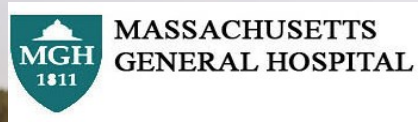


Aarno Palotie, M.D., Ph.D.





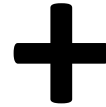
# FinnGen



Academic research

**BUSINESS  
FINLAND**

Industry



**FIMM**  
Institute for Molecular Medicine Finland  
Nordic EMBL Partnership for Molecular Medicine



HELSINGIN **BIOPANKKI**  
HELSINGFORS **BIOBANK**  
HELSINKI **BIOBANK**



TERVEYDEN JA  
HYVINVOINNIN LAITOS

THL BIOPANKKI

Itä-Suomen  
**BIOPANKKI**

**AURIA**  
BIOPANKKI

**Punainen Risti**  
Veripalvelu

KESKI-SUOMEN  
**BIOPANKKI**

KESKI-SUOMEN SAIRAANHOITOPIIRI  
JYVÄSKYLÄN YLIOPISTO

BIOPANKKI  
**BOREALIS**



Tampereen  
Biopankki



abbvie

AstraZeneca



**MERCK**

**Pfizer**

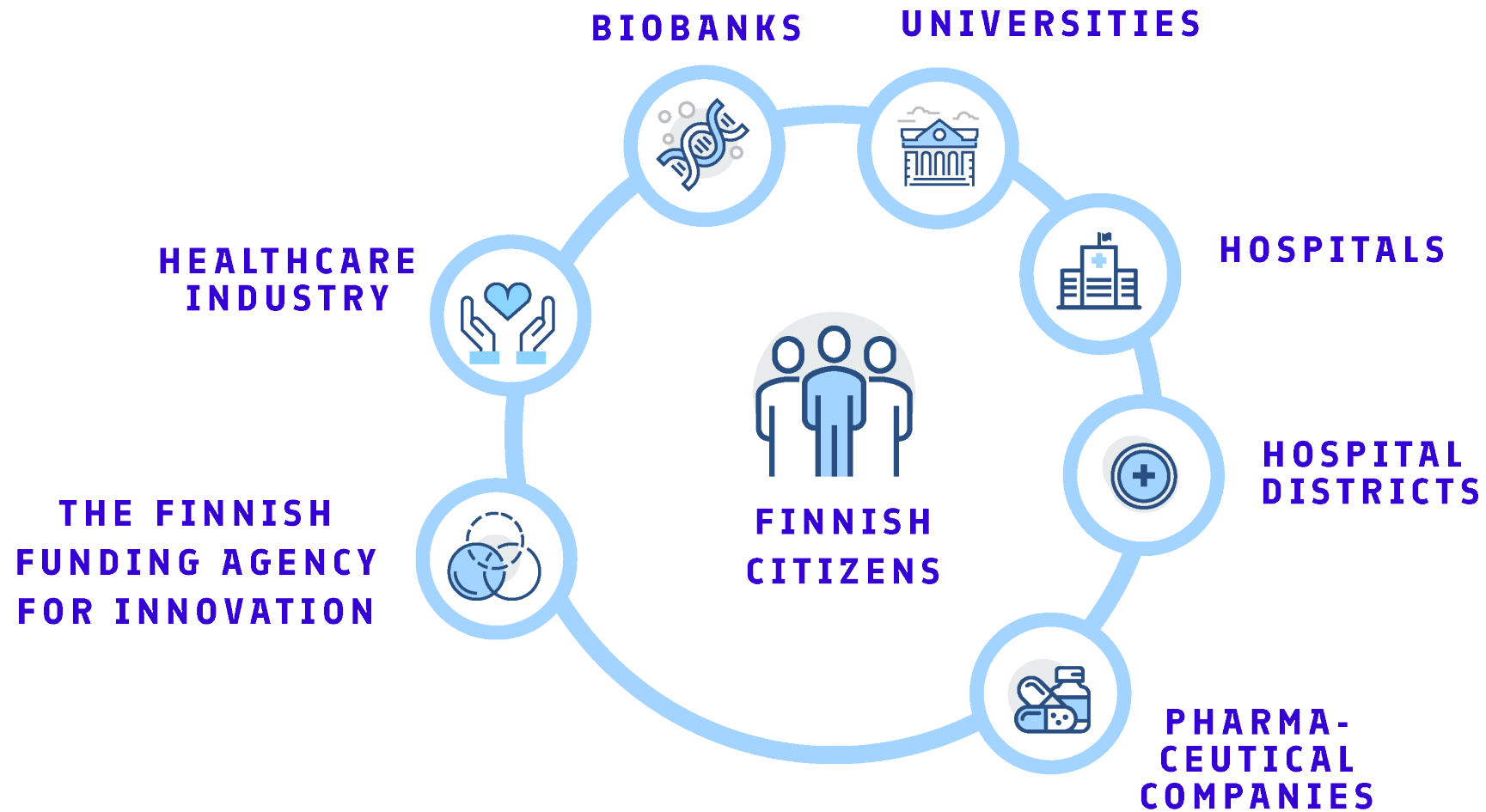


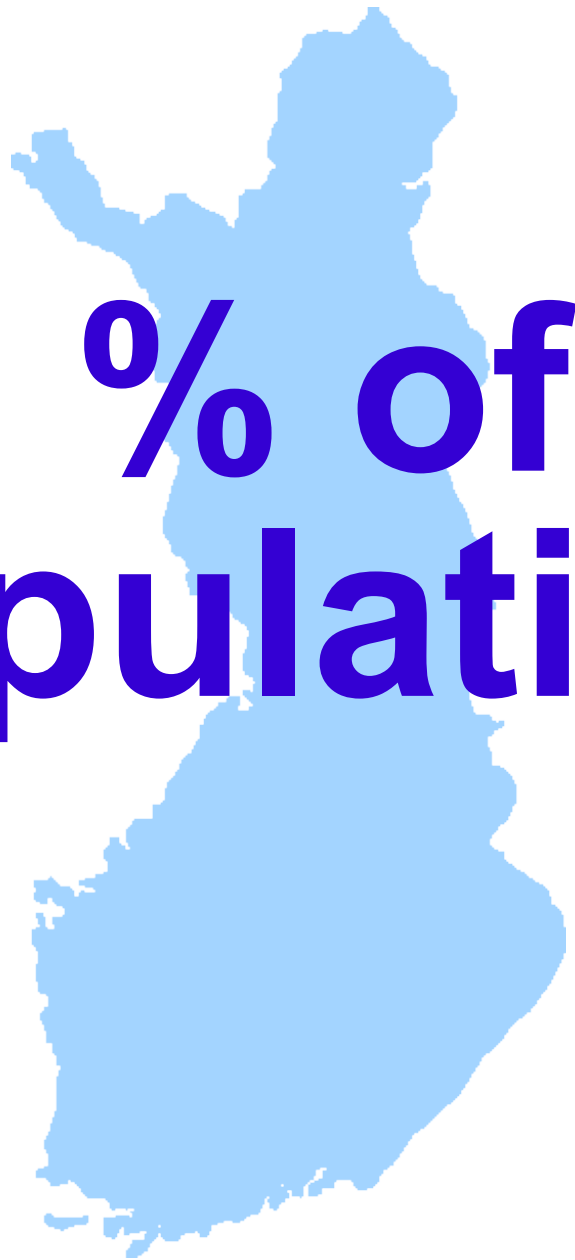
Biogen

Genentech  
IN BUSINESS FOR LIFE



# FinnGen partners





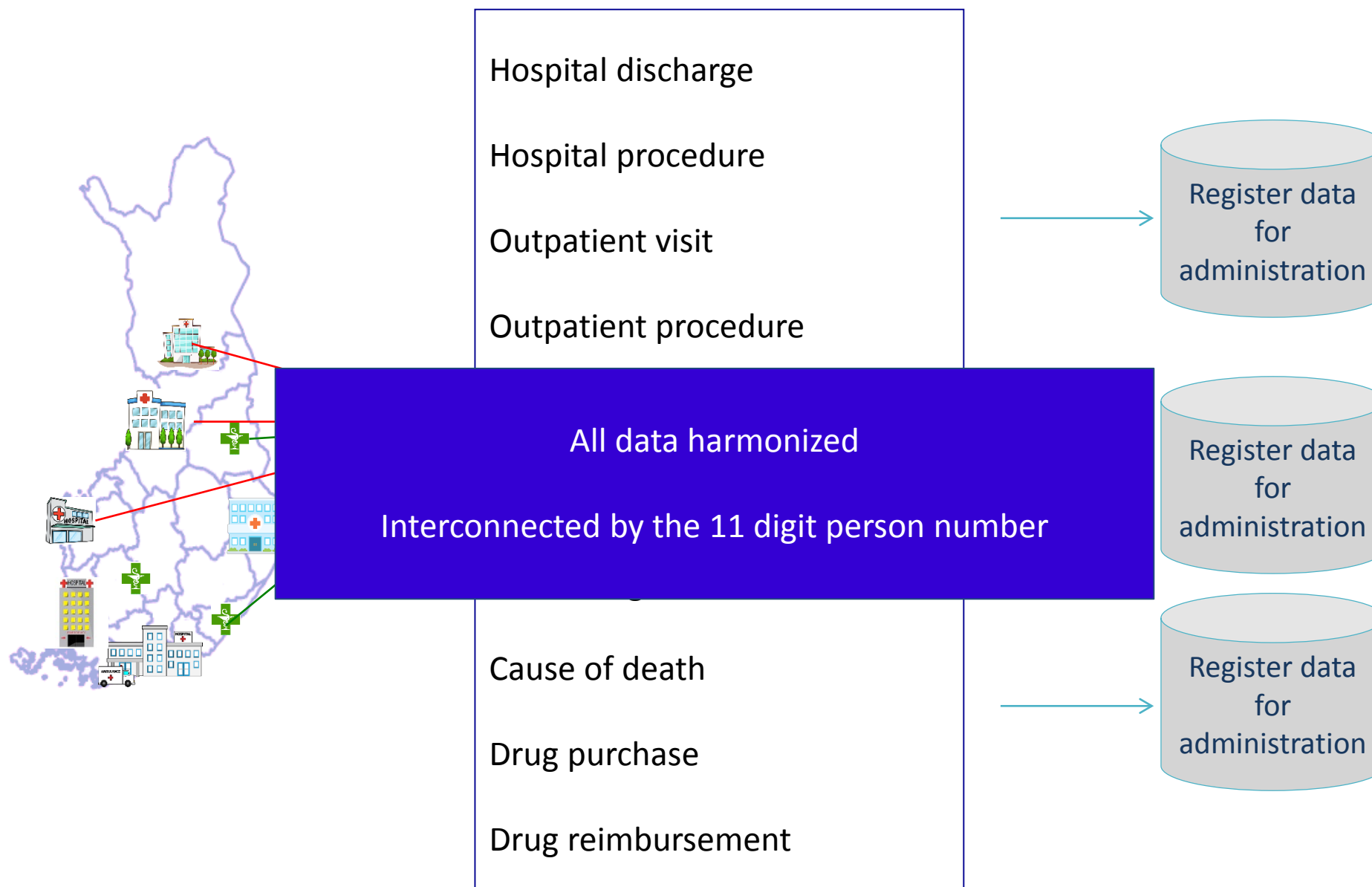
**~10 % of the  
population**

Legacy  
collections:

