Developing & Deploying a Predictive Analytics System to Improve Health Outcomes and Use of Resources in Mental Healthcare
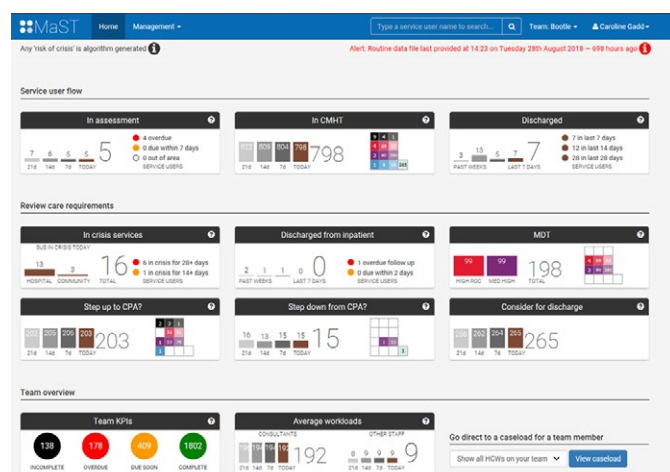
Conference Winning Paper

In the UK 1 in 4 people diagnosed with a mental health condition have reported waiting more than three months to see an NHS mental health specialist.[1] Long wait times have been found to generate a further deterioration in mental health, and broader social consequences, including divorce (36%), financial troubles (32%) and work problems such as job loss (34%).[1]

The increasing burden on mental health services along with important NHS England initiatives such as the Global Digital Exemplars (GDE)[2] created an opportunity for NHS Mental Health Providers to rethink the way patient data is used in healthcare. Mersey Care NHS Foundation Trust has worked with OHS to deliver improved care and an improved experience for service users and frontline staff.

OHS have developed the Management and Supervision Tool (MaST), a software platform which analyses data and uses predictive algorithms to inform healthcare staff's decision making based on service user needs & the likely resource required to support safe and effective care.

MaST uses a Risk of Crisis algorithm to identify those people who are most likely to require crisis services such as A&E, Community Crisis Services or Inpatient care. MaST can also be used to identify those Service Users who are at lowest risk of using crisis services and can hence be reviewed for potential discharge with support from other services for their continued recovery. This may ease Service User flow, and free up resources for other people[3]:

"MaST is a must, it helps me reduce my stress by having all I need in one place, it helps to prioritise my workload, depending on complexity. It helps me to navigate, and understand a pattern of crisis." **(NHS Community Mental Health Nurse)**[3]

Now that MaST has been successfully launched into mental health services in England and is available for NHS organisations to buy through the Gov.uk Digital Marketplace, the OHS team with their software development partners, Earthware, have reflected upon the journey so far:

- The team have worked hard to put robust controls in place, complying with appropriate policies and processes of the healthcare organisation as well as their own internal polices with a programme of ongoing training and refresher sessions. These include policies such as Information Governance, Confidentiality Agreements, Data protection and Acceptable Use Policies.
- We adopted an Agile approach to development, meaning we had implemented and reviewed several iterations of MaST with a small group, before we launched the solution across with the teams. The approach looked at how to alleviate barriers and enhance opportunities for positive change and engagement. Working in an Agile way meant that we could learn quickly and make adaptations as required to improve the experience for those using MaST.
- Working in true partnership with the NHS is essential. OHS needed front line staff and not just executives to support the design, development, uptake and implementation of MaST. Key stakeholders and influencers were identified throughout the teams based on how they could help support change management within an organisation. It was notable that staff also self-selected into this role, offering their time and support with data validation, advocacy and supporting other colleagues to see its value.

Next steps for MaST include ongoing implementation across several mental health trusts in England along with an exciting development programme to refine and improve OHS's existing analytics platform.

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1. **https://www.bma.org.uk/news/media-centre/press-releases/2018/february/new-bma-research-unveils-blindspot-in-mental-health-care**
2. **https://www.england.nhs.uk/digitaltechnology/connecteddigitalsystems/exemplars/**
3. Date on File: The Healthcare Research Partnership: Evaluation of MaST System (Jan 2018)