A Practical Approach to Transforming Emergency Care, Non-Elective Patient Flow & Operational Performance

GE Healthcare Finnamore

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Transforming Emergency Care, Non-Elective Patient Flow & Operational Performance

Introduction

In the last 10 years, GE Healthcare Finnamore (GEHCF) has assisted many healthcare organisations to address challenges in care delivery, patient flow, capacity management. More recently, the focus has shifted from one of inpatient bed capacity and RTT improvement, to include a specific focus on urgent care and emergency flow.

This paper describes the successful and innovative approach taken by GE Healthcare Finnamore to support healthcare organisations in transforming urgent care, emergency flow and operational performance - achieving safe, sustainable and efficient care delivery.

GE Healthcare Finnamore is a leading specialist health and social care consultancy dedicated to improving people's health and well-being through the clients whom we serve. Our personal approach to consultancy is backed by one of the world's greatest companies, GE, whose legacy of innovation and leadership spans back to 1878.

Our team of 70+ healthcare consultants combines local agility, independent-thinking and responsiveness with GE's scale, world-class leadership, and technology base. We are relationship-focused and outcomes-driven, flexing our approach every time to provide just what our clients need.

Our unique combination of capabilities makes us a potent long term partner for health and social care:

"No one else can do all of this", (Sir Andrew Cash, CEO, Sheffield Teaching Hospital NHSFT)

Background

The national target set in 2010 is for 95% of all patients attending ED in the UK to spend no longer than 4 hours in the department. The 4 hour target is a highly visible and recognised performance indicator for hospitals across the country.

Research consistently shows that delays in ED are the most important area of improvement to patients; it is well known that extended waits in ED lead to compromised patient safety and patient experience. The “front door” is a critical pressure point in the acute care system and staff are also affected by inefficient flow, congestion and pressure to avoid breaches. Many adverse effects have been demonstrated to result from prolonged delays including adverse clinical outcomes, poor staff recruitment and retention, increased violence against staff, upstream and downstream impact,

Whilst many government policies and initiatives have supported a reduction in the waiting time for patients in the ED, hospitals all over the country have struggled to meet the 4 hour target. The deterioration was particularly notable towards the end of 2014 which saw the highest A&E waiting times for a decade. Despite this mounting pressure, many Trusts find themselves simply unable to shift the needle.
Accept the facts

- **ED performance is continuing to deteriorate** - Since the ED 4 hour target was relaxed from 98% to 95%, the proportion of patients waiting longer than 4 hours to be treated has risen from 2% to nearly 7.4% in Q3 ’14/’15. That’s over 410,000 patients waiting longer than 4 hours in ED in Q3.

- **Deterioration is worse for major ED units** - where >14% of patients wait longer than 4 hours.

- **Attendances have risen** - by over 30% in the last 10 years. This is predominantly driven by increase attendance at the more accessible (type 3) units such as walk-in centres and minor injuries clinics (up 114%) whereas type 1 attendance was up 12% over the decade. In all cases, demand continues to grow.

- **More patients are admitted** - admission rates have increased, as complexity and demographic (age distribution) has changed.

- **More admitted patients breach in ED whilst waiting for a bed** - the proportion of patients waiting longer than 4 hours in ED after the decision to admit, whilst waiting to for a bed, has increased by 8.9% increase on last quarter. Whole hospital flow is an issue, not just ED.

- **Not everyone who attends ED needs treatment** - around 40% of patients who attend ED are discharged without requiring treatment. This suggests that a proportion, but not all, of these patients could be more appropriately cared for elsewhere. (Recent studies suggest around 15% of the 40%)

- **There is no evidence to suggest that GP access may be driving increased attendances** - whilst there is a suggestion that poor GP access may be driving up A&E attendance levels, there is no clear evidence to support that, nor that out-of-hours service changes have exacerbated this situation. In fact, most people go to A&E during working hours. There is however some evidence that younger people in particular are less likely to want to wait for care and more likely to assess the urgency level of their conditions as requiring ED treatment

- **Access to some types of care in the community has decreased** - other forms of care in the community, such as district nursing, has decreased in recent years and this may have had an effect.

- **Staffing levels and mix are a factor** - evidence suggests that it is becoming increasingly difficult to attract trainees to emergency medicine. This places increased pressure on those experienced doctors in post. The total number of ED doctors has increased over the last decade, but achieving the right combination of staff, available at the right time is the challenge for most hospitals.

- **Inpatient congestion is increasing** - the increase in emergency activity and admissions is creating greater pressure on the inpatient bed base in hospitals that are often already operating at or above 90% occupancy (some above 100%). This stifles patient flow and ultimately prevents timely admission of patients from ED.

- **Delays in the discharge process reduces flow even further** - the majority of discharges still take place after midday, whereas the admissions take place in the morning and throughout the day – this mismatch leads to avoidable intra-day congestion. Added to this, the rate of delayed discharges of patients who are medically fit to leave hospital is increasing, leading to further congestion. This suggests that changes to out of hospital care provision will be required to redress the balance

- **Delayed discharges are not only an acute problem** - naturally, a proportion of delayed discharges (65%) are attributable to the NHS (caused, for example, by delays in accessing community or mental health services) and this has risen in recent years. Around 20% is attributable to social care and this has fallen recently. The remaining ~15% is attributed to patient or family choice.
Apply some fundamental principles

The GEHCF team have amassed experience and expertise in healthcare improvement across hundreds of programmes with the NHS in the last 20 years. We combine our proven improvement methodologies with deep clinical expertise and advanced analytical techniques to help organisations devise solutions and deliver sustainable improvement and front-line change.

Often the ‘goal statement’ is quite clearly articulated:

- “Help us get our ED performance above 95% and keep it there”
- “Help us reduce emergency admissions by 5%”
- “Help us manage Winter better this year by releasing beds to enable surge capacity”

These statements provide clarity of purpose and direction which is important, but the underlying “problem” is far from simple and this leads to some fundamental features in our approach.

A system-wide problem requires a system-wide solution. Although the 4 Hour threshold is referred to as the “ED target”, and breaches occur in the ED, and many Trusts refer to an ED performance problem.....the solution rarely resides solely in the ED. The ability to achieve 95% performance is a function of the whole of the emergency care system – throughout the hospital and upstream and downstream of the hospital.

Characterising and quantifying the components of the problem is critical. You can’t improve what you can’t measure. The ED performance measure is actually an aggregate measure of multiple types of non-elective flow and patient cohorts. Majors, minors, urgent care, ambulatory care, adults, paeds, admitted and non-admitted patients are, quite rightly, streamed when they arrive at ED and the performance of each stream is different. The complex interplay between elective and emergency demand and their impact on patient flow needs to be recognised and understood.

Operational solutions must be underpinned by recognised clinical standards and evidence-based best practices in emergency care. ED performance is often seen as being a purely operational problem. “It’s all about management, process and systems”. But in fact, there is a strong clinical component in both the problem and the solution. The target itself exists to ensure good quality care and clinical outcomes for the patients. Safe, efficient and sustainable patient flow requires the right levels of clinical decision-making at the right time in the patient journey – for every patient. This in turn depends on good clinical practice and the appropriate staffing mix and level to support the care model.

Boundaryless thinking should be applied to the patient’s journey, challenging and eliminating the roadblocks to efficient patient flow. Assuming that the problems lie within units or departments is folly. In fact, many of the system blockages reside at the points where transitions of care occur – i.e. between departments and care settings. Take for example delayed discharges – often the acute hospital will identify a patient as medically fit & ready to be discharged but the community or social care providers are unprepared or unaware that the patient is approaching discharge until the last minute.

