Drug Repurposing for Elderly And Multimorbid: Dr-EAM.ai

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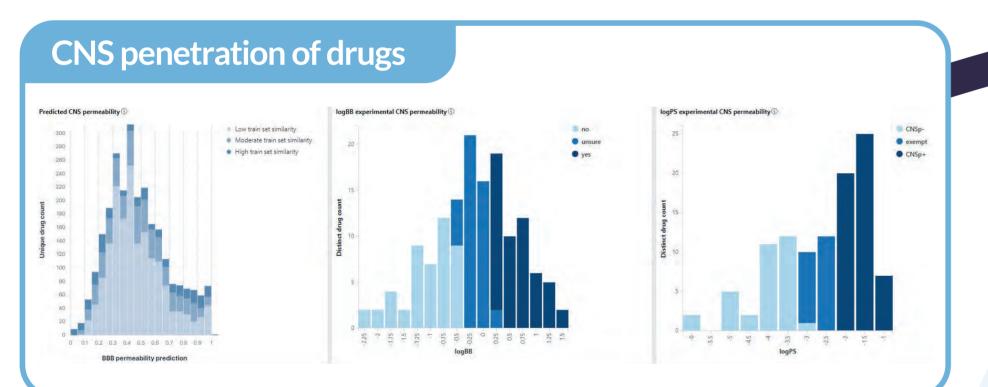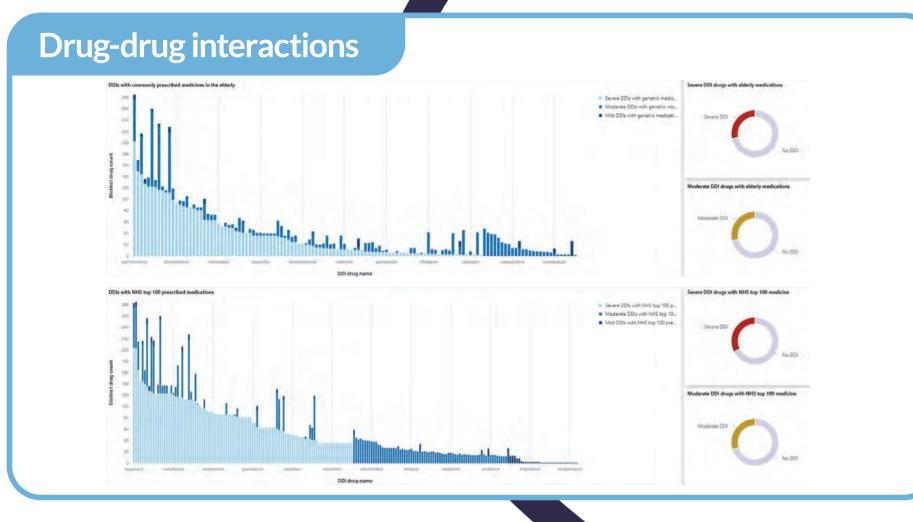
www.dr-eam.ai   md.catapult.org.uk

The UK-SPINE Project: Improving Health in Old Age

- According to the World Health Organisation, the world's population is ageing faster than ever before with more than 1 billion people aged 60 years or older in 2021. Yet ageing is more than simply getting older, it is a hugely complex process
- UK-SPINE Knowledge Exchange (https://www.kespine.org.uk/) is a collaboration between the University of Oxford, the University of Birmingham, the University of Dundee, Medicines Discovery Catapult (MDC), and the Francis Crick Institute, aiming to improve health in old age by accelerating the development of new therapeutics to reduce the impact of age-related diseases
- As part of this collaboration, the cheminformatics team at the MDC, with the help of the data science and software engineering teams, have assembled, analysed and classified drug relevant data to create a live dashboard
- This interactive tool (https://www.dr-eam.ai/) aims to help clinical specialists prescribe and assess drugs and drug combinations for the elderly population based on the application of a wide range of filters including efficacy, toxicity, drug-drug interactions, dosing, and administration route

