



# CONNECTED HEALTH CITIES

PIONEERING NEW WAYS TO IMPROVE HEALTHCARE

Connected Health Cities is a Government funded, North of England initiative using NHS data and technology to improve health care.

## CHC NAMED BIONOW HEALTHCARE PROJECT OF THE YEAR

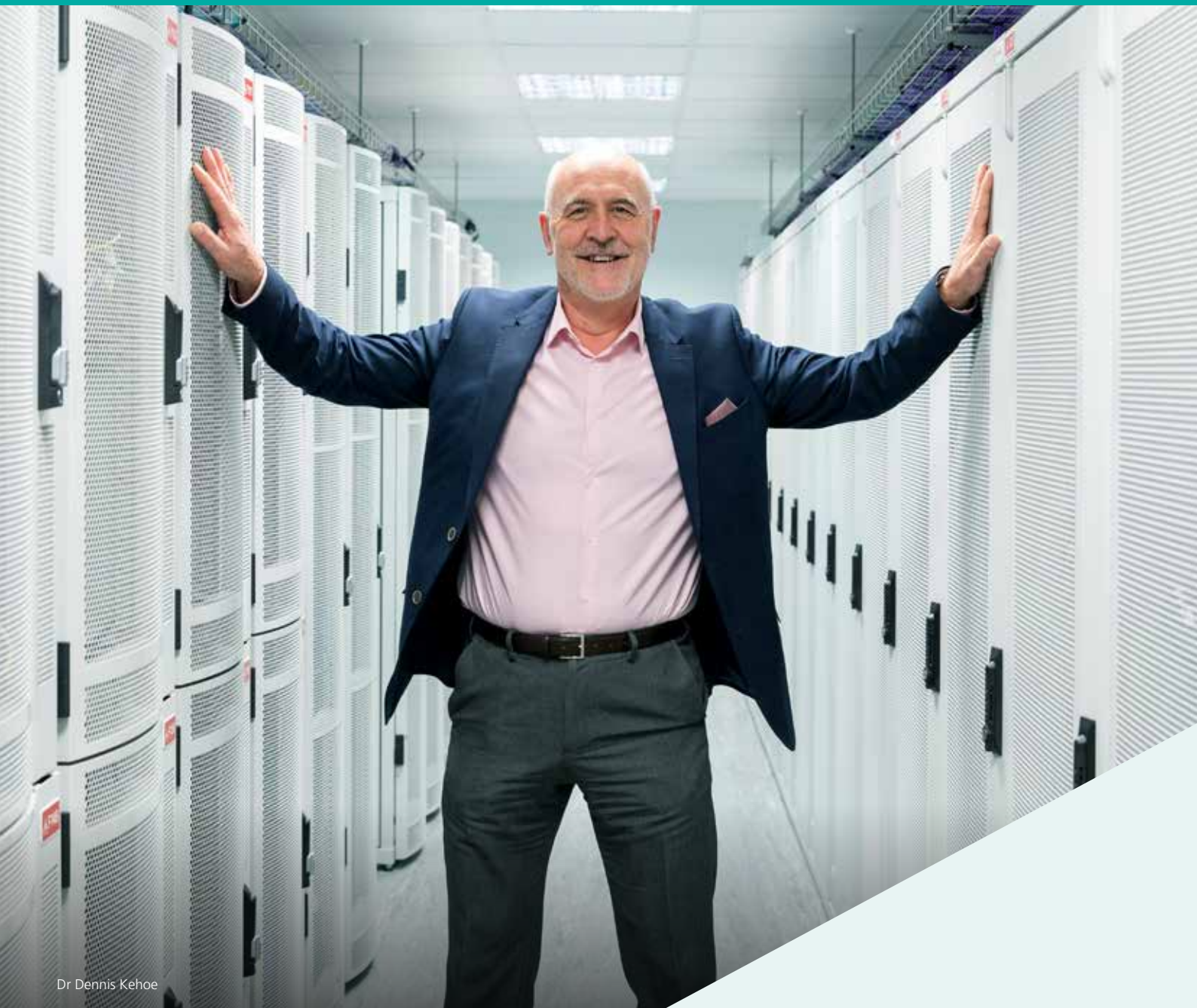
**The Connected Health Cities (CHC) programme was named Healthcare Project of the Year at the 2018 Bionow Awards.**

Led in the North West Coast by the Innovation Agency, it is one of four Connected Health Cities programmes across the North of England supported by the Northern Health Science Alliance with Government funding. All areas use technology and NHS data to identify ways to improve health services, with a different focus in each area.

