

# The Productive Operating Theatre

*Building teams for safer care<sup>TM</sup>*

## **Patient Turnaround**

### **Version 1**

This document is for theatre managers, theatre coordinators, theatre staff, operating department practitioners, anaesthetists, surgeons, recovery staff and improvement leads



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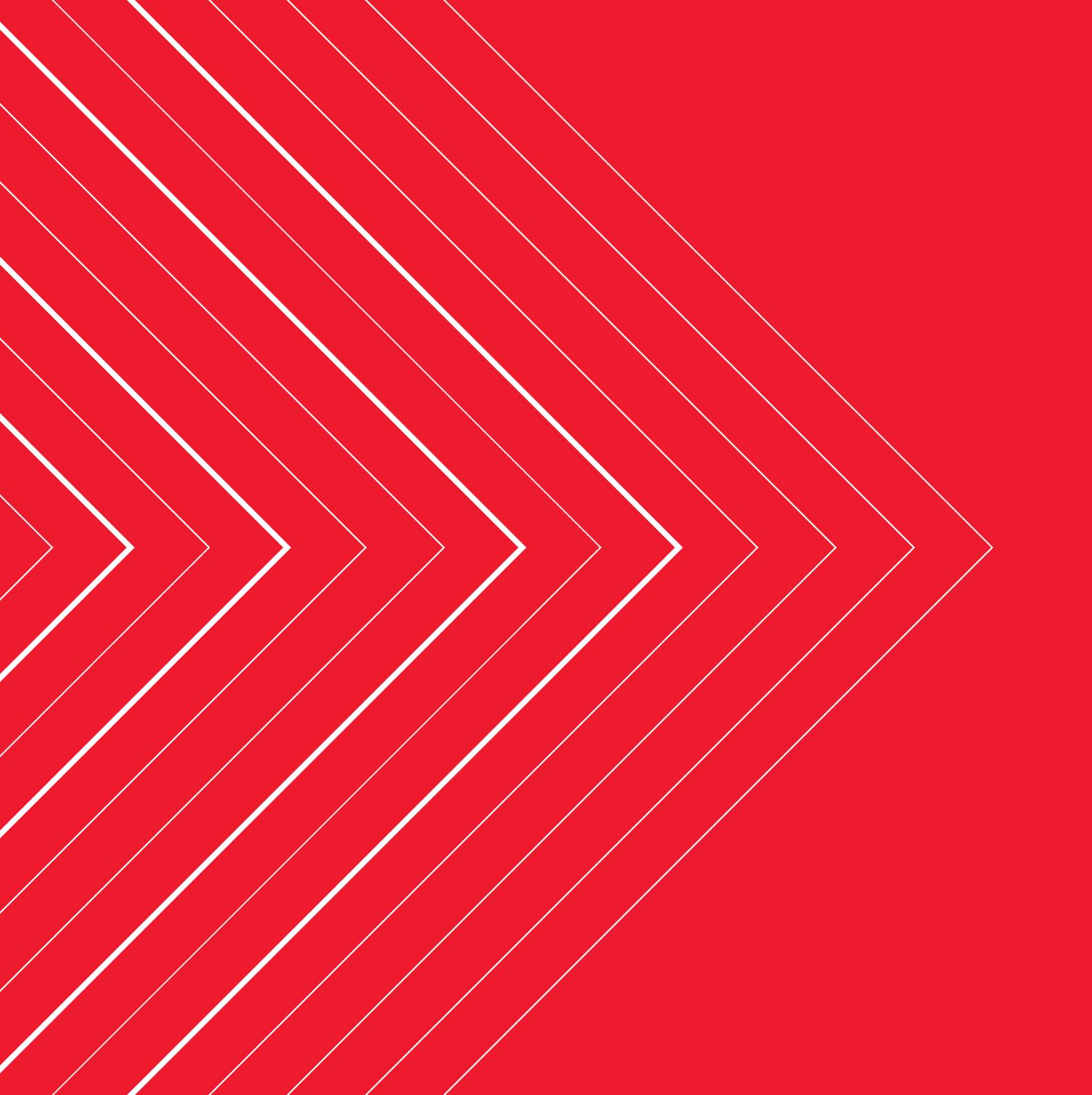
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## The Productive Operating Theatre

# Patient Turnaround

## Purpose of this module

Patient turnaround is the period of time between the completion of one surgical procedure and the start of the next. It involves several processes occurring in parallel, such as:

- handing over the patient to recovery staff
- clearing away the instruments and cleaning the theatre
- setting up the instruments for the next procedure
- preparing the anaesthetic equipment for the next procedure
- checking in the next patient and doing the 'sign-in'
- starting the anaesthetic.

Efficient turnaround requires all staff involved to understand their individual roles to ensure the time interval between patients is kept to a minimum. Patient turnaround can determine whether the whole theatre session runs smoothly and finishes on time, an important factor affecting staff experience.

The Patient Turnaround module provides a valuable opportunity for staff to work closely with those involved with patient preparation to determine how best to get the next patient to arrive in the theatre at the optimum time. It will support you in allocating tasks within the team to transfer the previous patient to recovery whilst preparing the anaesthetic equipment and operating theatre for the next procedure.

