Cohort Definition Examples

Contents


```
library(Capr)

# Function to test that cohort compiles
assertCohortCompiles <- function(cohortDefinition) {
  sql <- CirceR::cohortExpressionFromJson(as.json(ch))
  sql <- CirceR::buildCohortQuery(sql, options = CirceR::createGenerateOptions(generateStats = TRUE))

  stopifnot(nchar(sql) > 1)
  invisible(NULL)
}
```

This vignette provides a number of example cohorts built with Capr from the OHDSI *Phenotype Phebruary* event.

1 Type 2 diabetes mellitus

Persons with new type 2 diabetes mellitus at first diagnosis

https://atlas-phenotype.ohdsi.org/#/cohortdefinition/88/definition

```
library(Capr)

cs0 <- cs(descendants(443238, 201820, 442793),
          descendants(exclude(195771, 201254, 435216, 761051, 4058243, 40484648)),
          name = "Type 2 diabetes mellitus (diabetes mellitus excluding T1DM and secondary)")

ch <- cohort(
  entry = entry(
    condition(cs0),
    observationWindow = continuousObservation(priorDays = 365)
  ),
  exit = exit(
    endStrategy = observationExit()
  )
)
```

Persons with new type 2 diabetes and no prior T1DM or secondary diabetes

https://atlas-phenotype.ohdsi.org/#/cohortdefinition/89/export

```
library(Capr)

cs0 <- cs(descendants(443238, 201820, 442793),
          descendants(exclude(195771, 201254, 435216, 761051, 4058243, 40484648)),
          name = "Type 2 diabetes mellitus (diabetes mellitus excluding T1DM and secondary)")

cs1 <- cs(descendants(201254, 435216, 40484648),
          name = "Type 1 diabetes mellitus")

cs2 <- cs(descendants(195771),
          name = "Secondary diabetes mellitus")

ch <- cohort(
  entry = entry(
    condition(cs0),
    observationWindow = continuousObservation(priorDays = 365)
  ),
  attrition = attrition(
    exactly(0, condition(cs1), duringInterval(eventStarts(-Inf, 0))),
    exactly(0, condition(cs2), duringInterval(eventStarts(-Inf, 0)))
  ),
  exit = exit(
    endStrategy = observationExit()
  )
)
```

Persons with new type 2 diabetes mellitus at first dx rx or lab

https://atlas-phenotype.ohdsi.org/#/cohortdefinition/90

```
library(Capr)

cs0 <- cs(descendants(443238, 201820, 442793),
          descendants(exclude(195771, 201254, 435216, 761051, 4058243, 40484648)),
          name = "Type 2 diabetes mellitus (diabetes mellitus excluding T1DM and secondary)")

cs1 <- cs(descendants(201254, 435216, 40484648),
          name = "Type 1 diabetes mellitus")

cs2 <- cs(descendants(195771),
          name = "Secondary diabetes mellitus")

cs3 <- cs(descendants(4184637, 37059902),
          name = "Hemoglobin A1c (HbA1c) measurements")

cs4 <- cs(descendants(21600744),
          name = "Drugs for diabetes except insulin")


ch <- cohort(
  entry = entry(
    condition(cs0),
    drug(cs4),
    measurement(cs3, valueAsNumber(bt(6.5, 30)), unit("%")),
    measurement(cs3, valueAsNumber(bt(48, 99)), unit("mmol/mol")),
```

```
    observationWindow = continuousObservation(priorDays = 365)
  ),
  attrition = attrition(
    'no T1D' = withAll(
      exactly(0, condition(cs1), duringInterval(eventStarts(-Inf, 0)))
      ),
    'no secondary diabettes' = withAll(
      exactly(0, condition(cs2), duringInterval(eventStarts(-Inf, 0)))
    )
  ),
  exit = exit(
    endStrategy = observationExit()
  )
)
```

2 Type 1 diabetes mellitus

Persons with new type 1 diabetes

https://atlas-phenotype.ohdsi.org/#/cohortdefinition/92

```
cs0 <- cs(descendants(195771),
          name = "Type 1 diabetes mellitus")

ch <- cohort(
  entry = entry(
    condition(cs0),
    observationWindow = continuousObservation(priorDays = 365)
  )
)
```

```
assertCohortCompiles(ch)
```

Persons with new type 1 diabetes and no prior T2DM or secondary diabetes

https://atlas-phenotype.ohdsi.org/#/cohortdefinition/91

```
cs0 <- cs(descendants(443238, 201820, 442793),
          descendants(exclude(195771, 201254, 435216, 761051, 4058243, 40484648)),
          name = "Type 2 diabetes mellitus (diabetes mellitus excluding T1DM and secondary)")

cs1 <- cs(descendants(201254, 435216, 40484648),
          name = "Type 1 diabetes mellitus")

cs2 <- cs(descendants(195771),
          name = "Secondary diabetes mellitus")

ch <- cohort(
  entry = entry(
    condition(cs1),
    observationWindow = continuousObservation(priorDays = 365)
  ),
  attrition = attrition(
    "no prior T2DM" = exactly(0, condition(cs0), duringInterval(eventStarts(-Inf, 0))),
    "no prior secondary T1DM" = exactly(0, condition(cs2), duringInterval(eventStarts(-Inf, 0)))
```

```
  )
)
```

3 Atrial Fibrillation

Persons with atrial fibrillation per Wharton et al 2021

https://atlas-phenotype.ohdsi.org/#/cohortdefinition/93

```
cs0 <- cs(descendants(313217),
          name = "Atrial fibrillation")

ch <- cohort(condition(cs0))
```

Persons with atrial fibrillation per Subramanya et al 2021

https://atlas-phenotype.ohdsi.org/#/cohortdefinition/94

```
afib <- cs(descendants(313217),
           name = "Atrial fibrillation")

ip <- cs(descendants(262, 9201),
         name = "Inpatient or inpatient ER visit")

op <- cs(descendants(9202, 9203),
         name = "Outpatient or ER visit")

ch <- cohort(
  entry = entry(
    condition(afib,
      nestedWithAny(
        atLeast(1, visit(ip), duringInterval(eventStarts(-Inf, 0), eventEnds(0, Inf))),
        nestedWithAll(
          atLeast(1, visit(op, duringInterval(eventStarts(-Inf, 0), eventEnds(0, Inf)),
            nestedWithAll(
              atLeast(1, condition(afib, duringInterval(eventStarts(7, 365)),
                nestedWithAll(
                  atLeast(1, visit(op, duringInterval(eventStarts(-Inf, 0), eventEnds(0, Inf))))
                )
              ))
            )
          ))
        )
      )
    )
  )
)
```