TreatmentPatterns R Package

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ELSEVIER

TreatmentPatterns: An R package to facilitate the standardized development and analysis of treatment patterns across disease domains

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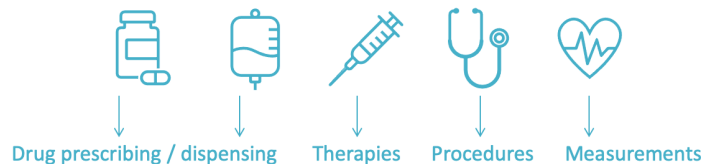⤳ Share   🔖 Cite

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Highlights

- TreatmentPatterns R package for development and analysis of treatment patterns

- Formally defines and implements the process of constructing treatment pathways

- Accessible, standardized, and interpretation friendly tool for a broad audience

- Supports the accumulation of knowledge on treatment patterns across disease domains

- Example study in Dutch IPCI database to demonstrate functionalities of the package

Markus, A. F., Verhamme, K. M., Kors, J. A., & Rijnbeek, P. R. (2022). TreatmentPatterns: An R package to facilitate the standardized development and analysis of treatment patterns across disease domains. *Computer Methods and Programs in Biomedicine*, 107081.

https://doi.org/10.1016/j.cmpb.2022.107081

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Problem definition

A treatment pathway is a sequence of treatments over time

Drug prescribing / dispensing   Therapies   Procedures   Measurements

Goal: find the treatment pathway consisting of selected 'treatments of interest' (event cohorts) for a certain study population (target cohort)

A –> B –> C –> B + D

Medical file   *Treatment pathway*

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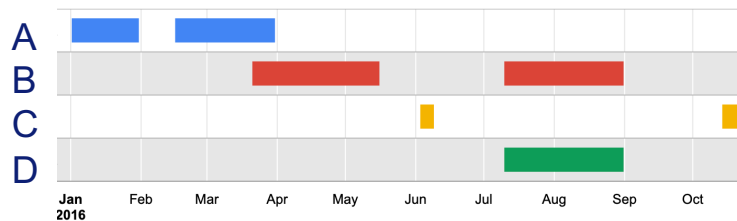
Motivation

Knowledge of current treatment practices to improve clinical practice:

- Better design randomized control trials
- Give insight in choice of treatment and doctors preference
- Improve implementation and revisit clinical guidelines

Hripcsak et al. 2016

Kern et al. 2020

Lee et al. 2021

**ERS abstract
Markus et al. 2021
(paper under review)**

Tools

ATLAS Cohort Pathways

- Quick, exploratory analysis

- Limited settings (4x)
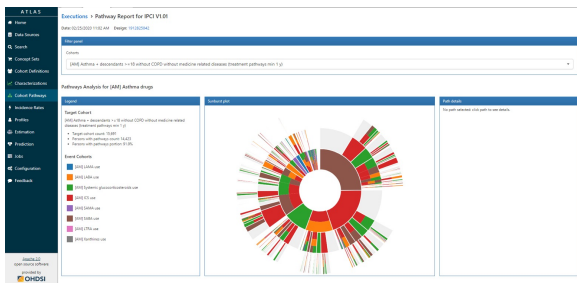
TreatmentPatterns R Package

- More choice in study settings (> 10x)