Dr-EAM.ai: An MDC interactive tool for clinicians and health sector specialists in polypharmacology for the elderly
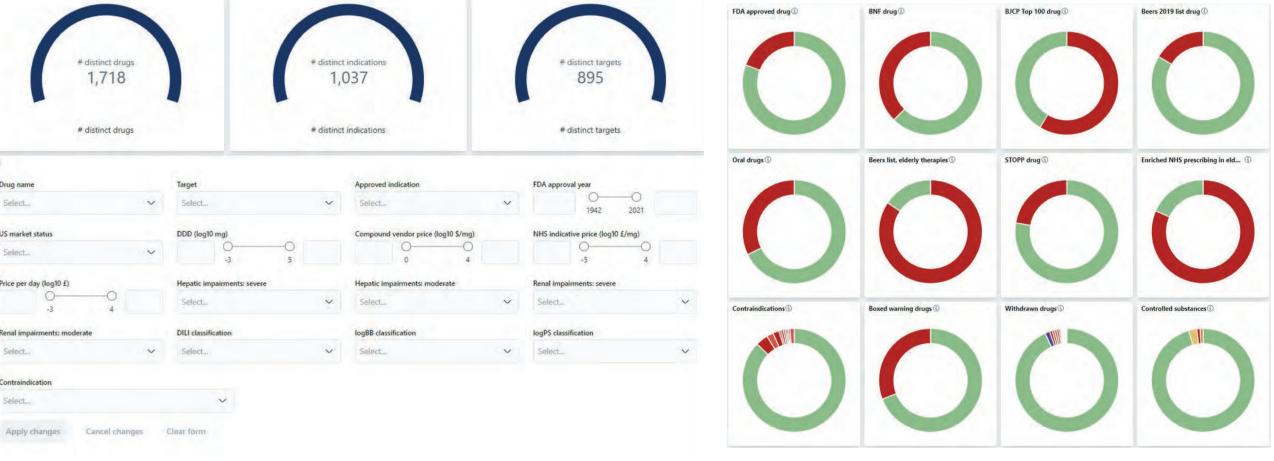
- The dashboard has been designed with the end user in mind
- It offers an optimal experience based on clarity, simplicity, and ease of use
- Usage: Adjust the filters in the main top panels to select the drug information
- Parameters are passed to the backend engine to run a search and update the infographics dynamically
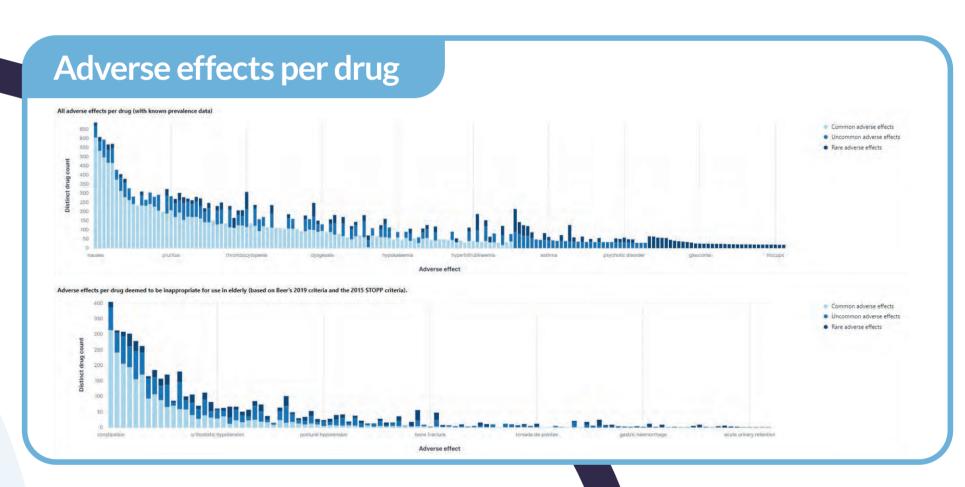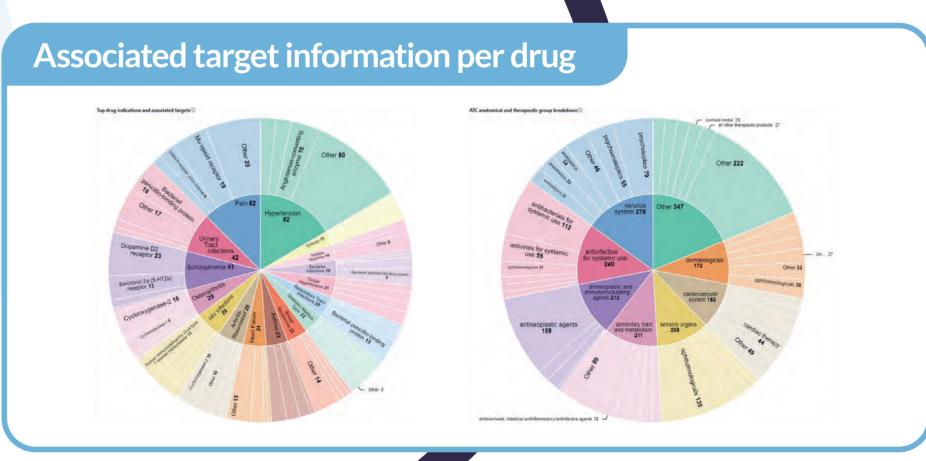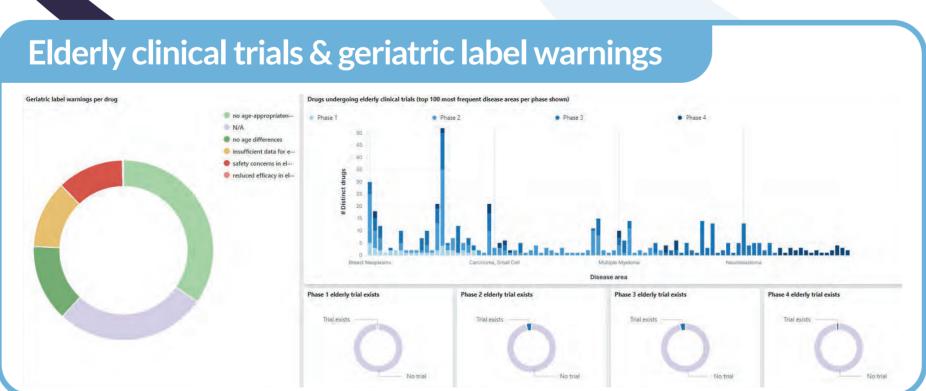- Save the results in standard spreadsheet file format (CSV)

