

Using UK Biobank to study dementia


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 @tim_neuro



Outline

1. What is dementia and why study it?
 2. Why do researchers want to use UK Biobank to study dementia?
 3. How can we identify the people who develop dementia?
- 


What is dementia
and why study it?



What is dementia?

1. Syndrome due to disease of the brain
2. Affects ≥ 1 cognitive functions
3. Worsens over time
4. Causes functional impairment

Many causes (subtypes):

- Alzheimer's disease
 - Vascular dementia
 - Dementia with Lewy Bodies
 - Frontotemporal dementia
 - Many more....
- 

670,000

number of people with
dementia in UK

1 in 3

proportion born in 2015
predicted to develop
dementia



£11.9bn

health & social care
costs of dementia in UK

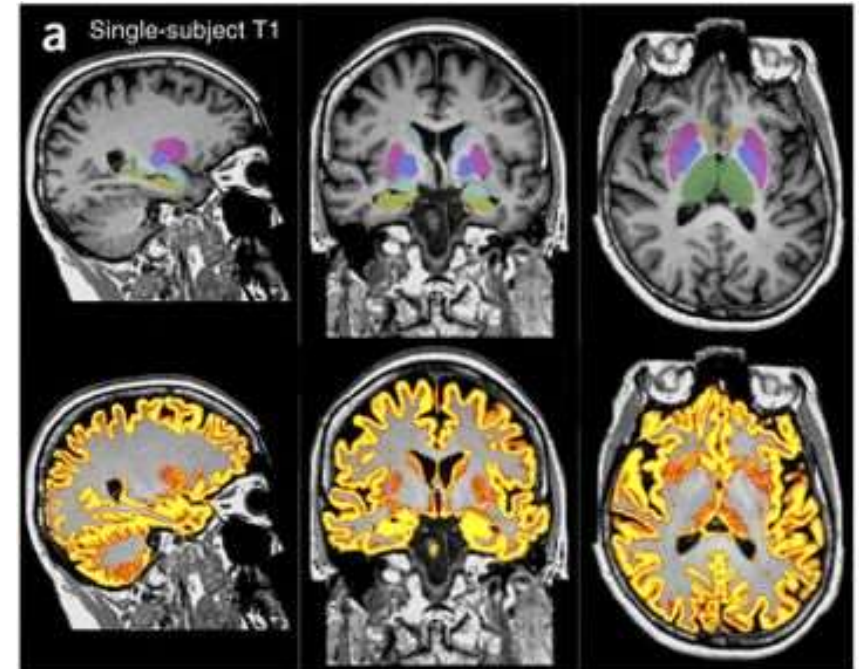
Why do researchers want to use
UK Biobank to study dementia?



Why use UK Biobank for dementia research?

1. Genetics
2. MRI scans
3. Accelerometry
4. Cognitive tests
5. Lifestyle information
6. Other questionnaires
 - Mental health
 - Dietary
 - Occupation

7. 500,000 people!



