

A National Cohort Study to Facilitate Stratified Medicine in Chronic Kidney Disease

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NURTURE was developed through an innovative collaboration between academic investigators, industry partners and Kidney Research UK, as a unique kidney biorepository for chronic kidney disease (CKD) and idiopathic nephrotic syndrome (INS) covering England, Scotland and Wales.

Introduction

CKD is a heterogeneous clinical syndrome with some common features but also great diversity of aetiology, adverse outcomes, severity and risk of progression. This makes the design of clinical trials difficult and has frustrated efforts to develop and test novel therapies.

NURTURE-CKD is a cohort study using multiple approaches to develop novel methods to stratify patients so that therapy and research to develop new treatments can be focussed on those at greatest risk, whereas those at low risk can be spared unnecessary intervention.

“Create a national kidney biobank for collection and storage of biological samples from every kidney patient, to provide a strategic resource for fundamental and translational research.”

UK Renal Research Strategy (2016) Strategic Aim 1, Recommendation 3

Project goals



Cross analysis of biological samples alongside clinical data



Develop new biomarkers



Greater ability to identify patients who will benefit from better, earlier diagnosis and person-specific new treatments



Better health outcomes

Methods

10-14 renal centres – data and sample (serum, plasma, urine and blood for RNA and DNA extraction) collection and processing from 3,000 CKD patients with eGFR 15-59ml/min/1.73m² and/or urine albumin to creatinine ratio >30mg/mmol

UK Renal Registry – manages database, obtains all routine clinical data via Patient View, provides data on incidence of ESRD

NHS Digital – provides linked data on survival and hospital admissions

National Biosample Centre, Milton Keynes – state of the art sample storage; 132 aliquots per participant

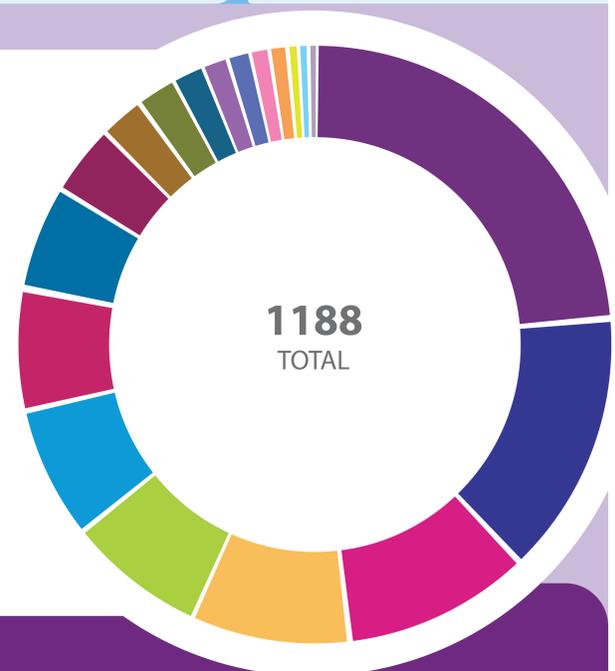
University of Birmingham – storage of kidney biopsy material, digital scanning of slides, immunohistology

University of Geneva – comprehensive biomarker analysis

Strategic Oversight and Access Committee – provides independent control of access to biorepository and data

Figure 1: CKD Primary Diagnosis

Chronic Kidney Disease	23.65%
Not Known	14.31%
Diabetic Nephropathy	10.27%
Ischaemic Nephropathy	8.59%
IgA Nephropathy	7.49%
Polycystic Kidney Disease	7.15%
Vasculitis	6.57%
Glomerular Disease	5.64%
Tubulointerstitial Disease	3.87%
Other Systemic Disease	2.36%
Obstructive	2.10%
Congenital/Dysplastic	1.85%
Other Familial	1.35%
Reflux Nephropathy	1.26%
Lupus Nephritis	1.01%
Other	1.01%
Renal Calculi	0.59%
Nephrectomy	0.51%
Renal Infections	0.42%



Results

Recruitment commenced in July 2017 and to date 1121 participants have been recruited from 12 centres: mean age 62±15 years, eGFR 37±16 ml/min/1.73m² and 42% are female. Primary renal diagnoses are shown in Figure 1 (as of 13 June 2018).

Live recruitment data available from www.nurturebiobank.org

Conclusion

The vision for **NURTURE-CKD** is that it will provide a springboard to accelerate research on all aspects of CKD in the UK with particular focus on methods for improved stratification. This will help patients to benefit from better, earlier diagnosis and develop person-specific new treatments, increase knowledge and understanding of INS and CKD and ultimately to provide better health outcomes for patients. Additional funding has already been obtained from the Medical Research Council to support genomic and proteomic analyses and analysis of a large panel of blood and urine biomarkers is also planned. Similar cohort studies with national biorepositories using the NURTURE model in other kidney disease areas are already in development.

Find out more!

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www.nurturebiobank.org

For information about the idiopathic nephrotic syndrome study

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In collaboration with:



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