Adopt proven improvement methodologies, delivered by experienced improvement practitioners. Nothing will change unless something changes. So no amount of planning, analysis or discussion will improve patient flow or reduce waiting times in ED. Complex process redesign - adjustment to clinical models, altered operational protocols, modified staffing patterns and streamlined information flows - requires the application of robust improvement methodologies by experienced practitioners.

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1 Lean Six Sigma, CAP™, WorkOut™, leadership, coaching & facilitation.
2 Modelling, simulation, predictive algorithms and business intelligence.
3 Boundaryless Patient Flow is an approach developed by Mark Ebbens which targets the transitions between care settings to enable flow.
Analytical techniques such as modelling and simulation can be used to unravel the complexity and guide improvement efforts. Healthcare organisations don’t see averages. Despite the inherent variability, complexity and interconnectedness of healthcare systems, the operating models are still designed and planned around averages – average LoS, average demand, average procedure length, average cost, average staffing. To design a clinical and operational model which will reliably and sustainably deliver safe and efficient care requires a more sophisticated approach. Advanced analytical techniques can be used to build a realistic and robust simulation model of the hospital or healthcare system – incorporating all of the real-life variability and interdependencies. This in turn allows scenarios to be tested, factors to be optimised and trade-offs to be made before making improvement decisions.

Apply rigorous programme management and leadership to drive system-wide improvement. Multi-agency improvement programmes are big, ugly and difficult. Despite the best efforts to integrate health and social care and work in a coherent and systematic way, there are still many barriers to effective multi-agency working, particularly when financial incentives are sometimes conflicted. We have already established that improvement in ED performance and emergency care requires a system solution, it follows that a system-wide programme of change is required to achieve this. In our experience, independent programme management across the organisations involved is vital to maintain focus, direction, momentum and rigour.

Don’t underestimate the need to engage staff and support them throughout the change journey. Finally, we know, from many years of delivering improvement across hundreds of programmes in the NHS, that change is uncomfortable, sometimes painful, for those involved. Without due care and attention being paid to the personal change journey that all staff will have to make during a programme such as this, there is risk that the improvement will be superficial and short-lived. For this reason, GE has developed, refined and applied its Change Acceleration Processes (CAP) over the last 25 years to apply to major programmes of improvement wherever they take place. These tools and techniques take skill and experience to apply, but it is notable from the feedback we received from the people we work with that this is one of the key differences and success factors that we bring to the programmes we deliver on behalf of our NHS clients.

In summary, our programmatic approach is based upon the following principles:
Be systematic and methodical – there is no silver bullet

At GE, we apply rigour and discipline to all improvement activities. By following a methodical framework for improvement (i.e. Define, Measure, Analyse, Improve and Control\(^4\)) and by being systematic in the way in which improvement efforts are prioritised and delivered, we can ensure success. Experience shows that - for improvement programmes of this scale, complexity and duration - lack of direction and structure lead to shotgun efforts to fix everything, without solving the underlying root causes.

<table>
<thead>
<tr>
<th>A Systematic and Methodical Approach – key features</th>
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<tbody>
<tr>
<td><strong>Define</strong></td>
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<tr>
<td>• Be absolutely clear on the problem and goal with defined KPI's, success criteria and timeline</td>
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<td>• Formally charter the programme including sign-off on resources, team and exec sponsor</td>
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<td>• Assemble a programme team with the necessary subject matter expertise and seniority</td>
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<td>• Plan-out the intended improvement phases and communicate</td>
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<td>• Create a high level process map with clear start/stop points, identify customers &amp; suppliers</td>
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<td>• Establish a performance dashboard to provide a highly visible, single source KPI summary</td>
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<td><strong>Measure</strong></td>
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<td>• Walk the process like a patient. Carry out process observations and stakeholder interviews</td>
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<td>• Collect sufficient data to characterise the process &amp; sub-processes including:</td>
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<tr>
<td>• Operational process performance data</td>
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<td>• Sub-process cycle times vs recognised benchmarks or targets</td>
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<td>• Day-of-care audit data (ED and Inpatient)</td>
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<td>• Outcomes data (e.g. admissions rates, readmission rates etc.)</td>
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<td>• Validate data collection and reporting accuracy</td>
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<tr>
<td>• Construct a baseline simulation model of the process or system.</td>
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<td>• Carry out current state value stream analysis – quantify process efficiency and identified waste</td>
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<td>• Quantify the current performance and variability and the improvement required</td>
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<tr>
<td><strong>Analyse</strong></td>
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<tr>
<td>• Use the simulation model to highlight bottlenecks, capacity constraints, congestion peaks etc.</td>
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<td>• Analyse root-causes of variability and sub-standard performance</td>
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<td>• Identify critical drivers of process performance and variability</td>
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<tr>
<td>• Develop future state value stream map</td>
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<td>• Prioritise improvement opportunities based on impact vs effort</td>
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<td><strong>Improve</strong></td>
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<td>• Carry out a series of improvement activities appropriate to the scale of the improvement:</td>
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<tr>
<td>• PDSA cycles and JDI's(^5)</td>
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<td>• Rapid improvement WorkOuts(^6)</td>
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<td>• Lean Kaizen projects</td>
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<td>• Clinical quality improvement projects</td>
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<tr>
<td>• Wholesale operational reconfiguration</td>
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<td>• Implement evidence based clinical best practice</td>
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<td>• Stage improvements and implement measures on the improvements themselves &amp; the output</td>
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<tr>
<td>• Validate the improvements before &amp; after implementation using the simulation model</td>
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<td><strong>Control</strong></td>
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<td>• For each area of improvement, ensure the following are compiled and implemented:</td>
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<td>• Control plan (including FMEA(^7) if reqd.) – includes SOPs, protocols, policies and governance</td>
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<td>• Follow-up action plan (to track improvement action items which are to be completed)</td>
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<tr>
<td>• Communication plan (to ensure improvements are well understood and accepted)</td>
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<tr>
<td>• Modify simulation model to represent new current state and review further opportunities</td>
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<tr>
<td>• Add improvement data measures to the performance dashboard adding granularity &amp; insight</td>
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<tr>
<td>• Monitor progress and apply continuous improvement philosophy</td>
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\(^4\) Define, Measure, Analyse, Improve, Control (DMAIC) are the phases of the Six Sigma improvement methodology
\(^5\) JDI stands for “Just Do It” when referring to easily implementable improvement ideas
\(^6\) WorkOut\(^{TM}\) is GE’s proprietary rapid improvement approach
\(^7\) FMEA is a Failure Mode and Effect Analysis which highlights where improvements may fall down & plans to mitigate the risk
Break down the problem – link all improvement schemes to strategic goals

With such a large scale transformation programme – there is no room for schemes or projects which do not align to the high-level goal. They consume time, money & resource and distract from the main effort.

With this in mind, and accepting that we have a robust framework for change to work within, we aim to break the problem down to understand the key drivers of variation and/or performance that affect the overall goal of the system. To do this, we use a driver diagram or “focussed problem definition tree” to confirm the key activities within scope of the programme and ensure they will impact the overall goal.

The goal of any healthcare system is to deliver safe, efficient care – sustainably and consistently. The main contributing factors are shown below:

Provided the clinical governance, standards, practices and models conform to evidence-based best practice & guidelines, then we would focus on the drivers of poor flow (which lead to excessive delays & waiting and inefficient care delivery). The drivers naturally fall into 3 areas of improvement activity:
Choose your battles

The scorecard below is an example of how ED performance in a Trust was characterised by patient flow type, location and time of day (in-hours, out-of-hours) to monitor performance of the various components in the system:

Establishing visible, undisputable reporting of the ED performance, flow, capacity and demand immediately encourages the collective questioning - “how are we doing?”, “why are some areas not performing?”, “what is the story behind the numbers?”, “how can we fix that?” Looking at this kind of granular breakdown of performance every day establishes trends and patterns in people’s minds – and in so doing, naturally focuses the attention on targeted improvement.

