

# A National Cohort Study to Facilitate Stratified Medicine in Idiopathic Nephrotic Syndrome

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**NURTURE** (the National Unified Renal Translational Research Enterprise) 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.

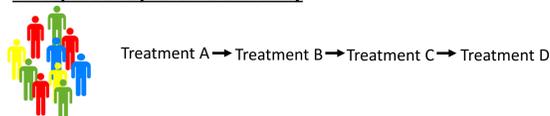
**NURTURE-INS** is a cohort study using multiple approaches to develop novel methods to stratify patients so that therapy and research to develop new treatments can be focussed on those at greatest risk, whereas those at low risk can be spared unnecessary intervention. This builds upon the existing NephroS UK INS study, and aims to add comprehensive and highly protocolled biosampling in a core subset of 800-1000 INS patients over 2 years (NURTURE-NephroS).



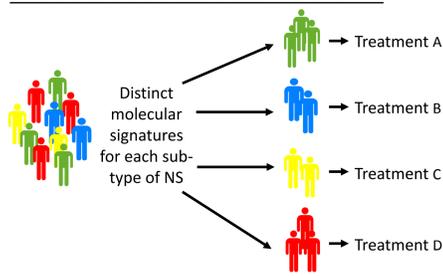
*“Create a national kidney biobank for collection and storage of biological samples from every kidney patient, to provide a strategic resource for fundamental and translational research.”*

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

## A. Nephrotic Syndrome Currently



## B. Towards a Molecular Stratification of NS

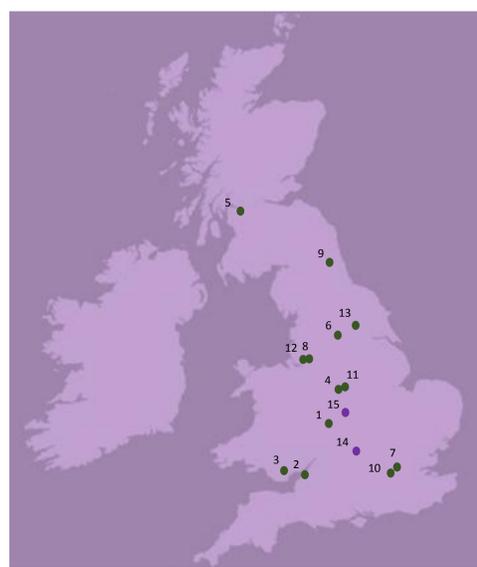
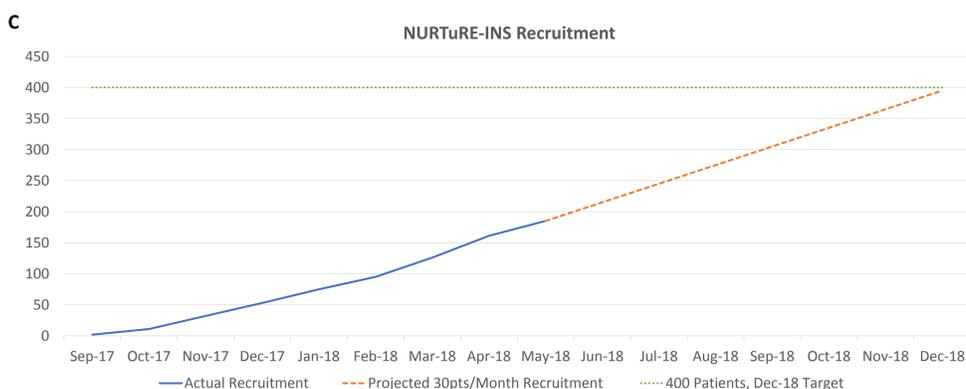


## Nephrotic Syndrome: A disease needing re-classification

- Nephrotic Syndrome (NS) causes a breakdown of the glomerular filtration barrier, leading to a loss of essential circulating proteins into the urine. In most cases the underlying mechanism causing the NS is unknown.
- Current classification of NS is based on observational responses to therapies. Treatment is largely unsuccessful, with steroids as the initial mainstay of therapy.
- In order to improve the current picture, we need distinct molecular signatures to distinguish between the different sub-types of NS. Results of many clinical trials of promising therapies have proved unsuccessful – likely because using a uniform treatment protocol in a heterogeneous disease population is the wrong approach.
- NURTURE-INS aims to understand the disease at a molecular level by collecting detailed phenotype data and biological samples from patients for e.g. genetic, transcriptomic, proteomic analysis.
- This will help to reclassify NS at the molecular level - a change that is long overdue. This would limit both unnecessary toxicity (and cost), as well as allow the section of the most appropriate subgroups to target with novel therapies.

