A web based integrated code generating system for cohort analysis

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Introduction

CIRCE - an OHDSI tool defining a cohort
- user friendly user interface with visualization and automatic query generation for a cohort extraction

Limitation of CIRCE
- for a cohort analysis, there must be 3 individual cohort definitions: outcome, exposure group and comparator group.
- Each of them are treated as independent one without relationship (figure 2).

In this study we developed a web application (henceforth ‘Code generator’) -
- integrating all the necessary definitions (outcome, exposure and comparator) into one group
- R codes for CohortMethod to enable easy execution of a cohort study

Methods

Principle of cohort group definition in Code generator
- Represents hierarchy relationships
- Outcome is parent (pid, seq is 0)
- Exposure and Comparator are child (cid)
- pid: parent’s cohort definition ID
- cid: cohort definition ID of each
- seq:ID of cohort types in a group
  (0: outcome, 1: exposure, 2: comparator)

Results

Figure 3 illustrate the structure of the application and figure 4 shows how it work.

Functions of CIRCE
- Define a new cohort
- Generate cohort data
- Generate SQL queries for multiple dialects

Figure 5 illustrate the process of generating cohort data and SQL query

Functions of Code generator
- Define a new cohort in a group
- A cohort group composed of outcome, exposure, comparator
- Generate R code for cohort extraction

- including SQL query for SQL Server
- Generate R code for conduct cohort analysis with CohortMethod
- 4 tabs in show R code menu (figure 7)
- Figure 6 shows the process of generating R codes for cohort analysis

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