

# The Productive Operating Theatre

*Building teams for safer care™*

## Consumables and Equipment

### Version 1

This document is for theatre managers, theatre matrons, theatre coordinators, clinical directors, multidisciplinary theatre teams and procurement, sterile services, medical engineering leads and improvement leads



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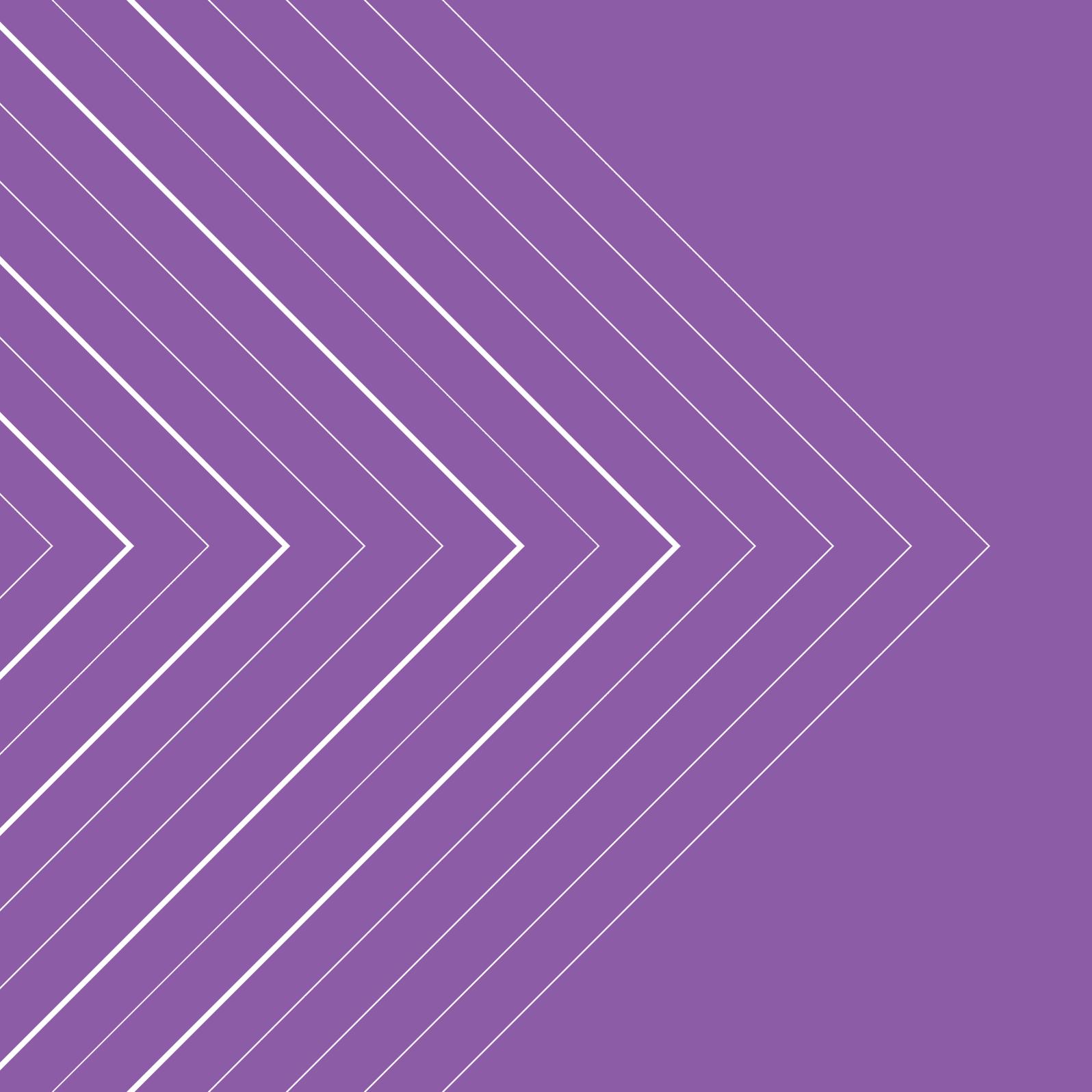
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The Productive Operating Theatre

# *Consumables and Equipment*

## Purpose of this module

Consumables and equipment are two of the main resources that are managed by theatres. The management of both of these resources involves complex systems. Problems within these systems can have a significant impact on the daily operational running and the financial performance of theatres.

### *Have you ever:*

- *found that you have run out of a stock item just when you need it?*
- *found stock to be out of date when you need to use it?*
- *had to open extra trays due to missing or faulty instruments?*
- *found that you don't have enough equipment to cover the number of procedures scheduled?*
- *had issues about skills and competency when using new equipment?*
- *found that new equipment requires 'hidden' consumables and maintenance costs?*

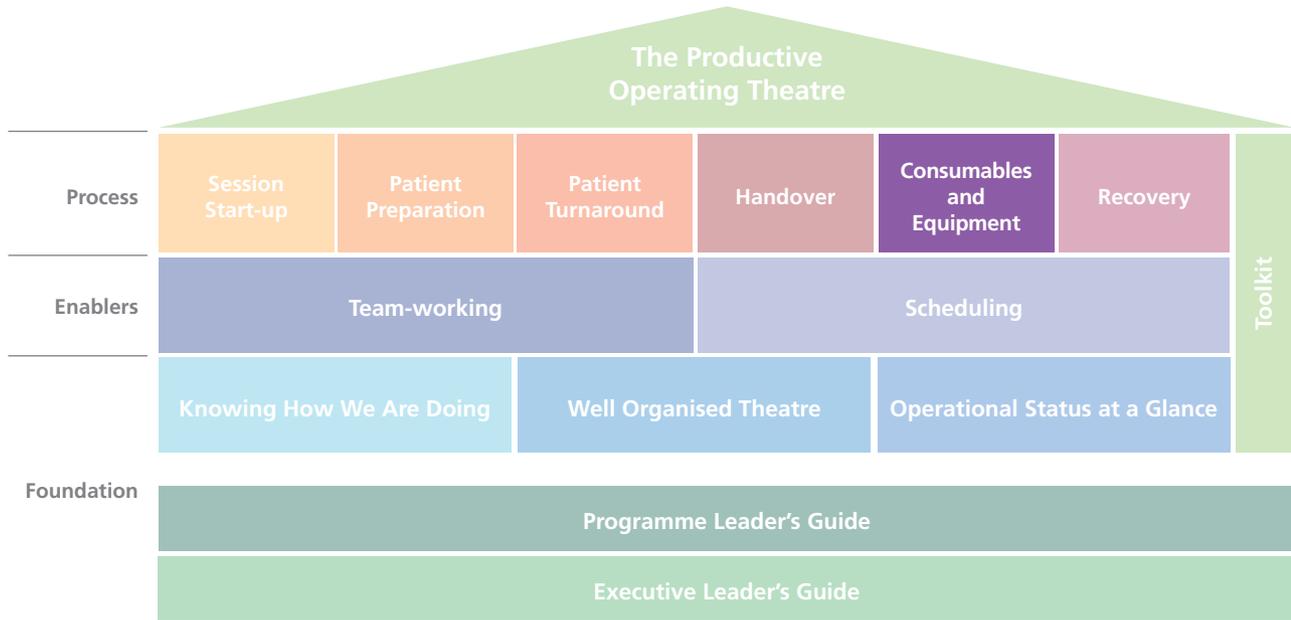
Do any of these problems or others regularly occur in your department?

Theatre teams can face a number of issues relating to consumables and equipment during their working day. These issues have the potential to increase clinical risk and significantly increase the amount of financial and process waste that occurs. Good management of consumables and equipment will improve the quality, safety and reliability of both of these systems and help reduce staff frustration. Importantly, it can go a long way to improving patient experience and outcomes.

The aim of this module is to provide you and your team with the structure to examine your consumables and equipment processes. Within the individual context of your service, this module will help you develop a system that will ensure that you have consumables and equipment in the right place at the right time, whilst maximising value of the financial resources you have available.

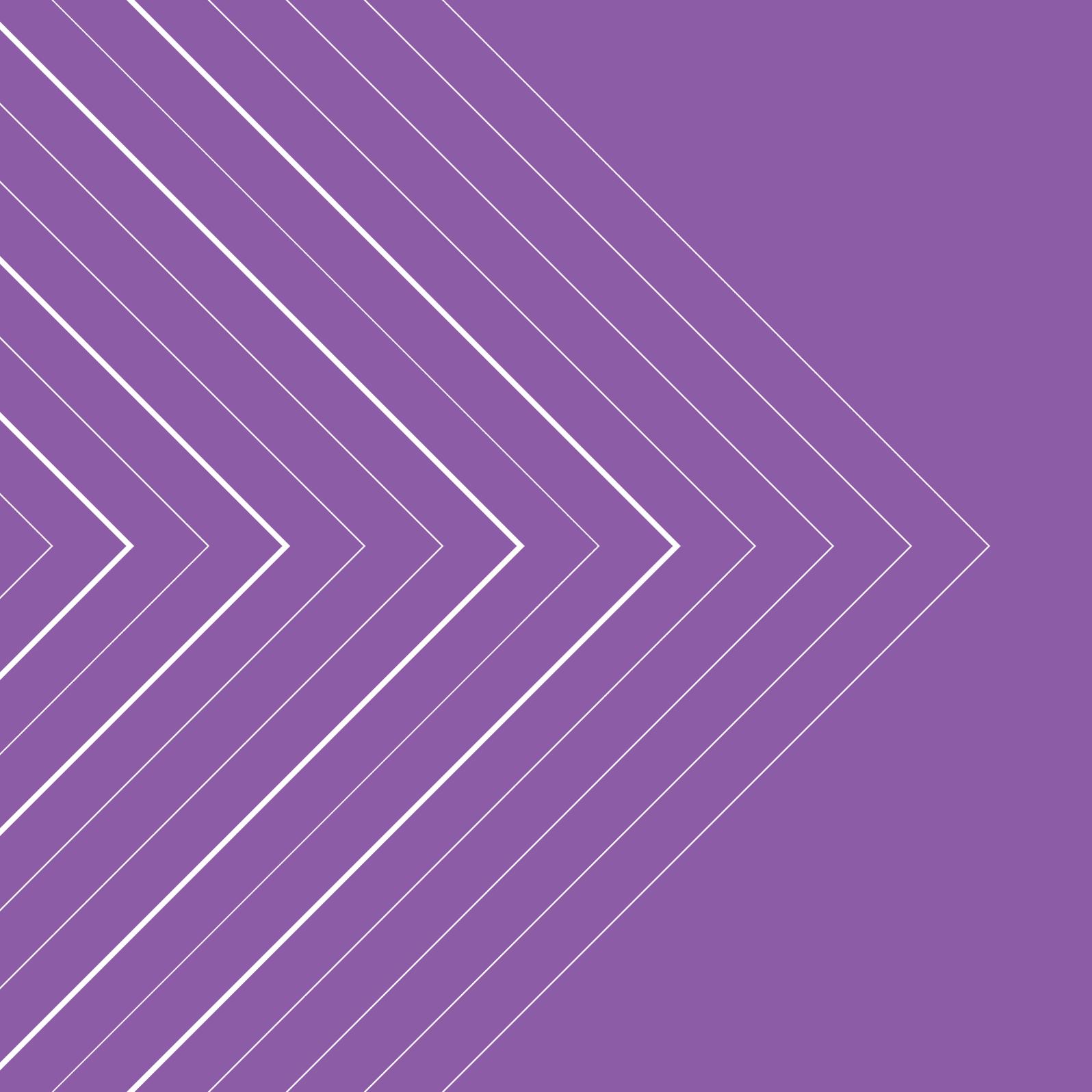
This module has the potential to achieve crucial improvements to your clinical service, as well as achieving significant financial savings. However, the scale of potential improvement and savings is directly related to both your own current state of processes, and your organisation's commitment to invest in the resources and effort required to achieve the greatest return from this module.

## These modules create The Productive Operating Theatre



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# 1. *What is the Consumables and Equipment module?*

## **What is it?**

The availability of appropriate consumables and equipment, at the right time, every time, can significantly influence the experience and outcomes for your patients and staff and is crucial to providing a safe and reliable clinical service. This module offers you a practical and structured approach to improving the consumables and equipment systems that are in place to underpin the high quality care that your theatre teams aspire to deliver to their patients.

The scope of this module is the largest and most complex of the process modules and this will influence the level of support, effort and resources required to implement it successfully.

## **Why do it?**

The Consumables and Equipment module provides your department and organisation with the opportunity to improve quality of care, patient and staff experience, and it also has the potential to make significant financial savings through the reduction of waste. It is fully aligned with the national agenda to achieve both quality and value.

All organisations will be at different stages of their journey to achieving safe, reliable and efficient management of consumables and equipment, therefore some organisations will have more scope and opportunity for improvement. This module will provide the opportunity to examine and improve your processes, whatever stage they are at, and contribute to a culture of continuous improvement.

## **What it covers**

Through examining and understanding your processes, this module will allow you to identify the issues and barriers to effective management of both consumables and equipment. It will enable you as a team, to recognise what good management looks like, and provide you with the tools and ideas to develop your own local solutions and ensure that changes you make are sustained and scaled up.

## **What it does not cover?**

All organisations are unique, which is why this module does not attempt to offer specific instructions on issues for you to improve consumables and equipment within your own area. While working through this module you may identify problems that extend beyond the scope of your department or management team. Whilst the work in this module may not directly address such problems, it will provide you with the structure to identify them and take them forward within your organisation to be addressed appropriately.

# Productive Operating Theatre

Building teams for safer care™

## Consumables and Equipment

Version 1

This document is for theatre managers, theatre matrons, theatre & multidisciplinary theatres teams and leads from procurement, stock

- Executive Leader's Guide
- Programme Leader's Guide
- Knowing How We Are Doing
- Well Organised Theatre
- Operational Status at a Glance
- Toolkit



## Patient Preparation

Version 1  
This document is for theatre managers, theatre matrons, theatre coordinators, theatre assessment staff, ward staff, anaesthetists, surgeons and improvement leads.

Handover  
Teams focus on  
and efficient  
of patients from  
on to another.

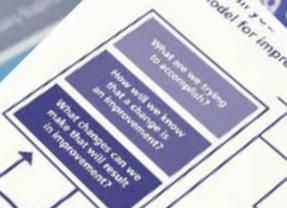
Consumables and Equipment  
Helps plan the levels and timing of top-ups, including stock usage requirements, stock levels, storage and replenishment systems for surgical kit and consumables.

## Scheduling

How the scheduling process through the flow of information is performed

Choose measures

3. Confirm collection and display



## Important links

All the modules within The Productive Operating Theatre link together to achieve the programme aims, some however, are more interdependent than others. Consumables and Equipment links particularly closely to:

- **Well Organised Theatre:** provides the foundations for the Consumables and Equipment module by carrying out the preliminary 5S of storage areas and consumables prior to further work which will be developed in this module.
- **Scheduling:** will support you to create a good scheduling process that will identify equipment and critical consumables eg prostheses, needed for each list, working across the whole department to ensure that all required resources have been identified as available and scheduled.
- **Knowing How We Are Doing:** collecting, analysing, and reviewing your measures is vital to help you understand if the changes you are making are having an impact. Using this module will support you and your team to create a balanced set of measures that will be useful and relevant, and close to real time, so you can see the impact of the changes they make.
- **Team-working:** understanding the importance of, and introducing techniques to improve communication enhances multidisciplinary team working. Briefing and debriefing are vital elements in the improvement cycle for both consumables and equipment – briefing being a critical point to confirm that all essential items of kit have been identified and confirmed as available, and debriefing being crucial to the capture of issues and action planning to prevent recurrence of problems.

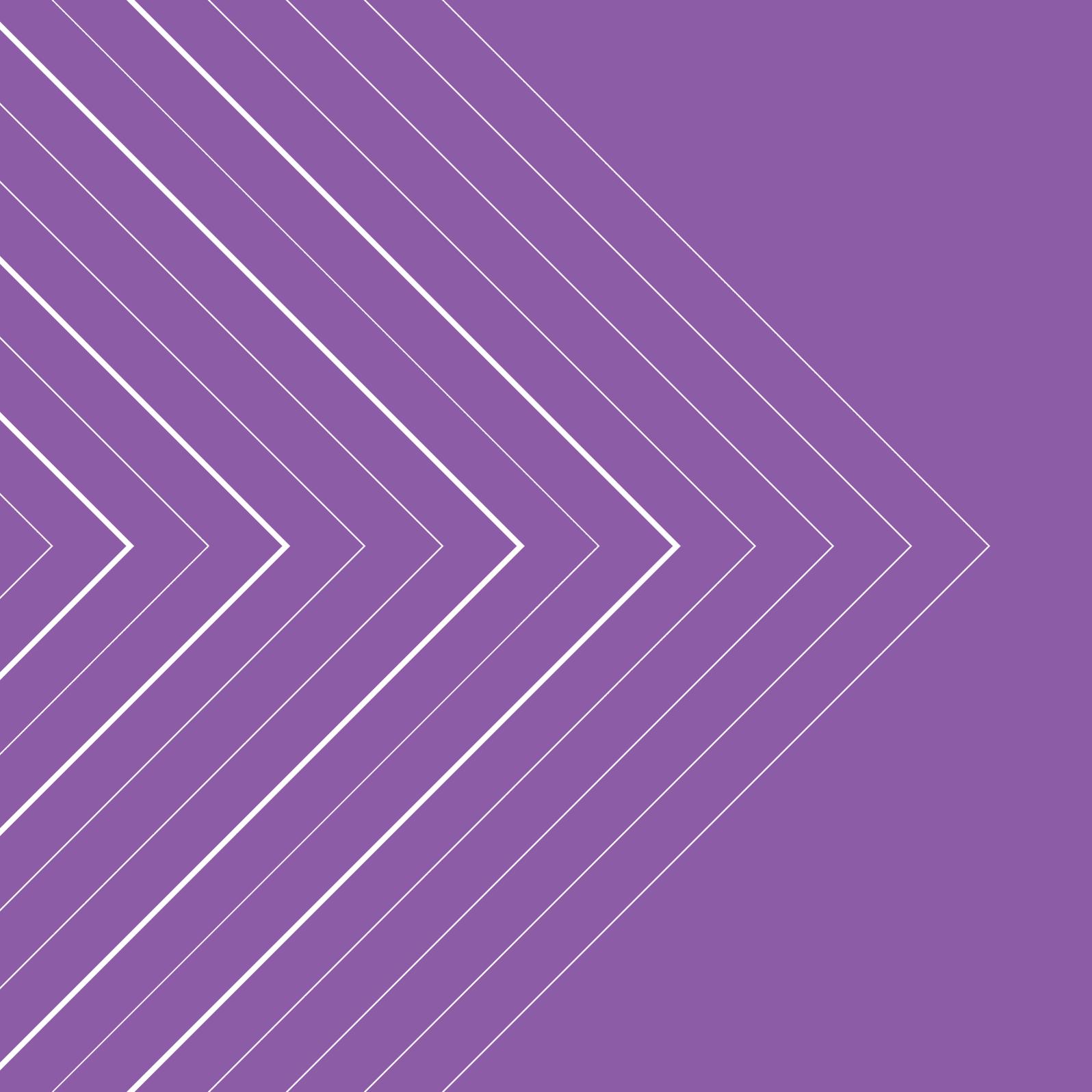
## Learning objectives

After completing this module it is expected that as a team you will:

- recognise the importance of having safe, reliable and effective processes for managing consumables and equipment within your theatre department from the perspective of:
  - clinical risk and patient experience
  - improving staff working lives
- understand the significant financial impact of consumables and equipment on the operating theatre's budget
- understand the requirements of good management of consumables and equipment at international, national and local level
- understand the processes involved in the management of consumables and equipment within your organisation
- understand the types of waste and how to identify and remove them from current processes
- understand the need for clarity of processes and the relevant roles and responsibilities within them
- be able to measure performance and use this information to identify improvements
- recognise the importance of leadership at all levels in ensuring that all elements of the process function effectively
- develop the skills for staff to own their own processes and to drive their own improvement work
- develop a culture of continuous improvement based on good practice in consumables and equipment.

