How Chronic Diseases **Elevate the Risk** of Other Chronic Diseases

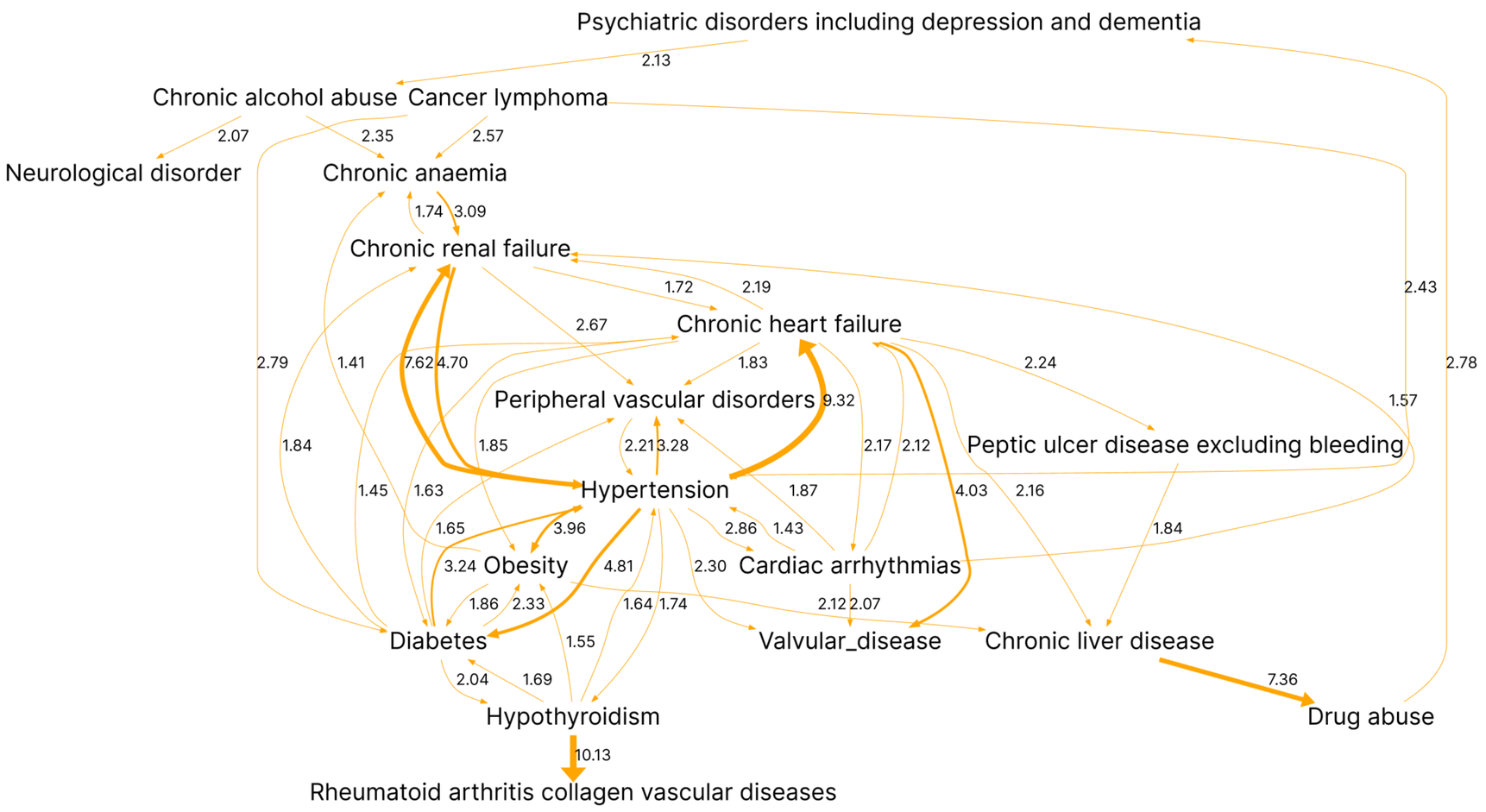
PRESENTER: KUNNAR KUKK
kunnar.kukk@ut.ee

Method for **Discovering Cohort-based Trajectories** from OMOP CDM

We propose **improving the methodology** for the **automatic hypotheses free trajectory discovery framework** published by Künnapuu et al.[1] Mainly, we are resolving one of the key limitations addressed by their work, namely **the problem of generalizability of the events**.