Further drill down enables root-cause analysis and an even tighter focus on the key drivers and can lead to a cluster of improvement activities aimed at a particular KPI.

Weekly trends can highlight patterns relating to weekends, staff rostering, patient arrival patterns or interaction with elective flow.

Segmenting the patient journey into recognised segments allows cycle time analysis vs recognised benchmarks. (E.g. registration to triage of less than 20 mins, Triage to A&E doctor assessment of less than 40 mins)

Monitoring attendance patterns alongside the performance can help to eliminate the sometimes misleading suggestion that front door demand is causing congestion in ED. (Whereas that is often not the case)
Don’t get stuck in the weeds

The detailed and granular analysis of data is absolutely necessary to understand where problems lie at a micro-level, but is like having your microscope constantly on 100x magnification. It is vital to maintain a system perspective and to zoom-out in order to understand interactions, dependencies and flow.

When depicted diagrammatically, the complexity of emergency flow becomes more apparent, and the need for a system-wide programme of improvement to effect sustainable improvement becomes clear.

This “wiring diagram” view of the system is rarely fully understood by those in the midst of it. This is both an insightful and engaging way to get staff talking about the flows of patients around the system, where bottlenecks exist and how complicated we can make things for ourselves.
Use data & analytics to quantify benefits and prioritise efforts

In addition to using robust quality improvement tools and statistical analysis to understand the past, there are some innovative features of our approach which help to understand the future.

GE uses sophisticated modelling and simulation techniques to create an accurate depiction of the real demand, capacity and flow within the system, including the variability, interdependency & seasonality - uncertainty factors commonly overlooked in everyday analysis.

The flow rate in any system is determined by the constraint or bottleneck (ref. Theory of Constraints). It follows then that the flow of patients through the emergency pathway will also be determined by the constraint at any point in time, but there are many possible constraints and the bottleneck varies by season, month, week, day and hour.

Simulation modelling allows constraints and bottlenecks across the system to be identified and quantified – enabling strategies to be employed to address them. It allows improvement scenarios to be tested, and escalation triggers defined to enable capacity, resourcing and patient flow to be managed differently dependent on the level of congestion in the system. This powerful method is applied to the entire emergency care pathway – identifying the performance levers, sizing capacity requirements and matching resources to demand, thereby ensuring that efforts are 'laser-focussed'.
Establish your golden rules for efficient patient flow

The measure and analyse phases of our approach have quantified, modelled, simulated and observed all aspects of emergency flow across the system. We also have a good understanding of the key drivers of inefficient patient flow.

From this understanding, both of theory and practice, it is possible to define some “Golden Rules” of efficient patient flow. When linked to the impact they have – it becomes an accessible and practical aide-memoire to those directly involved in the process. (Note: this list is not exhaustive or exclusive – it is applicable to most if not all acute hospitals in the UK, but can be nuanced of course)

<table>
<thead>
<tr>
<th>Golden Rules</th>
<th>Impact</th>
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<tr>
<td>Get people home or to their next destination safely and quickly</td>
<td>Eliminating downstream congestion and delays - a key enabler of flow</td>
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<tr>
<td>Stop people coming in inappropriately and redirect them to a better place</td>
<td>Minimise inappropriate admissions - reduces demand on system</td>
</tr>
<tr>
<td>Actively manage Length of Stay – “delay busting” internally</td>
<td>Removes process blockages and delays – another key enabler of flow</td>
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<tr>
<td>Understand, minimise and manage variation</td>
<td>Unwarranted variation kills flow - demand variation, activity variation, capacity variation</td>
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<tr>
<td>Optimise capacity as far as possible – space, staffing, skills, equipment etc.</td>
<td>Ensure that space, staff and expertise does not become a constraint to flow</td>
</tr>
<tr>
<td>Promote operational rigour - we cannot afford errors or rework</td>
<td>Right first time – using standardisation, SOPs, protocols and metrics to ensure safe, reliable and consistent processes</td>
</tr>
<tr>
<td>Communicate operational and clinical information effectively to support flow</td>
<td>Provide the right information to the right people at the right time to support the right decisions – must be expedient, widespread, visible and accurate</td>
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<tr>
<td>Ensure clear and visible process leadership</td>
<td>Provide direction and behaviours which support safe and sustainable patient flow – requires accountability and clear roles and responsibilities</td>
</tr>
<tr>
<td>Practice continuous improvement</td>
<td>Look for ways to improve flow every day through – routinely reviewing performance and problem-solving collaboratively and constructively</td>
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Having these rules in mind is one thing – but they can be somewhat aspirational or theoretical if there is no appreciation of the gaps that exist between the “to be” and “as is” situation.

For this we spend time observing the process, “walking in the patients’ shoes”, and understanding all of the interactions, processes and operating mechanisms which support the patient’s progression through the system to the point of discharge home. This is value stream analysis and is a powerful tool for understanding how we add value to a patient as they move through our highly complex process.

Issues and ideas for improvement are captured day by day and posted for all staff to see and to contribute to the list. This engaged the staff in the change process and gave an opportunity for their voices and those of some of the carers coming through the department to be heard.
Tap the brains of your people – amass all the improvement ideas

Engaging with the frontline staff, patients, managers, clinicians and the Trust leadership enables the main issues to be brought to light – as part of the value stream analysis and by brainstorming the root-causes and barriers to achieving the “golden rules” of efficient patient flow.

The ideas are then prioritised based on impact vs effort to arrive at a blueprint for change and improvement. This blueprint is then turned into a logical improvement programme plan which is phased both in terms of time horizon (e.g. short-term, medium-term and long-term) and the sequence in which improvements are delivered (e.g. work to decongest and unblock the system whilst also working to make the system capable of operating at the required pace, once flow is enabled.)

The programme plan, by necessity, will be multi-phased and is normally divided into workstreams, each led by dedicated improvement leader. Each workstream comprises a sequence of improvement events, PDSA cycles, workshops, process redesign & embedding of the change.

Using daily, weekly & monthly metrics, the impact of changes can be assessed against the overall goal of the programme.
What’s on the menu?

The workstreams or schemes required and the interventions, improvements and fixes that sit within them will vary – case by case. Each Trust and the health economy, within which it sits, will have their own particular sets of challenges. So to be prescriptive about a “recipe for solving ED” would be inappropriate and folly.

