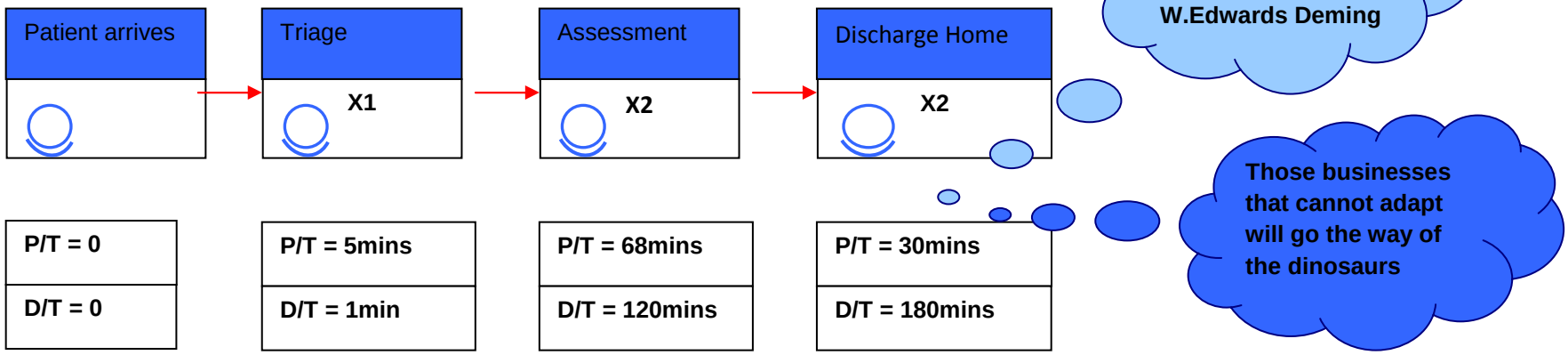
Value Stream Mapping Toolkit



Whai Manaaki
More time Better care

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"Every Process is perfectly designed to get the results it achieves."

Don Berwick

This toolkit has been developed to support staff involved in process improvement initiatives focused on improving the quality and safety of patient care, improving the patient experience, reducing waste and eliminating delays. Increasing capacity for the service and maximising resources.

Source NHS 2003

Introduction

Value stream mapping is a tool that is used within a service improvement or quality framework. Any sustainable quality framework needs to include five phases:

- Establishing the project
- Understanding the current service
- Implementation of changes
- Evaluating the impact
- Sustaining Improvements

Value stream mapping forms the basis for *Understanding the current service.*

Value stream mapping (VSM) is different from process mapping in that it:

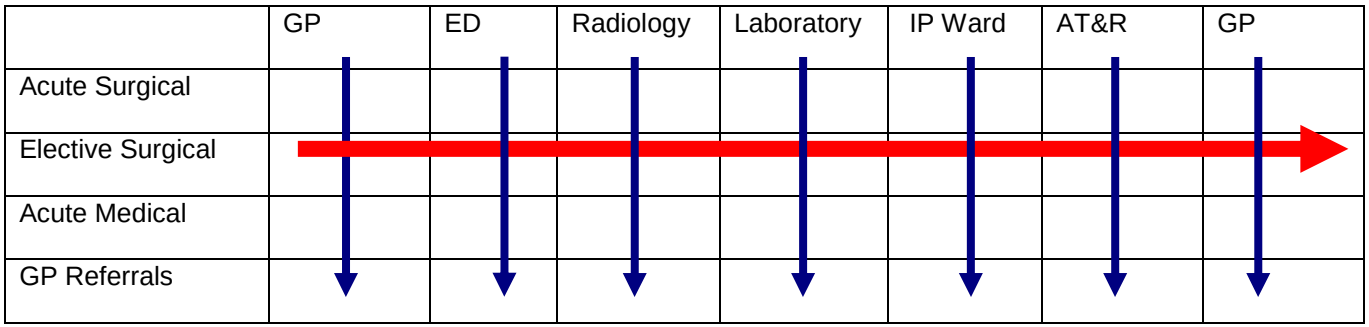
- Describes both value added and non value adding activities from the patient's perspective
- Is a tool that assists with the process redesign by identifying those steps that , the patient/customer recognises as having value, the step results in a change to the service/product and the step was done right the first time.
- Describes both information flow and patient flow processes
- Describes steps that may be non value adding from a patient/customer perspective but is value enabling and necessary from a Business perspective; activities based on improving efficiency and necessary to meet regulatory or legal requirements

What is Value Stream Mapping?