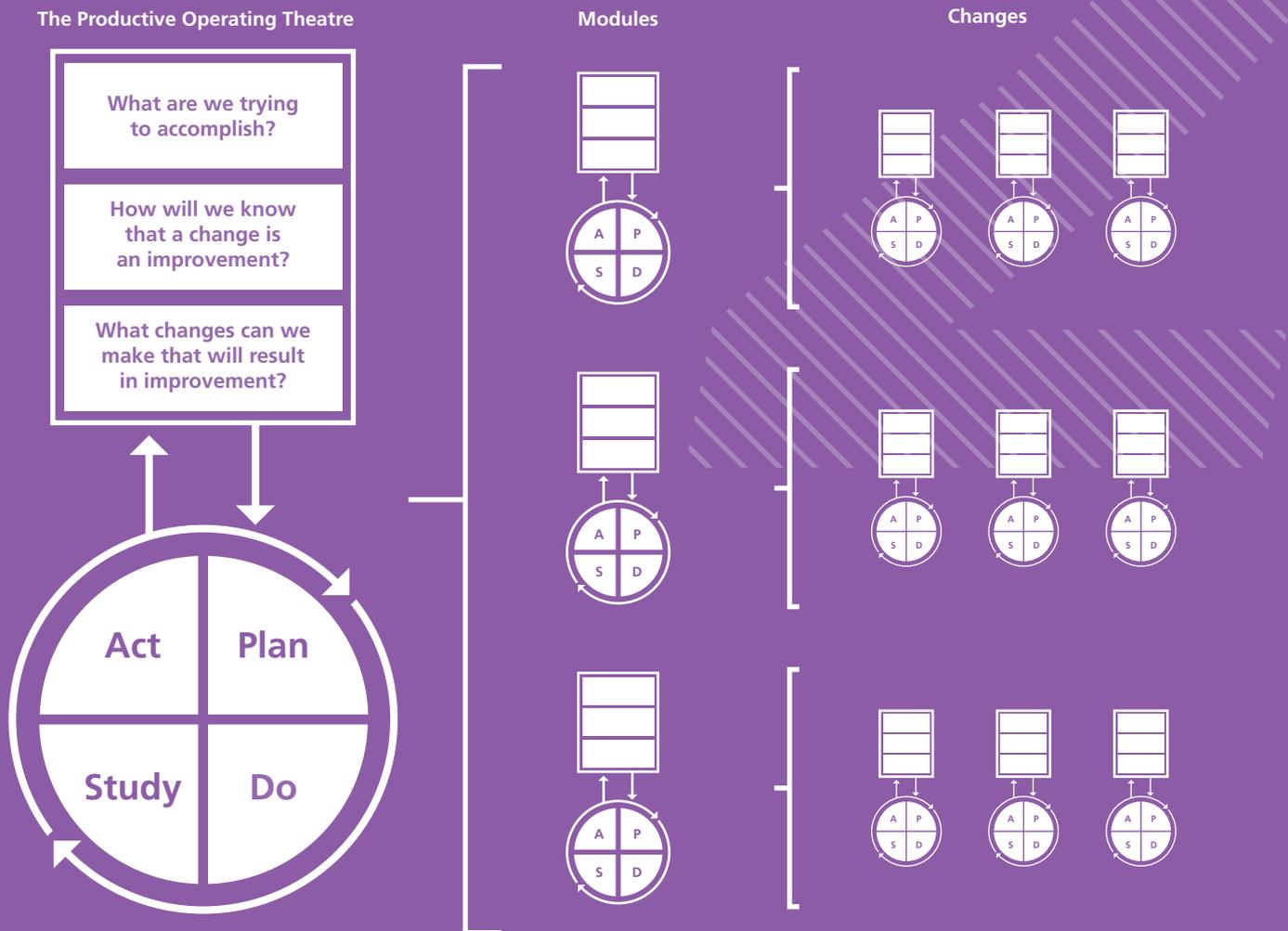
## What tools will you need?

Tool	Toolkit section reference number
Dot voting	2
Activity follow	5
Photographs	8
Video	9
Process mapping	11
Cost / benefit analysis	12
Module action planner	13
Timing processes	16
5 Why analysis	18
Glitch count	20



## 2. How will you do it in your theatre?

This module is structured to take you through the model for improvement<sup>1</sup>. Within the module you will implement many small changes, developing and testing each one through small cycles of the model for improvement. The cumulative impact of these changes come together to achieve the overall aims of the Consumables and Equipment module. All the changes made within the different modules come together to achieve the overall aims of The Productive Operating Theatre.

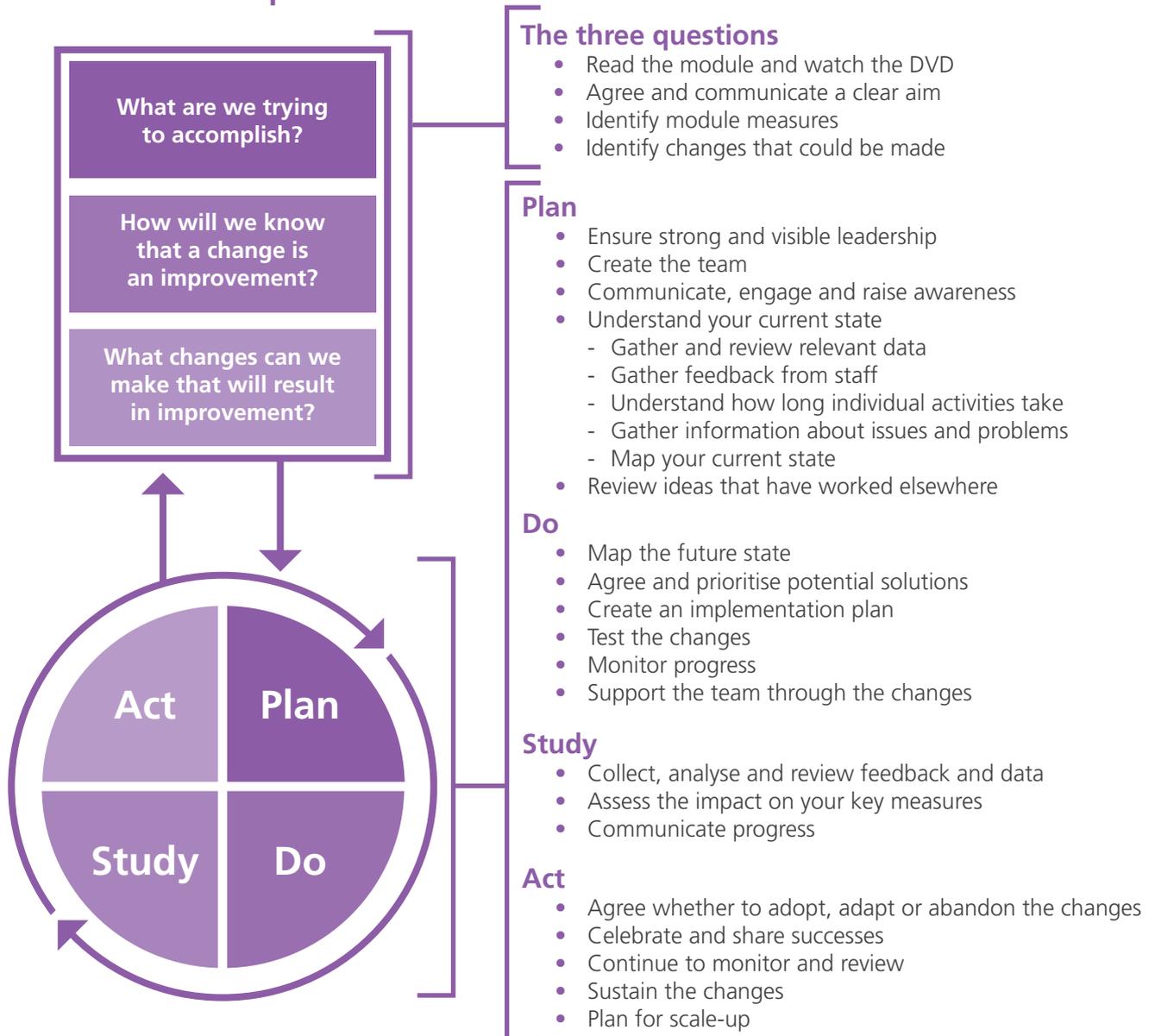


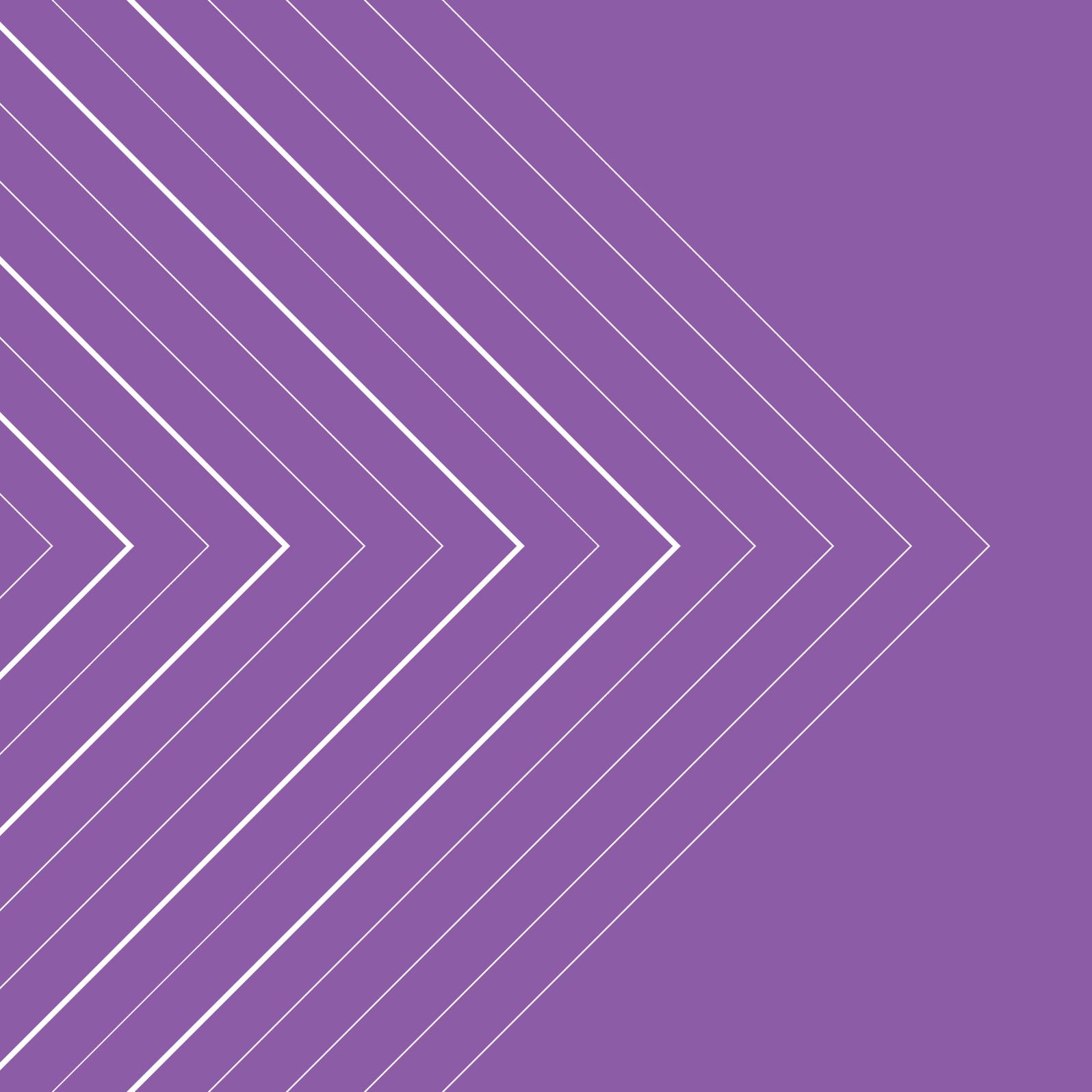
<sup>1</sup>Langley G, Nolan K, Nolan T, Norma C, Provost L. (1996)  
The improvement guide: a practical approach to enhancing organizational performance.  
San Francisco: Jossey-Bass



## How will you do it in your theatre?

### The model for improvement

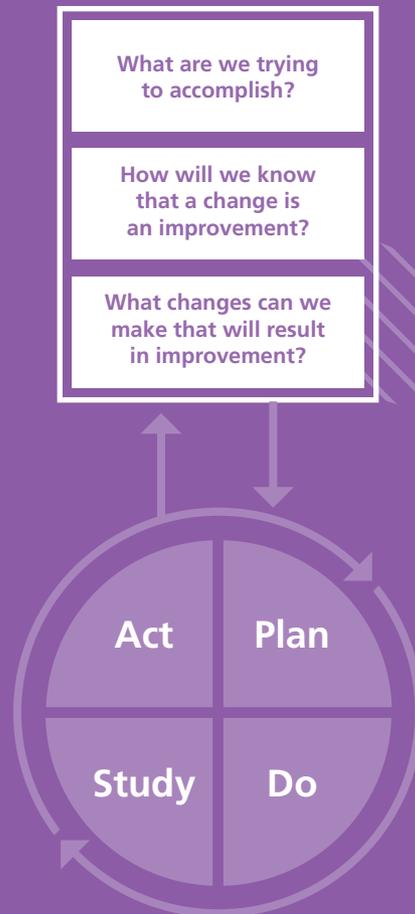




### 3. The three questions

Before starting work on Consumables and Equipment, take the time to read the module through carefully to understand the full scope of what is involved. Watch the Consumables and Equipment DVD included in the box set or available at [www.institute.nhs.uk/theatres\\_resources](http://www.institute.nhs.uk/theatres_resources)

Work through the three questions from the model for improvement. These questions and your answers to them will provide you with the foundation upon which to base your Consumables and Equipment improvements.



## 1. What are we trying to accomplish?

The main idea in answering this first question is to provide an aim for your improvements that will help guide you and keep your efforts focused.

Think about how the Consumables and Equipment module will contribute to achieving both your local vision for The Productive Operating Theatre and the overarching aims of the programme to improve:

- patient's experience and outcomes
- safety and reliability of care
- team performance and staff wellbeing
- value and efficiency.



Your aim for the Consumables and Equipment module should be time specific and measurable, or **SMART**

Principles for setting a <b>SMART</b> aim:	
<b>Simple</b>	give the aim a clear definition (eg we aim to have all consumables and equipment in the right place at the right time – every time)
<b>Measurable</b>	ensure that data is available
<b>Aspirational</b>	set the aim high to provide a challenge to the team but ensure that it is achievable
<b>Realistic</b>	take into consideration factors beyond your control which may limit your impact
<b>Time bound</b>	set a deadline

*'We aim to have all stock in the right place at the right time – every time'.*

Felicity Watkins – stores assistant, (The Productive Operating Theatre secondment),  
Heart of England NHS Foundation Trust

## Sequencing this module

This module is complex and potentially a major project in itself. It will require a clear aim and plan. In reality this may require several years to achieve its full potential. It is important that you are aware of this at the outset because this knowledge will help you develop a plan that is achievable and sufficiently supported and resourced. It will also help you to manage everyone's expectations.

This module will require you to make some key decisions regarding the approach that you will take prior to setting up your Consumables and Equipment team(s) and commencing work.

Before you start working through the Consumables and Equipment module make sure that you are clear about how you will sequence the work:

- one area at a time, consumables or equipment
- both with a staggered start-up
- both concurrently.

Regardless of which you choose, the approach within this module equally applies to both.

To help inform the decision about which approach to take consider:

- what are the clinical, operational and financial impacts and risks associated with each area?
- is one area a greater problem than the other?
- what is the extent of work required in both areas?

This decision needs to be considered carefully, particularly at the steering group so that resources can be identified and provided. Resourcing will be a key factor to success. This work must also be considered in the context of other Productive Operating Theatre programme modules that are also running concurrently.

Once you have decided which approach to take, you are ready to begin your consumables / equipment improvement journey.



**Tip:** As a team it will help to discuss exactly what it is that you wish to accomplish from the varying perspectives and priorities of everyone involved – not forgetting the patient!

With the approach now decided and your module aim identified, ensure that you communicate your module aim widely across all areas involved.



## 2. How will we know that a change is an improvement?

This second question builds on the work you have done in the Knowing How We Are Doing module. It is about monitoring and measuring the impact of the changes you make. If you make a change and your measures start improving at around the same time, it is likely that the change led to the improvement.

Measuring the impact of the changes you are making is really important to enhance your team's learning. It allows you to quantify the improvements you have made, which will generate further enthusiasm and support for the programme. It also enables you to identify changes you have made that have not had the desired effect, highlighting where you need to modify your approach.

As part of Knowing How We Are Doing, you will have agreed a balanced set of measures across the four programme aims. How will your improvements from the Consumables and Equipment module be represented in this set of measures?

If this is not explicit, you may need to identify additional measures that will capture the impact of this module. The suggested measures sheet in Knowing How We Are Doing will give you some ideas of how to do this.

### Module measures session

To explore this further run a module measures session with the module team. A suggested set of slides for this session is available at [www.institute.nhs.uk/theatres\\_resources](http://www.institute.nhs.uk/theatres_resources)

The aims of this session are to:

- refresh the team's understanding of how to use measurement to drive improvement
- understand how the Consumables and Equipment module fits into your agreed balanced set of measures
- identify measures for the module
- decide how to collect, analyse and review the information – try to make this as 'real time' as possible in order to make it more meaningful for the team
- complete a measures checklist for the module.

Once agreed start collecting, analysing and reviewing data for your set of measures.

Here are some ideas of measures for Consumables and Equipment. Some of these you may already be collecting – your choice may be influenced by specific issues within your own area.

**Remember to keep it simple. Choose one or two key measures at first – too many measures will be difficult to manage.**

Consumables	Equipment
<ul style="list-style-type: none"> <li>• Stock take – own and consignment stock</li> <li>• Weekly / monthly consumables spend</li> <li>• Items on shelf more than 30 days</li> <li>• Back orders</li> <li>• General prostheses / orthopaedic prostheses spend</li> <li>• Fast track requests</li>   <li>• ‘Run outs’ of stock</li> <li>• Glitch count</li> <li>• Incidents / near misses reported</li> </ul>	<p>Sterile services</p> <ul style="list-style-type: none"> <li>• Non conformance to standards – sterile instrumentation</li> <li>• Turnaround time of sterile instrumentation</li> <li>• Percentage of trays out of service or incomplete</li> <li>• Number of operations affected by unavailable kit</li> <li>• Sterile services costs</li> <li>• Fast track requests</li> </ul> <p>General medical equipment</p> <ul style="list-style-type: none"> <li>• Glitch count</li> <li>• Competency training percentage</li> <li>• Equipment maintenance contract costs</li> <li>• Equipment safety checks audit</li> <li>• Cost of repairs</li> <li>• Incidence of repairs</li> <li>• Incidents / near misses reported</li> </ul>

For more examples of measures see Knowing How We Are Doing – Appendix 2.

