

Research Activity 2025-2026

**We are currently
investing £1,500,000
in research**



Supporting research across.....





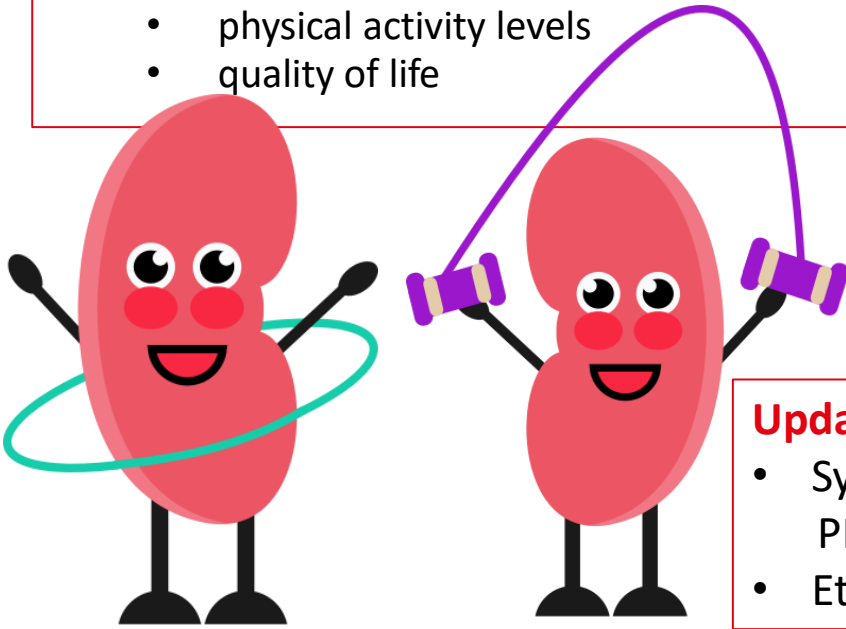
Physical Activity for Children with Kidney Disease: The PACKD Study

Systematic Review

A systematic review of the effects of physical activity on physical activity levels and quality of life in children with chronic kidney disease (CKD).

Aim:

1. Establish the types and parameters of physical activity interventions for children with chronic kidney disease
2. Determine the effectiveness of physical activity interventions on:
 - physical activity levels
 - quality of life



Qualitative Research

Aim: To explore physical activity from the perspectives of children with CKD and their parent(s)/carer(s).

Objectives:

1. Explore views on being physically active
2. Identify barriers and facilitators to participation in physical activity
3. Identify important elements and outcomes of physical activity strategies/interventions
4. Prioritise physical activity strategies from the perspectives of children, their families, healthcare professionals and stakeholders.

Method: Phase 1 will utilise qualitative interviews with 15 children and their families. Phase 2 will involve the hosting of a Research World Café event with children and relevant stakeholders.



