date:time of that event per person which is a cohort of unique individuals.

72. Left click on build

Mame: Bad Diabetes +				
Event Canvas				
🛄 🛄 DiabetesHgbA1cGe9.5: [All of [HgbA1c ge 9.5 : LabTestDate] WHEN IN [Je 02 to Je 03] WITH [Age 21 to 65]]				
🖉 CLG Message Box Webpage Dialog				
A https://da.amarginghaalthit.com/CLGNET/Modules/MessagePey/M				
S mups.//cig.emergingneaiunit.com/clone1/modules/messagebox/m ■				
[Bad Diabetes] has been succesfully built and the number of MRNs is 3130				
Ok				

There are 3,130 people who meet the criteria on the event canvas.

The cohort in the management pane changes from yellow striped:



74. To Green striped indicating that the cohort has both the rules and the medical record numbers and date: times of the patients available for additional analytic work.



Green

76. Green signifies a built cohort with rules and medical record numbers.

If you made the mistake of "saving" the cohort, you would have lost all the mrn's and only have the rule set remaining.

When you leave Event Canvas after a build, just exit. If you save, or if you save and exit then all your MRN (patient numbers) will vanish and you will only be left with the rules that built the cohort. This rules will have to be built again to recreate the cohort.

77. Now that we have built a cohort let's see what we can do with it.

_ 🦳 🦳 Event Canvas

Got to the managemet pane. Hover over the cohort and

Management	
Filtered by: Type 🔹 Status 👻 💟	
⊡(C) Collections and Cohorts	
🗄 💼 TDiabetes	
USR: Bad Diabetes	a box surrounds the cohort, letting you know that CL

considers the cohort active for interrogation.

78. Right click on the "activated boxed cohort".

A drop down menu appears:
CLG	Canvas
Management	
Filtered by: Type 🔻 Status	<u>ଏ</u> 🖉
Collections and Cohorts	
- TDiabetes	
C B USR: Bad Dial	oetes
·	Edit
Å	Delete
	Make Copy
	View Summary
	Browse
	Share
	Build
79.	Copy to Event Collection

Options include:

- 80. Edit modify the cohort
- 81. Delete remove the cohort
- 82. Make copy make a copy of the cohort that you can rename
- 83. View Summary Documentation of rules you used to make the cohort
- 84. Browse Ability to create a spreadsheet with the attributes of the cohort as well as demographics
- 85. Share ability to share the cohort with another member of the clg community. Your shared cohort will appear in your friends management pane with
- 86. YourName:Name of cohort, instead of Usr:Name of cohort.
- 87. Buld allows you to rebuild the cohort
- 88. Copy to Event Collection Turn cohort into an Event collection. For example, if you did not just want the first HgbA1c but wanted "all", you would need to copy the cohort to and Event

Collection and when you then editted the event collection you would see "All" in the IndexEvent Line.

Assignment:

89. See videos in CLG and learn how to use each of these commands:

	Analys		s Smart Reports T	ools	Help	
			Manuals		1	
			Usage Guidance		1	
	CLG Modules	•	Access			
	Smart Reports	•	HIPAA		1	
			Intro To Help In CLG			
			Manual Overview		•	
			Set Builder Introducti	on		
Build A C	Cohort		Event Canvas		•	
Within			Upload A Cohort			
When In			Laboratory Results Se	et Builde	er	
Subgroup	os ()		Lab With Text			
Event Co	llections		Hierarchical Sets Med	lication		
Browse		×	Text Search		•	
Analysis	Definition		Study Designer		•	
Common	Event Definition					
Managem	nent Pane Overview	N				
Share A	Cohort					
Delete A	Cohort					
Create A	Folder					
Save As						
View Sur	nmary					

90. If your audio card is not working in your computer then go to the 765 page manual and look for the commands and written description. I would advise the videos.

Example #2

Tutorial 5 The Diabetic Cohort with repeat HgbA1c https://www.youtube.com/watch?v=30a9We_ZCeU

Let's Find out how many of these Bad diabetics had a repeat HgbA1c within 180 days to 365 days after their first value. Note, I do not care what the repeat HgbA1c value is, I just want to know that they had a repeat study.

Go to the Management Pane, hover over the cohort, Right click on the cohort to open a menu, and left click on the "edit command".

The Event Canvas opens up with the previously built cohort condition lines in place:

91.

(Edit Se 1 d BUE Save As >>>> >>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>	
E	Event Canvas INDEX EVENT : [Earliest of Any (And)] DiabetesHgbA1cGe9.5: [All of [HgbA1c ge 9.5 : LabTestDate] WHEN IN [Je 02 to Je 03] WITH [Age 21 to 65]]	
i		

- 92. Check the *save as* box so when you finish your editing you will save the cohort with a new name and leave the old one intact
- 93. Rename to: Bad Diabetes with RepeatHgbA1c

Yielding:

Edit Selected BUILD 🔽 Save As 💷 💷 🗮
Name: Bad DiabetesWRepeat +
Event Canvas
E-C SINDEX EVENT : [Earliest of Any (And)]
🛄 🛱 DiabetesHgA1cGe9.5: [All of [HgbA1cGe9.5 : LabTestDate] WHEN IN [Je 02 to Je 03] WITH [Age 21 to 65]]

94. Now hover over the Index Event line and Right click opening up a menu

Event Canvas	
☐ DiabetesHgbA1cGe9.5: [All of [HgbA Add ▶	When In 2 to Je 03] WITH [Age 21 to 65]]
🗷 Edit	Within
	Sub-Group
	Sub-Group

95. Left click on "within" to paint a new within line on the event canvas and open up a "Selected event condition gui editor" below:

Namo: Rad Diabetee///D/	anast
Name: Bad Diabeleswike	epeal +
Event Canvas	
C SINDEX EVENT : [Earliest of	Any (And)]
DiabetesHgA1cGe9.5: [All	of [HgbA1cGe9.5 : LabTestDate] WHEN IN [Je 02 to Je 03] WITH [Age 21 to 65]]
AND	
Event1 [{New Event Define	nition} within 0 to 0 {select time units} { select time direction} {New Abstract Event Definition}]
	New "within" condition line
Note "within"	
symbol	
	"Selected Condition GUI
Edit Selected Condition	"Selected Condition GUI Editor"
<pre>{ Edit Selected Condition }</pre>	"Selected Condition GUI Editor"
Event1	"Selected Condition GUI Editor"
Event1	"Selected Condition GUI Editor"
✓ Edit Selected Condition Event1 NOT NOT All of WITHIN 0	"Selected Condition GUI Editor" Event Def. ▼ Days After ▼ Event: DiabetesHgA1cGe9.5

96. Steps:

Edit Selected Condition
Event1 1
NOT All of View Event Def V 2
WITHIN 0 3 TO 0 4 Days V After V Event: DishotosHehAloGo95 V
WITHIN 0 0 10 bays + Alter + Event. Diabeteshigh roder 5
Undete Undete and Class Class
opdate opdate and close close

97. Change "All of" to "Earliest of"

Edit Selected Condi	tion			
NOT Earliest of	New Event Def. ▼			
WITHIN 0	TO 0 Days	▼ After	▼ Event: DiabetesHgbA1cGe9.5 ▼	
Update U	Jpdate and Close	Close		

- 98. Rename Event1 to "RepeatHgbA1c"
- 99. Build a new event that is a Lab test of Hemoglobin A1c. You did this before, but now do not add the second condition of lab test value

-	Definition Canvas Webpage I	Dialog
	https://clg.emerginghealthit.com/CLGNET/Modules/EventDefinitionBuilder/EventDefinitionBuilder.aspx?DefType=EVENT&Se	MenuOp
	Edit Options	
	Name Repeat Type	
	Update Update and Close Close	
ł	Event Definition Options	
·	End Definition	
·		
1		
·	NOT Lab Test Type V = V HEMOGLOBIN A1c V	
	Update Update and Close Close	

100. "Update and Close" to close the GUI editor for the Definition Canvas

	Definition Canvas Webpage Dialog
Shttps://clg.emerginghealthit.com/CLGNET/Modules/EventDefinitionBuilder/EventD	DefinitionBuilder.aspx?DefType=EVENT&SelMenuO
Edit Options	
Name Repeat Event Type Lab Test V	
Update Update and Close Close	
Event Definition Options	
Definition	

101. "Update and Close" the definition canvas to return to event canvas's GUI editor and populate the event type

Edit Selected Condi	tion					
Repeat HgbA1c						
NOT Earliest of	 RepeatHgbA1 	c : LabTestDate ▼				
WITHIN 0	TO	Days -	After	•	Event: DiabetesHgA1cGe9.5 🔻	
Update	Update and Close	Close				

- 102. Choose within 180
- 103. Choose To 365
- 104. Make sure you are pointing to the first condition line as the time anchor for the within condition

105.

This results in:

Edit Selected Cor	ndition				
RepeatHgbA1c					
NOT Earliest o	f 🔻 RepeatHgb/	1c : LabTestDate	e 🔻		
WITHIN 180	TO 365	Days	✓ After	▼ Event: Diabetes hgbA1CGe9.5 ▼	
Update	Update and Clo	ose Clos	e		

106. Left Click on Update and Close

Name: Bad DiabetesWRepeat +
Event Canvas
E INDEX EVENT : [Earliest of Any (And)]
AND
Repeat HgbA1c: [Earliest of [RepeatHgbA1c : LabTestDate] within 180 to 365 Days After Event: DiabetesHgA1cGe9.5]
1

107. Now build

- 108. Note: only 1821 patients had a repeat HgbA1c within 180 to 365 days.
- 109. The management Pane shows two cohorts because you used "save as"



Both are green because you have the cohort rules as well as the "built" cohort with mrns and date:times.

- 111. Remember post build to exit (do not save, do not save and exit).
- 112. Congratulations, you have now completed a two condition cohort with temporal sophistication of a within command.

Develop Intuition – Index Event Line

Tutorial 6 Browse and the Power of the Index Event Line https://www.youtube.com/watch?v=LboeRlLua_g

Now let's develop deep intuition of how the Index Event line works using the browse option in the management pane to focus our attention.

Remember, the purpose of the Index Event Line is to specify the line and which event in that line should provide the date:time for the person qualified by the multiple condition lines on the event canvas.

But, what is remarkable is that Clinical Looking Glass remembers which event generated the date:time and when you browse a cohort of patients CLG displays the index date event's attributes.

In the case of our last section one of the index date event's attributes was numeric value so numeric value of the index date event is selectable through the choice of index date made at the index event line.



If the Index Event Line points to the first Condition Line then it is the event in the First condition line that is used to provide attributes.

In our last section, this would be the original Hemaglobin A1c value greater than or equal to 9.5 that made the patient eligible for inclusion in the cohort. This is the "time zero" value of Hemoglobin A1c for each patient.

If the Index Event Line points to the second Condition Line, then it is the event of the Second Condition that is used to provide attributes.

In our last section, this would be the repeat Hemoglobin A1c collected 180 to 365 days after the first. In a browse, we would see the value of the repeat Hemoglobin A1c some of whom we would hope would be below the 9.5 value that occurred at time zero

If the Index Event Line says "Earliest of Any" not specifying a condition line then the patient's first qualifying event on the canvas will determine the attributes that will be shown.

Of course, in our case the "within, after" condition of the second line guarantees that **all the events of the second line** are after the events of the first line. Therefore, the Index Line with "Earliest of any" would be functionally pointing to the first condition line.

Exercise: Build Good and Bad Diabetic Cohorts

Tutorial 7:

Build Two Diabetic Cohorts that achieved good and bad Hemoglobin A1c respectively https://www.youtube.com/watch?v=UTHUK75VkXM

You will need both cohorts for our next class

You will need these cohorts for future work so make sure to build them.

