PERFORMANCE IMPROVEMENT THROUGH THE APPLICATION OF LEAN PRINCIPLES AND CHANGE MANAGEMENT METHODOLOGY

Introduction

Lean principles and their supporting tools are widely acknowledged to provide an effective framework for performance improvement in manufacturing. Over the last decade, there has been a drive to adopt such principles within the public sector, for example to improve equipment servicing in the Ministry of Defence, to increase productivity in the asylum system, and to help hospitals manage the twin challenges of financial pressures and the requirement for care quality improvement.

In this document we share 2020 Delivery’s perspectives on using Lean effectively in the public sector and the potential impact of Lean tools, using as a case study a project we have recently completed on a haematuria service as part of our support to the Royal Surrey NHS Foundation Trust’s Patients First programme. This project led to a 75% reduction in the length of the referral-to-diagnosis pathway (from 63 days to 16 days), and to improvements in clinical quality and patient experience. Based on the success of this initial project, the approach is being rolled out across other service lines, including emergency medical admissions, fractured neck of femur, and total knee replacements.

2020 Delivery’s perspective on implementing Lean effectively within the public sector

By applying the six principles below, we believe managers can deliver successful and sustained change using the Lean approach:

1. Implement Lean as part of a **structured programme of change** that has a clearly communicated vision. This vision should link ‘customer’-level needs to the needs of the teams within the organisation, and also the organisation’s strategy as a whole. The vision should also emphasise simultaneous improvements in quality, efficiency and user experience.

2. Use **pilot projects** to prove the concept, and focus on achieving significant and measurable changes in

What is ‘lean’?

‘Lean’ thinking is based on waste reduction techniques started by the Japanese car manufacturer Toyota in the 1930s. Core to the concept of ‘lean’ is that every part of a process that does not contribute to the creation of value for the customer is a form of waste. Since the turn of the 21st century, ‘lean’ principles have increasingly been applied in the NHS. Consequently, in a health care context, an example of a ‘process’ could be a patient pathway, ‘value for the customer’ – optimum clinical outcomes and patient experience, and ‘waste’ – any activity within a pathway which does not improve the status of the patient.
performance from each of the pilot projects. These ‘reference pathways’ then become the role models for other parts of the organisation. For example, the Ministry of Defence ran pilots on equipment service lines in the RAF, Navy, and Army and were able to review the lessons from these before rolling out more widely.

3. Identify and involve the full set of stakeholders actively in every project. For example, in health this means involving clinicians, patients, specialty managers and support service providers (e.g., radiology). Ensure that the solutions in each project are consciously patient-centric, and that all clinical service projects are clinically led.

4. Use a structured methodology and stick to it to avoid jumping to sometimes inappropriate conclusions. To quote a recent client, “without a methodology, we would have implemented the wrong solution”. In some organisations, it will be important to tailor the methodology to the department, and to develop a bespoke “XYZ Organisation Way” for implementing Lean. By doing so, the methodology and its underpinning principles and tools are much better understood and, therefore, owned by the organisation.

5. Include skills development and training as a part of the programme: the organisation will need to develop a cadre of Lean practitioners, as well as a wider group of people who have sufficient awareness of the tools and principles of Lean to be able to contribute and support projects. The reliance on external help may be a short-term need but it is not a long-term solution.

6. Plan for a multi-year programme of change. A Lean revolution requires continuous improvement, and many of the most successful programmes will include a succession of projects in the same service area, but potentially separated at six month intervals. In these situations, each project builds on the successes of previous projects, and takes improvement a step further.

In practice, we realise that it is difficult to have all of these recommendations in place from the start. An element of phasing is likely to be necessary, for example, small pilots may be needed to prove the approach before the organisation commits to a full change programme.

Case example:

Lean pathway improvement for the haematuria service at Royal Surrey

2020 Delivery has been supporting the Royal Surrey’s programme of patient pathway improvement based on Lean principles and on change management methodology.

The goals of the programme are to improve patient experience, patient safety and clinical outcomes, at the same or improved level of efficiency, in each pathway within the scope of the project. The haematuria pathway was chosen as the first pathway for the programme as a ‘proof of concept’.

