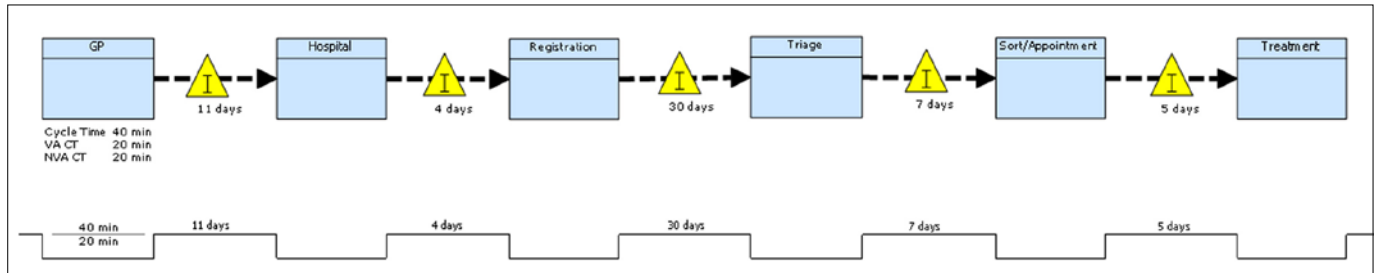


# Value stream mapping, Quality Companion and healthcare



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Value stream mapping ("VSM") helps you to map, visualise and understand the flow of patients, materials and information when delivering a service (eg treating a patient) or a product (eg bags of screened blood or plasma), through its value stream. The value stream is all the actions required to be completed to carry out that process.

The aim of VSM is to identify improvements that can be made in order to reduce waste, such as waiting time and travel or empty operating theatres, thus streamlining the process to deliver better patient care. Where can VSM be applied?

Value stream mapping can be applied to visualise an entire process and find areas for improvement which otherwise may not be apparent – VSM is a unique tool in that it captures the process in terms of both information flow and material flow.

When used within healthcare, mapping a patient's path to treatment is an obvious application with the aim to

improve service and minimise delays.

## Creating a VSM

To accurately map a system, obtaining good quality information about the flow of information and quantifying the time a patient spends at or between steps is key. Accurately timing process steps and using multi-departmental teams is essential to obtain a true picture of what is going on. With large processes, drawing and sharing the value stream map can be difficult. Here we discuss how Quality Companion 3 can be used to create the VSM.

First a current state map is made as a baseline and to identify areas for improvement.

You would usually start at the end of the patient's journey and work backwards. We have already applied this to this example and we are now drawing the value stream map. The first step a patient will take is to visit their GP. This is represented as a process shape – a box containing the step name. We can add information on the time spent at this step, further breaking it down into time spent which is useful to the patient and time which adds no value to them.

Splitting the time at each step

like this is an important concept in VSM. Value-added ("VA") is essentially those actions the customer would be willing to pay for (eg: the 20 minutes spent in the GPs consulting room) and non value-added ("NVA") actions those the customer is not willing to pay for (eg: the 20 minutes spent in the waiting room).

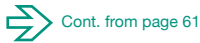
The flow of information on the value stream map is represented by a jagged line arrow, indicating electronic information is being passed.

A dotted line arrow between process steps is a push arrow. This shows that once a patient completes a step they are pushed to the next step. This is inefficient and by changing push steps to continuous flow or pull steps a more efficient process can be designed.

By identifying all of the steps you can start to map the process out, moving from left to right. By using the value stream mapping tools in Quality Companion 3 the process can easily be drawn up.

There are many shapes unique to VSM, for instance yellow triangles indicate time a patient spends waiting for the next process. These steps

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reductions in LoS and paperwork etc.

The other project produced substantial savings and additional revenue in the laundry department enabling the contract to be kept in-house.

This was important for 'hearts and minds' as well as contributing significantly to the trust's 'bottom line'.

These illustrate the importance of translating and aligning goals and measures up and down the levels of the organisation – particularly to practitioners. Improvement agents are then likely to have an easier task helping staff deliver what is important to them and their patients, delivering managerial goals in the background.

Other requirements from senior management are highly visible sponsorship and interest in improvement projects and their results, release of staff time (or redirection of training allocation)

to work *on* the process rather than in the process, and funding of training and coaching.

A difficult mindset change is to foster a culture of experimentation – within the limits of medical safety – for example temporarily removing slack from a process to reveal where hidden waste is to target in the next cycle of improvement or setting up a trial to discover the effectiveness and unintended consequences of an improvement idea.

#### **What does the future hold with regards to healthcare related Lean practices?**

Academic observers have expressed concerns over the way Lean is being used in the UK public sector including some parts of the NHS.

The temptation to view Lean as another short lived management fad, a one-off quick-fix or magic bullet, or just a couple of tools and techniques may lead to

superficial and half-hearted implementations of 'Lean'.

As well as tarnishing it as a 'brand' and compromising sustainability, a huge opportunity to make deep and wide improvements over the medium and long term could be lost.

Looking to the future, as the undergrowth of waste is cleared, with the help of Lean or otherwise, the need for deeper thinking will be exposed. For example, to what extent is the patient really the only or ultimate customer of some of our processes? And what really is value?

The philosophy of Lean is to look ever outwards along the 'value chain'. In the health context the logic of this points to consideration of value over a lifetime and on to future generations.

In the NHS there seems as yet little evidence of significant Lean-type initiatives across

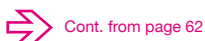
organisational boundaries and to include public health.

Goals involving taking into account preventative health and aligning incentives and responsibility across such wider pathways seem difficult under current organisational models.

There may be lessons to be learned from, for example, US health maintenance organisations and integrated delivery systems (though these models have their own issues...)

Indeed, the need to achieve further quality (health outcome) improvement and economic sustainability are driving experiments to start to build meaningful integrated care organisations within the NHS.

*Further information and references are available from the author on request.*



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are non-value added to the patient. Quality Companion 3 automatically calculates and displays a timeline underneath the value stream map. This adds up the total time to go through the entire system (lead time) and displays summary information.

Once the entire system has been mapped out, an ideal future state map can be created, and possibly a series of future states in between (a manometer is quick and easy to relocate, rebuilding a ward very difficult).

These identify areas for improvement and once implemented will become the 'new' current state map as part of the iterative process.

#### **Final state map**

How do you improve the current state map? When looking for areas of improvement, focus on changes which improve the flow of patients through the process.

Continuous flow is ideal and means that patients move from step to step through the system without having to wait or queue.

Often continuous flow is not possible and instead other changes can be introduced such as first in first out (FIFO).

Takt time is an important statistic to look at. It can be interpreted as the number of patients that can be treated

per unit of time = available resources (per shift) / no. patients admitted (per shift).

Quality Companion 3 will calculate Takt time automatically along with other useful information.

Once you have completed the current and future state maps you can compare the two and quantify improvement. The next step is to look at implementing the changes.

For example the triage and

sort/appointment steps might be combined so that fewer visits to the hospital were required by the patient and they receive treatment faster.

Many resources are available to help people who are new to Lean and quality improvement techniques when using Quality Companion at [www.minitab.co.uk](http://www.minitab.co.uk). Take a look to find out more or download a free trial and try creating your own VSM.

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#### **FOR MORE INFORMATION**

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