

Location Analytics Helping Ipswich Hospital Tackle Escalating Demand

Ipswich Hospital NHS Trust

The Challenge

Improve clinical outcomes while keeping costs under tight control
Manage demand for healthcare services more efficiently
Ensure key performance indicators are met

The Benefits

Establish an approach focused on evidence-based decision-making
Ability to pinpoint hotspots for illnesses and for demand for emergency admissions
Potential to intervene to maximise resource utilisation and minimise costs
Opportunity to enhance future service planning and explore the potential of higher levels of community healthcare integration

The Customer

Ipswich Hospital NHS Trust (IHT) provides healthcare services to more than 356,000 people throughout the local area. One of the hospital's key objectives is to move to the centre of a network of co-located and integrated services, delivered to meet demand for healthcare across the region as well as driving education and research. It's an ambitious goal, but to meet it IHT needs to map out where that demand is coming from.

The Challenge

With over 75,000 emergency department attendances a year and nearly 30,000 unplanned emergency admissions, IHT, like many healthcare providers across the UK, faces tough challenges in managing the demand for its services. The provision of healthcare is an essential service and an emotive topic, so it is crucial that it can predict demand across the population and respond by meeting it quickly. To do that, visualising the challenge it faces can drive real insight and, ultimately, lead to a better provision of service for the people it serves.

According to Paul Scott, Director of Finance and Performance at the Ipswich Hospital Trust (IHT), our existing information solutions rely on extensive use of spreadsheets. They are therefore simply unable to provide us with the level of insight into patterns of behaviour in core populations that we urgently need. So, we decided to seek out a solution that would give us greater insight into where demand is coming from, within our catchment areas, and what form that demand will take.

Currently, the escalating demand faced by the hospital's A&E department continues to ramp up financial pressures on the IHT system. This is making it all but impossible to efficiently manage patient flows. Increasingly too, there is a knock-on effect on inpatients and outpatients departments and the wider care flow pathway.

The challenge facing the hospital is made more difficult by the need to meet tough key performance indicator (KPI) metrics, including keeping waiting times below four hours. In tackling these challenges, IHT has the following priorities:

- Improving clinical outcomes
- Overcoming financial challenges and making savings, critical in light of potentially failing to meet KPIs
- Making systems more efficient.

The Solution

Not only did IHT need an objective understanding of current demand, but also needed to know how to intervene more effectively, in the future. It decided to implement a feasibility programme to assess how location analysis and actuarial analysis, working together, could provide insight into demand management that could shape future services for the better. Working with an actuarial services provider, who provided analysis into financial trends and risk, Esri UK delivered the location analytics solution to turn this vision into a reality.

The solution provides IHT with a combination of insight from Esri's geographical information systems (GIS) and location analytics technology and high-quality clinical and financial data analysis, feeding into long-term financial modelling, provided by the actuarial service provider.



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Paul Scott, Director of Finance and Performance at the Ipswich Hospital Trust



Esri UK's location analytics solution was vitally important in delivering data visualisation to provide the required insight. Utilising the ArcGIS platform on IHT's infrastructure on-premise, behind a secure firewall, ArcGIS for Server and ArcGIS for Desktop were deployed to provide services to a management insight dashboard.

IHT gains additional insight by being able to map out the number of cases going to A&E by a range of variables. The information is visualised as a hotspot analysis for example, highlighting the source of demand. The dashboard also provides a set of Key Performance Indicator (KPI) reporting tools, giving managers a dramatically improved understanding of the status of demand in the hospital by enabling them to break down A&E attendees by number of cases, average waiting time or mode of travel, and then split the figures down by timeframes.

Benefits

IHT recognises the huge potential of the system to achieve faster time to insight. Visualising data in a map format helps IHT understand where the hotspots are for certain diseases, admission methods and average time to treatment.

Understanding where demand comes from into emergency admissions, and the type and level of that demand, has allowed IHT to pinpoint areas of intervention to mitigate it.

The hospital believes this will enable it to improve its resourcing processes. It will be able to bring in more clinical support staff to meet increased demand on certain days of the week, for example, and therefore alleviate resource pressure. This could help minimise costs while maintaining performance and clinical standards.

According to Scott, while this remains an R&D project it has highlighted a different way of looking at our organisation, and the demand pressures we face. In addition, it has demonstrated the huge potential of looking at demand from a population rather than individual attendance basis.

It also allows us to try out what if scenarios. In short, it has given us a whole new platform for discussion and changed the conversation at board level to focus on moving to a more sophisticated way of visualising and reporting data. The IHT board has even requested that geographic information and location is included within its business intelligence strategy.

Moving forward, the outputs from patient demand analysis, mapping insights and possible interventions could provide a basis for service reconfiguration and therefore wastage reductions.

The use of GIS information, in particular in conjunction with actuarial, could put IHT ahead of other National Health Service Trusts in terms of innovative use of IT in healthcare provision.

Moreover this exciting, ground-breaking project has the potential to revolutionise the future of healthcare demand management, not just in Ipswich but across the whole of the UK.