## NURTURE Recruitment

- NURTURE-INS aims to recruit 800- 1000 patients (any age) with a primary cause of Idiopathic Nephrotic Syndrome.
- Recruitment commenced in October 2017, and we currently (up to May 2018) have 185 patients (112 adults and 62 children). See Figure C
- Recruitment is currently taking place at 13 UK renal centres and more centres are in set-up. See Figure D

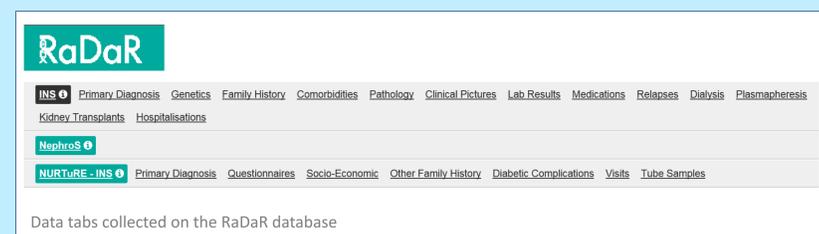


D) Map showing centres currently (or in set-up) recruiting to INS NURTURE

Location	NURTURE-INS Recruiting Hospitals
1. Birmingham	• Birmingham Children's Hospital • Queen Elizabeth Hospital
2. Bristol	• Bristol Royal Children's Hospital
3. Cardiff	• University Hospital of Wales
4. Derby	• Royal Derby Hospital
5. Glasgow	• Queen Elizabeth Hospital • Royal Hospital for Children
6. Leeds	• St. James University Hospital • Leeds Children's Hospital
7. London	• Royal Free Hospital
8. Manchester	• Royal Manchester Children's Hospital
9. Newcastle	• Royal Victoria Infirmary
10. London	• Hammersmith Hospital (Imperial)
11. Nottingham	• Nottingham University Hospital • Queen's Medical Centre
12. Salford	• Salford Royal Hospital
13. York	• York Hospital
<b>Sites in set-up</b>	
14. Oxford	• Churchill Hospital
15. Leicester	• Leicester General Hospital

## NURTURE Data and Sample Collection

- Patients recruited into the study undergo detailed clinical assessment at baseline. A proportion of patients followed-up depending on their disease course: relapse, remission and around the time (before/after) transplantation.
- Data entered onto Rare Disease Registry (RaDaR) online database managed by the UK Renal Registry (UKRR). Once participant registered, all past and future routine laboratory data are captured by the UKRR.



- Blood and urine samples collected to stringent industry standards and processed and stored within 2 hours. There are 133 aliquots per patient per visit.
- Samples will be available to NURTURE partners and over a 1/3<sup>rd</sup> samples will be made available for the wider community through the Independent Strategic Oversight and Access Committee (SOAC).
- Core biofluid analysis will be performed with the University of Geneva.
- The original histology slides (H&E, PAS, Trichrome) and any surplus tissue will be transferred to the Human Biomaterials Resource Centre at the University of Birmingham, where slides will be digitally scanned and additional immunohistology conducted on surplus tissue.
- The MRC has recently awarded £3.2M over 4 years under the first Stratified Medicine programme in renal medicine, titled 'NURTURE, changing the landscape of renal medicine to foster a unified approach to stratified medicine'.
- A key component of NURTURE is that all data from samples collected must be fed back into the consortium, within agreed time frames. This will create a rich resource for molecular profiling of NS.

For further information, visit:

[www.nurturebiobank.org](http://www.nurturebiobank.org)

In collaboration with:



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