



Dignity by Design for Bowel Cancer Patients in Gateshead

Lean approach to space design leads to 26% reduction in patient distance travelled at endoscopy unit at Queen Elizabeth Hospital, Gateshead.

As healthcare organisations across the UK look to improve patient care through the improvement of patient flow and the elimination of waste, the Endoscopy Team at QE Gateshead turned to a Lean-based design approach to help them transform their unit and the patient experience.

Bowel cancer kills more than 16,000 people a year in the UK; that statistic and the ability to catch and treat the disease early if the right systems are in place has driven the UK Government to push forward a bowel cancer screening programme with a much lower recommended screening age.

The screening age has been reduced from 65 to 60 and while this presents a much better opportunity to diagnose the cancer early in a far greater number of people, the departments and facilities who deal with the expanded programme have remained unchanged.

This increased stress on endoscopy departments is only compounded by the fact that many of the units were established 20 years ago. The team at QE knew that radical changes would need to be made to the design of their department and the way it operated if they were to cope with the increased number of patients and still maintain a high level of care.

The challenges

Due to the age of the endoscopy facility, disjointed layouts, which included a single entrance for both in and out-patients and pre-procedure patients waiting in post-procedure recovery areas, as well as poor equipment flow were challenges that needed to be addressed by the new design.

Insufficient capacity was also a significant issue at the unit; its original design has been developed in the same way as most wards of the time with eight to 12 individuals separated only by a curtain. In an environment where patients could be receiving life-changing news this was a less than ideal scenario.

In the past the unit had included a private area for breaking news to patients but pressures on the ward had seen it re-purposed for storage; the team made it a priority to take that area back.

Why Lean?

The primary requirement of any architect is a well defined brief. A common understanding of what is needed, where and why, goes a long way to forming this brief.

The aim of a Lean project is to create an intervention where all stakeholders have a voice in the process; for this design based project the process included patients, clinicians, service improvement staff and architects.

Through the use of this community effort an increased level of understanding of the issues is



developed from a much wider experience base. Including everyone from an early stage also ensures key information doesn't get omitted or overlooked, which is something that can happen when 'obvious things' are apparent to people who work in the system on a daily basis but are less obvious to those who don't.

The process

About six months of planning meetings between project leaders and key QE staff culminated in a five-day simulation event at the nearby Skills Academy for Manufacturing and Innovation which had enough space for large-scale mock-ups and simulations.

The intervention placed a premium on learning about Lean tools and methodologies through their practical application and following a brief overview the team set to work identifying wastes and flows as well as analysing pre-work and data gathered before the event.

The group then split into three teams and set about creating their vision boards, a key tool in articulating ideas and concepts between each other, helping them to easily identify duplications and similarities.

As designs were refined and redeveloped through a series of votes the teams started to create models, first in 1:100 2D scaled plans and then 3D mock-ups, all the time shuffling members between teams to ensure good cross-pollination and sharing of ideas.



A full size mock-up of a patient suite

As the teams worked towards a finalised design, they started to make life-size mock-ups of their proposed designs in which they ran simulations of working practices. This activity resulted in even more rapid prototyping and iterations taking place.

Using a weighted criteria evaluation scheme, one final vote by the teams decided on the concept to be put forward for development.

The benefits

Using Lean techniques and tools meant that the teams started with an accurate base line against which to assess the current state and had a well structured approach to assessing the impacts and evaluating the process to ensure the most effective changes were made.

Improvements seen included:

- A reduction in the distance travelled by patients of 26% from 90m to 67m
- Process steps reduced from 17 to 11
- Value added process steps increased from 29.4% to 36.4%
- Handoffs reduced from four to three and queues from five to two

Changes to the proposed layout included separate entrances for in-patients and out-patients, a central storage room, and an "off-stage" administration office.

The architect was particularly impressed with the process and its results saying it was the first time that they had drawn up the redesign of a location without having to go back and forth for information.

Sharing the success

The results from the Lean event at QE Gateshead could make its Lean design for space approach a template for endoscopy units across the UK according to Gary Prior, Lean Programme and Implementation Manager for the North East Transformation System.

"Fully engaged healthcare staff and patients working passionately towards a common aim can seamlessly create a platform where breakthrough solutions flourish," confirms Gary.