Urgent Care Services Redesign

Funded by the Technology Strategy Board and the Engineering and Physical Sciences Research Council
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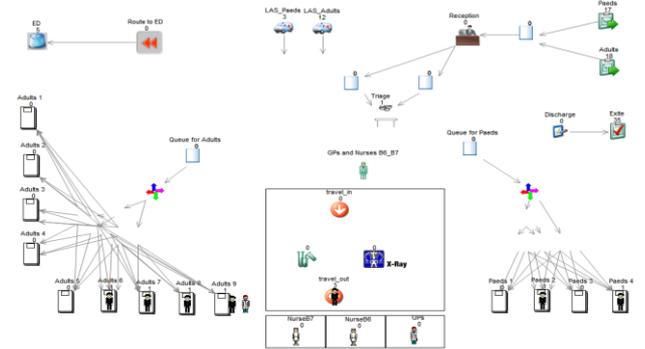**Partners**: NHS Hounslow, NHS Northwest London

Brief

As part of its QIPP programme, Hounslow PCT was looking to procure a new Urgent Care Centre (UCC) aiming to ease pressure on vital parts of the unscheduled care system and modernise the delivery of Emergency Department (ED) services. The PCT wanted to:

• Forecast UCC activity, and thus planning for future financial budgets for both providers -UCC and ED.

• To deliver an effective change to meet the urgent care needs of patients with non-life threatening conditions through a clearly defined clinical model.

The proposed redesign should support the necessary repositioning of current unscheduled care services across the borough to deliver high quality and cost effective care to Hounslow residents.

Hounslow Service Model

Our Approach

As part of a Knowledge Transfer Partnership project, using data mining techniques, we developed an understanding of system behaviour in terms of subsystem interactions and the factors influencing patient flows. The insight obtained through Clustering analysis and Association Rules mining was then used as patients' demand and pathways supporting better services in the UCC. Previous A&E attendances data have been clustered into groups and sub groups on their resources used and acuity. These groups are the

identified target groups for service specification strategy design and decision making process.

In order to make a strategic business decision with confidence, we developed a Simulation model that captures most of the details generated by the clinical model down to operational planning, such as determining appropriate Nurse and Doctors staffing levels and monitoring performance metrics for the UCC.
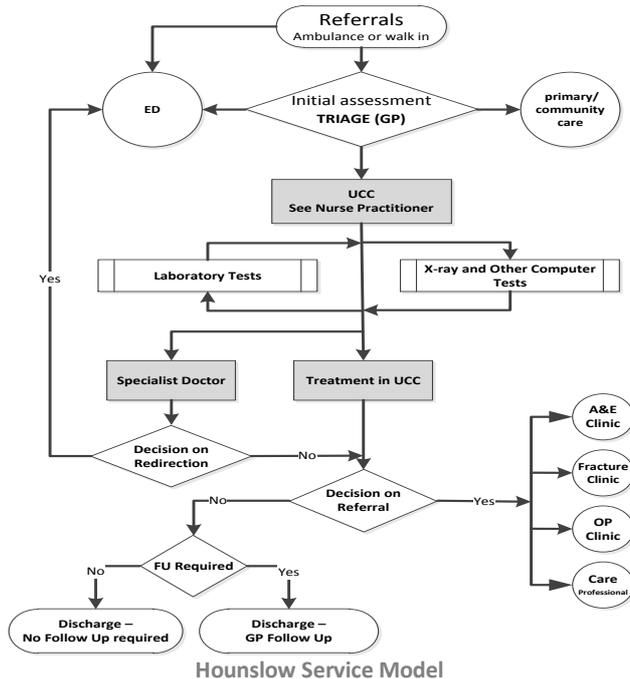

The UCC Simulation Model

Benefits

The designed service model is based upon the need to provide improved patient access to urgent unplanned care, while ensuring that the patient's ongoing healthcare needs are met in the most appropriate setting within the community, primary or acute care. This knowledge enables commissioners to have a reasonable awareness while negotiating new contracts with medical services contractors: reducing access point for routine NHS care in the health economy, and removing duplication of existing commissioned services.

The simulation model was praised by commissioners to construct business processes: mainly for capturing, analyzing, studying the UCC operations, service delivery, staff scheduling, and patient flow. The simulation model was also used as a tool for managerial purposes; it assisted the decision making of triaging for the UCC against specific inclusion and exclusion criteria informed by the data mining, along the identification of suitable cases for ambulance conveyances.
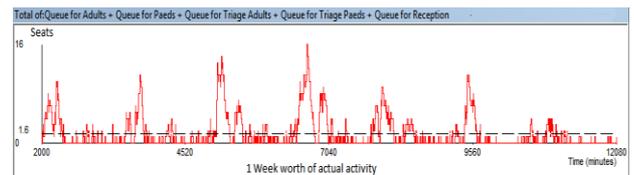
The same model of scheduling UCC activities was replicated for Hillingdon PCT with different needs. Further, a simulation model was built to inform the capacity planning.

Simulation Output (Queue)

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