For more examples of how to present consumables and equipment data see Measures supplement [www.institute.nhs.uk/theatres\\_resources](http://www.institute.nhs.uk/theatres_resources)

**Tip:** Accessing the information you need for this module may span a number of departments such as theatres, procurement, finance, information and IT. It will help to get this started at the earliest opportunity so that you can work with colleagues to collect, adapt and analyse the information as required.

### 3. What changes can we make that will result in an improvement?

Having read the module, agreed on a clear aim, and decided how you will approach the module, you may have already started to identify some changes that you want to test within your department relating to the management of consumables and equipment.

You will have an overall idea of what you want to achieve within this module however, the detail of what and how you can achieve it will become clear through your diagnostic work, such as your data collection, analysis and process mapping. With your team, start to think through and agree a number of **Plan Do Study Act (PDSA)** cycles, that will test a variety of different solutions for improving consumables and equipment within your showcase theatres or test areas.

Within this module you will find a number of examples of changes that have been shown to work in other sites. However, the success of Consumables and Equipment in your area will depend on your current state, and your use of the model of improvement in response to the individual issues within your organisation.

Involving your team, developing meaningful data and generating enthusiasm will be the key to your success.

Examples of the types of areas that commonly require improvement. These may be something for you to explore within this module.

Consumables	Equipment
<ul style="list-style-type: none"> <li>• Understanding regulation, policy and guidance at international, national and local level in relation to governance and good practice relating to stock and single use medical devices.</li> <li>• Effective storage.</li> <li>• Stock location – clearly identified, reducing duplication.</li> <li>• Understanding and controlling your inventory.</li> <li>• Identifying the order process category for each item, eg stock and non stock orders, blanket orders and ‘top up’.</li> <li>• Understanding who is funding what eg cost centres.</li> <li>• Correct minimum maximum levels for all stock items – reduce ‘stock outs’, excess stock and out of date items.</li> <li>• Stock rotation – reducing out of date items.</li> <li>• Standardisation of stock where possible.</li> <li>• Review and clarify roles and responsibilities</li> <li>• Structure for management / governance, eg: <ul style="list-style-type: none"> <li>– materials management group</li> <li>– policy for authorisation and introduction of new products</li> <li>– monitoring of costs</li> <li>– procedure or patient level costing.</li> </ul> </li> <li>• Identifying and agreeing requirements of new surgeons.</li> <li>• Collaborative and effective relationship / interface with other departments eg procurement, finance, information / IT.</li> <li>• Understanding the relationship with external suppliers.</li> <li>• Linking consumables into scheduling.</li> <li>• Potential pitfalls of bulk buying and ‘special offers’ from suppliers?</li> <li>• Developing collaborative relationships with external suppliers</li> </ul>	<ul style="list-style-type: none"> <li>• Understanding regulation, policy and guidance at international, national and local level in relation to governance and good practice relating to medical devices and equipment.</li> <li>• Quantifying and controlling your assets – inventory.</li> <li>• Identifying and prioritising what new equipment you require.</li> <li>• Purchasing, eg effective capital bidding process and selection of appropriate equipment.</li> <li>• Safe and appropriate introduction of new technology.</li> <li>• Ensuring safe and reliable maintenance of equipment</li> <li>• Keeping track of and storage of equipment.</li> <li>• Linking equipment to the scheduling of cases.</li> <li>• Training and competency of the team in use of equipment.</li> <li>• Reporting of faults and repair process.</li> <li>• Understanding the decontamination requirements for individual kit.</li> <li>• Sterile services: <ul style="list-style-type: none"> <li>– quality of the service delivered</li> <li>– integrity of packs, no tears or dampness</li> <li>– quality of contents – no parts missing, contents clean, dry and in working order</li> <li>– turnaround time</li> <li>– tracking of instrumentation across process</li> <li>– missing instrumentation.</li> </ul> </li> <li>• Managing loan equipment and instrumentation.</li> <li>• Identifying and agreeing requirements of new surgeons prior to starting.</li> <li>• Collaborative and effective working relationship with your sterile services provider (on site or contractor).</li> <li>• Keeping a quality service within the budget.</li> <li>• Clarity of roles and responsibilities.</li> <li>• Pitfalls of ‘special offers and bargains’ from suppliers.</li> <li>• Understanding of hidden consumables and maintenance costs that are often attached to new equipment purchases.</li> </ul>

## Example: response to the three questions

Process Module – Test period starts September 2009

### Consumables and Equipment Module

Medway   
NHS Foundation Trust

#### Model of Improvement Question 1 – What are we trying to accomplish?

##### Aim

Improve the daily delivery of stores items to the theatre suite in main Theatres.

##### Benefits – Why?

- Patient experience improved due to less waiting on the ward for their procedure
- Reduction in complaints due to waiting
- Improve bed flow and reduce bottlenecks at the start of the sessions
- Reduce staff pressures at these bottlenecks
- Safe and efficient transfer of patients from admission to procedure
- Promote a calmer atmosphere
- Patient focused approach.
- Clearer roles and responsibilities for all
- Better communications and engagement between clinicians, ward staff and theatre staff

##### Measures

- Measure number of calls received by stores from theatres requesting stock delivery
  - Measure time taken by stores staff to deliver additional requests for stock
  - Measure number of times theatre staff have to go to stores to collect stock
  - Measure number of times stock is available when requested
  - Generate current state – process map
  - Generate future state – process map
  - Gather staff issues relating to stock deliveries – complaints
  - Activity follow pre start – delivery process. 1 Hour
  - Activity follow post implementation of new process
  - Video process to review with staff
  - Photograph process to review with staff
- Brendan McCarthy.

#### Model of Improvement Question 3 – What changes can we make that will result in an improvement?

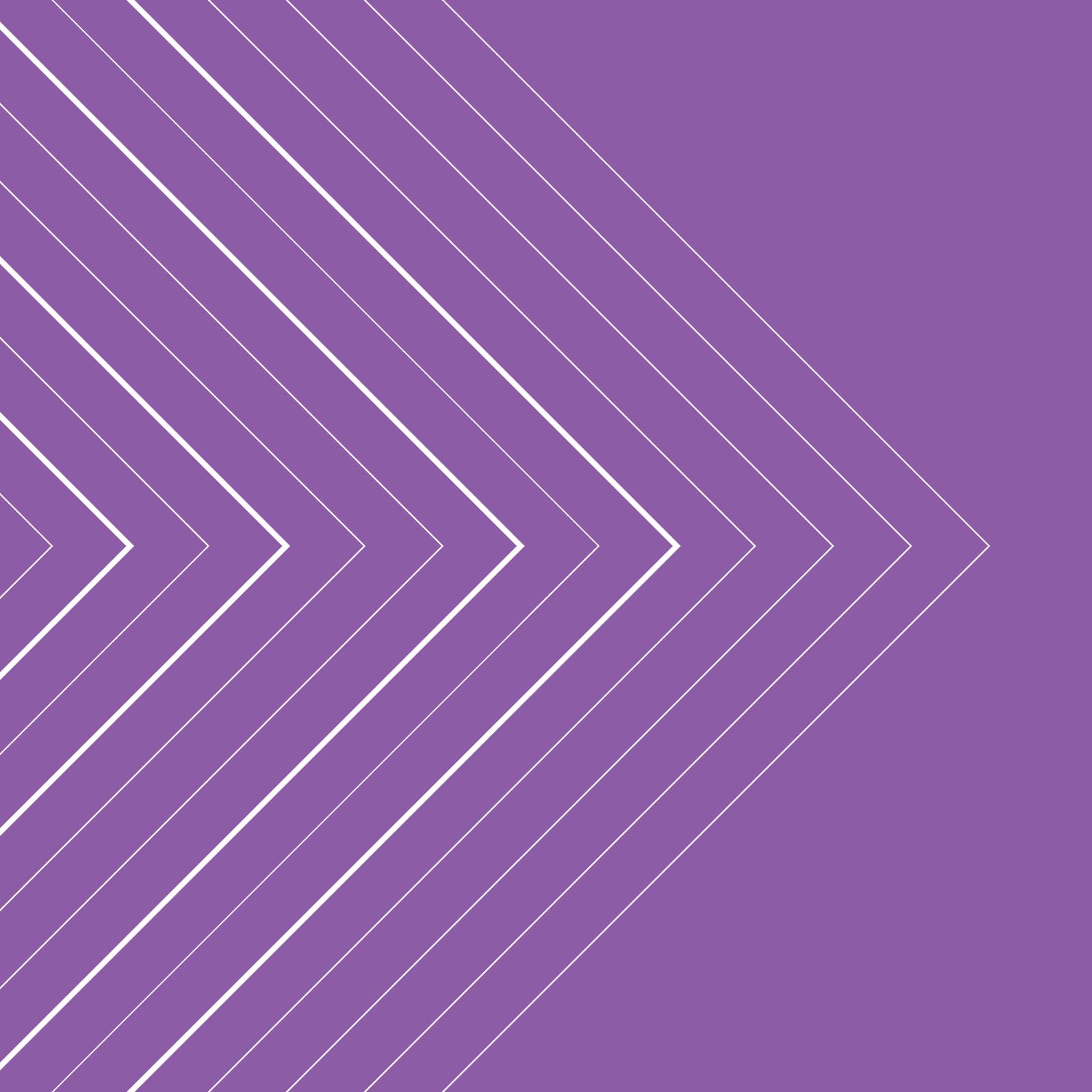
Introduce increased daily delivery times (frequency) to main theatres from stores.  
Implement by 1st November 2009. Amended

## The three questions – milestone checklist

Move on to **Plan** only if you have completed **all** of the items on this checklist

Checklist	Completed?
Read the Consumables and Equipment module and watched the DVD	
Agreed and communicated a clear aim for the module	
Held a module measures session	
Have identified module measures using Knowing How We Are Doing	
Thought about and discussed what changes you will make	

Effective team-work checklist	Tick if yes
Did all of the team participate?	
Was the discussion open?	
Were the hard questions discussed?	
Did the team remain focused on the task?	
Did the team focus on the area / process, not individuals?	



## 4. Plan

There are a number of steps to work through to help you plan tests of change using Plan Do Study Act (PDSA) cycles for implementing the Consumables and Equipment module.



## Ensure strong and visible leadership

Safe, reliable and cost effective management of consumables and equipment are critical to a high performing operating department and to the financial performance of your organisation.

Discuss how you will implement the module, as well as the support that you will require with your steering group. You will require strong clinical and managerial support and leadership to enable this module to succeed and overcome any potential barriers that may occur both within and beyond the remit of the module team.

***Tip:** Leaders will need to be interested and actively involved in making this module a success. This applies to everyone from the executive lead right across the chain of management eg clinical directors, theatre managers, theatre sisters, team leaders and senior operating department practitioners – the same also applies across other services involved.*

### **Enablers for a successful Consumables and Equipment module:**

- senior managers visibly monitor the non pay budget and feed back with clear direction and expectations, and support the team to achieve those expectations.
- theatre team leaders are aware of the importance of consumables and equipment and their responsibility to patients, colleagues and the tax payer. Good practice relating to consumables and equipment is a priority in their clinical areas.
- senior staff take responsibility for training and supervising their teams and ensuring that all staff take responsibility for their own roles in the process.
- leaders listen to the daily problems encountered by teams and support them to take them forward to a successful conclusion.

If these enablers are not present you will need to address this as one of your initial areas for improvement.

## Create the team

Identify your team or teams (depending on whether you are approaching both consumables and equipment separately or concurrently) to take this module forward.

- Identify a module champion or lead who has the responsibility and ability to take this work forward.
- Secure dedicated support from your improvement facilitator and data analyst.
- The module lead, improvement facilitator and data analyst are critical to the success of this module.

This module involves working with other departments. It is crucial that these partner departments such as procurement, medical engineering, and finance are included as part of the module team.

Depending upon the scope of your work, this module may also involve developing collaborative working relationships with external suppliers to improve processes and or costs.

Members of your consumables and equipment team will have differing levels of involvement. For example, it is essential to involve senior managers from theatres, finance and procurement to 'unlock' barriers to progression.

Representation from the multidisciplinary theatre team will be crucial to the effectiveness of the work. Everyone's time is precious so plan carefully to use your team effectively.

Depending upon which area you are focusing on, consider involving:

- **directors: theatres, procurement, finance** – high level influencers and decision makers
- **theatre manager and matron** – budget holders, decision makers and senior leaders
- **clinicians** – theatre consumables / equipment users
- **theatre coordinator, team leaders / theatre sisters** – senior team who understand processes and have leadership role
- **improvement leader** – tools and techniques to support the teams
- **data analyst** – provide information and measurement support
- **procurement staff** – involved in daily ordering
- **theatre team** – mixed grades and disciplines who understand the daily theatre processes and issues
- **other relevant stakeholders** – clerical and portering representatives, medical engineers, estates, sterile services personnel

## Communicate, engage and raise awareness

As part of the start-up phase for implementing the Consumables and Equipment module, it is important that the multidisciplinary theatre team and partner departments understand what the module is, why it is important and what benefits it will deliver. You can never communicate too much, so use several of the suggestions listed below to ensure the team are fully informed and ready to go.

- Theatre / procurement meetings
- Audit meetings
- One-to-one discussions.
- Posters and newsletters.
- Information on you Knowing How You Are Doing board including measures and quotes form staff and patients.
- Email.

The wider teams will be involved throughout the module and it is important to involve all staff groups in the planning and implementation of changes.

Your communication lead will be able to advise you on this essential part of the programme.



## Clinician involvement

Surgeons and anaesthetists may not immediately see the benefit of getting involved and leading process modules such as Consumables and Equipment. However, surgeons and anaesthetists are key end users of both medical equipment and stock within their everyday practice – and their experience and knowledge is really valuable to the improvement process.

Clinicians regularly experience problems and frustrations in relation to consumables and equipment and can describe the effects on their clinical practice and working day. Taking part in improvement work is an opportunity to make a difference.

Examples of typical problems experienced by clinicians:

- quality of instrument trays causing delays or the need for 'work-arounds'
- running out of anaesthetic drugs and basic stock
- delays and frustration due to inadequate training in the use of medical electrical equipment
- faulty equipment
- absence of critical equipment due to poor repair processes.

There are many clear examples of successful improvement work nationally where consultants have become active champions and this has provided clear benefits:

- provision of leadership, engagement, influence and enthusiasm
- further promoting the multidisciplinary team working approach
- sharing their knowledge and skills in using data to inform the process
- ensuring that clinician expectations and solutions are actively included in improvement programmes.

## Example: clinician involvement

At Heart of England Foundation Trust Dr. Alastair Williamson (Consultant Anaesthetist) has a long standing and keen interest in all aspects of the supply chain. Alastair volunteered to lead this work as The Consumables and Equipment module provided a powerful opportunity to make significant improvements in this area.

Forming a small core team with Fliss Watkins, a Health Care Assistant, both have worked closely to involve the team and to plan and implement multiple cycles of small scale changes that made significant improvements to patient care, working lives and cost effectiveness.



*'Clinician engagement is important. It is all too easy for doctors to think that this module is not relevant to them, but they are important core end users of the consumables and equipment in theatres. It is critical that they share their experiences and issues with the group and work with the team to identify and implement improvements and solutions.'*

*Failure to get clinicians to engage is a lost opportunity for both the programme work and for the clinicians themselves.'*

**Alastair Williamson – consultant anaesthetist, clinical site lead, Good Hope Hospital,  
Heart of England NHS Foundation Trust**

## Understand your current state

To be able to progress with any improvement, you need to understand the 'current state' of the process that you are working on. This involves examining all aspects of the current situation and gathering qualitative and quantitative information from a variety of sources.

The management of consumables or equipment can be broken down into a number of smaller processes and tasks. It is important to take all of these into consideration as you develop your understanding of your current state and begin to develop your plans.

### Confirm the scope

It is important to locally define the scope of your work. As a team you will decide what the start and end points are for your attention. This needs to be considered carefully as some of the issues that have a high impact on theatres may be beyond the direct control of your department.

For example, you may decide to define the scope of your consumables as:

- all internal steps of the process from the point of identifying the need to order an item to the point where it is placed on the shelf within theatres.



*'It is essential that the team involved is multidisciplinary in order to understand all the related issues.'*

Sue Jones – senior theatre practitioner – endoscopy, programme leader,  
Medway NHS Foundation Trust

## Gather and review relevant data

This is the diagnostic phase and will require a range of baseline data in order to identify the areas that require most improvement, or pose the greatest risk.

As part of working through the ‘three questions’ and Knowing How We Are Doing you will have agreed measures for this module.

- Gather your baseline data for each measure that you have identified
- Review the data in order to be able to understand your current state
- Look at baseline data:
  - does the data demonstrate good performance?
  - do you actually have a problem?
  - if so, is it general or confined to certain areas?
  - what are the opportunities for improvement?

In addition to these, during this diagnostic phase you will need to collect a broader range of information to fully understand your current state. For example, when considering consumables there may also be very specific information relevant to the individual area that you are looking at that you may wish to capture, such as:

- what are the different categories of stock and how are they ordered and authorised?
- how many orders are placed weekly / how are these placed, who by and how often?
- how much time are staff spending on consumables ordering?
- what is the lead delivery time for key items?
- what are the top ten most expensive items on your inventory?
- what are the top ten items that turn over most quickly?
- are there any high cost and high turnover items?

You may require help from your information departments to access some of this information - your data analyst should also be able to assist with this. Other information can be collected manually by the theatre team with assistance from your service development facilitator.

***Tip:** you are likely to be reliant on the generation of information by other teams, eg finance, information team, IT, procurement, medical engineering. Engage them early so that you can collect and refine the information you need in time to understand your future state.*

Good quality information and data are critical to understanding your current state and will continue to inform you of your progress. Make sure all of the members of the team realise the importance of the information that they are involved in collecting.

## Inventory and stock take

This applies to both consumables and equipment.

### Consumables

- Carry out a stock take in collaboration with your procurement and finance department.
- This needs to be carried out carefully and systematically according to locally agreed rules in order to make the considerable effort worthwhile.
- Your procurement team are likely to have developed systems or even have special stock management software to help you capture this information. They should also be able to provide you with a list of all the lines that you have ordered.
- Your stock worth will be a critical baseline for your improvement work.
- As you conduct your stock take remember to count everything you are holding including working stock that may already be in theatres or anaesthetic rooms.

### Equipment

- Review your assets register and check your equipment against it. This is also a good opportunity to audit whether essential maintenance is within date. You are also able to assess the state of equipment and what is missing. Equipment has a tendency to migrate to other departments over a period of time unless it is tightly controlled.
- Review your stock inventory. Has this 'grown' through the inclusion of new items that have not been agreed and authorised? Is there any obvious opportunity for rationalising similar items or simply removing items that are no longer required?

Orig Location	New Location	Manufacturer Product Code	Product name and Description	Brand	Pack size	No. of Unopened Packs	No. of Opened items	Frequency of Use	Criticality	Price per Unit	Total Stock Value
Grafts		ANC1407	Albograft Vascular Graft 1 x 14mm x 7cm	Edward Lifesciences	1	1	0				
Grafts		AT0608	Albograft Vascular Graft 1 x 28mm x 60cm	Edward Lifesciences	1	1	0				
Grafts		AMC1207	Albograft Vascular Graft 2 x 12mm x 7cm	Edward Lifesciences	1	2	0				
Grafts		AMC1516	Albografts 16mm x 15cm	Edward Lifesciences	1	0	0				
Grafts		AMC1524	Albografts 24mm x 15cm	Edward Lifesciences	1	0	0				
Grafts		AMC1508	Albografts 8mm x 15cm	Edward Lifesciences	1	0	0				

### Criticality analysis

After conducting your stock take, review each item and assign it a criticality level based on the frequency of use and necessity of the item using the table below. All 'C3's' can be removed straight away. The other levels will provide a good baseline for when you begin to consolidate the items you hold.