The Patient Turnaround module provides a structured approach to help you review your current turnaround processes. It will help you and your team to identify where you can introduce standard procedures for the team to turn the theatre around safely and efficiently.

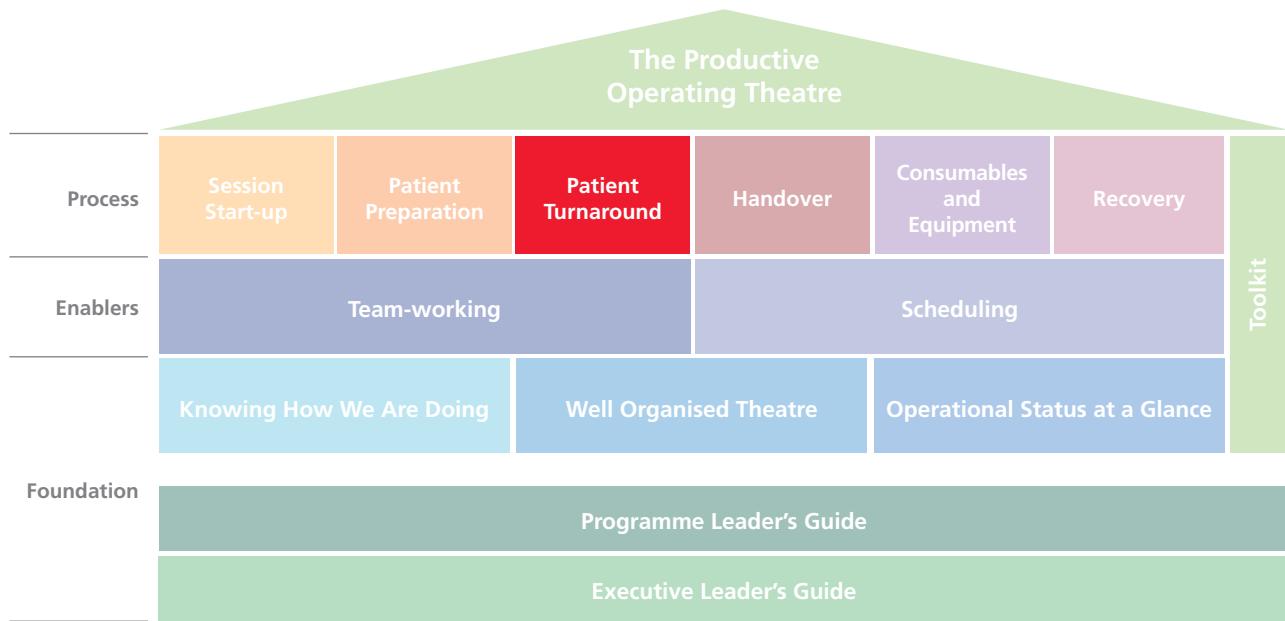
Getting turnaround right offers significant benefits across all four domains of quality:

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

*'It's time we looked at our turnaround times because sometimes it takes longer than expected for us to get the next patient into the anaesthetic room and I'm not sure why that is.'*

