

NETIMIS

CASE STUDY

Delivering Service Improvements
through the Reduction of
Hospital Admissions and
Promotion of Self-care at
Braford Royal Infirmary

Client: Connected Yorkshire



Overview

Working in partnership with Bradford Royal Infirmary (BRI) and Connected Yorkshire, X-Lab produced pathway simulation models for Bradford Teaching Hospitals NHS Foundation Trust's Children's Assessment Unit (CAU) using NETIMIS. The aim of this was to explore potential ways in which the current practices across the CAU could be improved. The future state models, produced using NETIMIS, aimed to improve the overall care pathway across the region by reducing hospital admission rates and promoting self-care for patients.

Connected Yorkshire is one of the Connected Health Cities that aims to deliver service improvements to the Yorkshire's population using anonymised, electronically recorded routine data available from health and social care organisations. The data will be linked anonymously and will be hosted on a digital platform at the Leeds Institute for Data Analytics. The de-identified linked data aims to support the redesign of pathways of care, develop and evaluate new interventions, support learning health systems and test innovative research approaches to improve health and wellbeing across the population.

About

CAU is an ambulatory care facility allowing children to be assessed and observed by paediatric specialists following their referral from A&E or a GP. Ambulatory care includes assessment, diagnosis, observation and treatment services provided on an outpatient basis.

Referral patients from GPs or children with occurring symptoms tend to be admitted into A&E. This results in patients attending the assessment ward in the CAU to establish whether a hospital admission is necessary. The downstream effect of unnecessary admissions results in a shortage of resources when other major incidents arise.

Within the CAU there are currently three assessment cubicles and four short-stay observation beds available for patients, with a maximum length of stay of six hours.

Challenges

BRI will be replacing the current CAU with a Children's Clinical Decision Area (CCDA), aiming to provide larger facilities to improve the ambulatory care pathway. Through the addition of two assessment cubicles and five observation beds (boosting maximum length of stay up to 24 hours), BRI is hoping to streamline

current hospital admission processes. However, it was highlighted that the hospital will not be reimbursed by the Clinical Commissioning Groups (CCG) if a patient returns to the hospital with a representation of symptoms within a set timed period of their initial treatment.

The objective of using NETIMIS is to outline the benefits of replacing CAU with CCDA, alongside to test if the implementation of proposed pathways will further reduce hospital admission rates. The optimal solution produced by the model will be used as an estimation of overall costs and consideration of potential pathways which meets BRI's objectives.

Solution

Alternative community care pathways were proposed;

- **Step-Down Ward** – A ward for patients who no longer need acute care but who are not yet ready to be discharged. Their care has 'stepped down'.
- **Step-Up Ward** – Step-up care refers to hospital care provided by community nurses within the patient's home instead of being immediately referred and admitted to hospital.

- **Rapid Access Clinic (RAC)** – This is a clinic to which patients can be referred, for planned elective reviews (patients with new symptoms do not currently use this service).

Each pathway will be tested within both CAU and CCDA to show if an upgraded facility will improve BRI's current ambulatory care pathway. Optimally, the pathway should lead patients to self-care solutions instead of direct hospitalisation.

The Step-Down pathway aims to divert patients who no longer need acute care into a community-based ward whereas the Step-Up pathway suggests patients be referred to community nurses within their own home. Returning patients are likely to be directed into the RAC pathway for a more accurate assessment based on their medical history. However, the RAC pathway can be accessed by new patients who are being referred for a planned elective review.