Frequency of use	Criticality of item		
	A Must have	B Need but have alternative	C Would like but not essential (nice if)
Every day			
Occasional			
Nearly never			

*'Once we had carried out a detailed stock take of our theatres we sat down with our team leaders and whet through it 'line by line' to assess the criticality of each item. Doing this made us focus on the importance of each item and how often we used it. As a result we reduce our stock considerably. It's important that you include the end users as they will have detailed knowledge to make that decision.'*

David Heath – project manager, The Productive Operating Theatre,  
The Shrewsbury and Telford Hospital NHS Trust

## Gather feedback from staff

In addition to the quantitative data, it is important to obtain qualitative data by gaining feedback from people.

To fully understand the current situation, including issues and challenges, you will need to get good quality feedback from the full multi-disciplinary team, both internal and external to theatres. You can do this a number of ways:

- group sessions (Toolkit, tool no.1 Meetings)
- one to one discussions (Toolkit, tool no.7 Interviews).

Group sessions are particularly good as they provide the opportunity for discussion from different perspectives as well as help build relationships. Remember to record the feedback.

It is not always possible to get together as a group, so you may consider a questionnaire to capture people's issues and perceptions. This can be useful in gaining the views of members of the team who are not available at group sessions.

Make sure you gain views from all departments. For example, what may appear to be a sterile services issue by the theatre team, may be considered a theatre issue from a sterile services perspective!

Below you will find examples of questions that will prompt staff thinking. When gaining feedback make sure that you capture all examples.

What works well currently?
What are the issues and problems that you experience and feel could be improved?
How do these affect your ability to do your job well?
What affect do these problems have on patient care?
What do you understand about your role and responsibility in the management and use of either consumables or equipment?
How responsible and engaged do you feel about the control of costs within your department?
Do you receive any kind of performance information eg, monthly budget report, stock on back order / equipment repairs reports / clinical incident reports? If so what do you do with it?

You will be able to start listing responses. It is helpful to begin to quantify the impact of these, as well as gathering consensus. List the information and encourage staff to discuss and make decisions on content and priorities. Dot voting (Toolkit, tool no.2) will help you with this activity. It is simple and effective.

**Tip:** A good way of gaining further feedback, particularly from staff who find it difficult to attend sessions, is to display flip charts in commonly used areas to encourage comments.



## Walk the process and observe

Use Video waste walks (Toolkit, tool no.6) to help the team further understand the current state, it is useful for them to walk the process and observe. It will also shed further light on frustrations being experienced by staff and opportunities for improvement.

The purpose is to objectively observe and gain information, as well as to discuss and understand the problems with the process. Most people welcome the opportunity to discuss their frustrations if approached in an appropriate way. Explain that the purpose of the exercise is to observe the process, not to criticise individuals.

Below are a few examples of processes you could follow.

<b>Sterile services</b>	<ul style="list-style-type: none"><li>• Follow trays to and from sterile services to theatre department.</li><li>• If you use an off-site provider follow trays to and from the delivery point</li><li>• Who is involved?</li><li>• Is their schedule fitting in with service requirements and has this ever been discussed with them?</li></ul>
<b>Loan instruments</b>	<ul style="list-style-type: none"><li>• How do you prepare for a case that requires loan instrumentation?</li><li>• What steps are involved?</li><li>• How do you order the instruments?</li><li>• Do the surgeons and schedulers understand the need to highlight the requirement for loan kit at a minimum length of time prior to day of surgery?</li></ul>
<b>Missing instruments</b>	<ul style="list-style-type: none"><li>• What happens when an instrument is missing from a set?</li><li>• What are the activities?</li><li>• What documents are used?</li><li>• What impact does this have on operating?</li><li>• How much work is created in finding a clinical solution and completing records such as incident reports and non conformance forms?</li></ul>
<b>Non stock items</b>	<ul style="list-style-type: none"><li>• What happens when a non stock item is needed?</li><li>• How is the order raised?</li><li>• How is the order authorised?</li><li>• Is the system reliable?</li><li>• Are there any delays?</li></ul>
<b>Stock items</b>	<ul style="list-style-type: none"><li>• How does a stock item reach the correct place on a shelf?</li><li>• How long does it take?</li><li>• Do items ever go missing?</li><li>• Is the dedicated area marked clearly?</li></ul>

## Identify waste

As you observe the process look for waste. Use the Video waste walk (Toolkit, tool no. 6), to video your process or simply use the template to capture your observations as you walk the process.

There are seven types of waste detailed below.

### The seven wastes

- 1. Defects and rework** – due to faulty processes, repeating things because correct information was not provided in the first place
- 2. Motion** – unnecessary people movement, searching for a piece of equipment that hasn't been returned
- 3. Overproduction** – two people re-ordering the same item
- 4. Transportation** – moving materials unnecessarily
- 5. Waiting** – staff unable to do their work because they are waiting for a piece of equipment such as the image intensifier or waiting for authorisation of an order
- 6. Inventory** – too much stock
- 7. Over-processing** – performing unnecessary steps that do not add value

## Record processes and activities through photographs

It is helpful to take photographs to understand and record your current state (Toolkit, tool no.8 Photograph).

For example, you may wish to capture::

- examples of good practice eg tidy store rooms
- overstocked or untidy areas
- areas that are out of stock
- expired items
- mixed or assorted stock
- damaged sterile trays (rips or tears)
- mislabelled trays
- expired maintenance stickers or contracts
- damaged equipment.

**Tip:** *it is useful for the team to have access to a digital camera. Encourage staff to highlight problems and frustrations as they arise so that they can photograph them. Remember to check out your local governance arrangements regarding filming and photography. Staff will need informed consent for their images to be taken and used. Patients should not be photographed without careful consideration and consenting, as well as clearance with governance departments.*

Review the pictures with members of your team; ask them to comment on any problems and frustrations, opportunities for improvement or to reduce waste that they can identify.



## Understand how long individual activities take

Understand how long core processes take, eg turnaround of sterile trays and loan instruments, so you can analyse them before and after implementing a change. Use Timing processes, Toolkit, tool no.16 to help you do this.

- Capture the same process with different people performing it.
- Compare the times to understand variation in practice and time taken – remember that quality of the process is as important as the timing.

Where there is significant variation, issues or differences in perception amongst staff about a process, you can analyse it further by completing a detailed Activity follow (Toolkit, tool no.5).

Review the activity follows, how much 'waste' can be identified, eg how much time is wasted in searching for items that are in the wrong place? Can this and other 'waste' be reduced to free up staff time and reduce frustration?

## Gather information about issues and problems

It will be useful to collect glitches (issues that cause delays, and frustration) for a period of time, eg initially one month. You can present these in a Pareto chart to identify the most common causes. See Glitch count (Toolkit, tool no.20). For more information on using Pareto charts see [www.institute.nhs.uk/qualitytools](http://www.institute.nhs.uk/qualitytools)

This will provide you with a baseline and will help to identify and quantify the priorities for improvement, such as missing instruments and running out of stock.

This can be re-audited after interventions to allow you to demonstrate any improvement.



## Gather information from incident reports and complaints

Look back over the past year and identify any complaints or incident reports relating to consumables or equipment. It is a good opportunity to be recognising emerging themes that require early attention.

*Tip: This is a good point to assess the reporting of issues and near misses within your area. If your team are raising significant issues at your module workshops but these are not reflected within the reporting system, it may mean that you need to work with the team on awareness regarding to raise and report issues.*

## Identifying existing guidance and regulation

Compliance with legislation and national guidance is paramount within the perioperative environment in order to safeguard patients and staff as well as the wider organisation. Both consumables and equipment present a variety of potential risks that may lead to physical harm, legal or financial compromise.

Guidance relating to managing consumables and equipment safely is a specialist area in itself and is not covered within this module. However, it is important to understand what national regulation and guidance exists regarding consumables and equipment and to ensure that your work acknowledges and complies with required standards of good practice.

Within your organisation there will be personnel who can supply specialist knowledge, for example:

- health and safety department
- governance and safety teams
- finance and procurement teams
- medical engineering departments.

A good starting point is to refer to the Risk and Quality Management System (Association for Perioperative Practice, 2006) which provides a clear framework for managing risk and identifying potential improvements in service delivery, as well as a useful audit tool. This provides a comprehensive reference list of key legislation, guidance and organisations relating to both consumables and equipment. Organisations such as the Medicines and Healthcare Products Regulatory Agency (MHRA) also provide advice and useful information.

There will also be locally applied frameworks consisting of local policy and protocols that may apply both internally and externally to your department. Contacting the relevant specialist areas will help you ensure that you are up to date.

It may be that as processes change during your work, you need to update local policies to ensure that they reflect current practice.

## Map your current state

Gather all the qualitative and quantitative information you have collected to give you a rounded view of your current processes around consumables or equipment.

By viewing all this information together it will provide you and the team with the information to understand your current way of working current state and go on to create your desired future state.

### Process map

With both consumables and equipment you will need to map the processes in order to understand the issues and complexities, using Process mapping (Toolkit, tool no.11). It is important to include all the results of your analysis, timings and issues in your map. This is a key event in this module and should be run including all of the key stakeholders involved. It may helpful to refer back to the section on creating a team to gain input from all perspectives. Make sure that you have included surgeons and anaesthetists as they are important users of both stock and equipment.

**Tip:** *To make the most of the process mapping session ensure you:*

- *arrange a time when the team can come together to review and understand the information.*
- *make the session between two hours and half a day long in order to make good progress*
- *display the information where the team can see it, and understand the current state*
- *have a facilitator that is familiar with process mapping techniques*
- *use the meeting to agree dates for the follow up sessions for future state mapping, action planning and reviews*

The scope of your project will determine the level of detail you include in your current state map. It may be appropriate to initially develop a high level overview with smaller groups producing more detailed maps focusing on particular areas.

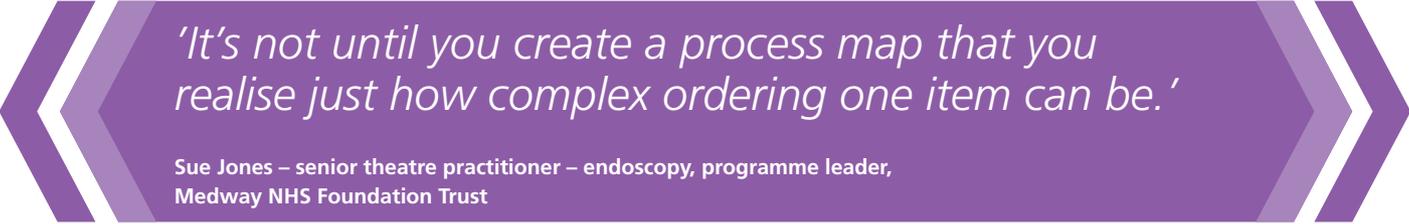
As a team start to map the process, step by step, in chronological order on sticky notes:

- are there standard procedures?
- what good practice can staff highlight?
- where could the process work better?
- what are the issues that occur at each stage of the process?

With this information you will be able to populate the map with the process steps and then add timings and issues.

The output of analysing your current process will identify areas for improvement as well as potential solutions that can lead you towards your desired future state. Remember that this session is specifically to identify your current state. The design and mapping of your future state will come later, but it is important to record all ideas and suggestions so that they are not lost.

Once the current state has been mapped invite a broad range of staff to review the map as this will help to validate the information already captured and collect any additional thoughts and ideas.

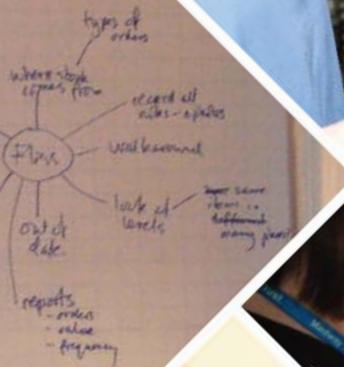


*'It's not until you create a process map that you realise just how complex ordering one item can be.'*

Sue Jones – senior theatre practitioner – endoscopy, programme leader,  
Medway NHS Foundation Trust

### **Turning thoughts into ideas**

All of the people who attended the current state mapping session should be asked to go back to their areas and talk to their teams about what improvements could be made. These ideas will then feed into the future state mapping session.



HT+DS  
and SRH.

→ RDS - Reg Prot Centre -  
MHS Supply chain  
- D AL.

10cm. Gowns

- ↓ Min 10 staff per stock C or by using in stock book or verbal
- ↓ Stock staff see a rand. if not in stock.
- ↓ Will only ask for gowns if cost hand.
- ↓ sometimes ask for your without log.
- ↓ stock check its really

12v. 11

- ↓ 12 boxes, booked in paper we camp.
- ↓ wait overnight in cages.
- ↓ Cage labelled with list - RDC key.
- ↓ Perks deliver to theatre

Pick list. if discon go on

Equipment available ready for use

Start and Finish on time

Team available to start

No list changes / can x

Organised list, notes available

Respect between all staff

Thanks for all staff

Stock

Quality

Lead time

Flowchart diagram showing 'Stock', 'Quality', and 'Lead time' with arrows indicating relationships.

HT+DS  
and SRH.

→ RDS - Reg Prot Centre -  
MHS Supply chain  
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## Review ideas that have worked elsewhere

Through this module you will work to develop your own approach to improving your management of consumables or equipment. However, the opportunity to review examples of what has worked well elsewhere may prompt ideas about what might work in your organisation.

On the following pages you will find examples from programme test sites and exemplar sites. It will also be useful to network with theatre colleagues from other organisations to see how they manage their areas. You may find that other areas within your own organisation have carried out similar improvements which may give you some ideas.

You can review additional ideas and submit your own case studies at [www.institute.nhs.uk/theatres](http://www.institute.nhs.uk/theatres)



## Example 1: releasing time for further improvement

Medway NHS Foundation Trust

### Aim

To improve the delivery of stores items to theatre suite

### Background

Before beginning the Consumables and Equipment module, the theatres team were frustrated by the amount of time they spent waiting for items. Staff felt they spent a lot of time telephoning to see if stock had been delivered and were making numerous trips to the central stores to collect items themselves.

### What they did

To understand the processes involved in ordering and delivering stores items to theatres, the Consumables and Equipment module team process mapped two core processes:

- an item from the regional distribution centre
- a non stock request –
  - starting from when a member of the theatre team orders an item or when a member of the stores team identified the need for reordering, and finishing when the authorised invoice was sent to the finance department.

Through the mapping exercise the theatre stores manager identified a lot of time wasted resulting from repeatedly phoning hospital supplies to check if items urgently required had arrived in the hospital.

To understand this further and collect baseline data, an audit was carried out for two weeks to record the amount of time spent making phone calls and visiting the stores. The audit showed that

- 3 hours 40 minutes spent on phone calls
- 4 hours 50 minutes spent visiting the stores
- a total time of 8 hours 30 minutes each week.

They set an objective to reduce this waste by 25% by scheduling in three visits a day at set times, by the theatre stores team to the hospital supplies departments.

*'This small scale rapid improvement using the module methodology made such a difference and provided a real quick win for the team.'*

**Sharon Austen – service development manager, Medway NHS Foundation Trust**

### Improvements realised

A follow up audit carried out over a two week period showed a reduction of 50% with a total time of 4 hours 15 mins being spent visiting or phoning the stores.

### Next steps

Ongoing periodic follow up audits will be carried out to ensure sustainability.

The improvements are ongoing, the time released has provided the capacity for the stores manager to continue to identify and test further improvements by working through the PDSA cycle.

*'Small changes can lead to bigger changes if you reinvest the time saved.'*

Bob Warner – principal operating department practitioner, Medway NHS Foundation Trust



## Example 2: reducing the number of suture lines held

Royal Devon and Exeter NHS Foundation Trust

### Aim

Reduce the number of suture lines held in stock while maintaining the quality and mix available

### Background

The department was overstocked with sutures, holding lots of different types. Many were not clearly identifiable and not stored in the appropriate place. They not only took up a lot of valuable room but resulted in stock going out of date before it was used which then had to be disposed of.

### What they did

A team including the procurement lead, consultant surgeons, theatre staff and suppliers worked closely to rationalise the suture lines that were stocked and used.

The procurement lead wrote to each surgeon outlining the project and the reasons for doing it. Reassurance was given that sutures would not be removed until each surgeon had been consulted about their use of sutures.

The team looked at information about the cost and frequency of use each suture, to identify lines that were not being used or were particularly costly that could potentially be withdrawn. Where necessary the supplier worked closely with the surgeons to look at new suture materials that had come onto the market that could replace their existing preference while maintaining or improving the quality of what was available.

Following the consultation, there was agreement regarding which sutures would be withdrawn for an initial trial period. This was revisited on a weekly basis for the first month to make sure there were not any unintended consequences.

Clinical engagement and involvement of the main stakeholders were crucial in making this change happen and making it sustainable.

### Improvements realised

- Over a period of 18 months the trust managed to reduce the type of sutures available from 43 to 30 lines.
- Overall cost savings of at least £15,000 by reducing the stock levels
- Developed agreed stock levels for sutures
- Reduced storage area needed for sutures

### Next steps

- The team are working to further rationalise the number of suture lines held, re-evaluating use every three months.
- They continually review new products that become available on the market



**ETHICON**  
**PROLENE**

**4-0**



**SP-623**

**2-0**  
3 Metric  
**SURGIPO**  
Treatment POLYPROPYLENE / BLEU / AZUL

**SURSIK**  
Coated, Braided Silk  
30" 75 cm

**3-**  
2 Metric

**SUR**  
Monofilam

**45**

18" 45 cm  
GLUE / BLEU / BLU / AZUL / 青

**3-0 SL-1654**  
2 Metric

**POLYSORB\***  
Braided LACTOMER\* 9-1

18" 45 cm

UNDYED / NON-TEINT / UNGEFÄRBT  
NON COLORATO / SEM COR / INCOLORO / 白

**Syneture\***

**PC-12**  
CONV. CUTTING

3/8

LOT

### Example 3: working with sterile services providers

Kings College Hospital NHS Foundation Trust

#### Aim

Work with the sterile service provider to improve the quality of the instrumentation journey through theatres and decontamination and stop losing instruments during this process.

#### Background

King's College Hospital outsourced the sterilizing service to an offsite private provider. Initially they experienced problems such as instrument loss, turn-around delays and dirty instruments. This resulted in theatre staff being concerned about the potential impact on patient safety and frustration when glitches occurred; it was having a considerable negative effect on staff morale.

#### What they did

To improve the process a senior team, including managers from the Trust and service provider, participated in a process mapping exercise.

They mapped the service pathway from the time of use of the instruments till their return to the operating suite after cleaning, decontamination, repacking and sterilisation.



One outcome of this exercise was agreement on points of risk associated with the process and recognition that responsibility for loss of instruments was on both sides.

These points highlighted as red, were at stages in the cycle where the instruments were not contained, such as when being re associated to their respective trays at the end of surgery, during 'wash room' processes and also prior to repacking. To minimise the risk, a sighting control check list was implemented at each of these stages.

The team also recommended that the service provider ensure that there was adequate separation between the packing stations to minimise the risk of incorrect instruments being placed in trays.

To sustain the improvements, instrument sets sent for cleaning were regularly audited. The purpose of this audit was to document the compliance and accuracy of the information placed on the checklist.