Build Cohort with Bad Repeat Test

Cohort: BadDiabetesWRepeatBadF2

{Note the naming convention for this cohort: camelback is used to occupy the least number of characters while maintaining a descriptive name. F2 designates where the index event line is focusing. The index event line time is to be focused on the repeat test (**Focus on line 2**)}

Earliest, Hgba1c >= 9.5, in Je 02-Je 03, Age 21-65 with a subsequent HgbA1c measuring >=9 within 180-365 days after. Focus index date:time on the "subsequent HgbA1c". N=1010

BadDiabetesWRepeatBadF2 Criteria-

- i. First hemaglobin A1c in patients seen between Je 02-Je03 with a value Greater than or equal to 9.5 and Age between 21-65
- ii. a repeat HgbA1c within 180-365 days after the first with a value greater than or equal to 9.

Result: N = 1010

iii. The index event line should point to the repeat HgbA1c so we have a cohort called "BadDiabetesWRepeatBadF2" who have not been brought under control by the time of their second study.



1. Cohort: BadDiabetesWGoodRepeatF2

Earliest, Hgba1c >= 9.5, in Je 02-Je 03, Age 21-65 with a subsequent HgbA1c measuring <=7 within 180-365 days after. Focus index date:time on the "subsequent HgbA1c". N=373

BadDiabetesWGoodRepeatF2 Criteria-

- i. First hemaglobin A1c in patients seen between Je 02-Je03 with a value Greater than or equal to 9.5 and Age between 21-65
- ii. a repeat HgbA1c within 180-365 days after the first with a value less than or equal to 7.)

Result: N= 373

iii. The index event line should point to the second hgba1c so we have a cohort called "BadDiabetesWGoodRepeatF2" who have been brought under control by the time of their second study.



Build Two more Cohorts by Changing the Focus of the Index Event Line to the first line

BadDiabetesWBadRepeatF1:



BadDiabetesWGoodRepeatF1:



You will need all four cohorts for your next class.

Challenge question:

Why is it important which line the index line is focussing on?

Now build a CHF example focused on admission.

Educational goals -

- 1. Learn how to invoke an inpatient event; how to build a diagnostic set
- 2. Understand why you want an inpatient discharge or inpatient admission (You know this from Chapter 5 <u>Riddles in Accountable Healthcare</u> Heads or Tail which end is up.

Clinical Looking Glass Session Exercise: Build a cohort of Congestive Heart Failure admissions using the admit date to represent the hospitalization.

Tutorial 8 Build a Congestive Heart Failure Cohort using a Diagnostic Set https://www.youtube.com/watch?v=8WXMury6w-0

Create a new cohort

Event Canvas launches in a new window and a new blank Cohort is loaded with the *Event Condition Editor* open.

🔗 Event Canvas - Windows Internet Explorer	- • •
(a) http://clg.emerginghealthit.com/CLGNET/Manage/ManageModules/AnageModules.aspx?InputPacket={"ModuleID";"0","PageAction";"New"}	
Filtered By: Type Status Name: New Cohort +	
Collections and Cohorts]
C NUSR: New Cohort	
C USR: Clopidogrel No PPI N C N INDEX EVENT : [Earliest of Any (And)]	Ĥ
C BUSR: Clopidogrel No PPI Y	
Lait Selected Condition	
Event1	
■ NOT All of New Event Def.	
WHEN IN New Duration Def. V WITH No Demographics V	
Update Update and Close Close	
Please Select an Event Definition	
Please Select an Duration Definition]
Done 🕒 Internet Protected Mode: Off	• 🔍 100% 👻

113. Name your new cohort.

Edit Selected BUILD Save As	
Name: Inpatient Admit w CHF in Mar 2012	+
Event Canvas CNINDEX EVENT : [Earliest of Any (And)] Event1: [All of] WHEN IN]]	

Enter condition line name

1. Name the event condition.

Edit Selected Condition
Admit w CHF Mar 2012
■ NOT All of New Event Def.
WHEN IN New Duration Def. ▼ WITH No Demographics ▼
Update Update and Close Close

Define an Event Definition

1. Click on New Event Def. to expand the menu and select "New Event Def."

Edit Selected Condition	on J		
Admit w CHF Mar 2012			
NOT All of 🔹	New Event Def. 🔻		
WHEN IN New Durat	New Event Def.		nics 🔻
Update Upd	Select fro(1m).	•	
	Select from Common Definition	•	

114. The Event Definition Palette opens in a new window.

💋 Event Definition Palette Webpage Dialog			
http://clg.emerginghealthit.com/CLGNET/Mod	lules/EventDefinitionBuilder,	/EventDefinitionBuilder.aspx?DefType	=EVENT&SelMenuOption=NewEventDefinition&EntityID=ew
Edit Options			
Name EV C98b5	Event Type Please	Select	End Point Event Please Select
Update Update and Close	Close		
Event Definition Options			
http://clg.emerginghealthit.com/CLGNET/Modules	/EventDefinitionBuilder/Ever	ntDefinitionBuilder.aspx 🌍 Internet	Protected Mode: Off

115. Name the new event "CHF Admissions and select the "Inpatient Admit" as the **Event Type** in the dropdown menu.

Event Definition Palette Webpage Dialog		-	the second se
Edit Options			
Name CHF Admissions	Event Type	Please Select 🝷	End Point Event Please Select 🗸
Update Update and Close	Close	Please Select Ambulatory Surgery Admit	
Event Definition Ontions		Ambulatory Surgery Discharge	
		Date of Birth	
		Date of Death Echo Date	
4 Name the Friend		ED Discharge	
1. Name the Event		ED Seen ED Triage	2. Select "Inpatient Admit"
		Findings	
		Inpatient Discharge	
		Internal MedAdminDate	
		Med Order Start	
		Med Order Stop Microbiology CollectDate	
		Orders With Text	
		Outpatient Visit	

Define an attribute condition



116. The Event Definition Editor opens.

Edit Options		
Name CHF Admissions	Event Type Inpatient Admit	 End Point Event Please Select
Update Update and Close	Close	
Event Definition Options		
NOT Please Select		
Update Update and Close	Close	