CNS penetration of drugs

Renal & hepatic impairments

Adverse effects per drug

Drug-drug interactions

Associated target information per drug

All the information at hand to make the best decisions in real time

Elderly clinical trials & geriatric label warnings
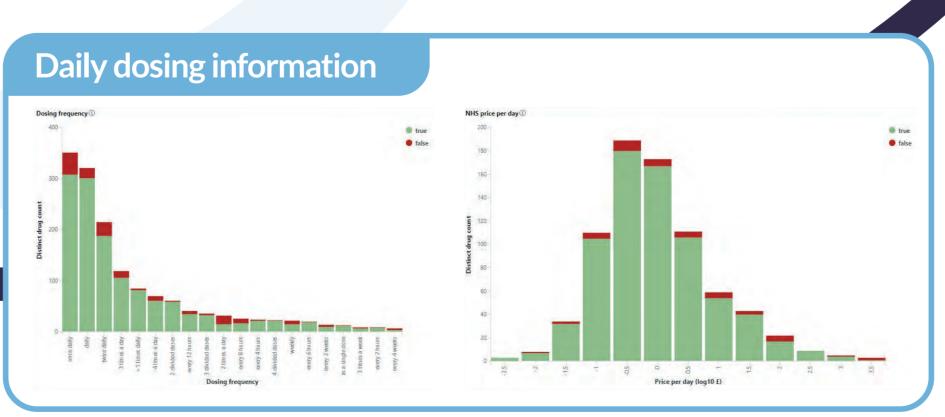
Daily dosing information

Data acquisition and analysis behind the scenes

The code developed for this project is organised to perform three sequential tasks:

1. Extract and wrangle relevant data from a range of external sources including ClinicalTrials.gov, NHS, BNF, MeSH, DailyMed, SIDER, AGS Beers
2. Populate and query an in-house PostgreSQL database to store this data
3. Upload and display the curated data using a Kibana dashboard and website (https://www.dr-eam.ai/) to allow public access

- The underlying data are manually updated on demand

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