Dr Karen McConnell
Principal Investigator

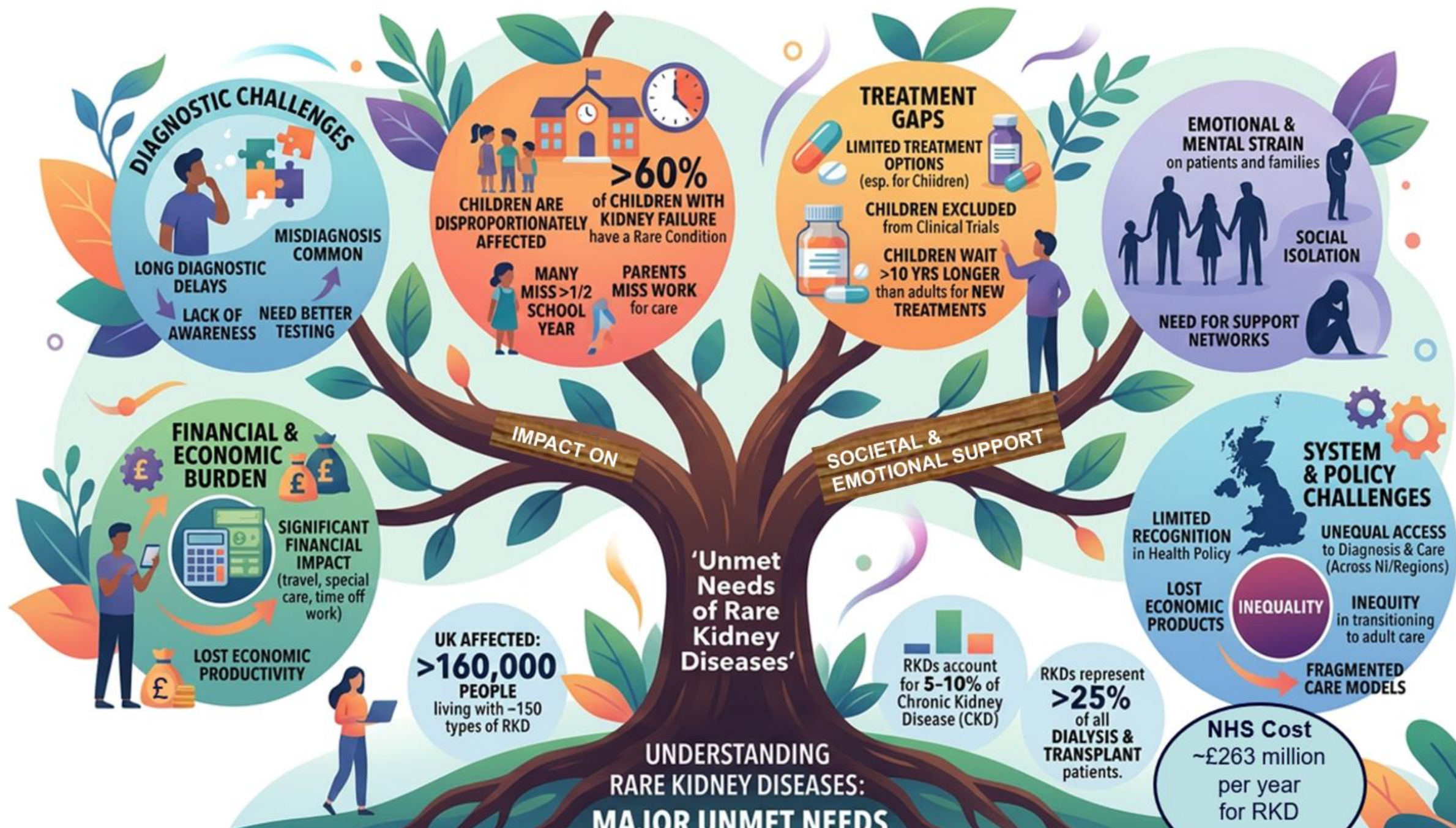


Dr Lisa Maguire
Research Fellow

Update:

- Systematic Review Protocol has been published PROSPERO 2025 [CRD420251034197](https://www.crd420251034197)
- Ethics Submitted for Qualitative Research





NORTHERN IRELAND: BUILDING CAPACITY & INFRASTRUCTURE FOR RARE KIDNEY DISEASES



PILLAR 1 ESTABLISHING ROBUST INFRASTRUCTURE

BIORESOURCE &
RENAL REGISTRY

Aligned to
NURTURE
BIOBANK &
RADAR

>50 YEARS
OF KIDNEY
RESEARCH
EXPERIENCE

PILLAR 2 DRIVING INNOVATION & RESEARCH

STRONG
RESEARCH
TEAM

GENETICS &
BIOLOGICAL
RESOURCES

HEALTHCARE &
ENVIRONMENTAL
DATA SCIENCE

DIGITAL &
MOLECULAR
INNOVATIONS

PILLAR 3 PATIENT & FAMILY CENTERED APPROACH

ENSURING VOICES OF CHILDREN,
YOUNG PEOPLE & FAMILIES IN
UK KIDNEY ECOSYSTEM™

INTERVIEWS,
FOCUS GROUPS,
DELIBERATIVE
WORKSHOPS

CO-DEVELOPING &
CAPTURING PREM_s,
PROM_s, FROM_s

IMPACT & OUTCOMES

GENERATING EVIDENCE
TO SUPPORT NIKRF
ADVOCACY

DRIVING POLICY
AND PRACTICE
CHANGE

GETTING MEDICINES
TO PEOPLE WHO
NEED THEM FASTER



The challenge of defining the cause of chronic kidney disease (CKD) – THE DIAGNOSTIC ODYSSEY and CKDx

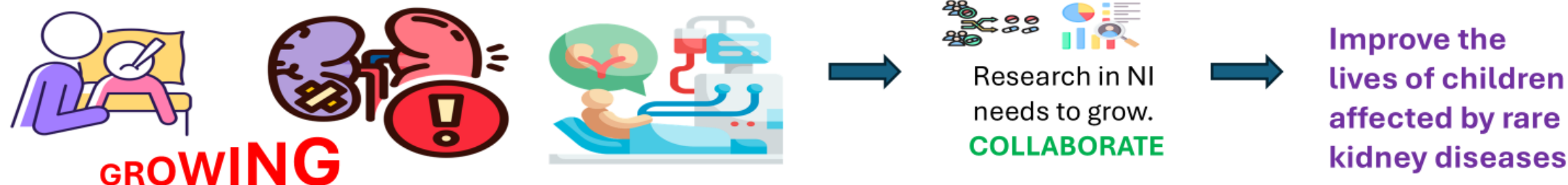
~16–20% of CKD cases lack a defined cause

CKDx – diagnosis of exclusion
Can we map the different terms?

Improve CKDx understanding, diagnosis and patient experience.