However, most health systems in the UK that are feeling the pressure of deteriorating ED performance, poor patient flow, inadequate urgent care models or inappropriate care models will recognise the following illustrative menu of workstreams and interventions:

<table>
<thead>
<tr>
<th>Scheme/Workstream</th>
<th>Typical Focus Areas</th>
<th>Expected Impact</th>
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<tbody>
<tr>
<td>Attendance avoidance</td>
<td>• Community in-reach models&lt;br&gt;• Frequent flyer analysis &amp; reduction&lt;br&gt;• NHS 111 and out-of-hours service design&lt;br&gt;• Community based ambulatory care&lt;br&gt;• GP single point of contact to route patients to right service</td>
<td>Reduces attendances at ED.</td>
</tr>
<tr>
<td>Admission avoidance</td>
<td>• NHS Standards&lt;br&gt;• Royal College Standards&lt;br&gt;• Senior assessment following triage&lt;br&gt;• Hospital-based ambulatory care&lt;br&gt;• AHP and social care in-reach to ED</td>
<td>Reduce admissions.</td>
</tr>
<tr>
<td>Front door care model design</td>
<td>• Model for GP-led urgent care centre&lt;br&gt;• Majors light model&lt;br&gt;• Rapid Assessment &amp; Treatment models&lt;br&gt;• Effective streaming</td>
<td>Deliver high quality, safe care in an efficient manner. Minimises delays in decision-making and treatment.</td>
</tr>
<tr>
<td>In-ED process Improvement</td>
<td>• Operational and clinical co-ordination&lt;br&gt;• Layout and visual management&lt;br&gt;• KPI and milestones for patient journey&lt;br&gt;• ‘Real – time’ performance information – ‘how are we doing today?’&lt;br&gt;• Clear streaming and flow&lt;br&gt;• Surge and escalation protocols</td>
<td>Minimise waste and delays in patient journey through ED, thereby reducing likelihood of a breach.</td>
</tr>
<tr>
<td>Support services redesign</td>
<td>Agreed demand profile and service level agreements for: &lt;br&gt;• Pathology&lt;br&gt;• Radiology&lt;br&gt;• Transport &amp; Portering&lt;br&gt;• Equipment&lt;br&gt;• Pharmacy</td>
<td>Minimise waste and delays in patient journey through ED, thereby reducing likelihood of a breach.</td>
</tr>
<tr>
<td>Assessment unit structure</td>
<td>• Dedicated assessment units for medicine, surgery, paediatrics, Care of the Elderly plus ambulatory assessment provision for each as appropriate</td>
<td>Ensure flow out of ED is not constrained and manage short stay admissions effectively.</td>
</tr>
<tr>
<td>Specialty interaction and support</td>
<td>• Rapid response by specialty to referral from ED [7-day SLA with agreed escalation process]&lt;br&gt;• Clear referral protocols&lt;br&gt;• Admission direct to specialty unit where appropriate, by-passing ED</td>
<td>Minimise waste and delays in patient journey through ED, thereby reducing likelihood of a breach. Potentially avoids admissions.</td>
</tr>
<tr>
<td>Staff resources</td>
<td>• Skill mix&lt;br&gt;• Staff ratios&lt;br&gt;• Matching staff to demand [rostering]</td>
<td>Maintains safe and efficient care. AVOIDs congestion due to excessive patient waits in ED. Absorbs surges in attendances.</td>
</tr>
<tr>
<td>Bed management processes</td>
<td>• Prioritised bed request and allocation process&lt;br&gt;• ‘Real time’ visibility of entire bed state&lt;br&gt;• Smoothing inpatient flow&lt;br&gt;• Maximising inpatient capacity utilisation</td>
<td>Ensures inpatient flow is maintained and that admitted patients are moved expeditiously from ED to a bed as appropriate.</td>
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</tbody>
</table>
### Simple discharge management
- DTA to Admit to bed cycle time reduction
- Responsibility for bed management devolved to high performing specialties
- Effective and efficient 7-day board rounds
- Effective and efficient 7-day ward rounds
- Ward round task management to support discharge.
- Balance discharge curve across the day
- Maintains safe and expedient discharge of patients. Minimises intra-day congestion. Maintains inpatient flow.

### Complex discharge management
- DTOC management
- Discharge to assess models
- Joint assessment and discharge models
- Maintains safe and expedient discharge of patients requiring continuing care. Minimises congestion. Maintains inpatient flow.

### Clinical quality and models of care
- Implementation of Royal College Standards for:
  - 7 day working
  - Assessment units
  - ED provision and functioning
  - Improvement of access to senior decision-making.
  - Improved patient safety.
  - Right decision first time.

### Operational drum-beat & mechanisms
- Operational control room with daily drum beat. (Capacity/flow “hub”)
- Daily flow meetings engaging clinical staff at appropriate times
- Communication of ED status and bed availability data, real time
- Predictive data to plan day & across the week
- Maintains operational grip. Engages staff in flow as safety issue. Effective planning and control.

### Management information
- Real-time performance information accessible to Service Line Leaders
- Suite of daily and weekly operational reports pushed to Service Line & Executive leaders
- Agreed suite of measures across the system

### Matching capacity to demand
- Plan elective and emergency capacity in concert
- Ensure staffing meets demand
- Ensure support services meet demand

### System resilience
- Surge planning & protocols
- Winter resilience plans
- Ensures system remains safe and stable in the face of adverse surges or variability in demand or activity.

### Community & Social Capacity
- Optimise availability and appropriateness of downstream beds/care settings
- Establish clear processes and protocols for assisting patients through transitions of care
- Minimises downstream congestion

### eReferrals
- Single Point of Referral
- Section 2 and 5
- Single MDT documentation
- Directory of Services
- Maintains safe and expedient discharge of patients requiring continuing care. Minimises congestion. Maintains inpatient flow.

### TTOs
- TTO Process Redesign
- MDT roles and responsibilities
- TTO tracking and visibility
- Maintains safe and expedient discharge of patients. Minimises intra-day congestion.

### Delegated Discharge
- Educational awareness
- Protocol development
- Implementation through pilot wards
- Maintains safe and expedient discharge of patients. Minimises intra-day congestion. Maintains inpatient flow.

### Therapies
- Acute and Community Therapies
- Accept and transfer process
- Ordering equipment
- Links with social care
- Maintains safe and expedient discharge of patients requiring continuing care. Minimises congestion. Maintains inpatient flow.

### Community In-Reach
- Targeted input to ‘frequent flyers’
- Access to clinical information
- Educational awareness campaigns
- Maintains safe and expedient discharge of patients requiring continuing care.
Keeping all the plates spinning

It is inevitable that there will be multiple workstreams, schemes and interventions that span the entire system and involve many partners and agencies, as well as multiple departments/divisions within the hospital itself.

This requires effective programme management and governance. Schemes must be tracked and reported, scheme leaders must be accountable, benefits must be measured and rolled-up and action taken if schemes are either not delivering, or off track.

Having a PMO function, operating at Trust level or ideally across the whole health and social care system, is important to provide the glue which holds the whole programme together. The PMO function ensures governance and accountability and provides a vehicle by which to maintain momentum. It ensures executive level involvement in enabling the programme of change to be successful.

The PMO function supports the Urgent Care Board in ensuring that all the “plates keep spinning”. The board itself, has to be effective, and for this we would develop a programme board terms of reference.

Alongside the Board Terms of Reference there needs to be a plan to embed and sustain system resilience schemes.

An annual calendar ensures that the plan is refreshed and ahead of winter each year. (Winter pressures are an annual event!)
Feeding the hungry beast

Since pressure on ED performance, quality of care, capacity utilisation and waiting times is increasing, many Trusts are under ratcheting levels of scrutiny. It follows (unfortunately) that there is a need to satisfy a wide number of senior stakeholders with reports, data and narrative to describe the action taken by the health economy to address these challenges. This is a necessary part of demonstrating that the system is in control and generating confidence in the steps being taken to improve, but can be time consuming and distract valuable resources away from the task of improving the situation.

Below are examples of our approach to reporting and managing the PMO side of a major emergency flow and performance programme. These reports supported weekly Operational Resilience programme board meetings and monthly System Resilience Group meetings for the whole health economy – ensuring that schemes were tracked, owners were accountable, and senior executives were briefed on a daily basis – equipped with the information to share further up the food chain.

