

GRS

Global Rating Scale

JAG

Joint Advisory Group
on GI Endoscopy

NHS

Improving Quality

The Productive Endoscopy Unit

Building teams for safer careTM

Toolkit



Purpose of this module

Tools are essential in helping you and your team implement The Productive Endoscopy Unit modules. They will enable you to really understand your current ways of working and help you to see where, and how, you can make improvements. Tools provide you with a different way of looking at the processes you are very familiar with, processes that you may carry out many times a day. The tools provide an opportunity to question how you do things and make improvements that will enable you to achieve your local vision, and the overall aims of the programme:

- Improving the patient's experience and outcomes of care
- Increasing the safety and reliability of care
- Improving team performance and staff wellbeing
- Adding value and improving efficiency.



Endoscopy units in the UK are regularly assessed by the JAG (Joint Advisory Group) on Gastrointestinal Endoscopy, the body responsible for upholding the quality of endoscopy at a national level. The JAG operates within the Clinical Standards Department of the Royal College of Physicians. The JAG's mission as an organisation is to provide UK wide support for the whole of the endoscopy workforce to ensure they have the skills, resources and motivation necessary to provide the highest quality, timely, patient-centred care.

The JAG provides clear and detailed standards, and frameworks within which to reach the acceptable standards for competence in endoscopic procedures and for endoscopy units for certification, accreditation and re-accreditation. The Productive Endoscopy Unit modules aim to assist in both the achievement of the GRS (Global Rating Scale) standards and JAG accreditation. More information can be found at www.thejag.org.uk where you can find the documents 'JAG Accreditation Standards and Evidence Requirements', 'JAG Accreditation online Checklist' and the GRS Planning and Productivity Tool (PPAT).

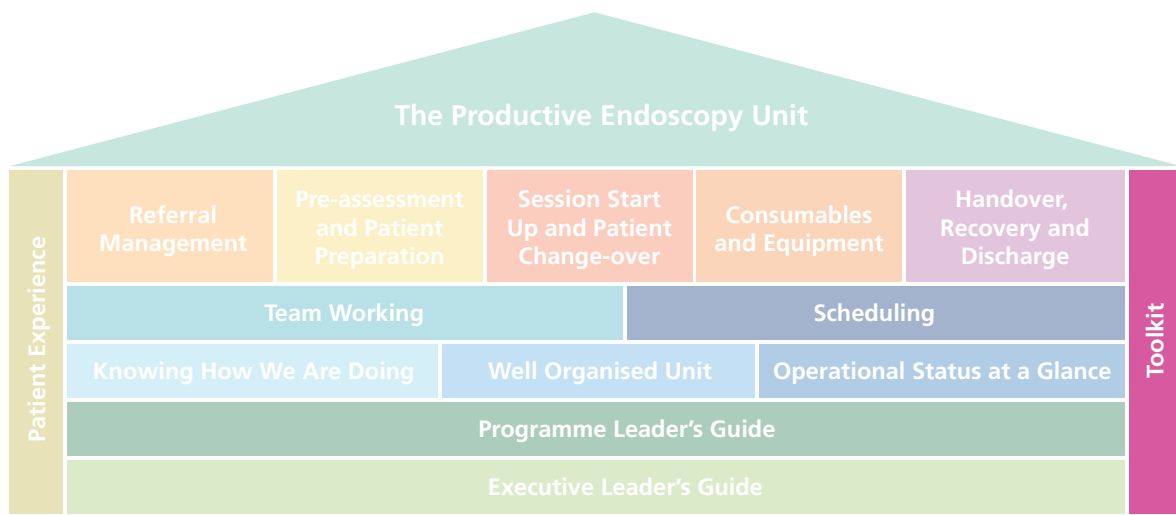
What is the Toolkit?

A reference manual for all the tools referred to in The Productive Endoscopy Unit modules. Each tool is explained clearly and simply, making them easy for you and your teams to use.

The Toolkit has been designed to be used alongside all the modules to support their implementation. Keep this Toolkit to hand as you implement the programme. It can be very tempting to jump straight for the toolkit when starting The Productive Endoscopy Unit. However, it has been designed to be used in conjunction with each module, not as a stand alone project. Each module suggests when to use the different tools.

Some of the tools have templates associated with them; these are available to download from The Productive Endoscopy Unit web pages, where an overview presentation of the modules can also be found.

These modules create The Productive Endoscopy Unit



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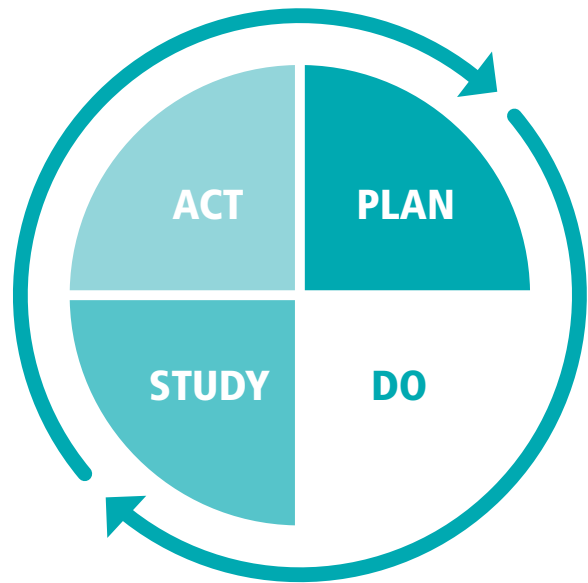


1. A3 thinking

What is it?

A3 thinking is a thinking way and tool for fostering all of the following behaviours:

- Systematic Plan, Do, Study, Act (PDSA) problem solving
- Coaching people in PDSA problem solving and developing their skills
- Building consensus to seek solutions
- Sharing ideas in a common way that everyone can understand.



An A3 report is a one page document (11 x 17 inch [international standard name of A3] sheet of paper), that records the agreed points of discussion in a systematic way. A3 thinking is composed of a series of boxes of what is essentially a 'story' following a step by step process incorporating the rigorous application of the PDSA cycle.

To support problem solving, an A3 structure takes individuals and teams through the process of agreeing the problem or opportunity statement, reviewing and analysing the current state and identification of a desired future state with a subsequent action plan for any agreed actions. Describing the entire process from current state, through analysis and onto future state, just on a single sheet of paper requires concise information. This prevents excessive amounts of information being overwhelming, misinterpreted, and incorrect conclusions being reached.

Example of an A3 template

Title: A3 Problem Solving	Version: Date: Author: Team:
Problem statement:	Future state:
Current state:	
Goal	Action plan:
Waste identified:	Results and measures:
Root cause analysis:	Next steps:

Why do it?

It is a simple framework for individuals and teams to use for organised consensus building and problem solving, relying on evidence and to establish root cause(s), in order to effectively and efficiently implement appropriate countermeasures. Every A3 is a PDSA cycle, a structured cycle of improvement. Every step is part of a testing cycle until such time as you evidence the improvement and re-standardise. Every new 'future state' that you achieve becomes a new current state with further potential for improvement.

When to use?

A3 thinking can be applied to a wide range of situations, such as organisational strategic planning and departmental project proposals, but predominantly it is used for problem solving. It keeps everyone involved focused on the subject matter, through visualising the current and future situation, and concentrating on the reasoning 'why', rather than the 'who'.

Materials required

Pencil and piece of paper with A3 template marked out (or flip chart paper if working as a group).

A3 thinking – the problem solving process

1. Define the problem/opportunity

A3 thinking starts with a problem. The problem should be present in a process which exists to enable the organisation to deliver against its purpose and vision, in line with its values. If your starting point does not 'fit' this description, ask yourself 'do you really have a problem?'.

The first, and often the most difficult, point to consider is the focus on a specific event or problem. For example, if a labelling error occurs to Mr A's sample, it may be tempting to focus on "labelling errors" which could create an unfocused and frustrating situation. Better to focus on the specific process problems that led to Mr A's sample being mislabelled. By correcting the process as it failed Mr A, the fix will likely apply to all samples that flow through the process.

Preparation guide

- What is your 'vague' problem? Note down what you know so far – symptoms, outcomes, observations, thoughts
- Avoid "what we need to do is...." type statements, that tempt you into a solutions mind set before you have defined the problem
- Identify the stakeholders – who do you need to work with on this problem?
- Go and see. Identify the process within which the problem appears to occur and walk the whole, end to end pathway. Keep an open mind and simply observe, take notes and photograph the process
- Refine your problem statement – avoid any reference to cause or solution

Test your output on a colleague who does not work with the process or problem. Do they understand what it is you are setting out to resolve?

2. Current state

The current state should provide a simple, visual summary of what happens now. Baseline data or circumstances that indicate the importance of this issue to the customer (e.g. patient, carer, staff member), and/or the organisation should be stated. Measures of safety, quality, time, productivity, cost, staff/user/patient engagement, could all be included. The current state should be described only after direct observation, with supporting interviewing of involved customers and users, for example patients, carers, other service users and employees.

It is also important to indicate the significance of the occurrence. This section becomes important to the person who will approve the upcoming implementation plan, particularly if money, risk or manpower is required to complete the suggested countermeasures.

Validating the current state with patients and staff and getting their input visually, on paper, are two of the most effective activities of A3 problem solving. Only with this deep knowledge and agreement can a thorough understanding of how the work currently happens be achieved.

Useful tools for describing the current state

- Value stream mapping – current state map
- Process Sequence Charts
- Tally sheet
- Pareto diagram
- Sketch/spaghetti map
- Handoff diagram
- Scatter diagram
- Histograms
- Bar/pie charts
- Statistical Process Control chart
- Voice of the customer
- Photographs

3. Goal

Now that you are clear on the problem, what is it you want to achieve? State your goal in SMART terms:

- Specific
- Measurable
- Aspirational
- Realistic
- Timely.

Your goal should be based on your current state description and data. Remember, it is not set in stone. You can come back to it to refine as your work progresses.

4. Waste identified

The next step is to confirm the waste that has been identified in the current state as further preparation for your root cause analysis and to further validate your problem statement, current state and goal.

The wastes are set out below.

- 1) Transport – movement of materials, consumables/stock, equipment, samples, request cards
- 2) Inventory – accumulation of work in progress or consumables/stock
- 3) Motion – movement of people
- 4) Automation (of waste) – replacing a “human” process with an item of equipment that completes the waste for you (e.g. track systems) rather than improving the process
- 5) Waiting – patients, specimens, request cards – all waiting for something to happen. Staff waiting for decisions
- 6) Over processing – too much activity - excess checking, duplication of effort (e.g. repeat data entry)
- 7) Over production – too much, too soon – e.g. unpacking more samples than a machine can process, pre-labelling, repeat or unnecessary testing
- 8) Defects – anything that is not right first time, re-work
- 9) Skills (inappropriate or wasteful use of) – individuals routinely completing tasks that another person is more appropriately skilled for (e.g. BMS booking in)

Not every waste exists in every problem.

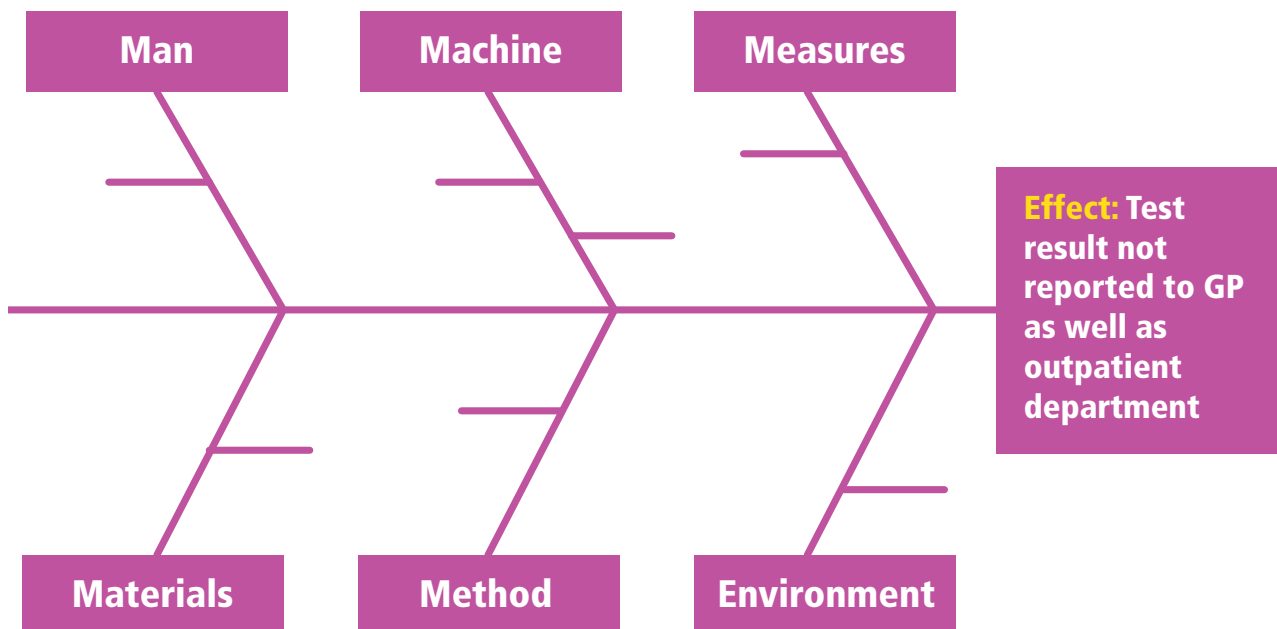
5. Root cause analysis

Root cause analysis in A3 problem solving further facilitates deep thinking about conditions that created specific situations. Effective analysis is crucial for finding and understanding the many potential causes of the problem. From these potential causes, it is necessary to narrow the field and focus on the most significant ones.

Fishbone or Ishikawa diagrams (cause and effect diagrams)

A fishbone diagram enables the user to look beyond the symptoms of a problem to uncover the potential root causes. It generates a balanced list of ideas that should be generated during a collaborative brainstorming session involving interested stakeholders.

Fishbone diagram structure



5 why

The 5 why technique facilitates further deep thinking about the potential causes that created specific situations, and takes us to the root cause(s). 5 why is a concept; sometimes only three questions can transport an individual to the root cause and sometimes the list is longer.

5 why structure

Problem

Why? Because

Why? Because ↶

Why? Because ↶ therefore...

Why? Because ↶ therefore...

Why? Because... ↶ **Root Cause**

Example of left hand side of an A3 template

A3 Lean Improvement		
Department: Endoscopy		Date: June 2013
Define the problem / Opportunity (Why are you talking about it? What are you trying to solve/improve?)		
<p>NHS Outcomes Framework: fit with 5 domains of healthcare, Compassion in Practice (6C's), Francis Report, Berwick Report</p> <p>JAG Accreditation: GRS, PPAT, BCS age extension, Best Practice tariff (5% loss)</p>	<p>AIM: Six month testing of Productive Endoscopy modules (using lean principles) - quality/safety, effectiveness, experience (patient & staff), productivity (VFM, efficiency) Link with Trust values</p>	
Current State (What happens now? Be visual – value stream map, graphs, facts & measurements etc)		
<div style="float: right; border: 1px solid black; padding: 5px; width: 200px;"> <p>Value add (touch) time approx 65 mins</p> <p>Non value add (lead) time in excess of 1299 hrs or >7 wks</p> </div>		
Goal (State the specific target(s). State in measurable or identifiable terms)		
<ul style="list-style-type: none"> - Improve across defined measures of safety/effectiveness, productivity and experience using lean methodology in order to identify & eliminate waste in endoscopy processes (referral to patient home with result) - Achieve testing of PE modules, and production of guide, by March 2014 		
Waste Identified (Transportation, inventory, motion, waiting, overproduction, over-processing, defects, unused creativity, automating an inefficient process)		
<p>Waiting</p> <ul style="list-style-type: none"> - Pre-assessment variable - Waiting in dept- variable TAT - Late starts/finishes - Evening/weekend list provision variable(WLI) 	<p>Defects</p> <ul style="list-style-type: none"> - Referral management- poor form completion, multiple entry points, poor referral protocols, vetting - Patients not taking prep - Poor data/no data- no end to end view 	
<p>Motion</p> <ul style="list-style-type: none"> - Physical layout- poor flow - Poor stock replenishment system 	<p>Skills</p> <ul style="list-style-type: none"> - Culture-lack of leadership, medical/ surgical division, engagement/morale, capability 	
Root Cause Analysis (What is the root cause of the problem? Possible tools - fishbone diagram, five whys)		
<p>Fish Bone Analysis</p>	<p>What stops flow?</p> <ol style="list-style-type: none"> 1. Batching 2. Searching 3. Variation in way things are done 4. Inability to spot problems 5. Poor layout/excess walking 6. Variation in demand <ul style="list-style-type: none"> • Referral /vetting process • Booking/scheduling system • Admission on the day • Procedure rooms set up/layout 	<ul style="list-style-type: none"> • Pre-assessment set up • Handovers between staff • Staff changing over the room • Delivering/receiving scopes • Availability of recovery bay • Recovery procedures • Reporting procedures • Waiting for other departments – histopathology, blood testing, radiology, anaesthetics, theatre staff, clinical specialists

6. Future state/proposed countermeasures

Only when you have successfully completed the left hand side should you move on to plan your future state, and the countermeasures required to achieve it. A3 proposals typically use the term “countermeasure” rather than “solution”.

Some of the tools used to describe the current state can be used to visualise the future state you seek to achieve:

- Value stream map – future state map
- Process Sequence Charts
- Sketch/spaghetti map.

You may choose to describe an ‘ideal’ future state that represents a waste free process designed perfectly to deliver your purpose, vision and values. This will serve as an overall goal for all small improvement efforts. For the purposes of each A3 however, you will also need to describe the future state you wish to achieve through the removal/resolution of the problem in question.

A future state differs from a goal in that it describes the conditions required to enable the goal to be achieved.

7. Action plan

Having agreed your future state and countermeasures with your stakeholders and team, a detailed action plan should be developed. It is at this point the PDSA cycle is in danger of becoming a “PD” cycle. It is essential that the countermeasures are translated into specific actions by named individuals with defined timescales. Be clear about your test period and responsibilities for monitoring the outcomes caused by the countermeasures.

8. Results and measures

In order to know whether your countermeasures have been successful, you will need to evidence and communicate the outcome(s) in the same specific terms used to describe the current and future states, and to evidence achievement of your SMART goal.

Tools that may be useful here include:

- Photographs
- Data used in the current state repeated to show the improvement
- Patient/user feedback
- Staff feedback.

9. Next steps

Having successfully implemented your countermeasures and evidenced achievement of your goal, you may be forgiven for thinking the task is complete. However, there still remains the need to ensure that the now changed process embedded prevents recurrence of the problem – to ensure it becomes the new standard work. If your countermeasures were tested and evidenced by a small group, how will you train the rest of the team in the new standard work?

Consider what ongoing data is required to evidence the performance of the process, and give early warning of either deviation from the standard work, or additional problems in the process that require attention.

Finally, review the entire process with all those involved to capture learning. What went well? What would we do differently next time?

Example of right hand side of an A3 template

Team Members: [Hospital Name] Endoscopy Department

Future State (What will it look like? Be visual i.e. future state value stream map)

Improving Quality

Future State

Removal of 10 process steps & 25% re-work at booking.

- 1) Use 5S to reduce searching & reduce costs (stock, walking/motion)
- 2) Understand the whole pathway, reduce batch size & non-VA steps
- 3) Introduce standard work to reduce variation in way things are done e.g. protocol based care
- 4) Everyone being able to spot waste and remove it!
- 5) Establish first-in-first-out to enable flow
- 6) Use standard work and visual management to error proof
- 7) Analyse and flex capacity in response to demand- introduce 'pull'

In Scope

Patient Experience Feedback

Improved staff and patient engagement & communication

Action Plan

Action – What, Why, How?	Who?	When?	Progress Status (i.e. completed, in progress..)
			<p>Progress across individual modules can be monitored as GANTT charts or other types of action plan such as A3 reports. Ensure plans contain SMART goals & are allocated to team members who will be responsible for attainment. Define specific steps and benefits. You may wish to use a benefits dependency network diagram (BDN).</p>

Results and Measures (What was your PDSA cycle, how long did you run it for, what data did you collect before and after the change, what did you find? Add any charts or tables)

Performance Measures

Example set of balanced measures

Next Steps (Any remaining issues/problems, any further follow up required?)

Further develop future state map

Use spaghetti mapping to re-design for flow

Test new ideas raised by staff (PDSA)

Share learning with other endoscopy units

Example of a full A3 template

Department: Endoscopy

Date: June 2013

A3 Lean Improvement

Define the problem / Opportunity
(Why are you talking about it? What are you trying to solve/improve?)

NHS Outcomes Framework: fit with 5 domains of healthcare, Compassion in Practice (6C's), Francis Report, Berwick Report

JAG Accreditation: GRS, PPAT, BCS age extension, Best Practice tariff (5% loss)

Current State
(What happens now? Be visual – value stream map, graphs, facts & measurements etc)

Value add (touch) time approx 65 mins
Non value add (lead) time in excess of 1299 hrs or >7 wks

Goal
(State the specific target(s). State in measurable or identifiable terms)

- Improve across defined measures of safety/effectiveness, productivity and experience using lean methodology in order to **identify & eliminate waste** in endoscopy processes (referral to patient home with result)
- Achieve testing of PE modules, and production of guide, by **March 2014**

Waste Identified (Transportation, inventory, motion, waiting, overproduction, over-processing, defects, unused creativity, automating an inefficient process)

Waiting	Motion	Defects	Skills
<ul style="list-style-type: none"> Pre-assessment variable Waiting in dept- variable TAT Late starts/finishes Evening/weekend list provision variable (WLU) 	<ul style="list-style-type: none"> Physical layout- poor flow Poor stock replenishment system 	<ul style="list-style-type: none"> Referral management- poor form completion, multiple entry points, poor referral protocols, vetting Patients not taking prep Poor data/no data- no end to end view 	<ul style="list-style-type: none"> Culture-lack of leadership, medical/ surgical division, engagement/moderate, capability

Root Cause Analysis (What is the root cause of the problem? Possible tools - fishbone diagram, five whys)

What stops flow?