117. Select *Inpatient ICD9 Group* from the drop down menu.

Management Amil Referral Agency	ted BUILD Save As R -	
Filtered By: Type VDRG	e: Inpatient Admit w CHF in Mar 2012 +	
Collections and Admit Attending		
C USR: Nev Admit Housestaff		
C BUSR: Clo Discharge Attending	Event1: [All of D WHEN IN D]	П
Discharge House stan		
Facility	Modules/EventDefinitionBuilder/EventDefinitionBuilder asny2DefType=EVENT&/SelMenuOntion=NewEventDefinition&/EntityID=ew	
Insurance Plan	would by prenden in doind and prenden in a non-banden aspect of the pre-event option - new prenden in a of den in a spectra of the prendent option - new prendent aspect of the prendent option - new prendent aspect of the prendent option - new	
Ledit Opti IPA Insured		
Name Pay Group	Event Type Inpatient Admit End Point Event Please Select	
Service Care / Center ور	: Close	
LengthOfStay (days)		
Inpatient Admit Service		
Defini APR DRG		
APR Illness Severity		
APR DRG Average LOS		
APR DRG Weight Admit Nursing Station		H
Discharge Nursing Station		Ľ
Inpatient Encounter Type		
Update Update and Clos	e Close	
» Please Enter the Required Data		
http://clg.emerginghealthit.com/CLGNET/Me	odules/EventDefinitionBuilder/EventDefinitionBuilder.aspx 🝚 Internet Protected Mode: Off	
Please	Select an Duration Definition	

Define a Set

2. You need to define a diagnosis set using **Set Builder**. To access it, click . Whenever you see a "three dotted button" the program is making available a window to build whatever is supposed to be entered to the left of the "builder button".

NOT Inpatient ICD9 Group -	IN SET -	2ndary malig 🔹 🖳 Primary or Secondary 👻 Present On Admission? 💌
Update Update and Close	Close	J.

118. Set Builder opens with the currently selected set loaded. Clear this set by clicking the **Clear** button.

Build / Modify Shar	ICD9DX Diagnosi	5	✓ View Code List	
Search Explore Pick an existing set: (Optional) Search options: Search On: Search Within: Display Options:	2ndary malig Code Set Show dimension	Description Hierarchy	 View Set Find Reset Grouping / hierarchy names Please Choose Show Hierarchies 	
Assign Search result list		Add -> Add All -> <- Remove	Assigned list 196.0 - MAL NEO LYMPH-HEAD/NECK 196.1 - MAL NEO LYMPH-INTRATHOR 196.2 - MAL NEO LYMPH INTRA-ABD 196.3 - MAL NEO LYMPH-AXILLA/ARM 196.5 - MAL NEO LYMPH-INGUIN/LEG 196.6 - MAL NEO LYMPH NODE-MULT 196.8 - MAL NEO LYMPH NODE-MULT 196.9 - MAL NEO LYMPH NODE NOS 197.0 - SECONDARY MALIG NEO LUNG 197.1 - SEC MAL NEO MEDIASTINUM 197.2 - SECOND MALIG NEO PLEURA 197.3 - SEC MALIG NEO RESP NEC 197.4 - SEC MALIG NEO SM BOWEL	E E
Clear Close	New Save			

119. After clearing the Set Builder, the space will look like this:

Set Builder Webpage Dialog	and the second second			Х
Attps://clg.emerginghealthit.com/SE	3App/(S(h0rioek0frpa4wpsd2k	(mykvl))/SetBuilde	er.aspx?UserName=Istahl&SetType=14&SetID=84595	
Build / Modify Share / De	lete			
Calast Turs and Asting				
	ICD9DX Diagoosis		- View Code List	
Set Type :	TEDSDX Diagnosis			
Search Explore				
Pick an existing set: (Optional)	Please Choose		View Set	
Search options:			Find Reset	
Search On:	🗌 Code 🛛 🔽 De	escription	Grouping / hierarchy names	
Search Within:	Set Hi	ierarchy F	Please Choose 🔻	
Display Options:	Show dimension value	es only 🛛 🔇) Show Hierarchies	
Assign				. 1
Search result list			Assigned list	
]		
		Add ->		
		Add All ->		
		<- Remove		
		<- Remove All		
Clear Close <u>N</u> ew	Save			

120. Search for Heart Failure diagnoses: Type "Heart Failure" in the Search field and click

Build / Modify Share / Dele	te		
Select Type and Action			
et Type :	ICD9DX Diagnosis	S	✓ View Code List
Search Explore			
ick an existing set:	Please Choose		▼ View Set
earch options:	Heart Failure		Find Reset
earch On:	Code	Description	Group / hierarchy names
earch Within:	Set	Hierarchy	Please Choose 👻
isplay Options:	 Show dimension 	values only	◯ Show Hierarchies

121. You may select only the diagnoses codes that you wish to include in your set by holding down the Control key as you click on each one. For this set, you want all of the codes

displayed in the search results, so simply click

Assign earch result list			Assigned list
398.91 - RHEUMATIC HEART FAILURE 428 - HEART FAILURE 428.0 - CONGESTIVE HEART FAILURE, UNSPECIFIED 428.1 - LEFT HEART FAILURE 428.20 - UNSPECIFIED SYSTOLIC HEART FAILURE 428.21 - ACUTE SYSTOLIC HEART FAILURE 428.22 - CHRONIC SYSTOLIC HEART FAILURE 428.33 - ACUTE ON CHRONIC SYSTOLIC HEART FAIL 428.30 - UNSPECIFIED DIASTOLIC HEART FAILURE 428.31 - ACUTE DIASTOLIC HEART FAILURE 428.32 - CHRONIC DIASTOLIC HEART FAILURE 428.33 - ACUTE ON CHRONIC DIASTOLIC HEART FAIL 428.34 - CUTE ON CHRONIC DIASTOLIC HEART FAIL 428.35 - CHRONIC DIASTOLIC HEART FAILURE 428.36 - UNSPEC COMBINED SYSTOLIC & DIASTOLIC 428.40 - UNSPEC COMBINED SYSTOLIC & DIASTOLIC	* E	Add -> Add All -> <- Remove	428 - HEART FAILURE 428.0 - CONGESTIVE HEART FAILURE, UNSPECIFIED 428.20 - UNSPECIFIED SYSTOLIC HEART FAILURE 428.22 - CHRONIC SYSTOLIC HEART FAILURE 428.23 - ACUTE ON CHRONIC SYSTOLIC HEART FAIL 428.31 - ACUTE DIASTOLIC HEART FAILURE 428.40 - UNSPEC COMBINED SYSTOLIC & DIASTOLIC 398.91 - RHEUMATIC HEART FAILURE 428.1 - LEFT HEART FAILURE 428.21 - ACUTE SYSTOLIC HEART FAILURE 428.30 - UNSPECIFIED DIASTOLIC HEART FAILURE 428.33 - ACUTE ON CHRONIC DIASTOLIC HEART FAILURE 428.33 - ACUTE ON CHRONIC DIASTOLIC HEART FAILURE

Add All ->

You can search for ICD9 codes using google on the internet and you can then enter the icd9 code into the find box after you click on the code search button.

