



Identifying Value and Waste in Patient Flow

Identifying Value

After mapping the patient flow using the Flow Analysis Tool (FAT), the starting point for improvement is to specify value from the point of view of the patient. This is helpful in thinking about quality of care.

The three points to consider in relation to activities that add value are:

1. The activity must be done right first time.

Taking blood a second time because the first specimen got lost is not a value-adding activity. This is linked to the quality philosophy about provision of the right care at the right time, the first time and every time. It also relates to the skills and competencies of the person involved in the clinical care at each stage, because to meet the definition of value each contact should result in a decision or outcome that helps the patient to move further along the care pathway.

2. The activity must transform the patient in some way.

There is a direct result or outcome such as the administration of analgesia that is effective in relieving the patient's pain. Or the activity helps move the patient along the pathway – for instance a functional assessment by an Occupational Therapist that is an important part of assessing the patient's readiness for discharge.

In addition, activities that contribute to the overall patient experience are value adding though they might not tangibly help the patient to move from one stage of the process to the next. For instance spending time communicating with the patient about how long they are likely to wait for a test result and the reasons for this, may be evaluated by patients as important to their overall care because they knew what to expect. However a wait exceeding the anticipated one may cease to be value-added.

3. The activity must be something that the patient cares about.

Value adding activities are those activities that in the eyes of the patient make the service they are receiving valuable. Examples include the closure of a wound in the Accident and Emergency Department, or the taking of a x-ray to enable diagnosis. One way of identifying value adding activity is to ask yourself if as the patient you would be prepared to pay for the activity! Identify activities that dissatisfy patients. They are likely to be non-value adding.

Specifying value will need local discussion and you may wish to consider involving patients and / or their representatives.

Clearly it is important to ask clinical staff what they believe to be important in terms of value in the patients' clinical care. In the A&E Department this might be quite clear, as there is usually a rapid sequence of investigations and clinical examinations leading to a decision to discharge or admit.

Value can be harder to specify for in-patients because the time-scales are usually days not hours. It is often difficult to decide when the patients recovery in hospital ceases to be value adding (i.e. in some cases the inpatient stay may be associated with rehabilitation). It can be useful to consider value in the context of outcomes for patients. For instance the clinical care may be to observe a patient for a defined period after an overdose. If the patient's condition is stable at the end of the observation period, yet no clinical decision has been made, you may feel that the patient has moved from a period of value in terms of clinical observation, to a period of non-value (waste).

If the outcome for a patient is to be able to mobilise safely with a walking frame, once the patient has reached this point you may feel the inpatient stay ceases to be of value unless the patient's condition changes or new outcomes are set.

Once you have identified the value-adding activities or steps in your flow analysis, you may need to alter the sequence of them to improve the overall flow.

Identifying Waste

Waste is anything that does not add value for the patient. Accumulation of waste in a flow will slow it down, lengthening the patients' journey and eventually causing it to stop. There are seven commonly recognised types of waste that exist in patient journeys:

1. **Waiting**
2. **Mistakes**
3. **Uncoordinated activity**
4. **Stock**
5. **Transportation**
6. **Unnecessary motion**
7. **Inappropriate processing**

It is important to identify the different sorts of waste in the analysis of your current state flow because the ways to address each waste vary. Staff can become so familiar with the systems in which they work that they are oblivious to waste. Asking them to stand back and identify it can be a very useful exercise. There are a number of ways that this can be achieved including patient tracking, patient diaries and the use of videos.

World class processes only achieve 5% value added activity, so don't think that you have to achieve a system with no waste, some is inevitable. However, some can be easily stripped out, and this is what you should be able to identify and address now.

A more detailed explanation of each follows:

The 7 Types of Waste:

1. Waiting

The NHS is epitomised by 'waits' and 'delays'. Generally waiting adds no value for the patient. Like transport it can never be eliminated but we should seek to continually reduce waiting from the patients journey. Waiting manifests itself in many ways; some are more obvious than others are. The A&E waiting room example is difficult to miss, equally important are the waits for decisions to be made by either clinicians or bed managers. Other examples include staff waiting because the patient has not yet arrived in theatres, the surgeon waiting for the patient to be anaesthetised, or patients waiting for transport.

Identify where the patient waits on your flow map, often it is not evident what they are waiting for. Up to 90% of waiting is thought to be caused by 'batching' so look for batching. Waiting also arises when processes are not linked so that the patient arrives at the next process before the process is ready for the patient and the patient joins another queue and has to wait.

As you begin to redesign the flow, you will be able to try and design out the waits or dramatically reduce them, so that overall journey time is reduced, and there is less waiting between value steps. Things to think about here are reducing the batch size or batch frequency and improving communication flows. As batching is frequently the consequence of an effort to maximise the use of a precious resource such as consultant time it may be useful to identify who else could undertake this activity so that it can be undertaken more frequently. Nurse or AHP led discharge is a good example of this.

When you are designing new layouts for emergency care – A&E Departments, CDUs etc – consider whether you are designing in waiting rooms or not. If you are, then you will be designing a process with in-built waits!

2. Mistakes

Mistakes that require correction are the consequence of not getting it right first time. Mistakes may be 'clinical' or 'administrative'. All mistakes lengthen the time it takes for the patient to be treated. Common clinical mistakes include inaccurate medication prescribing and post operative wound infections. Examples of administrative mistakes are the patient having more than one PAS number; another example is equipment failure.

The important point about mistakes is that they may have a direct impact on patient care, but they also cause rework and therefore waiting. The longer it takes to

identify and remedy the mistake, the more rework and waiting it will cause. It is vital that the mistake is both identified and acted upon as soon as possible.

