[Logic Liaison Template][N3C Covid Enclave] CCI Score at Covid Index README

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README SECTIONS:

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TEMPLATE STATUS:

AS OF SEP, 2022: Initial version of the template produces a dataset that contains person_id and a Charlson Comorbidity Index (CCI) score assigned using indicators of comorbidities flagged at any point in their EHR or using only indicators of comorbidities flagged prior to a patient's Covid-19 index date, based on user input. The default for this template is to utilize the comorbidity indicators created in the Logic Liaison Summary Fact Tables. Those comorbidity indicators currently rely on the N3C Recommended concept sets and harmonized data by default. The formula for the CCI score was based on the weights as defined in Charlson ME, Pompei P, Ales KL, MacKenzie CR. A new method of classifying prognostic comorbidity in longitudinal studies: development and validation. J Chronic Dis. 1987;40(5):373-83. doi: 10.1016/0021-9681(87)90171-8. PMID: 3558716.

AS OF JUL, 2023: Updated template to only calculate a CCI score for people with a visit or condition recorded prior to or on the day of their index event date. This was done based on feedback the Logic Liaisons received from the community analysts for the ability to differentiate between a patient who is more likely to truly have a CCI score of 0 versus someone who has not had enough health utilization to ensure capture of comorbidities. The input variable names have also been parameterized for easier modification by the user when using custom input tables.

PURPOSE & USE:

This template provides an up through Covid index date score per patient based on the CCI weights from Charlson, M.E., et al. (1987). Anyone with L3 or L2 data access can import the dataset corresponding to their level of data access and join to their cohort based on person_id. Users can also import the template and convert to code transform to adapt the code to use their specific comorbidity variables based on timeframes related to their research question.

DATA DICTIONARY:

person_id, string: Unique identifier for the N3C patient

CCI_score_up_through_index_date, integer: Charlson Comorbidity Index score based on weights in Charlson, M.E., et al. (1987) for each before Covid indicator in a patient's EHR. This is only available for confirmed Covid positive patients since it requires an index date. (see Confirmed Covid Positive Fact Tables README for indicator definitions and supporting concept sets used). Patients with no visit or condition prior to or on their index date receive a null value, while a score of 0 indicates a visit or condition was coded within that timeframe giving the opportunity for the patient to have had conditions captured, but the patient does not have any Charlson Comorbidities coded.

TEMPLATE LIMITATIONS

Leukemia and lymphoma specified in the Charlson formula is covered in the MALIGNANTCANCER_indicator. Age has been noted as part of the formula in some online calculators; however, the Charlson, M.E., et al. (1987) does not specify age as a component in the weights and many projects often already account for age as an important covariate so it is not included in this formulation of CCI score. Weights for age can easily be added to the CCI_score column by converting to code transform and modifying the code should a project need to include it in this calculation.

RELEASE NOTES:

TEMPLATE RELEASE NOTES (VERSION CHANGES):

Sep 19, 2022:

Initial template publication

Dec 9, 2022:

Updated hard coded variable names from before_covid to before_or_day_of_covid to match changes in fact table template

Jul 19, 2023:

Updated to check for the existence of any non-null visit_start_date or condition_start_date prior to or on the patient's COVID_first_poslab_or_diagnosis_date

Parameterized default variables used in CCI score calculation to allow for user modification with customized input fact table column names