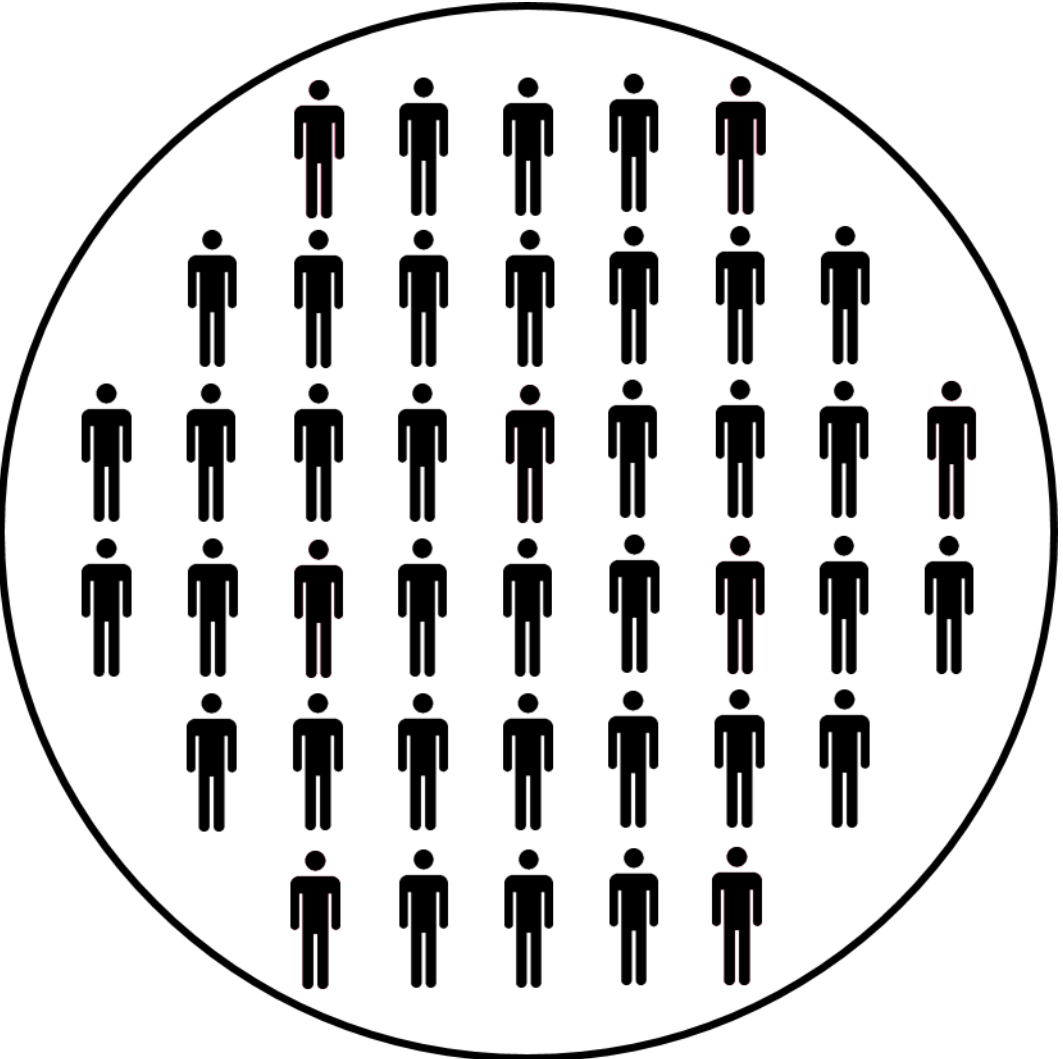
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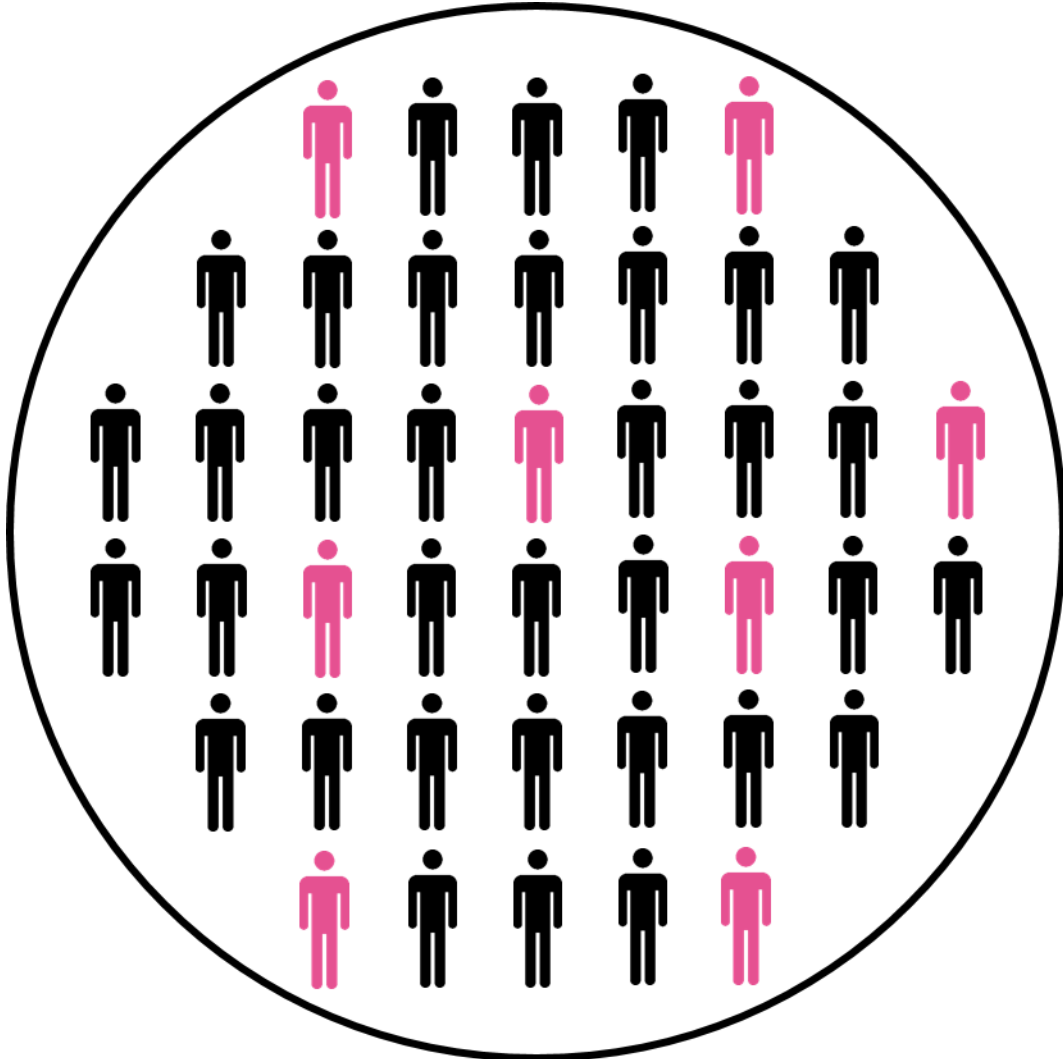