200 000

Prospective  
collections:  
300 000

# National registers



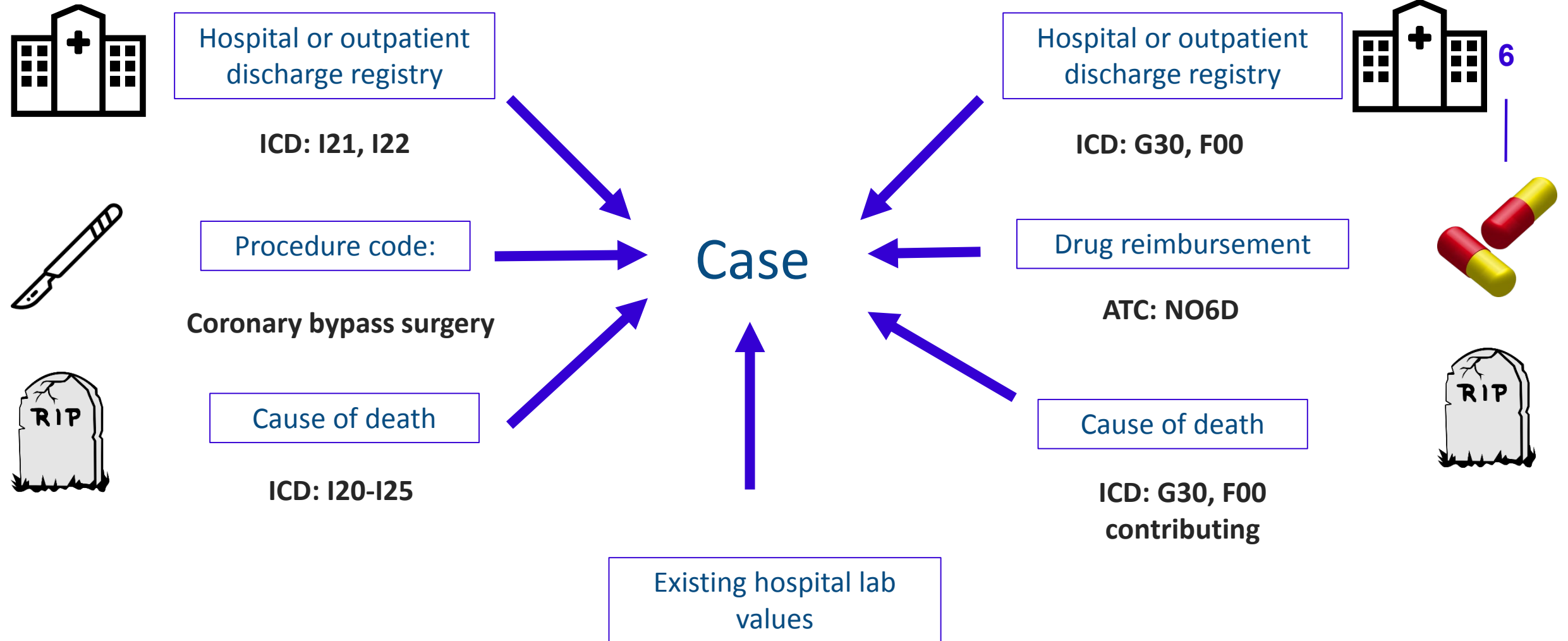
# Constructing disease endpoints



FINNGEN

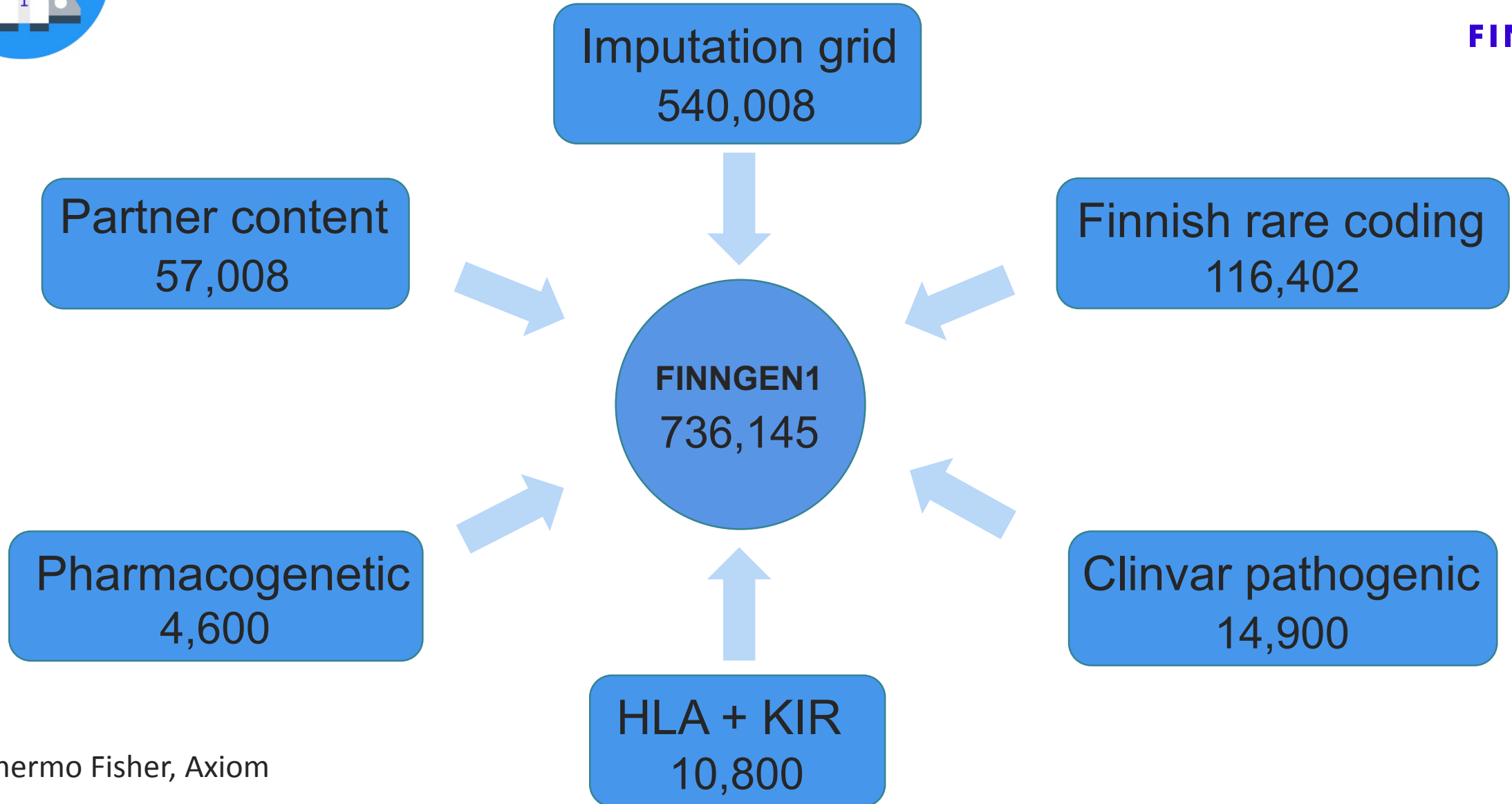
## Coronary heart disease

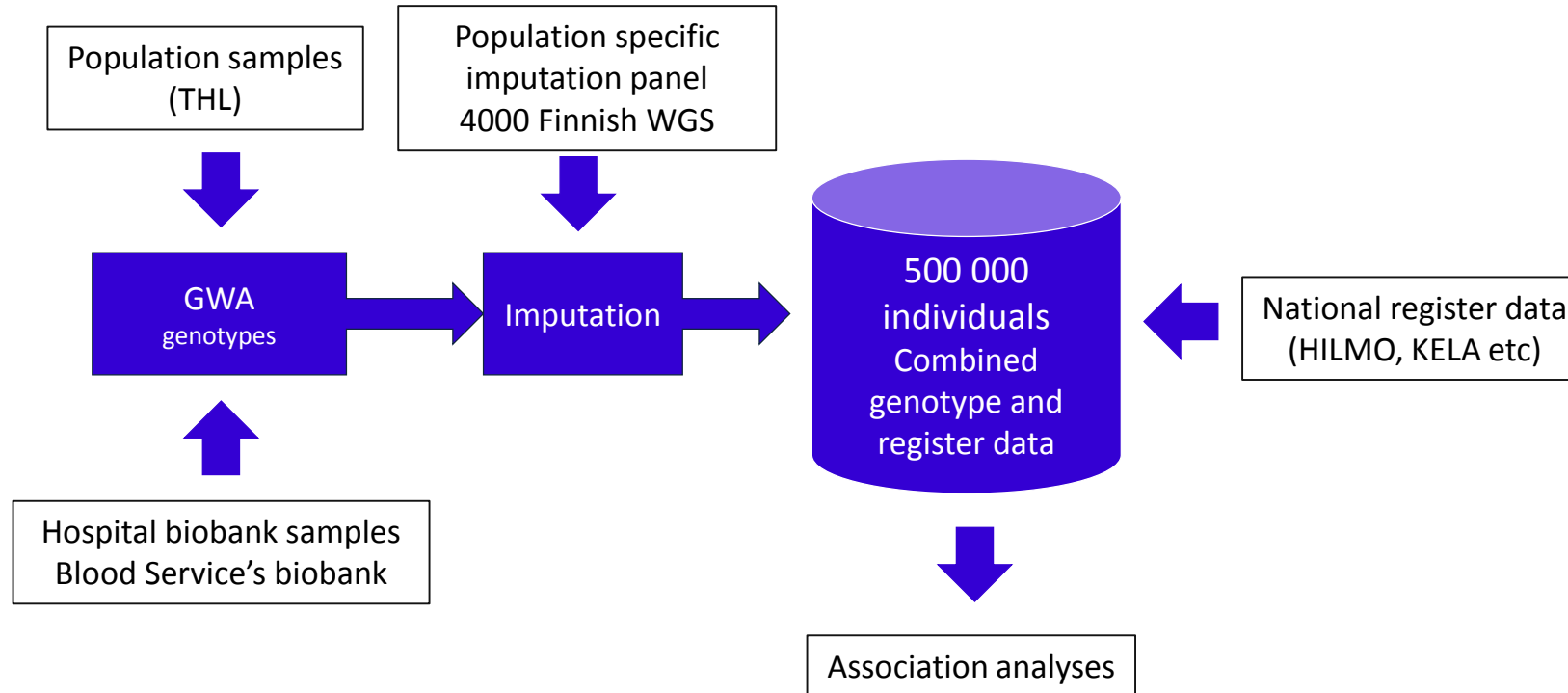