Set Builders	
Build / Modify Share / Delete	
Select Type and Action	
Set Type : ICD9DX Diagnosis View Code List	
Search Explore	
Pick an existing set: Please Choose View 3	
Search options:	
Search On: 2 Code Description Grouping / hierarchy names	
Search Within:	
Display Options:	
Assign	
Search result list Assigned list	
428 - HEART FAILURE 398.91 - RHEUMATIC HEART FAILURE	
428.0 - CONGESTIVE HEART FAILURE, UNSPECIFIED	\land
428.1 - LEFT HEART FAILURE 428.0 - CONGESTIVE HEART FAILURE, UNSPECIFIED	, ,
428.21 - ACUTE SYSTOLIC HEART FAILURE Add All -> 428.20 - UNSPECIFIED SYSTOLIC HEART FAILURE	
428.22 - CHRONIC SYSTOLIC HEART FAILURE 428.21 - ACUTE SYSTOLIC HEART FAILURE	
428.23 - ACUTE ON CHRONIC SYSTOLIC HEART FAILI	
428.23 - UNSPECIFIED DIASTOLIC HEART FAILURE 428.23 - ACUTE ON CHRONIC SYSTOLIC HEART FAIL	LL
428.32 - CHRONIC DIASTOLIC HEART FAILURE <- Remove All 428.30 - UNSPECIFIED DIASTOLIC HEART FAILURE 428.31 - ACUTE DIASTOLIC HEART FAILURE	
428.33 - ACUTE ON CHRONIC DIASTOLIC HEART FAIL 428.32 - CHRONIC DIASTOLIC HEART FAILURE	

- 1 type in the code 428
- 2 check box for codes
- 3 Left click find

The cycle you should follow is use word find, then code find to build your set.

122. Review the Assigned list. If it is correct, click **Save**.

Assian		
Assign Search result list 398.91 - RHEUMATIC HEART FAILURE 428 - HEART FAILURE 428.0 - CONGESTIVE HEART FAILURE, UNSPECIFIED 428.1 - LEFT HEART FAILURE 428.20 - UNSPECIFIED SYSTOLIC HEART FAILURE	Add -> Add All ->	Assigned list 428 - HEART FAILURE 428.0 - CONGESTIVE HEART FAILURE, UNSPECIFIED 428.20 - UNSPECIFIED SYSTOLIC HEART FAILURE 428.22 - CHRONIC SYSTOLIC HEART FAILURE 428.23 - ACUTE ON CHRONIC SYSTOLIC HEART FAIL
428.21 - ACUTE SYSTOLIC HEART FAILURE 428.22 - CHRONIC SYSTOLIC HEART FAILURE 428.23 - ACUTE ON CHRONIC SYSTOLIC HEART FAIL 428.30 - UNSPECIFIED DIASTOLIC HEART FAILURE 428.31 - ACUTE DIASTOLIC HEART FAILURE 428.32 - CHRONIC DIASTOLIC HEART FAILURE 428.33 - ACUTE ON CHRONIC DIASTOLIC HEART FAI 428.40 - UNSPEC COMBINED SYSTOLIC & DIASTOLIC	<- Remove	428.31 - ACUTE DIASTOLIC HEART FAILURE 428.40 - UNSPEC COMBINED SYSTOLIC & DIASTOLIC 398.91 - RHEUMATIC HEART FAILURE 428.1 - LEFT HEART FAILURE 428.21 - ACUTE SYSTOLIC HEART FAILURE 428.30 - UNSPECIFIED DIASTOLIC HEART FAILURE 428.32 - CHRONIC DIASTOLIC HEART FAILURE 428.33 - ACUTE ON CHRONIC DIASTOLIC HEART FAI
Clear Close New Sav		

398.91 - RHEUMATIC HEART FAILURE	
428 - HEART FAILURE	/
428.0 - CONGESTIVE HEART FAILURE, UNSPECIFIED	
428.1 - LEFT HEART FAILURE	
428.20 - UNSPECIFIED SYSTOLIC HEART FAILURE	
428.21 - ACUTE SYSTOLIC HEART FAILURE	
428.22 - CHRONIC SYSTOLIC HEART FAILURE	
428.23 - ACUTE ON CHRONIC SYSTOLIC HEART FAIL	
428.30 - UNSPECIFIED DIASTOLIC HEART FAILURE	
428.31 - ACUTE DIASTOLIC HEART FAILURE	
428.32 - CHRONIC DIASTOLIC HEART FAILURE	
428.33 - ACUTE ON CHRONIC DIASTOLIC HEART FAI	428.41 - ACUTE COMBINED SYSTOLIC & DIASTOLIC I
428.40 - UNSPEC COMBINED SYSTOLIC & DIASTOLIC	428.9 - HEART FAILURE NOS

123. Name your new set CHF All and click **Save**.

Na	me: CHF All	1			◎ Save	
Descript	tion:			*		
Clear	Close	New	Save	Ŧ	Save	Cancel

124. Note the confirmation message. Click Close.

A Set s	aved as: CHF	All		
Clear	Close	New	Save	
	N.			