This is a tool that assists with process improvements by identifying those steps in a process that do not add value. Steps that "add value" are any activity that improves patient and/ or staff satisfaction or outcomes.

Value Stream mapping (VSM) allows us to see and understand the flow of information and services as a patient moves through the value stream. The difference between VSM and process mapping is that VSM considers the whole value stream, identifies non value adding activities between processes, results in improvements to systems that are usually significant but difficult to achieve and focuses on *flow and interfaces between the silos.* Improving isolated processes seems to come more naturally than improving flow across value streams. (Liker, J.K. Meier, D.l (2006)The Toyota Way Field book.)

The value stream map allows the clinicians and all those people who "touch" the process/patient to focus and move from the silos (Blue arrows) to the interfaces and flow across silos (red arrows) and the patient value stream



Why use Value Stream Mapping?

Value Stream mapping (VSM) is the single most useful tool for determining where the problem lies. It provides the opportunity to focus on where the key constraints and bottlenecks are from the patients' perspective. The outputs of VSM should be used to determine what to measure and provides a baseline from which to progress work as it highlights areas of waste.

Value stream mapping provides a clear indication of where there may be impacts on other parts of the service when changes are made as well as the opportunity to get multi-disciplinary teams from across the healthcare community together to ensure a culture of ownership and continuous improvement is generated. Staff are often not aware of all the complexities involved in a patient's journey and this provides an opportunity for staff to understand how their work impacts on other parts of the system. The final map itself can be used as a training tool—for communication purposes as well as identifying areas for continuous improvement. The map should be updated when changes are made to ensure current processes are being captured.

Value Stream Mapping

- Helps you to visualise all the activities within the process
- Lets you see the flow and sources of waste
- Provides a common understanding of the current process and its problems
- Provides a baseline on which to base improvements on
- There is an example of a VSM in diagram 4, however a simple version with post it notes stuck onto a sheet of paper will provide a valuable starting point.
- It encourages objectivity to what is seen , thought and done
- Assists in identifying the need to change
- Focuses on the process and not the people
- Forms the basis of an implementation plan with priorities

How do you organize a session?

Step 1- Identify the problem and/or the processes that need improvement. Be clear on the aim of the mapping. Ensure that you have representation from anyone who "touches" the process at the session and an appropriate facilitator to plan and guide the sessions. The Clinicians and frontline staff will have a view on what the current process issues are, as will patients, the Board and the Management teams. There needs to be some prioritisation and agreement across these key stakeholders as to where the problem lies.

Step 2- Ensure that you have representation from anyone who "touches" the process at the session and an appropriate facilitator to plan and guide the sessions. A group of less than 6 is too small and over 10too large. The session is enhanced if people are "hands on" in the process are present.

Step 3- Communicate to the group the purpose of the session, time, date and location. Ideally allocate 2hrs to 3hrs for the first session.

Step 4- Define the scope of the map, decide on a beginning & end prior to the session (e.g. GP to discharge from ED). Use typical pt journey/ keep it high level. If possible follow the patient journey prior to the session

Step 5- Collect the "tools" that you will need for the exercise, including, big rolls of newsprint or butchers paper, post it notes (all colours), permanent felt tip pens, whiteboard (to document parked issues).

The mapping session

- **Introduction**
- What is value Stream mapping?
- Why use value stream mapping?
- How do you organize a session?
- Examples in Health care
- Next Steps

Rules of the Mapping Session

- *The focus is on the process not on the individual people who do it*
- *Describe what actually happens not what "should" happen or what you would like to happen*
- *80/20 rule-where there is variation work on what happens 80% of the time*

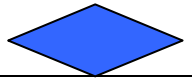
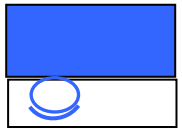
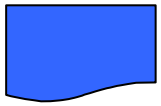
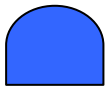
The facilitator needs to:

- *Define and agree the purpose of the event with the group*
- *Establish ground rules and a "no blame" environment*
- *Park problems and not use the mapping session to solve problems*
- *Explain what happens next?*
- *Agree symbols and format of maps*

Start at the beginning of the process to be mapped and ask the team to describe each pf the steps in the process. Include what is done and who does it. The facilitator will need to ask questions to clarify what is being described to ensure that it is an accurate description and has enough detail to understand the process. Questions such as "What do you mean by…? how often does this occur……How long does it take …..?