- Batching
- Searching
- Variation in way things are done
- Inability to spot problems
- Poor layout/excess walking
- Variation in demand

Pre-assessment set up

- Handovers between staff
- Staff changing over the room
- Delivering/receiving scopes
- Availability of recovery bay
- Recovery procedures
- Reporting procedures
- Waiting for other departments – histopathology, blood testing, radiology, anaesthetists, theatre staff, clinical specialists

Team Members: [Hospital Name] Endoscopy Department

Future State (What will it look like? Be visual i.e. future state value stream map)

Next Steps (Any remaining issues/problems, any further follow up required?)

- Further develop future state map
- Use spaghetti mapping to re-design for flow
- Test new ideas raised by staff (PDSA)
- Share learning with other endoscopy units

Results and Measures (What was your PDSA cycle, how long did you run it for, what data did you collect before and after the change, what did you find? Add any charts or tables)

Improving Quality	Improving Quantity
<p>Improving Quality</p> <p>Patients experience and outcomes</p> <p>Safety and reliability of care</p> <p>Value and efficiency</p> <p>Efficient team working and staff wellbeing</p>	<p>Improving Quantity</p> <p>Reduced waiting times</p> <p>Increased patient throughput</p> <p>Reduced staff time per procedure</p> <p>Improved patient satisfaction</p>

Action Plan

Action – What, Why, How?

Who?

When?

Progress Status (i.e. completed, in progress...)

Removal of 10 process steps & 25% re-work at booking.

Use 5S to reduce searching & reduce costs (stock, walking/motion)

Understand the whole pathway, reduce batch size & non-VA steps

Introduce standard work to reduce variation in way things are done e.g. protocol based care

Everyone being able to spot waste and remove it!

Establish first-in-first-out to enable flow

Use standard work and visual management to error proof

Analyse and flex capacity in response to demand- introduce 'pull'

Improved staff and patient engagement & communication

Progress across individual modules can be monitored as GANTT charts or other types of action plan such as A3 reports

Ensure plans contain SMART goals & are allocated to team members who will be responsible for attainment.

Define specific steps and benefits. You may wish to use a benefits dependency network diagram (BDN).



2. Benefits realisation and Benefits Dependency Networks

What is it?

The word “benefit” is defined in the dictionary as “An advantage on behalf of an individual or group of individuals.”

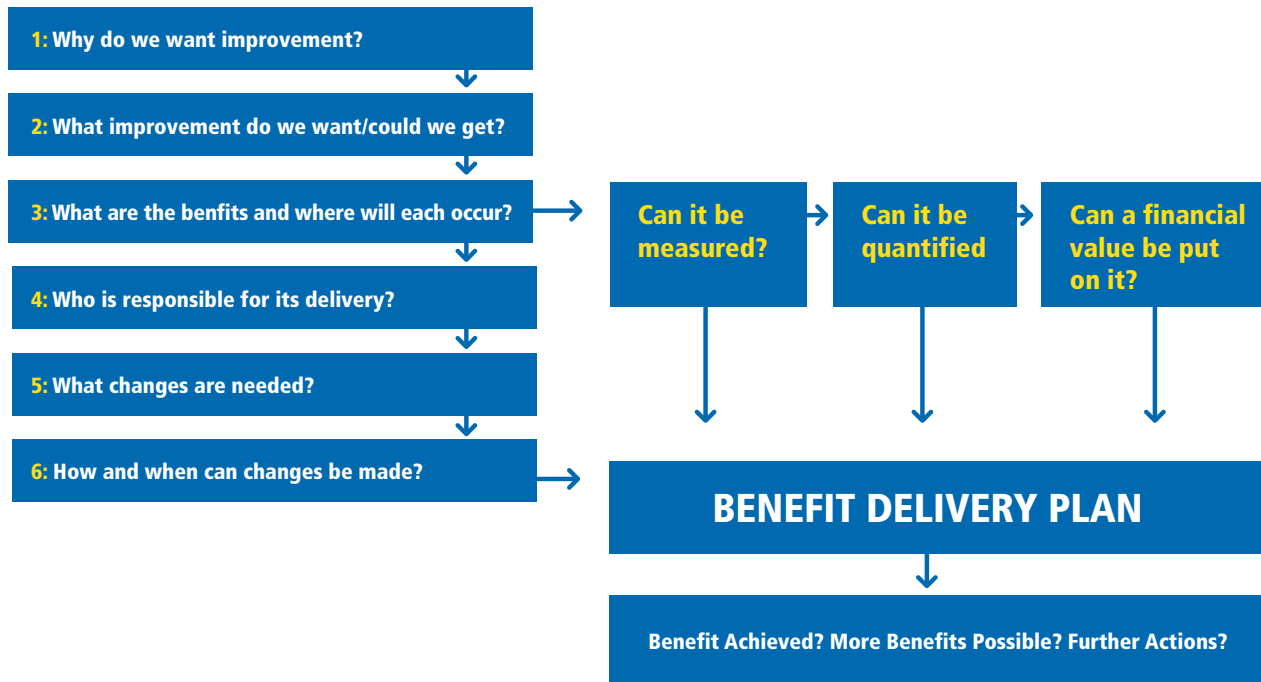
So, for a benefit to be realised, a person or people must perceive and agree that they now have advantages over the previous way of working - the benefit must have happened. These benefits may be in the form of cost savings, but equally may be measured in terms of time savings, responsiveness, quality and effectiveness.

Why do it?

When using PDSA or A3 thinking to make improvement in a process or system, we need to know the changes we are making are actually an improvement. We can do this using the benefits realisation process.

Benefits should be any or all of the following:

- Financial
- Quantifiable
- Measurable
- Observable.



What is benefits realisation?

- Developed by Cranfield University it is the process of organising and managing, so that the potential benefits arising from projects are actually realised
- A process which integrates benefits realisation with change management and can be applied to all types of change programmes as well as IS/IT investments

The benefits realisation process:

1. Identify your 'Drivers' and 'Objectives'
2. Draw your Benefits Dependency Network (BDN) diagram
3. Formulate and structure your benefits
4. As part of your investment proposal, identify the changes you will need to make (business changes, enabling changes and IT enablers)
5. Identify the measures to track the benefits
6. Perform the stakeholder analysis and management.

Focus benefits around:

- Improving outcomes (quality)
- Improving productivity (quantity)
- Contribution to achieving financial health
- Contribution to achieving transformational change.

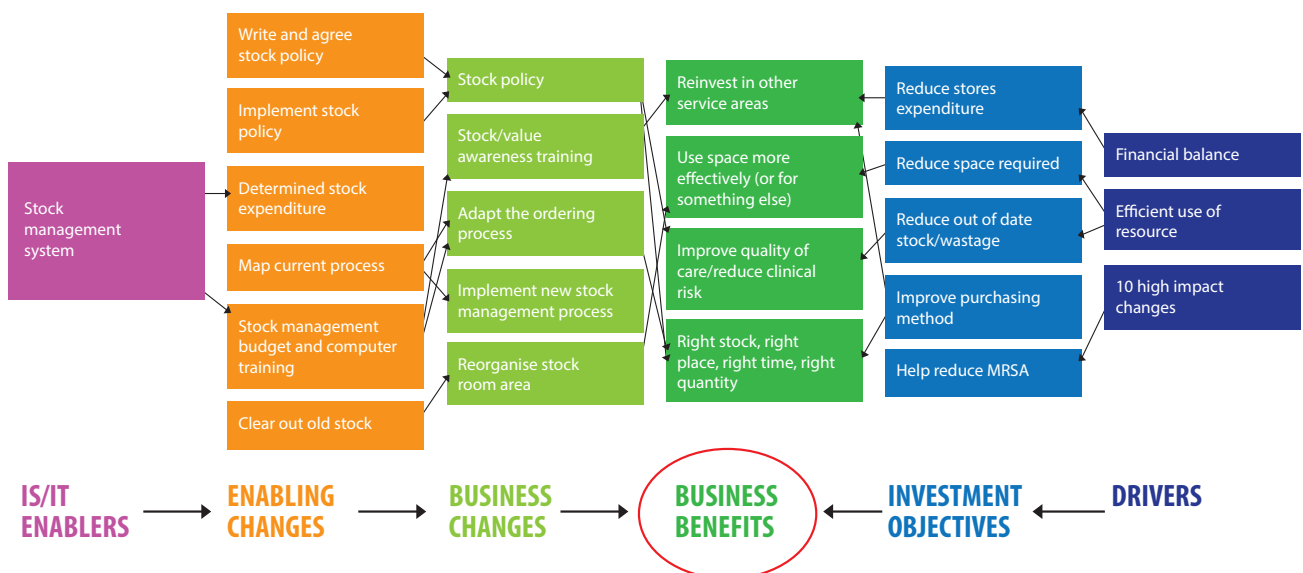
When to use it?

Whenever you are using PDSA or A3 thinking to help visualise the benefits of changes being made and ensure that they are improvements.

Materials required

- Benefits dependency template
- Cost benefit template
- Time benefit template
- Just Do Its (JDI) examples
- Checklist for good practice

BENEFITS DEPENDENCY NETWORK: STORE CUPBOARD EXAMPLE





3. Readiness and sustainability

What is it?

Previous history of service improvement is a good indicator of a team's capability to be successful – but it is not enough. The team have to have the will at this moment in time to implement this programme.

Energy for change: the fuel for transformation

Managing our energy for change and the energies of those around us is an important leadership skill during periods of unprecedented change. Without this, burnout and disillusionment amongst staff pose a serious risk to our change initiatives and to our patients. A youtube video provides an introduction to Energy for Change.

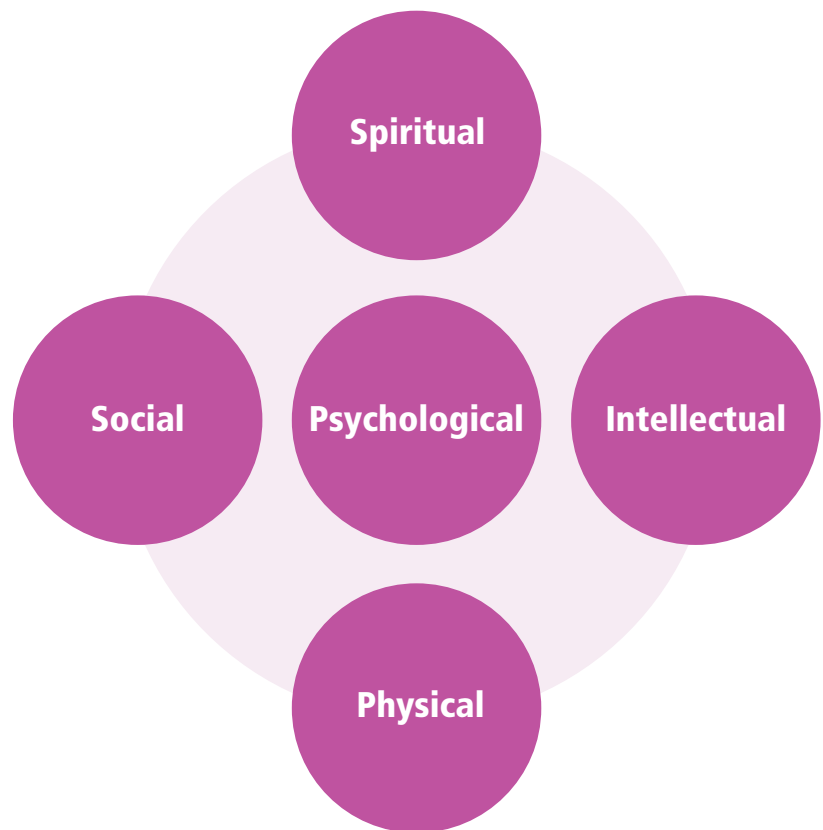
Energy for change is: the capacity and drive of a team, organisation or system to act and make the difference necessary to achieve its goals.

This NHS SSPPI Energy Index is a tool which has been designed to help teams assess their energy for change, and identify areas where there is an opportunity to improve. A roadmap of resources provides tools to build energy for change in your team - visit www.changemodel.nhs.uk

There are five energies that are important for change to be successful:

- Social
- Spiritual
- Psychological
- Physical
- Intellectual.

The team leader should identify the change that they want to measure energy for.



Ask the team to complete the online questionnaire ensuring:

- They use the allocated team code (see www.england.nhs.uk/sustainableimprovement/change-model)
- They understand the change they should answer the questionnaire in relation to
- Anonymity – to encourage honest responses
- A deadline for completion is set.

The team leader will receive their team energy profile and can arrange a facilitated discussion (webinar or face to face), to discuss what areas of energy are depleted and create an action plan to build the energy for the change – based on building commitment to the change. Resources for building energy for change can be found at www.england.nhs.uk/sustainableimprovement/change-model.

Sustainability

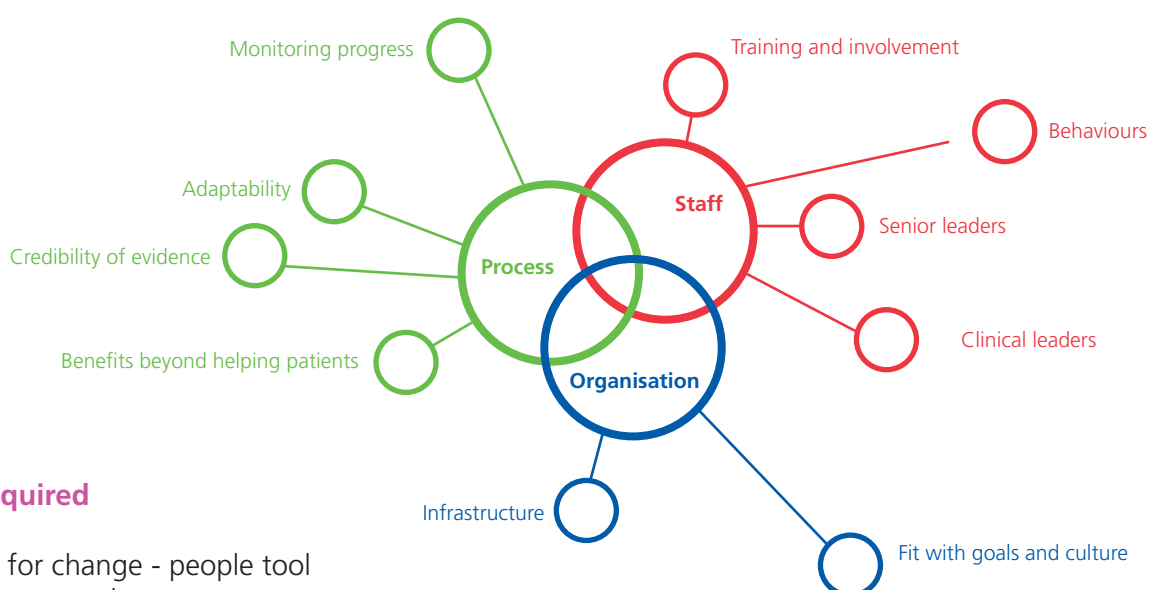
One of the primary reasons why quality improvement is difficult to integrate into an organisation is that many of the changes that are put into place fail to survive.

In an attempt to substantially increase the sustainability of improvements for patients and healthcare services, the NHS Sustainability Model and Guide has been developed for individuals and teams who are involved in local improvement initiatives.

The Sustainability Model is a diagnostic tool that is used to **predict the likelihood** of sustainability for your improvement project.

The Sustainability Guide provides practical advice on how you might **increase the likelihood** of sustainability for your improvement initiative.

The NHS Sustainability Model consists of ten factors relating too process, staff and organisational issues, that play an important role in sustaining change in healthcare. The model has been developed with and for the NHS using a co-production approach.



Materials required

- Energy for change - people tool
- Readiness template
- Sustainability guide
- Sustainability model and guide
- Sustainability template

All material can be found on The Productive Endoscopy Unit web pages.



4. JAG planning and productivity guide

A productivity and planning guide developed by the Joint Advisory Group on Gastrointestinal Endoscopy will be of help to you:

- Productivity and Planning Assessment Tool - User Guide – can be found on The Productive Endoscopy Unit web pages.
- Productivity, planning and assessment tool for self-assessment and action planning – visit www.thejag.org.uk

Planning and Productivity Tool presentation is available on The Productive Endoscopy Unit web pages.



5. Mapping Tools

To help visualise processes and identify improvement opportunities

A. Process mapping

What is it?

A tool to help you understand how a process currently works, identifying areas for improvement and developing and implementing a future state map.

Why do it?

It is very easy to think that everyone involved in your endoscopy unit has a common view of what is going on. This is often not the case. The value of getting everyone to agree on how things currently work, and what the future should look like, should not be underestimated.

Through process mapping the team will create a visual representation of a process detailing all the steps involved. This enables them to see any issues or areas where improvements could be made. It encourages and enables open debate stimulating staff to come up with ideas for potential improvements.

When to use?

- When reviewing existing processes
- To identify issues
- To brainstorm solutions for the identified issue
- To develop and communicate an improved process

Materials required

- Flipchart
- Marker pen
- Sticky notes of various colours (to differentiate between issues/process and potential solutions)
- Long piece of paper (a roll of brown packaging paper or wallpaper lining is ideal)

The endoscopy unit process mapping originates from a technique used in industry. The aim of process mapping is to provide a framework in order to redesign processes where needed, so that each step of the process can deliver greater levels of value.

Value is defined as those activities that patients view as contributing directly to their care pathway. Any activity that does not add value to this is classified as waste.

Process mapping – the process

1. Identify the process you are going to map and who should be involved

- Be clear about which process you are going to map:
 - Define the start of the process (the first step)
 - Define the end of the process (the last step).
- Decide who you should invite to get a broad perspective of the whole process. Consider which staff groups are involved in the relevant steps and invite representatives to the mapping session. Remember to include all staff groups as they will all have knowledge of different steps in the process. Are colleagues from other departments involved in the process e.g. wards? If so, invite representatives along.

Your process map will only be as comprehensive as the group you invite; there will be gaps if some staff groups are not included.

2. Collect data and understand the process

- If possible, video the process you are going to map from start to end before your process mapping session
- If this is not possible then it is important that you visit the area where the process is carried out, observe and make notes about what actually happens
- Try to gather any data that can be used to show the true picture of what happens

3. Create the current state map

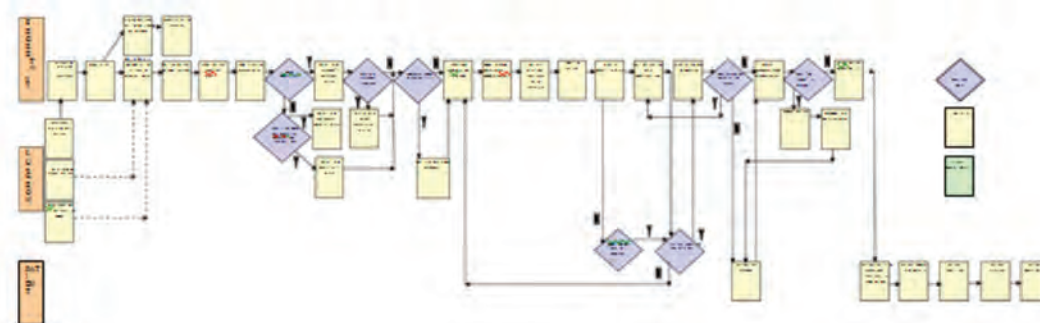
- Put a large roll of paper along a wall on which to create your map. You will be attaching sticky notes that represent each step of your process on to the paper. Ensure you have enough paper to cover the entire process from start to end
- Remind the group of the scope of the session, be clear about where you will start and end your process map. Write the name of the process you are mapping at the top of the paper
- Start to map out your process sequentially, use one sticky note for each step
- If watching the video, start/stop the video at each stage and add the time taken for each step and any time spent waiting to your map
- Actively involve the group to identify waste or activities that should not be happening. Ask them to record these on sticky notes, a different colour to the main steps. Emphasise that this is not about blame, it is about highlighting areas that can be improved
- Continue to do this until you have reached your end point. Finally agree with the team that what you have created is a true representation of what actually happens
- Add all of the waste/activities that should not be happening to the map under the relevant step
- If any documentation is used within the process add it to your map or reference it

4. Analyse the current state map

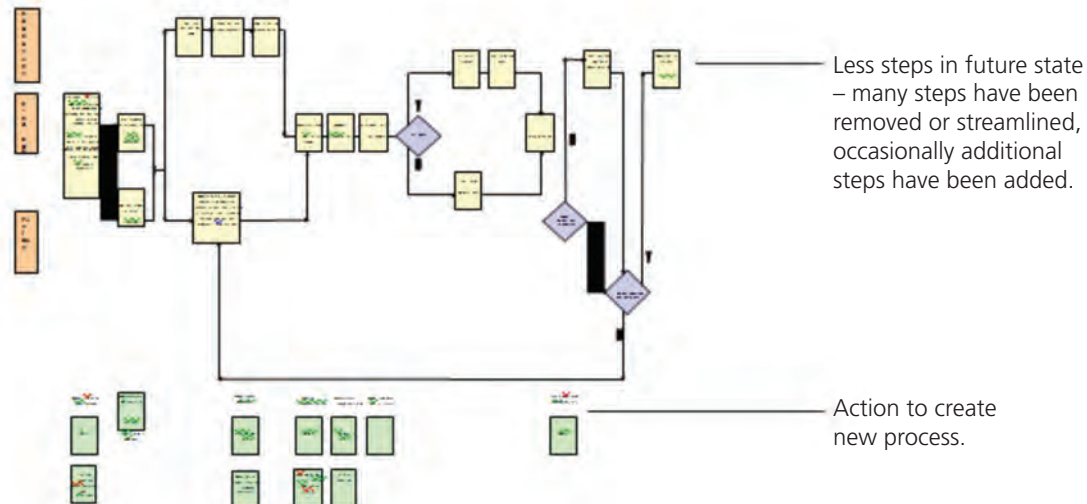
Ask some key questions about the process:

- What waste is there (refer to video waste walk)
- How many steps are there?
- How long does each step take?
- Which steps can be removed?
- Are there any bottlenecks (issues that obstruct the overall flow of the process)?
- How many handoffs are there? A handoff is where a patient's care transfers from one person or department to another. Are any of these unnecessary?
- Is there duplication of work?
- How much rework or error correction is being carried out?
- Are the right people and resources used in the right place?
- Are the right steps included in the process in the right order?
- Is the process set up to run in the most effective and efficient way?

