Hitting the bottleneck

A chain is only as strong as its weakest link. That's the starting point
For a new approach to cutting waiting lists. Belinda Phipps explains

No one disputes that waiting lists must be reduced. The government has a manifesto commitment to do it and all NHS managers want to see it happen for the sake of patients for whom waiting is a misery. There is another reason too - for most trusts a common, if not the most common, cause of patients' complaints is waits for surgery, outpatient visits or waits in clinic.

All trust chief executives and their clinical and management teams are working to cut waiting lists. But how is that initiative faring? More to the point, how do you feel about it? It would not be surprising if you feel exhausted, pressurised and deeply concerned about the sustainability of any improvements you have made so far.

Managing an acute service must be one of the most complex and demanding jobs there is. Growing waiting lists have been part of the NHS for all of its 50 years. But there's no need to despair. Changing the way we think could make the long waiting list a thing of the past.

What is more, these philosophical changes can not only produce actions which bring waiting lists down, they will also maintain (or even improve) the position on costs and quality.

So what's the secret? Cast your mind back to the science lab at school. During chemistry lessons we learned (and have probably since forgotten) that a multi-phase reaction happens at the rate of the slowest step. The way to speed up a reaction is to use a catalyst. The catalyst will work on the slowest step, speeding it up and thus speeding up the whole reaction.

We also know a chain is only as strong as its weakest link. Take, for example, making the morning tea. Successful completion of the task depends on our ability to carry out a series of steps in the correct sequence. We cannot pour the tea until it has been made, we cannot pour the water into the teapot until it has boiled. We cannot have boiling water until we have filled the kettle and turned it on.

The person who first saw the similarity between a chemical reaction, making a cup of tea and the systems within an organisation was management consultant Eli Goldratt. He used these links to create a way of thinking which he called the theory of constraints.

The NHS system can only treat patients at the speed of the slowest step in the chain. To speed the rate at which patients are treated you must identify the step in the process which is the bottleneck and introduce measures to increase the numbers of patients this step can deal with in a given time.

The diagram below shows a very simplified version of an NHS patient pathway. It is clear from this that GP referral, appointment making, joining the waiting lists and discharge in this mock system are all steps where large numbers of patients can be processed within a given time.
The outpatient consultation and the follow-up visit are lower volume steps where fewer patients are dealt with in the same period of time. Lowest throughput of all, however, is at the surgery stage. This is the step which constitutes the bottleneck or constraint in this fictitious patient pathway. No matter how many more patients are being dealt with at any of the other stages, the process cannot be speeded up so long as the surgery stage remains incapable of increasing its throughput.

No matter how hard clinicians and managers in this particular example try to improve throughput elsewhere in the system, they will never succeed in driving down waiting lists if the surgery stage remains incapable of processing more patients in a given time. In fact, any efforts to improve matters could actually lead to bigger waiting lists for surgery.

It seems so straightforward, but this approach does have its downside. It is a thinking process, not a bag of solutions. It is not possible to provide a list that says, "Do these five things and your problem will be solved." A good first step, however, is to identify the bottleneck and determine which of all the things which you could change would most improve the system as a whole.

There is no point in just one senior manager in a trust understanding and attempting to implement the theory of constraints approach. In my experience, the best way to succeed is for it to be embraced by a core group of senior people. The trust board and key medical staff will be able to bring about change once they understand and are committed to this approach. Then it may be used to enable their organization to achieve the 20% - yes, 20% - increase in productivity that has been demonstrated to be possible over and over again.

Involving a core group of senior managers in implementing this approach allows them to come up with a set of problem areas and actions that fit the situation of their particular trust. It is very unlikely that any two trusts will need exactly the same actions to resolve their difficulties and, even if the bottlenecks appear to be the same, each trust will have a different set of priorities and a unique way of dealing with them.

No doubt many chief executives will sigh at the thought of yet another bright idea to add to the wealth of quality initiatives, re-engineering or patient focus projects they are running. The good news is that understanding the theory of constraints and applying it within your trust is highly compatible with other good management practice.

Another objection may be that this is just another expensive management tool the NHS can't afford. The good news is that the basic principles are written up and readily available - in the surprising form of a novel called *The Goal* by Eli Goldratt and Jeff Cox (Gower, ISBN 0-566-07418-4). All over the world there are organisations which have quietly absorbed this thinking into their business. The latest organisation to employ the principle is the Israeli health care system.

Imagine how different your day would be if you had no waiting lists. You would be able, at least, to concentrate on the things you joined the NHS to do. Quality of care, prevention, new methods of treatment - whatever you dreamed, you would be able to achieve. Sounds worth it, doesn't it?
Case study: a story of success

This time last year, 64 elective neuro-surgical operations were cancelled in a three-month period at The Radcliffe Infirmary, Oxford. On top of the cancellations, theatre and medical staff were working flat out. Sometimes emergency operations kept them working until six in the morning and they were still expected to fit in a full shift the next day.

Two of the neurosurgeons were at breaking point, staff sickness levels were rising and the BMA was about to become involved over the hours junior doctors were working. "It was crazy, it was dangerous," says director of operations Jan Elliott.

It was at this point that she instigated a theory of constraints workshop at the hospital. A similar workshop in Cambridge had impressed her and she thought the ideas she’d encountered could be applied within her own trust.

What they needed to do was identify where exactly the bottleneck was occurring. "The neurosurgeons believed they were the bottleneck, the anesthetists thought it was them," said Jan Elliott. "In fact it turned out it was the beds that were the problem...we had an inconsistent approach to booking beds."

Ward staff had borne the brunt of the bed management and had been in the stressful position of having to tell elective patients that their operations were cancelled. It was decided to give one of the staff the role of bed manager.

Up till then the practice was to book up to 11 elective patients a day into the unit - and the load was heaviest at the beginning of the week because surgeons wanted to be sure their cases were operated on. It was agreed that the maximum daily number for elective patients should be reduced from 11 to six.

At first it seemed this might be counterproductive, that the reduction might only make things worse. In fact the reverse was true. Between April and June 1998 not a single elective operation was cancelled, compared to 64 cancellations last year.

The number of out-of-hours operations was drastically cut and the unit's throughput was increased by a remarkable 16%.

What's more, according to Mrs. Elliott, the changes had other benefits. "The difference was visible, the staff just looked much better," she says, "and happy staff means happy patients."

But how could Mrs. Elliott be so certain it was the application of the theory of constraints which had made the difference? Simple. Staff sickness and other problems meant the bed manager's role was vacant for a while. With no bed manager in place, the situation reverted. "It's been a real learning curve," she says. "For the first time in nine months we've had to cancel electives."

She urges other trust managers to at least give the theory of constraints a try. "It may work for you," she says. "I think it does have to be hospital specific but it's worked for us. It's so simple and just so easy."

The Anglia and Oxford Region Waiting List Task Force under the leadership of Ken Cunningham (chief executive of Stoke Mandeville Hospital) has been working with Ashridge on workshops in which managers can learn what they need about waiting list reduction. Help is also available from the National Patients' Access team (Peter Homa or Helen Beven, tel 01162548126) or Belinda Phipps on 01923260905.

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