MISSION CONTROL:
The flightpath to safer patient flow

How mobility, connectivity and real-time visibility can give UK hospitals command and control of patient safety and flow.

If you believe the headlines, UK healthcare is travelling towards a futuristic age where NHS organisations have an operational visibility similar to that enjoyed by air traffic control. Billed as the solution to the challenges of flow, the introduction of hi-tech 'Command and Control Centres' will give hospitals a bird's-eye view of the traffic to ensure the arrivals, departures and in-flight movements of acute patients are safe, timely and efficient. In this bold new world, digital suites will power walls of analytics that enable trusts to monitor the individual flightpaths of patient care across every air mile. It's a fitting direction of travel (no pun intended). There's just one thing: it's not new. Control Centres are already embedded in many progressive trusts across the UK and, where they've landed, they're driving significant gains in patient flow and operational efficiency.

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But Control Centres are not just about managing the logistics of capacity and demand. In the same way that passenger safety is the primary goal of air traffic control, the over-arching priority of every NHS hospital is the safety of its patients. This crucial aspect should be at the root of all strategies to improve flow. However, in the rush to move to a digital Control Centre model, there's a danger that hospitals focus on procuring systems that provide good operational visibility but fail to capture the clinical context that underpins the patient journey. Patient flow and clinical safety cannot be considered separately; the two elements are intrinsically linked. The systems that support them – along with the clinical and operational teams that rely on them – must be similarly connected.

For acute trusts, the traffic control metaphor is highly relatable. Screens that tells you when and where the 'planes' are landing are not enough; you need to know why they're there, where they're going next and what needs to happen to guide them safely to their destination. This requires a nuanced understanding of the queues ahead and the landing patterns required to coordinate a safe and timely touch down. If visibility in NHS trusts is to reach the levels experienced in air traffic control, digital Control Centres must be able to harness clinical and operational data – in real time – to ensure crucial decisions about patient care are based on an accurate, trusted and holistic view of complex pathways. You could be forgiven for thinking that this sounds like a futuristic utopia that will never materialise. It isn't.

The good news is that Control Centres aren't tomorrow's world. They're already being used to put some of the UK's biggest trusts in command and control of patient care. Better still, for those organisations that aren't yet on the runway, getting there doesn't require a long-haul flight. It's more than possible to become the hospital of the future, today. Here's how.

Control Centre: rationale and benefits

First, let's examine the drivers. At the macro level, efforts to minimise delays and improve the management of patients as they move through the care continuum are wrapped up in policy aligned with the Five Year Forward View (FYFV). It's a complex dynamic. The FYFV's vision to join up care across whole health economies requires a system-wide ability to understand populations, predict upstream activity and plan downstream flow through the optimal management of clinical information. This won't be achieved by 'more of the same' but by a willingness to do things differently. Delivering intelligence-led, integrated services depends on the adoption of good technology and a culture of digital and system transformation. Thankfully, there are green shoots of progress everywhere.

In recent months, NHS England has been developing an HSS Framework to help health and care organisations address the challenges of integrating care. System transformation, including the key areas of demand management and capacity planning, is a key area of focus. In this regard, the Framework has spawned a new vocabulary that's moved operational language beyond interchangeable terms like demand management and flow – and introduced the broader umbrella of 'Command and Control Centres' into the common vernacular.

NHS England defines Control Centres as 'operational centres that support the management of patients by equipping care teams with real-time data and decision-support tools' to help them address familiar challenges. The potential benefits are significant. With better access to real-time intelligence, hospitals can identify and resolve bottlenecks along the pathway, minimise delays in discharge and transfers of care, and maximise resources such as beds and staffing. Moreover, the benefits of aggregated, longitudinal data can help trusts – as well as their system partners – more accurately predict and manage capacity and demand.

Evidence shows that in the UK hospitals where Control Centres have been deployed, substantial gains have been made. These include:

