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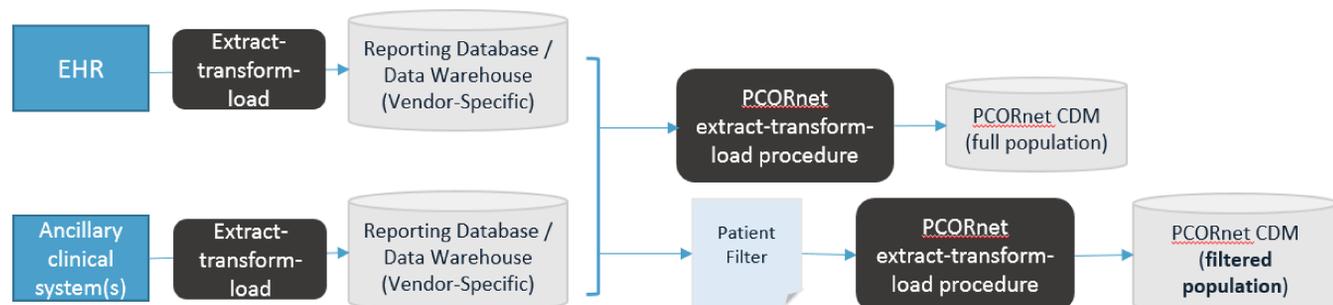
BACKGROUND

- The data infrastructure utilized by the National Patient-Centered Clinical Research Network (PCORnet®) was designed to support observational and comparative effectiveness research (CER)
- Network partners refresh the data in their Common Data Models (CDMs) on a quarterly basis, followed by the execution of a data curation package to assess data quality
- PCORnet sought to transition this infrastructure to support a more rapid characterization of the PCORnet COVID-19 population with more real-time data refreshes and an increase in query frequency

METHODS & RESULTS

- The network decided to create a stand-alone **subset** version of the CDM that was filtered to include patients with a diagnosis code for COVID-19 or other respiratory illness or a SARS-CoV-2 lab result or procedure code recorded on/after January 1, 2020 (**Figure 1**)
- Several priority data elements were also identified for inclusion, and Implementation Guidance was drafted to aid partners as they added these new data to their CDMs (Table 1). Partners were also instructed to incorporate new codes that were released by standards organizations related to COVID-19 diagnoses and treatments (e.g., remdesivir) and SARS-CoV-2 laboratory testing.
- A Workgroup was established to advise on the implementation of the subset CDM and the development of the COVID-19 characterization queries
- Partners began to implement the subset CDM in late March, and by the end of April, 36 partners were able to respond to queries characterizing their COVID-19 population

Figure 1: PCORnet Common Data Model Infrastructure



EHR: electronic health record; CDM: Common Data Model

Sample Data Element	Location in the PCORnet CDM
Flag to indicate patient is COVID-19-affected (e.g., positive or resolved disease)	CONDITION
SARS-CoV-2 lab results (antigen & antibody)	LAB_RESULT_CM
Order or administration of remdesivir	PRESCRIBING; MED_ADMIN
Flag to indicate that the patient was admitted to the Intensive Care Unit (ICU) or a ward of similar acuity	OBS_GEN
Flag to indicate the patient received mechanical ventilation	OBS_GEN
Inpatient vitals (e.g., respiratory rate, heart rate, temperature, oxygen saturation)	OBS_CLIN

Table 1: Data elements identified for inclusion in the subset CDM & their location in the model

CONCLUSIONS

- PCORnet network partners demonstrated that it is possible to create a subset version of the existing data infrastructure that can be iterated more rapidly than the “full population” CDM
- A CDM that is refreshed more rapidly has the potential to support additional study types (e.g., pragmatic clinical trials)
- The subset CDM leveraged the existing CDM specification, which allowed partners to reuse the procedures they created to populate the larger CDM without major modifications, while also allowing the Coordinating Center to reuse their analytical query tools.
- Processes for identifying priority data elements and incorporating newly added codes from standards organizations can also be redeployed for other research areas.

NEXT STEPS

- PCORnet is now transitioning these initial characterization efforts towards targeted CER use cases including COVID-19-associated coagulopathy and multisystem inflammatory syndrome in children (MIS-C)
- These use cases will leverage lessons learned in creating the subset CDM. Additional priority data elements and laboratory results will be identified, and partners will be asked to perform more robust data validation, including provenance surveys, concordance analyses and limited chart review.
- PCORnet is also looking to develop deeper relationships with other stakeholders to leverage the infrastructure for their research needs