## Alzheimer's





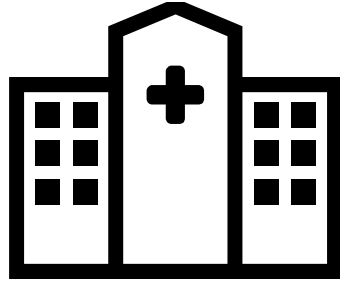
# FINNGEN1 Chip







Prospective collections 300 000



Hospital biobanks

Legacy collections 200 000

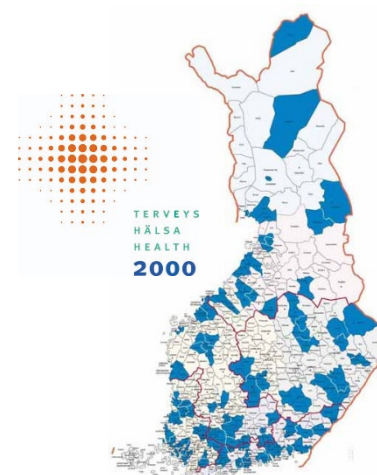


- Epidemiological cohorts (Finnrisk, H2000)
- Disease collections:

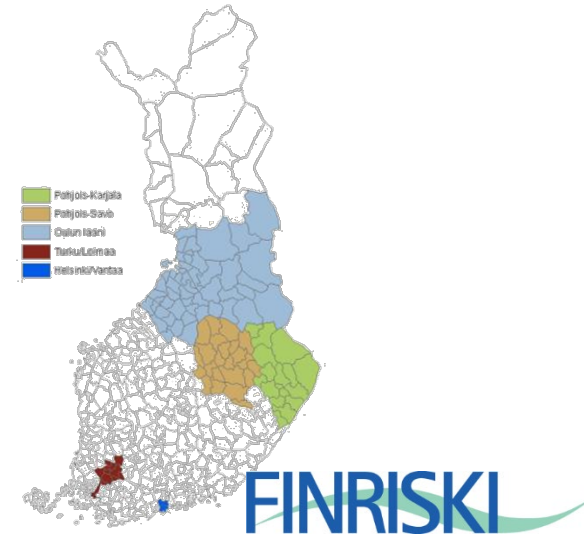
Existing  
population  
cohorts, e.g.



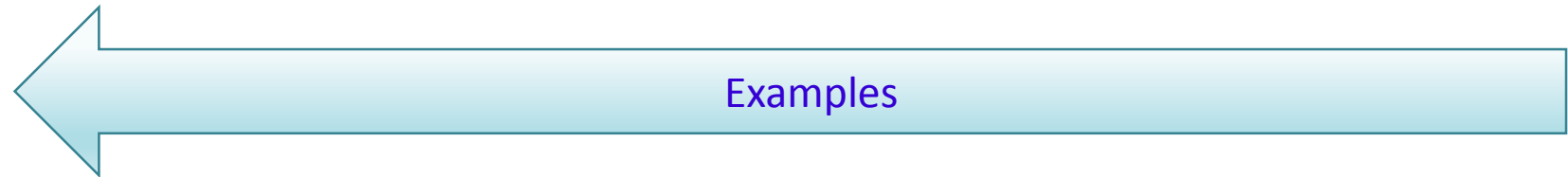
Genetic feedback study  
8000 individuals



Health survey  
10 000 cases



Population survey  
40 000 cases



Existing disease  
cohorts, e.g.