How NETIMIS Helped

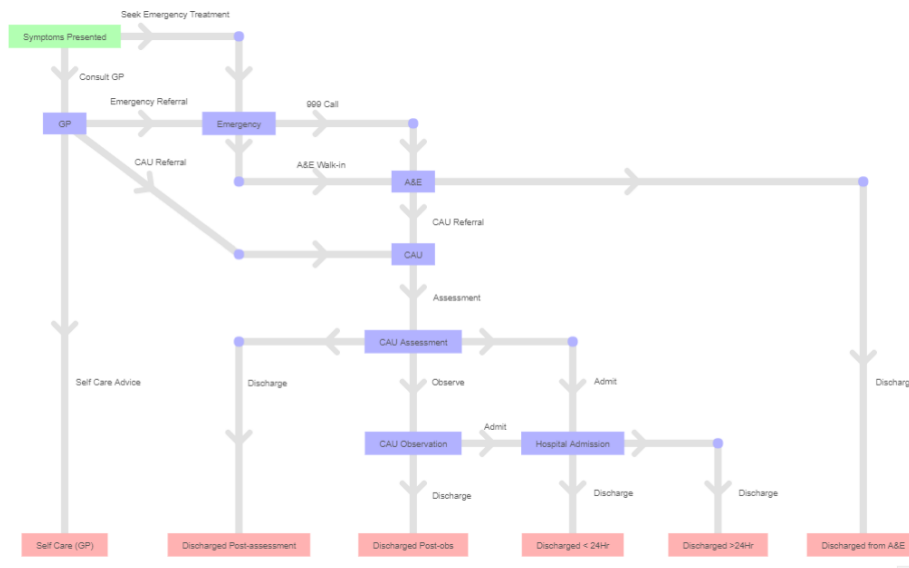
The alternative state models and outputs created in NETIMIS provided an insight to BRI regarding the implementation of pathways complimenting the new facilities under CCDA. The models produced highlighted valuable information:

- Pairing different community care pathways with CCDA results in an overall improvement in patient experience and reduction in hospital admissions.
- The upgrade of facilities provided by CCDA is only necessary if 10% of 500 patients were to utilise any self-care pathways.

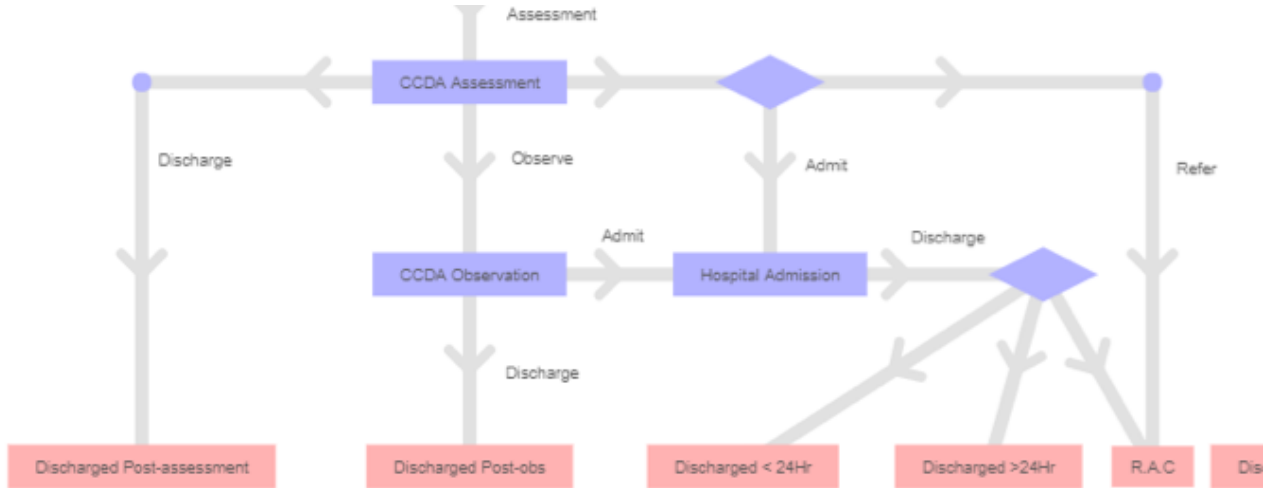
Conclusion

NETIMIS has provided a clear visualisation for continued analysis of these care pathways. Kuldeep Sohal, Programme Manager at Connected Health Cities (CHC), added, *“we are really excited to be able to generate new insights into individuals' health and wellbeing by linking this rich resource of electronic routine data from different organisations to understand the way services are organised and care is given which could provide the insights and the metrics to allow us to improve that delivery of care.”*

Current Pathway



Rapid Access Clinic Pathway



Step-Down Pathway