To maximise participation of paediatric patients with rare kidney conditions in research / clinical trials: a creative arts approach



AIM

- **Investigate** how creative arts can challenge barriers to participation in rare kidney research.
- **Co-produce** a portfolio of creative practice to increase awareness & understanding of kidney disorders in children & young adults – e.g. infographics, play, videos, podcasts, storytelling, immersive arts.
- **Co-design** key messaging & adaptive guidelines to improve communication & understanding for young kidney patients, their families, and healthcare professionals to help improve participation in research.

PROGRESS

- **Scoping Review & Survey** - UK Young People Advisory Groups – “*Your Youth Research Group - Help us learn from you*”
- **Design workshops** - ethics application ongoing - children & young people co-design recruitment & establishment of NI PAG for research
- **Scoping review** - identify arts-based resources for understanding kidney disorders
- **Qualitative research** - ways children & young people understand their kidney condition
- **Map** NI Kidney journey / landscape – all stakeholders + research currently underway.



Dr Michael Corr

What your funding made possible

We used blood samples to ask why younger kidney transplant recipients are more vulnerable to long-term immune injury.

The question

Is the young immune system different before damage starts, or is rejection itself a different disease in younger people?

What we did

Compared hundreds of inflammation-related proteins in people with stable transplants and people with chronic antibody-mediated rejection.

What we found

Rejection leaves a clear blood “fingerprint”. Age changes the immune background, but once rejection is established the main injury pattern is broadly similar across ages.

200 patients · **728** proteins measured · **154** proteins linked to rejection

REDEFINE DGF



Dr Anne Meaklim & Team

The Problem

DGF is a commonly reported outcome, but its definition remains inconsistent across studies



Inconsistent definitions limit comparability, evidence synthesis and trial design

Methods

Scoping Review



Focus Groups



10 Expert participants



10 Lay participants



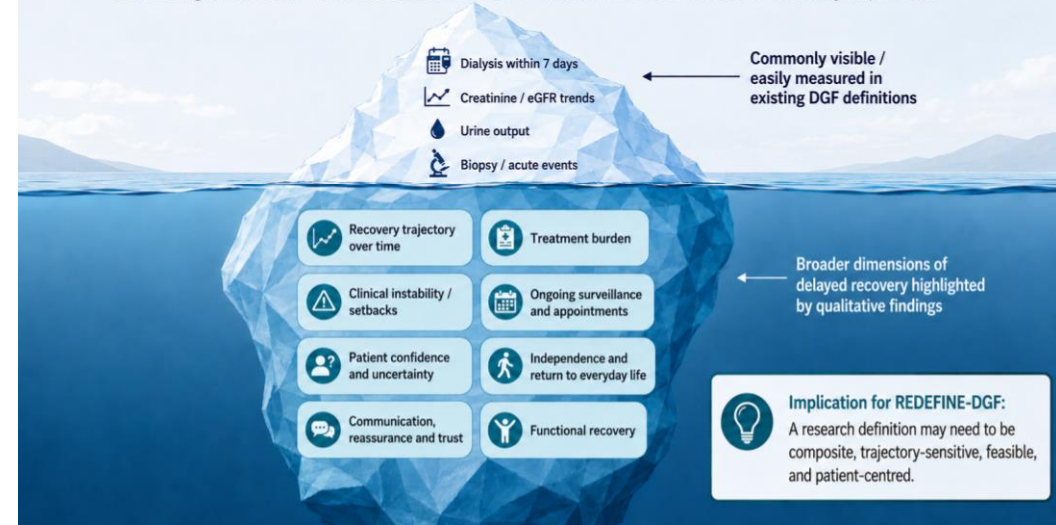
Results

EVIDENCE FROM OUR SCOPING REVIEW

- 261** included sources
- 305** extracted DGF definitions
- 88** distinct DGF definitions

Findings from expert and lay focus groups

An iceberg view of what is visible in current DGF definitions versus the wider recovery experience

