

UK Biobank and COVID-19: health data linkages and serology study

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UK Biobank activities

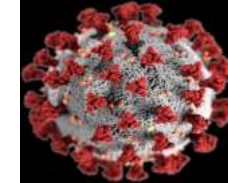
- Rapid and regular updates of medical records
- Longitudinal serology study in 20,000 individuals to determine the extent of past infection across the UK

Rapid and regular updates of health records

SARS-CoV-2 test data



Available since 17 April (2,600 positive results 16 Mar-14 June)



Death



Available since 11 June (300+ deaths up to 26 Apr)

Hospital inpatient data



Available end-June (up to 31 March)



Intensive care



Available July

Primary care data

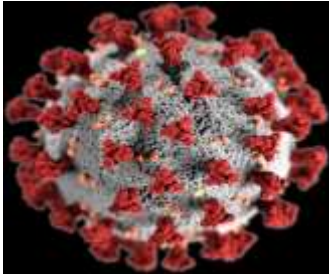
Primary care data made available under the COPI regulations and are **ONLY** available for COVID-19 research purposes

Streamlined process to access data for COVID-19 research

- Researchers can use an existing UKB project
- No need to submit a project extension
- No need for an amended MTA
- New applications related to COVID-19 are fast-tracked

- Accessed directly via the Data Portal

- 540 projects (~30%) accessing these data



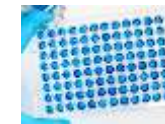
UK Biobank's Serology Study



- Aim: to determine extent of infection with coronavirus (by measuring antibodies) in 20,000 people across the UK
- Will assess sero-prevalence in different regions and whether this changes by age, sex, ethnicity, urban/rural, socio-economic status
- Will correlate self-reported symptoms with antibody status to assess what % are asymptomatic in the general population
- Will assess changes in antibody levels over time to address questions about waning immunity and re-infection (& whether this is symptomatic or not)

Study outline

- To recruit 10,000 UKB participants and 10,000 adult children/grand-children to increase representation across all ages and regions
- Participants mailed a blood sampling kit every month for at least six months
- Weekly batches of samples shipped to Oxford TDI for ELISA assay (IgG Ab to spike protein)
- Results made available on a regular basis to DHSC to inform approach to pandemic



