

An Operational Research and AI Modelling Framework to Reduce Waiting Times for Mental Health Services

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Mental health services have seen increasing demand partly due to the pandemics, yet new tighter waiting time targets have just been introduced putting even more pressure on services, e.g. the maximum wait for people with 'urgent' and 'very urgent' needs referred to a community mental health crisis service has been set to 24 and 4 hours, respectively while those with 'non-urgent' needs are expected to start getting help no more than 4 weeks after contacting a community mental health service.

Operational Research techniques and tools have been widely applied to assist with the redesign of services in various areas of healthcare - emergency, urgent and critical care, in particular. On the other hand, there have been very few studies dealing with mental health services. This research proposes to fill that gap by developing an operational research framework based on queuing theory, and simulation-optimisation for service redesign and AI/Machine Learning to better classify patient needs. The project will be undertaken in collaboration with a mental health trust.