Psychosis  
10 000 cases



Botnia  
>5000 cases



Migraine  
>8000 cases



# Cumulative number of new biobank samples available \* at Finnish biobanks at the end of October 2018

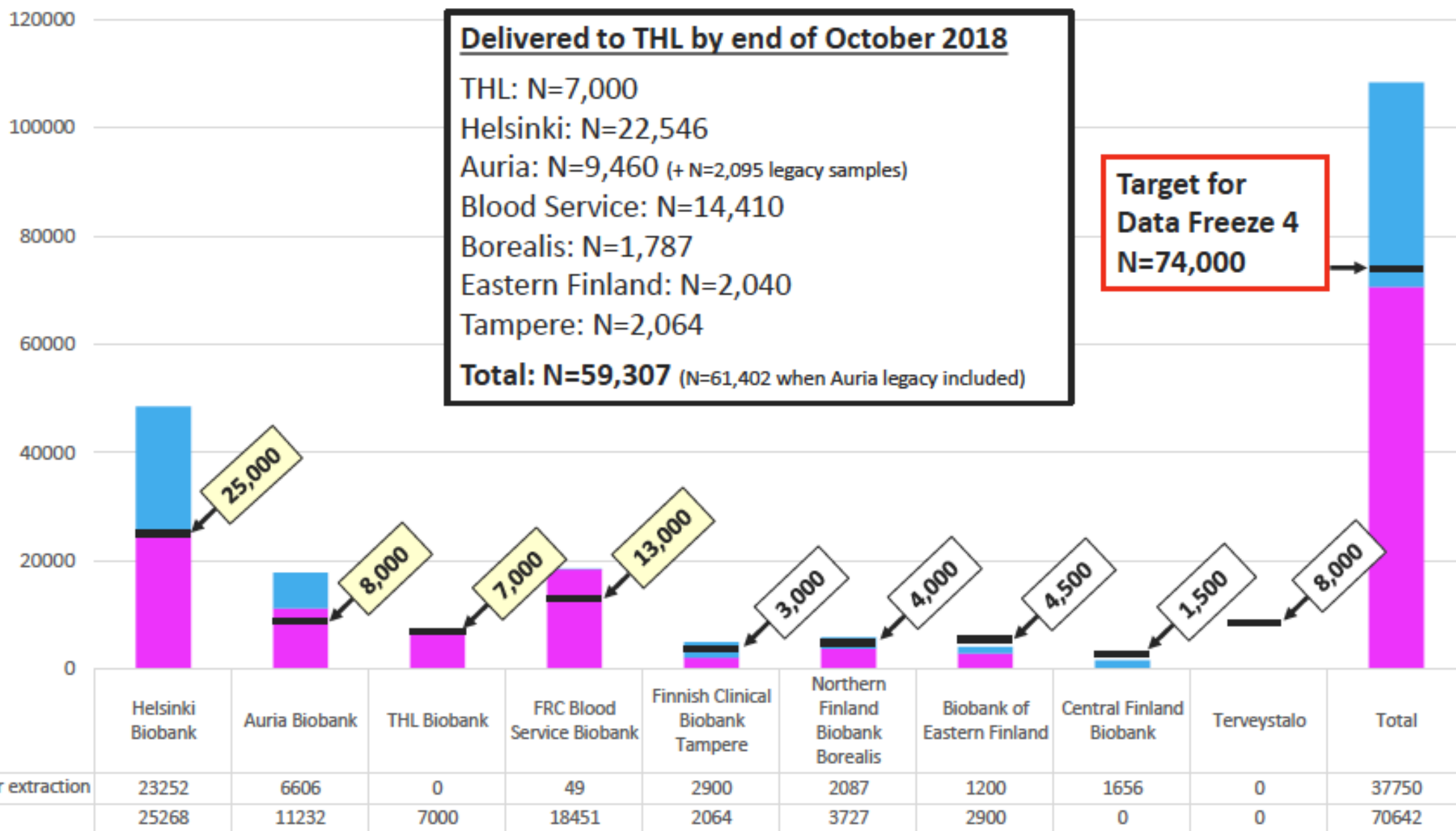
\* Samples collected 01/2017→

3

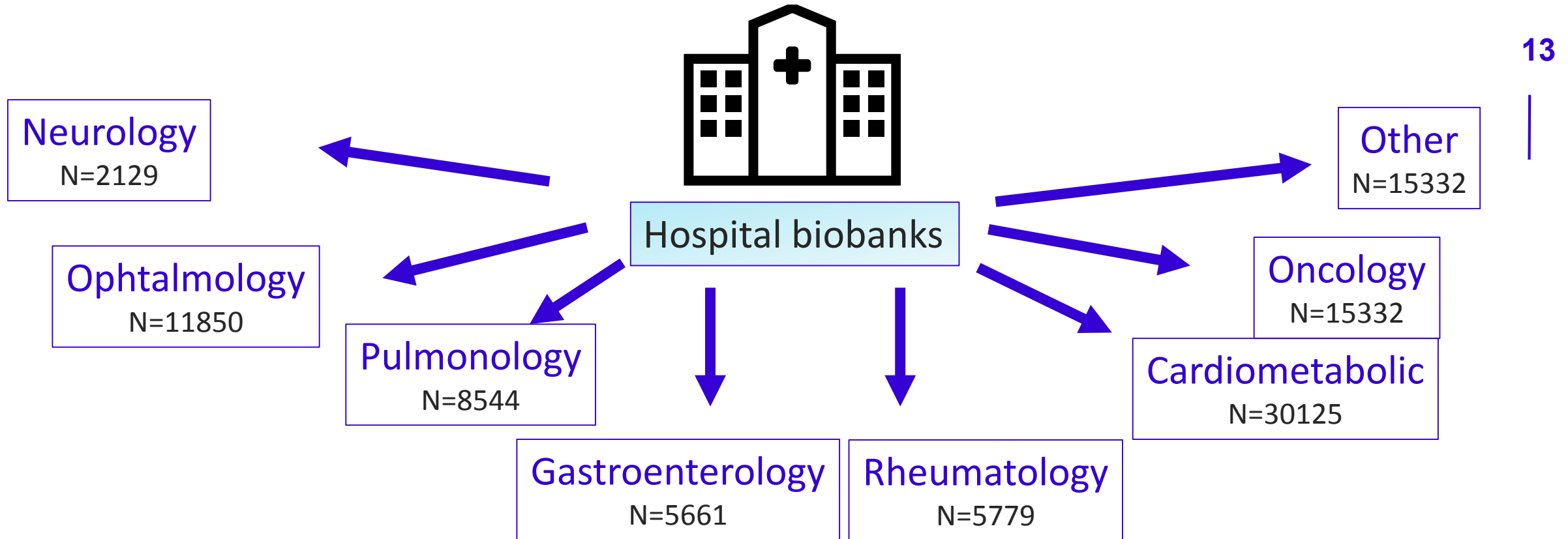