Rapid turn-around of the UKB lab

1st April



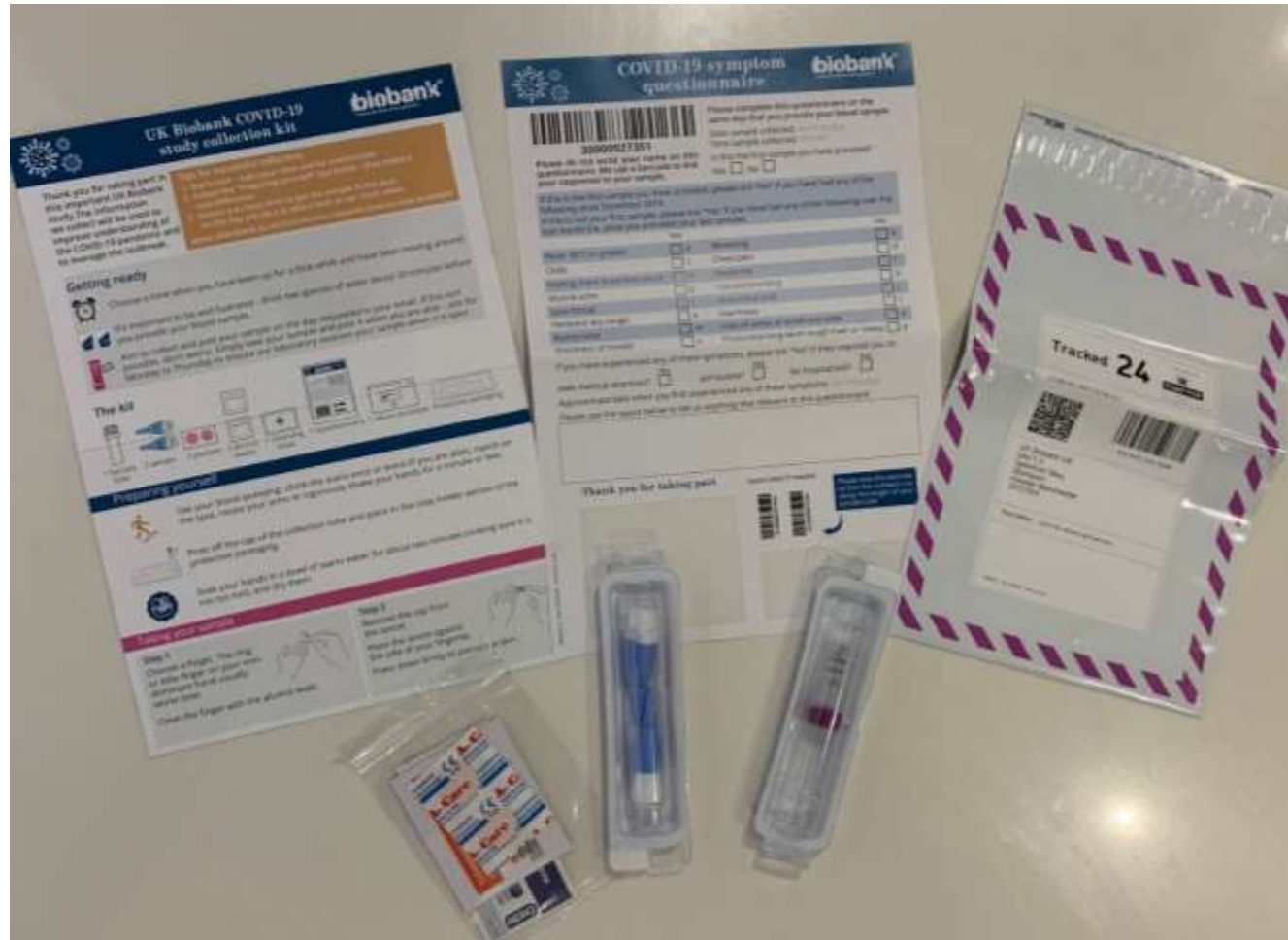
9th April



21st May

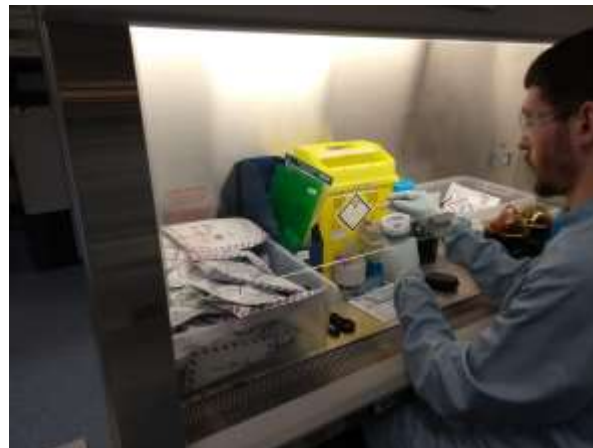


Collection kit sent to participants



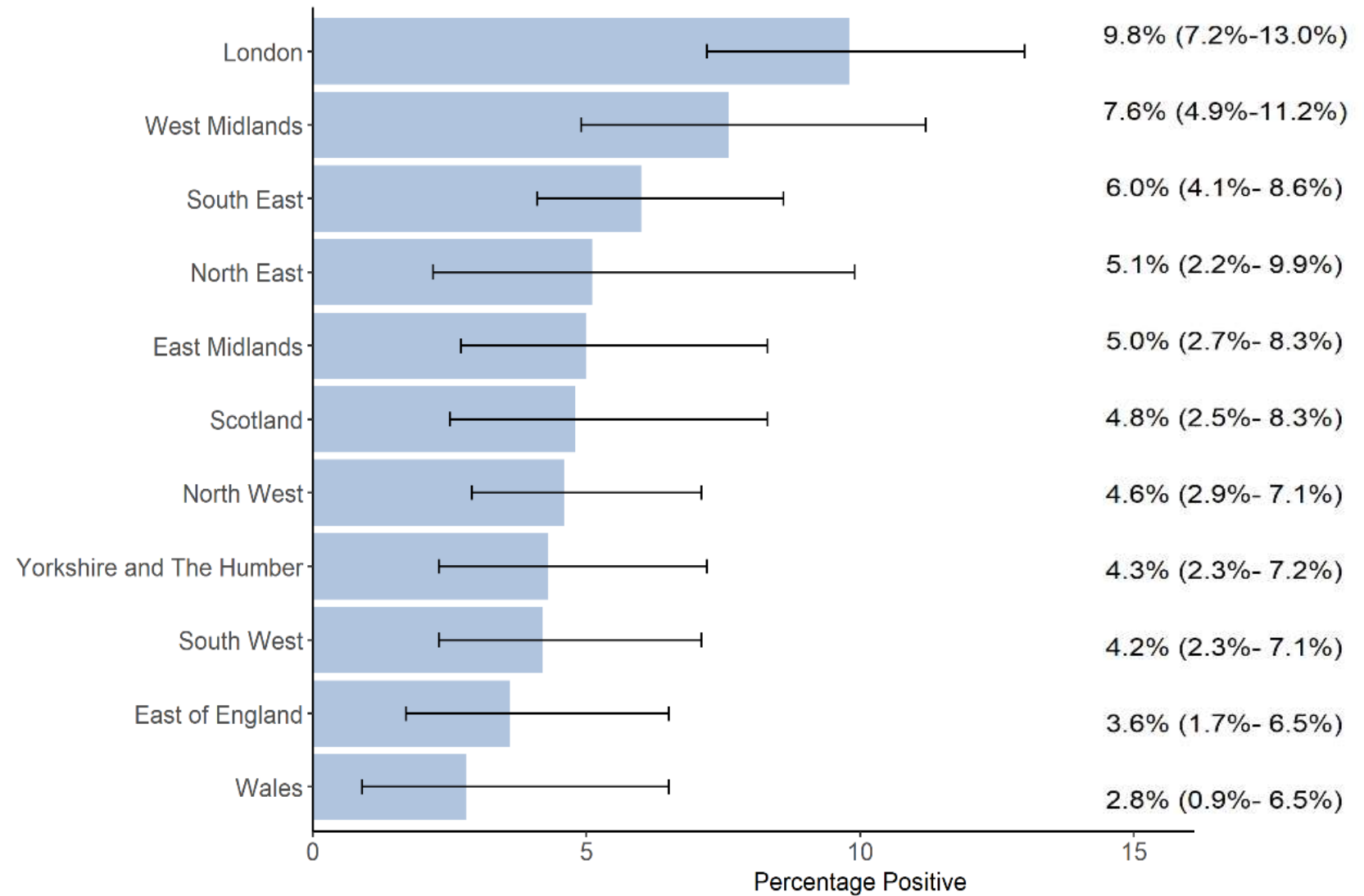
- Mail 20,000 kits in 4 weekly batches of 5,000
- Repeat every month for at least 6 months

07 May: First email invites sent (116,000 signed-up over 4 weeks)
15 May: First participants selected
20 May: First batch of sample kits despatched
09 June: Processed samples sent to TDI for assay
15 June: Results provided for first batch of samples