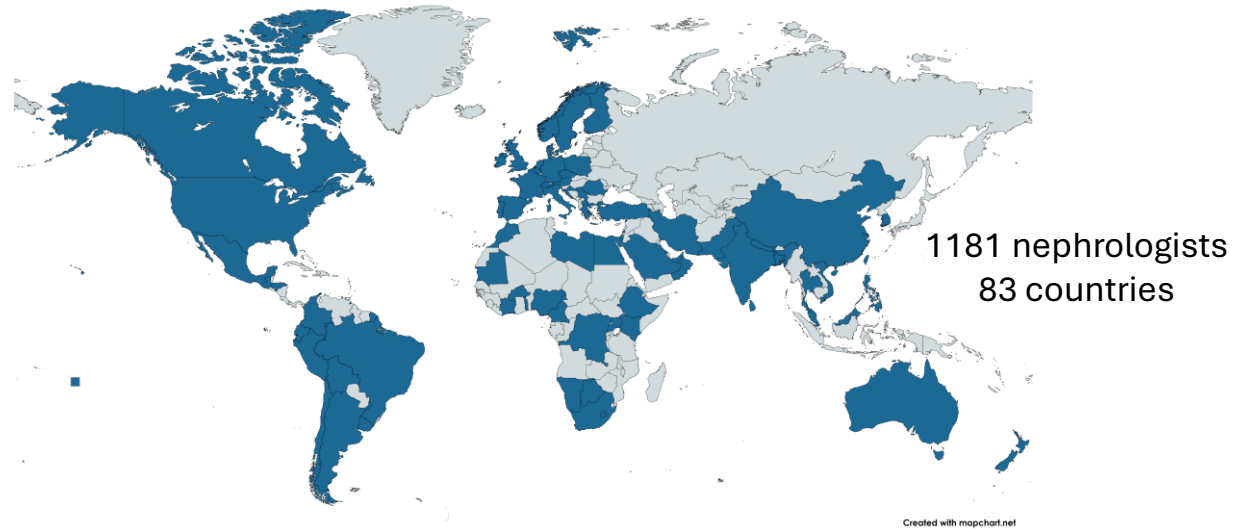


Next....

Delphi Consensus Process



Optimisation of biopsy practice to facilitate timely diagnosis and management of kidney disease



Dr Michael Toal, NIKRF Clinical Research Fellow 2022-2025

Clinical Fellow in Glomerulonephritis, University of Ottawa,
Canada 2025-26

RCP Chief Registrar, NHSCT 2026-2027



**QUEEN'S
UNIVERSITY
BELFAST**

NIMDTA
Northern Ireland
Medical & Dental Training Agency



**Royal College
of Physicians**

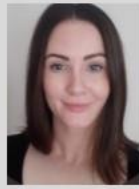


Northern Ireland
Kidney Research Fund



Irish
Nephrology
Society





Using the ADAPT Guidance to Refine a Video Educational Series for Kidney Transplantation and Living Donation



QUEEN'S
UNIVERSITY
BELFAST

SCHOOL OF
NURSING AND
MIDWIFERY

Team: Dr Clare McKeaveney, Dr James McMahon, Professor Helen Noble, Professor Joanne Reid, Professor Paul Gill, Nicola Rosaasen, Dr Alison Wood, Professor Holly Mansell

Aim: The purpose of this study was to adapt a video educational series and evaluate improvements in patient knowledge and satisfaction.

Method: Following the ADAPT Framework, a co-design process was applied involving patients, donors and renal healthcare professionals to adapt and assess the video educational resource.

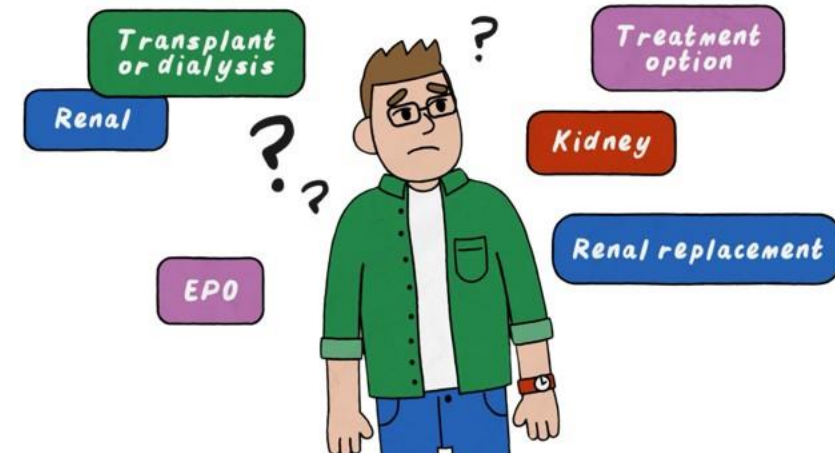
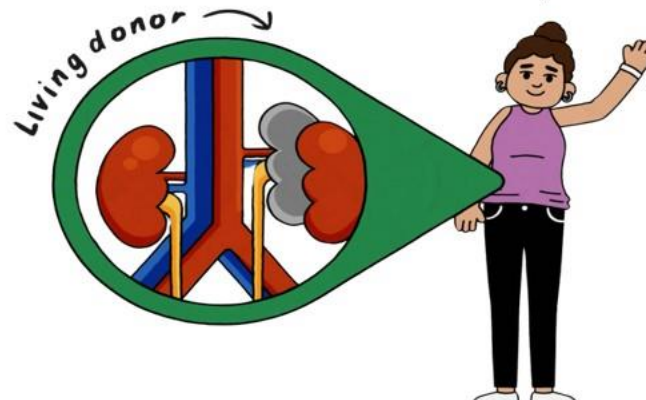
Results: 15 videos were completed, covering the transplant journey from understanding kidney disease and transplant eligibility through to surgery, recovery, medications, long-term life after transplant, living donation, and complex situations that may affect transplant matching and access.

Evaluation: Ongoing with patients - 6/60 completed the KTUT; positive feedback

“The videos are short and easy to understand with real-life examples”



Northern Ireland
Kidney Research Fund



Why do some kidney diseases recur following kidney transplantation?