- Shiny application to explore output

- Possibility for customization
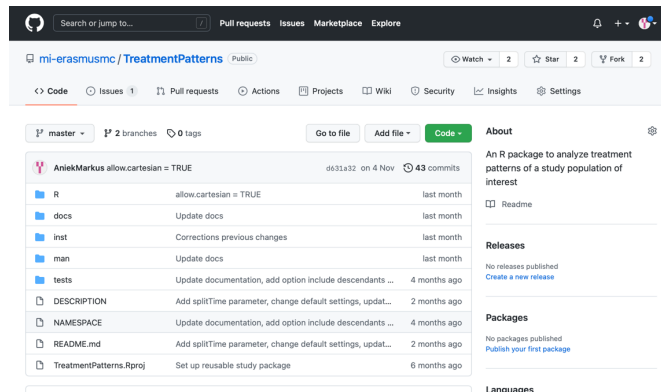
Overview R package
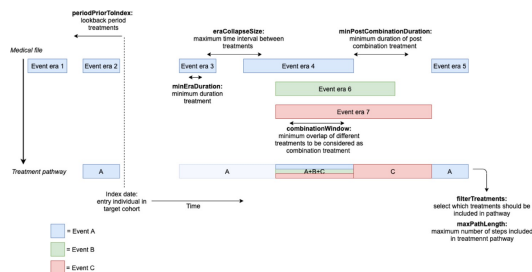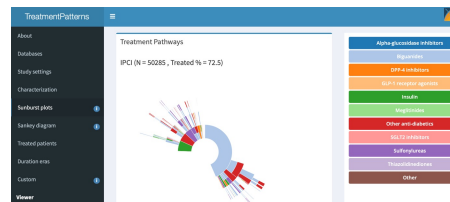
Input: (cohorts &) study settings
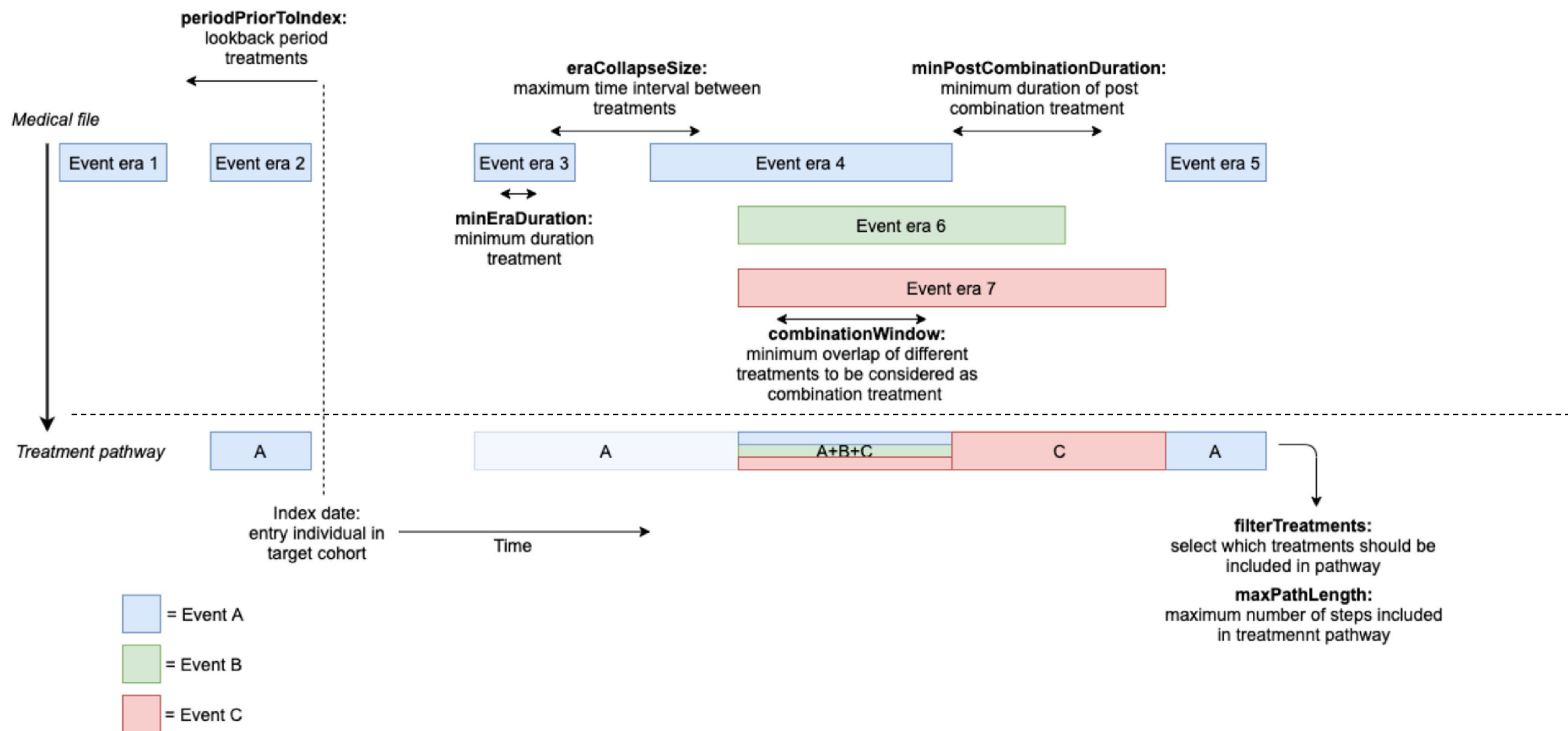
Output: shiny application

Optional: baseline characterization of study population
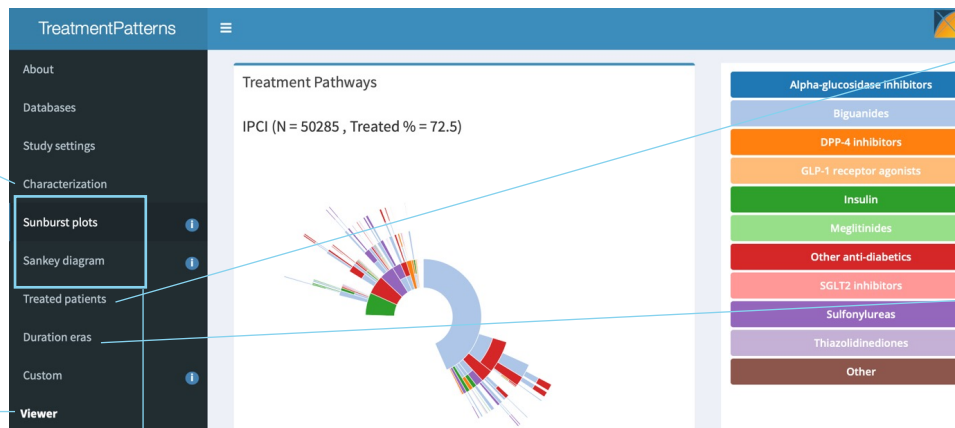
Summarizing table with % patients treated (per treatment/ for monotherapy vs combinations)

Average duration of treatments across layers

Possibility to compare across databases, study populations, time

Treatment pathways visualized in Sunburst plots / Sankey diagrams

Link example output: *https://mi-erasmusmc.shinyapps.io/TreatmentPatterns/*

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Get started!

Paper: https://doi.org/10.1016/j.cmpb.2022.107081

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- **For details on construction of treatment pathways, implementation and example study Dutch IPCI database**

Github: https://github.com/mi-erasmusmc/TreatmentPatterns

- **For package installation, code examples and vignette "Perform a study using the TreatmentPatterns package"**
- Please use the issue tracker for all bus/issues/enhancements
  - Contributions are welcome ☺

EHDEN Academy course: work in progress (end 2022?)

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