Current state process map



Future state process map



The changes have made a fundamental improvement to how this area works.

5. Look for areas of improvement

- Together, as a group, look for ideas or suggestions on how to improve the current state. Add these suggestions to a flipchart using sticky notes. All ideas, no matter how big or small, should be captured
- Encourage the group to be creative and innovative with their suggestions. Further tools to help staff think creatively can be found in the former NHS Institute for Innovation and Improvement's publication, Thinking Differently

6. Create a future state map

- At this point it is important to aim for the ideal process
- Remove yourself from the constraints within your current process:
 - What would be the safest, most dignified process for the patient?
 - What would be the most effective process for staff?
- Build your future state map in the same way as before, only this time use a sticky note for each of your new steps. At each step write down the action needed to achieve it
- Continue this method until you have reached your end point. Now you can cross reference back to your current state map, to ensure the actions will eliminate all of the waste and activities that do not add value

7. Identify actions and create a plan

- Prioritise your actions by applying your action sticky notes from your future state map to the cost benefit matrix (see cost/benefit analysis)
- Transfer the agreed actions to your module action planner (see module action planner), to allow timing and responsibilities to be assigned. The next stage is to create an implementation plan

8. Implement the changes and confirm results

- Progress through the relevant module to support you in implementing the changes identified
- Monitor your progress through the measures identified as part of Knowing How We Are Doing at your measures progress review meetings, to understand the impact of the changes you make
- Try to quantify improvements made, where possible, and collect quotes from staff/patients to help raise awareness and enthusiasm as you progress
- Confirm your results and feed back to all involved in a timely way

9. Future state equals current state

Once you have created and implemented your future state map, you have effectively set a new standard and so the future state map now becomes the current state from which you can continually improve.

Summary

Process maps allow processes to be broken down into smaller sizable chunks, which can be analysed and understood at a glance by everybody.

Process maps help engage the attention of all participants, whereby their contribution and knowledge is fundamental in making the process maps correct.

Process maps help identify the current state of a process, and when changes and modifications are made, they can also illustrate the future state process with all the waste and inefficient processes removed.

It is vital to go through the process map methodology as the team will identify areas of improvement that may not be so obvious to one individual. It is also important to map the current process in the right level of detail.

“

It is really important to include the relevant groups of staff in your discussions, they are the ones that know the system the best, and are able to identify possible solutions.

”

Susie Peachey,

National Improvement Lead, NHS Improving Quality

B. Value stream mapping

What is it?

Value stream mapping is a tool commonly used to help understand and improve the material and information flow within organisations. Value stream mapping captures and presents the whole process, from end to end, in a method that is easy to understand by those working the process. It captures the current issues and presents a realistic picture.

Through a simple to understand graphical format, a future state (a diagram showing an improved and altered process) can be formulated and defined. The method encourages a team approach and through the capture of performance measurement data provides a mechanism to constructively critique activity. Participants in the activity are encouraged to suggest improvements, identify value and waste and contribute towards and implement an action plan.

Why do it?

The principle aim of value stream mapping is to improve processes. This is achieved by highlighting areas of waste within a process and therefore enabling teams to eliminate these activities. Value stream mapping also has the benefit of categorising process activity into three main areas:

1. Value add
2. Non value add (but necessary) and
3. Waste

Value can only be defined by the end customer. In healthcare the customer is usually the patient. Value is any activity that directly contributes to satisfying needs of the patient. Any activity that does not add value is defined as waste. The mapping process is a powerful tool to look strategically at a process and quickly identify waste and opportunities for improvement.

When to use?

A critical starting point in any problem solving or improvement work is to map the situation (process) in its current state.

Materials required

- Long piece of paper (a roll of brown packaging paper or wallpaper lining)
- Flip chart
- Sticky notes of various colours
- Marker pens

Value stream mapping – the process

1) Preparation

While value stream mapping is not overly complicated it does benefit from some pre-planning. It is important that, for example, a house style is developed using common graphics for use in the map, so that everyone participating does so in a common language. You need to ensure you consider including the following:

- Material flow
- Inventory
- Buffer stock
- Suppliers and customers
- Material transport
- IT system
- Information flow.

Key points to consider in advance and remember throughout the mapping activity are to:

- Keep it high level - use approximately 6-8 process steps
- Focus on the high volume work i.e. 80% of the work. This is called the 'Green Stream'
- Collect true and accurate information by walking through the pathway yourselves

Step 1 - Select your sponsor and set expectations

As with any project, it is important that a sponsor or champion is appointed. This needs to be someone who can make decisions, arbitrate solutions, and plan the project. The sponsor will usually select the processes that will be mapped and will usually have a firm grasp of what achievement is being targeted.

Step 2 - Select your team

The make up of the value stream mapping team is crucial and it is imperative that you adopt a team approach. You should ensure that each area or stakeholder of the process is represented e.g. sales, purchasing, warehouse etc.

2) How to complete a value stream map

Step 3 - Select process to be mapped

Value stream mapping is suitable for the majority of organisations and operational areas and has been used widely in healthcare, as well as in financial, manufacturing, logistics and supply chain sectors. The process to be mapped, including the start and stop point, needs to be defined at the start of the mapping activity.

Step 4 - Collect data and produce current state map

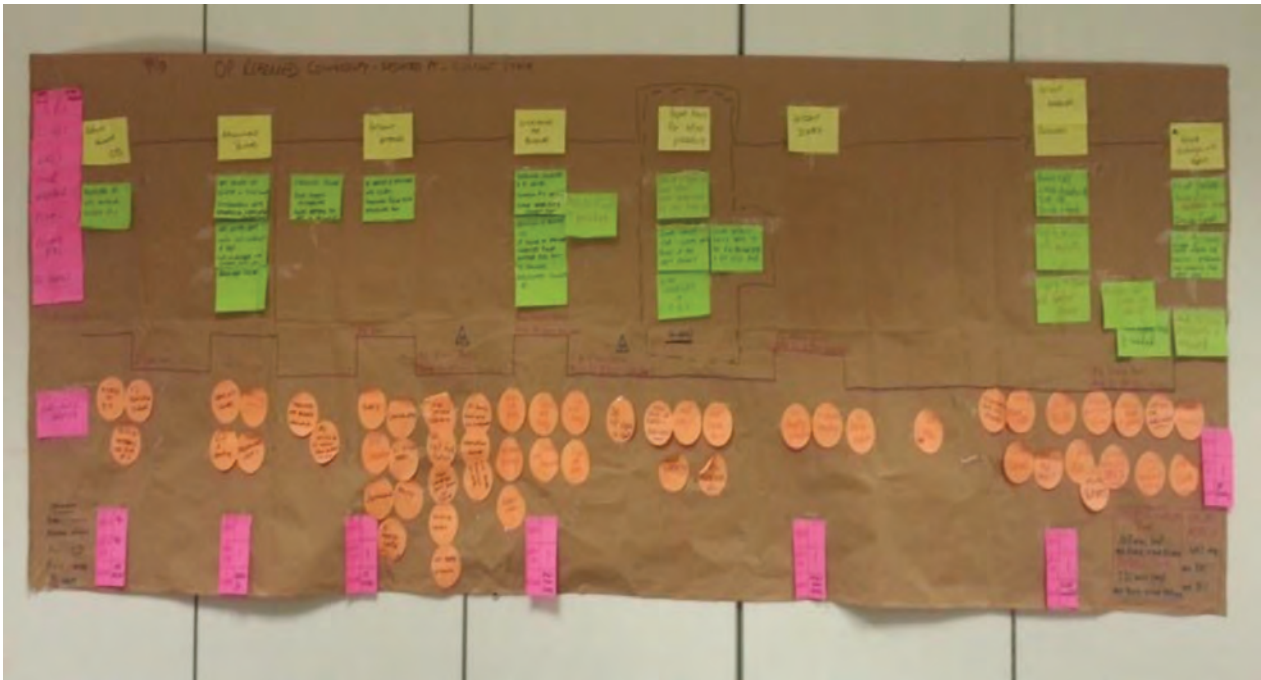
One of the key foundations of value stream mapping is that it utilises and analyses data – this includes process times, inventory or materials information, customer (or demand) requirements. Do not underestimate the time required to capture reliable data – remember that future state maps will be developed using information captured here, so it is imperative you have a correct understanding of the business.

When mapping your current state, use icons/graphics to represent each step – the material flow, the information flow, the supplier and customer. As part of the map calculate the total time taken including both waiting and processing time.

A step by step guide is as follows.

1. Establish the pathway start and stop points
2. Insert the key process steps
3. Add customers (internal and external), other key processes and parties
4. Add the electronic and paper data flows
5. Confirm whether patients, information and/or items are being pushed or pulled through the pathway
6. Confirm key measurements
 1. Cycle time (touch time) – how many seconds does it take to process one patient or item?
 2. Batch size - what is the size of each batch that is handled in each stage of the pathway?
 3. Defects – what percentage of items are not right first time and require rework or further work?
 4. Trigger – what causes each process to start?
7. Insert key measurements on the map
 1. Add cycle times below the relevant process step
 2. Add waiting times in between each process step
8. Confirm the inventory levels between each process step e.g. patients, referrals, samples or reports waiting
9. Confirm the number of people who process a patient or item at each process step
10. Calculate the total cycle time (touch time) of the pathway
11. Calculate the total lead time of the pathway (cycle/touch time plus waiting time)

Example of a current state value stream map



Step 5 - Critique current state

Work with the rule that no idea is a bad idea - use sticky notes or labels to place ideas and possible solutions over your current state map, and encourage everyone to play a part. Analyse the data and encourage your team to make suggestions as to how the process could be improved - challenge the current thinking. Comments will usually take the form of suggested improvements, risks or fixed elements.

Consider the following when analysing the steps within the process:

- Eliminate – are any steps pure waste and could be eliminated?
- Simplify – are any steps overcomplicated or complex and could be simplified?
- Combine – could any steps be combined to flow better?
- Sequence – could any steps be (re)sequenced to flow better?

Most significant, before moving on to the future state, is that you and your team must know the process inside out – check, check and re-check the process.

Step 6 - Map future state

Taking both the current state map and the critiques that you have obtained from the previous stages, compile a future state map, which should incorporate:

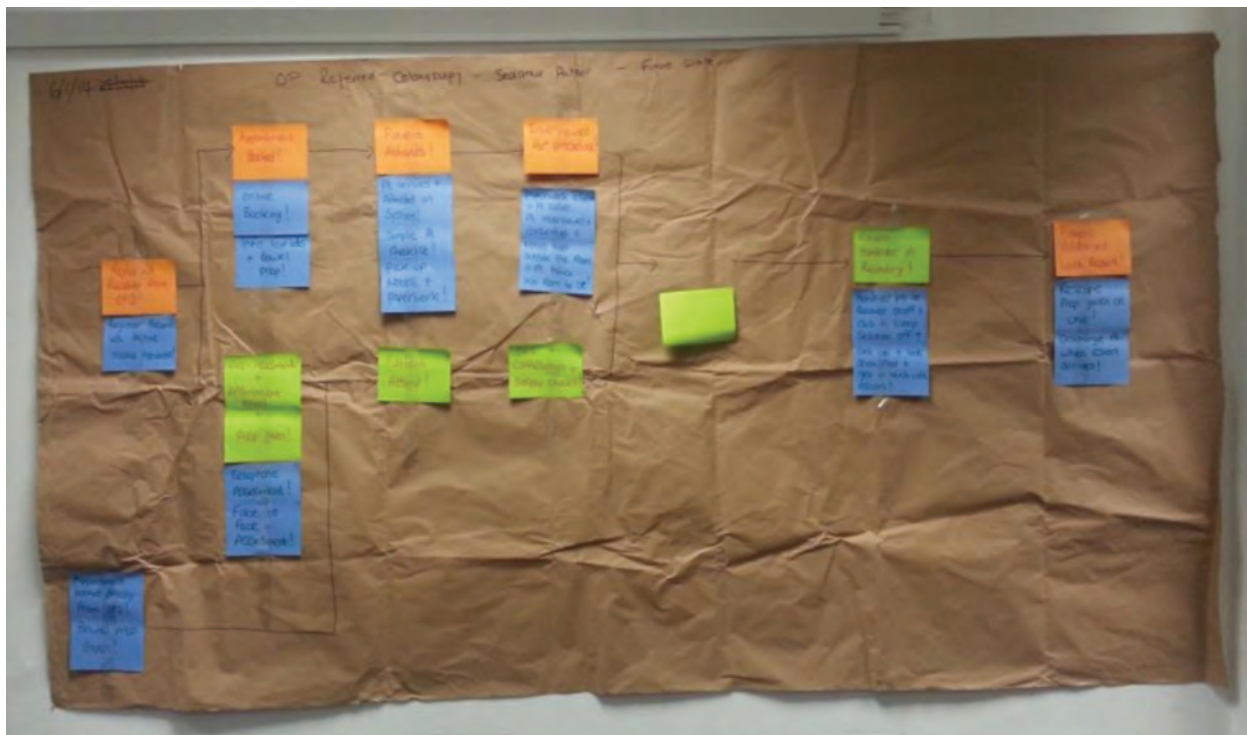
- Aligning output and demand at each stage
- Adequate review of process criticisms from Step 3 has taken place
- Deployment of Key Performance Indicators (KPIs).

When designing the future state, pay close attention to ensure that the process considers the customer requirements. The future state value stream map should aim for a steady state production, ensuring that there is no surplus materials and maximum productivity. Ensure that the map takes the customer(s), supplier(s), material flow(s) and information flow(s) into account.

Your future state map will normally fall into either a 'push' situation, where items are produced irrespective of demand, or a 'pull' situation where items are produced specifically to demand patterns.

KPIs are an important part of the future state, and if they are not already in place you should consider what measures are applicable. Remember that mapping the future state does not change the existing process – it is merely a method of graphically representing changes that could be made.

Example of a future state value stream map



Step 7 - Create action plan and deploy

Taking the future state value stream map, consider an action plan that could be implemented to change the current process to the future state. This could be done in a number of ways e.g. it could be staged in that elements are introduced sequentially (this works well if there is a series of easy to introduce changes that can leverage immediate benefits). Another method is a “Big Bang” approach, for example, the department could close down on a Friday and all the changes required to implement the future state are implemented over the weekend, and the team start up the new process in its entirety on the Monday morning. There are various options and you should consider your operational requirements to get the best method.

Step 8 - Measure benefits

After the future state has been deployed after a period of time, a review should be undertaken where you check to ensure that the benefits expected have been obtained. Review each change made and analyse the benefits through utilising the KPI's deployed at Step 4 to provide insight.

C. SIPOC

What is it?

The SIPOC is a visual summary table of the inputs and outputs of a process. The acronym stands for all Suppliers, Inputs, Processes, Outputs and Customers, which typically form the columns of the table. The focus is on capturing the inputs and outputs rather than the individual steps in a process.

What is it for?

The key value of using this tool is that it gives people who are unfamiliar with the process a high level overview, and gets people to think about everything that will be involved in defining a new process.

By defining everything involved you can gain agreement on the scope of the process/project before any improvement work begins.

How to complete a SIPOC

- 1 List the high level process steps as they occur under the 'P' column. Do not include too much detail – this will be done when process mapping. Gaining agreement on the first and last process steps ensures that the 'scope' is agreed by the team
- 2 List all the Outputs from each process and any specific requirements of each output
- 3 List all the Suppliers to each process under the "S" column
- 4 List the Inputs to the process they provide under the "I" column. Add specific requirements needed for each process to occur. The inputs (X's) are the sources of variation and the variation results in defects
- 5 The inputs must be controlled to prevent defects and minimise them in the output. Resolving the root causes to the sources of variation is essential to meeting customer targets (output requirements)

Suppliers	Inputs	Process	Outputs	Customers
GP's/Consultants Wards Med Records Transport OPD Lab Staff Bed Mgt Secretaries Gastroenterologists/ Surgeons/ Nurses Endoscopists IT Pharmacy Stores Med Suppliers	Diary ORMIS PAS 1 Weeks 62 Days Records Endoscribe/ soft	Vetting Booking Pre-assessment Consent Admission Procedure Report Recovery Discharge Results	Adapt date Patient prep Pre-admission Report Scoping Notes	Patients GP's/Consultants Nurses Doctors Admin Staff Wards Lab Staff Clinic Staff Secretaries Admission Coding



6. Meeting tools – to help you hold meetings that engage staff fully and communicate efficiently

Meetings include brief/debrief, huddle and the World Health Organisation (WHO) safety checklist. A meeting is an important tool to generate discussion and ideas.

What is it?

A structured gathering of all relevant staff to discuss and set actions on specified subjects.

Why do it?

- Discussing issues and agreeing potential solutions is often more effective with several key people
- Staff coming together at regular intervals keeps everyone feeling involved and part of the team, and also ensures ideas and actions are captured
- It empowers the group to implement solutions and actions
- It ensures actions are implemented and deadlines are not missed

When to use?

- To initiate a module
- To support project teams to implement modules
- To review endoscopy measures
- When issues are arising, and need to be discussed and resolved
- To communicate with the multidisciplinary team
- To track progress of actions

Materials required

- Flipchart
- Marker pen
- Other materials depending on the type of meeting e.g. project plan, process map, analysis of measures for the measures review meetings

TIPS: When organising a meeting, make sure the environment is equipped to support the group's needs and book the room well in advance

Meeting – top tips

Preparation

- Understand the purpose of the meeting
- Decide who needs to attend
- Consider start and finish times of the meeting, is it too long, too short?
- Set an agenda; this will give you a structure to the meeting and allow you to apply appropriate timings
- Circulate the agenda and any additional information required in plenty of time
- It is sometimes useful to send out meeting reminders with the agenda and actions from the previous meeting
- Decide who will take notes

During the meeting

- Start the meeting on time, with an explanation of the objectives and agenda
- Ensure everyone knows each other, do a round-robin of introductions
- Review next steps/actions from the last meeting
- Capture next steps/actions as they arise throughout the meeting on a flipchart
- For every action identified, record the person responsible for the action and a deadline for completion
- Pause, and ask for questions/clarification
- Conduct a short meeting review, do a round robin to ensure all ideas, issues and questions have been addressed
- Set date and time for the next meeting

After the meeting

- Ensure the actions are circulated to the group as soon as possible

More detailed guidance and advice on how to make meetings productive and guidance on how to make email less of a burden, can be found by exploring The Productive Leader programme - visit www.nhs.uk/productiveleader

A review meeting template can be found on The Productive Endoscopy Unit web pages.

A productive meeting needs an effective agenda

Order the agenda according to the importance of the objectives

Assign realistic timings to each item

Agenda Template

Meeting title and no:				Date:		
Time:				Venue:		
Agenda no	Item description	Objectives/desired outcomes	Process	Item presenter	Time allocated per item	% achieved
Next meeting title/no	Time	Date	Venue	Chair		

Assign presenters to each item

Schedule breaks for meetings that last over an hour as the average adult's attention span is only 40 minutes

At the end of the meeting review the extent to which the objectives have been achieved

The role of the meeting chairperson

It is:

- Agree an agenda – and ensure all topics are covered
- Set the context for discussion – and hear the opinions of others
- Encourage brainstorming to reach a collective decision
- Reflect on the experience of others, to bring in all points of view
- Ensure no meeting ends until next steps, with responsibilities and deadlines, are defined.

It is NOT:

- Discuss what seems interesting at that point
- State own opinions as context
- Decide oneself and then convince others
- Treat what they have seen as the right way to do things.

As the person chairing the meeting, if you appear to be unprepared it will reflect on the outcome of the meeting.

Brief/de-brief and huddle

A daily or twice daily, short and snappy gathering of a team, led face to face by the team's manager or team member:

- 10 – 15 minutes duration, conducted in a high involvement style, with everyone on their feet
- Stand in a circle – eye to eye
- Conducted in the work area – do not waste time going to meeting rooms
- Use "energisers" when needed to engage attention
 - Focus on key goals
 - Clarity - clear, relevant and timely information to help staff perform their daily roles
 - Commitment to listen to and act on staff views, ideas, concerns and to feedback progress.

The following resources for this section can be found on The Productive Endoscopy Unit web pages.

- 'Huddle' preparation tool, and further information on how to huddle
- Amended WHO safety checklist

You will also find useful the Huddle Improvement presentation on The Productive Endoscopy Unit web pages.



7. Patient Experience Tools – to help you engage with patients and use patient feedback effectively

Patient and carer involvement has increasingly become accepted by planners, service providers and users of the service, as a valid concept. Now more than ever we need to listen and act on the views of patients and the public, and ensure it is an integral part of the planning and delivery of healthcare.

Interviews

What is it?

Talking to staff and patients to gain information, facts, opinions and ideas.

Why do it?

You may think that you know what staff and patients think and feel but until you ask them, do you really know? Asking for their thoughts and experience will give a different perspective on the topic.

When to use?

Before starting a module, to understand how staff and patients feel about:

- The way the process runs currently
- What needs to change
- The possibilities of change.

After implementing a module to understand how staff and patients feel about:

- Is it an improvement?
- Are they excited and willing to participate?
- Are there any issues?
-

Materials required

- Notepad
- Pen
- Dictaphone (some people prefer to use a dictaphone but it is not essential)

TIPS: Always carry a notebook, when you hear a useful comment write it down

“

Talking and listening to staff and patients will be vital to the success of your Productive Endoscopy Unit programme- this is a joint service improvement journey.

”

Susie Peachey,

National Improvement Lead, NHS Improving Quality

Interviewing – top tips

- 1 Make sure the interviewee has sufficient time for the interview. The environment has to be right: private, and not too noisy to ensure the interviewee is comfortable when answering the questions
- 2 Always have an interview guide prepared before you start talking – this is simply a list of questions to ask, and information you require
- 3 When coming up with the questions, keep the interviewees' perspective in mind – how will they feel about that question, what are their priorities, are they in a position to answer your questions honestly?
- 4 Start the interview by explaining the purpose for the interview and what you will do with the information you gather
- 5 Make it explicit as to whether what is said will be attributed back to the interviewee or not
- 6 Before starting, ask if the interviewee has any questions
- 7 Run through your questions list – but actively listen to the answers – sometimes they may take you down another path. Feel free to abandon your scripted questions if more valuable information is forthcoming
- 8 Take notes or use a dictaphone. If using a dictaphone, make sure the interviewee is comfortable with this. *Bear in mind that if you plan to use the recording for anything other than your notes, you must gain consent from the person being interviewed*
- 9 Convert the notes to a formal record as soon as possible – this is essential to capture the detail of the interview
- 10 Ideally, share the interview notes with the interviewee to make sure you have captured it correctly
- 11 Use open questions i.e. questions that do not inadvertently lead to pre-defined answers
- 12 For more information about designing your service based on patient and staff experience see the Patient Experience module of The Productive Endoscopy Unit



Using open questions

Informal conversations with staff, patients and stakeholders, can be a valuable and efficient research method. When you are working on a particular project you may be looking for specific feedback, usually this will influence the way that you ask your questions.

Open questions are questions that do not direct people to give particular answers and they do not make any assumptions.

Using open questions will help you to minimise your influence on your interviewee and gain a true picture of the current perception, rather than leading them towards a particular response.

For example, after running a programme you might ask:
'What do you think of the improvements in the endoscopy unit?'

This question is problematic in numerous ways.

1. It presumes that the person has noticed that some changes have been made
2. It presumes that a project has produced improvements
3. The framing of the question forces the person to answer in the positive. They could be seen as rude if they answer negatively

An open version of the same question might be: 'What is your experience of this programme?'

No question is entirely open and you will always inject your own interests and motivations into a conversation. However, if you can become aware of how you are directing the conversation you can gather more detailed and honest information.

Try to think about the category in which you want information. For example, staff satisfaction. You may want to think of a few open questions under this category such as:

- How long have you worked here?
- Has it changed?
- What is it like to work here?
- How do you feel about your work?

You may find it useful to rephrase a question and ask it again if you think an interviewee has more to say on this subject.

If you are getting useful results and you want the interviewee to continue speaking in the same vein, you may find it useful to repeat back what they have just said to you. This can encourage them to keep speaking and often they will go deeper into their feelings on a particular issue.

For example:

"I feel we could have gone much further with the improvements if we had involved more people."

"If you had involved more people...?"

"If we had involved more people the programme would have happened much more quickly... it seemed that people who weren't told about it at the beginning started to slow the whole thing down."

Practising these techniques can help you become more aware of the way you are asking questions and gaining more useful insights. You can also practice by listening to the way other people ask questions, or encouraging people to expand on what they have said.

For more detailed information on patient engagement, refer to the Patient Experience module of The Productive Endoscopy Unit, although some tools can be found on The Productive Endoscopy Unit web pages.

- 15 Steps checklist - Patient perspective
- 15 Steps Challenge Toolkit - Patient perspective
- Mystery Shopper Information Template
- Patient feedback card 'Just a minute'



8. Process analysis, efficiency and defect reduction tools

Analytical tools that help to identify opportunities to create efficient and defect free processes

A. Pathway analysis

Photographs



What is it?

Taking photographs is an excellent way to instantly collect data that also doubles as a presentation tool.

Why do it?

- To demonstrate the difference before and after a change
- It is a very good communications tool: 'a picture speaks a thousand words'
- It captures perishable evidence such as events
- To avoid hearsay

When to use?

Photographs should be used to capture:

- Events (meetings and workshops)
- Displays (Knowing How We Are Doing, Operational Status at a Glance and information boards)
- Situations that change e.g. anaesthetic room before and after 5S

Materials required

A camera (ideally digital, with more than three megapixels). Communication departments often have cameras which you can borrow.

Photographs – top tips

- 1 Use a digital camera – photographs can then be transferred to a computer, emailed, printed, and included in presentations
- 2 Ask staff and patients for permission to photograph them: get written consent (see the following page)
- 3 If patients are unable to give informed consent assume you do not have their permission and do not photograph them

- 4 Make sure the area being photographed is well lit
- 5 Always keep your back to the light source
- 6 Determine exactly what is needed in the photo
- 7 Steady yourself, and the camera
- 8 Allow a few seconds for the camera to focus
- 9 If photographing text ensure you take photographs with and without the flash. Different surfaces react differently. Reactions to flash are not always evident when viewed on the camera screen
- 10 If using a digital camera (with a large memory), take two photographs every time – one as back-up
- 11 When people are photographed, show the photograph to them before using it in a presentation/meeting

Written consent

Under no circumstances should you take photographs or videos without the consent of those involved and your governance department's approval (this should only be required once per programme).

Ask your communications department for your organisation's photography consent form. Ensure one has been filled out by everyone in your photographs.

Be extra careful when photographing patients. If a patient is unable to give informed consent then assume that consent has not been given.

Ensure that you keep the photos, video and camera securely i.e. in a locked cupboard and log the details on a list.

Video

What is it?

Using video is an excellent tool to collect data that doubles as a powerful presentation tool.

Why do it?

- It is a very powerful communications tool
- It captures 'perishable evidence' such as meetings and events
- Allows you to view your department from a different perspective
- Crucially, video allows you to view real time events, processes and interactions

When to use?

Video should be used to capture:

- Entire processes e.g. patient handovers
- Situations that change
- Waste walks
- Demonstrating the difference before and after a change.

Materials required

- Camcorder (digital or mini DV camcorder recommended) - communication departments often have these cameras which you can borrow
- Appropriate viewing screen and connection leads so that you can watch your footage back

TIPS: Make sure the video is representative of real life, avoid the temptation of putting on a good show for the camera

Video – top tips

- 12 Practise using the camcorder before you record anything:
 - Find out how to start and stop recording
 - Practise how to hold the camera to avoid shaking and jerky movements.
- 13 Ask staff and patients for consent to video: get written consent. If patients are unable to give informed consent, assume you do not have their permission and do not video them. Your governance or communications department can help you with this
- 14 Give staff members at least one day's notice of the intention to video. You can do this by putting signs up in the changing areas and on your information boards, include it in your newsletter and mention it in your team meeting
- 15 Choose someone who has used the camcorder before to do the recording if possible
- 16 Make sure the camera is charged and that you have an empty tape/memory stick
- 17 Ask staff to behave exactly how they would normally
- 18 Try to stand back and film from a distance to allow staff to work unhindered, and aid the scope of what you capture on film (being mindful of getting consent). Be careful of the sound quality and try a test run before the actual recording starts

- 19 Pick one member of staff to follow
- 20 Before sharing the video with the multidisciplinary team, watch the video to make sure it has recorded properly, to resolve any technical playback problems and to begin to understand the issues presented by the video

TIPS: Watch the video with the team involved before sharing with a wider group of colleagues. Some of the video you capture could be sensitive.

(Video) waste walk/analysis

What is it?

Using video to walk through the endoscopy unit will help you to identify causes of waste, e.g. waste of space, equipment, consumables, resources and above all, time (see following page for the seven wastes).

Value is defined as those activities that patients view as contributing directly to their care pathway. Any activity that does not add value to this is classified as waste.

Why do it?

It is a simple way to identify areas for improvement, particularly 5S activities. It is much easier to recognise areas for improvement by watching a video as a team. Also, looking at a familiar area onscreen, removing yourself from the situation, forces you to see things from a different perspective.

When to use it?

A video waste walk is essential to prepare for the Well Organised Unit. It is worth recording a video waste walk as often as you can – it does not have to be the whole department each time, you may think about just focusing on one particular procedure room. There is never a bad time to detect waste!

Materials required

- A sharp eye!
- Notebook to take notes
- Camcorder (digital or mini DV camcorder recommended) - communication departments often have these cameras which you can borrow
- Appropriate viewing screen and connection leads so that you can watch your footage back

TOP TIPS: It is wise to film a video waste walk as early as possible during the start up stage of the programme. This will be a very powerful tool when you play the video back to staff.

The types of waste have been identified in the A3 thinking tool and the templates can be found on The Productive Endoscopy Unit web pages.

Video waste walk – the process

- 1 Obtain the appropriate consent from anyone who may feature, however briefly, in a video waste walk of the endoscopy unit
- 2 Ask someone who does not spend much time in the department to walk with you, they will provide a fresh pair of eyes when looking at your department
- 3 Ask yourself some common sense questions – do I see any space underutilised, are there too many consumables being stocked, is the stock storage unit too large, is there equipment sitting idle in corridors?
- 4 Walk through the department with the video camera turned on. Look out for examples of the seven wastes (see A3 thinking tool), video from the perspective of the patient. Take your time, film up, down and around, film staff and facilities. A video waste walk can take up to 25 minutes
- 5 Watch the video back as a group - take guidance from the video tool. Before starting the video tell the group that they should be looking out for any evidence of the seven wastes, or issues relating to the patient experience. Remind the group what the seven wastes are
- 6 As the multidisciplinary team watch the video, ask them to write down any issues they see onto sticky notes
- 7 Put the sticky notes onto a flipchart and, with the team, categorise them into the seven wastes. Include any miscellaneous ones into an 'other' category. You will find many environmental issues you pick up fit into this latter category
- 8 Ask the team to generate ideas on how these things can be improved or resolved. These ideas should be listed against each of the seven wastes
- 9 You should finish with a completed waste video sheet, either on a big flipchart or copied onto A4
- 10 Copy identified solutions onto a cost/benefit sheet and prioritise ideas using the guidance in the Toolkit for cost/benefit analysis

Type of Waste	Describe an example of this waste in your work environment	Describe your ideas about what could be done to reduce or eliminate it
1. Defects and rework Having to repeat things because errors were made at a previous stage in the process <i>Example:</i> Repeating things because the correct information was not provided in the first place	<ul style="list-style-type: none"> Notes not completed e.g. incomplete discharge summary, no information about outpatient appointment 	<ul style="list-style-type: none"> Raise awareness of correct documentation and the implications of not completing it
2. Motion Unnecessary people movement, travel, walking and searching. Things not within reach, things that are not easily accessible <i>Example:</i> Searching for essential equipment	<ul style="list-style-type: none"> Staff looking for a patient on the ward stated on the procedure list, when the patient had been transferred to a different ward without telling endoscopy Trying to find a team member to receive a patient for handover to recovery Staff returning to the ward from endoscopy to collect essential documentation required during the handover that had been left on the ward Looking for essential equipment and consumables e.g. an extra diathermy machine 	<ul style="list-style-type: none"> Improve communication between the ward and endoscopy about changes made to the procedure list, including patient location Train additional team members to receive patients Develop a checklist on what is required during the handover and add it to the sending for slip
3. Overproduction Producing more than what is needed or earlier than needed by the next step in the process <i>Example:</i> Requesting tests that are not required	<ul style="list-style-type: none"> Repeating questions or information that are not relevant to that handover stage 	<ul style="list-style-type: none"> Identify which pieces of information and questions are required at the different handover processes to make it more streamlined. Look at developing new handover template
4. Transport of products or materials Moving materials unnecessarily <i>Example:</i> Moving notes around the organisation	<ul style="list-style-type: none"> Loaned instrumentation set arriving in the procurement department not directly to endoscopy Consignment stock difficult to find 	<ul style="list-style-type: none"> Ensure deliveries can come directly to the department Improve location of storage areas so that they are near the relevant procedure rooms
5. Unnecessary waiting Staff unable to do their work because they are waiting for something such as people, equipment or information <i>Example:</i> Waiting for the full multidisciplinary team to arrive to start team briefing	<ul style="list-style-type: none"> Waiting to see patient to consent Patients waiting in the day room without staff knowing they have arrived Waiting for results Waiting for the multidisciplinary team to arrive to commence the team brief Waiting for equipment and instrumentation or implant to arrive 	<ul style="list-style-type: none"> Staggered admission Improve systems to collect information about when a patient has arrived e.g. develop a Patient Status at a Glance board to acknowledge and communicate patients' arrival Develop a reliable pre-assessment process Set and communicate a time that briefing will start Cover what is needed throughout the day in the team brief to avoid delays
6. Stock inventory Too much stock, work in progress or patients waiting in a queue <i>Example:</i> Excess stock in store rooms	<ul style="list-style-type: none"> Excessive consignment and non consignment stock Old instrumentation sets still being stored 	<ul style="list-style-type: none"> Do an inventory audit to identify required stock levels of equipment and consumables. Perform some 5S activities
7. Overprocessing Performing unnecessary steps that do not add value <i>Example:</i> Repeatedly asking for the same information at different stages in the process	<ul style="list-style-type: none"> Repeating questions or information that are not relevant to that handover stage 	<ul style="list-style-type: none"> Identify which pieces of information and questions are required at the different handover processes to make it more streamlined. Look at developing a new handover template

Spaghetti diagram

What is it?

- A tool to track the physical motion of people or material in a particular location
- To track a person/material as it enters an area
- To draw the path taken on the plan of the area

Why do it?

It reveals where unnecessary motion is being caused due to the location of equipment and materials.

When to use?

- After a video waste walk to reiterate the amount of motion
- Before implementing the Well Organised Unit module in a given area
- Whenever you suspect a particular area of the department is not laid out properly, leading to excessive walking, or moving of equipment/materials

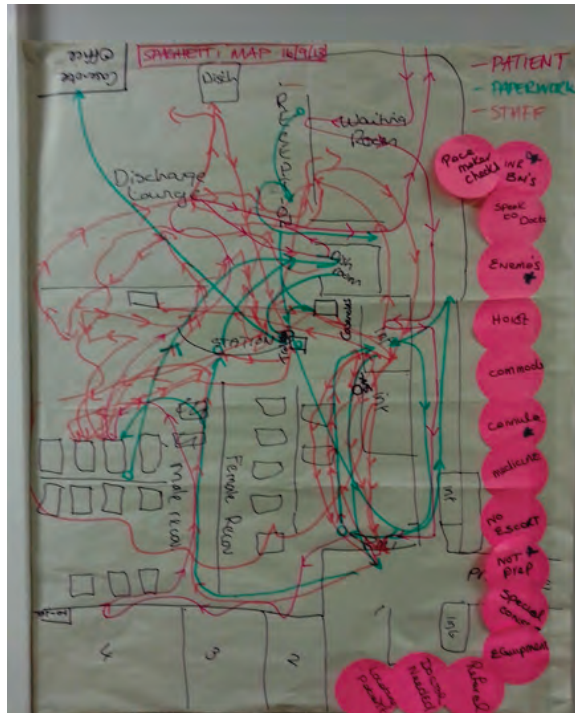
Materials required

- Plan of the relevant area (ask the facilities department for this)
- A board to hang the plan or a wall outside the relevant area
- Some coloured pens so that different movements can be tracked individually

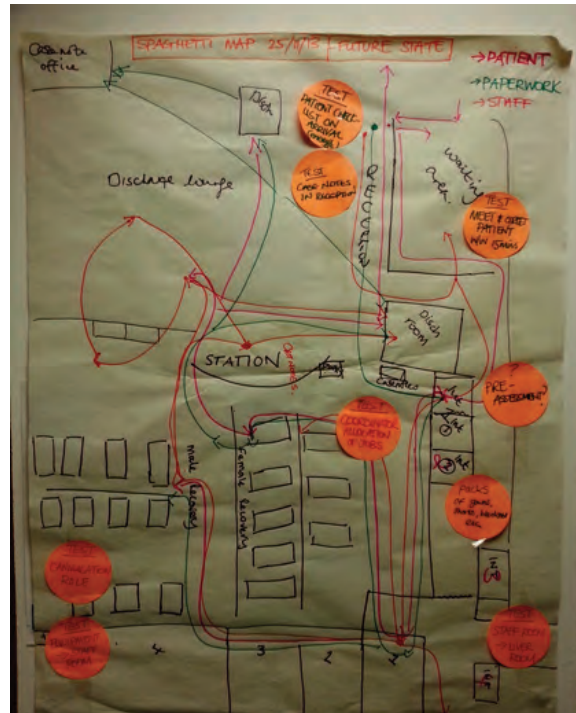
Spaghetti diagram – the process

- 1 Understand how the area is currently used, by using videoing or by watching the particular area in use
- 2 Importantly, time how long processes take in the current state
- 3 Interviewing staff in order to understand their movement (see interviews)
- 4 Obtain or create a copy of the plan for your department. If required use a photocopier to enlarge the area you are working on (room or larger area)
- 5 Plot the movement of the staff member onto the plan, detailing typical movement for a staff member undertaking a process
- 6 With your team, discuss how the area could be arranged and/or the process can be redesigned so that the movement is reduced and time saved
- 7 Plot the newly designed process route onto the plan in a different colour
- 8 Often the changes to process route will coincide with changes your team is making using the Well Organised Unit module
- 9 Quantify the time you could save by walking the new route and timing it
- 10 Use time benefit quantification to translate the time saving into a positive message to the wider team

Current state spaghetti map for colonoscopy patient journey



Future state spaghetti map for colonoscopy patient journey



Glitch counts

What is it?

A glitch is a problem, issue or frustration that has a negative impact on the endoscopy list. A glitch count is a way of identifying and counting glitches on a daily basis in the endoscopy unit.

Why do it?

The glitch count can be used when a glitch is recurring, such as a piece of equipment not working, or not being available. It helps staff to identify all the glitches, particularly the reoccurring ones in endoscopy, and identify the potential causes. The endoscopy teams are able to capture the number of times the glitch occurs, and for what specific reason.

When to use?

This tool works best when it is built into the routine daily work. It is particularly useful when linked into the debrief at the end of each session (see Team Working module). This will ensure all glitches are captured on a daily basis, allowing staff to record recurring glitches and importantly see problems disappearing as they are resolved.

Information on recurring glitches can be gathered to understand the underlying root cause. Use the 5 why analysis to help you identify potential solutions. Once implemented, present back to the team during team debriefing and departmental meetings, and ensure the glitch count is continued to ensure the issue has been resolved.

Materials required

You will need a glitch count sheet and a marker pen. A good method of capturing glitches is on a wipe board in each room or area of the endoscopy unit.

The results can then be presented back to staff in bar charts (Pareto):

- How many issues have been resolved
- The number and causes for the glitches.

In addition, full pathway timings can identify glitches in processes - for example delays and waits for the patients. See the time measurement tools available on The Productive Endoscopy Unit web pages. A full start/stop audit tool can also be found on The Productive Endoscopy Unit web pages.

Procedure	Time of appointment	Time taken through for admission process	Time admission process complete	Time patient called into procedure room	Time patient leaves procedure room	Time patient discharged

TIPS: This tool works well with the 5 why tool. Once the glitches have been identified, asking the 5 why helps you to identify possible causes for the problem and provide a good starting point to resolving problems

B. Capacity and demand - using the NHS Improving Quality or IMAS tool

Glitch Type	Common Cause	Number
Staff Related	<ul style="list-style-type: none"> Surgeon / Anaesthetist Late Understaffed Unanswered Bleep No Porter No Surgeon Available No Anaesthetist Available Staff from other Theatre seeking Equipment/Advice 	
Patient Related	<ul style="list-style-type: none"> Patient not Admitted Patient not Arrived Patient Location Unknown Patient waiting for Diagnostics Patient not Ready – Clinical Reasons Patient DNA 	
Flow Related	<ul style="list-style-type: none"> Recovery Full 	
Time Related	<ul style="list-style-type: none"> Late Start Late Finish Waiting for Patient 	
Documentation Related	<ul style="list-style-type: none"> Site of Surgery not Documented Patient not consented Theatre List Incorrect/Incomplete Missing notes Documentation Not Complete List Order Changed on Day 	
Theatre Related	<ul style="list-style-type: none"> Disposable Items Opened and Not Used Missing / Unavailable Equipment 	

CONSUMABLES GLITCH CHART		
ISSUES	TALLY	COMMENTS
OUT OF STOCK		
TOO MUCH STOCK		
CAN'T FIND		
OUT OF DATE		
MISC		

What is it?

Looking at, and matching capacity and demand, is a key approach to removing some of the visible and hidden backlogs along the patient pathway. Waiting lists build up because demand for work sometimes exceeds our capacity to do that work. Evidence suggests that our capacity to deal with work varies more than the demand. The mismatch is due to variation in both demand for work, and variation in our capacity to deal with it.

Why do it?

Accurate analysis of care processes as well as a clear understanding of demand, activity, capacity and your queue, is essential if you are to achieve effective and sustainable service change or redesign.

When to use?

There are four key measures (capacity, demand, activity and backlog) that you need to understand and implement if you are to manage waiting lists, deliver effective patient focussed services and make informed decisions.

You should aim to measure demand, capacity, activity and backlog in the same units for the same period of time i.e. in minutes, over a 24 hour period, weekly or monthly, so that you can compare the four measures on a single graph.