A review of glomerulonephritis in Northern Ireland (NI) and assessment of the implications for recurrent glomerulonephritis in kidney transplant recipients.

Dr Samuel Bell

Glomerulonephritis (GN) is an important cause of end-stage kidney disease, particularly in younger patients. Unlike many other causes of kidney failure, the underlying disease may recur after transplantation and contribute to premature graft loss.

My PhD examines the epidemiology and outcomes of GN in Northern Ireland, the clinical factors associated with progression and post-transplant recurrence, and whether clinical and biological markers can identify patients at greatest risk.

Progress:

Two major cohorts:

- **~2300** individuals with native glomerulonephritis
- **~850** individuals transplanted due to glomerulonephritis

Histology, demographic, clinical, biochemical and outcome data will be linked to create two large longitudinal datasets. Governance approvals have caused some delays, but these are now in final stages.

In interim:

- Published review: post-transplant IgAN management
- Reviewing Northern Ireland data on SGLT2 inhibitor use in kidney transplant recipients with IgAN
- Seeking funding for additional work investigating proteomics

Plans for Year 2:

1. Submit SGLT2-inhibitor manuscript for publication
2. Complete governance approvals and data linkage
3. Analyse the native cohort to assess incidence, outcomes and predictors of adverse kidney outcomes
4. Analyse the transplant cohort to determine the incidence and timing of recurrence, associated risk factors and impact on graft outcomes
5. Seek additional funding and finalise plans for serum proteomic profiling in post-transplant IgAN

Major focus will be on IgA nephropathy, the most prevalent glomerulonephritis in both cohorts.





Northern Ireland
Kidney Research Fund

SENAI: Integrating Senescence biology with AI technology to improve healthcare



Personalised
Medicine
Centre

Ms. Donya Ghazinader
Ms. Alana Smith
Dr. Thomas McLarnon
Dr. Steven Watterson
Dr. Taranjit Singh Rai



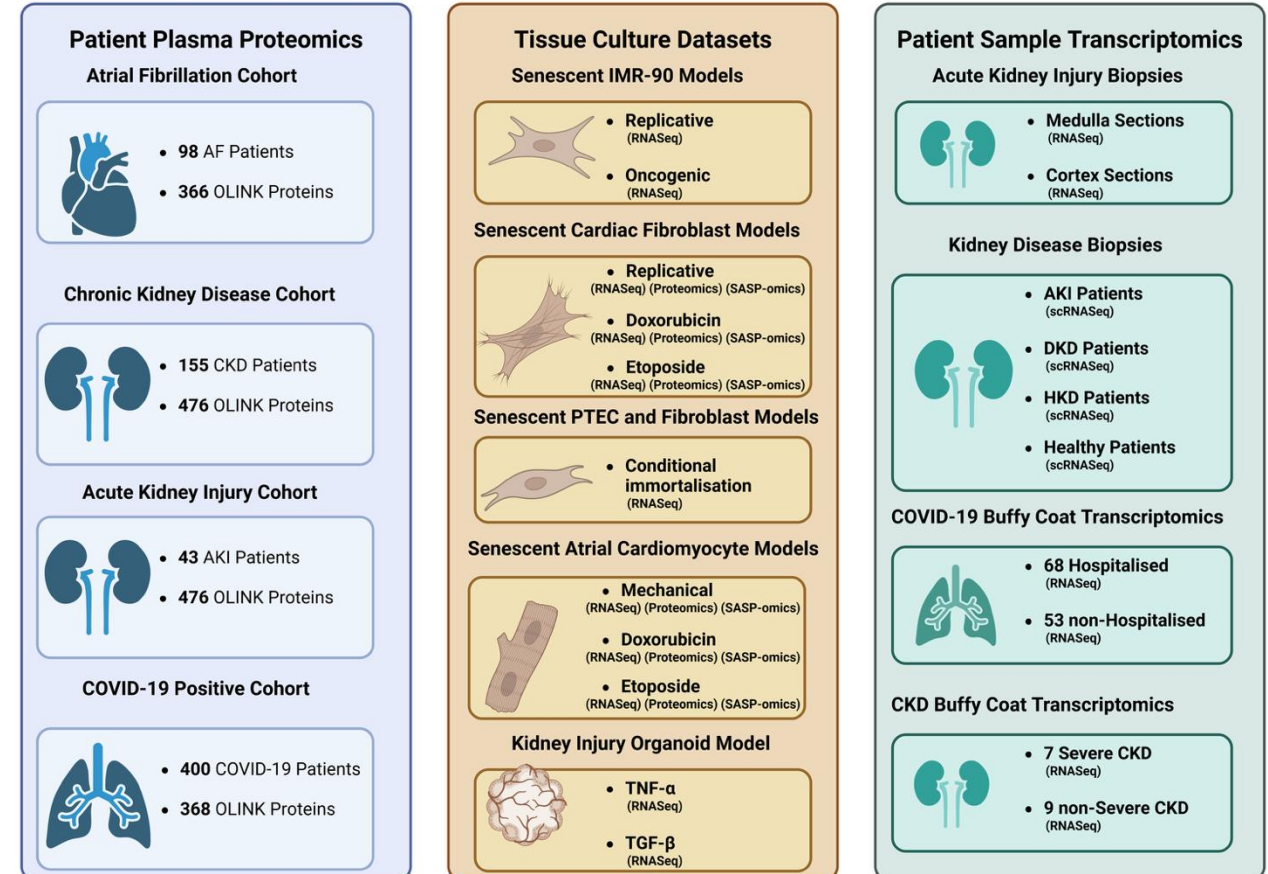
What do we do?