A weekly meeting was initiated with senior managers from theatres and the service provider to discuss and address documented glitches.

### Improvement realised

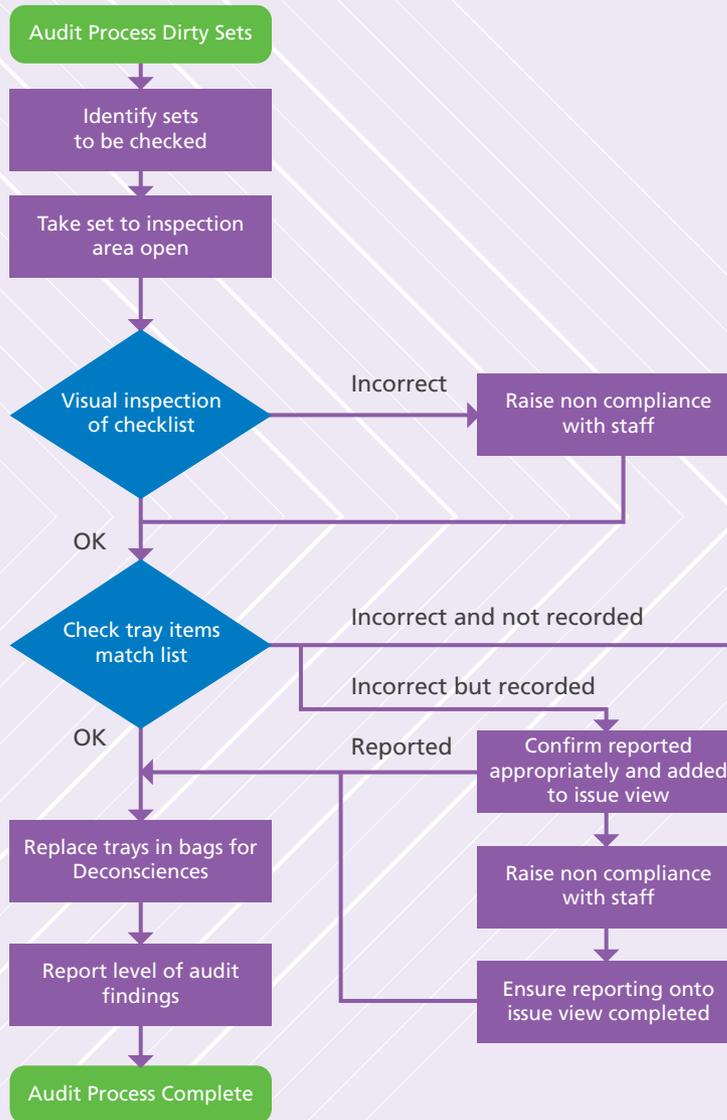
- 90% reduction of lost instruments from 37 to 3 per week
- 55% reduction of reported adverse incidents, reducing from an average of 9 per month for 2008 to 4 per month in 2009
- Audit and established complete Kings inventory (replacing where required)
- Central to this success was dedication and individuals taking accountability for their actions

### Learning

The lessons from this experience are:

- There needs to recognition that the maintenance of a high quality service can only be achieved by both the provider and operating theatre staff working together.
- Regular weekly reporting of breaches in service level, percentage trays fast tracked and also the top five trays fast tracked are essential.
- The operating theatres should have an inventory list of all the instruments and tray used within the services (and a robust process to keep this up to date).
- The contract between the service provider and operating theatre needs to include targets to be achieved with penalty clauses for breach of those targets, eg:
  - provision to fine the service provider £5,000 if a case is cancelled due to a fault on the providers part
  - an additional £25 is charged for each tray fast tracked.

## Example: audit process





## Example 4: negotiating the costs of prosthesis

Elective Orthopaedic Centre

### Aim

Reduce the spend on prosthesis

### Background

The team at the Elective Orthopaedic Centre undertook an in depth analysis of their costs for hip and knee replacements and found that 40-50% of tariff was being spent on the prosthetic used. It was obvious that this was unsustainable if they wished to break even.

### What they did

They identified two ways forward:

- consolidate the types of prostheses to 3 or 4 and negotiate bulk discount
- cap the price by prosthetic type

Because they have 25 surgeons from 5 hospitals each with a historical link to 10 different prosthetic companies, to maintain consultant buy-in, the most straight forward option was to maintain a wide selection and cap the price.

A dilemma the team faced was that they did not know what represented a 'good price' They therefore consulted the Purchase and Supply Agency. However their benchmarked prices were still considered too high. They met each company with the surgeons and informed them the top price they they were prepared to pay. After a number of meetings every company agreed to the new pricing structure. They also arranged that each company would be in charge of its own stock keeping at the Elective Orthopaedic Centre and that no charge would be made for a prosthetic until it was used.

### Improvements realised

These two interventions saved more than £1.5 million a year equating to 7% of our annual turnover.

### Next steps

The team are now working to standardise the the types of prophesies used. The main driver behind this next piece of work is safety. Standardising and reducing the range of prosthesis available will allow all teams to be fully trained and will also have the advantage of decreasing the variation of packs used.



## Example 5: large scale improvements to consumables management

Heart of England Foundation Trust

### Aim

Improve the management of consumables

### Background

The management of consumables was identified as a priority area for improvement by both the clinical and management team in order to improve value and efficiency as well as safety, reliability and the working lives of staff. The Productive Operating Theatres programme work fitted naturally into the long term plans of the directorate management team. Diagnostic work, including a group mapping session identified the opportunity for a wide scope for improvement of the management of consumables across multiple areas.

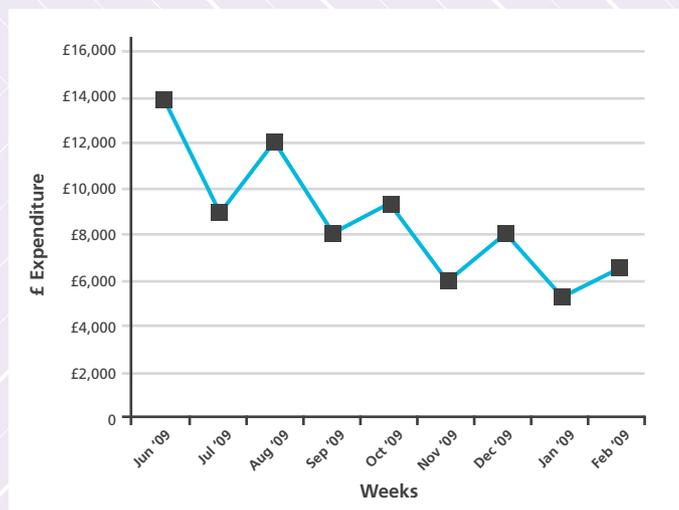
### What they did

- Visited an exemplar site with a proven track record of good practice with consumables
- Engaged the trust procurement team and NHS supply chain team for advice and establish collaborative working relationships
- Identified a small theatre area (twin suite) to focus initial testing and then widened gradually
- Began a 6 month trial of a dedicated theatres stores assistant role at Good Hope Hospital
- Introduced a 6 month post for clinical resource coordinator to commence work on rationalisation of lines and setting up materials management group across all 3 sites
- Fitted new storage systems that were funded by the procurement team
- Reconfigured stock locations – reducing duplication and improving accessibility
- Catalogued the inventory and systematically reviewed – removing obsolete and unnecessary lines
- Identified optimal stock levels and reduced current levels gradually
- Developed a stock rotation system to be monitored by stores assistant, this included monthly costing and write off of out of date stock
- Identified the different routes of ordering for all theatre consumables (eg top up, non stock, call off) and labelled accordingly
- Identified all non stock items and created a spreadsheet catalogue with currently used cost centres
- Clarified and improved ordering processes
- Implemented a new authorisation process for newly requested items in order to control current inventory creep
- Trialed pick lists and stock delivery to individual theatres by stores assistant
- Introduced email notification to theatre team of delivery delays
- Focused on budgetary control improving coding, allocation of cost centres and monitoring of expenditure
- Re-started the materials management group across the trusts three sites
- Commenced rationalisation of key product lines eg surgical gloves and sutures.

### Improvements realised

- Clinical staff time released back to direct care – particularly bands 7, 6 and 5 staff
- Reduced total stock value in target theatres store cupboards from £12K to £7K
- Sutures stock reduced from £30K to £12K, through removal of 106 product lines and 28% reduction in boxes in stock
- Reduction in storage capacity – 8 large storage cabinets removed and space re-used for equipment storage bays
- Improved stock environment Reduction in stock levels and improved visual stock management
- Improved stock take procedure – stock sheets adapted from new inventory allowed increased accuracy
- Reduced stock outs and out of date stock
- Collaborative working relationships being developed with other departments as well as external sites and agencies
- Improved staff satisfaction

### Consumable expenditure - twin suite excluding drugs / implants



*'This work has put me back inside my theatre, I am spending more time working with my team and delivering care and less time chasing kit and ordering consumables.'*

Sandra Roche – theatre sister, Heart of England NHS Foundation Trust

## Next steps

This is still work in progress the team have a plan to continue to develop the management of consumables some of their next steps include:

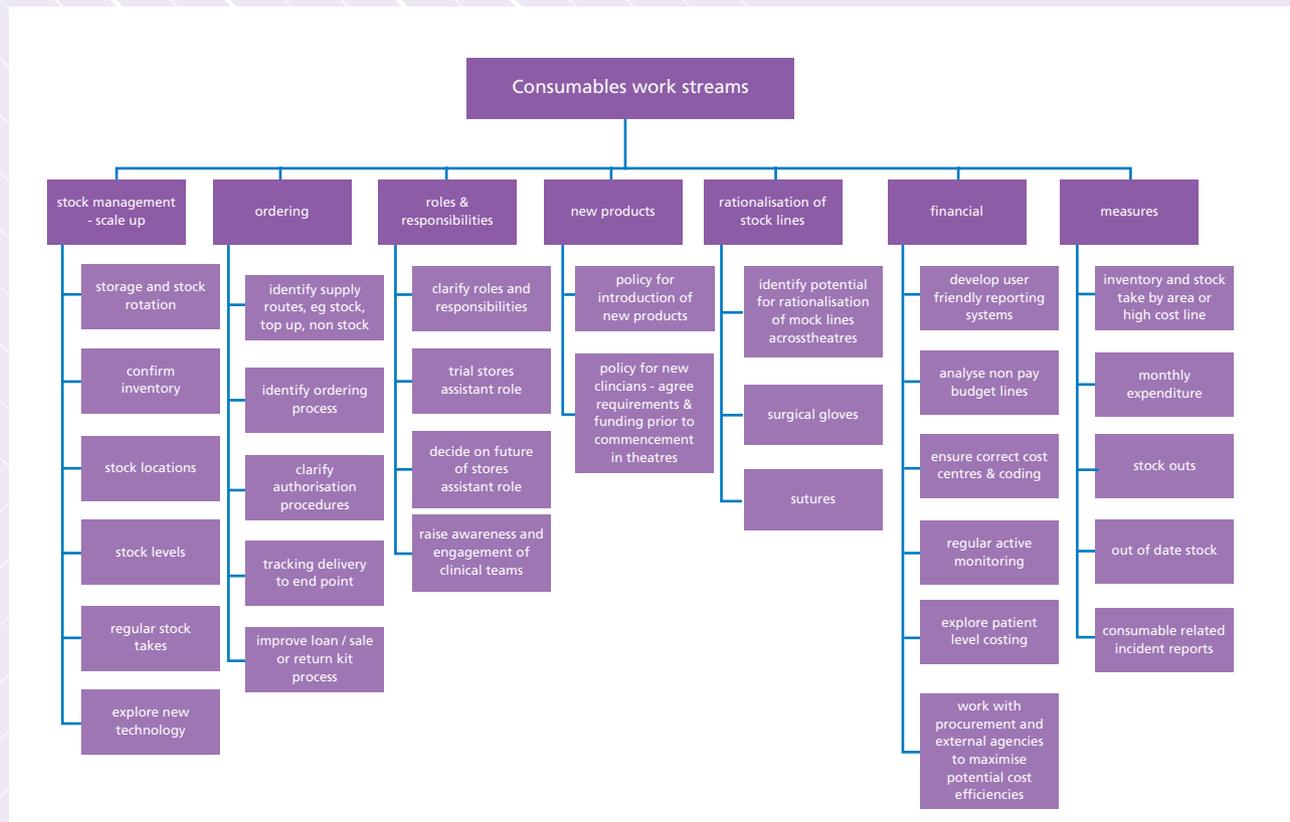
- hold a progress review meeting to evaluate work undertaken so far and to plan the ongoing strategy with all relevant stakeholders
- evaluation of the stores assistant role and submit a business case to either extend or implement a permanent role(s)
- widen pick list and delivery of stock system, to maintain clinical staff focus on delivery of direct care
- commence similar work with pharmacy products
- produce a central stock location map for teams and include within a new stock information page on the Operational Status at a Glance electronic white board
- identify lead times for individual items, improve delivery frequencies and improve the tracking of deliveries from entering Trust to final destination point
- continued work to improve clarification of financial responsibility by cost centres
- introduce procedure for working with new consultants prior to their start to clarify their requirements and the financial implications
- continue to work with the procurement team to engage NHS supply chain and suppliers to identify cost improvement strategy
- work with procurement and finance teams to identify and implement material management software system
- collaboration with finance department to develop patient level costing system
- educate and raise awareness in teams the opportunity and responsibilities towards further improving value and efficiency to the tax payer and financial performance of the organisation.

*'The stores assistant has been a clear and successful demonstration of the impact of tapping into the talent and ability of non registered members within the theatre team.*

*The work produced as a result of this role exceeded our expectations, through implementing small incremental changes the stores assistant took the clinical team with her through constant communication and feedback as well as using her working knowledge of theatres, the products and the current system.'*

**Ann Abbassi – lead nurse theatres and day surgery, Heart of England NHS Foundation Trust**

## Example: overview of the workstreams covered in the consumables improvement programme



## Example 6: creating a stores team to manage consumables

The Shrewsbury and Telford NHS Hospital Trust

### Aim

To improve the management of consumables

### Background

Before starting this programme of work there was no overview of what was being ordered or who was doing the ordering. Orders were being made in many different ways eg. call off orders or individual non stock orders, which could take up to two weeks for authorisation. Senior nursing staff were ordering stock.

### What they did

The team held a value stream mapping session, to understand the current system and identify where improvements could be made.

- A stores team of three, responsible for the management of consumable was established at no extra cost by converting clinical vacancies that could not be filled into stores posts. This team would release the nurses' time so that they could focus on clinical duties.
- Following complete 5Sing of the stores, one of the first changes made involved the nursing staff recording the consumables they had used. This information was passed to the stores team for them to reorder.
- To further improve the process, in consultation with clinical teams and using the reorder information, minimum and maximum levels of stock for each item were identified. This allowed the stores team to reorder stock without involving nursing staff. The stores team now check the stock level on an agreed basis; making sure it does not fall below the minimum level but does not get restocked over the maximum level for each item.
- Continuing with their improvements the stores team began to use an electronic catalogue for ordering stock, this had already been purchased by the organisation so there was no additional cost. Bar codes were generated for all items included in the electronic catalogue and placed on shelves beneath the appropriate item. When the stores team check the stock holding against the minimum and maximum levels, they scan the bar code and enter how many more of an item they required. When the stores team dock their port the orders are automatically generated.

### Improvements realised

- Creating a stores team released the senior nurses from the management of consumables allowing them to focus on their clinical duties.
- A one-off stock saving of £180k generated by returning excess items and through a stock holiday
- Following the stock take, stock holding areas have reduced from 18 to 7.
- The savings generated have been reinvested in to the purchase of shelving units on casters to make cleaning easier and visual management floor mats.
- Ordering time has reduced significantly from 45 minutes to 5 minutes on a daily basis or 3 times a week.
- The electronic ordering system allows the team to keep reports about stock levels and use on an ongoing basis.

### Next steps

- Invest in electronic stock management cabinets for all high value consumable items.
- Fully integrate electronic stock management system, reinvest released time to enable theatre supply team to stock up operating theatres to agreed levels therefore freeing up clinical staff from stocking shelves.
- Align electronic stock management with patient scheduling to reduce stock holding even further.



## Example 7: improving consumables management

The Royal Bournemouth and Christchurch Hospitals NHS Foundation Trust

### Aim

To improve the management of the purchase, replenishment and supply of consumables

### Background

The team have been developing their theatre store and consumables management for a number of years. Before starting this work:

- all theatre staff could use the open store
- staff could take what they wanted, in the quantity they wanted, at any time
- there was no control around what was going out of the store
- tracking the inventory was very difficult which made reordering very difficult and time consuming
- over stocking was a problem which resulted in stock going out of date.

### What they did

- Created a closed store, managed by a team of five specialist staff that are responsible for the purchasing, replenishment and supply of consumables to all central and satellite operating theatres.
- All theatre consumables are in one store which is laid out in a logical order by department.
- Pick lists are generated in an order that reflects the layout of the store, which reduces the time spent looking for items.
- Working with the trusts commercial services division the store team introduced an inventory management software system.
- All items are catalogued on the system with minimum and maximum stock levels along with the appropriate cost centre and expense class. Each item has a bar code.
- Stock is tracked as it is brought into the store and tracked as it is issued to the theatres; this allows the team to know how much stock they have and where it is.
- The system has an automated replenishment ordering function for suppliers, if items go below the minimum level an automatic order is generated and sent via email to the appropriate supplier.
- Working with the theatres teams they recognised the need for additional ways for the theatres teams to request replenishment from the store, so teams can email, call or fill out a paper request.
- The store team are also responsible for the management the stocking of returned sterile instrument trays and the management of orthopaedic loan sets.

### Improvements realised

- Developed a closed store and specialised store team.
- Capability to instantly report the stock level and stock value at any time, can also report what they ordered in the previous months.
- Stock turnover 14 times a year, due to the close management of the consumable.
- Automated systems for checking stock levels, and reordering reduces the teams time on these activities.

### Next steps

- Rolling-out inventory management system to include consignment stock such as orthopaedic prosthesis.
- Looking to increase stock turnover to 17 times a year to further reduce the money tied up in the stock holding.

### Learning

- The success of this work was down to the collaborative working between the specialist store staff, theatre teams and theatre management and commercial services.