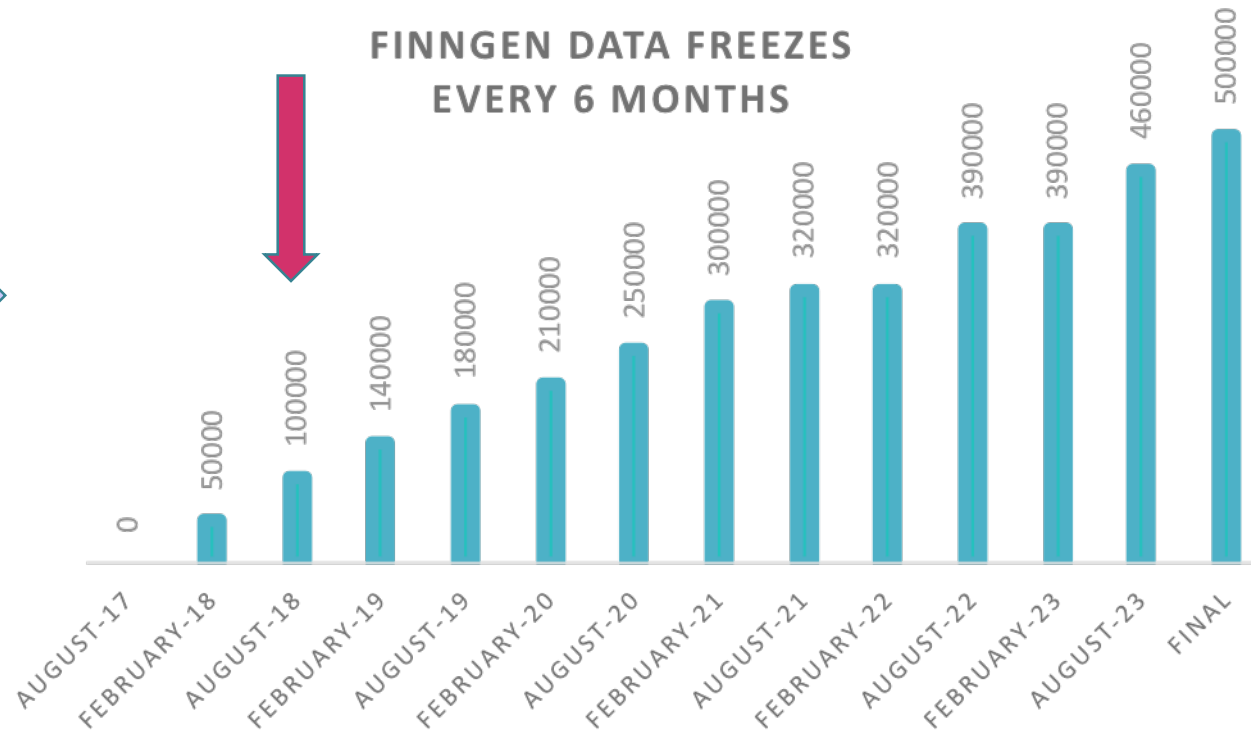
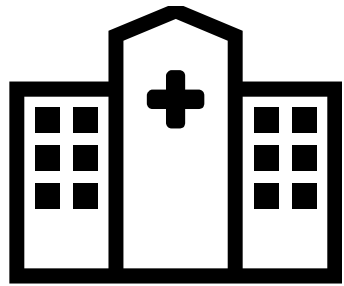
Target for Data Freeze 4  
(August 2019): **N=74,000**

# Number of new biobank samples/DNA available\* (10/2018)



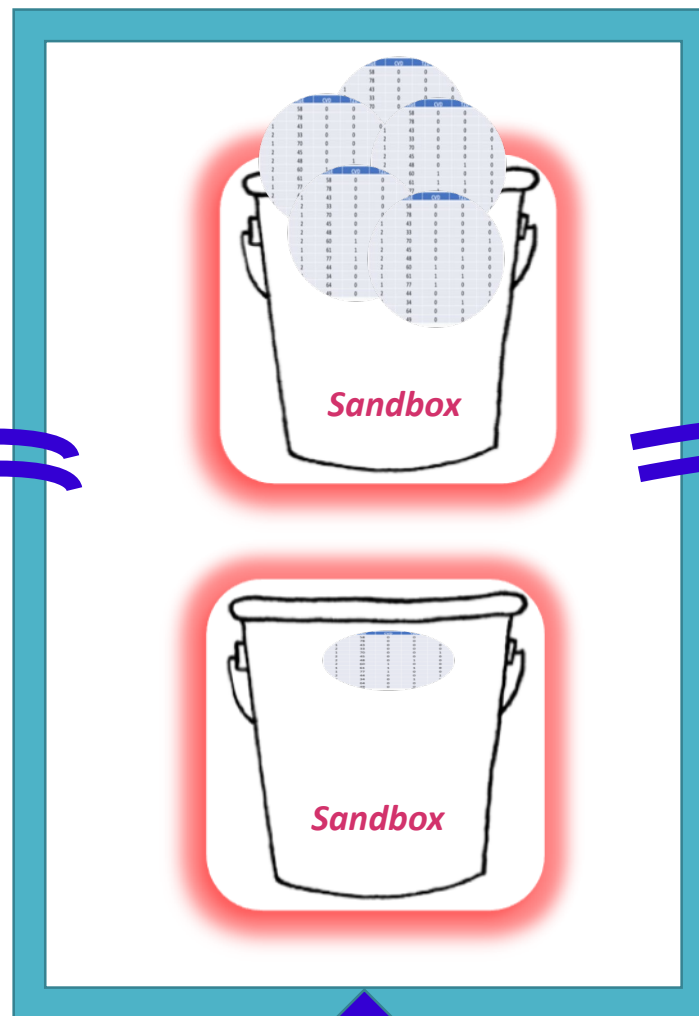
# 103 000 new samples collected in year 1