Plan a second session to review the steps to ensure it is an accurate record of the process.

Symbols and Abbreviations for the Mapping session

Item	Symbol	Description
Start/Finish		This symbolizes the start or finish of a process
Arrows		Indicates the direction of the flow of the process
Decisions		Places in the process where a yes/no question is asked
Actions		Indicates tasks that are performed in the process
Document		Shows where a form or paper based system is in use. May be a set procedure or protocol
Delay		Shows where there are delays in the process-queues, waiting
People		Indicates the people in the process followed by a number

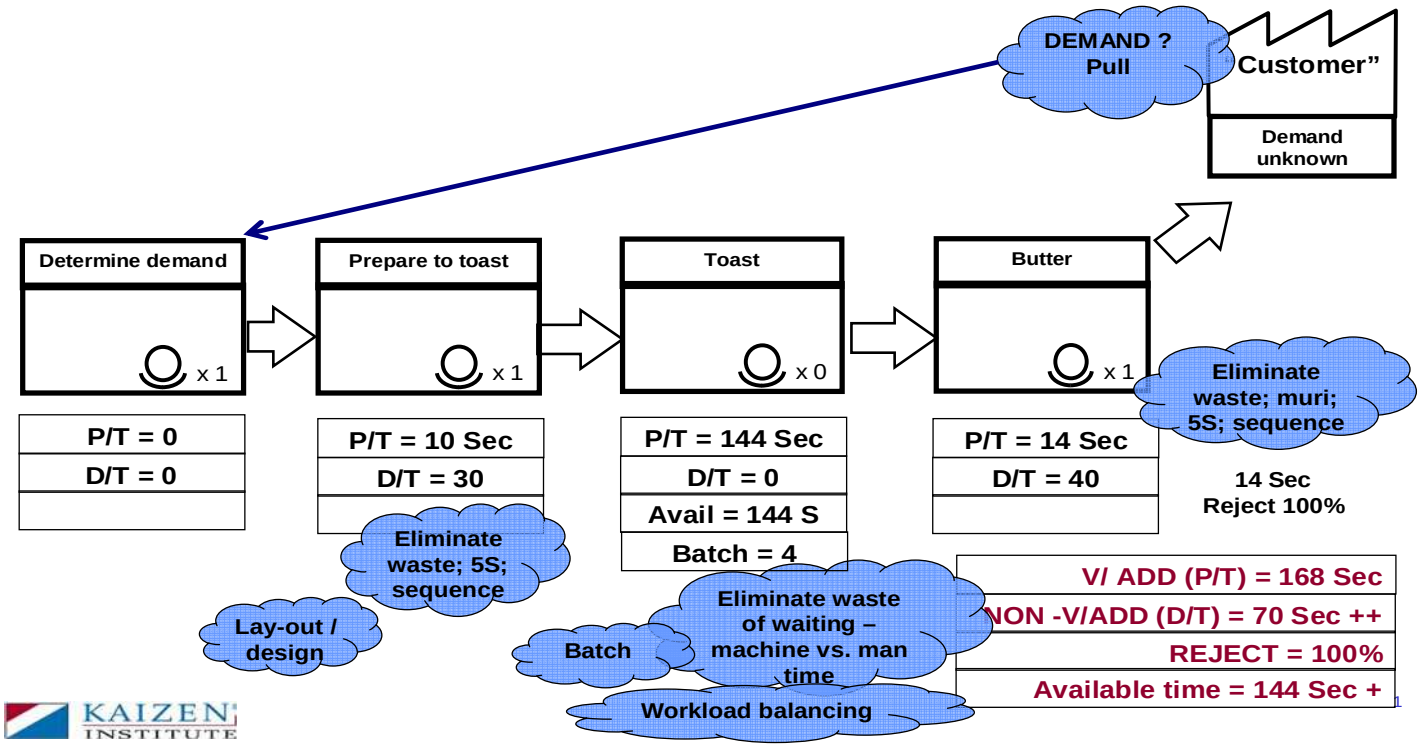
Outside entities		
Item	**Symbol**	**Description**
Electronic Information flow		Signals the flow of electronic information
Manual Information flow		Paper based information flow.
P/T	Process Time	Actual time it takes to complete a process-"hands on"
D/T	Delay time	Can be delays during a process or between processes
L/T	Lead Time (Production Time)	Lead Time =P/T +D/T When observing the times need to be realistic and normal
% Complete and Accurate	%C&A	Percentage of the time that the completing process/step receives complete and accurate information
Data Box	**P/T: 65 sec** **D/T: 20 sec** **%C&A** **Other**	Provides a summary of process times assisting in the identification of opportunities where there is wasted time, delays, constraints Other may include: Change over/hand over time

Group Exercise

What was the key learning from the toast video?

