

An R Package to implement Patient-level Drug Utilisation Studies using the OMOP common data model



Software demonstration: DrugUtilisation

Background: DARWIN-EU® aims to produce reliable, transparent, reproducible and fast evidence running studies across many databases in Europe. Patient-level drug utilisation studies can provide crucial information to enable rational drug usage. We built an R package that standardises the way Drug Utilisation Studies are conducted within DARWIN-EU®.

Methods

Development approach

- Employment of a test-driven development methodology
- Conduction of unit testing using simulated OMOP CDM data
- Design of user interface in collaboration with epidemiologists
- Multiple database management systems are supported using the DBI and CDMConnector environment.

Conclusions

- DrugUtilisation characterises utilisation of predefined drugs at the patient level across databases mapped to the OMOP common data model.
- This package comprises multiple functionalities, including identification of drug users, getting drug use information and characterization of individuals.
- These functionalities will have practical applications across various clinical settings.

Functionalities

Drug users' cohorts

- 1 Create prevalent and new user cohorts based on ingredients and/or concept sets to identify treatment episodes. Minimum days of prior observation, collapsing gap, prior use washout and/or dates range can be required

Drug use information

- 2 Compute the daily dose of prescription in drug exposure.
- 3 Calculate drug use (duration, initial dose, cumulative dose, number of prescriptions) for a treatment episode.

Characterisation

- 4 **Flag** if an **indication** is present within a certain window before drug initiation.
- 5 **Summarise characteristics** of people within a certain cohort: age, sex, number of visits, prior observation time and prespecified covariates.
- 6 **Count concepts** (or concept sets) recorded before and after index date within specified time windows.



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