

## Principal Investigator

Mr Martin McKibbin

## Address

Leeds Teaching Hospitals NHS Trust, Ophthalmology Department, St James's

University Hospital, Beckett Street, Leeds LS9 7TF

## Summary of research

Key words: Visual impairment, Blindness, Prevalence, Eye

## Lay Application Summary:

**1a:** This project aims to determine the frequency and causes of visual impairment in UK Biobank participants and to identify risk factors for visual impairment. At present, similar data is only available for the elderly and for children. Current evidence suggests that the common causes of visual impairment in adults aged 40-69 are likely to be different to the other groups at the extremes of age and treatment of disease in this age-range is likely to be more cost-effective.

**1b:** Accurate data on the current causes of visual impairment in UK adults is lacking, yet this data is needed to help to develop policy and plan services for the visually impaired. Identifying risk factors for visual impairment will also help develop strategies to prevent future eye disease and visual impairment.

Returning the data to UK Biobank at the end of the project will make it available for future research.

**1c:** The project will involve accessing the existing UK Biobank data and eye images. The eye images will be reviewed and graded by certified ophthalmic photographers, using a specific grading form. The grading results will be used to determine the primary and secondary causes of visual impairment, from mild to severe.

Existing UK Biobank data from participants with visual impairment in at least one eye and also from Biobank participants with good vision will be analysed. By comparing this data for the two groups, the project will also investigate both known risk factors for visual impairment and potentially novel risk factors.

**1d:** The preliminary application to UK Biobank has identified that there are 8360 participants with complete eye data and visual impairment or worse (acuity below LogMAR 0.3 or Snellen 6/12) in at least one eye. The project will also involve analysis of data in controls, matched by age, sex and ethnicity, using a matching ratio of 1:4. Therefore there will be a total of 41,800 participants.