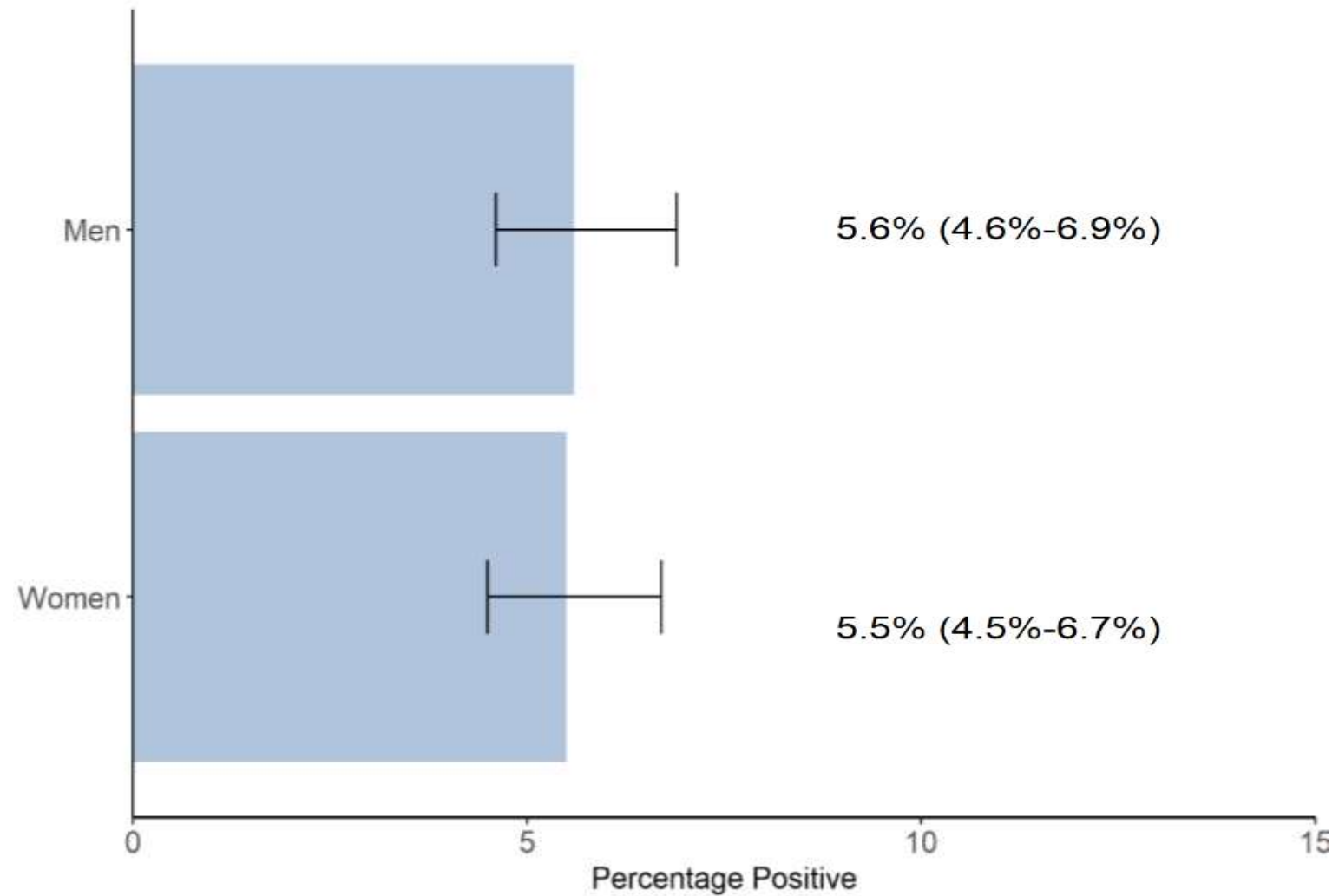


Results for first 3,300 participants: Region

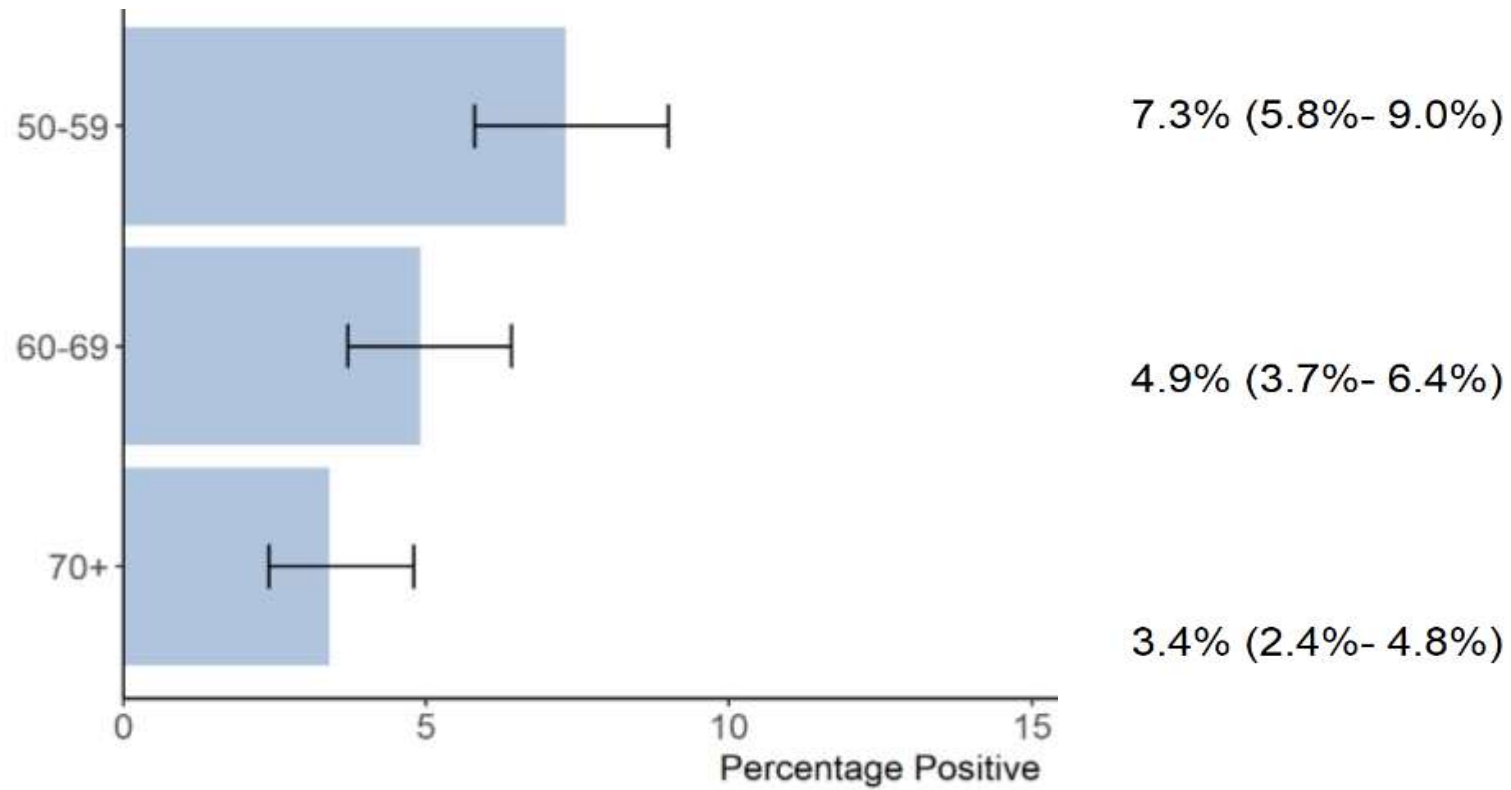
Overall
seroprevalence:
5.6%



Results for first 3,300 participants: Sex



Results for first 3,300 participants: Age



Summary of research opportunities using linked EMR and serology data

- Availability of medical records and genetic data for all 20,000 individuals will facilitate research into:
 - Antibody levels and disease severity
 - Persistence of antibody levels over time and recurrence of COVID-19
 - Genetic determinants of antibody response
- Medical records for all 500,000 individuals will enable:
 - Assessment of longer-term health outcomes in those with COVID-19
 - How this varies by disease severity