In our region, CHC is a collaboration led by the Innovation Agency with the University of Liverpool, Lancaster University and Aimes secure data centre, focussing on reducing emergency admissions and improving care pathways for patients with chronic obstructive pulmonary disease (COPD); epilepsy; and alcoholic liver disease.



Dr Amanda Lamb and Connected Health Cities colleagues accept the Bionow Healthcare Project of the Year Award



Dr Dennis Kehoe

## CREATING A TRUSTED ENVIRONMENT FOR RESEARCH

**An important legacy of our Connected Health Cities (CHC) programme is the creation of a Trustworthy Research Environment.**

Connected Health Cities unites local health data with advanced technology to analyse ways to improve health services for patients.

Aimes Grid Services built a data ark at its secure data centre in Liverpool to house and present the data for analysis by researchers at the University of Liverpool. This has become a highly secure, trusted environment in which to store data for research.

Aimes Chief Executive Dr Dennis Kehoe said: "Building the trusted research environment for Connected Health Cities has been a big success.

"This regional data analytics platform is very secure and maintains all the information governance rules laid down by the NHS. The data has to be pseudonymised so we can't identify patients - it's like a Fort Knox for data!

"We are now working on similar secure environments for cancer research and mental health and are looking at two new pathways – cardiovascular and stroke prevention.

"It is a legacy of CHC, bringing together research and hospital communities to create learning health systems which will transform health and social care."

# PEOPLE WITH EPILEPSY TO BENEFIT FROM BETTER URGENT CARE

**People in the North West Coast with epilepsy will avoid unnecessary admissions to hospital thanks to a project giving paramedics instant access to their medical records.**

Following a seizure, paramedics often convey people to hospital unnecessarily. The person may have had epilepsy for many years and all they need is a safe place to recover, to take their rescue medication and for a family member to be informed.

Healthcare teams do not have access to their medical information, resulting in unnecessary admissions, investigations and potential treatment errors.

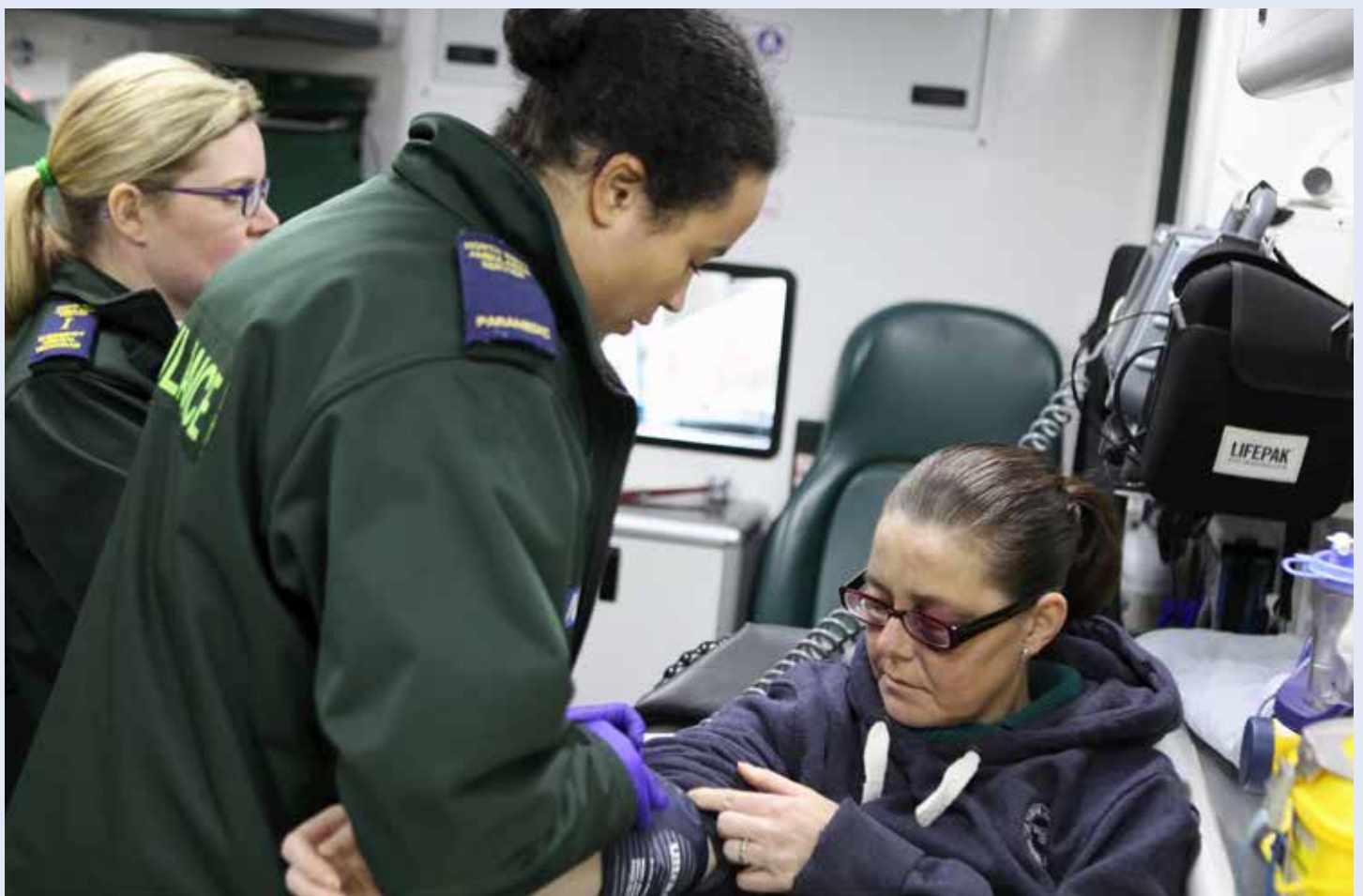
PED4PED - People with Epilepsy Sharing Data for Care with Paramedics and the Emergency Department - provides that access. It follows on from the work of the Innovation Agency's Connected Health Cities (CHC) programme, using data to improve the epilepsy pathway and it provides paramedics and A&E staff with epilepsy patients' information from GPs, hospitals and ambulance services.

