

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 developed a web application (hereafter '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

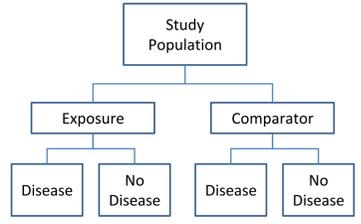
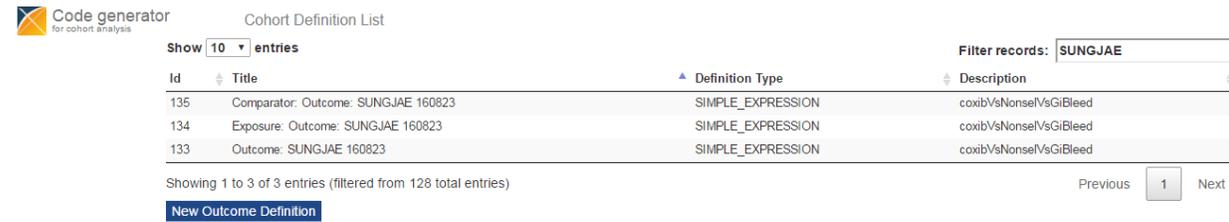


Figure 1. Cohort study design

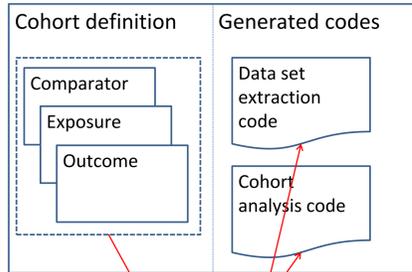


Id	Title	Definition Type	Description
135	Comparator: Outcome: SUNGJAE 160823	SIMPLE_EXPRESSION	coxibVsNonseIvsGiBleed
134	Exposure: Outcome: SUNGJAE 160823	SIMPLE_EXPRESSION	coxibVsNonseIvsGiBleed
133	Outcome: SUNGJAE 160823	SIMPLE_EXPRESSION	coxibVsNonseIvsGiBleed

Figure 2. A list of cohort definitions for cohort analysis

Methods

Code generator



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)

pid	seq	cid
133	0	133
133	1	134
133	2	135

Figure 3. Conceptual system diagram of the Code generator

Acknowledgment

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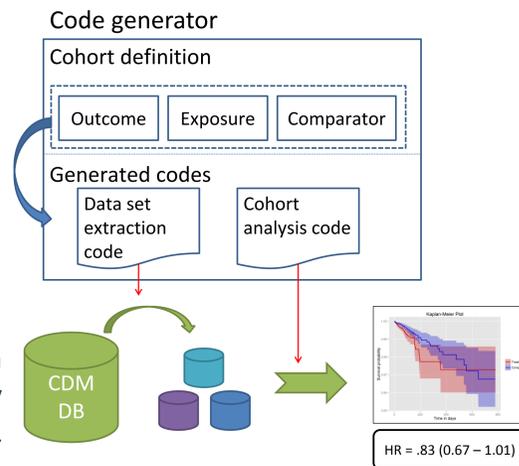


Figure 4. Example of the usage of the Code generator

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

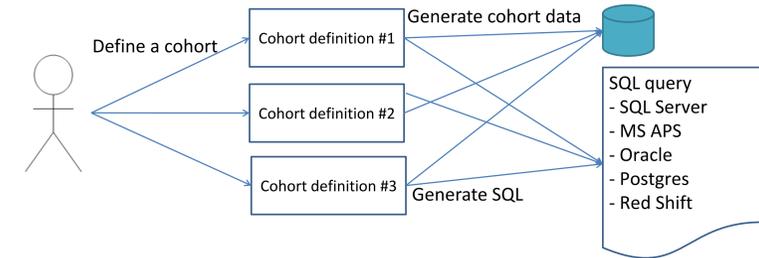


Figure 5. Process to generate cohort and SQL query of CIRCE

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

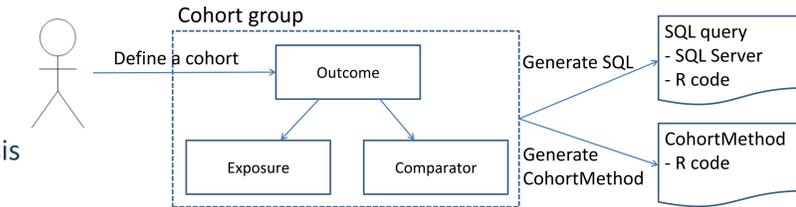


Figure 6. Process to generate codes of Code generator

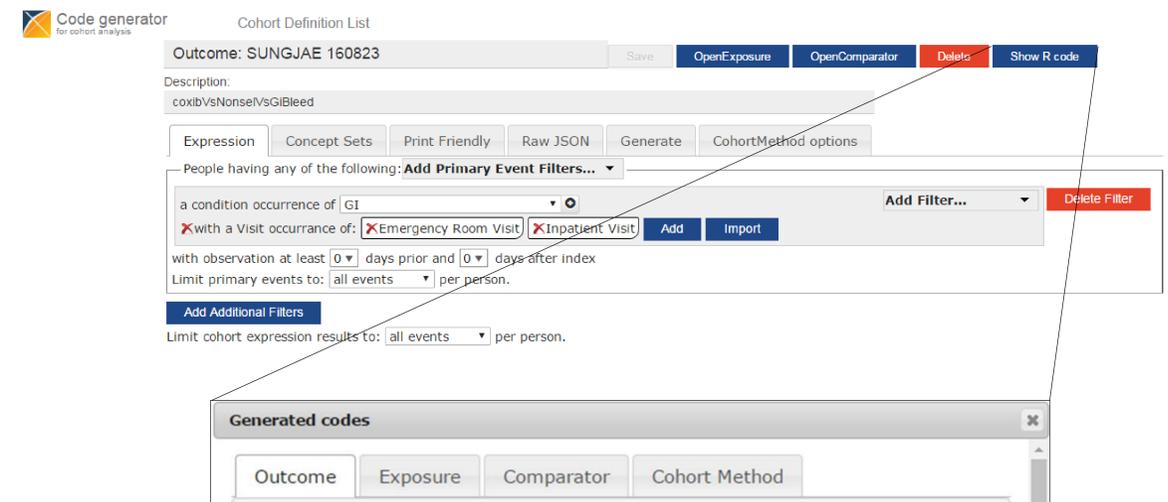


Figure 7. User interface and show R code menu of the Code generator

Conclusions

In this study, we developed a web application conveniently generating codes for data extraction and analysis. The Code generator integrates all the necessary definitions (outcome, exposure and comparator). Applying the CohortMethod on the three coupled definitions, a user can easily perform a cohort study in a seamless manner.