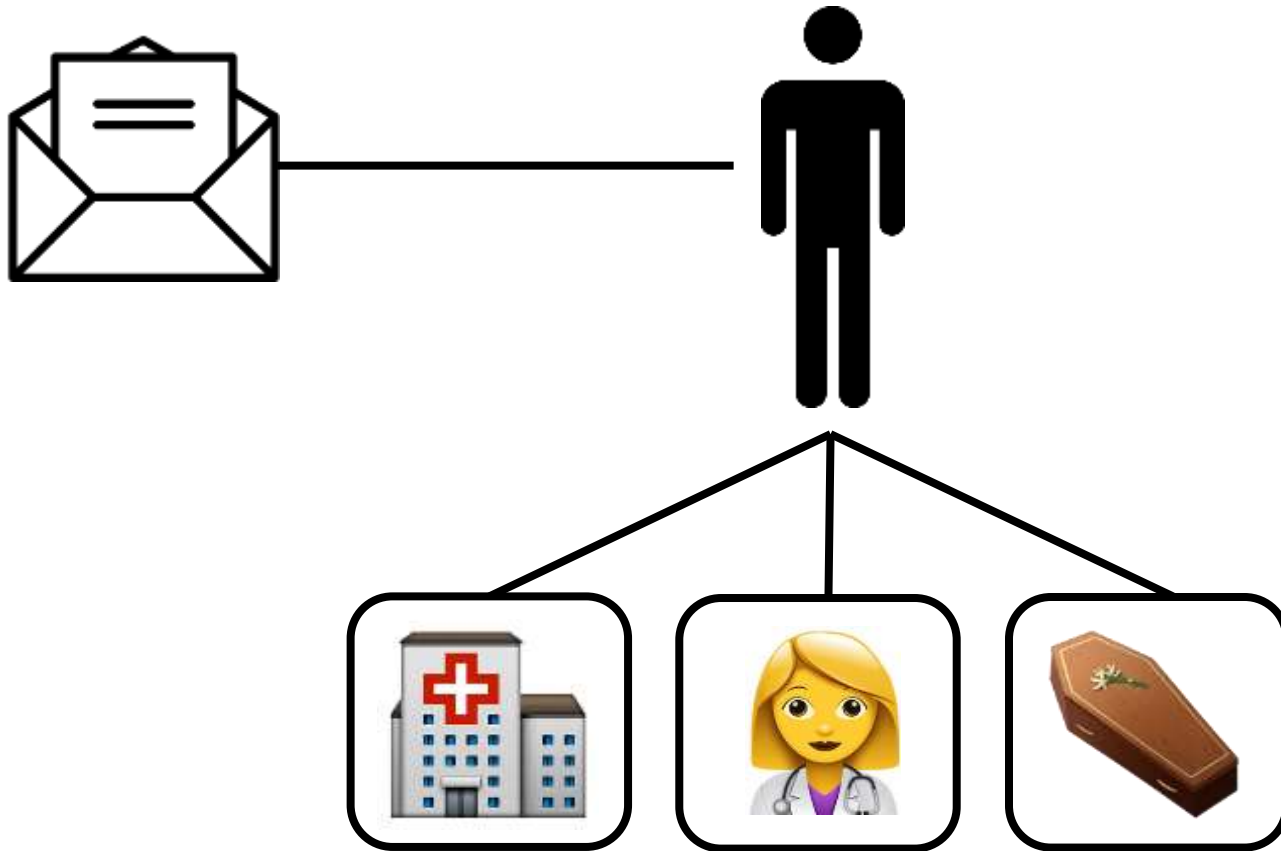
How can we identify the people
who develop dementia?