How to measure demand

Multiply the number of patients referred from all sources by the time it takes in minutes to process a patient. For example, an endoscopy takes 45 minutes to complete so 5 patients having an endoscopy would take $45 \times 5 = 225$ minutes.

How to measure capacity

Multiply the number of pieces of equipment by the time in minutes available to the people with the necessary skills to use it. For example, 2 treatment machines \times 480 minutes of session time = 960 minutes of capacity each day.

How to measure activity

Multiply the number of patients by the time in minutes it takes to process a patient. For example, 100 patients processed \times 20 minutes each = 2000 minutes of work done each day.

How to measure the backlog

When measuring demand and capacity, you must first calculate the backlog, which is the number of patients waiting. This is normally shown in the number of minutes it will take the patients to be processed. Multiply the number of patients waiting by the time in minutes it takes to process a patient. For example, 100 patients on the waiting list \times 20 minute treatment time each = 2,000 minutes backlog. On a daily basis, there may be more referrals (demand) arriving for a service which adds to the backlog.

Materials required

Capacity and demand excel data collection tool

Capacity and demand process analysis, efficiency and defect reduction tools

These can be found on The Productive Endoscopy Unit web pages.

TIP: Examples of use of capacity and demand can be found in module case studies

C. Statistical Process Control (SPC)

What is it?

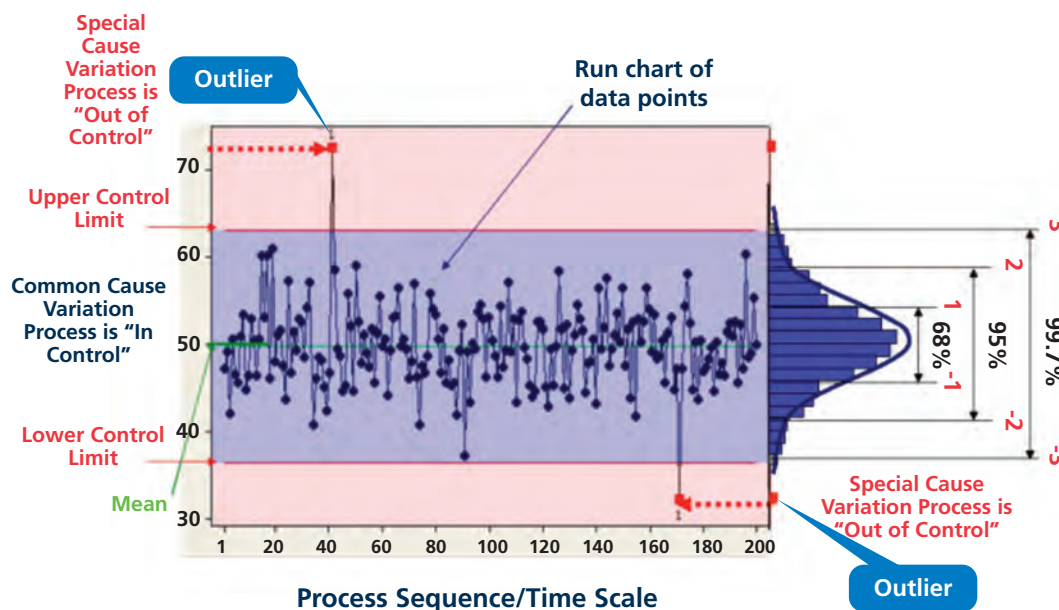
Statistical Process Control (SPC) will reveal variations in delay and wait times. Sources of waste can be detected, corrected and tracked, to assess how or if these are reduced over time as a result of improvement changes. SPC is a practical statistical approach to resolving problems. SPC charts provide a graphical representation of the behaviour of the process being studied.

S - Statistical, because we use some statistical concepts to help us understand processes

P - Process, because we deliver our work through processes i.e. how we do things

C - Control, by this we mean predictable

Example of an SPC chart



Statistical control limits are calculated from the data input, and are displayed on the chart, along with process average (mean) and its variation about that mean. If there is evidence of unusual variation or "special cause" (outlier) detected, then this 'special cause' should be investigated by using a root cause analysis technique.

To find out more about SPC and the types of 'run rules' that are used to indicate out of statistical control situations, please refer to "Bringing Lean to Life: Making Processes Flow in Healthcare" at <http://www.nhs.uk/resource-search/publications/nhs-imp-lean.aspx>

Why do it?

SPC is a tool that will help you understand the scale of any problem (the degree of variation), and identify possible causes when used with other investigative tools e.g. process mapping, spaghetti diagram. You are then able to measure the impact of any improvement: does it cause more variation - bad, or less variation - good?

When to use?

- Project identification
- Getting a baseline
- Where are we now?
- Did the project make a difference?
- Will the project be sustainable?
- Evaluating the worth of the project

Materials required

Excel worksheet template for data entry can be found on The Productive Endoscopy Unit web pages.

D. Driver diagrams

What is it?

An immensely powerful tool that helps you to translate a high level improvement goal into a logical set of underpinning goals ('drivers') and projects.

Why do it?

It captures an entire change programme in a single diagram and also provides a measurement framework for monitoring progress.

To create a driver diagram

- Start with a clearly defined, measurable goal. It should describe what you intend to achieve and by when
- Get a group of people together who understand the different aspects of the improvement topic (i.e. subject matter experts). Ask them to brainstorm potential drivers (i.e. the areas where improvement is needed)
- Cluster the ideas to create an agreed set of 'drivers'. Make sure you use language like "improve" or "decrease" and that each driver is clearly defined and measurable
- Discuss the need for new drivers or whether some of the drivers should be eliminated (if they are wrong or immaterial)

- Identify the links between the drivers to create primary, secondary and tertiary drivers
- Get the group to identify any balancing goals or balancing measures
- Select improvement projects that you believe will impact upon your drivers

Hints and tips

Driver diagrams are a 'live' tool. They will change over time as you make changes to your system. If you can make your goal, drivers and project outcomes measurable, you have created a measurement framework for determining progress. This will help you to monitor the change process without needing to purely rely on changes in performance against your overall goal. It will also help you to judge where more progress against a particular driver needs to occur.

Creating a driver diagram with a team ensures that everyone understands your goal and how they can contribute towards achieving it. Have the right people present so that you have knowledge in the room from those who see all parts of the care process.

Always keep in mind that a driver diagram is an improvement tool. Stop identifying additional layers of drivers when it ceases to be helpful (i.e. when your improvement projects start to become apparent). Also be confident enough to prioritise your drivers by selecting quick wins or dismissing drivers that in reality have little impact.

Do not automatically ignore drivers that seem outside of your control. Sometimes with some lateral thinking (or partnership working) you can influence them.

Driver diagrams will vary from place to place - there is no definitive 'right' answer as your local situation may be very different from other parts of the country. Research evidence and local understanding will both shape your driver diagram.

What do people think of driver diagrams?

"It took us a few times to get it refined, we changed it six times; it was an intuitive process. But it really is the backbone of our strategy. We're now hanging project measures on to it."

"Driver diagrams are something that can be applied to any environment, any situation... It gets you into a structure of thinking where, even with a very complex and complicated programme, you can put that into context to another person."

"It enables us to move from a concept or an idea into starting to execute a programme and delivery very quickly. That has been a major difference to the way we work..."

Driver diagram examples for endoscopy can be found on The Productive Endoscopy Unit web pages.

E. Root cause analysis

5 Whys

What is it?

A simple tool to identify the root cause of a problem by repeatedly asking “why?”

Why do it?

Addressing the root cause rather than the symptom provides a permanent and complete solution.

When to use?

- To understand reasons for a poorly performing process e.g. start and finish times
- To identify how processes can be improved

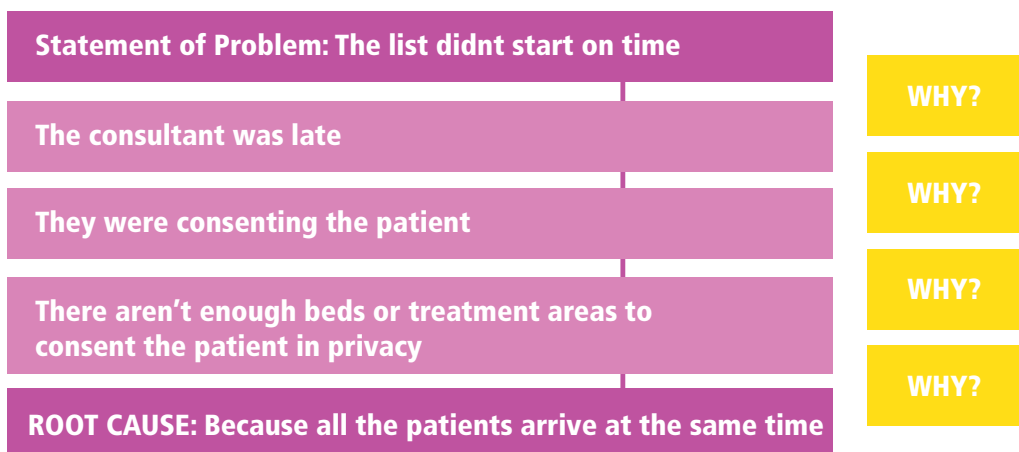
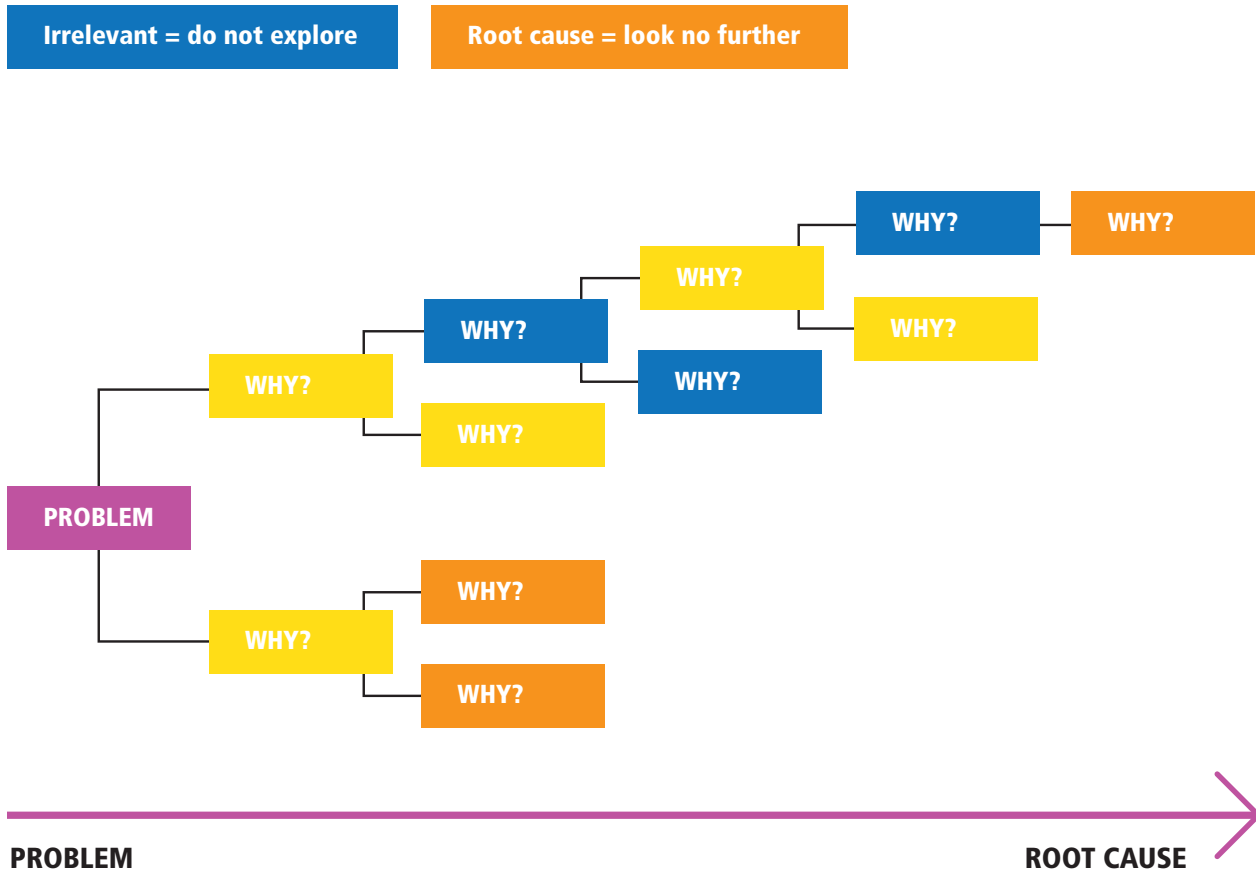
Material required

- Flipchart
- Marker pen

An excel template for 5 why analysis can be found on The Productive Endoscopy Unit web pages.

Characteristics of good 5 why analysis

- Start with a specific measurable problem
- Draw a ‘tree of solutions’ giving multiple possible answers (branches) for each ‘why’
- Ignore the irrelevant branches and focus on the right ones based on impact



Fishbone diagram

What is it?

A fishbone diagram (because the diagram resembles the skeleton of a fish), or Ishikawa diagram (named after its inventor Professor Ishikawa of Tokyo University), identifies possible causes for an effect or problem. It enables the user to look beyond the symptoms of a problem to uncover the potential root causes. Working through cause and effect analysis, it creates a balanced list of ideas that should be generated during a collaborative brainstorming session involving interested stakeholders.

Why do it?

When identifying many possible causes for an effect or problem, a fishbone diagram can be used to structure a brainstorming session by visually displaying and sorting ideas into useful categories that can be investigated further. It allows for a thorough exploration of the issues behind a problem or effect.

When to use?

This tool can be used when trying to determine why a particular problem is occurring. It will help you to fully understand the issue and to identify all the possible causes - not just the obvious ones.

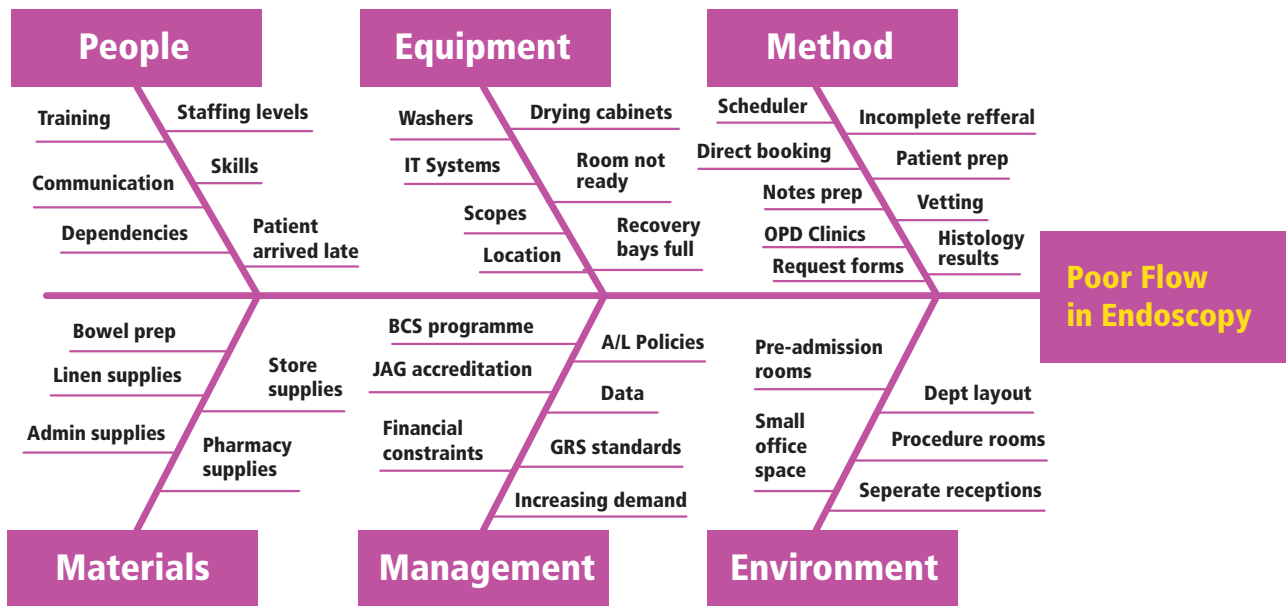
Materials required

- Paper and pencil
- Flip chart paper, sticky notes and markers if completing as a group

The process

1. Review the focused problem statement - enter this as the end box (head of the fish) in the diagram
2. Add appropriate categories to support brainstorming, e.g. people, equipment, method
3. Identify possible causes – add these under the appropriate heading (bones)
4. Identify possible causes of sub-causes – add these to appropriate branches (smaller bones)
5. Investigate most likely causes with data to find root cause(s)

Example of a fishbone diagram



A fishbone generator excel template can be found on The Productive Endoscopy Unit web pages.

Pareto analysis - using the 80:20 rule to prioritise



What is it?

Pareto analysis is a simple technique for prioritising possible changes. By using this approach, you can prioritise the changes that will most improve the situation.

Why do it?

Pareto analysis uses the Pareto principle – also known as the "80/20 rule". It is the idea that 20 percent of causes generate 80 percent of effects. The principle of tackling 20 percent of the problem to achieve 80 percent improvement is a proven concept.

When to use?

This tool can be used when you have generated what seems to be lots of causes for a problem or issue to determine the one (s) occurring most often, allowing you to concentrate on solving those for the most impact.

How to use the tool

- Step 1: Gather data about the problem(s) or defects
- Step 2: Identify categories for each problem(s) or defects
- Step 3: Analyse the data and identify the top 20 percent of the problem(s) or defects
- Step 4: Solve the problems using root cause analysis and other problem solving tools and then gather data to prove the problems or defects are resolved
- Step 5: Repeat the cycle and analyse and solve the next 20 percent of problem(s) or defects

An excel template can be found on The Productive Endoscopy Unit web pages.

F. 5S - workplace efficiency

5S numbers game

What is it?

The 5S numbers game is a quick and simple game to illustrate the concept and principles of 5S.

Why do it?

The numbers game is an analogy of the workplace. Playing this game allows staff to experience first-hand the significant improvement in efficiency applying 5S can achieve. By simulating the frustration of trying to complete a simple task in a disorganised workplace, and experiencing incremental improvements in efficiency throughout the game, staff will very quickly pick up the concept.

Playing the game with staff involved in 5S will provide them with a good understanding of what 5S is, why you are doing it, and how you will benefit from it.

When to use?

Use the 5S numbers game in the Plan phase of the Well Organised Unit module, prior to initiating any 5S activity with staff who are not familiar with the concepts, and repeat when new staff join the team.

Materials required

- Copies of 5S numbers sheets (one set per person) - can be found on The Productive Endoscopy Unit web pages.
- Pens
- Stopwatch/timer

How to play

The game consists of seven quick rounds, lasting up to an hour in total.

Preparation

The game works best when each person has their own set of each of the seven sheets to work through. They will also need a pen.

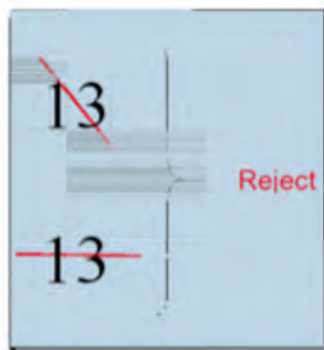
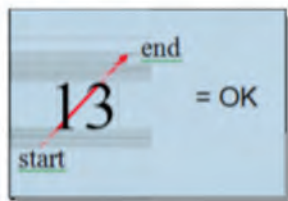
Objective of the game

The objective in each round is to cross out the numbers 1-49 in order as quickly as possible, within the time allocated, whilst complying to the standard below. At the end of each round you will need to record how many everyone achieved. You may want to use a flipchart to do this.

Playing the game

Hand out the sheets to each person. Reiterate that it is important not to look at the sheets until asked to do so and to stop writing when the time is up. It is also important not to skip ahead.

Their task is to simply cross out the numbers on each sheet in numerical order as described in the visual standard. Crossing out from bottom left towards the top right hand corner. All others will be rejected.



Round 1. The current workplace

The team are allowed 60 seconds in the first round. Start the timer and ask them to turn over the page together. After 60 seconds, shout Stop!, and ask each person to shout out the last number they had crossed out, and record their scores on the flipchart.

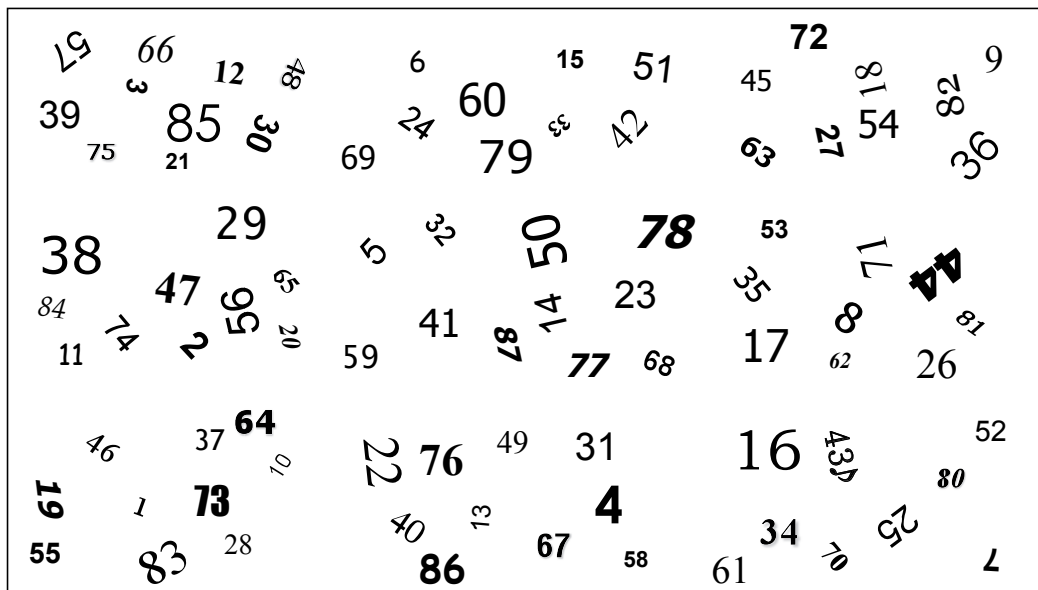
Highlight the lowest scores on the flipchart. At this point ask questions to make time for staff to reflect.