- **A significant increase in the number of patients discharged before noon**
- **An increase in patients discharged within 48 hours of the date they were predicted to be medically safe**
- **Substantial reductions in outliers – up to 50% - leading to improvements in length of stay**
- **A major increase in the number of A&E patients treated, assessed or discharge within four hours**
- **The release of 130 bed hours/day in an 800-bed hospital**
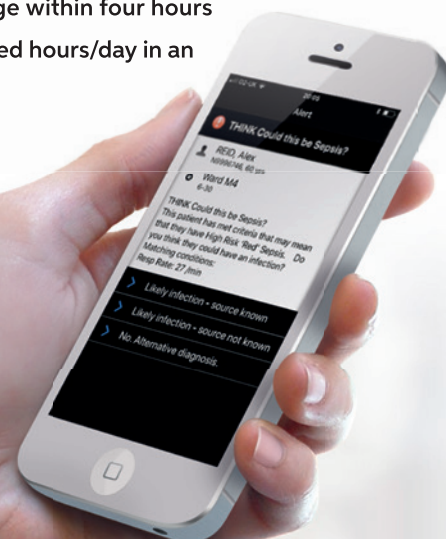
The rationale for adopting the Control Centre model advocated by NHS England is compelling. Moreover, with the UK's Health Secretary recently claiming that 'outdated' and 'clunky' NHS IT systems are wasting resources and 'costing lives', it's clear that trusts must do something if they're to overcome the perennial challenges of managing flow. But in the same way that technology is not a panacea, digital Control Centres must be much more than a wall of touchscreen plasma and a disparate bed management solution. The most effective control centres will reflect the real-world complexities of patient flow, leveraging clinical and operational datasets from different staff groups across multiple sites to empower accurate real-time decision-making that maximises capacity and demand.

Our experiences of designing and deploying Control Centres at some of the biggest and busiest UK trusts have helped us establish clear characteristics of best practice – as well as to identify the potential pitfalls of adopting too narrow an approach. Here are our four top tips for a comfortable take-off and a successful landing.

Flightpath to safer flow: best practice

#1: Don't start at the Control Centre – end there

The Control Centre is the dream destination. As with all strategies, it's vital you know exactly where you're heading right from the get-go, but if you try to get there too soon, it might prove a wasted journey. It's therefore important to ensure you stop off at all the right places en route to ensure you're capturing the right data earlier in the itinerary. The connecting flights are all-important. If you attempt to fly direct to the Control Centre, your experience may fall short.

Despite this, it's not unusual for trusts to focus on establishing the physical Control Centre as the first step of their strategy. It's a misguided approach. Establishing 'readiness' before you begin your journey is much more beneficial. Why? Because a Control Centre that provides inaccurate or incomplete data will quickly become untrusted, and recovering from that false start may prove impossible.

The criteria for readiness are broad and will vary from hospital to hospital. But there are common, essential components. NHS England says that care settings must have PAS and EPR systems that are 'accurate and kept up to date' as a minimum requirement. We go further. In highly complex acute settings, where change is rapid and patients can deteriorate quickly, it's important to capture accurate information in real time or as near real-time as possible. In addition, to prevent costly and confusing duplication, it sensible to deploy a trust-wide system that avoids double-entry as a means of informing the Control Centre. If these vital elements aren't in place from the beginning, it's far better to delay your journey and address the situation before you take-off. It could be damaging to proceed with a Control Centre strategy without real-time, trusted data.

Fortunately, creating the right environment for real-time data capture is no longer a long-haul journey. The advance of mobile technology means that the tools to progress are not only available, they're familiar to us all and simple to adopt quickly and cost-effectively.

#2: Make it mobile, timely and trusted

According to NHS England, Control Centres typically consist of a centralised room – 'similar to an aircraft control tower' – where data is displayed on interactive screens and care managers can conduct system-wide management. Certainly, an effective Control Centre will be the go-to location for twice-daily operational – Gold Command – meetings, as well as other routine reviews throughout the hospital day. However, it's important to think beyond the Control Centre. The centralised location shouldn't be the only place where this vital information is available. Operational teams should be able to access and update data on desktop and mobile devices in real time.

Fundamentally, the Control Centre is not a single solution but an over-arching layer that sits above multiple systems, solutions and data sets. It's the interface that draws everything together to unlock real-time visibility of a hospital's live operational status and the clinical context that's driving it. To achieve this, it must be able to extract

information from an EPR without adding delay. Moreover, for an EPR – and therefore a Control Centre – to add value, the information within it must be accurate, timely and trusted. This requires empowering clinical and operational teams to capture data at the patient's bedside. To enable this, the tools of EPR must be mobile.

Mobile functionality brings major downstream advantages to the Control Centre model. It means Bed Managers don't need to floor-walk the hospital to identify available beds prior to Control Centre meetings. This makes operational decision-making easier, giving teams the ability to identify patients that have potential for discharge, step-down, transfer or outlying – and establish what's required to achieve that move. Moreover, mobile utility means that the leaders in Gold Command meetings can drill down to the patient-level to establish the clinical context that's influencing flow.

