How you did it
Half a million participants joined UK Biobank at 21 assessment centres across the country, including 35,000 in Scotland and 22,000 from Wales. Leeds, Bristol and Newcastle were the three highest performers, while the response rate in Bristol topped all others.

Delivery of invite letters by district kept the costs down and meant neighbours and friends often found themselves attending on the same day.

Data were transmitted within minutes of participants leaving an assessment centre. They went via secure networks to safe computer storage systems. Blood, urine and (where collected) saliva were transported overnight to the archive facility in Cheadle, Stockport.

Adding value to this special resource
Thank you for taking the time and trouble to participate in UK Biobank.

There are a number of other ways you will be able to help this pioneering resource in the future, if you wish to do so.

For instance, a wrist-worn activity monitor (called an accelerometer) is currently being put through its paces. The waterproof device can be worn all day long to provide a precise measure of the type and amount of activity taken over a few days. Information gathered will also be of interest to scientists and doctors in determining how activity relates to the development of major chronic diseases.

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Getting involved with this aspect of the study will be easy to do. We will write to people to see if they are prepared to wear one of the devices (about the size of a watch) and put one in the post if they are prepared to wear one of the devices.

What happens next?
Detailed access proposals explaining exactly how scientists can use the resource are being prepared. You will be able to view these and comment on them during the next six months. Please keep an eye on the UK Biobank website.

Within the next year, scientists will be able to access the UK Biobank resource, but its value increases the longer they wait. A committee will be established to ensure fair access by approved scientists. Special attention will be given to research involving analysis of blood, urine and saliva, since these samples may get used up over time. Scientists from the same areas of research will be encouraged to work together.

Follow-up of health records begins – from information on cancer and diabetes registers to that provided by hospitals about the care of patients. UK Biobank promises that all data that do not identify participants will be provided.

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The NHS supports the project. Professor Dame Sally Davies, Director-General, Research and Development, Department of Health, said: “Health research is one of the founding principles of the NHS; it is critical for improved quality of life and more effective healthcare delivery.

“Many, many thanks to the 500,000 people who have taken part in UK Biobank. It will provide researchers with a crucial resource that can deliver public health dividends for years to come by generating a wealth of new knowledge that is relevant to the promotion of good health, the prevention of ill health and the diagnosis and treatment of disease.”

“Please stay in touch...
...so that we can tell you how UK Biobank is being used and inform you of results as they emerge. We would also like to ask for your further help in making the resource even better, though we will not be in touch too frequently. You can choose whether or not you wish to help, each time you hear from us. (See our story on Page 2.) It really helps if we can contact you by email because it’s a fraction of the postal costs and means money we save can be spent on improving the UK Biobank resource instead. It is easy to update your email address (or provide us with one if you have not already done so) by visiting our website (address below). You will need your Participant ID (on the covering letter) and personal details to access this part of the website.

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www.ukbiobank.ac.uk

UK Biobank Principal Investigator Rory Collins, BHF Professor of Medicine at Oxford University, said: "This is a landmark achievement. I am enormously grateful to everyone who has gone out of their way to take part in this ambitious study. The UK Biobank resource will be available to the best scientific minds wherever they might be, and I am convinced it will make many major contributions to improving the health of future generations.”

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UK Biobank reached its goal of recruiting half a million participants on Wednesday 7th July 2010 – just three years after launching the pioneering project in Manchester.

Around one in 50 people aged 40-69 and living in England, Scotland and Wales have now joined the project – and are helping to improve the health of future generations.

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www.ukbiobank.ac.uk
Look out for your email to do our diet questionnaire

During your assessment, you gave us a good idea of your diet - but to really understand how food intake varies and to maximise the nutritional information available, it is best to have several 'snapshots' from each participant. That's why we are hoping as many participants as possible will complete an optional on-line follow-up questionnaire. It has been specially designed and is easy to use, so it should only take about 15 minutes to complete (more than 60,000 people so far have completed it either during assessment visits or on-line).

We will ask you to complete the same questionnaire 3-4 times during the year. This will give us a better picture of your diet and how it may vary. Combining this dietary information with the analyses of specific nutrients in blood, urine and saliva samples will refine the measurement of dietary intake further. This will help scientists improve understanding of the link between diet and diseases like cancer and heart disease.

We plan to start emailing people about the diet questionnaire in the early New Year – please do watch out for your invitation to take part.

To help us in this way, UK Biobank needs your latest email address. If you have recently changed your email address, or if you wish to provide an address for the first time, you can do this by visiting the UK Biobank website (www.ukbiobank.ac.uk). You will need your Participant ID, found on the letter that came with this Newsletter. Updating your details in this way will make it easier for UK Biobank to stay in touch with you. You may find it useful to keep a note of your PID for future reference.

Facts and stats

- A robotics system controls the archival and retrieval processes. It runs along a short track within this sub-zero environment.
- The system allows for precision storage that could not be achieved by hand; it can put away 8,500 samples in an hour.
- Samples are stacked in -80°C trays along a 27 metre central 'corridor' that is kept at -20°C.
- The freezer is 7 metres wide and 6 metres high.
- About 100,000 litres of dry air and 5,000 litres of liquid nitrogen are fed through the system each day.
- To avoid frosting, circulating air within the freezer must be as dry as possible – as low as 2 parts per million of water vapour (compared with 10,000-12,000 outside on a relatively humid summer's day).

UK Biobank’s purpose built archive facility – a giant freezer for storing millions of samples of blood, urine and saliva over many years – was opened by HRH Princess Anne, The Princess Royal.

At the heart of the UK Biobank project, this £4.5 million high-tech facility is the biggest archive of its kind anywhere in the world. It will keep 10 million samples at -80°C for the next 30 years and more.

Each sample of blood is stored in a number of small tubes, called aliquots. They are identified by unique bar codes, so that the individual ‘donor’ remains anonymous. A frozen, frost-free storage environment is crucial so that the bar codes can be read and successfully retrieved in years to come.

The eyes have it

The UK Biobank assessment visit expanded significantly during the three years that people joined the project.

One of the biggest developments was the collection of eye measures for the last 100,000 participants in Croydon, Sheffield and Birmingham.

The addition of a sight test, eye pressure measures and a photo scan of the back of the eye creates the biggest study of eyes ever undertaken.

Poor eye sight reduces quality of life as people age and can be a risk factor for other major health problems (such as hip fracture). These data in UK Biobank will tell scientists more about eye health. They may also help to show how our eyes provide an early warning system for other diseases.

Fitness assessment

Another addition to the visit has been a fitness test. Most participants – whatever their age – were happy to climb onto the static fitness bike for this six-minute assessment.

“It took us a bit of time to get these additional but important assessments right,” said Professor Rory Collins. “Five some people that meant facing long queues, particularly at the eye booth, for which I apologise. We dealt with the problem by employing more staff and adding extra booths in each assessment centre. I am sorry for the inconvenience and frustration this may have caused.”

The system can put away 8,500 samples in an hour.

“Such a big archive is unique and the contribution it makes to science is huge. We are enormously enthusiastic about UK Biobank and cannot wait to use it. This opportunity to combine eye examinations with all the other measurements in this unique resource offer us so very much.”

Professor Peng Tee Khaw at the NIHR Biomedical Research Centre, Moorfields Eye Hospital and UCL Institute of Ophthalmology, London.