Cooking with CQL – Session 36

Thursday, 6/27/19 – Qs&As

Measure Logic in CQL

Q: In discussing CLONE Hospital Harm – Pressure Injury Draft 0.00, the measure assesses the proportion of inpatient encounters for patients 18 years and older upon admission and the presence of stage 2, 3, or 4 deep tissue pressure injury or unstageable deep tissue pressure injury. This measure documents deep tissue pressure injury upon arrival or 24 hours after admission. (May be a need to create value sets for anatomical sites to support this measure.)

The measure code will be written (continued in the answer):

A: The measure code will be written:

```
"Denominator" EncounterwithQualifyingAge
        with ["Diagnosis": "Pressure Ulcer Stage"] PressureInjuryStage
                such that (PressureInjuryStage.code ~ Pressure Ulcer Stage 2 (disorder)"
                        or PressureInjuryStage.code ~ Pressure Ulcer Stage 3 (disorder)"
                        or PressureInjuryStage.code ~ Pressure Ulcer Stage 4 (disorder)"
                        or PressureInjuryStage.code ~ Nonstageable Pressure Ulcer(disorder)"
                        or PressureInjuryStage.code ~ Pressure Injury of Deep Tissue (disorder)"


                and PressureInjuryStage.prevelancePeriod starts more than 24 hours after start
        of "Hospitalization, Potentially Starting in Emergency Department and or with
        Observation" (EncounterwithQualifyingAge)
                and PressureInjuryStage.prevelancePeriod during "Hospitalization, Potentially
        Starting in Emergency Department and or with Observation"
        (EncounterwithQualifyingAge)
```

The primary issue seems to be a need to relate a diagnosis that is indicated as present upon arrival with an active Diagnosis record and be able to reliably ensure they are the "same" diagnosis. How do you accomplish this?

ANSWER: This is done by comparing the codes of the diagnosis to the diagnosis as seen upon arrival. The diagnosis code is written as:

"Denominator" EncounterwithQualifyingAge
where ["Diagnosis": "Pressure Ulcer Stage"] PressureInjuryStage
such that (PressureInjuryStage.code ~ Pressure Ulcer Stage 2 (disorder)"
or PressureInjuryStage.code ~ Pressure Ulcer Stage 3 (disorder)"
or PressureInjuryStage.code ~ Pressure Ulcer Stage 4 (disorder)"
or PressureInjuryStage.code ~ Nonstageable Pressure Ulcer(disorder)"
or PressureInjuryStage.code ~ Pressure Injury of Deep Tissue (disorder)"

and PressureInjuryStage.prevelancePeriod starts more than 24 hours after start of "Hospitalization, Potentially Starting in Emergency Department and or with Observation" (EncounterwithQualifyingAge)

Notice that "with" has been changed to "where".

The code for a Pressure Injury Present On Admission is as:

"Initial Population" Encounter
with [Diagnosis] Dx
such that Dx.prevelencePeriod overlaps Encounter.relevantPeriod
and Dx.code in (Encounter.diagnoses D return D.code)
where exists (Encounter.diagnosis EncounterDiagnosis where EncounterDiagnosis.code in "Pressure Injury" and EncounterDiagnosis.presentOnAdmissionIndicator ~ "Y")
This "Pressure Injury" will return an error since it does not have the value sets.

Note that in QDM 5.5, we added support for "PresentOnAdmission" using the model:
define "Encounter with "Ischemic Stroke Diagnosis Present On Admission":
["Encounter. Performed": "Inpatient"] E
where exists (E.diagnoses D where D.code in "Ischemic Stroke"
and D.presentOnAdmissionIndicator ~" Y")

Q: In the example measure on Pressure Injury, how would the code for diagnosis display the information if the diagnosis appears in both the Encounter diagnosis and in the Present on Admission indicator and a diagnosis record? It seems that you would say there is a diagnosis record and it has the same code as the diagnosis code in the encounter diagnosis.

A: When you're talking about a pressure ulcer like this, the location is not necessarily in a pre-coordinated SNOMED term, it's just pressure ulcer, but there are some ICD-10 codes that have a location attached. The Encounter diagnosis attribute includes some components, but it doesn't specify anatomical location as a component. However, the CQL expression could reference a diagnosis with anatomical location = right (or left) and that diagnosis.id could be used to reference the Encounter diagnosis. Thus, the CQL can allow further definition of the

Encounter diagnosis to address laterality, as needed, for this measure. Alternatively, you could use the pre-coordinated code (i.e., ICD-10 with location attached).

You can incorporate a definition for Pressure Injury Diagnosis and would name the anatomical location site with Pressure Injury Diagnosis as part of the New Pressure Injury measure.

["Diagnosis": "Pressure Injury"]

"Denominator" EncounterWithQualityingAge
with "Pressure Injury Diagnosis" PressureInjury
such that PressureInjury.prevalencePeriod during
EncounterWithQualifyingAge.relevantPeriod
and exists ("Pressure Injury Diagnosis" SeparateInjury
where separateInjury.prevelancePeriod during
EncounterWithQualifyingAge.relevancePeriod and PressureInjury.anatomicalSiteLocation !~
SeparateInjury.anatomicalSiteLocation