

Learning by doing

Neil Westwood, NHS Institute for Innovation and Improvement, explains how lean thinking is helping improve patient flow and eliminate waste...

Lean thinking has been used to great effect in manufacturing and service industries for decades. It has produced significant results, and has improved quality, safety, productivity and reduced costs. Originally developed from Toyota in the 1930s, this approach is used by multinational companies such as Tesco, Qantas and JCB. Over the last five years, lean thinking has been successfully applied to healthcare processes across the world and, more recently, in the NHS.

What is lean?

Lean is an approach that seeks to improve flow in the value stream or patient journey, eliminating all forms of waste and identifying the least wasteful way to provide value to customers.

Lean uses a simple structured approach to problem-solving (see Fig. 1).

Lean is all about learning by doing. Staff are empowered to solve problems and improve processes on a daily basis. In many ways, lean thinking is common sense.

The key is to stop the typical weekly hour long management meetings in favour of establishing small teams of experts from the 'shop floor'. This small team of six to eight staff from the different departments involved in the process are trained in system thinking and service improvement. They are given powerful data-driven tools to solve their problems within a week. This creates rapid transformational improvement at lower cost with highly motivated staff.

Keep the flow moving to create capacity and to reduce costs

NHS leaders and staff have previously not fully understood how patients and their information (referrals, appointments, x-rays, pathology specimens, reports, coding information, etc.) flow through their organisations and departments. Managers and clinicians have continued to try to optimise their organisational or departmental activity and costs with no reference to the bottleneck in the system that governs the rate at which patients and information flow along the system or pathways of care. Value stream mapping will help staff to understand these flows and to identify waste.

Methodology	Lean
Theory	Improve flow and eliminate waste
Application guidelines	1. Specify Value What do patients (customers) and staff value?
	2. Identify the value stream or patient journey What are the key components of the patient journey that add value?
	3. Flow How will the patient and information flow through the patient journey?
	4. Pull How can we create pull in the patient journey rather than pushing patients and information round the system?
	5. Perfection How can we optimise the patient journey?
Focus	Improving flow will reduce waste
Assumptions	Waste removal will improve performance. Many small improvements help to build and develop a culture of improvement
Primary effect	Reduced flow time
Secondary effects	Less variation Consistent and predictable results Less inventory New accounting system Flow metrics Improved quality
Criticisms	Less emphasis on statistical analysis and tools

Fig. 1: Lean – Primary and secondary effects

So does lean work in healthcare?

The simple answer to this question is yes. Many NHS organisations are successfully using lean thinking to improve patient experience and reduce delays in all areas, eg. pathology, radiology, theatres, endoscopy, health records, human resources and finance functions, and on wards in acute and community hospitals. The NHS Institute has been working with medical and nursing staff on wards at Barnsley Hospital NHS Foundation Trust, Luton and Dunstable Hospital NHS Trust, North Hampshire Hospitals NHS Trust, and Royal Liverpool and Broadgreen University Hospitals NHS Trust to improve ward processes for patients and staff using lean. Significant amounts of staff time have been saved, allowing more time for direct patient care.

Hereford Hospitals NHS Trust, Bolton Hospitals NHS Trust, Mayday Healthcare NHS Trust, Airedale Hospitals are using lean to develop their visions and strategies for improvement. We are also beginning to see non-acute organisations such as Oxleas NHS Foundation Trust (Mental Health) and community-based services such as physiotherapy start to get results.

The full benefits of lean will only be realised when applied at both strategic and operational levels. Application at the operational level results only in cost reduction, whereas application at the strategic level results in wider benefits for the organisation.

Case study – Reducing turnaround times in pathology at Hereford Hospital

Turnaround times in pathology at Hereford Hospital were reduced by 40% in seven days by improving the flow of the specimens through the department and eliminating wasteful activities, such as unnecessary staff movements like searching and looking for things. Productivity improved by 252% at peak times and staff also finished processing the work 15 minutes earlier than they did previously. In-patients can be discharged quicker, shortening length of stay, and creating extra capacity and income. Staff now see the work arrive and start processing it immediately. By manning specimen reception with staff that were previously located in the main labs and implementing standard working procedures, average delays in specimen reception have been reduced from about 13 minutes to under one minute (green line). The maximum variation has reduced from over 30 minutes to under four minutes.

Improving the turnaround times in pathology has helped to improve the performance of the A&E department and the four hour target.

Where to start

The free short introductory guide to lean – 'Going lean in the NHS' – can be downloaded in PDF format or paper copies ordered from www.institute.nhs.uk.

The next step is to start implementing some basic lean principles and get some results to capture the interest of leaders within your organisation.

Three critical success factors are essential for the NHS to achieve transformational results and lower costs:

- Leadership (managerial and clinical): Senior leaders need to lead by example and demonstrate that they are committed and actively involved in transforming their organisations. NHS Boards need to build continuous improvement thinking into their delivery strategies. Senior leaders need to spend more time in the workplace (where the work is done). They need to understand the issues, delays and frustrations that staff and patients are facing every day. Staff at all levels of the organisation need to be empowered to improve; doing this will help to sustain any improvements.

- 80% of Toyota senior managers' time is spent on the production line, learning how the work is done. They are then in a position to listen and observe what is happening.
- Organise activities by patient and information flow (value streams), rather than by functional departments. Someone in the organisation needs to be responsible for the whole value stream and have the influence to remove blockages and delays.

A recommendation would be to start off improving areas where significant financial savings can be identified and avoid reducing capacity at any bottleneck. This would slow the flow of patients and extend length of stay, and reduce income generation. To build excitement and enthusiasm, organisations need to get results quickly.

- Dedicated improvement expertise is essential: Internal capability needs to be developed within organisations. This will help to build and develop a systems thinking culture that is required for continuous improvement. Investment in this is crucial to the long-term financial viability of NHS organisations.

How and where to attain lean skills

The NHS Institute is working with the University of Warwick to develop lean courses that are designed for the NHS. It is advisable to use lean experts to train and coach people within organisations; this will ensure a high level of quality and capability. It will also accelerate the speed of improvements and results. The Lean Enterprise Academy, www.leanuk.org, is a good resource for information and training.

Making this happen

It is essential that organisations start to organise themselves as a system with defined flows for patients and information, rather than a collection of individual silos. We need to create and build a long-term improvement culture that advances flow and eliminates waste from the whole system, rather than a short-term reactive culture that focuses on hitting financial and performance targets and cutting costs. The NHS needs to create and grow its own version of lean for the NHS.

More information on Lean can be found at <http://www.institute.nhs.uk/ServiceTransformation/Lean+Thinking/>.



NHS INSTITUTE FOR INNOVATION AND IMPROVEMENT

NHS
Institute for Innovation and Improvement

Neil Westwood
Associate, Service Transformation
neil.westwood@institute.nhs.uk
www.institute.nhs.uk