'How did that feel?'

'What stopped you achieving a higher score?'

Round 1: The current workplace

Time allowed: 60 seconds Goal: Cross out the numbers 1 – 49 in order



Round 2. Sort

The team now have an opportunity to improve their scores. The numbers 50-90 are not required in this work area, so have been removed.

The team are allowed 50 seconds in this round. Start the timer and instruct them to turn over the second sheet together. After 50 seconds, shout Stop!, and ask each person to shout out the last number they had crossed out, and record their scores on the flipchart.

Again, highlight the scores on the flipchart. At this point ask questions to make time for the team to reflect on this slightly improved workplace.

'How did that feel?'

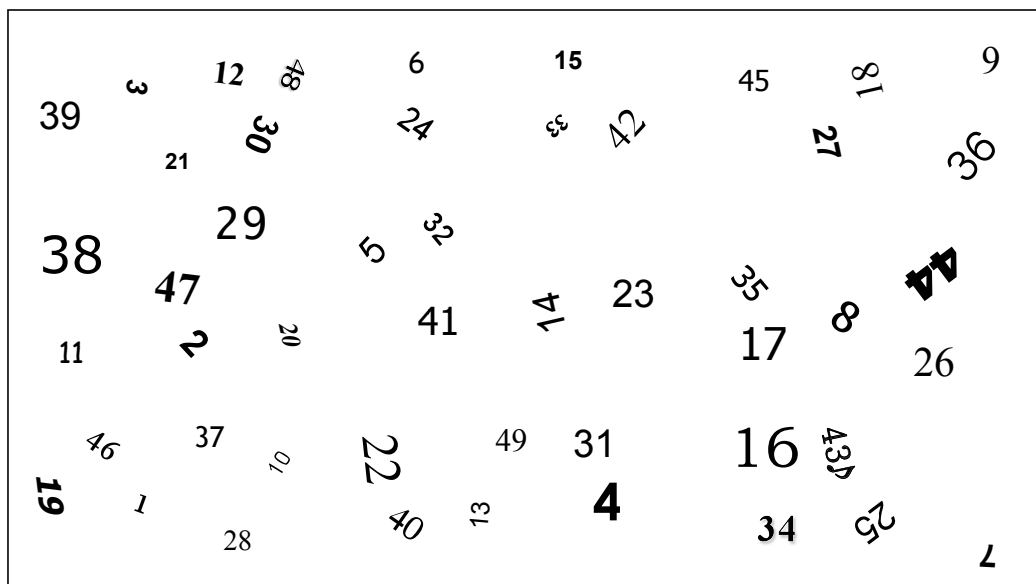
'Did you score higher than the last round, if so, why?'

'What stopped you achieving an even higher score?'

Round 2: Sort

Time allowed: 50 seconds

Goal: Cross out the numbers 1 – 49 in order



Round 3. Set

The team have another chance to improve their scores. A new 3 x 3 shelving system has been installed in the workplace, organising equipment in a sequential order as follows.

3	6	9
2	5	8
1	4	7

The location of the remaining numbers, from 10-49, follows the same sequence. This will become very clear to the team once they begin this round.

The team are allowed 40 seconds in this round. Start the timer and ask them to turn over the third sheet together. After 40 seconds, shout Stop!, and ask each person to shout out the last number they had crossed out, and record their scores. Again, ask questions to allow time for the team to reflect on this slightly improved workplace.

'How did that feel?'

'Did you score higher than the last round, if so, why?'

'What stopped you achieving an even higher score?'

Round 3: Set

Time allowed: 40 seconds

Goal: Cross out the numbers 1 – 49 in order

39 3 12 48 21 30	6 15 24 3 42	45 81 9 27 36
38 29 47 20 11 2	5 13 41 14 23	35 8 44 17 26
46 37 10 19 1 28	22 49 31 40 13 4	16 43 34 25 7

Round 4. Set

The team have another chance to improve their scores. The new 3 x 3 shelving system has been developed further in the workplace, organising equipment in a more systematic and sequential order.

The team are allowed only 20 seconds in this round. Start the timer and ask them to turn over the fourth sheet together. After 20 seconds, shout Stop!, and ask each person to shout out the last number they had crossed out, and record their scores on the flipchart. Again, ask questions to allow time for the team to reflect on this slightly improved workplace:

'How did that feel?'

'Did you score higher than the last round, if so, why?'

'What stopped you achieving an even higher score?'

Round 4: Set

Time allowed: 20 seconds

Goal: Cross out the numbers 1 - 49 in order

1	2	3	4	5	6	7	8	9
10	11	12	13	14	15	16	17	18
19	20	21	22	23	24	25	26	27
28	29	30	31	32	33	34	35	36
37	38	39	40	41	42	43	44	45
46	47	48	49					

Round 5. Standardise

This is the final opportunity for the team to further improve their scores. The new 3 x 3 shelving unit has been standardised.

The team are allowed only 20 seconds in this round. Start the timer and ask them to turn over the fifth sheet together. After 20 seconds, shout Stop!, and ask each person to shout out the last number they had crossed out, and record their scores on the flipchart. Again, ask questions to allow time for the team to reflect on this slightly improved workplace.

'How did that feel?'

'Did you score higher than the last round, if so, why?'

'What stopped you achieving an even higher score?'

Finally you may want to ask the team how they might sustain the improvements in the workplace.

Round 5: Standardise

Time allowed: 20 seconds

Goal: Cross out the numbers 1 - 49 in order

1	2	3	4	5	6	7	8	9
10	11	12	13	14	15	16	17	18
19	20	21	22	23	24	25	26	27
28	29	30	31	32	33	34	35	36
37	38	39	40	41	42	43	44	45
46	47	48	49					

Round 6. Find the missing number

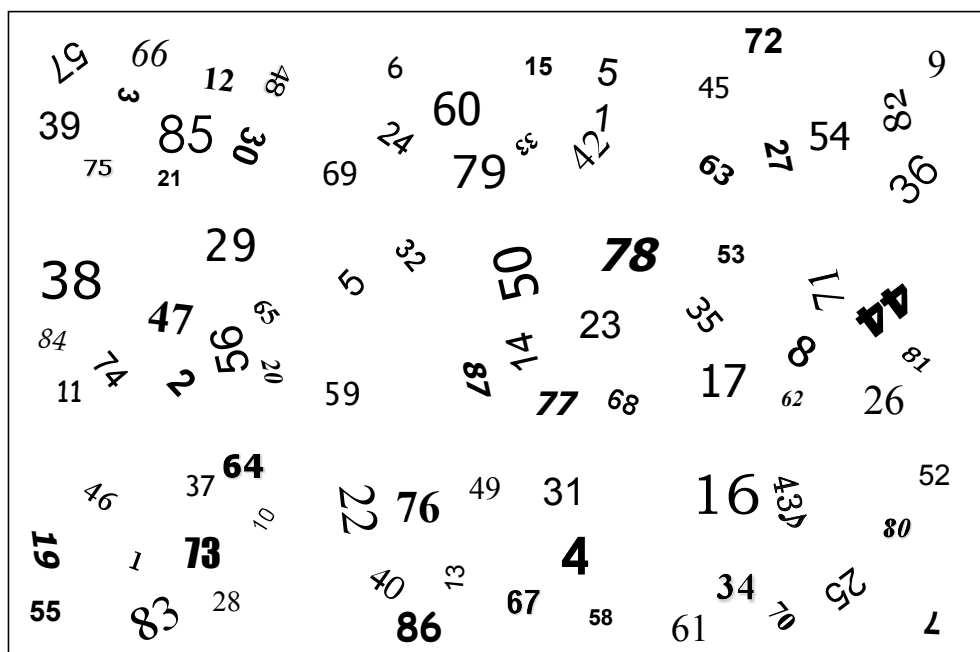
The purpose of round 6 and 7 is to reinforce the improvement opportunity of 5S, using the workplace analogy of trying to find a piece of kit in the shelving system.

The team are allowed 60 seconds to find the missing number. Start the timer and ask them to turn over the sixth sheet together. After 60 seconds, shout Stop!, and ask each person to shout out the missing numbers. Very few, if any will find the missing number.

Follow this up very quickly with the final round before reflections.

Round 6: Find the missing numbers

Time allowed: 50 seconds Goal: Cross out the numbers 1 – 49 in order



Round 7. Find the missing numbers

The team are allowed just 5 seconds for this round. Start the timer and ask them to turn over the seventh sheet together. After 5 seconds, shout Stop!, and ask each person to shout out the missing numbers. They will shout out the missing numbers 18 and 41.

Again, ask questions to allow time for staff to reflect on the difference between the two examples.

'How did that feel?'

'How do you think this could be applied in your endoscopy unit?'

Round 7: Find the missing numbers

Time allowed: 5 seconds Goal: Identify missing numbers

	1	2	3	4	5	6	7	8	9
10	11	12	13	14	15	16	17		19
20	21	22	23	24	25	26	27	28	29
30	31	32	33	34	35	36	37	38	39
40		42	43	44	45	46	47	48	49

Key learning point

The team have experienced a 5S in practice, they have seen a workplace change from its current disorganised state to a standardised workplace, and most importantly felt the benefits. This exercise helps the team to see that the 5S tool can help to make the workplace easier and more efficient.

There are a number of tools to accompany this section available on The Productive Endoscopy Unit web pages.

These include:

- Templates
- Instructions
- 5S overview
- Presentations
- Inventory records
- Red tag
- Graph paper
- Assessment sheets.

G. Dot voting

What is it?

Dot voting is a quick and simple method of evaluating ideas and making team decisions. Each person receives a pre-determined number of dots, to allocate according to their individual preference, by sticking them to a list on a flipchart. This provides a clear, visual illustration of the groups views or preferences.

Why do it?

It is a simple, but effective tool designed to help groups working together to prioritise a list of issues or ideas by simply voting.

- It is a method of understanding a group's views very quickly
- It ensures every member of the group has an equal voice
- The outcome is clearly visible and communicated to all

When to use it?

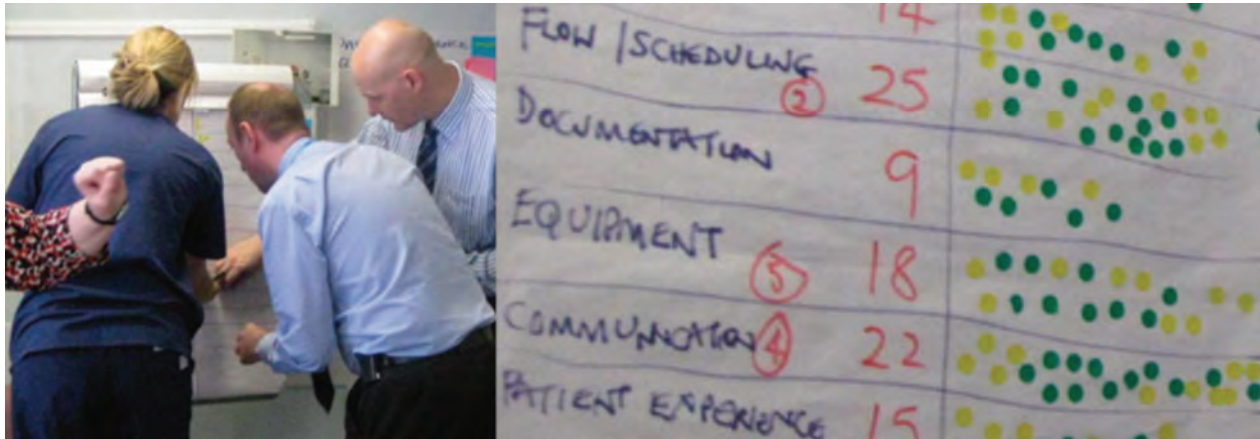
Dot voting is an ideal tool to use when you have a list of issues or ideas that you need to prioritise or gain group consensus, e.g. at the visioning session, staff are asked to generate a list of things which contribute to creating the perfect endoscopy procedure. Using this tool will help you and the group understand quickly which ideas the group feel will have the greatest impact on achieving this aim.

Materials required

- Flipchart
- Sticky dots or marker pens

The process

- 1 To use the tool, you will require flipcharts or wipe boards with the list of ideas that were generated. Clarify the ideas as needed as you write them down, and eliminate or combine duplicates. Make sure the ideas are written out clearly using bullet points
- 2 Review the list of ideas to ensure that everyone understands each idea
- 3 Agree on the number of ideas you would like to see come out of this harvesting process for further development. Stress that you will always have the full list to go back to later; no ideas are being thrown away
- 4 Discuss and agree the criteria and method that you will use to select the ideas to take forward
- 5 Give each person a number of votes, roughly equal to twice as many ideas as you have agreed you want to see come out of this process. Votes can be coloured dots, small sticky notes, marks with coloured pens or anything that is small and will stick to the flipchart or wipe board easily
- 6 Ask team members to place their votes next to the ideas that they feel best meet the agreed criteria or preference, ensuring everyone has had an opportunity to cast their votes. Allow each person to give an idea multiple votes. This allows them to express strong preference
- 7 Identify, as a group, the ideas that received large numbers of votes
- 8 If this does not yield the desired number of ideas, repeat the vote. But this time only consider ideas that got a small number of votes in the first round; disregard the rest. Continue this process until a consensus emerges
- 9 If the first round yielded more items than were desired, discuss whether to take all the ideas forward, or which ones to hold back for now. You can utilise two lists of first and second stage challenges you are planning to include, this gives the team the confidence that issues will not be forgotten. Also remember to be clear on what is in and out of scope of the project



Variations on this tool

There are many different ways to use the basic concept of dot voting. You may have your own experience and a method you prefer. Do whatever works for you. Some popular variations, with tips, are given below.

- Assign each staff group a different colour dot so that you can see the spread of preferences. This can be helpful if you want to ensure the team see at least one of the ideas they support make it through for further development
- Give each person fewer votes, but anticipate several rounds of voting as you eliminate items that received no (or few) votes each time. This takes longer, but can build better consensus

No matter how you do it, keep these goals in mind.

- You want the process to yield a few ideas that best fit the agreed criteria
- You want to build consensus and support among the team that will be needed as you face the challenge of taking these ideas forward and implementing them

H. Quick changeover

What is it?

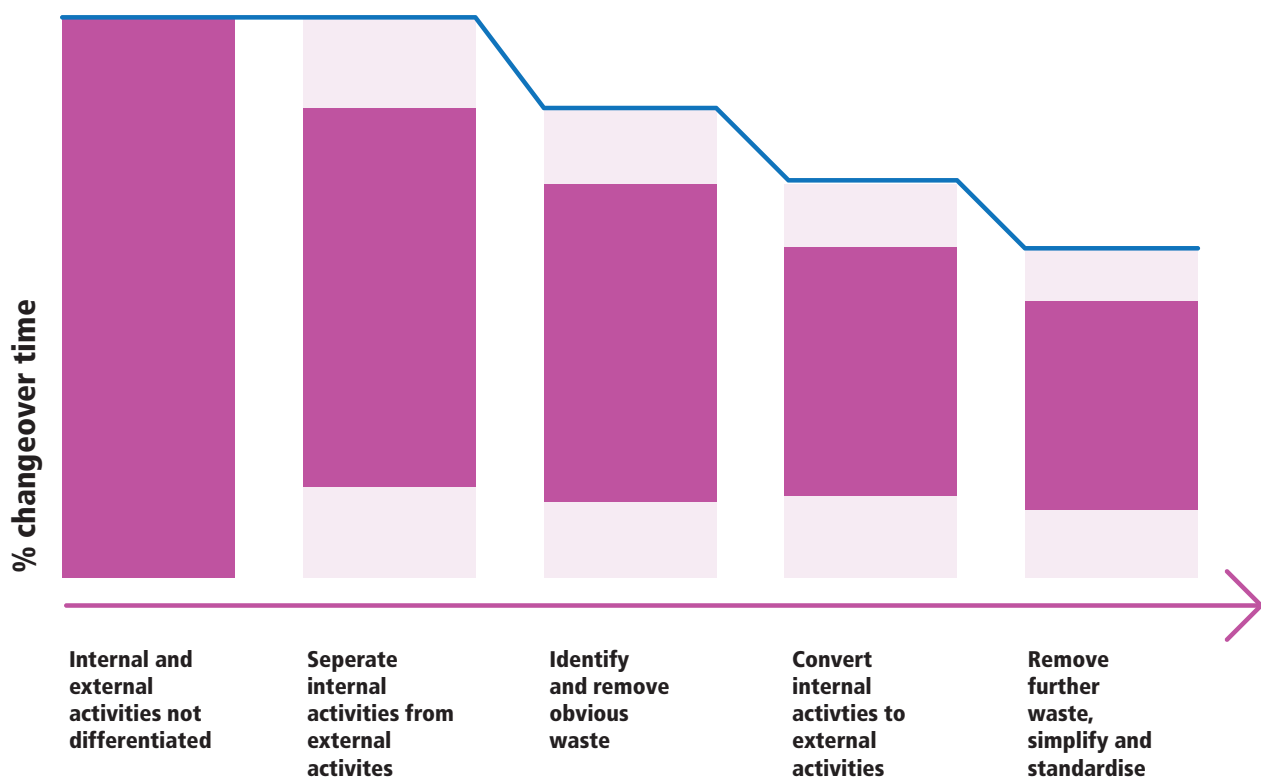
A mapping tool specifically designed to help analyse a changeover within a process e.g. patient turnaround.

It enables the team to map and review the critical steps involved in changeover processes, as this is often where valuable efficiencies can be gained. Effective changeovers result in safer and more effective care.

Why do it?

To understand where improvements can be made and time saved in processes such as patient and session turnaround times, patient handovers and other activities that rely on smooth work processes to support fast, efficient throughput.

Each step of the quick changeover method removes waste and improves efficiency, as shown in the diagram below.



When to use it?

Use this to support process module work in Handover, Recovery and Discharge, Session Start Up and Patient Change-over, Pre-assessment and Patient Preparation.

Materials required

- Flipchart
- Sticky notes
- Marker pens
- Camcorder (digital or mini DV camcorder recommended) - communication departments often have these cameras which you can borrow)
- Appropriate viewing screen and connection leads so that you can watch your footage back

Background

Quick changeover can be compared with changing a tyre, which most of us have tried or at least seen once or twice. Some people need 15 minutes, some 20, some people are very fast and can change a tyre in 10 minutes. Compare this with a Formula 1 pit stop, where all 4 tyres are changed within a time period of 3-6 seconds! In a Formula 1 pit stop team you will find all the same characteristics that should be present in a quick changeover in endoscopy units. The quick changeover tool helps you and your team implement focussed improvements using the same principles used in a Formula 1 pit stop.

Example – Formula 1 pit stop

Standard changeover method	Quick changeover method
Manpower disorganised	Everyone knows their role
Searching for tools	Everything in its place
Jack individual corner (wheel change)	Lift front and back
Remove one wheel at a time	Remove all four simultaneously
Perform each task separately	Perform all tasks simultaneously
Not standardised	Practised, documented and timed

The process

1. Video and document the current state of the process

Videoring the current state helps make sure you capture all the steps involved in the process, all the functions involved and the timing points at the start and finish of the process involved.

Arrange a quiet room with a table, flipchart and free wall space to review the video.



2. List all activities on sticky notes

Have each member of the group note down the individual activities observed in the film on individual sticky notes. Cross reference this with the process timings undertaken, or use the running clock on the video to understand how long each of these activities took.

Be quite specific and detailed about defining each short part of the process as you see it, this will make it easier to categorise and analyse at each step.

3. Separate internal and external activities

During the period of capture, the stopwatch is a ticking clock.

Any waste or unnecessary activity during this timed period could be a contributory factor to delays and overruns. Some activities may be carried out during this time that hold up proceedings. It may have been possible to do some of these steps outside of the ticking clock.



Work with the group using a simple flipchart template to analyse the activities, and categorise them firstly into internal and external activities. Make an initial decision based on what is seen in the video – what do you actually see happening before and after the core clock stopped activities.

Internal activities

These are all activities which must happen during the ticking clock, in order for the procedure to run safely according to methodology and schedule e.g. consultant inserting the scope.

External activities

These are all activities which could be carried out outside of the ticking clock time, in order for the session to run more smoothly and efficiently, not taking up unnecessary time e.g. stocking up consumables, laying up endoscopy kits on trolleys.

4. Identify waste and value added

Identify which activities are value added, which are non value added (waste) and which activities are non value added but essential.

5. Convert internal into external

Identify how to eliminate waste. Look for opportunities to move internal activities and change them into external activities i.e. what can be done before and after the clock is stopped?