# PICKING NOTE

Remote Requisition

Issue Date: 14 Jun 2018  
 Issue Number: 1545705  
 Return Issue: [Barcode]  
 Requisition: 5807930  
 Requisitioner: System  
 Journey No:

Goods or Services Required	Issue Quantity	Picked Quantity	To Follow Quantity	Issue Unit	Unit Price	Line Total	Financial Code
42691365-01 <b>VASOFIX SAFETY 18G X 1.75 INCH (1.3 X 45MM) GREEN</b>	5	<input type="text"/>		0 Each	£0.92	£4.60	10437 / 3565
42690985-01 <b>VASOFIX SAFETY INFUSION SET WITH INJECTION PORT STERILE AND SAFETY DEVICE 18G X 1.75 INCH (1.3 X 45MM) GREEN</b>	5	<input type="text"/>		0 Each	£0.95	£4.75	10437 / 3565
42691105-01 <b>VASOFIX SAFETY 22G X 1 INCH (0.9 X 25MM) BLUE</b>	5	<input type="text"/>		0 Each	£0.94	£4.70	10437 / 3565
301155 <b>VASOFIX SAFETY INFUSION SET WITH INJECTION PORT STERILE AND SAFETY DEVICE 22G X 1 INCH (0.9 X 25MM) BLUE</b>	1	<input type="text"/>		0 Each	£3.74	£3.74	
300149 <b>VASOFIX SAFETY 20G X 1.25 INCH (1.1 X 33MM) PINK</b>	1	<input type="text"/>		0 Box x 100	£0.67	£0.67	
9019.15 <b>VASOFIX SAFETY INFUSION SET WITH INJECTION PORT STERILE AND SAFETY DEVICE 20G X 1.25 INCH (1.1 X 33MM) PINK</b>	10	<input type="text"/>		0 Each	£0.98	£0.98	
5-10115 <b>Needle hypodermic sterile Green 20 gaugex2 inch</b>	2	<input type="text"/>		0 Each	£0.30	£0.30	
394601 <b>Needle blunt sterile Pink 18 gaugex0.5 inch</b>	10	<input type="text"/>		0 Each			
1180501106 <b>Extension set wide bore with male/female luer lock sterile PVC 4mm</b>	5	<input type="text"/>		0 Each			
<b>Tube tracheal oral/nasal murphy eye low pressure cuff close fitting PVC</b>							
<b>Stopcocks sterile 3 way with rotating luer lock white tap colour coding pegs</b>							
<b>Frankauer suction Nozzle end</b>							

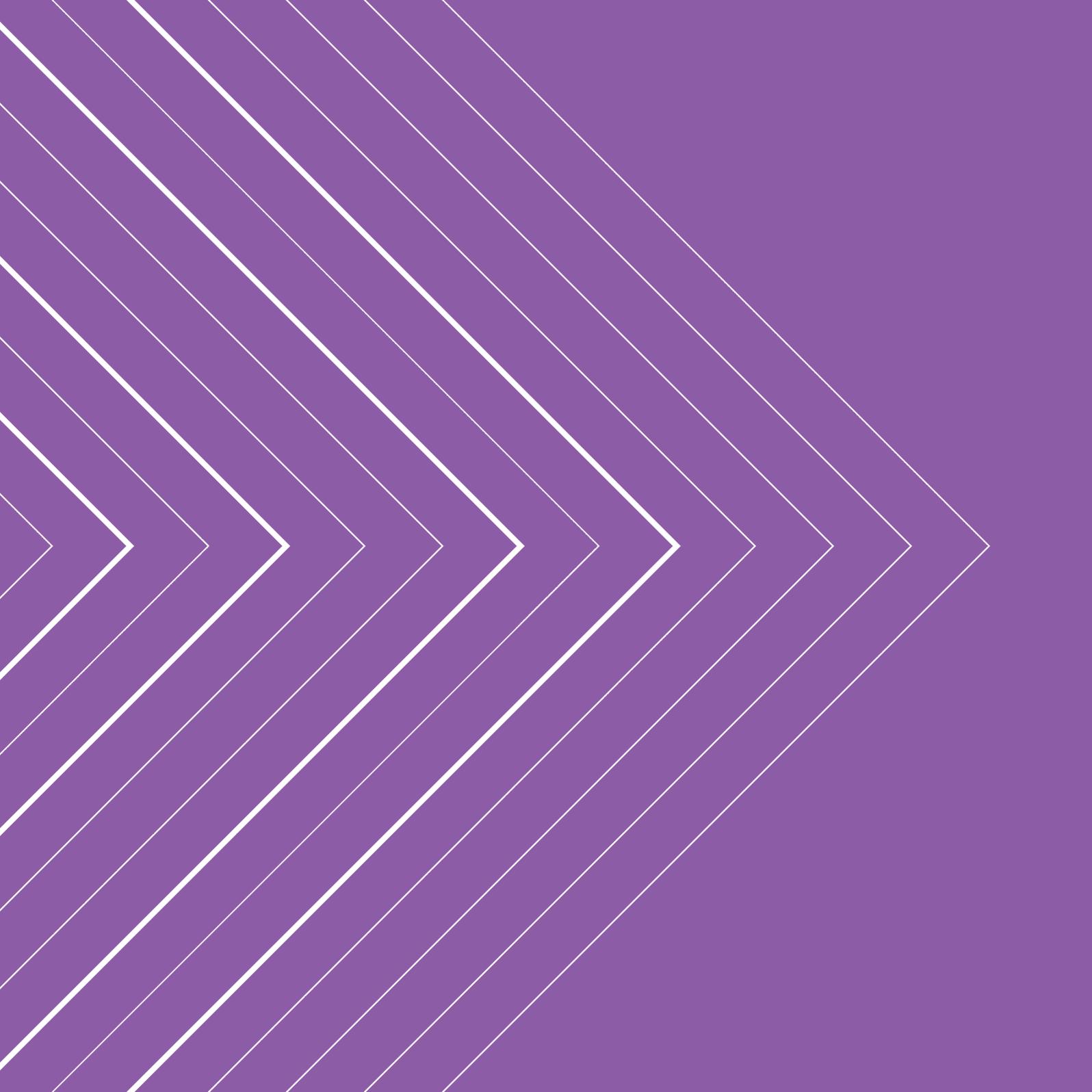


## Plan – milestone checklist

Move on to **Do** only if you have completed **all** of the items on this checklist

Checklist	Completed?
Ensured strong and visible leadership	
Created the team	
Communicated, engaged and raised awareness	
Gathered and reviewed relevant data	
Gained feedback from the team	
Recorded processes using photos and videos	
Understood how long individual activities take	
Gathered information about issues and problems	
Identifying existing guidance and regulation	
Mapped your current state	
Reviewed ideas that have worked elsewhere	

Effective team-work checklist	Tick if yes
Did all of the team participate?	
Was the discussion open?	
Were the hard questions discussed?	
Did the team remain focused on the task?	
Did the team focus on the area / process, not individuals?	



## 5. Do

Once you have understood your current state and identified any issues and barriers within it, it is time to develop and implement your future state.





## Identify and map your future state

You will now have a good understanding of your current way of working or 'current state' and the issues that are causing problems. The next step is to identify how you can improve your current state and create a new way of working or 'future state'.

By now you will have:

- defined key measures and analysed baseline data
- reviewed the team feedback
- examined the processes, tasks and timings involved in consumables and equipment
- identified variation, waste and problems
- identified existing guidance and regulation
- examined ideas from other organisations, departments within your organisation and organisations that you network with.

Using the expertise within your team, now develop and plan your desired future state for consumables or equipment. Use the following steps to design your new process.

### Review your module aims

This is a good stage to review your initial module aims to make sure you remain focused on what you want to achieve.

You may find that after examining and understanding your current state you wish to revise some of the aims as a team – this is perfectly acceptable. If you do you should make sure that you communicate the new aims and the reasons for the modification to your wider team.

**Tip:** *Implementation of new ways of working is most successful when staff are involved and are encouraged to develop their own solutions, resulting in a shared goal that engages all members of the team.*

## Plan the future state

Get the whole team together to design and plan a future state.

### Participants

- Invite stakeholders from the relevant areas involved in the process
- Ensure that stakeholders are included from departments external to theatres.
- The number and role of participants will depend upon whether you are working on consumables or equipment and your agreed scope. Refer back to the section on creating a team at the beginning of the module to ensure that you have the essential stakeholders involved.

### Facilitation

- Due to the complexity of both consumables and equipment it is a good idea to have the support of a skilled facilitator for this session. This will keep the session on track and ensure you create your future state. For more information about facilitation and working with groups see [www.institute.nhs.uk/facilitation](http://www.institute.nhs.uk/facilitation) and Improvement Leaders Guide 1.3 Working with groups [www.institute.nhs.uk/ilg](http://www.institute.nhs.uk/ilg)
- Make sure you have plenty of pens, flip charts, sticky tac, and sticky notes available to allow you to capture and share the ideas generated.

The agenda should include:

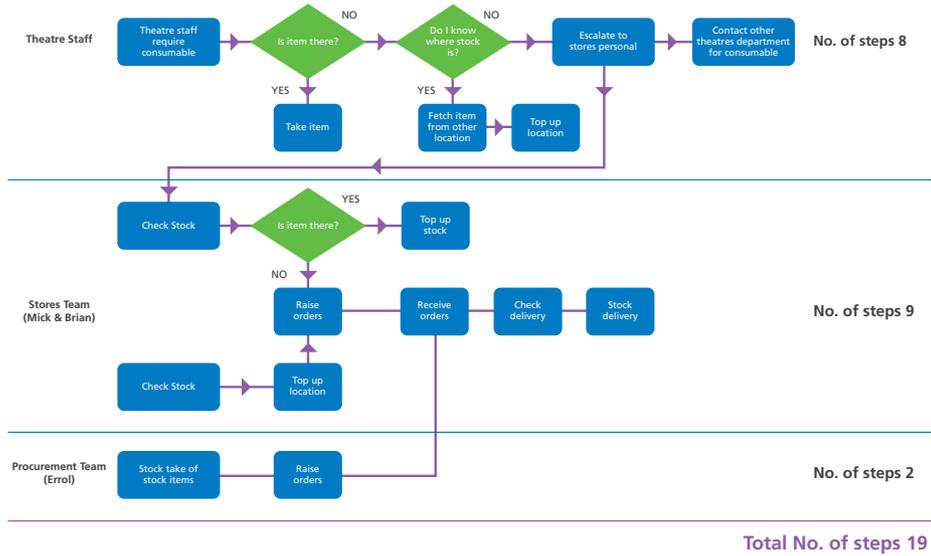
- review of the module aims
- review of all the information collected to date including the current state map and the waste identified
- review of issues and frustrations identified to date and ideas for improvement
- further ideas generation
- future state mapping
- action planning and dates for future meetings.

The scope of your consumables and equipment project will determine the level of detail in your future state map. It is likely that initially you will develop a high level overview with smaller groups producing more detailed maps focusing on particular ideas or problems.

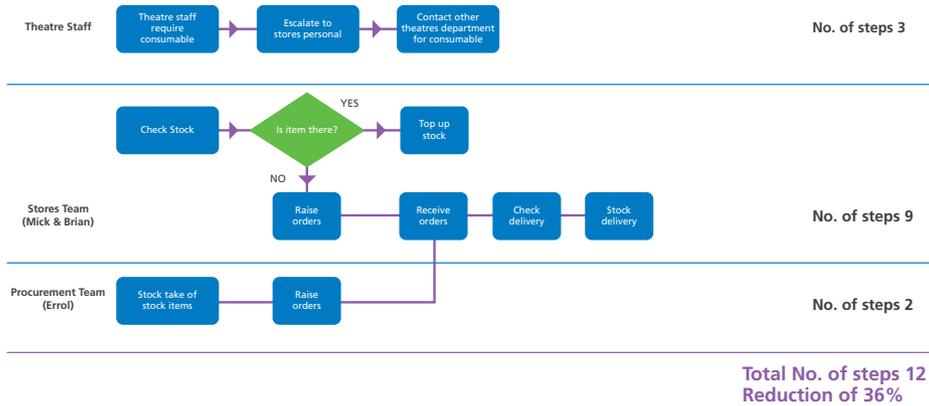
***Tip:** Some of the best ideas may come from the most junior or reserved members of the team. Find ways to give everyone an opportunity to feedback in a way that suits their style. Consider using small breakout groups or writing ideas on sticky notes as this provides more opportunities to gain the views from the whole group.*

### Example: current and future state process maps

#### Current state



#### Future state



**Benefits:**  
 Theatre teams can set up quicker,  
 stock always present,  
 Stores can top up only whats used.  
 Stores can monitor usage

Map your future state together as a team. Agree the first step, and walk through the value adding activities of the process, and create your future state process map. There should be significantly less steps and issues than your current state map.

Use Process mapping, Toolkit, tool no.11 to support you with this event.

As a group, look for ideas or suggestions on how to improve the current process. All ideas no matter how big or small should be captured on a sticky note, and put on a flipchart. Encourage the team to be innovative with their suggestions. Tools to help you help staff think creatively can be found at [www.institute.nhs.uk/thinkingdifferently](http://www.institute.nhs.uk/thinkingdifferently)

Other useful tools to support this session include:

- Dot voting, Toolkit, tool no.2
- Module action planner, Toolkit, tool no.13
- 5 why analysis, Toolkit, tool no.18

## Agree and prioritise potential solutions

Depending on the number of ideas that have been identified, you will need to prioritise what to implement as well as the timing of testing.

As this module may take an extended period of time to fully implement across all areas and processes it may be helpful to identify the top issues to address initially. Effective group facilitation and use of the tools, such as those below, will help you to identify potential solutions and to reach consensus:

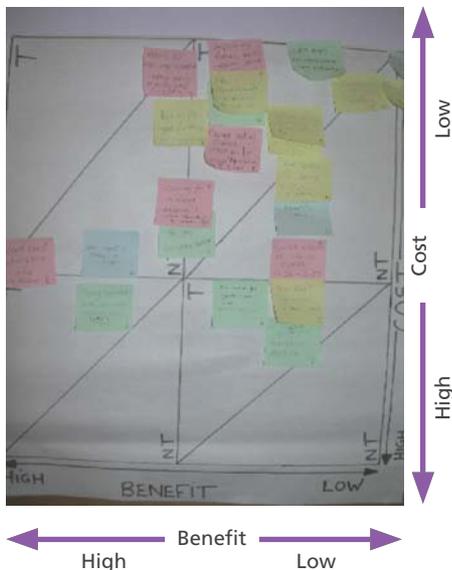
- 5 Why analysis (Toolkit, tool no.18)
- Dot voting (Toolkit, tool no.2)
- Thinking Differently [www.institute.nhs.uk](http://www.institute.nhs.uk)
- Cost / benefit analysis (Toolkit, tool no.12).

A Cost / benefit analysis (Toolkit, tool no.12), can help you to identify which ideas to implement and in what order based on the cost it will take it take to implement and the potential benefit gained.

eg low cost solutions with a high benefit provide a 'quick win'. This is a good way to capture the staff attention and generate enthusiasm.

In some cases you will be able to get agreement to proceed. For other solutions you may need to get agreement from the steering group or other bodies.

### Example of a Cost / benefit analysis



### Cost / benefit

- **Low cost and high benefit** – just do it.
- **High cost and high benefit** – initiate hospital procurement process, a business case will usually be required.
- **Low cost and low benefit** – nice to have, but best to implement when other priorities have been taken care of.
- **High cost and low benefit** – log as a nice idea, but consider carefully whether the high cost is worth the benefit.

### Identify issues that are beyond the scope of the module

The scope of this module needs to be locally defined. You may want to start off with a small scale change working on a specific consumable or piece of equipment, or you may want to plan for large scale implementation across your stock room and inventory of equipment.

Whichever approach you decide to take, some of the issues and barriers identified may be beyond the scope of the project or the influence of the project team. However, these issues still need to be addressed through the appropriate person within your organisation, backed up with data and a clear indication of the impact that the issue is having on your patients, or your project.

Below are some suggested solutions for resolving issues external to the Consumables and Equipment module:

- Escalation by the programme leader. There may be occasions where this needs to be escalated to the executive leader when other strategies have failed to find effective solutions.
- Some key potential improvements will fall within the scope of other modules within The Productive Operating Theatre. Your programme lead will be able to link these into other module improvement work.
- Some potential improvements will also link in well with work that your organisation may be developing as part of The Productive Ward or other programmes in The Productive Series. This is an excellent opportunity to build a collaborative working relationship with other Productive programmes.



# Create an implementation plan

Once you have the agreed and prioritised the ideas and solutions that you want to test, develop an implementation plan for testing the potential solutions. Use the Module action planner (Toolkit, tool no.12) to organise, share and communicate the actions. The planner can then be used to monitor progress of your PDSA cycles.

The Productive Operating Theatre  
Building teams for safer care

 NHS  
Institute for Innovation  
and Improvement

## Module Action Planner

 = Understood     = Underway     = Complete     = Sustained

	Action	Who	When	Progress	Initial
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					

See Toolkit, tool no.12 Module action planner for more information also available to download at [www.institute.nhs.uk/theatres\\_resources](http://www.institute.nhs.uk/theatres_resources)

**The Productive Operating Theatre**  
*Building teams for safer care™*

Medway  
 NHS Foundation Trust

Process Module – Test period starts September 2009

**Consumables and Equipment Module**

Model of Improvement

**The Productive Operating Theatre**  
*Building teams for safer care™*

**DO:**

Ref No.	Action Plan
7	Collect baseline
8	Carry out Follow for delivery 1 hour 10am to 11am
9	Create
10	Revis
11	A
12	

**The Productive Operating Theatre**  
*Building teams for safer care™*

**Model of Improvement Step 3**  
 – What changes can we make that will result in reduced daily delivery times (frequency) by September 2009. Amended

**Model of Improvement Step 4 and 5**  
 – Plan and Do

**PLAN:**

Ref No.	Action Plan	When	Owner
1	Agree Stakeholders	Sept 09	Team
2	Create Communications Plan	Oct 09	Team

**The Productive Operating Theatre**  
*Building teams for safer care™*

**Model of Improvement Step 6**  
 – Measure and evaluate benefits

Introduce increased daily delivery times (frequency) by September 2009. Amended

**STUDY:**

Ref No.	Action Plan
13	Collate measures following 3 months new pathway
14	Sign off new pathway – Future state pathway how new current

Model of Improvement Step 4 and 5

## Test the changes

Now that a future state and implementation plan has been agreed the next stage is to test the potential solutions. It is likely that even the best ideas will require you to go through several Plan Do Study Act cycles to enable you to modify and refine your ideas before the team is happy to scale-up your solutions.

Before you begin testing ensure that:

- the leadership and ownership of each change is clearly established
- everyone involved understands the purpose of the proposed changes
- you communicate the changes that are being tested to all stakeholders, including those who are not directly involved in the tests
- you identify the data you will need to collect to see if the change is an improvement
- the data will be accurately and effectively collected
- you have an effective method to analyse and review the data and someone to do it (use the Measures checklist as a prompt which is in Knowing How We Are Doing page.104 and available to download at [www.institute.nhs.uk/theatres\\_resources](http://www.institute.nhs.uk/theatres_resources))
- people are encouraged to comment and make suggestions about the changes
- you help to anticipate and prevent any problems that might occur during implementation
- you set a specific date to start
- you set a defined study period
  - it should be long enough to demonstrate improvements or problems, but short enough to evaluate and make further changes if required
- you set dates for future meetings to assess the effects of the changes and refine the approach based on feedback.