time





NHS



Routinely-collected healthcare datasets



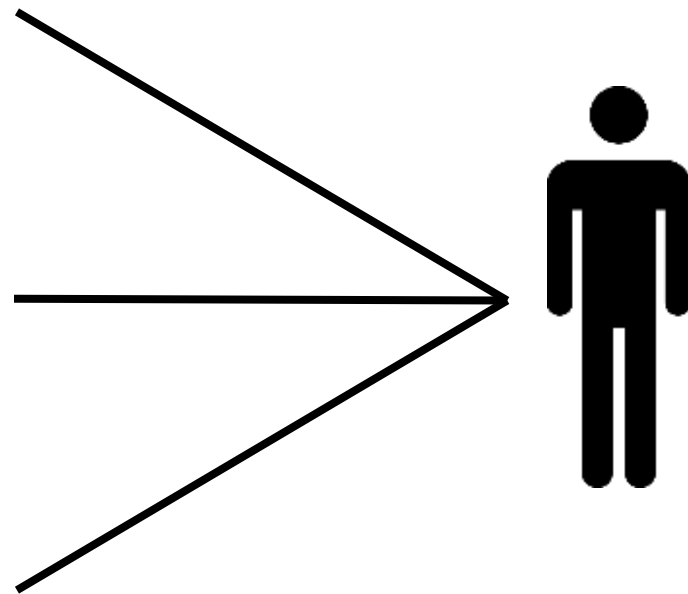
hospital admissions



death certificates



primary care



Routinely-collected healthcare datasets



hospital admissions



death certificates



primary care

how accurate
are these
datasets?