Establishing clear scheme goals, KPIs, trajectories and progress tracking enables the programme board to govern and manage effectively. Typically each meeting would be minuted and clear actions and owners allocated to ensure progress is maintained and actions are closed out.

Note: It is vital to have ‘one single version of the truth’ which is communicated by the leaders within a health economy – performance measures must be consistently and reliably reported - having a single PMO to own this is valuable. This removes ambiguity, confusion and promotes confidence that the system has a grip of the issues and the solution.
Playing the odds – maximising the chances of success

A programme of this magnitude is of great strategic importance to the Trust and that the investment is external support is unlikely to be insignificant. Therefore it is vital that the improvements are not only immediately effective, but also sustained and continuously improved upon.

In our experience, there are key success factors which will ensure that the programme has the desired outcomes:

Executive Sponsorship and Senior Level Commitment

- Visible and high impact sponsorship from senior leaders and clinicians.
- Communicate to everyone, with energy, that the programme is highly important.
- Ensure sufficient funds and resources are assigned.
- Honour all deadlines and complete all actions in a timely manner.

Early Successes/Quick Wins

- Get immediate traction through some early successes.
- Communicate these successes widely to generate momentum.
- Ensure quick wins align with the larger, longer term goals?

Excitement

- The programme leader and sponsor must maintain high levels of personal enthusiasm.
- The project team must also visibly show its excitement & enthusiasm.
- This excitement should be broadly communicated via words & action.
- Emphasise that this is an opportunity to address long-standing problems.

Resources

- Adequate resources and time must be committed throughout programme.
- Any resource gaps need to be identified early and quickly resolved.
- Resource allocation and timing should be linked to the programme life cycle.

Integration with other Initiatives

- Understand what adjacent initiatives are under way and where links exist.
- Address any overlap or conflict positively and clearly.
- Anticipate what impact the project will have on Trust “systems & structures”.

Learning from Experience

- Understand all improvement initiatives that have gone before - what worked, what didn’t.
- Build on prior analyses, “tests-of-change” and expert knowledge.
- Encourage the project team to leverage and adapt best practices.

Staff & Patient Engagement

- Ensure that key staff - including senior clinicians - are engaged throughout.
- Provide regular, informal communication to wider staff groups.
- Establish the means and extent of patient involvement at the outset.

Operationalise Successful Changes

- Once proven through try-storming® improvements should be locked-in.
- Amend SOPs/protocols to make the improved process “business-as-usual”.
- Establish clear, open and visible KPIs/Metrics to monitor performance.

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Try-storming is GE’s term for rapidly piloting improvement ideas, often called “tests-of-change”.

Partnering for Success

At the end of March 2015, the GEHCF team completed a major 12 month programme of emergency flow and ED performance improvement at a troubled Trust near London. We had the opportunity to review with our clients what had made the programme so successful in terms the way GEHCF and the Trust worked together on this tough programme of change. The conclusions are shown below, with reference to the 7 Success Factors for Change in the NHS, as described by the Health Foundation:

What the Trust needed from GEHCF (external expert support):

- A strong, dedicated, tenacious team – invested in the client and patient outcomes, sleeves rolled-up – resources and support to do the work of change
- Proven methodologies and approaches (including analytics and knowledge of clinical best practices) – management practices that ensure execution and implementation
- Deep expertise and experience in healthcare – capabilities & skills to identify & solve problems
- Data-driven, visible metrics and KPIs to show progress, analytics to optimise solutions – data and analytics to measure and communicate impact

What GEHCF needed from the Trust:

- Very strong executive sponsorship – committed and respected leadership
- Willing, engaged staff, both operational & clinical – a culture hospitable & supportive of change
- Hard-edged front-line leadership to help embed new ways of working plus a belief that it could get better – an enabling environment that supports and drives change

But what is missing from these 7 Factors for Successful Change, is the essence of why working with an external partner can be so powerful. At this particular Trust, the GEHCF team quickly earned their trust through the quality of our people, our knowledge and expertise and our investment in their goal to improve – this in turn meant that we focussed collectively on climbing the mountain and navigating all of the landslides and boulders that fell on us, flexing and adapting to the needs of the Trust.

What did “partnership” mean for GEHCF and the Trust:

- We had a trusted relationship – the Trust had faith in our judgement, guidance and direction – a trusted partner with proven capabilities
- We were flexible and adaptable to the evolving needs of our client – whilst remaining focussed on the goal – agile and adaptive
- The Trust liked us – we built strong working relationships with Trust staff at all levels – a high quality, professional and personable team
- The investment case was determined by the value it could provide, not the fees or day rates or grades of personnel – benefits and value focussed – not a product
- We provided external assurance, gravitas, experience and challenge that they could not bring to bear on themselves – it’s hard to be a prophet in your own land
- We brought the expansive capabilities of GE to the table where we could – global modelling expertise for example, analytical tools etc. – we went above and beyond
- We felt as invested in the outcome as the Trust did – we shared the vision and the goal with as much passion and energy – invested in the success of our clients

In partnership we should both have a lot to win if we succeed, and a lot to lose if we don’t. “Skin in the game” is important to make it work. (i.e. sharing risk and benefit)
And Finally…

- Don’t underestimate the scale of the change effort and time involved.
- Expect and plan for some level of resistance to change.
- Don’t take short cuts with the change process – all steps are vital.
- Communicate widely and openly throughout, raise the profile of the effort.
- Be decisive and expedient when problems or roadblocks arise.
- Don’t de-rail the project with distractions or competing priorities.
- Equip the team with the tools and skills they need to make this successful.
- Seek expert external help if necessary – especially seasoned change practitioners like GEHCF
Some of our specialist Patient Flow and Capacity Optimisation Team

Mark Ebbens, BEng (Hons), DBA, CEng, MBB, Senior Partner
- Leader in deploying sophisticated tools and approaches to assist with patient flow and capacity optimisation in healthcare
- Deep experience in helping large healthcare organisations design and deploy transformational change programmes
- 25 years of operational excellence experience, the last decade in Healthcare
- Originator of the award winning boundaryless patient flow approach
- Certified GE Master Black Belt, Lean Leader and six Sigma Specialist

Dr Veronica Devlin MB ChB – Consulting Manager
- 26 years clinical experience in the NHS as a GP and then Emergency Medicine maintaining clinical sessions till 2013
- Highly experienced in patient flow optimisation in acute hospitals, ambulatory care and integrated care.
- A specialist in clinical transformation, pathway redesign using lean methodology
- A member of the Scottish Emergency Access Support Team for six years and served as National Clinical Lead for Emergency Care Pathways for the Scottish Government Health Department.
- An accredited and experienced lean practitioner.

Simon Lanceley, BSc (Hons), MSP, Prince 2 – Consulting Manager
- 4 years as Associate Director of Programme Management & Service Improvement in a large acute general hospital
- 12 years consultancy experience in retail, financial services and the NHS to improve quality, performance and outcomes
- Programme project and change management professional
- Expert in acute pathway redesign, service reconfiguration, opportunity analysis & co-design and implementation of change

Leo Dias, Consulting Manager
- Expert in healthcare systems analysis, simulation and modelling
- Technical lead on numerous patient flow and capacity optimisation programmes in the NHS
- Experience across healthcare settings; primary, acute and community care
- Trained GE Lean Six Sigma Black Belt

Rachel Tustin, MEng (Hons), ACGI, Senior Consultant
- Experienced change leader - acute hospitals, community healthcare, commissioning organisations, social services.
- Particularly experienced in acute patient flow and transitions of care between care settings.
- Has worked in other European health systems, most notably for a private radiology provider in Switzerland.
- Lean Six Sigma Black Belt trained

Jonas Fieldhouse, BSc, Consultant
- 18 years public sector experience within strategy, operations & leadership in the British Army and within the NHS.
- Specialises in change management, strategy and policy development, project management, training and development.
- A highly experienced leader of people, his organisational skills are outstanding.
- A change leader, experienced in whole system emergency flow transformation.