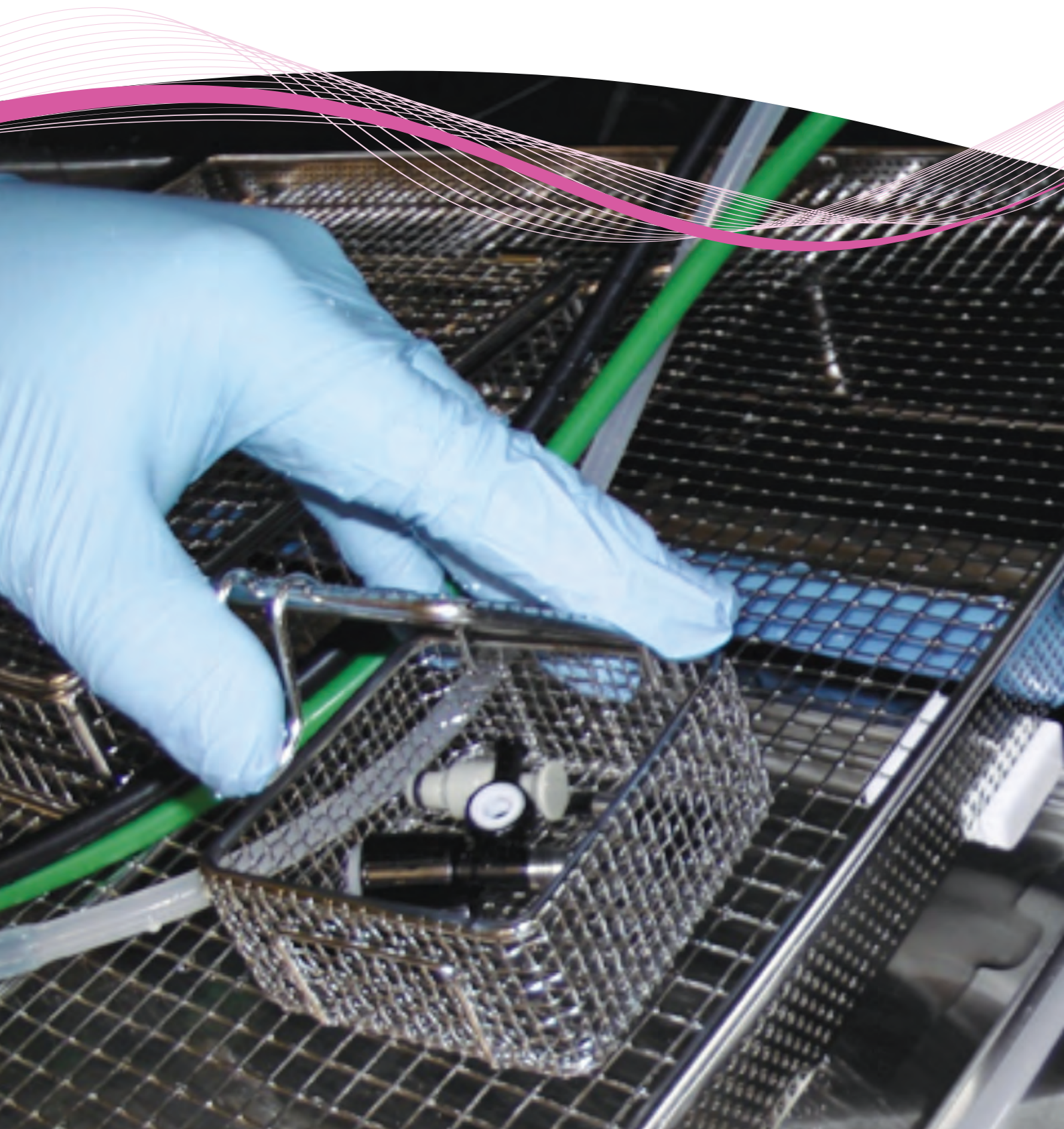
6. Sustain and continuously improve

Use a quick changeover tracker spreadsheet to track the reduction in time needed for the changeover process. List the activities and their process timings using the left hand column, and step 1 sections of the form. As you progress through the steps, replicate the times under the internal, external, value added and non value added columns, until by step 4 the residual activities of your new process will be listed in the internal and external columns.

The total of the times in the internal column gives you an indication of the predicted future process times to aim for when implementing the improved process.

Create a Standard Operating Procedure to reinforce your new process design, and use the module action planner to plan and track the individual actions you need to implement.

		Step 1	Step 2		Step 3		Step 4		
No.	Activity	Current Time	Internal?	External?	Value added?	None value added?	Waste Countermeasure	Internal	External
1									
2									
3									
4									
5									
6									
7									
8									
9									
10									



9. Staff surveys

Examples of surveys that have been used to engage with staff and gain staff feedback to drive improvement work.

What is it?

Staff surveys that provide a thorough understanding of staff attitudes and perceptions, are the first essential step in developing strategies that really can improve staff motivation, reduce staff turnover, increase innovation, and lead to better staff retention – all of which will increase productivity, reduce costs and improve profitability.

Why do it?

Staff surveys of employee opinions can improve attendance, enhance customer relations, and increase profitability.

Staff surveys carried out independently can tell you what your employees really think about your unit, and whether they are motivated.

The Team Working module advocates staff surveys to improve engagement, and the aim of the engagement survey is to encourage and support a culture of open and honest feedback within your work area, which will motivate leaders at all levels to action results and improve their leadership capability.

Materials required

- Excel survey tool
- PDF workbook to support understanding of the survey results
- Leaders workbook
- Daily huddle preparation sheet

These can be found on The Productive Endoscopy Unit web pages.



10. Time measurement tools

Tools that help capture baseline and ongoing measurements of time spent in processes to demonstrate improvements and aid operational plans.

A. Activity Follow

What is it?

An activity follow is a one hour detailed recording of the activity of a member of staff including:

- Activity e.g. walking to find something
- Location e.g. store room.

These areas of information are captured every minute during the one hour.

Why do it?

To understand how much time staff spend on value added activities during endoscopy sessions.

When to use?

During the process modules to give you a better understanding of what is involved for the staff who carry out these processes. This detailed snapshot of activity will help you identify areas where you can focus your improvement efforts.

Materials required

- Activity follow sheet
- Pencil with eraser on the end
- A3 clipboard
- Watch with a second hand
- Pedometer (depending on the process)

Activity follow and value added time

Carrying out an activity follow will allow you to find out how much time your staff are spending on value added activities e.g. some endoscopy sisters may spend as little as 20% of their time on direct procedural activity.

Activity description

Code & Reason

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Br

Code & Reason

Tr

Sub total

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Waiting

Looking

Collecting

Returning

Waiting

In Anaesthetics room

In Theatre

Nurse station

Computer

Other

Own prompt

Ex prompt

Telephone On

Telephone Ex

Other

Nurse hand hygiene

Toilet (Self)

Break

Changing for theatre

Scrubbing

Opening

Patient preparation

Speaking to patient

Anaesthetising patient

Patient positioning

Scrubbing

Resuscitating

Transferring patient

Team brief

Theatre preparation

Consumable preparation

Instrument preparation

Patient location

Anaesthetics

Scrubbing

Patient handover

Ward round

Team debrief

Value added

Non value added but necessary

Internal

External

Ward

Anaesthetic Rm

Recovery

Coffee Rm

Communal Area (Canteen)

Changing room

Distance travelled

1ST Follow

Observer

Signature

2ND Follow

Date

Process

Person

Role

Area

1

2

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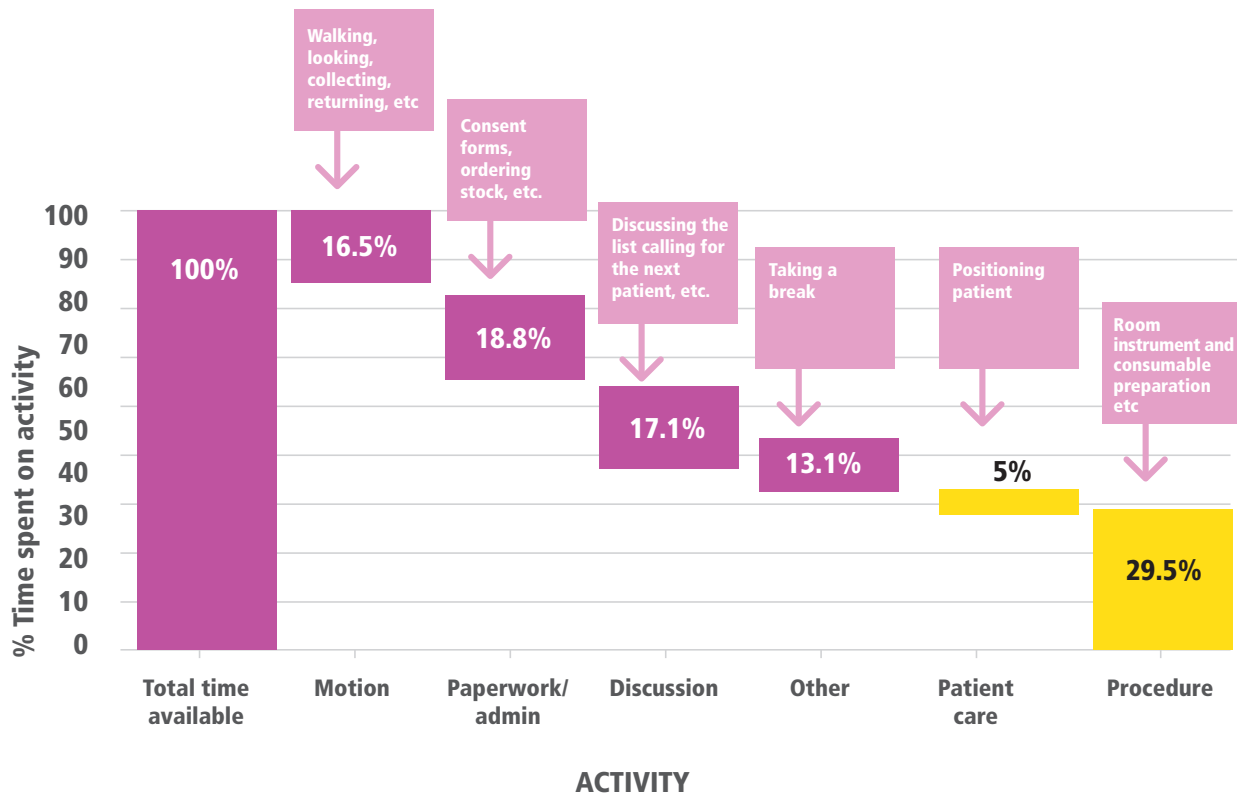
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Activity follow – the process

Preparation

- 1 Choose the process and function to follow and select the activity follow sheet which can be found on The Productive Endoscopy Unit web pages
- 2 Choose a person to observe and ask their permission to conduct an activity follow. Make it clear to the person selected that activity follows are not time and motion studies, and the person involved will not be judged individually
- 3 The observer should be a member of endoscopy staff, not an outsider to the department
- 4 They should wear a watch with a second hand or digital second count display. Try to avoid using a stop watch
- 5 If measuring distance travelled, clip a pedometer onto the staff member you are observing. The pedometer should not be clipped onto a pocket. It ideally should be clipped onto a trouser waist band or belt. Wherever the pedometer is mounted, ensure it is working by testing it with a quick walk around the unit
- 6 Fill in the date, start time, room number, person, role, observer name and signature sections of the activity follow sheet

Conducting the activity follow

The activity follow sheet is split into two main parts:

- Minutely observations – the main part of the spreadsheet
- Interruption count – two boxes at the bottom of the spreadsheet.

There is also an area to record general observations or comments.

Part 1: Minutely observations

There are four sections that require observations to be recorded every minute, these are:

- Activity
- Value added/non value added/non-value added but essential*
- Internal/external*
- Location.

*(*Explained in detail in the following pages)*

Each column in these sections represent one minute of the activity follow.

For each minute the observer selects the most accurate description of what the observed staff member is doing, and records one dot for each of these four sections. Remember only one choice per section.

Record what the person being observed is doing exactly on the minute, not what they were doing just before or just after. It is important that the observation is taken right on the minute.

Part 2: Interruption count

Interruptions are recorded every time they occur throughout the activity follow. Keep a tally of when a person is interrupted by someone and when the person being observed interrupts someone else.

Record each interruption and its reason using a gate tally.

Distance travelled

Depending on the process you are following, it may or may not be necessary to ask the person being observed to wear a pedometer to collect information about the distance they travel. Use your judgement as to whether this information will be of use to you.

The activity follow in action

Three minute snapshot



On the turn of minute one, the staff member was checking in an incoming patient.



On the turn of minute two, the staff member was answering the phone, responding to an interruption.



On the turn of minute three, the staff member returned to ensuring the correct paperwork was available for the patient.

Mark on the activity follow sheet whether the activity observed is:

- Motion
- Admin/paperwork
- Discussion
- Other
- Procedure
- Patient care/interaction.



How much value added and procedural time?

Once the one hour observation sheet has been filled in, you can work out how much direct care time the observed staff member had. To do this count the number of dots in procedural and patient care sections.



Write the total for each individual line in the end column.

Then create a total for the patient care section and procedural and add the two together.

See example below.

Procedure total = 13

Patient care total = 8

Together = 21

Divide this figure by 60. Then multiply the answer by 100 to give the percentage procedural and patient care times the observed staff member had for the hour they were observed.

For example:

$$21 \div 60 = 0.35$$

$$0.35 \times 100 = 35\%$$

As a generalisation, in the first instance these two sections of activity are considered value added (to the patient and the process). Any other activities are either classed as entirely non value added (waste) or non value added but necessary e.g. break times.

Other	B	Toilet (self)																		
	C	Break																		
	D	Changing for theatre																		
	E	Scrubbing for theatre																		
	F	Cleaning																		
	A	Patient preparation																		
	B	Speaking to patient																		
	C	Anaesthetising patient																		
	D	Patient positioning	X																	
	E	Scrubbing																		
	F	Recirculating																		
	G	Running																		
	H	Transferring patient																		
	A	Team brief	X																	
	B	Theatre preparation																		
	C	Consumable preparation																		
	D	Instrument preparation																		
	E	Patient location																		
	F	Anaesthetics																		
	G	Surgery																		
Patient care	H	Patient handover																		
	I	Ward round																		
	J	Team de-brief																		
Procedure	A	Team brief	X																	
	B	Theatre preparation																		
	C	Consumable preparation																		
	D	Instrument preparation																		
	E	Patient location																		
	F	Anaesthetics																		
	G	Surgery																		
	H	Patient handover																		
	I	Ward round																		
	J	Team de-brief																		
		Value added	X	X		X														
		Non value added				X														
		Non value added but necessary						X												

Break	C	Other		
Changing for theatre	D			
Scrubbing for theatre	E			
Cleaning	F			
0 Patient preparation	A			
0 Speaking to patient	B			
0 Anaesthetising patient	C			
2 Patient positioning	D	Patient care		
6 Scrubbing	E			
0 Recirculating	F			
0 Running	G			
0 Transferring patient	H		8	
2 Team brief	A			
0 Theatre preparation	B			
2 Consumable preparation	C			
6 Instrument preparation	D	Procedure		
0 Patient location	E			
0 Anaesthetics	F			
0 Surgery	G			
0 Patient handover	H			
0 Ward round	I			
0 Team de-brief	J		13	
Tot				
Value added				

Line total

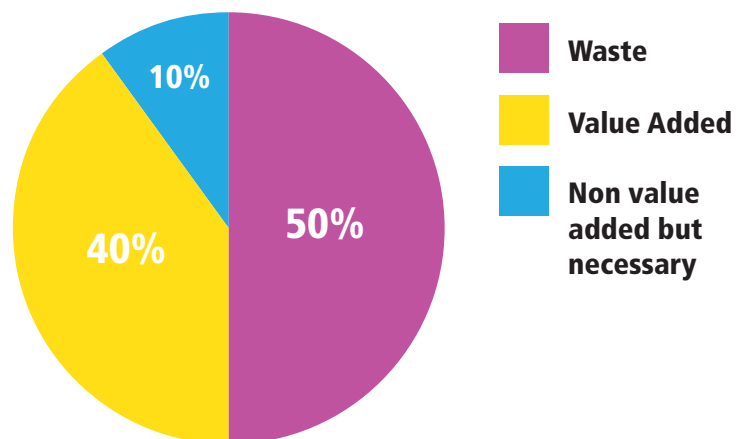
Section sub-total

Value added and non value added

Value added activities are those that patients view as adding value to their care pathway. There are two types of non value adding activities:

- Pure waste (non value added) – needs to be eliminated as soon as possible
- Non value adding, but necessary – activities that are wasteful sometimes have to be carried out due to legal, clinical or technological factors. Changes in procedures, technology, law or governance, or challenges to the way in which we meet these criteria can eliminate some of these wastes.

Less than 10% value added is not unusual in organisations. Some processes may feature less than 1% value added content!



Internal and external activities

Time is precious and the clock is ticking

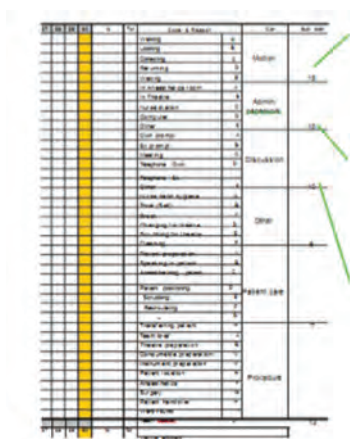
Any waste, or unnecessary activity observed, during your activity follow of a specific process could be contributing to delays and overruns. Some activities may be carried out during this time that hold up proceedings, when it may have been possible to have done them outside of the process to reduce their impact on causing a delay.

During the activity follow, activities are classed as being internal or external to the process being observed. This helps you to identify those activities that could occur at a more appropriate time if delays are an issue.

Internal activities - these are all activities which must happen during the ticking clock in order for the procedure to run safely according to methodology and schedule e.g. endoscopist inserting scope.

External activities - these are all activities which could be carried out outside of the ticking clock, in order for the session to run more smoothly and efficiently e.g. stocking up consumables, laying-up kits on trolleys.

What else does the activity follow show?



High motion total

Is everything located conveniently for staff to do their jobs? Are they looking for things or information and going back and forward all the time? Consider the Well Organised Unit and Consumables and Equipment modules.

High administration total

Are many forms duplicated? Are they easy to find? Is the correct administration launched at patient admission? Consider the Operational Status at a Glance, Well Organised Unit and Handover, Recovery and Discharge modules.

High discussion total

Do staff have the information and equipment they need to do their jobs? Consider Operational Status at a Glance, Well Organised Unit and Handover, Recovery and Discharge modules.

The highest totals tell you what tasks the staff member spends the most time doing. When choosing which process modules to implement first, consider starting the modules that have the largest totals.

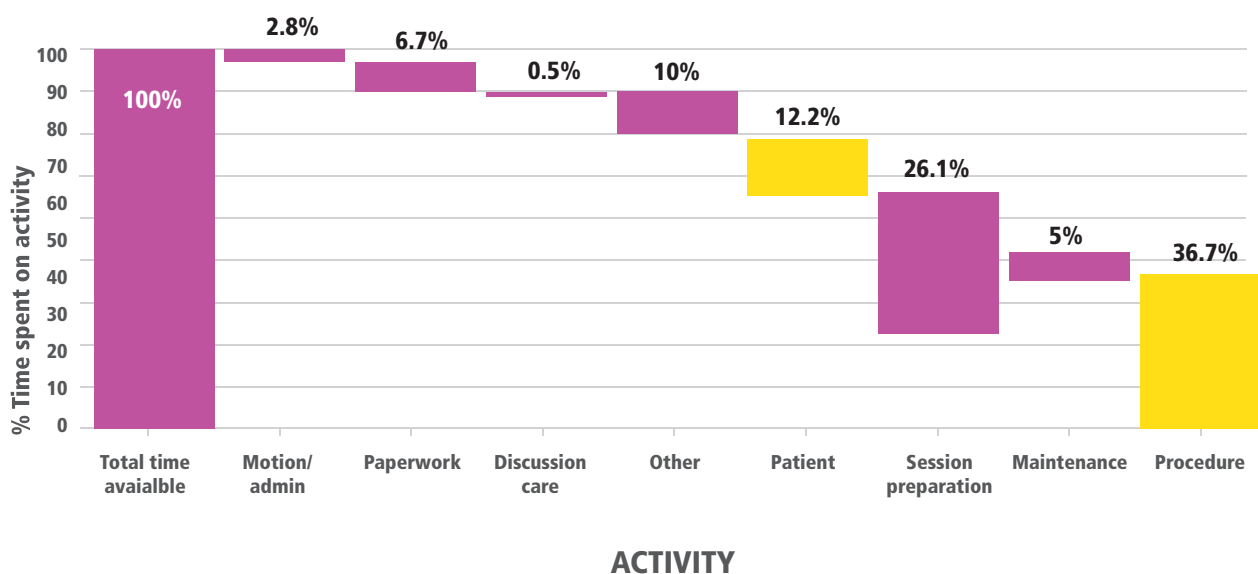
For example, the ones the endoscopy unit staff spend the most time doing. The totals in this section should add up to 60. A large number of interruptions mean you should look at how easy it is to find items, equipment, people and information.

What are the outputs?

The activity follow excel template available on The Productive Endoscopy Unit web pages, will automatically generate a value added/non value added pie chart, as well as an individual waterfall diagram for the hour's follow. Simply enter the number 1 in every cell where a dot was marked on the original paper copy, and the spreadsheet will do the rest!

The results of these charts can be used at the Knowing How We Are Doing measures progress review meetings, to drive focus and improvement activity on those areas where the biggest losses and non value added activities are seen.

PROPORTION OF UNIT NURSE Morning list – 08:30 to 12.30



B Timing processes



What is it?

A simple way to record how long a process takes to complete so that you can analyse it before and after implementing a change. It is important in many modules, in particular Well Organised Unit, Session Start Up and Patient Change-over and Consumables and Equipment.

Why do it?

To measure and illustrate released staff time that has been achieved by saving time in routine processes.

When to use?