- Experience and intuition will inform where there are opportunities for improvement
- Watch the process
- Huge part of the elapsed time had nothing to do with the outcome
- There was no "pull"

VSM Excercise - solution



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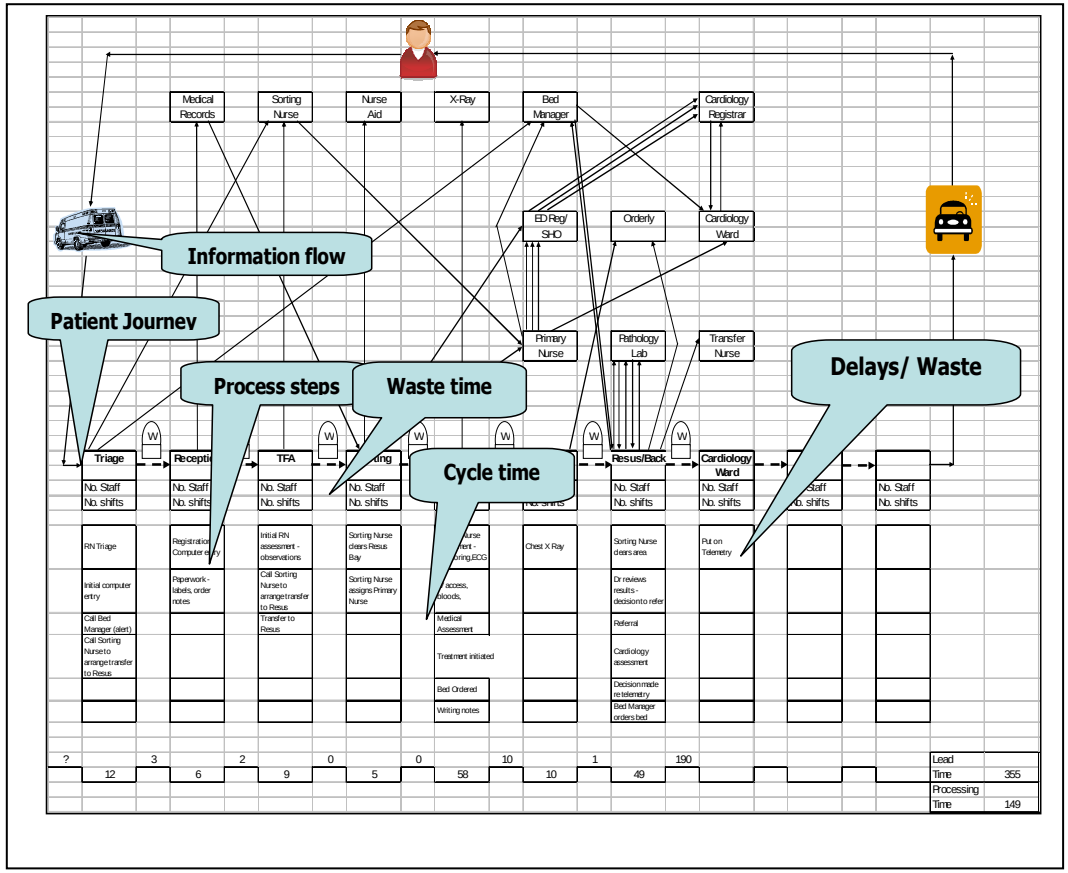
Example of a Value Stream Map from Triage to Cardiology Ward



Value Added Analysis

Check the steps in the process by asking three key questions:

- Does the customer recognise the value in the steps?
- Did the performing the step in the process result in a change to the process/service?
- Was the step right the first time?

Value Enabling Activities

A step may be non value adding from a customer/patient perspective but still necessary to conform to regulatory or legal requirements

Non Value Adding Activities

Where a process does not add value, determine whether the process can be simplified by eliminating the step altogether, moving the activity to another part of the process or combining with another step.