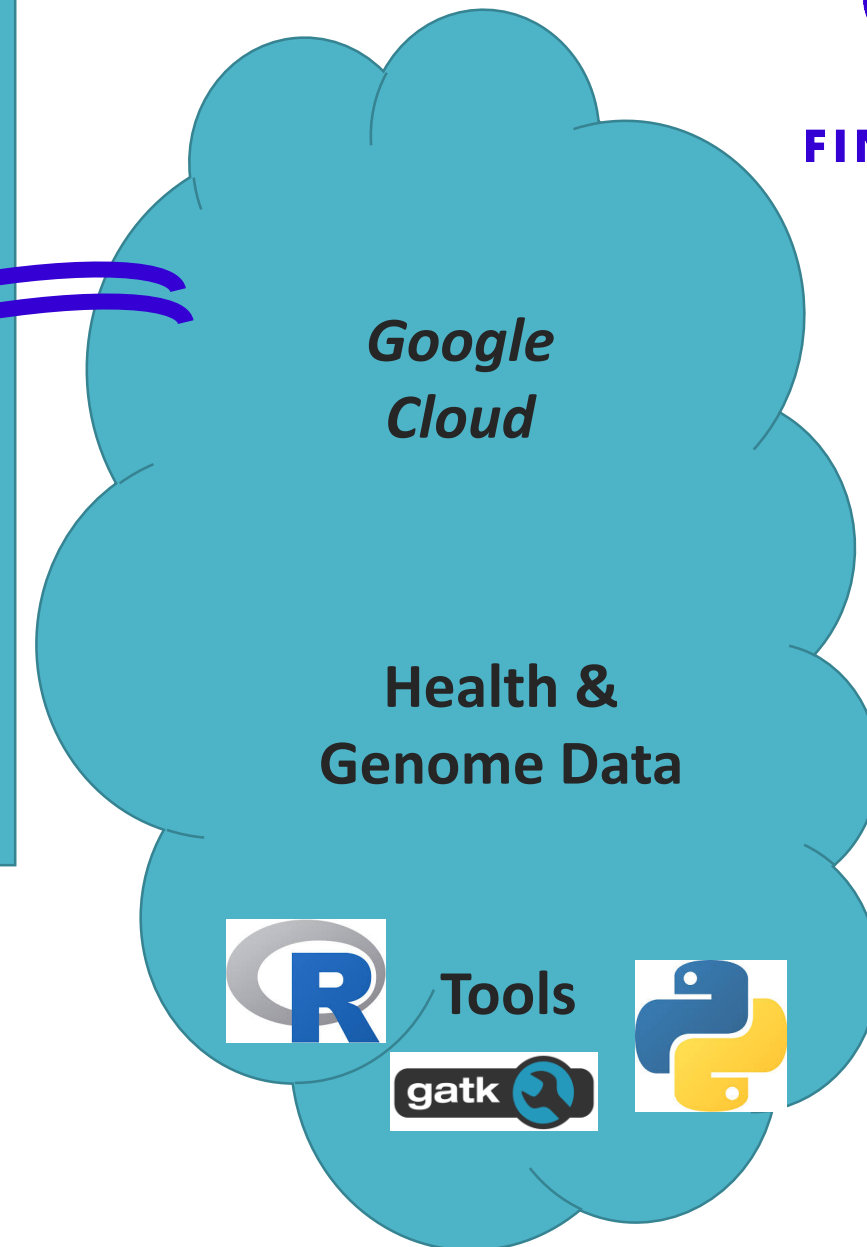
- Current data freeze 102 000 individuals



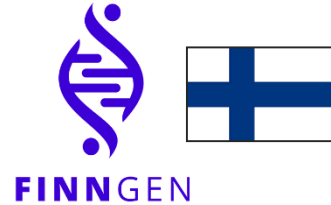


Secure access to:

- Individual level data
- Analysis results
- Data cannot be copied



# Combining results from other large biobanks



16

↓  
GWAS/PheWAS  
↓

↓  
GWAS/PheWAS  
↓

↓  
GWAS/PheWAS  
↓

Meta-analysis

BBJ collaborators: Masa Kanai, Yuki Okada, Yoichiro Kamatani



# Acknowledgements



**FINNGEN**

17





# FinnGen Partners

## Coordinating partners:



## Funding partners:



## Biobanks:

|  |                                                                                                                                                                                                                                                                                                                                                       |
|--|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | Hospital District of Southwest Finland<br>University of Turku<br>Satakunta Hospital District<br>Vaasa Hospital District                                                                                                                                                                                                                               |
|  | Hospital District of Helsinki and Uusimaa (HUS)<br>University of Helsinki<br>Kymenlaakso Social and Health Services (Carea)<br>South Karelia Social and Health Care District (Eksote)                                                                                                                                                                 |
|  | Finnish Red Cross Blood Service<br>Finnish Association of Hematology<br>Institute for Molecular Medicine Finland (FIMM), HiLIFE,<br>University of Helsinki                                                                                                                                                                                            |
|  | Northern Savo Hospital District<br>University of Eastern Finland<br>South Savo Social and Health Care Authority<br>Joint Municipal Authority for North Karelia Social and Health services (Siun sote)<br>Eastern Savo Hospital District                                                                                                               |
|  | Central Finland Health Care District<br>University of Jyväskylä                                                                                                                                                                                                                                                                                       |
|  | Northern Ostrobothnia Hospital District<br>University of Oulu<br>Joint Municipal Public Utility for Northern Finland central laboratory Nordlab<br>Central Ostrobothnia Joint Municipal Authority for Social and Health Care<br>Kainuu Social and Health Care Joint Municipal Authority<br>Lapland Hospital District<br>Länsi-Pohja Hospital District |
|  | Pirkanmaa Hospital District<br>University of Tampere<br>Kanta-Häme Hospital District<br>South Ostrobothnia Hospital District                                                                                                                                                                                                                          |
|  | The National Institute of Health and Welfare (THL)                                                                                                                                                                                                                                                                                                    |
|  | The Finnish Red Cross Blood Service                                                                                                                                                                                                                                                                                                                   |



18

## Funding:

BUSINESS  
FINLAND