Use Your New Set in Your Condition Definition

Study Designer		Ema	et Doporto
	USR: CHF All		in kepons
	distone Acute MI	-	
Studies + 🕐 Study	dfletche:Acute MI_646c22cc	-	
	dfletche:Acute MI_99e5d725		
🖉 Event Canvas - Windows Internet Explorer	jweissma:CLG_UC4_Diagnosis_List2		
🛭 🧧 🙋 http://clg. emerginghealthit.com /CLGNET/Manage/Manage	ebellin:myocardial infarctio_7665cb96_05cbbd07	n"	:"New"}
	ebellin:myocardial infarctio_7665cb96_05cb5007		
Anagement Ω→X [Edit Selected]	ebellin:myocardial infarctio_7665cb96_2896bde5		
Filtered By: Type 🔻 Status 👻 🕖 🛛 Name: In	ebellin:mvocardial infarctio 7665cb96 744785aa	+	+
	ebellin:myocardial infarctio 7665cb96 9dc658b7		
Definition Convers - Webnage Dialog	ebellin:myocardial infarctio 7665cb96 a73ef96a		
E Deminition Canvas Webpage Dialog	ebellin:myocardial infarctio_7665cb96_cc204169		
💋 http://clg. emerginghealthit.com /CLGNET/Modules/EventDefinit	ebellin:myocardial infarctio_7665cb96_cf810c41	= N	lewEventDef
	ebellin:myocardial infarctio_7665cb96_d4c327c8		
	ebellin:myocardial infarctio_7665cb96_e4d66117		
Name CHF Admissions Event Type	ebellin:myocardial infarctio_7665cb96_f924d67c	- F	Event Pl
	mmccrosk:Polio		
Update Update and Close Close	mmccrosk:Pollo_basabcb1		
	adapt malia		
Event Definition Options	Abdom hernia		
	Abdomnl pain		
	Abort compl		
	Ac renl fail		
	Acq foot def		
	Acut p-h anm		
	Acute CVD		
	Acute MI		
	Adjustment disorders	-	_
■ NOT Inpatient ICD9 Group IN SET	2ndary malig	•	Primary
Update Update and Close Close			

Click the set menu and find your new set at the top of the list. Select it by clicking on it.

- Do not change the settings for **Primary or Secondary** and **Present on Admission**? 125.
- 126.

Click Update and Close to save your condition definition.

■ NOT	Inpatient I	CD9 Group	✓ IN SET	✓ USR: CHF All
Upo	late	Update and (Close Clo	se
			3	

127. Your Definition Canvas should look like this. Click Update and Close to save your Event Definition.

Event Type	Inpatient Admit
Close	
Position Equal Primary	or Secondary
	Event Type Close

128. Note that your newly defined Event Definition is selected in the Event Condition Editor with a prefix of the event type ("CHF Admissions").

Edit Selected Condition
Admit w CHF Mar 2012
■ NOT All of CHF Admissions : InpatientAdmissionDate ▼
WHEN IN New Duration Def. WITH No Demographics
Update Update and Close Close

Define Time Period

1. Click New Duration Def. and select New Duration Def.

d Edit	Salart	New Duration Ref.			
	OUE	Select from(''')	۶l		
Admit	W CHF	Copy from	۰Ļ		_
🗆 NC	DT All	Select System Duration	۱	patientAdmissionDate 🔻	
WHE	N IN	New Duration Def. ▼ WI	TH	No Demographics 🔻	
l	Update	e Update and Close		Close	

129. Enter a name for your duration.

Edit Options			
Name: Mar 2012 from	ত to		Q
Update Update and Close Close			

130. Enter the date range in the **from** and to **fields**. Click the inclusion check boxe to include March 1, 2012 but do not check the inclusion box of 4/1/2012. This will include the last second up to the start of the day 4/1/2012.

Edit Options			
Name: march2012 from 🗹 3/1/2012	🏢 12:00 AM 😰 to 🗆 4/1/2012	12:00 AM	O
Update Update and Close Close			
Update and Close			

131. Note that your duration definition is now selected in your Event Condition.



Define Demographic Condition

1. Click **No Demographics** and select *New Demographics Def.*

l .					
Edit Selected Condition	No Demographics				
	New Demographics Def.				
Admit w CHF Mar 2012	Select from ()				
NOT All of CHF Admission	Copy from				
WHEN IN Mar 2012 VITH	No Demographics V				
Update Update and Close Close					

The Demographics editor opens. Name your new demographic definition.

Name Age 65 or Greater	
Update Update and Close Close	
Event Definition Options	
Definition	

132. Right click on ^{med Definition} and select Add Contiion.

Edit Options							
Name Age 65 or G	Greater						
Update	Update Update and Close Close						
Event Definition Op	ition Gra						

133. The *Demographic Condition Editor* opens.

Name Age 65 or G	reater					
Updaie	Update and Close	Close				
Event Definition Opti	ions					
	with the second					
NOT Please Sel	ect 👻	-				
Update Definition	Update and Close	Close				

134. Click **Please Select** and select *Age* from the dropdown menu.

Edit Options						
Name Age 65 or G	Greater					
Update	Update and Close	Close				
Event Definition Op	tions					
E- Definition						
[re-r] 0 rade frond	Conditional					
····· <mark>·×=y]</mark> {Undefined	Condition}					
NOT Please Se	elect	▼				
Age		Class				
opdate D city	Π	Close				
" Please t Ethnicity-						
Gender						
Drimony	are MD Cet					

135. Click the operator drop down and select the greater than symbol (>).



136. Type "65" in the value field.



138. Verify that your demographic condition now includes Greater than 65. Click Update and Close

Edit Options					
Name Age 65 or Greater					
Update Update and Close	Close				

139. Your Event Condition is complete. Click Update and Close

Edit Selected Condition				
Admit w CHF Mar 2012				
■ NOT All of CHF Admissions : InpatientAdmissionDate				
WHEN IN Mar 2012 V WITH Age 65 or Greater V				
Update Update and Close Close				

Build the Cohort

1. To find out how many patients meet the conditions you have defined, click BUILD



140. Congratulations! You have identified your patient group. Click

Additional Work in class:

Tutorial 9 Death during CHF Admission using attribute or when in <u>https://www.youtube.com/watch?v=6aVHYB7yH0c</u>

- Identify which patients died during the admission by building a new cohort called "CHF March 2012 died"
 - a. Hint: Look at attributes of the inpatient discharge in the CLG Event manual vol 3



i. Which atttribute of inpatient admissoin type would you want to use to select those who died during the admission? (disposition). Make sure you have

looked in the manual so you will know how to find the relevant attribute in the future.

