Two bus journeys away from harm?
The system-wide inequalities intel emerging from hospital data.

New evidence is emerging into health inequalities from hospital data, that could shape decisions across health and care systems to make services more sustainable. Steve Barnett, VP for healthcare at C2-Ai, and NHS Innovation Accelerator fellow, explains.

When NHS trusts within the Cheshire and Merseyside ICS came together to examine the clinical risks facing thousands of their patients, new evidence emerged into health inequalities which could have national implications for integrated care systems.

A deep dive into data allowed healthcare teams to map the individualised clinical risks and outcomes facing 30,000 patients treated in general surgery.

The project confirmed some long-held assumptions around affluence and ethnicity, and the risks that patients face of harm, complications, and mortality.

But one of the most revealing insights, was the significant volume of high-risk surgical patients living with the most severe levels of deprivation.

New truths into enormous levels of deprivation and patients waiting for surgery

Clinical and operational teams examining the data found 44% of the highest-risk patients fell into the two most deprived deciles described in the English Index of Multiple Deprivation.

The data also revealed that 79% of the highest-risk patients in the sample fell into the five deprivation deciles that were most deprived.

Such enormous numbers of people sitting on waiting lists at most risk of mortality and morbidity, and living in deprivation, were so much higher than expected.

It evidenced a strong correlation between non-healthcare related social determinants of health, and actual clinical need.

And what is more, this volume of high clinical risk also places avoidable strain on the whole arch of healthcare.

Two bus journeys away from harm? The intel to support system-wide planning.

The evidence came from trusts now working with C2-Ai to take a proactive approach to understanding individualised clinical risk at scale for patients on waiting lists.

Risk ‘heat maps’ generated as part of the project, allowed hospital teams to visualise where patients lived, and to map both the risks of complication and actual outcomes observed.

The maps showed two communities of the same deprivation profile, living in similar geographical areas. Despite their similarities, red and green markers on the map illustrated how each community had realised very different outcomes.

The answer to this unwarranted variation at first seemed elusive, until a clinician recognised that the community suffering worse outcomes was ‘two bus journeys away’ from the services that might help its patients.

Such insights can be highly relevant for integrated care systems, and other services in the community, in planning where and how to deploy resources.

For example, in scenarios similar to the above, a green area of better outcomes might be located where smoking cessation resources are focussed, where the health centre is located, or where the diagnostic centre is.

In the red area, people might need to take an afternoon off work to visit a clinic, and pay for two bus journeys to get there – which might not be affordable. If they do still manage to get to an appointment, they might be more stressed when they arrive, or apprehensive about whether they can catch the bus home.

Digging deeper into the data, might also reveal if the local hospital is better resourced to deal with the particular clinical needs of the local community in the green area, than those of the red community.

Understanding this can allow resources across health and care, and beyond, to be appropriately planned and configured to support patients at greater risk, and in turn might ultimately prevent people from presenting to hospital late and more unwell.

Making acute services more sustainable, evidencing Core20PLUS5

Tackling elective waiting lists remains a national priority following the Covid-19 pandemic. But as much as this is reliant on acute hospitals being able to treat people, emerging data reinforces the need to seek answers system-wide.

Ensuring the acute sector can remain sustainable and deliver good outcomes equitably, in-part means reducing further admissions by identifying and supporting those at risk sooner. But rather than waiting until they are already in the health system, when the impact of social determinants of health are exacerbated, effective prevention means planning resources – across primary, community, and secondary settings, to support the specific requirements of communities in greatest need.

Appropriate access to services is an important theme in NHS England's Core20PLUS5 approach – which aims to reduce health inequalities nationally and at system level, in part through a focus on the 20% most deprived parts of the population.

The insights generated in the project described in this article, further evidences this approach. Reducing pressure on acute hospitals means seeking out those at risk at the earliest opportunity, to prevent variation in outcomes, and those most in need presenting to a hospital late and very sick.

And rather than simply providing more resource to broad postcodes – using intelligence to know precisely where and how to apply resources to support those at greatest risk of worsening outcomes, responds to the NHS constitutional requirements to provide equitable health treatment on the basis of clinical need.

Doing so can have a positive impact on the whole arch of healthcare.