
IMPERIAL COLLEGE
HEALTH PARTNERS
Impact Report
2024/25
Discover-NOW
London
SECURE DATA
ENVIRONMENT
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NHS Research Secure Data
Environment Network

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# Discover-NOW: Using real-world data to treat and prevent disease

**ICHP continues to host Discover-NOW, NWL's real-world evidence hub and a key part of the London Secure Data Environment (SDE) research service.**

Discover-NOW provides access to real-world evidence through 'WSIC' – NWL's de-identified linked dataset of more than 2.8 million people. Ongoing partnerships with industry, academia, and third-sector organisations in 2024/25 have continued to advance actionable research to improve patient care and treat and prevent disease (see case studies and project summaries).

The national landscape around using data for research and development has rapidly evolved in the last 12 months. Discover-NOW is focused on harnessing these opportunities – exploring cross-regional partnerships with other SDEs with a view to expanding its current data offer and services across a larger population.

Closer to home, Discover-NOW's Team of data scientists, analysts and project managers, sits independently from the core ICHP Team. This follows ICHP's restructure, recognising the distinct, albeit complementary, offers that the two business units provide the NWL system (i.e., ICHP's focus on innovation implementation and Discover-NOW's focus on real-world data analytics).

## 2024/25 in numbers…

**+£270k**

**income generated for the NWL healthcare system***

**62**

**publications to date, including 31 peer-reviewed publications and 7 in total for 2024/25**

**+100,000**

**people consented to be contacted for research purposes via the NWL Health Research Register (an increase of +10,000 from March 2024)**

**+10**

**completed data projects across multiple health areas, including chronic metabolic diseases, CVD, neurological, and infectious diseases**

**Comprising data access fees and clinical principal investigator fees*

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CASE STUDY

# CarePath Data+: Identifying risks and opportunities for better outcomes in cardio-metabolic care pathways

**This project aimed to identify risks and opportunities for better outcomes in cardio-metabolic care pathways.**

It involved analysing de-identified data from a cohort of over 91,000 patients with Chronic Kidney Disease (CKD) with co-morbidities including Type 2 Diabetes, Hypertension, and Cardiovascular Disease (CVD). Findings highlighted gaps in testing for early CKD diagnosis and treatment intervention, leading to disease progression and higher risk of cardiovascular events such as stroke and heart failure. Additionally, health inequalities further increase the risk of these significant events.

The project not only demonstrated opportunities to prevent severe outcomes through earlier intervention, it confirmed the feasibility of developing a Machine Learning (type of AI) model to predict the likelihood of a patient developing significant CVD and renal outcomes at the onset testing for CKD. This predictive tool will help the system to prioritise underserved patients who would benefit the most from early intervention.

Further engagement with ICB stakeholders via the NWL Research & Innovation Board will support awareness raising of this tool, which remains within the Discover-NOW SDE environment, with opportunities to further utilise to optimise cardio-metabolic care pathways in NWL.

**Partners:** Boehringer-Ingelheim, NWL ICB



***"The support provided by Discover-NOW during the initial phase of our project has been invaluable. We gained a deep understanding of the Discover-NOW dataset, and the Clinical Expert outlined the study protocol's scope. Discover-NOW also simplified the NICE guidelines for CKD treatments into straightforward logic, making them much easier to implement in the CarePath Data+ tool.***

***Using this tool, we identified gaps in the CKD care pathways in North West London. We hope this insight will guide our future collaboration with the ICB to optimise these care pathways."***

Data Scientist, Boehringer-Ingelheim

CASE STUDY

# Evaluating the effects of secondary prevention methods for patients with coronary artery disease

**This project evaluated de-identified data from over 76,000 patients with coronary artery disease in NWL to understand how secondary prevention methods impact mortality rate.**

Secondary prevention methods include statin (medication) prescription and follow-up serum lipid measurement – blood tests to measure the levels of different types of fats (lipids) in your blood, including cholesterol.

The study showed:

- At diagnosis, 56,003 of the 76,264 patients (77%) were on a statin (medication used to lower cholesterol). After one year, this had dropped to 40,563 (53%)
- The majority of patients – 43,946 (57.6%) – did not have any community serum lipid measurements during the first year of their diagnosis
- 24,036 (39.2%) of patients had one lipid measurement and only 5,092 (8.3%) of patients had at least two lipid measurements
- Patients who had LDL – 'bad cholesterol' – checks within the first year of a diagnosis had lower risks of all-cause mortality (death) compared to those whose LDL was never checked
- Patients on statins (medication) at baseline diagnosis had significantly lower risks of all-cause mortality (death) than those not on statins
- For patients on the maximum statin dosage there was an association of reduced risk of all-cause mortality

This project highlighted the need for better prescribing and improved follow-up tests – particularly for those at high-risk – for patients with coronary artery disease in NWL. These secondary prevention methods are crucial to providing more holistic patient care and improving long-term outcomes.