- i. Which set values would you want to use (expired)
- ii. Now tell me How many people died? What percent died

Start by building a cohort of hospital discharges made up of chf primary March 2012 (no demographic restriction) (N=226)

Chf primary march 2012 no demographic restriction disposition = expired

<i>i</i>				De	efinition Canvas
left https://clg.emerginghealthit.	com/CLGNE	ET/Modules/EventDefinit	ionBuilder/Even	tDefinitionBuil	der.aspx?DefType=EV
Edit Options Name Chf discharge Update Update and Close	Event Type Close	Inpatient Discharge	~	End Point Event	Inpatient Discharge 🗸
Event Definition Options Definition [X=y] Inpatient ICD9 Group InSet USR: Hear AND [X=y] Disposition Equal EXPIRED	rt Failure Position E	Equal Primary only			
		(m) (m + se) (se)			
Edit Selected BUILD Name: ChfMarch207	_ Save As 12WhenInI				
Event Canvas					

Hint: definition canvas looks like:

Result N= 2 patients

2. Now get the same information using a different approach. Build a third cohort called

📲 🛟 chfMarch2012: [All of [chf discharge : InpatientDischargeDate] WHEN IN [march2012]]

"CHF March 2012DiedWhenInMethod"

E. C B INDEX EVENT : [Earliest of Any (And)]

Use the first condition line from the original cohort and then add another condition line using a "when in condition" with the intent to use the "when in" to mean **during** the event of the condition line 1, to which condition line #2 will point.

"When in" has two different meanings depending on what you will choose in the "GUI Edit Select Event Editor" below the event canvas.

If you choose "	New Duration Def"	
Edit Select	New Duration Def. Select from Copy from Select System Duration	
WHEN IN	New Duration Det.	/IIH No Demographics ▼
Update	e Update and Close	Close
Edit Select	New Duration Def. Select from	

Update		Updat	e and Clo	ose		Close	
WHEN IN	New D	ouration	Def. 🔻	WITI	H	No Demograp	nics ▼
	Select	System	Duration	▶	Ц		
	Copy f	rom		•	L		

the event canvas understands the "when in" to mean "when in" a defined calendar duration and offers you a window to put in the calendric information

- Edit Optio	ons					
Name:	QDR1 C391e	from		🖸 to	==	Ø
Update	Update and Close	e C	lose			

If you choose "Select System Duration" from the "GUI Edit Select Event Editor", the event canvas understands that you are trying to find a durational event on the canvas that you will point to. By pointing to this durational event you will be demanding that this condition line event occurs during the duration of the pointed to durational event.

A durational event is an event that has a natural duration between start and stop. A hospital admission or discharge has a natural duration. An ED triage (representing the ED visit) has a natural duration.
Clinical Looking Glass offers you each durational event on the event canvas that you might want to point to.

In this case there is only one other line on the canvas so only one event is made available in the menu to point to. **chfMarch2012:Inpatient Stay.**

L Edit Coloct	New Duration Def.		
	Select from	Þ	
Event1	Copy from	Þ	
	Select System Duration	F	chfMarch2012: Inpatient Stay
WHEN IN	New Duration Def. ▼ WI	Tŀ	H No Demographics ▼
Update	e Update and Close		Close

To build this second condition line:

- a. Hover over index event line
- b. Right click choose Add / When in
- c. Choose Event of death either in house or social security master death file

<u>@</u>	Definition Canvas Webpage Dialog
https://clg.emerginghealthit.com/CLG	$\label{eq:constraint} {\sf VET/Modules/EventDefinitionBuilder.aspx?DefType=EVENT \& SelMenuOption (Constraint) (Constraint)$
Edit Options Name DeathInHouseOrSocialSecurity Update Update and Close	Death - Social Security or In House Death Date ✔
Event Definition Options	



This will pick up death both reported in the hospital emr and those cases known only to social security. For limitations in Social security Death tapes see <u>Riddles in Accountable</u> <u>Healthcare</u> Chapter 29: When the dead are silenced who speaks for the living?

- d. New duration
- b. Select system duration from the event canvas
 - i. this choice forces the event of death. (In other studies you might want to force another event such as a cardiac echo, blood pressure....to occur during the event of the hospitalization.



When you update and close you get:



Now build:

The result N=2. The same as the first method.

Homework: Before the second class

1. Rebuild all cohorts of class exercise and make sure you understand how to do it

You will absolutely need:

BadDiabetesWRepeatGoodF2 BadDiabeteWRepeatBadF2 BadDiabetesWRepeatGoodF1 BadDiabeteWRepeatBadF1

- 2. Read Pages 1-8 of Study Designer Manual
- 3. In preparation for the second class build the following four cohorts

Tutorial 10: Build four pneumonia Cohorts https://www.youtube.com/watch?v=rL-jmNjNrrl

- 1. First inpatient Admission with Pneumonia Primary diagnosis in 2010 Males who survived the hospitalization. (N=762)
- 2. First inpatient Admission with Pneumonia Primary diagnosis in 2010 Females who survived the hospitalization. (N=932)
- 3. First inpatient Discharge with Pneumonia Primary diagnosis in 2010 Males who survived the hospitalization. (N=753)
- 4. First inpatient Discharge with Pneumonia Primary diagnosis in 2010 Females who survived the hospitalization. (N=927)

Read: <u>Riddles in Accountable Healthcare</u> by Eran Bellin Chapter 5 *Heads or Tail Which End is Up: Choosing between two sides of a durational event.*

