

PCORnet Computable Phenotypes Background and Process

When using existing data to identify patients with certain conditions or characteristics, or to identify patients who have had a particular procedure, been prescribed a specific medication, or have a specific lab result, it is necessary to determine how to find these observations in the dataset. For example, if a research question involves determining which patients have “Type II diabetes,” one might look for patients with an ICD9 CM diagnosis code of 250.xx, an abnormal A1c value, and/or a prescription for a diabetes-associated medication (e.g., Metformin).

Determining how to define the concept of interest in the dataset will depend in part on the use case. For example, to identify a cohort of patients who may meet eligibility criteria for a research study, a sensitive algorithm or computable phenotype may be utilized in order to maximize the identification of potential participants. If the use case is to identify clinical outcomes for existing study participants in a dataset (e.g., myocardial infarction, hospitalization for heart failure), a more specific algorithm or computable phenotype may be desirable. Additional information about assessing and selecting algorithms and computable phenotypes can be found in *Rethinking Clinical Trials: A Living Textbook of Pragmatic Clinical Trials*¹.

There are many sources of existing algorithms and computable phenotypes. The sources utilized by the DRN OC are listed in the Sources of Existing Algorithms and Computable Phenotypes. Requestors are encouraged to search the sources on this list to find existing algorithms or computable phenotypes that may be appropriate for their use case(s).

In addition to the primary sources of algorithms or computable phenotypes listed in the document, there are secondary sources that may also prove useful. Suggestions for searching the peer reviewed literature for algorithms that have been implemented and published on are detailed in a literature search guide.

PCORnet Front Door requests may include the algorithms or computable phenotypes the requestor thinks should be used to identify concepts of interest in the dataset. The PCORnet Computable Phenotype Template long form and short form have been developed for requestors to document the algorithm/computable phenotype details. For requests that include this information, the DRN OC will review the information and provide feedback about alternative options to the requestor as needed.

References

1. NIH Health Care Systems Research Collaboratory. Electronic Health Records-Based Phenotyping. In *Rethinking Clinical Trials: A Living Textbook of Pragmatic Clinical Trials*. Available at: <https://sites.duke.edu/rethinkingclinicaltrials/ehr-phenotyping/>. Accessed November 14, 2016.