Emily Byrne, Law LLB (Hons), PGc, MSc, Consultant
- Broad experience across public sector organisations including the NHS.
- A graduate from the NHS Management Training Scheme she has gained experience of the management of clinical services and strategic level working at acute trust, community provider and cross-health community levels.
- Particularly skilled in operational management, service improvement and change management.

Alf Theodorou, MSc, BSc (Hons), Consultant
- Has experience of operating across cultures and has worked with over 170 hospitals in more than 40 countries.
- A background in epidemiology and public health.
- Skilled in stakeholder management, collaborative working and organisational change,.

Sudin Konakar, Consultant Analyst
- Extensive experience in data mining, forecasting and predictive analytics
- Strong background in rational, analytical techniques to streamline information & identify strategic opportunities
- Experience in strategy, development, having researched macroeconomic conditions along with company fundamentals to determine strategies based on market conditions

Alison Pang, Consultant Analyst
- Alison has a Masters in Operational Research and Management Science
- Alison has worked on a number of projects which utilised different operational research techniques to develop solutions.
- Alison has built financial models within business plans of two AHSCs, modelled the impact of service reconfiguration and modelled private healthcare markets.
Case Study: Boundaryless Patient Flow  
(HSJ Value Award Winner 2014 for Value in Acute Service Reconfiguration)

Chelsea and Westminster Hospital (CWH) is a high performing acute Trust in North West London that, despite being capacity constrained in terms of inpatient beds, achieves high performance in terms of emergency flow and LoS.

In early 2012, CWH commissioned GE Healthcare Finnamore (GEHCF) to provide specialist support in developing a whole system capacity strategy for the Trust, using sophisticated modelling and simulation techniques, to enable capacity and patient flow improvement. In the meantime, increasing demand and planned reconfiguration across the NW London health economy meant that capacity constraints were becoming a significant factor in maintaining emergency flow into 2013/14 and beyond.

CWH and their community partners, Central London Community Healthcare (CLCH) recognised that a whole system approach was required and that this was a complex undertaking – both in terms of modelling the system and managing a programme which involved many diverse stakeholder groups.

Over the course of the 10 months, the GEHCF team led a programme to deliver whole system change in emergency flow in through CWH and across the associated care boundaries.

GEHCF combined highly sophisticated modelling and simulation tools; proven operational transformation methods; clinical quality improvement methods; workflow technology; business intelligence tools and rigorous programme management practices to enable successful changes and sustainable improvement to take place.

It was this combination of approaches which enabled all of the programme goals to be achieved (>5% reduction in Emergency Admissions and >16 inpatient beds released) and paved the way for sustainable and continued improvement in patient flow.

Project and Approach

CWH and CLCH along with NW London Commissioners jointly initiated the Emergency Care Pathway Programme to improve Boundaryless Patient Flow between their services and GEHCF were commissioned to lead and facilitate the programme.

The Boundaryless Patient Flow programme was established primarily to deliver a reduction in Emergency Admissions to the acute hospital whilst releasing 16 inpatient beds to support Winter surge capacity.

Due to the system-wide nature of improving patient flow and optimising care-giving capacity, GEHCF constructed a programme which spanned primary, acute, community and social care with the intention of improving emergency patient flow within and between care settings.

GEHCF were engaged for 3 key reasons:

1. Their knowledge of the Health & Social Care system, the NW London health economy and the specific challenges faced.
2. Their deep expertise in improvement and change in healthcare.
3. Their innovative and sophisticated approach to modelling and simulating complex healthcare systems to enable focussed improvement and optimisation.
Given that this programme involved a wide range of stakeholder groups and agencies from across the health economy, the first step was to set up a GP led programme board drawing together core members with key partners: London Ambulance, Social Services, and CCG commissioners. The Board shared GEHCF’s vision of a Boundaryless Patient Flow model and each organisation consulted internally to identify key issues and potential solutions from the staff on the ground.

The overall objectives of the programme were agreed as follows:

- Reduce Emergency admissions by 5% on the previous year’s volumes
- Deliver earlier supported discharge and rehabilitation
- Keep patients safely at home

Whilst maintaining high quality clinical outcomes & improving patient satisfaction in emergency care.

Whilst the programme had been initiated and commissioned by the acute hospital, it was clear that to achieve improvement in patient flow across the care settings and enable boundaryless, patient-centred behaviour, then the improvement efforts should focus on those boundaries as well as the flow within the hospital. Taking a whole system view of the emergency flow challenge led the team to ask questions like:

- How do we enable the community provider (CLCH) to have visibility of patients within the hospital that are approaching discharge and are likely to require a package of care in the community? If we can provide that visibility, then can we create “Pull” from the community and therefore reduced delays in discharges and transitions of care (“DTOCs”).
- Can we enable the community provider to intervene at the front-door to divert some those patients that are currently admitting to more appropriate care settings. (“In-reach”)
- Are there cohorts of patients attending ED that could be seen more appropriately in an ambulatory setting or treated more effectively in the community (“Frequent Flyers”)
- Are there models of care, or care setting that could be piloted that will allow patients who are undergoing continuing care assessments to be more appropriately cared for outside of the acute inpatient bed base.

These and many other questions posed during stakeholder engagement sessions ensured that this programme took a system-wide perspective.

This allowed the required operational transformation to be scoped into 4 workstreams with specific goals, whilst ensuring an over-arching view was taken by the programme board, building on the whole patient pathway thinking and ensuring synergies between workstreams:

1) Admission Avoidance
2) Streamline Acute Flow
3) Reduce LoS
4) Community Care Capacity Optimisation and Planning
From the outset, the intention was to use data and information to inform the improvement efforts since healthcare system change is complex, and disjointed or incremental improvements would not have the required impact.

GEHCF therefore used highly sophisticated modelling and simulation tools enabled all the possible capacity and demand scenarios to be tested, compared and quantified throughout the programme. This provided a robust strategy and roadmap for the subsequent improvement efforts, but also enabled ongoing quantification of potential interventions as they emerged during the programme.

A model was built that simulated the end to end patient pathway which provided an understanding of the interconnected impact of change on the whole system. A series of ‘what if’ scenarios were tested in a risk-free environment to stress test and evaluate potential changes, including:

- A&E: Community In-reach team, RAT model, Specialty Pathway redesign
- Ambulatory Care: Rapid access clinics, Virtual Patient list
- Supported Discharge: Nurse Delegated Discharge, Discharge December campaign, Therapies collaboration (acute & community)
- Community: Step up/down beds pilot, Frequent Attenders analysis & case management

Cross organisation working groups led each workstream, which enabled a wider perspective and new ideas to be generated. The approach was underpinned by data analysis and simulation modelling to broaden understanding of the challenge, informing decision-making and prioritisation.

Alongside the improvement efforts, the GEHCF implemented workflow technology (live bed state visualisation) and performance scorecards/dashboards to enable both continuous monitoring of progress, but also to assist in real-time decision making in relation to patient flow.
Outcomes

This overall programme approach supported the improvement in key quantitative indicators achieving:

- A reduction in Emergency Admissions by nearly 6.5% on last year’s volumes (2012/13), which is over 1500 fewer admissions.
- Released 16 inpatient beds for use as surge capacity during the winter period.
- Excess bed days reduced by 30% on last year’s volumes.