*'Through our work on developing consumables, we have learnt that it is best to test the whole change in one small room first; this is where you make and learn from your mistakes before rolling out to other bigger rooms and other theatres. If a change doesn't work in one small room it is easy to rectify, if you do it wrong everywhere you have to change it everywhere and you risk losing the support of the wider team.'*

**Felicity Watkins – stores assistant, (The Productive Operating Theatre secondment),  
Heart of England NHS Foundation Trust**

## Monitor progress

Throughout your defined test period, continue to collect, analyse and review your data as described in the Knowing How We Are Doing module:

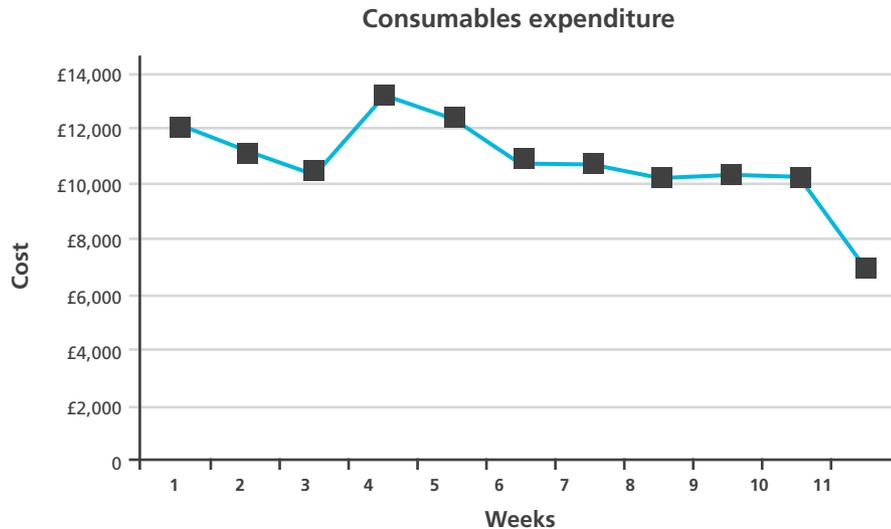
- obtain daily feedback from staff on how they feel the new process or change is working
  - take before and after photos of areas to be improved eg an overstocked area that is now well controlled – this can be a really powerful way to demonstrate improvement.
- 
- monitor initial data for signs of improvement – share any evidence with the team to encourage them to persevere
  - time the new processes if relevant (see Timing processes Toolkit, tool no.16)
  - gather feedback from the team whilst you are testing the potential solution – how are things going and are there any problems?
  - encourage suggestions – the teams carrying out the work are likely to be a rich source of ideas and suggestions
  - make time to regularly catch up with the team involved in implementing the change where they can discuss progress and issues, and make suggestions for further improvements
  - communicate progress to the wider team through your Knowing How We Are Doing board and programme or organisation’s newsletters
  - review the implementation plan to make sure all actions are on track.

## Analysing and presenting your data

There are many ways that you can analyse and present your data, for more information about how to analyse your data and lots of examples of charts that have been used within the Productive Operating Theatre see the Measures Supplement [www.institute.nhs.uk/theatres\\_resources](http://www.institute.nhs.uk/theatres_resources)

Run charts are a good way of showing the effect the changes you are making are having. They show what is happening to a particular measure over time, and so can be used to see whether things are getting better or worse. They are also easy to create and simple to understand.

For example the run chart below shows the consumables expenditure in the store area over time as changes are implemented.



A more advanced way to present your information is through using Statistical Process Control (SPC) charts. For more information and a tool to create SPC charts see [www.institute.nhs.uk/qualitytools](http://www.institute.nhs.uk/qualitytools)

## Review the information

### Reviewing your measures is the most important part of the whole measurement process.

The purpose of measurement is to act upon the results. It is vital that you put time aside to review the measures as a team at a progress review meeting.

- Make time to regularly catch up with the team involved in implementing the change so they can discuss progress and issues, and make suggestions for further improvements.
- Use the meeting as an opportunity to review your implementation plan to make sure all actions are on track.
- Monitor initial data for signs of improvement – share any evidence with the team to encourage them to persevere.

### What is a progress review meeting?

<b>What is it?</b>	<ul style="list-style-type: none"> <li>• a routine meeting to:               <ul style="list-style-type: none"> <li>– discuss progress against goals</li> <li>– plan actions against issues</li> </ul> </li> </ul>
<b>Why do it?</b>	<ul style="list-style-type: none"> <li>• everyone has a stake in how theatres perform</li> <li>• promotes improved and consistent communication between theatre staff</li> <li>• promotes cohesive team-work to achieve theatre objectives</li> <li>• encourages ownership and responsibility for problems and solutions</li> </ul>
<b>Suggested agenda*</b>	<ul style="list-style-type: none"> <li>• welcome / update on actions from previous meeting</li> <li>• review charts and discuss changes for signs of improvement – congratulate on good performance and move quickly to areas where improvement is required</li> <li>• review your implementation plan</li> <li>• agree actions required / update on actions from previous meeting</li> <li>• assign new actions and deadline</li> <li>• confirm next scheduled meeting</li> </ul>

\* For detailed guidance see *Knowing How We Are Doing, Step 6 – Review measures* p75

## Questions to ask

By reviewing the measures you will learn about how your theatre team is performing. You will analyse the information and develop conclusions about whether you are measuring the right things. You will begin to understand the reasons behind what the information is telling you and identify the actions you need to take.

The following questions can help guide your discussions at your progress review meeting.

<b>What outcomes did we expect (our aim)?</b>	Eg eliminate stock outs of caesarian section drapes
<b>Do the results indicate we are achieving those outcomes?</b>	Yes, we haven't run out of drapes since implementing our new reordering system
<b>Are we confident we have made the correct conclusion?</b>	We've only measured for one month, we need to measure for at least another month to be sure
<b>Do the results indicate that we should be doing something else?</b>	No, but we still think there are further improvements we can make
<b>Are the measures useful?</b>	Yes, but how do we know if we could reduce our stock holding
<b>Would some other measures tell us more?</b>	We could monitor how many gowns we use each day and our daily stock levels to see if we can reduce our stock holding

Remember to communicate progress to the wider team through your Knowing How We Are Doing board and your organisation's newsletters.



## Support the team through the changes

The teams implementing the changes will require:

- strong support and commitment from the programme leader and management team
- good team engagement
- open and clear communication about the changes and the impact they are having (positive and negative)
- time to dedicate to the project and attend the progress meetings.

*'As theatre staff we were traditionally trained to stock up our theatre until it was bursting – that would keep sister happy! Now we need to understand minimum / maximum levels and refine our storage and visual management. This involves a real shift in mind set. Although this takes some hard work and the general raising of awareness the end results are liberating to theatre teams.'*

**Ann Abbassi – lead nurse theatres and day surgery, Heart of England NHS Foundation Trust**

## Managing the challenges of implementation

Depending on the nature and scope of the solutions you are testing you may come up against challenges when implementing the change, for example:

- resistance to the change
- lack of resources – people being released to carry out the changes
- scepticism – perhaps people have engaged in improvement work in the past that has taken effort without producing results. Perhaps they do not feel that the change is important to them.

When you meet these challenges share them with the programme leader or service improvement leader who will be able to work with you to find strategies to overcome them. Much of this will be about communication.

For resources that can help you visit [www.institute.nhs.uk/qualitytools](http://www.institute.nhs.uk/qualitytools) and see the tools on:

- resistance – addressing uncertainty
- resistance – understanding it
- resistance – working with it.

*'It was really important to build up the trust of our colleagues; some of them had experienced stock outs in the past and understandably did not want to be in that position again. As a result some colleagues were reluctant to reduce their amount of stock holding. We overcame this resistance by reducing the maximum stock levels gradually; proving to colleagues and building their trust that the new system is reliable.'*

**Felicity Watkins – stores assistant (The Productive Operating Theatre secondee),  
Heart of England NHS Foundation Trust**

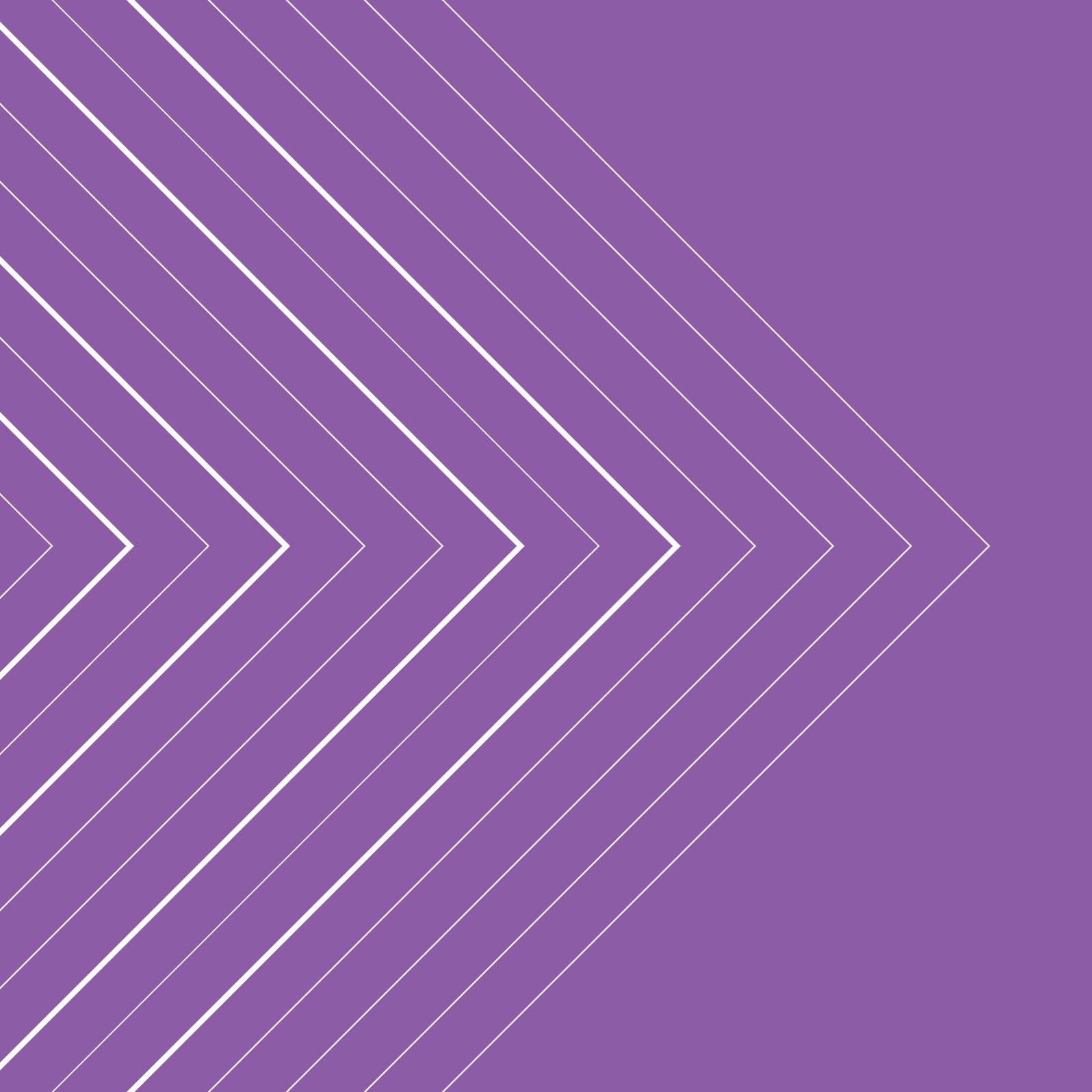


## Do – milestone checklist

Move on to **Study** only if you have completed **all** of the items on this checklist

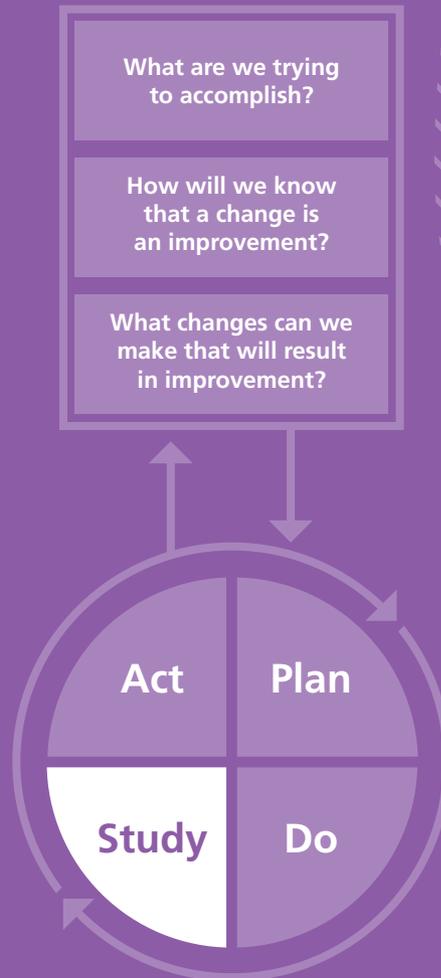
Checklist	Completed?
Reviewed your module aims	
Turned information into ideas	
Got the teams together	
Agreed and prioritised potential solutions	
Carried out a cost benefit analysis	
Created an implementation plan	
Tested the changes	
Monitored progress	
Supported the team through the changes	

Effective team-work checklist	Tick if yes
Did all of the team participate?	
Was the discussion open?	
Were the hard questions discussed?	
Did the team remain focused on the task?	
Did the team focus on the area / process, not individuals?	



## 6. Study

Implementing improvements will take many Plan Do Study Act cycles. It is important to keep track of your measures for success so that you can assess the impact of changes soon after you make them and know if the changes you have made are improvements.



## Collect, analyse and review feedback and data

During the Study phase your team will need to reflect on the success of the changes that have implemented, and whether these changes are improvements. This will occur after each test cycle has been completed and will determine whether you should adopt, amend or even abandon your changes.

Use the three questions from the model for improvement as a framework to focus your thinking:

- what were we trying to accomplish?
- how do we know that the change was an improvement?
- what changes did we make that resulted in an improvement?

Throughout the Do phase you will have been reviewing the changes with your team at progress review meetings. The Study phase marks the completion of defined period of testing it is at this point you will review the impact of the change through gathering the relevant information.

Review the information that was collected before, during and after the test including staff feedback, along with other relevant information that may reflect unexpected consequences that resulted from the change, both positive and negative. This will provide a full and meaningful evaluation.

*'All improvement will require change, but not all change will result in improvement, we've tried to keep this in mind and gaining feedback from the teams and monitoring results with this challenging module.'*

**Ann Abbassi – lead nurse theatres and day surgery, Heart of England NHS Foundation Trust**

### Collect feedback from staff

What impact have the changes had on the different groups involved, in theatres and partner departments?

- are the changes having a positive or negative impact on them?
- do they have suggestions on how the changes can be improved further?
- have they collected stories and examples to provide the qualitative perspective of the change?
- were there any unforeseen benefits?

There are many ways to collect qualitative feedback from your staff and you will have already used some or all of them. Use the most appropriate method depending on your local circumstances and scale of the change:

- group sessions (Toolkit, tool no.1 Meetings)
- one to one discussions (Toolkit, tool no.7 Interviews)
- flip charts in communal areas inviting comments
- questionnaires which can provide both qualitative and quantitative information (see [www.institute.nhs.uk/qualitytools](http://www.institute.nhs.uk/qualitytools) Patient perceptions and Staff perceptions)

Group sessions are particularly good as they provide the opportunity for discussion and to gather views from different perspectives.

*'This work has put me back inside my theatre, I am spending more time working with my team and delivering care and less time chasing kit and ordering consumables.'*

Sandra Roche – theatre sister, Heart of England NHS Foundation Trust

## Collect data

While you have been testing your changes you should have continued to collect, analyse and review your key measures to show the impact they have had from a quantitative perspective.

Assess the impact the changes have had on the key measures that you identified and have collected.

For example:

- stock value (£) by week
- measure and quantify value 'stock holiday' of items not requiring ordering
- stock 'run outs'
- count of out of date items.

## Review the feedback and data together

- What worked well?
- What did not work?
- What could have been done better?
- Do the changes need to be amended and tested again?

## For qualitative data:

- What are the views of the team and their perceptions of the change?
- What would they like to see changed or improved?

## For the quantitative data:

- Has the change been measured for a long enough time to draw clear conclusions?
- Are all of your measures providing you with valuable information – if not do they need to be amended?
- Are you having difficulty collecting the data – are there other ways that you could do it or other people you could approach to help?
- During the testing period have you become aware of other information that you would like to collect?

## Assessing the impact on your key measures

As you reach the end of the test phase, you should review your achievements against your original aims. Use the following questions to guide your discussion:

- what was your aim?
- do the results indicate you've achieved that aim?
- what conclusions can you draw?
- is the team confident they've made the correct conclusions?
- what are the views of the team and their perceptions of the change?
- what would they like to see changed or improved?
- do the results indicate they should be doing something else?
- what next? – are you ready to move onto the Act phase?

## Communicate progress

- Use the Knowing How We Are Doing board to communicate and share progress with your theatre department. Show progress on key measures, include quotes, comments and stories.
- Include the headline results in your Productive Operating Theatre newsletter, to share progress across the organisation.
- Discuss results and progress in your weekly team meetings, audit mornings, and brief and debrief sessions, ensuring all staff are informed.

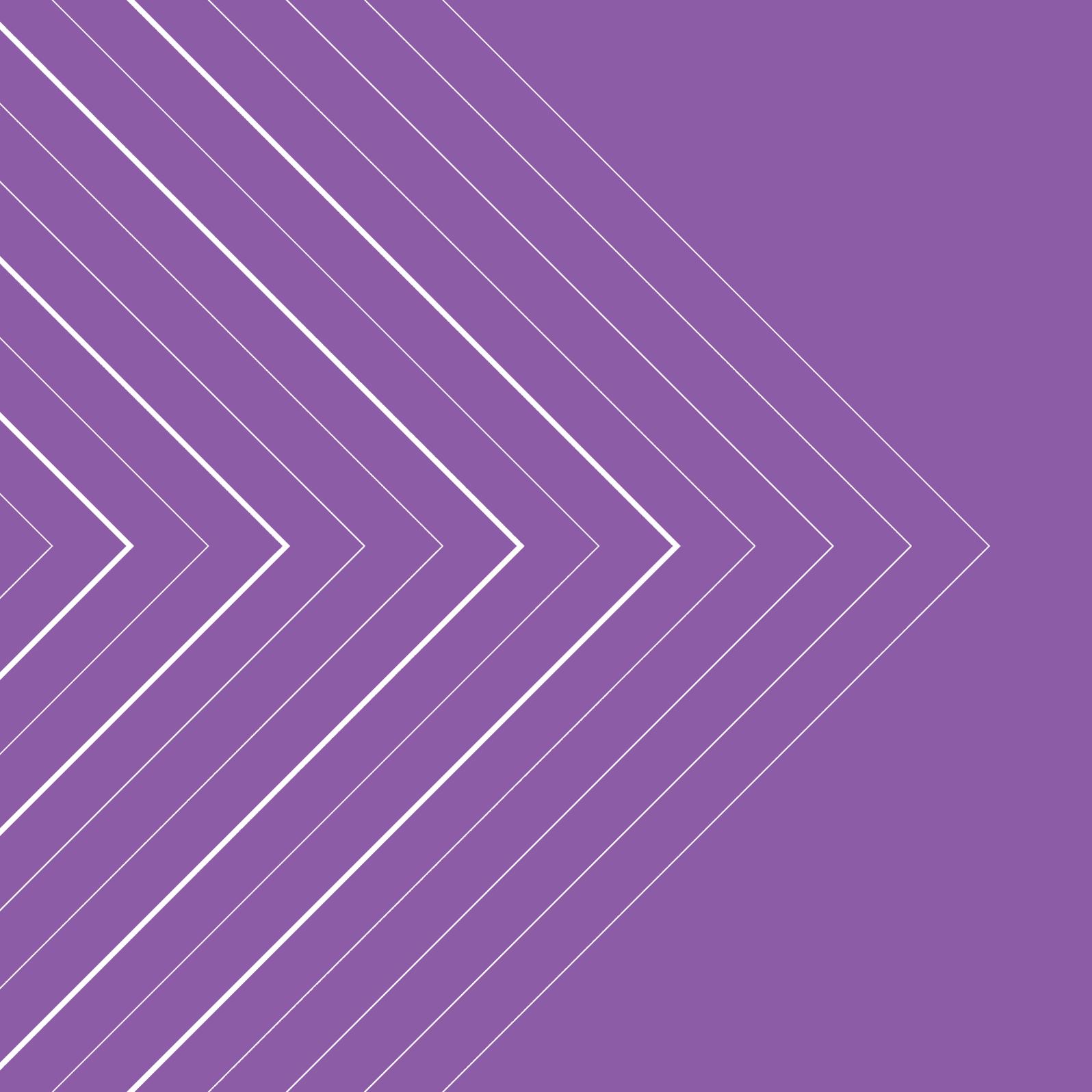


## Study – milestone checklist

Move on to **Act** only if you have completed **all** of the items on this checklist

Checklist	Completed?
Collected, analysed and reviewed feedback and data	
Assessed the impact on your key measures	
Communicated progress	

Effective team-work checklist	Tick if yes
Did all of the team participate?	
Was the discussion open?	
Were the hard questions discussed?	
Did the team remain focused on the task?	
Did the team focus on the area / process, not individuals?	