Created a dementia code list
~150 codes in total

Identify participants recruited in Edinburgh with a dementia code
in any dataset

Extract information from the electronic medical record

Anonymise extract

Present letters to dementia specialists

Accuracy



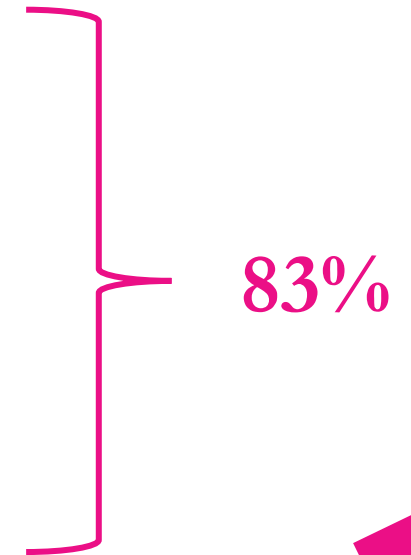
hospital admissions — 87%



death certificates — 80%



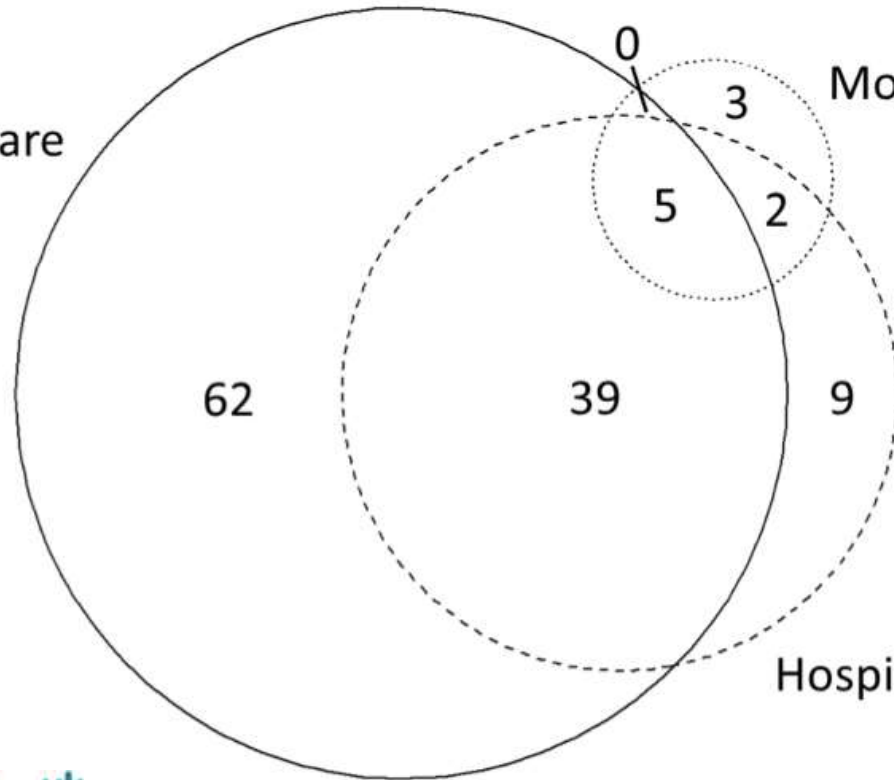
primary care — 87%



Primary care data are important



Primary care



Mortality



$n = 127$

Hospital admissions



How can we help researchers using UK Biobank?

ID	Date	Code	SOURCE
41565672	2009-01-27	44P6.	GP
41565672	2009-01-27	441F.	GP
41565672	2009-01-27	43Z2.	GP
41565672	2009-01-27	M754	HOSP
41565672	2009-01-28	M1991	HOSP
41565672	2009-01-28	M2571	HOSP
41565672	2009-02-05	M758	HOSP
.....
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Dementia