The limitation of this method is that it works on the **predefined cohorts** which needs manual work. The results are **not validated on an independent dataset** yet.

Results: Relative Risk calculation between all cohort pairs



Data from **2012 - 2019**

n = 149 364 patients

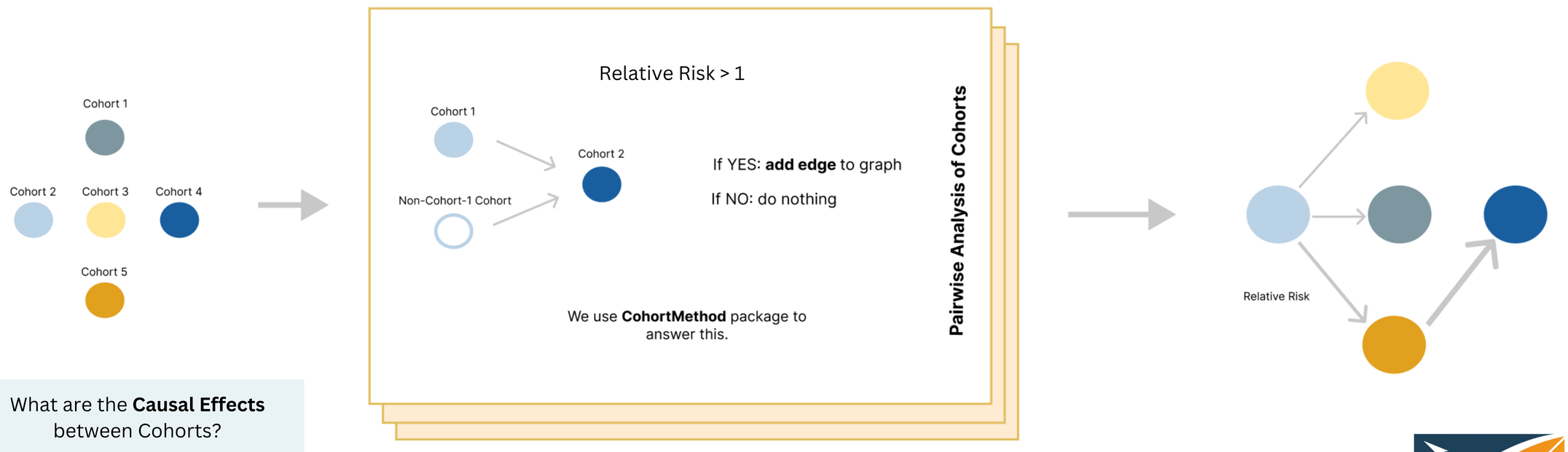
MAITT dataset Oja et al (2023)

~10% of **Estonian population**

20 chronic disease **cohorts by Elixhauser et al.**

1 Chronic alcohol abuse
2 Chronic HIV
3 Peripheral vascular disorders
4 Neurological disorder
5 Chronic heart failure
6 Cardiac arrhythmias
7 Valvular disease
8 Hypertension
9 Chronic pulmonary disease
10 Diabetes
11 Hypothyroidism
12 Chronic renal failure
13 Chronic liver disease
14 Peptic ulcer disease, excluding bleeding
15 Cancer/lymphoma
16 Rheumatoid arthritis/collagen vascular diseases
17 Obesity
18 Chronic anaemia
19 Psychiatric disorders
20 Drug abuse

Method: Does prior Cohort 1 increase the risk of the observing Cohort 2?



What are the **Causal Effects** between Cohorts?

This work was supported by the Estonian Research Council (grant numbers PRG1844 and RITA1/02-96)

Oja et al (2023). Transforming Estonian health data to the Observational Medical Outcomes Partnership (OMOP) Common Data Model: lessons learned

Elixhauser A, Steiner C, Harris DR, Coffey RM. Comorbidity measures for use with administrative data. Med Care. 1998 Jan;36(1):8-27. doi: 10.1097/00005650-199801000-00004. PMID: 9431328.

Schumie et al. An R package for performing new-user cohort studies in an observational database in the OMOP Common Data Model. https://ohdsi.github.io/CohortMethod/

Kunnar Kukk,[1] Angela Kannukene,[2] Sulev Reisberg [1,3]
1 - University of Tartu, Institute of Computer Science
2 - University of Tartu, Institute of Clinical Medicine
3 - STACC

UNIVERSITY OF TARTU
Institute of Computer Science