

EFFICIENCY

# Powerful change for pathology

Lean activities are transforming pathology services at a general hospital, say Sue Stanley and Mark Eaton

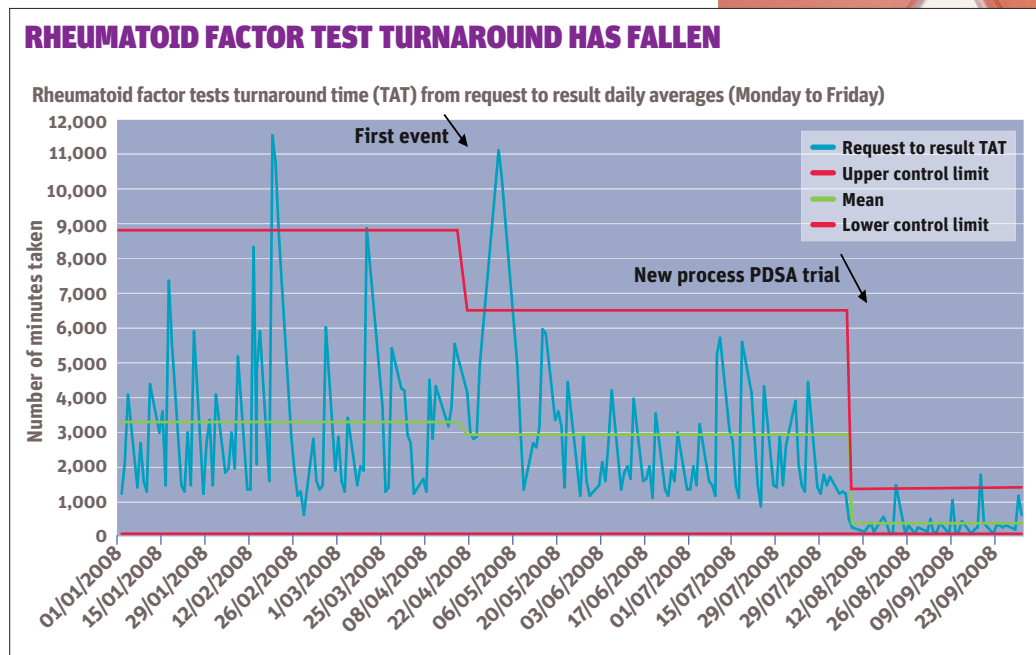
Over 80 per cent of clinical decisions involve some form of pathology investigation. How pathology requests are managed directly affects the timeliness of treatment.

Pathology is a vital aspect of modern healthcare services. In England alone it employs more than 20,000 people. More than 700 million pathology tests are dealt with per year and in 2008 the Carter report highlighted large variations in costs and turnaround times between organisations. It found there could be savings in excess of £250m on the current £2bn spent on pathology services across the UK if best practice was universally applied.

Most of the improvements in pathology will be delivered within individual organisations. A number of UK healthcare organisations have used lean methodology to help reduce turnaround times and improve the overall productivity and efficiency of their pathology services.

At Northampton General Hospital the pathology team has undertaken a comprehensive series of lean activities, initially with external support and then using members' own expertise, that have made a real difference to the way services are delivered.

Some of the improvements at Northampton relate to services outside of the direct control of the pathology team. For



example, in cytology the distribution of collection patterns from GP practices was putting the team under pressure to deliver the “patient to patient” target of two weeks for smear tests.

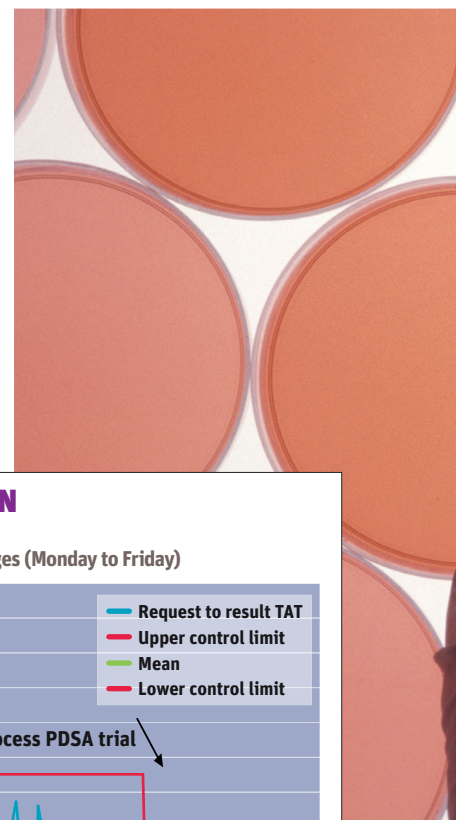
**Faster turnaround**

A trial using lean techniques looked at the pattern of collections resulted in some simple changes to the way activities were scheduled that led to a 40 per cent mean reduction in turnaround times without increasing costs.

