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## UKBB Eye Vision News July 2014:

### In this Newsletter:

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[Fight for Sight UKBiobank Award](#)

[Special Trustees of Moorfields Eye Hospital Award](#)

[Fight for Sight Small Grant \(£15k\)](#)

[Updates to UKBiobank Data](#)

[UKBiobank Genotyping](#)

[UK Biobank Eye and Vision Consortium Annual Meeting](#)

[Contact Details](#)

[Subscription Details](#)

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### Contact Details

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### Fight for Sight UKBiobank Award

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[\(Back to Top\)](#)

(<http://fightforsight.org.uk/funding-types/articles/fight-for-sight-project-grants-using-uk-biobank-datasets>)

In 2013, Fight for Sight, the UK's leading sponsor of eye and vision research announced that it would be supporting research using UK Biobank data through a grant of up to £ 200K. The successful application came from the NetwORC UK group, a collaboration between the UK's three major image grading centres, based in Belfast (Usha Chakravarthy), and including Liverpool (Jayashree Sahni) and Moorfields (Tunde Peto). NetwORC UK has a strong programme of quality control and holds regular grading concordance exercises for its staff, to ensure that all grading projects spread across the three sites are comparable.

The three year project is funded to achieve two specific goals. It will commence with a rapid disease/no-disease grading of fundus photographs (which include disc and macula) in 68,000 UK Biobank participants imaged in the baseline examination. The second phase will grade diabetic retinopathy in all self reported diabetics and in those with signs of DR on the fundus images (known to have diabetes or not). Further funding is being sought to include AMD and glaucoma in this grading.

Any piggy-back projects will be considered, especially if they have funding.

### Special Trustees of Moorfields Eye Hospital Award

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[\(Back to Top\)](#)

Parul Desai at Moorfields successfully applied for £128K to develop methodologies for

- The long term follow-up of the UK Biobank cohort with respect to visual health and well being
- Using and linking large electronic clinical, operational and administrative databases, and their analysis, for population health research

Miss Desai and collaborators will apply computational methods of biomedical informatics to epidemiology to extract meaningful associations from these large routinely available data sources over the course of cohort follow up, to generate and test hypotheses for the distribution and determinants of visual health and disease in populations; and to detect previously unknown associations providing new insights into major visual health problems.

It will ensure appropriate and assured follow up of the UK Biobank cohort, consolidating its position as a major, resource for epidemiological, translational and clinical research.

### Fight for Sight Small Grant (£15k)

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[\(Back to Top\)](#)

Following on from the successful publication of the application of the crowdsourcing technique to retinal grade images, Danny Mitry (Moorfields & Edinburgh), Bal Dhillon & Tom McGillivray (Edinburgh)

and Manuel Trucco (Dundee), together with Tunde Peto (Moorfields) and James Moran (Cardiff) aim to develop an interactive and

modifiable web page as a tool to engage the public and assess crowdsourcing as a technique for the accurate identification and annotation of clinically relevant features from retinal fundus photographs

Secondary aims are to determine if crowdsourcing can be used to effectively classify and annotate referable diabetic retinopathy based on the Royal College of Ophthalmology guidelines, and to determine if crowdsourcing can be used to classify and annotate optic nerve characteristics consistent with glaucomatous optic neuropathy from retinal fundus photographs.

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## Updates to UKBiobank Data

[\(Back to Top\)](#)

We have been notified about the changes to UKBiobank data as below:

- Updated the Essential Information page – data timelines
- Estimated nutrients from diet questionnaire – category number 100098
- Description of cause of death text – data-field 40010
- Data-field 40425 - Total amount of DNA held by UKB
- Increased HES records for England – dating back to 1993/94
- Scottish hospital admissions – for episodes between 1997 and 2012
- Increased Accelerometer records – from 8,000 to circa 30,000
- Built Environment – category 100115 (pending)
- A number of HES data-field name changes
- Cross-tabulation facility – to allow researchers to see how 2 or 3 variables are related. From the Main Application part 3, when adding materials to a Basket, after you open a data-field (e.g. 52 month of birth) you will be able to see a tab called 'Tabulations' which lists previous tabulations and a button to request additional analysis to be constructed. Before you request a new tabulation please ensure you are aware of the field-IDs for the data you wish to cross-tabulate.

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## UKBiobank Genotyping

[\(Back to Top\)](#)

Genotyping is well underway using the Affymetrix UK Biobank Axiom Array. Genotype data on all participants is expected to be available towards the end of 2015. The linked documents (below) provide an overview of the content of the UK Biobank Axiom Array (which comprises 820,967 genetic markers). They summarize the array design philosophy and the 3 major categories of interest (markers of specific interest, rare coding variants, and genome-wide coverage) that are then subdivided into more specific categories. The PDF also details the number of markers in each sub-category and includes a short description of how the markers were selected.

For more information see:

<http://www.ukbiobank.ac.uk/scientists-3/uk-biobank-axiom-array/>  
<http://www.ukbiobank.ac.uk/wp-content/uploads/2014/04/UK-Biobank-Axiom-Array-Content-Summary-2014.pdf>

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## UK Biobank Eye and Vision Consortium Annual Meeting

[\(Back to Top\)](#)

We intend to hold the 4th annual meeting of the consortium in February 2015. We are currently planning to hold this meeting at the Wellcome Trust Convention Centre on Euston Road in London.