We integrate our senescence datasets and patient quantification datasets with machine learning to develop AI models that predict health outcomes such as;

- COVID-19 Hospitalisation
- 1-year Renal function
- Progression from AKI to CKD
- Development of Atrial Fibrillation
- 9-year Disease-related Mortality



Northern Ireland
Kidney Research Fund



What have we done so far?



- **Market research:** Placement within the ICURe pathway, being **awarded** the ICURe discover Midlands 2026 grant of **£2500**, which was used to attend the **HLTH 2026 expo**, and successfully **completed ICURe discover programme**
- **IP Protection:** Filed multiple **patents accepted globally** for three of our technologies, which includes **NephroNet**, **AKINet**, and the **Renal Senescence Index (RSI)**
- **Publications:** Published **four peer-reviewed manuscripts** in **high impact factor journals**, with **two more currently in review** and **three more being prepared for review**



Where are we currently?

- **Renal Disease outcome study:** Currently just **passed** the **internal committee review** for ethical approval of our study and are **preparing for external committee review**. The study itself will be used for both **validation** of our predictive algorithms and **discovery** of novel biomarkers.
- **External validation cohort:** Writing an **application** to gain access to the **Chronic renal insufficiency cohort (CRIC)**, which we will use to **validate** both **NephroNet** and **AKI-Net**
- **Publication of scientific manuscripts:** Continue **preparing** our **manuscripts** that **showcase** our **patented technologies** and **finalise** them **for submission** while **addressing reviewer comments** from current manuscripts under review



Northern Ireland
Kidney Research Fund



Search preprints



Article

Senescence Biomarkers Independently Predict Disease-Related Mortality in Chronic Kidney Disease

Thomas McLarnon, Donya Ghazinader, Steven Watterson, Laura Lennox, and 3 more



Early warning, colour-based indicators for catheter-associated kidney infections

Professor Andrew Mills and Dr. Michaela Watson
Queens University Belfast
School of Chemistry and Chemical Engineering



Fig. 1. The goal, a multi-analyte 3D printed connector

2. Currently in the process of incorporating them into 3D printed connectors and testing them using appropriate bladder and peritoneal cavity models to optimise their performances.

1. Initial objectives met, namely, to make a series of different 3D printable colour indicators that respond to important analytes in urine associated with kidney infections. We have successfully made ones for NH_3 , CO_2 , H_2 and pH and tested them in their rapid response to uropathogens (so they can act as early warning of infection indicators).



Fig. 2. Example of initial 3D printed connector with ammonia indicator before and after exposure.

3. All work conducted so far using artificial urine, but need to move to clinically relevant real samples.

Multi-Modal Integrated intervention combining Exercise, Anti-inflammatory & Dietary counselling (MMIEAD) for kidney cachexia: a mixed-methods feasibility cluster randomised controlled trial and process evaluation

MMIEAD has been kindly funded by Northern Ireland Kidney Research Fund

BACKGROUND

Aligned with implementation science guidance, we generated evidence to understand the aetiology and burden of kidney cachexia, the effectiveness of related interventions; and developed a theoretical model of components and mechanisms of action for a Multi-Modal, Integrated, Exercise, Anti-inflammatory and Dietary advice (MMIEAD) intervention for kidney cachexia to enhance intervention-context alignment.



Prof Joanne Reid



Dr Stephanie Burton

METHODS

Objectives:

- Determine patient eligibility and recruitment rates;
- Identify intervention retention and adherence rates;
- Determine considerations for optimal study design and data collection burden;

Design: Incorporates implementation science frameworks (PRISM/RE-AIM) and has three phases. Phase 1: deliver and evaluate a 12-week multimodal intervention using a feasibility cRCT design. Phase 2: conduct a process evaluation with study participants and health care professionals (HCPs). Phase 3: assess the feasibility of conducting a definitive economic evaluation.

Participants: Patients – CKD Stage 5 in receipt of haemodialysis for >3 months, have oedema-free weight loss of at least 5% in 12 months or Body mass index (BMI) less than 20 kg/m², aged >18 years. HCPs – member of the multidisciplinary healthcare team for more than three months and have exposure to the study.

Randomisation: Two sites (BHSCT/NHSCT) intervention group, two (SEHSCT/SHSCT) control group.