- Yes/No
- If Yes - date



dementia

chronic lung diseases

heart attacks

depression

stroke

schizophrenia

diabetes

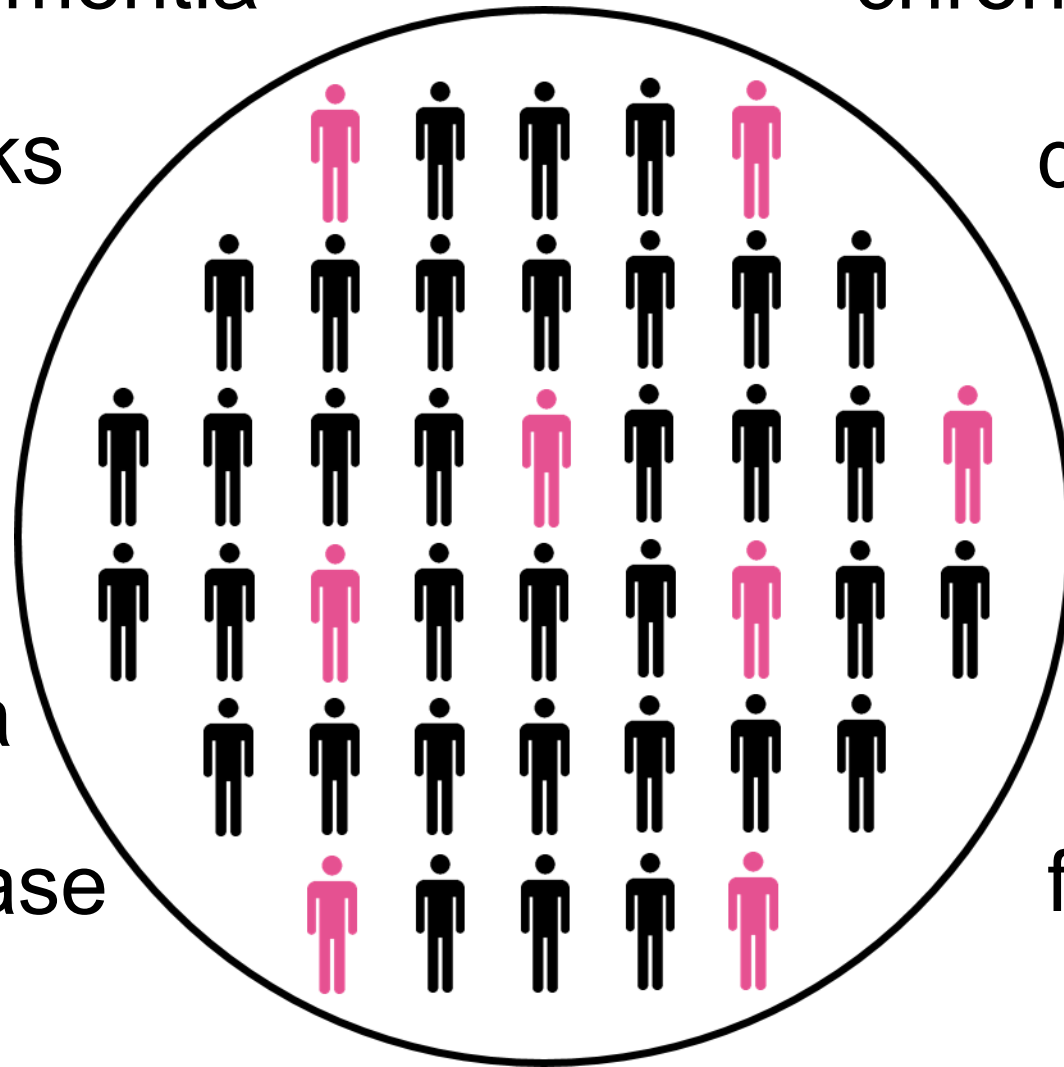
bipolar disorder

asthma


eye diseases

Parkinson's disease

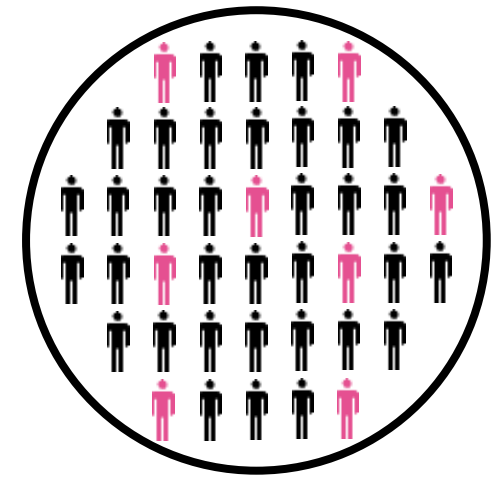
fractures



Summary

- Dementia is important
 - We can identify people who develop dementia using routinely-collected health datasets
 - Primary care data is a useful resource
 - UK Biobank is a powerful resource for dementia research
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Acknowledgements



Edinburgh UK Biobank team

- Prof Cathie Sudlow
- Dr Christian Schnier
- Dr Kathryn Bush
- Dr Kristiina Rannikmäe
- Ms Robin Flaig
- Mr Aidan Hutchison

External collaborators

- Prof John O'Brien
- Dr Debbie Bathgate
- Dr Tom Russ
- Dr Suvankar Pal

Oxford UK Biobank team

- Dr Naomi Allen

The 500,000 participants in UK Biobank