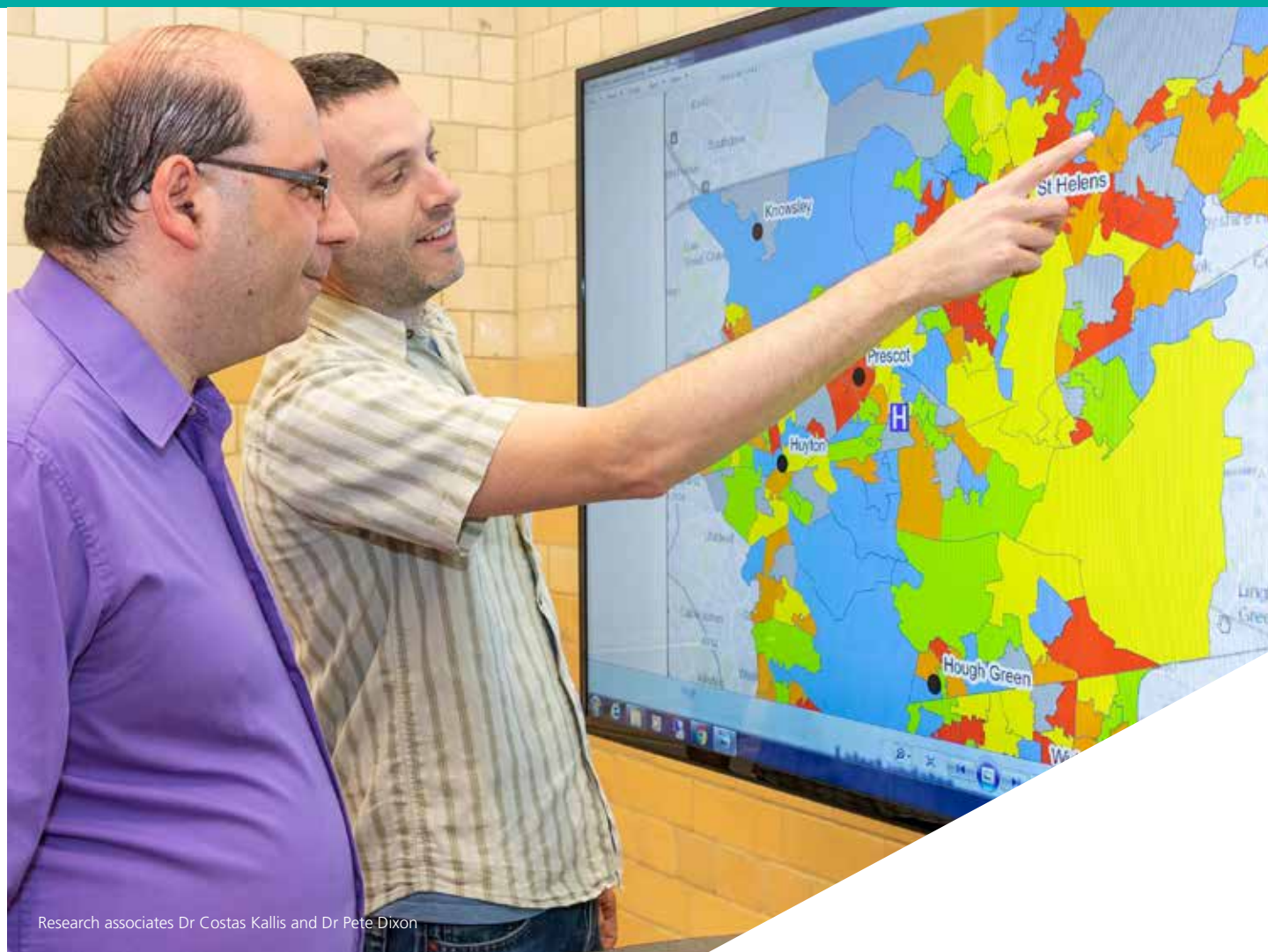
*"This is a great opportunity to show what can be achieved by partners working together in Liverpool, making data available at the point of need to improve outcomes and efficiency. While this project focuses on epilepsy, the learning will be scalable across healthcare."*