Next Steps

Process mapping is the first stage, helping to identify where to start making improvements. The use of rapid cycles of improvement provides a structured approach and framework for developing, testing and implementing changes. When looking for potential areas for improvement look for the following:

- Co-ordinate the patient process of care, promote links throughout
- Reduce the number of hand-offs and steps within the process
- Co-ordinate scheduling of appointments for patients with multiple
- providers
- Provide patients with a clear comprehensive care plan at an early stage
- Create trigger systems so that booking diagnostic tests triggers an appointment for results etc
- Reduce the number of times a patient has to attend hospital or surgery
- Reduce or eliminate batching
- Reduce the number of queues to be managed
- Extend staff roles encouraging multi-skilling
- Observe the process with an eye for improvement

Important people process next steps

- Walk the process
- Track staff roles and responsibilities
- Handle the motivation and expectations of staff
- Manage the staff involvement
- Complete and present the analysis
- Communicate the potential opportunities for improvement
- Identify key measures
- Prioritise each improvement
- Establish a timeframe
- Consider cost, quality, lead time and flexibility
- **Map the Future State**

Questions to help analyse the Value Stream Map

Post VSM the processes, the team analyses it by considering the following questions:

- How many steps are there for the patient?
- How many times is the patient passed from one person to another?
- What is the approximate time taken for each step (task time)?
- What is the wait time between each step?
- What is the approximate time between the first and the last step?
- How many steps add no value for the patient?
- Where are the problems for the patient/staff?

At the steps where there are the longest delays:

- Keep asking "why" to try to discover the real reason for the delay … 'Why' … 'Why' … 'Why' … 'Why' …
- Estimate the number of queues & the amount of time and effort required to manage them
- Examine if the expert is doing what they should be doing or doing other things that take up their time
- Identify any parallel processes for tests and administration and add more detail.
- Collect data
- Complete an Ishikawa Diagram
- Complete a run chart
- Identify the Best Practise opportunities and don't change what is already working well
- Look for opportunities for standardisation i.e Clinical Pathways, Standard Operating Procedures
- **Consider the ideal condition:**

A "pull" system
That is connected
Synchronised
And flexible

Map the Future State

Tips

- Physical walk through is a must
- Estimate measures and time in the first instance-but these need to be validated
- Don't accept regulations or policies for retaining the status quo and continue to do non value added tasks
- Handovers and sign offs usually mean waste either on a small scale within departments or on a larger scale across departments and/or silos
- Make the process flow and pull on demand from the customer
- Use the current VSM as a foundation for the future state. (Kaizen Institute, New Zealand)
- The power of lean is in the future state map (Liker, J.K. Meier, D.l (2006)The Toyota Way Field book.)
- You really only learn by doing. When you are handed a "Blueprint" it doesn't mean you can build the house.

Waste audit

Audit	Comments
Waiting: ➢ Delays for bed assignments? ➢ Delays for lab test results? ➢ Delays to fit staff schedules? ➢ Excessive signatures or approvals required? ➢ Too much dependency on others to complete a task? ➢ Cross-departmental resource commitment issues?	
Overproduction: ➢ Ordering more drugs than required for expected patient stay? ➢ Entering repetitive information on patient documents? ➢ Repeating the same questions across multiple assessments? ➢ Producing more paperwork than needed? ➢ Ordering more tests or services than what is required by the patient?	
Rejects: ➢ Retesting due to inadequate sample, or wrong process earlier? ➢ Wrong patient, wrong site, wrong dosage, wrong time? ➢ Incorrect information on a document?	
Motion: ➢ Searching for patients?	

➢ Searching for charts, notes, test results, medications? ➢ Searching for other staff to assist with a task? ➢ Searching for equipment for a task? ➢ Hand-carrying paper work to another process or department regularly?	
Processing: ➢ Repeating tests due to lack of information on prior tests? ➢ Duplication reports or information? ➢ Ordering more tests, food, drugs than required for this patient?	
Inventory/Storage: ➢ Paperwork awaiting task completion by others? ➢ Stockpiling supplies of any kind? ➢ Obsolete supplies in the area? ➢ Obsolete equipment in the area?	
Transport: ➢ Excessive movement of patients? ➢ Moving patients too early for next activity? ➢ Delivering documents that are not required? ➢ Delivery of samples, drugs, equipment too early or too late? ➢ Delivery to incorrect location?	
Staff Utilisation: ➢ Staff mismatched to work requirements? ➢ Lack of flexibility/cross-training to help in other areas? ➢ Rosters mismatched to patient workload?	