#3: Bed Management systems help flow, but they don't fix flow

A surprising number of NHS trusts believe that deploying a bed management system will 'fix flow'. It won't. Bed management tools undoubtedly play an important role in monitoring bed occupancy, availability and capacity, and they also allow trusts to keep a record of patients requiring beds and match them accordingly as beds become available. However, the adoption of a bed management solution is generally only the first stage of patient flow system maturity. Flow strategies built solely on stand-alone bed management typically lack the clinical context that drives operational decisions.

Mature flow systems rely on tight integratation with routine clinical practice, empowering clinical teams to capture information at the patient's bedside. The mobile capture and sharing of critical data – such as patient observations, clinical noting, EDD, Home Today and Red/Green day – can help automate clinical pathways, identify and escalate deteriorating patients, inform early discharge planning and expedite TTOs and transport requirements. Real-time visibility of these important patient-level data sets – and many more – can facilitate quicker operational decisions and unlock flow. Crucially, it also strengthens a trust's performance against clinicians' number one priority: patient safety.

All of these attributes typically go beyond the scope of basic bed management solutions, whose remit is often purely operational. The most effective patient flow systems have a broader focus beyond bed availability, proving clinical workflow tools that help accelerate progress – and protect patient safety – all the way through the pathway. These include:

- **Automated triggers to inform workflow and manage standard pathways like sepsis and AKI**
- **Visibility of real-time bottlenecks and delays, enabling operational resources to be deployed to the most appropriate areas**
- **Porter and cleaner management to accelerate patient transfers and bed turn-around**
- **Mobile referrals to specialists, therapy services and discharge to assess teams**

#4. Don't overlook the clinical context: connect everyone and everything

NHS Improvements' 2017 Best Practice Guide, 'Focus on Improving Flow', rightly describes flow as a 'team sport'; it requires collaboration across the multidisciplinary care team, connecting multiple sites, community partners and diverse stakeholders in the ICS or STP. Although the majority of Control Centres have, at present, been adopted in acute settings, solutions must – in time – be able to scale to function across whole care systems. The most progressive trusts are already collaborating with community partner networks, extending system access to unlock greater visibility and facilitate more proactive discharge planning with social care providers. This is helping to reduce bottlenecks and free up capacity.

However, the concept of 'team play' begins in the hospital. To be most effective, Control Centre models must combine clinical and operational inputs. In an endeavour to improve operations, it's easy to overlook the clinical drivers of flow and focus solely on the nuts and bolts of bed occupancy and availability. Yet clinical context is the most important driver of all.

Patient flow and clinical safety cannot be considered separately. As a Critical Care Consultant recently said: "Hospitals aren't factories; you can have the most efficient pathways where patients flow perfectly through your facility – but if you fail to notice the sick or deteriorating patients along the way, efficiency is a worthless prize." Optimal flow cannot be achieved at the expense of safety and quality – the three components must work hand in hand.

The best Control Centres will therefore depend on integrated clinical information systems and workflow solutions that help clinical teams recognise and respond to acute needs in real time. Moreover, they'll be configured to escalate pathways and direct clinical and operational teams to actions that can alleviate pressures and unlock flow.

Flow is indeed a team sport. But is starts – and finishes – with patient safety. Control Centre models that fail to capture the clinical drivers of flow will ultimately leave hospitals dangerously exposed.

Time for take-off

The Control Centre model is a sensible direction of travel for NHS trusts grappling the challenges increased demand and limited resources. But the concept is neither futuristic nor new; solutions are already out there and are being embedded in multiple sites all over the UK. Evidence shows they're making a demonstrable difference to flow and helping complex organisations manage capacity and demand. It's therefore no surprise that a growing number of trusts are looking to adopt a Control Centre approach.

The opportunity to bring air traffic control-like capabilities to hospital operations is transformative, exciting and eminently do-able. But for a safe journey, it pays to observe the pre-flight instructions: whatever Control Centre system you choose, make sure the data within it is real-time, clinically relevant and trusted – and leverages mobile technology to connects everyone, everywhere, every day. These vital attributes are the core ingredients of all our solutions at Nervecentre, where we're focused on delivering the Hospitals of the Future, today. We can put your organisation on the flightpath to safer flow. So climb on board, fasten your seatbelts and prepare for take-off. Just like air traffic controllers, we'll make sure you land safely, on time and in the right place.