Sample: Phase 1 and 3: 10 research participants per intervention site; 10 research participants per control site; 40 in total across all sites (n=4). Phase 2: 15 patients for interviews and 15 HCPs for interviews or focus groups across all sites.

Trial registration number: NCT07107087 <https://clinicaltrials.gov/study/NCT07107087>

RESEARCH AND GOVERNANCE

- Integrated Research Application (IRAS) approval and Study Wide Governance (SWG) approval received August 2025
- All four sites open for recruitment August 2026
- A total of 9 patients across 4 sites have been approached

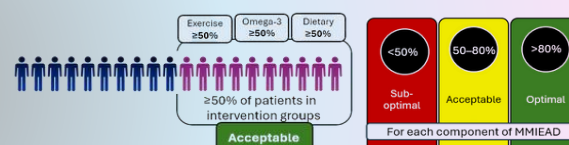
PUBLICATIONS THIS YEAR

- MMIEAD protocol – Pilot and Feasibility Studies Feb 2026
- The anti-inflammatory effects and safety profile of omega-3 fatty acids in patients receiving haemodialysis, in relation to dose, EPA/DHA content, ratio and source: a systematic review and meta-analysis – Clinical Nutrition April 2026
- Co-designing the implementation process of an exercise intervention as part of a multimodal intervention for patients with renal cachexia – Research Involvement and Engagement April 2026
- Cachexia vs. Obesity: A Persisting Imbalance Between Clinical Need and Research Effort – JCSM August 2026

PROGRESSION CRITERIA

Progression to a definitive RCT will be determined by:

- Recruitment rates and acceptability of the intervention
- Compliance with the multimodal intervention – assessed according to individual components (e.g., number of exercise sessions/ tablet count).



CONFERENCES

- EDTNA/ ERCA International Conference, Gdansk, Poland September 26–29, 2026. **Oral Presentation:** Using Generative Co Design to Adapt Exercise Within Multimodal Care for Patients at Risk of Renal Cachexia. **Poster presentation:** Multimodal Exercise, Anti-Inflammatory and Dietary Intervention for Kidney Cachexia: A Mixed Methods Feasibility Cluster Trial.
- **Invited oral presentation and panel discussion** December 2025 – 18th SCWD conference, 11-13.12.25 in Rome: Impact of cachexia on patients and caregivers” Prof. Joanne Reid

The
Janet Greeves
Legacy Fund



World Transplant Games, Manchester, 1995
Janet Greeves on the left, holding her silver medal, along with two other medal winners from the Great Britain Team

From Belfast to Toronto — and back again

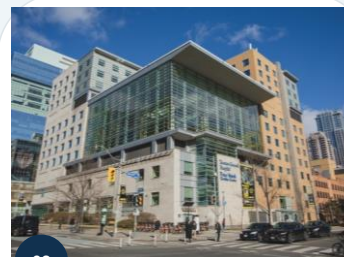
NIKRF JANET GREEVES FELLOWSHIP • TRANSPLANT OBSERVERSHIP - TORONTO 2026 • DR RUTH FERGIE



QUEEN'S
UNIVERSITY
BELFAST



Following in footsteps



Learning in the
laboratory



Building connections



Bringing it home

TORONTO



BELFAST

Learning abroad. Building relationships at home. Strengthening transplantation in Northern Ireland.

With thanks to the Northern Ireland Kidney Research Fund for making this observership possible.



Northern Ireland
Kidney Research Fund



**DR JENNIFER McCAUGHAN
BURSARY AWARD**



**Best Abstract Award
for Students
One-Year Membership***
*(at the value of €60)

Anna Wilson

(Queen's University, Belfast, United Kingdom)

**A Qualitative Exploration of Social Prescribing
for People with Kidney Disease**

Co-authors: Julie Doherty and Helen Noble

Ilaria de Bariieri
Dr. Ilaria de Bariieri
EDTNA/ERCA President ad Interim &
Scientific Board Chair



**QUEEN'S
UNIVERSITY
BELFAST**



ASHG
ANNUAL MEETING
MONTREAL
OCTOBER 20-24, 2026

Zeinab Abdelrahman
research fellow

Centre for Public Health Queen's University Belfast

**Multiomic analysis reveals shared metabolic
and inflammatory pathways for kidney
disease in people with type 1 or type 2
diabetes**



The Queen's University of Belfast Foundation



Senior Scientific Post-Doctoral Research Fellowship



Northern Ireland
Kidney Research Fund

NIKRF Awards to -

- **Dr. Dipak Sarnobat, Senior Scientific Post-Doctoral Research Fellowship**
- **Dr. Michael Corr, Clinical Post-Doctoral Research Fellowship**