More commonly, lean is applied directly within the

**‘The successful application of lean has improved patient care and reduced waste’**

pathology department. As part of the same cytology lean programme, the team looked at the flow and sequencing of activities that led to over 90 per cent of cytology specimens being processed within four days and an overall improvement in turnaround



time of 40 per cent in the rest of pathology.

This scale of improvement was achieved through changes such as redesigning the layout of the lab to improve flow, improving the visibility of priority samples and putting in place processes designed to pool unfinished work at the end of the day so that it was prioritised at the start of the following day.

One of the most powerful things about the application of lean in pathology is how it empowers frontline staff to make improvements in the way the services they are responsible for are organised and delivered.



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Redesigning lab layout was among the changes that improved pathology times at Northampton General Hospital

# 40%

Mean reduction in pathology turnaround times

schedules. This was leading to increasing amounts of safety stock being put in place to prevent stock outs, but also increased problems with wasted stock.

By applying the lean concept of pull (sometimes referred to as Kanban) the team calculated the daily and monthly usage rates for key materials and introduced a change to the way that stock was managed so that a demand was raised before the team had completely exhausted existing items.

The successful application of lean at Northampton General Hospital has improved patient care and reduced the costs associated with wasted stock. The pathology team has focused on adding value to its end customer and creating an environment that ensures that after changes are made to processes they are embedded so they truly do become a new way of working.

The work undertaken by the pathology team shows how the application of lean can help pathology departments to meet their commitments on turnaround times and will continue to contribute significantly to the overall improvement in efficiency within organisations. ● *Sue Stanley is director of service improvement at Northampton General Hospital and Mark Eaton is managing director of Amnis.*

The immunology team at Northampton was unhappy with the turnaround times for rheumatoid factor tests and used lean to help it restructure the way things were organised.

On analysing existing process the team discovered that the bulk of the problems were caused by processing samples in large batches, meaning that early arrivals would be delayed until the batch was “full”.

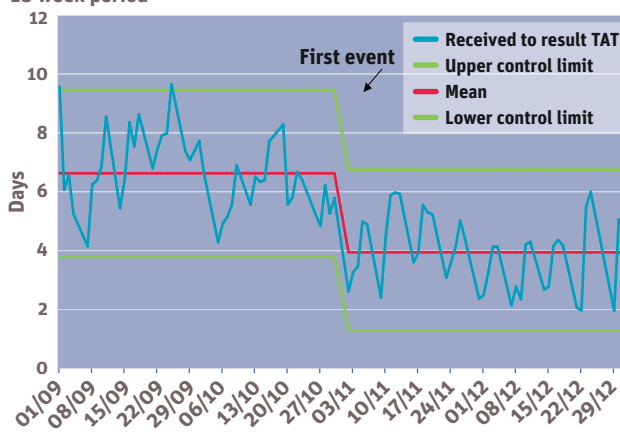
Further delays were occurring because of the authorisation rules which frequently led to a consultant review of results even when not required.

By changing batch sizes and updating the automatic authorisation rules the team achieved an initial drop in the average turnaround time from two days to less than 10 hours.

This was not achieved in a single bound but through two discrete lean events that first dropped the average from 54 to 50 hours, and then from 50 to 16 hours in the second lean event.

### LEAN PROGRAMME CUTS CYTOLOGY TIMES

Statistical process control chart daily average gynae cytology over an 18 week period



Further actions taken by the pathology team dropped this to an average 10 hour turnaround time.

A common problem in many pathology teams is the non-availability of items of stock. Poor stock management processes lead, at times, to

increased costs and, more frequently, to “stock out” situations, which obviously delay turnaround times and increase associated reordering costs.

A review by the team identified a mismatch between demand and reordering