Whilst maintaining the A&E 4 hour target at over 98%, and marginally reducing the readmission rate over the same period (Based on CWH 2013-14 Emergency Admission Volumes)

These changes have delivered a significant saving to commissioners and enabled the overall bed base at CWH to be reduced by 13 in Q3/Q4 2013/14.

There were numerous additional benefits felt from whole pathway collaborative working between GPs, CCG, CLCH and CWH and the resulting relationships that were built. The improved visibility of data through the dashboard reporting, data analysis and associated workflow technology also enabled more proactive management of patient care.

Continuing the Improvement

Overall this programme delivered immense value across all organisations involved. We have set a precedent for collaboration between the organisations within this health economy which will be invaluable for ‘Whole Systems’ working and is already being replicated across North West London. The programme has been supported by all parties to continue to a second year of operation, applying the lessons of year one and scaling up impact on the pre-A&E pathway and Ambulatory Care.

Since the programme completed, focus continued on analysing and reducing Delayed Transfers of Care and improved use of inpatient capacity and further improvements have been achieved by CWH and their partners as a result of this work.

Conclusions

A combination of technology, simulation, business intelligence, operational & clinical transformation methods and whole system working made this programme ground-breaking in many respects.

“We engaged with GE Healthcare Finnamore to support us on this strategic programme as they helped to shape the overall vision of achieving boundaryless patient flow across the system. GE not only provided the technical and operational expertise required to achieve the goals, but also provided the glue to pull many disparate stakeholder groups and organisations together into a successful programme. Overall, this has been a very successful partnership and we continue to work together in shaping future efforts around patient flow”

**David Radbourne, Chief Operating Officer, CWH**

“We received high quality and responsive, proactive support from GEHCF whose contribution, particularly to tracking success, was key to the momentum we achieved.”

**Jenifer Allen, Head of Performance, CWH**
Case Study: Emergency Flow and ED Performance Transformation
(HSJ Value Award entry 2015 and MCA Award entry 2015)

In 2013, BHRUT were facing unprecedented challenges in meeting the emergency care and performance standards at their two hospitals (Queens and King George’s) caused in part by difficulties in staffing two full-service Type-1 EDs, intense demand, complex case mix and demographic pressures. (Reduced life expectancy, high deprivation rates, high proportion of single-handed GP’s and one borough with specific challenges with an aging population)

The Trust had not met the 4-hour target performance in ED consistently since 2009 and was in special measures. It faced an environment of increasing regulatory scrutiny, financial limitations, leadership turnover and was one of the lowest performing Trusts in England with respect to ED performance. A CQC inspection in 2013 reinforced the magnitude of the challenges in highlighting five areas of concern: leadership, workforce, emergency pathway, quality governance and outpatients.

In response, a programme was subsequently launched to address short to medium-term sustainable improvements to ensure the system was capable of delivering the required Emergency care and performance. This would lay the foundation for the longer-term reconfiguration and align with strategic commissioning plans for urgent care reconfiguration. The Trust engaged GE Healthcare Finnamore to provide deep expertise in healthcare process improvement, change management, patient flow and sustainability. The Trust’s operational and clinical leaders worked hand-in-hand with the GE team to address improvement from the ground up, as well as at a system level.

Early analysis revealed that insufficient use of information and inaccurate or inadequate data to measure process performance was masking the true extent of the problems in emergency flow. To ensure that patients were placed at the centre of the dialogue throughout, several steps were immediately taken:

- A CEO “Call to Arms”, reinforcing the importance of patient flow for senior clinical and operational stakeholders
- A renewed focus on safety and quality
- Better data visualisation - live data dashboards
- Frontline improvement - revised board rounds and improved discharge management

At the highest level, the Trust goal was to enable safe, efficient and sustainable processes, delivering timely care for patients. The case for change was clear, and so was the challenge - this was a system problem (not just ED) and that required a system solution.

The assembled team (Trust & GE) had a deep understanding of clinical and operational priorities, evidence-based best practice and time-served experience in emergency care. The team set about selecting the high impact interventions to drive the system-wide improvements through root cause analysis and focussed problem definition (Figs 1 and 2).

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9 2013/14 annual average type 1 attendances 208,857, 7th highest demand of ED at all Trusts in England – BHRUT trust data 13/14
Over the course of the programme, the improvement effort extended beyond ED to encompass downstream patient flow and this required some further scoping to manage the scale of the effort.

Fig 1: Understanding the Key Drivers of Poor Patient Flow

Fig 2: Focussed Problem Definition Tree
For each of the primary focus areas, the main challenge was broken down further to enable the improvement work to be focussed and scoped.

Fig 3: Example of focussed problem definition and scoping

Whilst the processes in ED were capable, they weren’t sufficiently robust to cope with peak demand. To understand the current state in great detail, managers, clinical leaders, nursing, support staff, ambulance service and service users from across the emergency pathway contributed to high level mapping exercises using a lean value stream analysis approach. This developed a common understanding of the improvement opportunities and galvanised the wider team in the effort to improve.

It was through these sessions and workshops that new models of care were developed and tested for the ‘Rapid Assessment and Treatment’ of walk-in patients and an innovative approach to non-admitted majors. The primary aim being to:

- Reduce unwarranted clinical variation;
- Improve efficiency and timely access to senior decision-making for patients

The Rapid Assessment model was adopted to include Care of the Elderly consultants directly assessing patients in ED. An adapted model of GP streaming at ED has started in partnership with the local GP Federation ensuring patients were directed and managed in the appropriate care setting.

The GE team worked with the Trust to collect key operational data relating to patient flow and capacity utilisation, and combine this with “Day of Care” audit data to provide insightful analysis into the critical drivers of performance. This focussed the improvement efforts even further, using to characterise patient flow throughout the hospital. (Fig 4)
Using sophisticated tools, real-time observations and close working with the Trust’s staff, the GE team modelled and simulated patient flow through the whole hospital, identifying bottlenecks, constraints, indicators of deteriorating performance and ways to characterise the key performance measures. Various capacity and demand scenarios were articulated and evaluated in a simulated environment and by real time tests of change, thus informing a detailed programme plan segmented by workstream.

Staffing constraints in ED, AMU and UCC were also addressed using modelling tools to align staffing to demand, hour by hour. To make best use of staff resource and limited floor-space, analysis was used to demonstrate the benefits of separating patient flows. An innovative repurposing of ED floor-space achieved geographical separation of admitted and non-admitted patient flows. A system wide analysis of patient flow identified fundamental misalignment of bed demand to availability: peak demand was 4-8pm however 40% of discharges occurred after 8pm.

The ambulatory care unit lacked a unified clinical model and robust data and performance measurement. Productivity and efficiency opportunities were explored, capturing activity data to quantify possible future improvements and to evaluate the impact on admission avoidance.

Visual management and data visibility was improved, using hospital status boards and discharge target performance displayed on each ward throughout Medicine and Elderly Care (Fig 5).

As the programme extended beyond the boundaries of the hospital, it was important to engage the whole healthcare economy in improving patient flow. Therefore, the BHR CCGs established a Winter Operational Resilience programme with GE acting as PMO support. The purpose was to unify and focus efforts across the system and to support ongoing dialogue with agencies such as the TDA and NHS England.

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10 A whole system simulation model was built of the Trust (both hospitals) using GE’s own Hospital of the Future simulation suite.
Fig 5: Sample ED Performance Dashboard

Over the course of a 12 month programme, the 4 hr ED target performance at BHRUT improved from 81 places from 111th in England to 30th in England, and was in the top 10 most improved Trusts in the country. (Fig 6)
This outstanding programme of improvement was dependent on many factors and lessons were learnt along the way as always (Fig 7). From the outset, the GE team engaged directly with the staff, literally rolling up their sleeves and delivering change hand-in-hand with the Trust. In so doing, trust was established and the culture slowly changed from one of “it can’t be done” to one of “what more can we do to improve”.