Northern Ireland
Kidney Research Fund

From a genetic clue to better kidney health

Understanding how IRS2 gene mutations affect kidney cells

Dr Dipak Sarnobat, Dr Sam Lockhart, Dr Gareth McKay, Dr Derek Brazil



QUEEN'S
UNIVERSITY
BELFAST

1 Our clue from patients

IRS2 gene mutation
linked to poorer kidney health



IRS2
gene mutation



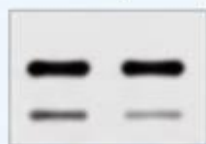
Associated with
poorer kidney health

2 What we have done

Normal IRS2 protein



Patients associated
IRS2 mutant protein



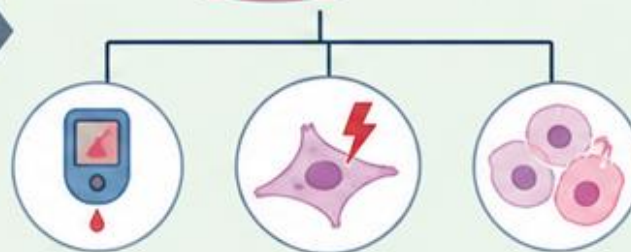
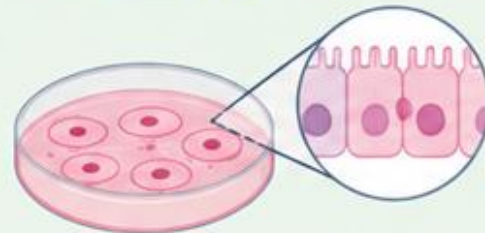
Protein
confirmed



Tools and
systems established

3 What we will do next

Mutant kidney cell model



Glucose
handling

How cells behave
under diabetic
stress / low oxygen

Cell survival

4 Towards better kidney health



Identify
new targets



Inform future
treatments



Better outcomes
for patients

The NIKRF Fellowship
enables us to:



Build
collaborations



Share our findings
globally



Grow research
capacity



Drive improved
kidney health

Research today. Healthier tomorrows.

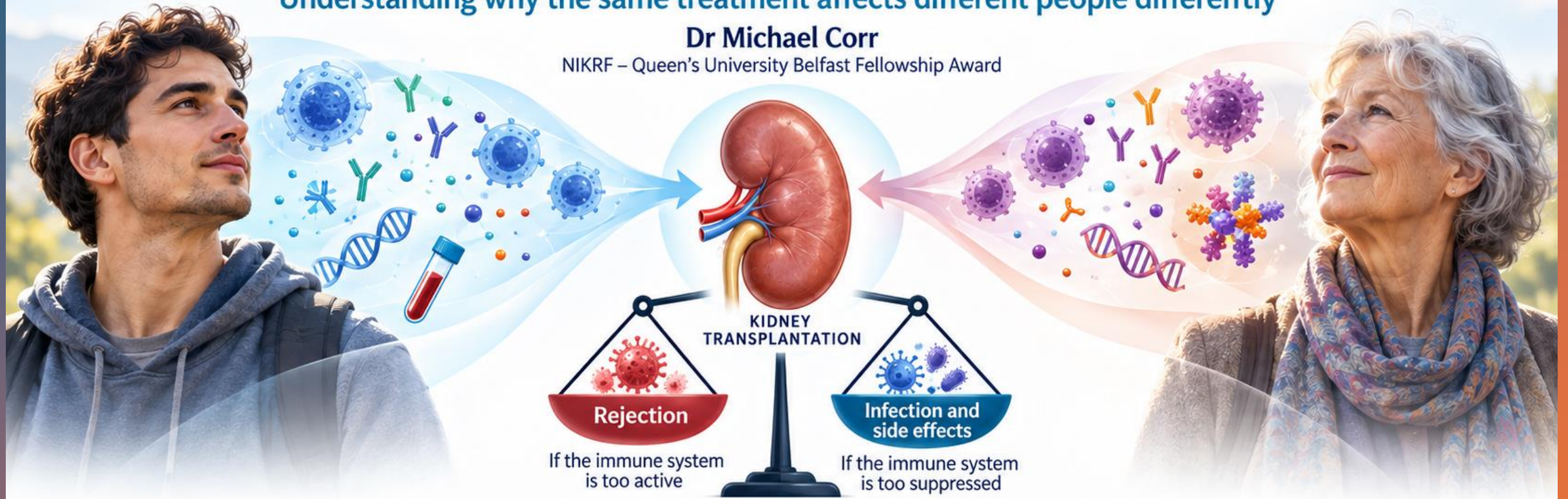


Age, immunity and life after kidney transplantation

Understanding why the same treatment affects different people differently

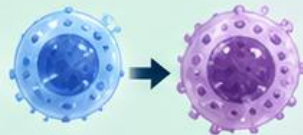
Dr Michael Corr

NIKRF – Queen's University Belfast Fellowship Award



1. Biomarkers of transplant injury

Finding blood signals of rejection and graft injury



2. Immune ageing in transplantation

Understanding how age changes immune function after transplant



3. Validation for better care

Testing and refining tools to personalise treatment and improve outcomes