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Returning your results to UK Biobank

The obligation for researchers to return their results

The results of your research using UK Biobank data should be returned to us within 6 months of entering the public domain (whether that be through published papers, conference presentations, postings of results on websites or social media, etc.) or within 12 months of the end of your project, whichever comes first.

Researchers are required to return all key individual-level variables that are derived from bulk data and generated as part of the research, together with a clear data dictionary, the underlying code/methods used to generate them (that is well-annotated), and the corresponding doi (e.g. obtained from Github, Zenodo, Datacite, etc.).

The reason why UK Biobank obliges researchers to return their results is to:

1. Incorporate important derived data-fields into the resource so they can be used by others.
2. Make available the underlying methodology used to generate the main findings of the research so that others can confirm, refute or expand on the published analyses.

What "Results data" do I need to return?

To set this out in more detail, we require:

1. A copy of the manuscript or other publicly available results, such as conference abstracts (if not intended to be published in a journal) or results posted online (e.g. on a website or via social media).
2. A short and simple paragraph that summarises your published findings as they relate to the approved research project, so that we can keep participants informed about research achievements.
3. All key individual-level variables that are derived from bulk or linked data, together with a clear data dictionary and a description of the methods (if not available in sufficient detail in the publication) and the underlying syntax/code used to generate them (if possible – see Analytical Tools below).

Examples of variables we would expect to be returned include (but are not limited to):

- imaging-derived phenotypes (e.g. body composition measures);
- individual-level metrics from the accelerometry data;
- algorithmically-derived health outcomes from the health record data;

- linked data generated from geographical metrics;
- polygenic risk scores from the genetic data.

We do not require you to return simple variables generated from the touchscreen data or physical measures (e.g. BMI) as others can generate these relatively easily.

4. Well-annotated syntax/code (e.g. SAS, R, STATA) used to generate the results of the paper. The corresponding digital object identifier (doi) should also be returned, if appropriate. A doi is a unique permanent digital identifier that can be used to track usage of the code and associated metadata.

How do I return results to UK Biobank?

These files should be returned to UK Biobank via the 'Returned Results' Upload site, accessed via the AMS. Detailed instructions can be found in the 'Return of Results User Guide'.

GWAS summary statistics

Please do not return GWAS summary statistics as we are currently working with the European Genome-Phenome Archive (EMBL-EBI) to establish a mechanism whereby such summary statistics can be uploaded to this repository on behalf of UK Biobank. We will let you know when this has been finalised. However, if you have already made these results accessible, please provide us with the details and a suitable link.

How will my results data be used by UK Biobank?

Derived data-fields and code that may be of use to other researchers will be incorporated into the resource and made available via the Data Showcase.

This process will be undertaken in consultation with you, for example to help provide explanatory documentation, and full acknowledgement of the provenance of the data will be provided.

Should you have any questions, or require further clarification, please contact the Access Team at access@ukbiobank.ac.uk.

Analytical tools

We recognise that certain analytical tools used by researchers may not be widely available to other researchers. UK Biobank does not seek to require that these tools are made available to other researchers but, in the same vein as UK Biobank's de facto open access approach, it would be very helpful for other researchers seeking to assess how a set of derived variables has been prepared (and the accuracy and consistency thereof) to be able access the underlying algorithm/software (or be pointed in the right direction).

As such, if you are able to make such analytical tools available then thank you, but in the event that you are unable to make certain proprietary analytical tools that you have used in the research available – for

example, a proprietary algorithm or third party software that you have used to produce the derived variables – then we would ask that you:

1. Consider carefully whether you would be able to do so (and this can include the provision of a fair, reasonable and consistent licence for the use of the analytical tools).
2. Provide reasonable assistance to researchers who may contact you, by for example providing details of the relevant third-party software provider.