<table>
<thead>
<tr>
<th>Lessons Learnt</th>
<th>Key Success Factors</th>
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<tbody>
<tr>
<td>• The solution to ED performance does not reside solely within ED, it is a patient flow challenge.</td>
<td>• Strong leadership from the Trust’s emerging Executive Management team</td>
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<tr>
<td>• Sustainable improvement in patient flow (elective or non-elective) is a system challenge.</td>
<td>• Dedication and tenacity from a small group of middle managers and clinicians.</td>
</tr>
<tr>
<td>• Sustainable improvement of this kind takes time – there is no short cut or silver bullet.</td>
<td>• A systematic and structured approach to improvement over the 12 months</td>
</tr>
<tr>
<td>• Working with external partners can be extremely effective if the right team, skills and trust exist and the goals are clear.</td>
<td>• The use of highly visible KPIs and indisputable data to show improvement daily, weekly and monthly</td>
</tr>
<tr>
<td>• Explicitly defining the desired outcome and KPIs for the programme ensures that all efforts are linked to the top level goal.</td>
<td>• Establishing a trusted relationship with an expert improvement partner (e.g. GE) – shared goals for success</td>
</tr>
<tr>
<td>• Even when under extreme pressure and scrutiny, the desire and willingness for staff to improve never waned - but it was vital to share and celebrate improvements – no matter how small.</td>
<td>• A consistent on-site presence from the expert GE team, partnering with the trust at all levels</td>
</tr>
<tr>
<td>• You can’t improve what you can’t measure – but once you can measure it, people become positively engaged in improvement.</td>
<td>• Universal commitment and personal investment in the success of the programme by all.</td>
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<tr>
<td>• Be prepared for sub-standard data - check and double check and then create a “single source of the truth” by which performance is measured.</td>
<td>• Clear communication of the case for change and the goals.</td>
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<td></td>
<td>• A hands-on approach to improvement – engagement of staff in the journey was critical to both the magnitude and sustainability of the change.</td>
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<tr>
<td></td>
<td>• Approaching clinical quality and operational efficiency concurrently ensures that safety, quality, access and cost are all positively impacted.</td>
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Fig 7: Lessons Learnt and Key Success Factors
Setting-up for success and not failure – our recipe for effective change

We believe that to deliver effective and lasting improvement at scale requires more than simply a robust improvement methodology. By researching the nature of successful and unsuccessful change efforts, GE established an approach to improvement which depends not only on a quality solution, but also on the strategic alignment, accountability and acceptance of change.

We follow some very important principles to ensure that change is effective and sustainable:

1. Apply a robust quality improvement methodology to ensure change is well-planned and effectively delivered. This includes clinical, operational, financial and transactional processes, using data and analytics to focus and prioritise improvement efforts.
2. Use proven change acceleration tools to ensure changes are accepted and that staff are involved and committed throughout.
3. Verify that change efforts are aligned to the strategic imperatives of the organisation and keep checking throughout the programme.
4. Make sure that staff members are accountable for the change once implemented, that they own the change and continue to look for ways to improve.

It is likely that to effect real transformation in an organisation will require some degree of cultural change – this begins and ends with the leadership. Strong, visible, executive sponsorship and leadership engagement in change is vital. But even more important is that leaders behave in a way that inspires and empowers all staff to drive positive change – recognising successes and accepting that failures are a valuable part of continuous improvement.

An important part of the way we work with healthcare executive teams and senior staff is the steps we take to develop their understanding of the vital role they play in empowering staff to deliver and embed sustainable improvement.
Accelerating Change – overcoming change fatigue

It is very rare to find frontline staff that really don’t want to improve the quality of care they deliver or the efficiency of processes and systems around them. In fact, in our experience, there is usually a lot of energy and enthusiasm to tap into when change is properly enabled. The key is to give staff permission to change things and then support them throughout the journey.

The challenge is that people find change uncomfortable, or they’ve seen things tried multiple times and failed, or they’ve put their efforts into something which was ill-conceived or poorly managed. Change fatigue is commonplace and endemic in the NHS and many other industries.

In the 1990’s GE developed the Change Acceleration Process (CAP) and its associated tools to address the acceptance aspects of change as the initiative progresses through its phases and to maximise the effectiveness of any solution.

Our improvement practitioners are trained to apply the multitude or CAP tools to facilitate groups of staff through the painful journey of change. Our teams roll-up their sleeves and work alongside staff, hand-in-hand, to show that the most effective solutions and lasting changes are driven bottom-up, not top-down.

When working across multiple staff groups, departments and sometimes across organisations – these tools allow us to build consensus regarding solutions and changes. They build a shared sense of the case for change and the vision of what success looks like. Most importantly, they overcome much of the resistance to change which often undermines great efforts to improve.
Building-in accountability and ownership for changes

Often when improvement programmes are completed and KPIs successfully shifted, the organisation will wait and watch, “holding its breath” and hoping that things won’t return to the old ways of working.

This is particularly true of organisations where continuous improvement is unfamiliar, where projects are seen as the domain of others, or something that is done to us, not with us.

We work to involve some key roles in the change journey from the outset, making it clear that we are experts in leading and facilitating improvement – but we do not own the change.

**Executive Sponsor** – devolves authority (but not all responsibility) to the programme team. Removes roadblocks, makes exec level decisions, champions the cause with peers and across the organisation.

**Process Owner** – is responsible for the performance and outcomes of the process undergoing improvement. For ED this might be the General Manager, for whole-hospital patient flow that might be the Chief Operating Officer or divisional directors, across the whole health economy, there may be a number of process owners. But they must be identified and signed-up to the programme – they have a vested interest in the outcomes of any improvement efforts – so their involvement is key.

**Scheme/Project Team Leader** – for each workstream, scheme or project, there must be a designated leader. Their role is to lead the team that will deliver the improvements and outcomes agreed within their area of focus.

**Subject matter experts** – these are individuals who hold some expert knowledge about some component of the care delivery pathway – for example specialist consultants, ED consultants, bed managers, service managers, radiographers, nursing, therapists, porters, patients etc. etc.

**Team members (frontline staff)** – these are staff who work in the area that is undergoing improvement who have an appetite and aptitude to delivering change and can apportion sufficient time to support the effort.

**Expert improvement leader/facilitator** – this is the role typically played by the GEHCF team who are seasoned practitioners of improvement in healthcare in the UK.

**PMO** – when undertaking a programme of this scale and investment, programme governance is key – to track all of the ‘moving parts’ and make sure that improvement schemes continue to be delivered on time, budget and trajectory. A key component of this role (which may be delivered by a small team) is to enable clear and concise reporting of scheme performance and to track the overall benefits roll-up and KPIs vs the investment made.

At the outset of the programme, the GE team will work with the organisation to identify the individuals who will take each of these roles. Expectations and responsibilities will be clearly communicated and this ensures that programme governance and accountability is shared by all.

**Robust, frontline leadership** – One of the crucial ingredients to driving significant change in challenged environments is robust, frontline leadership. There will be times when sticking to the new ways of working seem to be the difficult option, custom & practice creeps back in. This is when managers and leaders on the floor need to hold their nerve and be robust in sticking to agreed changes. Only then will the improvements become embedded (‘operationalised’) and that leads to sustainability.