Pneumonia Event

a				Defin	ition Canvas	W
<i>l</i> https://clg.emerginghealthit	com/CLGNE	T/Modules/EventDefir	nitionBuilder/Ev	entDefinitionBui	lder.aspx?DefTyp	e=EVE
Edit Options Name Pneumonia Update Update and Close	Event Type Close	Inpatient Admit		End Point Event	Please Select	~
Event Definition Options Definition [X=y] Inpatient ICD9 Group InSet USR: Pne AND [X=y] NOT Disposition Equal EXPIRED	eumoniaHope Positic	on Equal Primary only				

Pneumonia Set

003.22 - SALMONELLA PNEUMONIA 020.3 - PRIMARY PNEUMONIC PLAGUE 020.4 - SECONDARY PNEUMON PLAGUE 020.5 - PNEUMONIC PLAGUE NOS 038.2 - PNEUMOCOCCAL SEPTICEMIA 041.2 - PNEUMOCOCCUS INFECT NOS 041.3 - Klebsiella pneumoniae 052.1 - VARICELLA PNEUMONITIS 055.1 - POSTMEASLES PNEUMONIA 073.0 - ORNITHOSIS PNEUMONIA 115.05 - HISTOPLASM CAPS PNEUMON 115.15 - HISTOPLASM DUB PNEUMONIA 115.95 - HISTOPLASMOSIS PNEUMONIA 130.4 - TOXOPLASMA PNEUMONITIS 136.3 - PNEUMOCYSTOSIS 320.1 - PNEUMOCOCCAL MENINGITIS 352.3 - PNEUMOGASTRIC NERVE DIS 480 - VIRAL PNEUMONIA 480.0 - ADENOVIRAL PNEUMONIA 480.1 - RESP SYNCYT VIRAL PNEUM

480.2 - PARINFLUENZA VIRAL PNEUM 480.3 - PNEUMONIA DUE TO SARS-ASSOCIATED COR 480.8 - VIRAL PNEUMONIA NEC 480.9 - VIRAL PNEUMONIA NOS 481 - PNEUMOCOCCAL PHEUMONIA [STREPTOCOCCU 482 - OTH BACTERIAL PNEUMONIA 482.0 - K. PNEUMONIAE PNEUMONIA 482.1 - PSEUDOMONAL PNEUMONIA 482.2 - H.INFLUENZAE PNEUMONIA 482.3 - PNEUMONIA DUE TO STREPTOCOCCUS 482.30 - PNEUMONIA DUE TO UNSPEC STREPTOCOC(482.31 - PNEUMONIA DUE TO STREPTOCOCCUS, GRC 482.32 - PNEUMONIA DUE TO STREPTOCOCCUS, GRC 482.39 - PNEUMONIA DUE TO OTHER STREPTOCOCCI 482.4 - PNEUMONIA DUE TO STAPHYLOCOCCUS 482.40 - PNEUMONIA DUE TO STAPHYLOCOCCUS, UN 482.41 - METHICILLIN SCPTBLE PNEUMONIA DUE TO 482.49 - OTHER STAPHYLOCOCCUS PNEUMONIA 482.8 - PNEUMONIA DUE TO OTHER SPECIFIED BACT 482.81 - PNEUMONIA DUE TO ANAEROBES 482.82 - PNEUMONIA DUE TO ESCHERICHIA COLI (E 482.83 - PNEUMONIA DUE TO OTHER GRAM-NEGATIV 482.89 - PNEUMONIA DUE TO OTHER SPEC BACTERIA 482.9 - BACTERIAL PNEUMONIA NOS 483 - PNEUMONIA DUE TO OTHER SPECIFIED ORGAN 483.0 - PNEUMONIA DUE TO MYCOPLASMA PNEUMON 483.1 - PNEUMONIA DUE TO CHLAMYDIA 483.8 - PNEUMONIA DUE TO OTHER SPECIFIED ORGA 484 - PNEUM IN OTH INFEC DIS 484.1 - PNFUM W CYTOMEG INCL DIS 484.3 - PNEUMONIA IN WHOOP COUGH 484.5 - PNEUMONIA IN ANTHRAX 484.6 - PNEUM IN ASPERGILLOSIS 484.7 - PNEUM IN OTH SYS MYCOSES 484.8 - PNEUM IN INFECT DIS NEC 485 - BRONCOPNEUMONIA ORG NOS 486 - PNEUMONIA, ORGANISM NOS 487.0 - INFLUENZA WITH PNEUMONIA 495.7 - "VENTILATION" PNEUMONIT 482.42- METHICILLIN RSTNT PNEUMONIA DUE TO ST 488.01- Flu dt iden avian w pneu 488.11- Flu dt 2009 H1N1 w pneu 488.81- Flu dt nvl A vrs w pneu

Edit Selected BUILD Save As CAN S					
Name: Pneumonia 2010 Male admits dc alive	+				
Event Canvas					
E-C NINDEX EVENT : [Earliest of Any (And)]					
admits: [All of [Pneumonia : InpatientAdmissionDate] WHEN IN [2010] WITH [Male]]					

Note: the numbers of patients detected by using Inpatient Admit differs from the number with Inpatient Discharge. The reason for this is the requirement of being in 2010 applies in one case to the inpatient admit date and the other the inpatient discharge date. So that in a small number of cases patients admitted in 2010 were not discharged in 2010, and people discharged in 2010 were not admitted in 2010.

- 5. Review Videos:
- 1. Set Builder



- 2. Event Canvas:
 - a. Build A cohort
 - b. Within
 - c. When
 - d. Subgroup

Ana	lysis	Smart Reports Tool	s Help
	Man	uals	•
	Usa	ge Guidance	•
+	Str	Access	
·	Adc	HIPAA	
	Abc	Intro To Help In CLG	ì
	Sea	Manual Overview	•
WHEN IN [march2012]]		Set Builder Introduc	tion
Build A Cohort		Event Canvas 🖉	•
Within		Upload A Cohort	
When In		Laboratory Results Set	Builder
Subgroups ()		Lab With Text	
Event Collections		Hierarchical Sets Me	dication
Browse	•	Text Search	•
Analysis Definition		Study Designer	•
Common Event Definition			
Management Pane Over	rview		
Share A Cohort			
Delete A Cohort			
Create A Folder			
Save As			
View Summary			