

DEVELOPING A 'DESIGN OF SPACE' INTERVENTION USING LEAN THINKING

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- Led and coordinated by the North East Transformation System team, hosted by Gateshead Health NHS Foundation Trust.
 - Pilot sites from across NHS North East in acute, mental health and primary care settings.
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INTRODUCTION

Lean is a philosophy that aims to reduce waste and improve processes. Processes, however, can be constrained by the space they operate in. Redesigning space offers unique opportunities for step change improvements using Lean thinking. A significant proportion of NHS capital budgets is spent on developing new premises or improving premises.

However, guidance to support these projects does not currently incorporate information on how to design in Lean concepts and flow.

This project by the North East Transformation System team has helped NHS trusts to reduce waste and improve processes by redesigning space more effectively.

WHY DID THEY DO THIS PROJECT?

The physical environment in which health care is delivered is an important dimension of quality of care. Good layout of work areas can free up time through reduced motion and searching for required items. Achieving such improvements requires the help of estates and facilities departments.

Despite cuts in NHS capital budgets of around £4 billion a year, a significant proportion is still spent on improvements to premises or development of new premises. Although guidance is available to support estates projects, for example building notes, health technical memoranda and health facilities notes, this does not incorporate information on how to design in Lean concepts and flow.

The Shared Purpose project team from the North East Transformation System believe that this represents a significant gap.

By prioritising service flow, improving processes and reducing waste, their project aimed to help staff to create facilities designs that would improve patient experience, safety and effectiveness of care.

The project set out to address gaps by bringing together the estates and quality improvement corporate functions with clinicians to design and test a Lean facilities design intervention that could be applied to new or refurbished spaces/premises.

WHAT DID THEY DO?

The project involved working with two acute NHS foundation trusts, first piloting the Lean design approach in two different settings in one trust (endoscopy and maternity) and then replicating the approach in a similar setting (endoscopy) in the second trust. This allowed the team to iteratively improve the intervention, as well as observe the responses of different stakeholders.

The project team developed a method for Lean design of space that brings together estates, clinical teams, management and people who use the service. The intervention used a workshop-based approach to improvement and change through facilities design,

inspired by the Lean 3P method – an approach to product and process design for Lean manufacturing.

The workshops were held over a number of days, during which time a collaborative design process was carried out. Participants were encouraged to come up with different concepts for the future design of the ward. These designs were then narrowed down and then 3D models mocked up.

One of the design interventions has proceeded to full business case approval and construction began in July 2015. Models of the ward showed how the design improved infection control with sterile transport routes streamlined, reduced travel for the patient, and improved effectiveness of care by reducing the distance clinical staff walk.

WHAT IMPACT DID THEY SEE?

The project involved two local NHS foundation trusts in three facilities design interventions. Upon successful completion of the designed buildings, these interventions have the potential to reach the following projected patient populations:

- Pilot endoscopy unit – 8,000 to 10,000 patients per year.
- Spread endoscopy unit – 8,000 to 10,000 patients per year.
- Pilot maternity unit – up to 3,000 births per year.

The designs that have been developed will significantly increase the levels of safety, privacy and dignity for patients, and minimise the opportunities for infection control risks through innovative separation of clean/used supply routes being physically built into designs.

Although none of the sites have been built yet, evidence from the modelling work in the workshops suggest that the designs will result in significant reductions in patient travel distance, process steps, handoffs, staff travel and the number of queues.

The intervention allows groups of different people to work together and has demonstrated that corporate support services can help improve quality of patient care. There were over 100 people actively involved

across the projects. Working together in this way has created better interpersonal team dynamics from different departments.

Architects also report that the project briefs are improved by applying the participative design approach, and that the approach can potentially reduce lead times for project briefs, which may reduce project costs.

WHAT DID THEY LEARN?

The biggest challenge that the project team faced was that in order to measure and verify the outcomes of the interventions, the facilities designs that were created would have to be built. This can be a lengthy process in the NHS. To overcome this, the team encouraged staff to make extensive use of simulation using scale and full-scale models of their designs.

The team learned as they progressed through the projects that the total number of days the design workshops needed to be run for varied. For example, the endoscopy pathways were relatively straightforward, and the team was able to reduce the number of days from five to four and still achieve the required outcome. However, working on a maternity design highlighted additional system complexity, and the team felt it may have been better to take a different approach when looking at more complex systems, for example starting with macro level system design and then subsequent mini interventions for the relevant microsystems.

There was a lot of uncertainty during the setup phase. However, as the implementation phase drew to a close, the team was motivated to further test the process at a larger scale due to the positive feedback received.

In the future, particular emphasis will need to be placed on data relating to the functional content of the facilities to be designed.

WHAT ADVICE WOULD THEY GIVE TO OTHERS?

Ensure strategic alignment

Ensure there is strategic alignment when it comes to project selection. The quality improvement work needs to be seen as part of the strategy and not simply something bolted on to the side. The trust board needs to be clear on priorities and then target resources to help achieve them.

Remain flexible

When working with teams of 30-plus people for up to five days, it's important to keep the destination in mind, while remaining flexible on how you get there.

Facilities projects take time

Timelines for an estates or facilities project are long. Consider and plan for this, and don't beat yourself up just because things take a little longer than expected.

Gather adequate baseline data

To successfully measure the effects of your intervention, ensure that you gather adequate baseline data. This can be challenging, particularly when it comes to getting corporate support services and clinicians to be open with each other. It is therefore important to build productive relationships between these two parties.