**Tony Marson**  
Initiative lead Professor of Neurology

Mike Jackson, Chief Consultant Paramedic for North West Ambulance Service NHS Trust, added: "By making additional information accessible for our ambulance clinicians, they will be able to make more informed decisions based on the patient's medical history. This means that if the patient could benefit more from care in the community, unnecessary A&E admissions can be avoided which in turn will free up vital emergency resources."

Working with the Innovation Agency are the University of Liverpool, Liverpool Health Partners, North West Ambulance Service NHS Trust, The Walton Centre NHS Foundation Trust, Royal Liverpool and Broadgreen University Hospitals NHS Trust, Alder Hey Children's NHS Foundation Trust, Epilepsy Action and Forcare.





Research associates Dr Costas Kallis and Dr Pete Dixon

## IDENTIFYING COPD HOTSPOTS

**Connected Health Cities data is being analysed to identify admission patterns and deliver targeted interventions to patients with chronic obstructive pulmonary disorder (COPD).**

Researchers in the University of Liverpool Data Lab are analysing information about COPD emergency admissions across the North West Coast. They have developed new algorithms – ways of extracting codes from the health record - to see the specific symptoms and problems of people with COPD. This helps healthcare professionals identify patients with COPD flare-ups and the problems they experience.

The Data Lab produces reports for each hospital catchment area, allowing healthcare teams to understand patterns of COPD admission. For example, COPD hospital admissions are more frequent in deprived areas with higher smoking rates.

Researchers also use geographical mapping techniques to illustrate COPD 'hotspots' with high hospital admission rates for COPD patients.

Meanwhile, PhD students at Lancaster University are developing a COPD dashboard so that healthcare professionals can access all the information they need to improve services in their area.

These tools provide a more accurate insight into where there are the highest numbers of COPD patients and which GP practices have the biggest challenges in managing patients with the condition.

This enables them to see where NHS resources, such as primary care, emergency access, ambulances and community support networks, should be allocated – resulting in a better experience for patients.

*They have developed new algorithms – ways of extracting codes from the health record - to see the specific symptoms and problems of people with COPD.*

# IMPROVING THE CARE OF CONDITIONS CAUSED BY ALCOHOL MISUSE

**One of the clinical focus areas for the North West Coast Connected Health Cities programme is alcohol misuse, in particular, the complex pathways of care for people with alcohol-related liver disease.**

The Data Lab team at the University of Liverpool has developed novel algorithms and analytical tools to monitor outcomes of unplanned admissions and post-discharge events, identifying variation over time, between hospitals and different localities.

They have produced a map of alcohol hotspots and services and have been analysing data on alcohol patient pathways which have generated useful insights to help re-design pathways for alcohol patients.

The team has also been working closely with Advancing Quality Alliance (AQuA) which works with hospitals across the North West to improve the reliability of clinical practice and to reduce variations in care for patients with alcohol related liver disease.

Working with data for all hospitals in our region, the CHC team will identify opportunities for future pathway improvements.

*"This project has helped us gain a huge amount of learning for our region and to take big steps in developing our academic expertise and improving frontline staff understanding of this area."*

**Dr Julia Reynolds**

Connected Health Cities Associate Director and Innovation Agency Head of Programmes