- Timing of processes before and after the change is a simple and highly effective way to demonstrate time saved, and whether the change was an improvement in terms of efficiency
- You can use it for all process modules

Materials required

- Pen
- Timing process sheet
- A stop watch, watch or a clock that is easily visible in the area

The process

- Agree what the start and end of the process is
 - Choose the same start point every time e.g. when the member of staff leaves the endoscopy unit to the point of collection of a patient from ward X
 - Choose the same finish point every time e.g. arriving back to the same room
- Use a stop watch, watch or wall clock to time the whole process from start to finish
- Time the process at different times of the day over a week, to get consistent results
- Use the timing process sheet to record results
- If you measure your process in minutes and seconds convert the time to seconds before working out the average and the range

Process being timed:				Location:	
Start point:				Finish point	
No.	Date	Time of day	Time taken (min+seconds)	Time taken (seconds)	Comments
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
		Average			
		Range			

*The range is the difference between the longest time (X) and the shortest time (Y) taken: range = X – Y.

TIPS: Remember, if you measure your process in minutes and seconds convert the time to seconds to work out the average and range

Timing processes example.

- Calculate the average times for collecting a patient from a particular ward
- If timings are in minutes and seconds, convert to seconds before calculating your range and average. Remember there are 60 seconds in a minute
- Disregard times that may have been influenced by special circumstances
- Discuss and understand why the special circumstances occurred e.g. some patients are collected more promptly than others

Process being timed: Collecting the patient from the ward				Location: Endoscopy room 4	
Start point: When patient from ward 8 is called for				Finish point: Patient arrives in room	
No.	Date	Time of day	Time taken (min+seconds)	Time taken (seconds)	Comments
1	21/09/2009	08:30	14 mins 20 secs		
2	21/09/2009	10:15	18 mins 20 secs		
3	21/09/2009	11:45	20 mins 3 secs		
4	21/09/2009	13:00	13 mins 25 secs		
5	21/09/2009	14:15	6 mins 54 secs		
6	21/09/2009	15:45	40 mins 52 secs		Patient had been transferred to a different ward, endoscopy not told
7					
8					
9					
10					
		Average	17 mins 4 secs	1024.4 secs	
		Range	4 mins 55 secs	295 secs	

*The range is the difference between the longest time (X) and the shortest time (Y) taken: range = X – Y.
Convert minutes to seconds for example:
14 minutes 20 seconds is 860 seconds (14minutes x 60) + 20 = 860

C. Process Sequence Chart

What is it?

It is a simple visual summary of:

- The details in a process that your value stream map does not - the number and sequence of steps within a process
- Similar to a process map, but does not involve sticky notes!
- Who is responsible for performing/completing each step
- The cycle time of each step (in seconds)
- The distance travelled to complete each step (in metres)
- The total distance and time taken to complete the process

Why would I use a Process Sequence Chart?

- It shows the total distance and time taken to complete a process
- Should be used to supplement the information in your value stream map
- Shows some of the wastes and non value add steps in your process pictorially
- Shows any non standard work
- Calculates the efficiency of a process for you

When to use?

- Timing of processes before and after changes is a simple and highly effective way to demonstrate time saved and whether the change was an improvement in terms of efficiency
- You can use it for all process modules

Materials required

- Pen
- Process sequence sheet
- A stop watch, watch or a clock that is easily visible in the area

How do I use them?

- Pick a process to map
- Follow a person actually performing the process duties and follow them!
- Write down the individual tasks in the process and identify the type (working, waiting, walking, checking)
- Give the Process Sequence Chart to someone else to follow to check that you have not missed anything!

Identifying non value added waste in the Process Sequence Chart

- Quantify wasted time spent walking (motion and transport)
- Identify and quantify where samples/forms/people wait (waste)
- Identify true value added steps in the process
- Identify inspection steps
- Quantify process cycle efficiency
- Identifies non standard work

Using ECSS to change processes

Value added activity

- Any activity that changes the form, fit, or function of a product/transaction
— OR —
- Something customers are willing to pay for

Non value added activity

Any activity that absorbs resources but adds no value is a waste

- Eliminate
- Combine
- Simplify
- re-Sequence

The steps in your Process Sequence Chart to remove waste and improve process cycle efficiency

How to complete a Process Sequence Chart: Identifying value add waste and non value add in a process



Delay or wait - workflow is prevented from moving forward e.g. left on desks, overnight-cycles etc.



Where a piece of work moves on without anything happening to it e.g. transport/transfer of information/e-mail referral, transfer information from one system to another.



Checking of information, controls, decision-making.



Processing when something happens to a piece of work to move it on. Does it add value?

Colonoscopy process

Step No	Step Description	Flow Step	Distance (meters)	Process (time hours)	End to End Process			
1	Patient referred	Working	0	144				
2	Request sent	Movement	0	24				
3	Request vetted	Checking	0	24				
4	Appointment scheduled	Working	0	12				
5	Appointment letter produced	Working	0	12				
6	Appointment letter sent	Movement	0	240				
7	Patient telephones	Working	0	0.25				
8	Request returned to scheduling	Movement	0	12				
9	Appointment re-scheduled	Working	0	12				
10	Patient telephoned	Working	0	0.25				
11	Pre-assessment appointment sent	Working	0	24				
12	Patient waiting for pre-assessment	Waiting	0	312				
13	Pre-assessment performed	Working	0	1				
14	Appointment agreed	Checking	0	0				
15	Patient waits for date to come in for procedure	Waiting	0	168				
16	Patient arrives	Working	0	0				
17	Patient changes	Working	20	0.25				
18	Patient directed to male or female waiting room	Movement	20	0.25				
19	Procedure performed	Working	30	0.5				
20	Investigation reported	Working	0	0.1				
21	Patient to 1st stage recovery	Movement	15	0.5				
22	4 copies of printed report follows patient	Movement	0	0.25				
23	Scope washed	Working	0	0.25				
24	Scope sterilised and dried	Working	0	0.75				
25	Patient monitored	Checking	0	0.25				
26	Patient to 2nd stage recovery	Movement	15	0.25				
27	Patient Home	Checking	0	0				
Total				988.85	15	3	7	2

How do I use it in The Productive Endoscopy Unit?

- Fill in a Process Sequence Chart as the process is now
- Use A3 thinking and ECSS to redesign the process - first remove the waiting steps, then examine transport and check steps to see if they can be reduced
- Fill in the Process Sequence Chart after the changes have been made
- Use it to show the differences and if the change has a positive benefit
- The excel tool will calculate changes in transport, checking and waiting and draw graphs showing changes in value added and non value added

Processing Staffing Costs

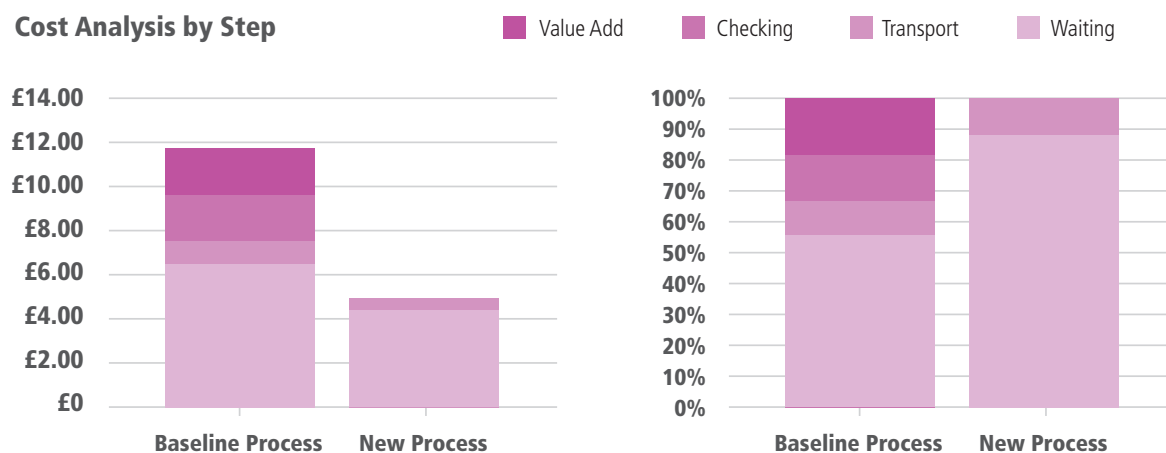
Baseline Process

Staff Type/Member	Band	Value Add	Checking	Transport	Waiting	Total
Administrator Staff	Band 3	£1.09	–	£1.75	£1.09	£3.93
Patient	No Cost	–	–	–	–	–
Consultant	£83,829	£5.48	£1.10	–	£1.10	£7.68
Total	–	£6.57	£1.10	£1.75	£2.19	£11.61

New Process

Staff Type/Member	Band	Value Add	Checking	Transport	Waiting	Total
Administrator Staff	Band 3	£0.89	–	–	–	£0.98
Patient	No Cost	–	–	–	–	–
Consultant	£83,829	£3.29	£0.55	–	–	£3.84
Total	–	£4.27	£0.55	–	–	£4.82

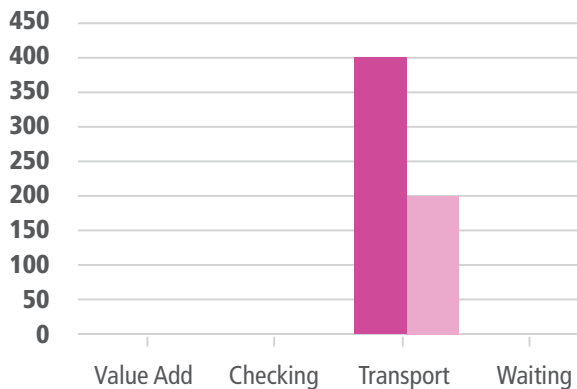
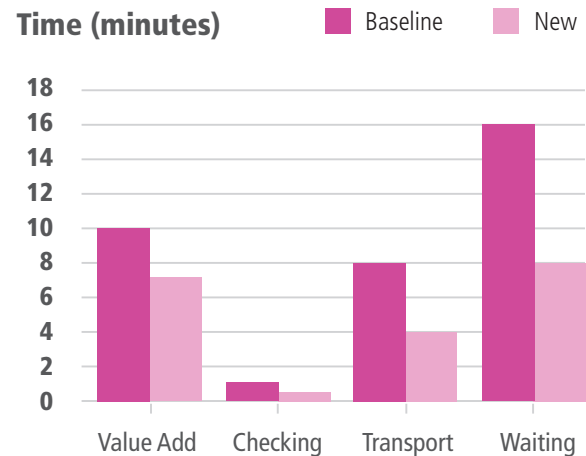
Cost Analysis by Step



Baseline data collected on 02/01/2011. New Process data collected on 15/01/2012.

Sequence Analysis

Sequence Step	Time (minutes)		Distance (minutes)		Steps	
	Baseline	New	Baseline	New	Baseline	New
Value Add	10	7.5	0	0	2	3
Checking	1	0.5	0	0	1	1
Transport	8	4	400	200	3	2
Waiting	16	8	0	0	3	1
Total	35	20	400	200	9	7
Process Efficiency	28.6%	37.5%				

Distance (meters)**Time (minutes)**

D. Start stop audit

What is it?

An excel audit tool where data can be entered and collated from the teams in the procedure rooms. Forms can be printed for the teams in each room to complete during every session.

Audit sheets can be collected in daily and the information made available to the team about their current working practice, displaying data on the wall for the whole team to discuss. A report is generated to show what is actually happening.

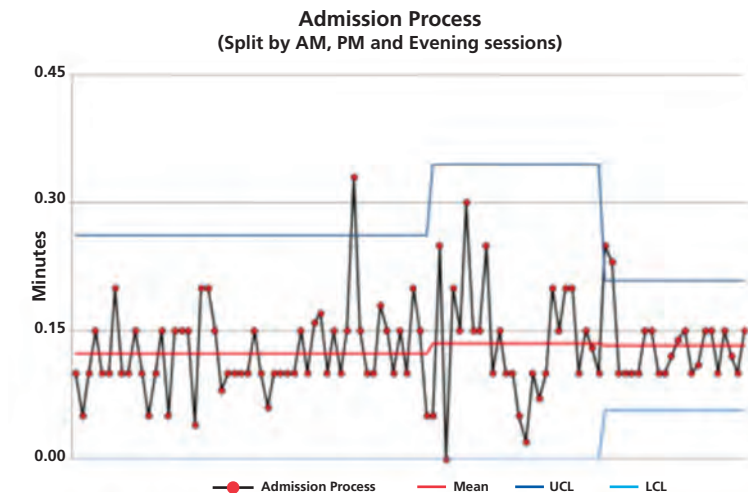
Why do it?

Recording the scheduled start and stop times, the actual start and stop times and the reason for any variance, on the spreadsheet makes staff aware of variance in processes and allows analysis to address the top issues and causes of delays. By collecting and analysing the data, the extent of the sessions starting late can be clearly seen and the impact this is having on patient waiting times and staff finishing times.

When to use?

- When delays to the starting of lists occurs or there is a lot of 'downtime' in the rooms between cases
- If staff miss lunches or are going home late
- When long turnaround times between patients make lists overrun
- If some lists are moving faster than others

This tool is particularly useful in the Knowing How We Are Doing and Session Start Up and Patient Change-over modules.



Statistical Process Control charts can be generated from the data to show where patients are waiting the longest in the process.

Materials required

- Audit sheets
- Pen/pencil
- Time measurement tools

In addition, full pathway timings can identify glitches in processes - for example delays and waits for the patients. See time measurement tools available on The Productive Endoscopy Unit web pages.

E. Measurement

What is it?

Measuring allows us to understand what's been happening up to now (baseline), whether we have got any problems in the current system which we need to take a closer look at, what is getting better or worse when we start to try out something new or improve something we are currently doing, and whether we have achieved our aim.

Why do it?

If you do not measure, you will not know:

- If the changes you make have actually made a difference
- If it is an improvement
- How much difference the change has made
- If the improvement has been sustained.

TOP TIPS when starting to measure:

- **Seek usefulness not perfection**
- **Measure the minimum**
- **Remember the goal is improvement and not a new measurement system**
- **Aim to make measurement part of the daily routine**
- **Do not let measure issues delay the start of your PDSA cycles.**

When to use?

- Measurement can show:
 - How well the current testing is performing
 - Whether we have reached our aim
 - How much variation there is in our data/process
 - Small test of change
 - Whether the changes have resulted in improvement
 - Whether a change has been sustained.

Materials required

Knowing How We Are Doing module

Example measures presentations which can be found on The Productive Endoscopy Unit web pages.

11. Visual Management

What is it?

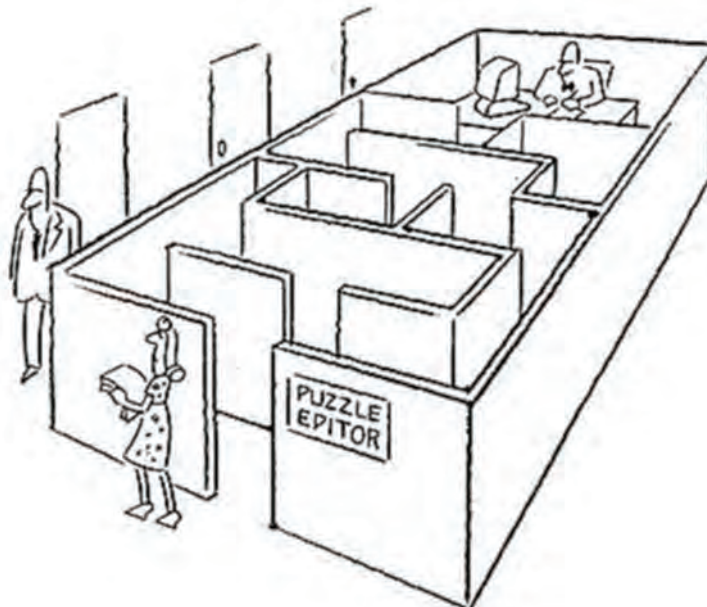
A visual way of communicating and controlling what needs to be done.

How to do it:

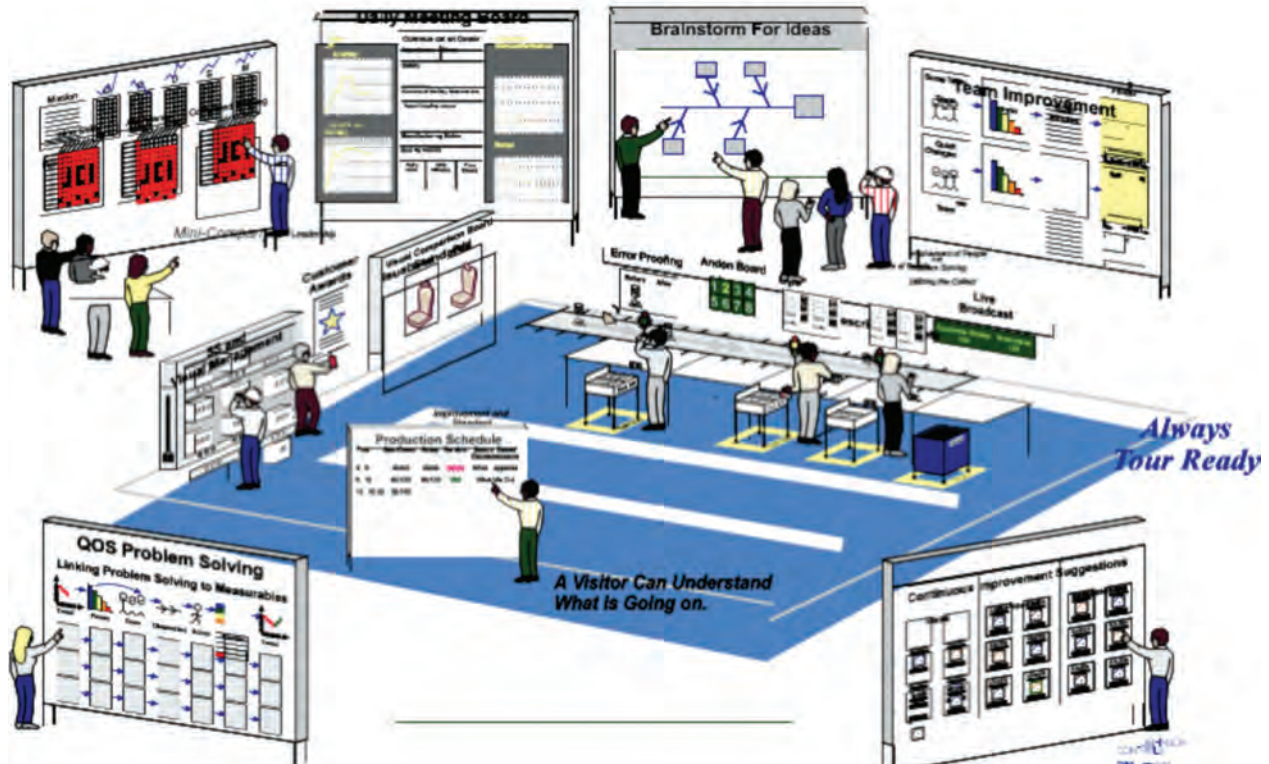
- Identify the information you want to be known
- Design a simple visual way of displaying and controlling activity
- Test the method and seek feedback from those involved
- If it is not useful then do not do it
- Keep it simple – only track the measures that are important
- Train everyone in the use of the method
- Regularly review and improve.

Information must be highly visible and used to take action when necessary by everybody.

From this



To this:



"Focused. Self paced. Self controlling. Self cleaning."

APAGOREUETAI TO KAPNISMA (Greek)

OR

VIETATO FUMARE (Italian)

OR

(EASY!)



12. The NHS Change Model

The NHS Change Model has been created to support the NHS to adopt a shared approach to leading change and transformation.

We need to understand what needs to change and why to make the NHS the best quality service for the best value, sustainable over time. The NHS Change Model is not rocket science – it brings together what we know helps make change happen. It informs how we make change happen and who needs to be involved.

The model brings together collective improvement knowledge and experience from across the NHS. It has been developed with hundreds of our senior leaders, clinicians, commissioners, providers and improvement activists, who want to get involved in building the energy for change across the NHS, by adopting a systematic and sustainable approach to improving quality of care.

NHS England uses it as a framework for making change happen in the NHS, through applying all eight components together in equal measure to make change successful.



How much can be learned from the private sector?

Much of the literature concerned with organisational change is derived from the private sector. This sector has successfully transferred improvement principles from commercial industries and implemented them in their own complex and dynamic service organisations.

The perception that change is easier in the private sector has been challenged. However, change in public sector organisations, and particularly in those populated by influential professional groups, is beset by complexity of a different order from that in more hierarchical organisations. Success is likely to depend as much on the quality of implementation, on the sensitivity to different points of view, and on the degree of support from influential organisation members, as on the soundness of the principles of the change approach adopted. Much of the evidence from the manufacturing sector demonstrates that top management involvement is critical to success however, in translating these findings to the health care setting we must remember the importance of opinion-formers within the professions who may not see themselves as top management.

The scale of change is another important consideration when drawing lessons from other sectors. Small, focused interventions may have an equal potential for success in most contexts, while more ambitious change initiatives are challenged, diverted and deflected by the inherent complexity, traditions and power dynamics of public sector organisations.

Large scale change is necessary to address challenges currently faced by Trusts. Learning on implementing large scale change projects between NHS organisations is essential for successful and sustainable change. Whilst large scale change is needed, this needs to be coupled with (and implemented through) lots of smaller scale change. NHS leaders need to be skilled at both levels.

Challenges and opportunities for the NHS

Delivering systems change in the NHS, therefore, involves working with:

- Changing pressures in the environment
- Multiple stakeholders, within and outside the organisation
- Changing technologies available to those stakeholders
- Complex organisations in which individuals and teams are interdependent – that is, they can only achieve their objectives by relying on other people seeking to achieve different objectives
- People who have experience of change interventions which have had unforeseen or unintended consequences.

Systems change needs to include all three of the following:

- Structures
- Processes
- Patterns (behaviours).

For more information visit www.england.nhs.uk/sustainableimprovement/change-model



To find out more about NHS Improving Quality:

www.nhsiq.nhs.uk | enquiries@nhsiq.nhs.uk |  @NHSIQ

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