# 7. Act

Once you have successfully developed and tested your improvements, you will need to decide whether to adopt, adapt or abandon the change, ensure improvements are sustained and plan for scale-up across the organisation.



## Agree whether to adopt, adapt or abandon the changes

This section will form part of the small PDSA cycles within the development of the module work. It also encompasses the wider, long term cycle of improvement by encouraging your team to continually seek to improve the care and service they provide.

The potential size and complexity of the Consumables and Equipment module is likely to result in a series of cycles of improvement over a sustained period of time.

### Agree which improvements have been successful

Once your team has completed the testing of a potential solution and studied the data and feedback, they will need to decide whether to:

- **adopt** the change if it has been a success and consider whether to roll it out to other areas or review progress over a longer period of time
- **adapt** the process in some way to refine or improve it further. Perhaps the change has not achieved the desired outcome, by adjusting or modifying it slightly it may be more successful. If changes are decided you need a further period of study to understand whether the adaptation(s) have worked or not
- **abandon** the change if it was not successful. Remember, many of the changes you propose may not be successful; do not consider this as a failure but as an opportunity for further improvement. In this situation carefully analyse as a group what you have learned and what you would do differently next time. Are there things you have learned that are useful to the wider group working on other parts of the project? If so, share them.

Crucially, before the team decide to adapt or abandon a change, you need to understand why the change has not been as successful as you hoped. For example there may be poor clinical engagement, lack of time allocated to support the change or missing data. Use 5 Why analysis (Toolkit, tool no.18).

***Tip:** The model for improvement encourages the testing of lots of ideas through small cycles of change. It is expected that many changes will need to be adapted before they are adopted. It is also expected that changes will be abandoned which is why you should first test ideas on a small scale in a supportive environment.*

## Celebrate and share successes

Display successes and feed back to everyone in the team. Be sure to credit the team with their effort. Share your improvements and learning within the department, across your organisation and externally so others can learn from your work through:

- wall displays
- emails
- newsletters
- weekly review meetings
- audit mornings
- presentation and sharing events
- submit your case studies of improvement to share nationally at [www.institute.nhs.uk/theatres](http://www.institute.nhs.uk/theatres)

As you communicate your improvements to the team consider what is important to different groups of staff. The theatre team may not immediately appreciate any significant improvement simply by reducing stock levels and saving money. However, re-framing this into a message that both demonstrates that there has not been any adverse effect on clinical care, whilst having the potential to provide financial value, can be powerful and encouraging.

Ensure that senior management are aware of your successes, and the teams involved. Too often only problems are escalated – it is good to report progress and see the service developing. It is also satisfying for staff to know that their good practice has been recognised by senior managers.

## Continue to monitor and review

- It is important that you continue to collect, analyse and review your measures to encourage sustainability in both the original area of implementation and the new areas that you have scaled-up to.
- Once you are satisfied that the change is an improvement and is being sustained, you may reconsider the frequency and the number of measures that you collect, analyse and review.
- As soon as you take your 'eye off the ball' there is the possibility that changes will not be sustained so it is crucial to continue to monitor high level measures. However, this is important when making measurement a normal part of operational management and you will be building this into the mainstream performance review of the service.

## Sustain the changes

As much effort, if not more, needs to go into the sustainability of a change as that required during the planning and starting of it. Sustaining new ways of working is always a challenge. The NHS Institute sustainability model identifies ten factors that are key to the sustainability of any change; they are explained in the table below. These should be considered. Before you plan to scale-up your improvements across the organisation.

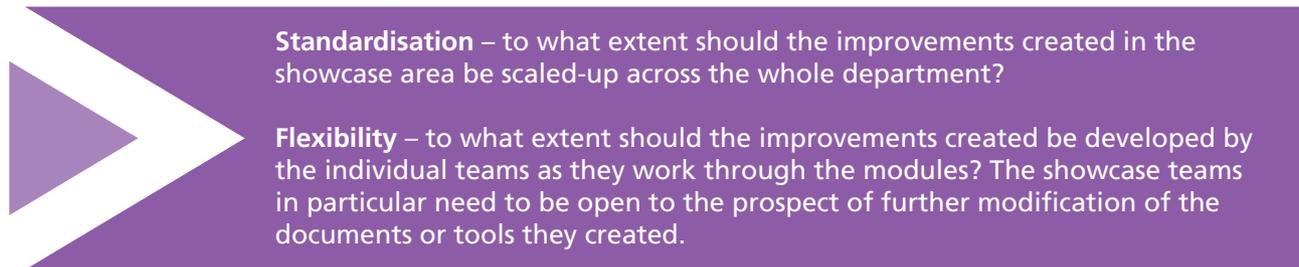
	Factor	Things to consider
<b>Staff</b>	Clinical leadership	<ul style="list-style-type: none"> <li>This module requires a high level of leadership to ensure success in both implementation and sustainability. If it is not seen to be a priority for leaders it will not be for their teams either</li> </ul>
	Senior leadership	<ul style="list-style-type: none"> <li>Senior theatre staff and managers supporting and driving the improvements and monitoring progress</li> </ul>
	Training and involvement	<ul style="list-style-type: none"> <li>Provide training and support as teams implement the model for improvement</li> <li>Involve wider teams and partner departments in developing and testing the changes</li> </ul>
	Staff behaviours	<ul style="list-style-type: none"> <li>Teams will only own their own performance if they are empowered to do so, continue to involve staff in developing the changes further. Use your champions to influence their colleagues</li> </ul>
<b>Organisation</b>	Fit with organisational goals and culture	<ul style="list-style-type: none"> <li>Show how the improvement fits with your Productive Operating Theatre vision and the wider organisation's strategy. Show how it will benefit patients and tax payers</li> </ul>
	Infrastructure	<ul style="list-style-type: none"> <li>Ensure job plans have new responsibilities defined by the changes formally incorporated</li> <li>Develop policies and standard operating procedures that embed the changes</li> </ul>
<b>Process</b>	Benefits	<ul style="list-style-type: none"> <li>Discuss with staff involved what the benefits of the new way of working are for them, patients and the organisation</li> </ul>
	Credibility of evidence	<ul style="list-style-type: none"> <li>Share the qualitative and quantitative benefits that you have collected through the testing cycles to engage colleagues during scale-up</li> </ul>
	Monitoring progress	<ul style="list-style-type: none"> <li>Continue to monitor the progress of the changes so that teams can see the impact of their efforts</li> </ul>
	Adaptability	<ul style="list-style-type: none"> <li>Consider how the change will adapt to a different speciality or site, do modifications need to be made?</li> </ul>

To identify if there are factors you need to focus on to increase the sustainability of your improvements complete the sustainability model which is available at [www.institute.nhs.uk/sustainability](http://www.institute.nhs.uk/sustainability)

## Plan for scale-up across all theatres

Adoption of your new consumables and equipment processes will occur naturally to some extent as staff see and understand what you've achieved and the benefits its delivered. However scaling-up improvement across the whole organisation presents a significant challenge you therefore need to take into account various important considerations when planning for this. The steering group or the programme team may have clear thoughts on where to, and how to migrate the improvements across all theatres.

Importantly, scale-up across other teams will involve using the same improvement methodology and approach, but successful implementation will rely on a careful balance between standardisation and flexibility to avoid duplication, confusion and frustration.



**Standardisation** – to what extent should the improvements created in the showcase area be scaled-up across the whole department?

**Flexibility** – to what extent should the improvements created be developed by the individual teams as they work through the modules? The showcase teams in particular need to be open to the prospect of further modification of the documents or tools they created.

However good you think your new processes are, do not be tempted to send out an instruction to all staff to implement them. Experience has shown that, at best, they will reluctantly carry it out until you are no longer watching. At worst, they will simply refuse. Staff have to be won over by engaging them, showing them the evidence that it works (qualitative and quantitative) and involving them in modifying the process to be fit for purpose in their particular clinical context. This takes time and perseverance.

## Key considerations

There are many considerations to take in account before embarking on your scale-up plan. The degree of success you achieve will depend largely on:

**executive commitment** and support for the programme

**sequencing** – which specialties will you scale-up to and in what order, in what time frame?

**coverage and completeness** – think about how you will plan for and monitor the extent to which modules are being implemented across each area within your organisation and the extent to which each modules aims have been achieved.

**clinical engagement** and the degree to which your clinical champions can encourage and influence clinical colleagues across theatres

**data and information analysis** is crucial to understanding your baseline position, and also what impact, or return on investment the programme is achieving for the organisation

**staff availability** to test and implement change is difficulty during the initial phase involving just one speciality or showcase theatre. This becomes an even greater challenge when planning for scale-up across the whole theatre suite.

**key roles** in the programme such as programme leader ensure consistency and pace throughout the programme. Insufficient time allocation, vacancies or inexperience can only add delays, lack of continuity, or at worse collapse of the programme.

**governance** structures provide a vital framework for any improvement project. As your programme progresses through the modules and develops from showcase theatre across the entire theatre suite, so the communication and reporting mechanisms will need to evolve to ensure continued rigour and focus on achieving the programme aims.

For up to date information about how scale-up is being developed, tested and implemented see [www.institute.nhs.uk/theatres](http://www.institute.nhs.uk/theatres)

## Don't stop improving!

Just because you have decided to adopt an improvement it does not mean that the work is complete.

Your new way of working with the improvements embedded now becomes your current state. Continue to look for the opportunities to improve it further. It is likely that as you scale-up and engage more teams, they will come up with more ideas of how the changes can be refined and improved further or adapted to meet their particular needs. It is important to continue to provide opportunities for the wider teams to be able to influence and develop the new ways of working.

By doing this you will be creating a culture of continuous improvement within your department where improvement is seen as an integral part of the working day, not an additional activity. The teams will have the knowledge, skills and empowerment to lead this process themselves – the ultimate aim of The Productive Operating Theatre. This can be demonstrated by some of the sites nationally that are at different stages of their improvement journey with management of consumables.

### How long will our Consumables and Equipment module take to complete?

This module will have provided you and your team with the skills and tools to improve your management of consumables and equipment. This is likely to be a module that will require long term commitment across multiple processes. The approach to both consumables and equipment are also constantly evolving as products and technology change.

**The Shrewsbury and Telford Hospital NHS Trust** have been working on consumables for over three years with great success, they are still actively on their journey of continuous improvement – small cycle testing of changes on a regular basis that are initiated by members of the clinical team.

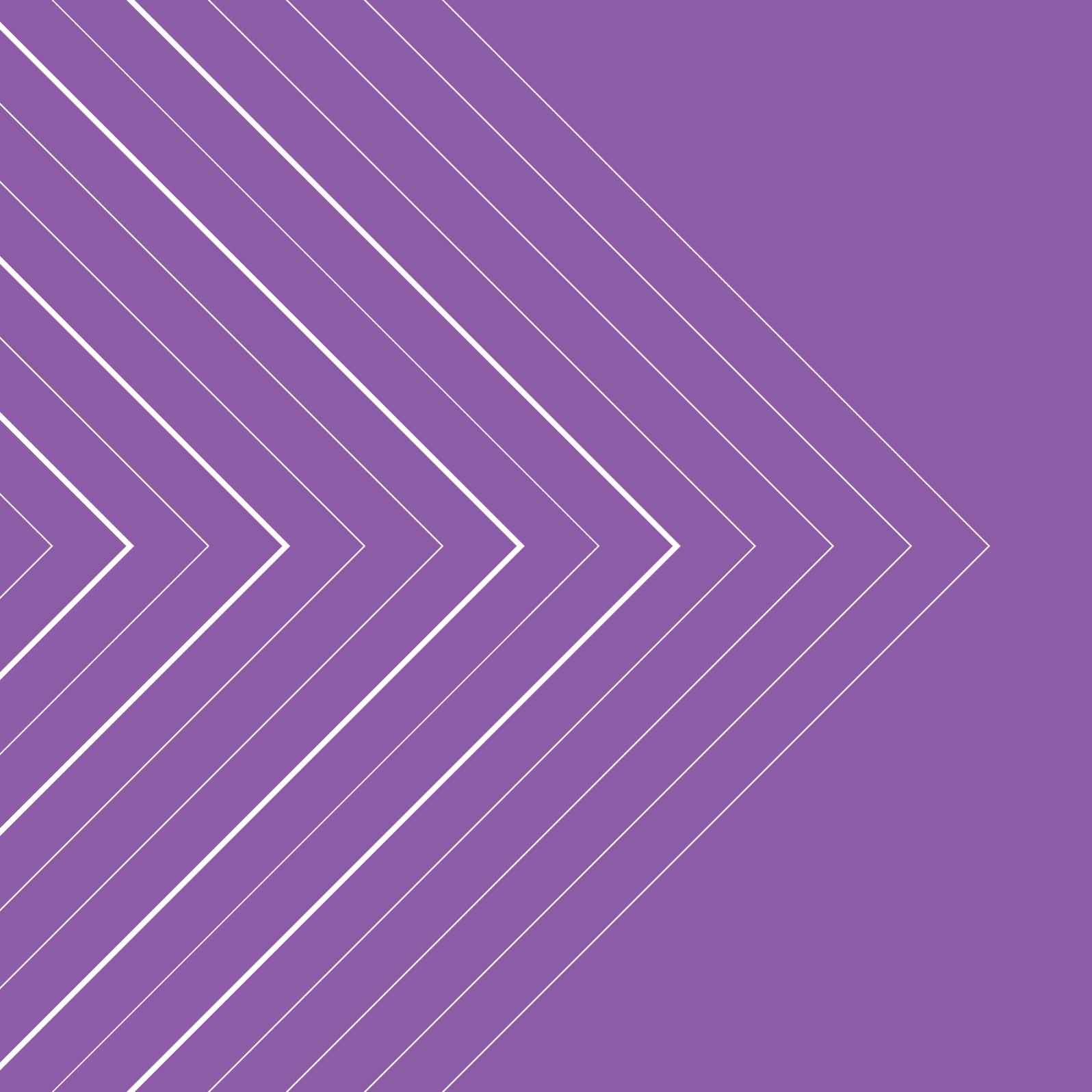
**The Royal Bournemouth and Christchurch Hospitals NHS Foundation Trust** started their improvement of consumables management 10 years ago. They are now at an advanced stage but still consider this work to be ongoing.

## Act – milestone checklist

Move on to your next PDSA cycle only if you have completed **all** of the items on this checklist

Checklist	Completed?
Agreed which changes to adopt, adapt or abandon	
Celebrated and share successes	
Agreed how you will continue to monitor and review	
Completed the sustainability model to ensure the changes are maintained	
Planned for scale-up	

Effective team-work checklist	Tick if yes
Did all of the team participate?	
Was the discussion open?	
Were the hard questions discussed?	
Did the team remain focused on the task?	
Did the team focus on the area / process, not individuals?	



## ***8. Learning objectives complete?***

Learning objectives were set at the beginning of this module. Test how successfully these objectives have been met by discussing your 'journey' for either consumables or equipment with your team and asking them the questions in the table below.

The results of this assessment are for use in improving the facilitation of this module and are not a reflection of staff aptitude or performance. The questions are broad and the responses will relate to the experience at your organisation - some suggested answers and approaches have been provided. If the responses from your team broadly fit with the suggested answers then the learning objectives have been met.

For the objectives that have only been partly met, think about how you can change the way you approach the module next time.

Questions	Possible Answers
<p>Why is it important to ensure a safe, reliable and effective processes for managing consumables and equipment, from the perspective of:</p> <ul style="list-style-type: none"> <li>• clinical risk and patient experience?</li> <li>• improving staff experience?</li> </ul>	<p>Having the right stock / equipment available at the right time, in the right place, every time is an important factor to ensure:</p> <ul style="list-style-type: none"> <li>• reduced incidents, errors and delays in treatment.</li> <li>• improving the working lives of clinical staff in theatres by, ensuring stock and equipment is there ready to go, so reducing frustration.</li> </ul>
<p>What is the potential financial impact of consumables and equipment on the operating theatre's budget?</p>	<ul style="list-style-type: none"> <li>• Through managing consumables and equipment we can reduce costs by eliminating waste without impacting on the service provided</li> </ul>
<p>How have you incorporated international, national and local guidance relating to consumables and equipment into this module</p>	<ul style="list-style-type: none"> <li>• Demonstrate an awareness of international, national and local regulations applied throughout the project</li> </ul>
<p>What do you understand about the processes involved in managing consumable and equipment?</p>	<p>Both consumables and equipment management are very complex:</p> <ul style="list-style-type: none"> <li>• they may generate multiple streams of work during improvement.</li> <li>• the scope is potentially very wide and can extend even beyond the bounds of your organisation.</li> <li>• the success of this module relies on a clear and realistic plan that defines the scope, as well as sufficient resources to carry out the work.</li> </ul>
<p>What are the seven wastes and how can you identify them?</p>	<p>The seven wastes are:</p> <ul style="list-style-type: none"> <li>• defects and rework</li> <li>• motion</li> <li>• overproduction</li> <li>• transportation</li> <li>• waiting</li> <li>• inventory</li> <li>• over-processing</li> </ul> <p>They can be identified through timing processes, observation, activity follows, process mapping, video waste walks</p>

Questions	Possible Answers
Why are clear processes and roles and responsibilities needed?	<ul style="list-style-type: none"> <li>• To ensure the care we give is safe, reliable and efficient</li> <li>• Discuss the various roles and responsibilities within the module processes</li> <li>• Provide examples where lack of clarity has led to problems and issues and how the module helped to overcome these</li> </ul>
Why is understanding of measurement important and how important is it for successful improvement	<ul style="list-style-type: none"> <li>• To demonstrate performance, progress, and impact of the changes we have made</li> <li>• To use information to inform decision making and help prioritise actions</li> <li>• To base improvement on data rather than anecdotal evidence</li> <li>• Key to understanding whether the improvement efforts are having a positive effect</li> <li>• Communicating key successes through measures supports involvement and participation in the programme</li> </ul>
Why is leadership at all levels important in ensuring that all elements of the process function effectively?	<ul style="list-style-type: none"> <li>• Discuss the key elements of leadership</li> <li>• Provide examples of good or poor leadership in the management of consumables and equipment and how this has influenced the programme</li> </ul>
What skills have you developed to drive your own improvement work as a team?	<ul style="list-style-type: none"> <li>• Understand how to use the model for improvement and PDSA cycles to test ideas</li> <li>• Understand the importance of using measurement for improvement</li> <li>• Can use tools such as waste walks, process mapping and 5 Whys analysis to understand and improve processes</li> </ul>
How can you develop a culture of continuous improvement around good practice in consumables and equipment?	<ul style="list-style-type: none"> <li>• Continue to monitor key measures</li> <li>• Ensure changes are sustained through ongoing monitoring</li> <li>• Continue to review the processes as a team and test and implement changes continuously</li> <li>• Celebrate success</li> <li>• Persevere, be consistent and committed to the programme</li> </ul>

# Acknowledgement

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The Royal Bournemouth and Christchurch Hospitals NHS Foundation Trust

The Shrewsbury and Telford Hospital NHS Trust

West Middlesex University Hospital NHS Trust