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Using Mobile Analytics to Empower Healthcare Professionals on the Go

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For most people, falling into a rut is a part of life. For some career paths, it may even help to fall into a routine that provides predictable and dependable results. For those of us in the healthcare data field, repetition and routine have long been a double-edged sword. On one hand, they provide the experience necessary to deduce the best way to serve customers. On the other hand, the drive to innovate new solutions is imperative.

Today, any healthcare worker or organisation worth their salt continuously seeks opportunities to improve support for workers and overall patient care. In recent years, many industries have experienced dramatic technology disruptions, and some people have been wary about the long-term impacts of those disruptions. In our area, though, such improvements and innovations are often the difference between life and death.

Of course, finding effective and practical innovations can be an incredibly complex task, and is almost always easier said than done. This was the reality we faced at the University Hospitals of Morecambe Bay NHS Foundation Trust (UHMBT).

UHMBT is a group of hospitals serving North Lancashire and South Cumbria in the North West of England. We offer a wide range of services, including full emergency, critical/coronary care, diagnostics, and planned outpatient care. We further provide outreach and community services throughout our coverage area in homes, community centres, and clinics.

At UHMBT, we treat people as the lifeblood of our services. We know there is a person at the receiving end of every single service we provide. Accordingly, we are committed to making our hospitals a great place to work and receive care. Part of this commitment is continually working to improve our organisation.

I have always had a deep desire to use my skills to improve the lives of others. I was academically trained in Computing and recently graduated from the NHS Digital Academy, which is a digital leadership programme delivered by Imperial College London. As the current Head of Information at UHMBT, it is my job to lead the effort to use business intelligence and data science to contribute to our improvement.

We're far beyond the days of crunching numbers, and modern data analysis must be accessible to decision-makers at every level of an organisation.

Necessity Powers Innovation: Building the Command Centre

As we approached the winter of 2018, we were concerned that the hospitals would be overwhelmed by a patient surge during the winter months and our operational staff were worried about how they would cope with rising demand for urgent care services. Ever focused on self-improvement, we got to work developing a way to maintain high-level patient service.

Our answer was creating a Qlik Analytical Command centre. This wasn't just the name; we created a physical room within the hospital for the solution. We filled the centre with huge touchscreens that displayed analytical depictions of the movement of patients through our system in real time. We collected data regarding every point of the typical patient journey, including ambulance, admission, treatment, and patient discharge.

The entire project took us 10 weeks from start to finish, during which we were able to articulate the idea, design the application, install the hardware, and go live. Despite our success with this project, we found some potential traps. Based on our observations and personal experiences, we identified several criteria for success.

Perhaps the most important element of a solution is that it must be business- and customer-led. That means finding a solution that flows out of genuine organisational needs, as opposed to coming up with a great idea that doesn't address the concerns or weaknesses of the organisation.

Organisations can't be afraid to tackle the huge, pressing problems. Easier tasks often lead to quick wins, but the big issues don't go away on their own.

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Secondly, organisations cannot be afraid to tackle the huge, pressing problems. Completing smaller, easier tasks often leads to quick wins, but the big issues don't go away on their own. Dream big, and create a clear vision and strategy to achieve these dreams. Develop an unrelenting drive to incremental improvements that are at once ambitious and achievable.

Third, acknowledge that mandating the adoption of something new isn't always enough. Seek out internal ambassadors who champion the cause and can help overcome hurdles.

Lastly, create something that is truly focused on customer and business solutions. That means finding tools that are not so cumbersome that they become new problems. To this end, it's helpful to merge the skills of designers and technical staff whenever possible, as opposed to keeping them siloed.

Qlik Alerting and the Power of Mobile-First Strategies

Some of the biggest problems with fully integrating data-based decision-making revolve around scale and access. Data analysts can certainly provide guidance to organisational leaders, but how do you get frontline workers involved in the implementation process? Nursing staff, for example, won't have time to check the data every hour to find inefficiencies in patient service. Doctors won't necessarily benefit from receiving complicated data analysis reports after every shift.

In order to integrate staff into the analytics process, we needed to ensure users could access the application from multiple devices. We also needed to make sure the application provided users with what they really needed, which is guidance. Only data analysts want a complicated report complete with charts and graphs. Everyone else wants direct assistance with more fact-based decision-making.

In our case, we found Qlik Alerting as our answer. Alerting was key to incorporating our analytical aspirations into the organisation by giving employees a way to get the information they wanted via their preferred method. For example, a manager watching patient flow could use Qlik Alerting to receive a notification when bed occupancy reached greater than the optimum 85%. Clinical service managers may opt to get an email to let them know if next week's appointment schedule is too empty.

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Using the mobile-first strategy through Alerting provided the organisation with a practical way to bring the benefits of data analysis to the staff. The sheer volume and complexity of healthcare data is incredibly overwhelming, even for professionals. Alerting was the only way we found to cut through the noise and target specific users with actionable data.

Completely Driven by Data

Of course, the final goal was to propel our organisation toward data analysis maturity. Despite our anecdotal success with Alerting, we knew that achieving maturity meant giving all staff control of the tools. That's why we love the self-alerting function.

By giving users control over the alert tools, we let them determine how the data can best influence their personal decisions. We believe the combination of self-alerting and mobility is responsible for the continual growth in our user base. New staff and new users of self-alerting experience the benefits and are eager to interface with non-users in a way that can in turn convince them to join the movement.

The improvements in emergency care provide one of the best examples of impacts related to combining mobile analytics and alerting. Emergency departments can be hectic, with large pressures to maintain available bed and treatment capacities. The ability to send alerts to mobile users throughout the hospital system means we can better control patient flow.

Users at different stages of the process, including ambulances, admissions staff, and patient care professionals can make minute-by-minute adjustments. The ability to make preemptive decisions based on data has directly improved care delivery and patient outcomes.

The Winning Combination of Experience and Innovation

Since we implemented these new tools, we have experienced a new environment of connected systems and workforce innovation. However, the elephant in every data analysis room is data quality. Making data-driven decisions can actually be harmful if those actions are based on incorrect or incomplete data.

That is why we created a framework to change the way we discovered and corrected errors. Called the Patient Safety Net, we're now integrating Qlik Alerting to proactively alert our staff to data quality problems. Most importantly, this process empowers staff to understand where these errors are happening. As more staff and offices in our organisation join our Qlik project, it becomes increasingly critical that we maintain the integrity of our data. Having an application that can monitor errors, corrections, and highlight recurring problems is key.

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Ultimately, becoming data-driven is about finding a way to make analysis part of the background of every decision. Our staff no longer has to choose between making data-based decisions or enjoying mobility. We're now able to give them what they wanted all along: emailed or texted alerts with specific actions, thereby embedding analytics into our everyday workflow.

There's an element of healthcare that thrives on routine, but our future is defined by flexibility. We know that we have only scratched the surface of what is possible and that the tools will continue to change over time. We will build upon the success of our clinical analysis systems in a way that further supports patient care, and we will do this knowing we have a mechanism to give staff the information they need, when and where it is required.