Context

At the beginning of the project, there were three main problems within the hospital’s haematuria service:

1. Referrals to the haematuria clinic were growing but there was no further capacity
2. The time to get a decision/diagnosis for most patients was too long (approximately two months)
3. Patients made too many trips to the hospital (up to five times to the point of decision/diagnosis)

The initial haematuria pathway, prior to the project, took an average of 63 days, involved the patient in five to seven steps, and there were other diagnostic and administrative steps which supported this patient interaction, as shown in figure 1.
Project approach

The haematuria project was part of the hospital’s overall change programme, which was developed and led by hospital clinicians and managers. For the haematuria project, three urology consultants, one radiology consultant, two nurse specialist, and the project management collectively designed the best quality pathway – without the involvement of these key stakeholders the chosen solution would have been suboptimal and the implementation period significantly extended. In addition, the patient was at the centre of the project from the start: the project was initiated by asking current patients what they wanted from the service, and subsequently a patient was a key member of the project at all stages.

Key "Lean" tools applied in each phase

1. DEFINE
   - Voice of customer
   - Value definition
   - Team forming and "battle rhythm"

2. ESTABLISH
   - Value mapping stream
   - TIMWOOD waste analysis
   - Process constraints & capability

3. CREATE
   - Ideas generation
   - Criteria development
   - Benefit vs effort assessment

4. ORGANISE
   - Implementation plan
   - RACI allocation
   - Risk assessment

5. DO
   - Benefits tracking
   - Continuous improvement

6. EVALUATE & REFINE
   - Project benefits (+) and concerns (-)
2020 Delivery and the Royal Surrey designed a structured approach to ensure that Lean and Six Sigma tools were used effectively and in an appropriate manner for the Trust setting. The approach is called DECODER and it structures the project into six stages: Design, Establish, Create, Organise, Do, Evaluate & Refine. As shown in the following chart, key Lean and change management tools are applied at each stage in the process:

The application of this approach made the inefficiencies and constraints in the existing process very apparent. As an example, investigating the supply and demand balance in the pathway (as part of the Establish phase) exposed a significant constraint in the process: additional capacity had been added to outpatient clinic step at the beginning of the pathway to meet the growing level of referrals, however, an equivalent increase in capacity had not been added to the telephone follow-up step at the end of the pathway. This meant that either (i) the waiting list for the follow up appointment would grow every month (and, hence, lead to increased delays); or (ii) those conducting the follow up appointment could afford significantly less time per patient. Neither consequence was acceptable for the patient.

Once the existing pathway constraints were fully understood, the new pathway was designed by working with stakeholders to generate potential solutions and objectively assess them.

**Project outcomes**

The project led to a reduction in the length of the referral-to-diagnosis patient pathway from 63 days to 16 days, and from five to seven steps to only two to three steps involving the patient, primarily by establishing a ‘one-stop-shop’. This enabled all diagnostic tests and a face-to-face decision to be carried out on the same day in the majority of cases.

![Figure 3: The reduced haematuria patient pathway](image)

The project also led to clinical benefits by moving from ultra-sounds to CT scans which gave a more complete test of the renal tract and meant that patients with malignancy (20% of cases) are now diagnosed and placed on the right pathway earlier.
And crucially, patient experience was improved with only one trip to hospital required for patients and decisions made face-to-face.

A locally agreed price with the PCT meant that the Trust was appropriately paid for the service that it offered. Even though the pathway delivered significant benefits in terms of outcome and patient experience, it cost the PCT no more than the previous pathway. The Trust itself made savings from the removal of unnecessary duplication in its pathway and reallocation of these resources.

**Conclusion**

Utilisation of Lean methodology as part of a larger change transformation programme resulted in a significant efficiency gain, improved clinical outcomes, and improved patient experience in the haematuria pathway healthcare example. The project methodology is designed to ensure the root causes of inefficiency and waste are addressed by the proper solutions. The individual tools are useful in directing focus and guiding discussion during a change project.

The haematuria project has been acknowledged as a significant success, winning the South East Coast’s Strategic Health Authority’s Best of Health Awards and being presented to the Chief Executive of the NHS and the Secretary of State for Health.

The success of the haematuria project highlighted throughout the Trust the real, sustainable gains that could be achieved in a short space of time using Lean methodology. 2020 Delivery has continued to support the Royal Surrey on its performance improvement programme, and across a broader range of projects. Recent successes on the programme include large operational improvements in Fractured Neck-of-Femur treatment, and in Emergency Medicine. The Trust has already achieved 20% Length of Stay reduction in the Emergency Medicine Admissions Pathway, translating into actual savings of £700,000 and expected ongoing £1 million annual saving for the Trust, and a saving to Commissioners through reduced excess bed day payments.

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**Footnotes**

1. Haematuria is the occurrence of blood in the urine