

UK Biobank opens to researchers

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Test tubes labelled with 2D barcodes at UK Biobank.
Credit: Wellcome Library, London.

A unique data resource of the health and lifestyles of half a million Britons - including 26 000 people with diabetes and 50 000 with joint disorders, 41 000 teetotallers, and 11 000 heart attack patients - becomes available for research today.

With more than 1000 separate pieces of information already available on volunteers aged 40-69 when they joined the project, [UK Biobank](#) has amassed one of the most detailed large-scale health resources ever, with the goal of improving the health of future generations.

Importantly, this information will grow as the participants' stored samples are analysed and their health is followed over many years, building a key resource for research into a wide range of illnesses that cause pain, disability and premature death.

UK Biobank will become more valuable for health research as the resource develops over time. Results of tests on donated blood, urine and saliva samples, including genetic tests, will be added, as will information about the participants that includes physical activity, diet, work and, potentially, body scanning.

Changes in participants' health will be recorded using electronic records, such as GP records and cancer and death registers. Results from studies using UK Biobank will be put back into the resource for other researchers to use.

"This is without doubt a very exciting day for medical research, not just in the UK but around the world," said UK Biobank Principal Investigator, Professor Sir Rory Collins. "We are grateful to participants for their trust and support so far. But they have not joined the project to see it remain idle; we all want to see the resource used extensively to bring about benefits to health and wellbeing."

Participants were recruited from Scotland, England and Wales over four years. Researchers took measures of height, weight, body fat, hand grip strength, bone density, lung function and blood pressure, along with information about medical histories and lifestyles. Memory, diet, early life factors and psychosocial events (such as how often people see family and friends) were also recorded. The last 100 000 participants also had hearing, fitness and eye tests, creating the biggest eye study ever.

The resource so far stretches to about 20 terabytes of securely stored data, the equivalent of 30 000 CDs. It will grow hugely over the coming years; for example, ten times more information will be added if the plan to do specialised imaging scans in one-fifth of all participants gets the go-ahead.

UK Biobank will allow scientists working on health-related research that

is in the public interest to access the resource to find out why some people develop particular diseases and others do not. This will pave the way for new treatment and preventative strategies. The resource is expected to advance research into the causes, prevention and treatment of many chronic, painful and life-threatening illnesses, such as cancer, heart disease, stroke, diabetes, dementia, depression, arthritis, and eye, bone and muscle disorders.

Scientists from the UK and overseas, regardless of whether they are from academia or industry, or are charity- or government-funded, will be able to use the resource subject to checks that the research is health-related and in the public interest. Only information that does not identify participants will be provided to researchers.

Applications to use the resource will be made online. Careful checks will be carried out by the UK Biobank team, and the process will be overseen by the Access Sub-Committee of the UK Biobank Board. The independent UK Biobank Ethics and Governance Council will also oversee the system.

An online data showcase will allow scientists and the public to see a summary of the information collected so far, and successful applications to use the resource will be published on the website as they are approved.

Professor Dame Sally Davies, Chief Medical Officer and Chief Scientific Advisor, Department of [Health](#), said: "UK Biobank is a globally unique resource which places the UK at the forefront of the quest to understand why some people develop life-threatening diseases or debilitating conditions. It has huge potential for future generations and will help us understand how our children and our children's children can live longer, healthier lives."

Provided by Wellcome Trust

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