**Partners:** NWL ICB, Heart Division at Royal Brompton and Harefield Hospitals



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CASE STUDY

# Perspective on real-world data best practices

**In March 2025 the Discover-NOW Team published a peer-reviewed article in the *Journal of Comparative Effective Research*. Providing forward-looking guidance on designing studies to best benefit patients, the article sought to fill a gap in evidence qualifying the impact of conducting real-world data studies across multiple disease areas.**

Research involving real-world data (RWD) from patients – which most commonly comprises routine electronic health records – differs from clinical trials but should be held to equally high standards. When conducted properly, RWD research produces real-world evidence (RWE), which can greatly inform on different health areas.

The journal article published by the Discover-NOW Team provides numerous references of how RWE has increased our knowledge across different health areas including infections, neurological conditions, cancer, mental health, and preventative medicine. Also included are recommendations to minimise bias and to ensure robust translation of outcomes to the target patient population.

The Team also evaluated recent technology appraisals submitted to the National Institute for Health and Care Excellence to understand how RWE has been utilised. Findings revealed that RWE is most prominently used to inform on cost-effectiveness for innovative technologies, relative to clinical effectiveness.



***"Our peer-reviewed article provides an accessible resource for healthcare professionals and health researchers so that they can conduct more robust and reliable studies using real-world data. Better linked and higher quality data sources, when interrogated using best practices and robust study designs, provide researchers with tools with enormous potential to empower outcomes that benefit patients and strengthen our healthcare system."***

Benjamin Pierce, Head of Data Analytics and Project Management, Discover-NOW

**Read the full article**

# 2024/25 project summaries

- An evaluation commissioned by **London Ambulance Service** sought to understand **the effectiveness of Mental Health Joint Response Cars in supporting patients with mental health needs** compared with a Double Crew Ambulance. Findings identified a quicker response time, a higher number of 'see, treat and refer' (where patients can be safely and effectively treated at the scene or referred to more appropriate services), with less patients conveyed to emergency departments (reducing the cost of attendance). The outcomes of the evaluation were used to inform and support mental health commissioning.
- A collaboration with **Imperial College Healthcare NHS Trust (ICHT)** using NWL data evidenced the **consequences of Gestational Diabetes Mellitus (GDM) over a ten-year period**. This included the development of retinopathy (disease of the eye's retina which can result in sight loss or impairment) and progression to Type 2 Diabetes.
- A second study with ICHT researchers sought to **ascertain whether the current care pathway for heart failure (HF) is optimised**. It highlighted the need for alternative options for earlier diagnosis of HF, including approaches outside of hospital settings – with results including reduced rates of patient mortality and cost savings.
- A project with **Chelsea and Westminster Hospital NHS Trust** will be used to **inform strategies to screen for Hepatitis C, based on the prevalence of risk factors** within each primary care practice or PCN in NWL. The study found that the prevalence of risk factors for HCV infection is common in NWL. Of the population (cohort) of over 2.8 million people, 1 in 6 had two or more risk factors (almost 480,000 people), and 1 in 11 had 3 or more (over 240,000 people). There was also wide variation between primary care practices.
- Discover-NOW was commissioned to investigate the **impact of Alzheimer's disease in the three years preceding and up to nine years after diagnosis**. The team investigated patterns in diagnosis and staging, and whether patients who have been diagnosed at an early stage – with mild cognitive impairment – have different resource utilisation from those with moderate or severe dementia. By understanding the pathway and interaction with health, social and community care for patients at risk of or suffering from the earlier stages of Alzheimer's, this project can inform on cost savings and support early intervention with new Alzheimer's treatments in the NHS. These results will be presented at the Alzheimer's Association International Conference in July 2025.
- An observational study in collaboration with **Novartis Pharmaceuticals UK** examined **disparities in attaining cholesterol level target and the uptake of lipid-lowering therapy** (key to support prevention and treatment of cardiovascular disease) for patients in NWL with atherosclerotic CVD. The analysis revealed significant improvements in rates of patients reaching target cholesterol levels. It also revealed that significant disparities persist across gender, ethnicity and socioeconomic status, highlighting the need for interventions to address these inequalities.

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# Get in touch

## Discover-NOW

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