The waste associated with mistakes can be addressed in two ways:

i. ***Build check points into your system so that mistakes will be identified at the next stage of the patient journey and will be rectified at this point*** or;

ii. ***Design a system where mistakes cannot occur because the system will not permit them to.***

- For instance it is not possible to insert a 3.5 mm floppy disc into a PC the wrong way round as the design will not allow you to. Some airline meal trays are designed so that the cups and plates will only fit into one part of the tray, so that mistakes cannot occur. Leur-locks are now fitted to any intra-venous cannulae to prevent them being connected incorrectly.

3. Uncoordinated activities

When an activity in the patient journey is completed before the following stage in the patient journey is ready to receive the patient, resulting in the patient having to join another queue. This happens for example when the patient is called to the operating theatre before the anaesthetist is ready to receive the patient, and the patient and accompanying nurse have to wait many minutes.

Sometimes these uncoordinated actions result in activity taking place that would otherwise have not been needed, for example a bed is requested for a patient who is subsequently discharged home.

Waste associated with uncoordinated activity can be addressed through linking processes across the flow. Each stage of the process needs good communication / information links with the stage before and can therefore react quickly to support the previous stage of the flow by either slowing down or speeding up to enable to flow to continue at a steady pace.

As a first action – identify where stages of the process are not linked and function at a different pace and see how you could improve the information / communication flow between the two.

4. Stock

Stock includes equipment, medical and surgical supplies, medicines and other consumables. An excessive level of stock equates to waste. Too little stock on the other hand may create delays in patient treatments.

Aside from the obvious capital costs associated with purchase and storage of excess stock, either too little or too much stock inhibits our ability to find what we are looking for quickly. How often have you heard the expression “Has anyone seen any...?” Staff time is taken up looking for stock or dealing with too much of it, and patients may wait because of inadequate stock or because it is in the wrong place.

Appropriate levels of stock should be stored in the correct conditions and where it is conveniently and easily accessible. At its simplest this is good house keeping. The 5S or CANDO methodology is useful in making standardised stock management the norm, where the five S's represent 'Sort', 'Store', 'Shine', 'Systematise' and 'Sustain'.

5. Transportation

Transportation refers to the movement of documents and information as well as materials and patients. It adds no value to the patient and is a waste.

This waste can never be fully eliminated but over time unnecessary transport is a waste that should be continually reduced. Transportation is linked to communication and information flows. Where distances are long, communication is inhibited. Interaction may be encouraged when staff are co-located, such as the staff responsible for both the admission and discharge processes.

Transportation can also refer to the transport of information in people's heads, and this can cause significant waste in terms of waiting. Improvements here may be associated with improved communication / information, where people more frequently hand on the information in their heads onto a PC or to the next person in the process.

6. Unnecessary motion

This refers to the importance of ergonomics. For example, Bed Management staff usually walk excessive distances in order to identify current bed status. Unnecessary motion also considers small unnecessary movement, for example having to walk around a pillar or desk to answer the phone or access a keyboard, and having to repeat this movement many times a day. Re-organisation of the area or workspace may be necessary.

The motion is on no value to patients. For example while the porter walks around the hospital to collect their case notes the patient may be waiting. Equally the long journey to x-ray is in itself no value to the patient, though they may class the x-ray as a value step.

7. Inappropriate processing

Inappropriate processing refers to activity that is either unnecessary such as duplication, or is performed in such a way as to add no value to the patient because it builds delays into the patient journey. We frequently duplicate activity. There are many examples including double clerking of patients, and information recorded manually in addition to recording it on electronic information systems.

'Batching' is when work is 'saved up' or accumulates before it is dealt with resulting in a queue. An example would be keeping patients on a ward waiting for the twice-weekly ward round when they could probably have been discharged earlier. Another example is when infrequent communication or the sharing of knowledge creates delays in the process because all the information is passed on at the same time.

You should look for ways to reduce duplication and batching in your flow. However it is important to consider the areas where this will have most benefit to your flow, and to address these first.

Seeing Value and Waste in Emergency Patient Flows

Whilst we need to balance value for the patient with the cost of generating value, we should not forget that patients receive the output of complete processes, not just individual members of staff or departments.

The scale of waste needs to be considered. If you track an individual patient and identify value and waste in that patient's journey you are likely to find several examples and be able to suggest actions. If you elevate your analysis to a whole flow – for instance GP referred medical admissions- the scale of the problem should become evident.

Once the current state map is complete you should be able to determine which are the value adding steps that meet the patients' definition of what adds value to their care. You should also be able to identify those steps that add no value and plan the future service to reduce or eliminate as many of these steps as possible.

Some steps will add no value but will be necessary at present. You should note these and aim in the long term to reduce/eliminate these, but concentrate initially on non-value adding steps.

Other Types of Waste

In addition to the seven wastes we have discussed in the section above, other wastes are recognised such as untapped human potential, e.g. not using creative brain power of employees, not listening, thinking that only managers have ideas worth pursuing; wasted energy and water, and wasted materials.

Useful Reading

Bradbury, E. & Prof. Jones, D. (2007), Improving Quality and Flow – The Power of Lean. Masterclass lectures presented by Professor Dan Jones & Elizabeth Bradbury – 12 January 2007, Edinburgh (DVD and User Guide). Scottish Executive Health Department, Directorate of Delivery, IST

Womack, J and Jones, D., (1996), 'Lean Thinking. Banish Waste and Create Wealth in your Corporation'. Touchstone Books

NHS Modernisation Agency website:

