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Summary of research

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Reproductive timing in women (ages at menarche and menopause) is associated with various disease outcomes (e.g. type 2 diabetes [T2D], cardiovascular disease [CVD] and breast cancer [BrCa]). UK Biobank provides an excellent opportunity to confirm these associations and identify their mechanisms. Some similar associations have been described in men (with timing of voice breaking), but the evidence is sparse. Understanding how trajectories of growth and development relate to later disease risk is an important question, meeting the objectives of UK Biobank to improve the prediction and prevention of major diseases.

We also plan to identify factors that influence risk of early menopause, defined as natural menopause before 45 years. Early menopause is one of the leading causes of infertility in the western world, becoming an increasing problem as more women choose to delay having children until their 30s. Currently there are few factors that predict menopausal age. Identification of further factors may allow more informed reproductive choices for women, and increased understanding of disease aetiology.

To address these issues we have developed two aims to be addressed in UK Biobank (for both females and males where applicable):

- 1) Confirm existing, and identify novel, associations (and mechanisms) between reproductive timing and disease outcomes.

2) Identify risk factors for early menopause

The investigators are leaders in the epidemiology of reproductive timing and disease outcomes, and also in the genetic epidemiology of menarche and menopausal timing. In the future, as those data become available in UK Biobank, we aim to extend analyses to include repeat assessment data and incident disease cases (from hospital admission and primary care data) as well as genetic and biochemical data. We anticipate that an integrative approach using epidemiological, genetic and biochemical data will allow deeper exploration of the mechanisms that link reproductive ageing to common disease, in addition to identifying novel predictive markers for early menopause.