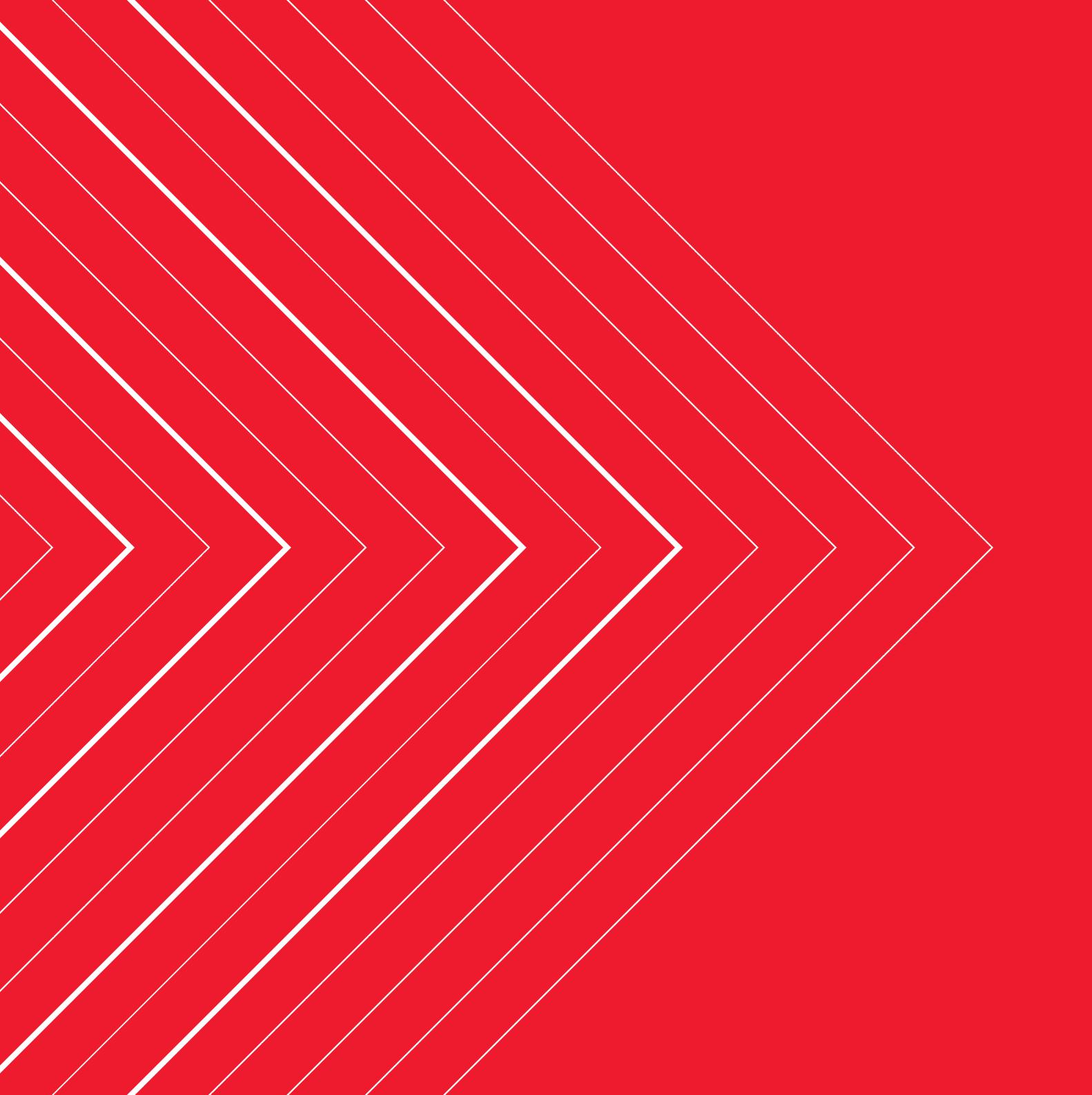
Manjeet Gill – chief senior ODP, West Middlesex University Hospital NHS Trust

## These modules create The Productive Operating Theatre



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# **1. What is the Patient Turnaround module?**

## **What is it?**

For this module Patient Turnaround is defined as the time interval from the minute the patient leaves the theatre on their way to the recovery room, to the time the anaesthetic begins on the next patient.

Delays between procedures can be frustrating for all concerned. Momentum can be lost, people can become distracted and the end result is delays, resulting in extended working days and procedures being cancelled due to insufficient theatre time.

This module outlines a practical approach for you to achieve a system in which every patient is in the right place at the right time in order to turnaround between patients efficiently. This requires several different people to work together in parallel in order to ensure that:

- the patient is prepared for surgery and is ready to go to theatre when sent for
- staff are able to turn the theatre and anaesthetic room around efficiently
- safety is improved and errors or glitches reduced.

## **Why do it?**

An efficient turnaround can:

- ensure surgery starts on time for every patient without delays or cancellations
- improve safety by standardising processes thereby reducing errors and omissions
- reduce wasted time and interruptions by clarifying roles and responsibilities
- reduce frustrating delays between procedures
- improve communication and team-working between staff in theatre and recovery

## **What it covers**

This module will help you understand your current procedures for turning around the operating theatre between patients, as well as identify issues and barriers to effective working. It will provide you with tools and ideas which will enable you to set about improving patient turnaround within your theatres.

## **What it does not cover**

The module acknowledges that approaches to patient turnaround vary between different hospitals or even between different theatres such as day surgery and inpatient theatres. It does not prescribe a single solution; rather it describes a process for teams to use in order to improve their own systems and processes within their own theatre department.



## Important links

All the modules within The Productive Operating Theatre link together to achieve the programme's aims. Some however, are more interdependent than others. The Patient Turnaround module links particularly closely with the modules listed below.

- **Patient Preparation:** a pre-requisite for effective turnaround is that the next patient is fully prepared, ready to be transferred into the theatre. It is a complex process which has its own dedicated module. Teams may decide to work on both processes together, or to make sure patient preparation has been addressed before moving on to patient turnaround.
- **Session Start-up:** some of the issues addressed in Session Start-up can be applied to Patient Turnaround.
- **Team-working:** understanding the importance of, and introducing techniques to improve communication enhances multidisciplinary team working. A good patient turnaround relies upon a high performing team working well together. Also the 'sign-out' and 'sign-in' components of the WHO surgical safety checklist are elements in patient turnaround that are covered in detail in the Team-working module.
- **Well Organised Theatre:** helps the anaesthetic and theatre teams organise their workplace better to support the processes involved in patient turnaround, simplifying their workplace and reducing wasted time and effort by having everything in the right place at the right time ready to go.
- **Handover:** two handover processes occur during patient turnaround:
  - from theatre staff to recovery staff at the end of the procedure
  - from ward or surgical admission unit to the anaesthetic team at the arrival of the next patient.Both processes are considered in more detail in the relevant module.

## Learning objectives

After completing this module it is expected that your team will:

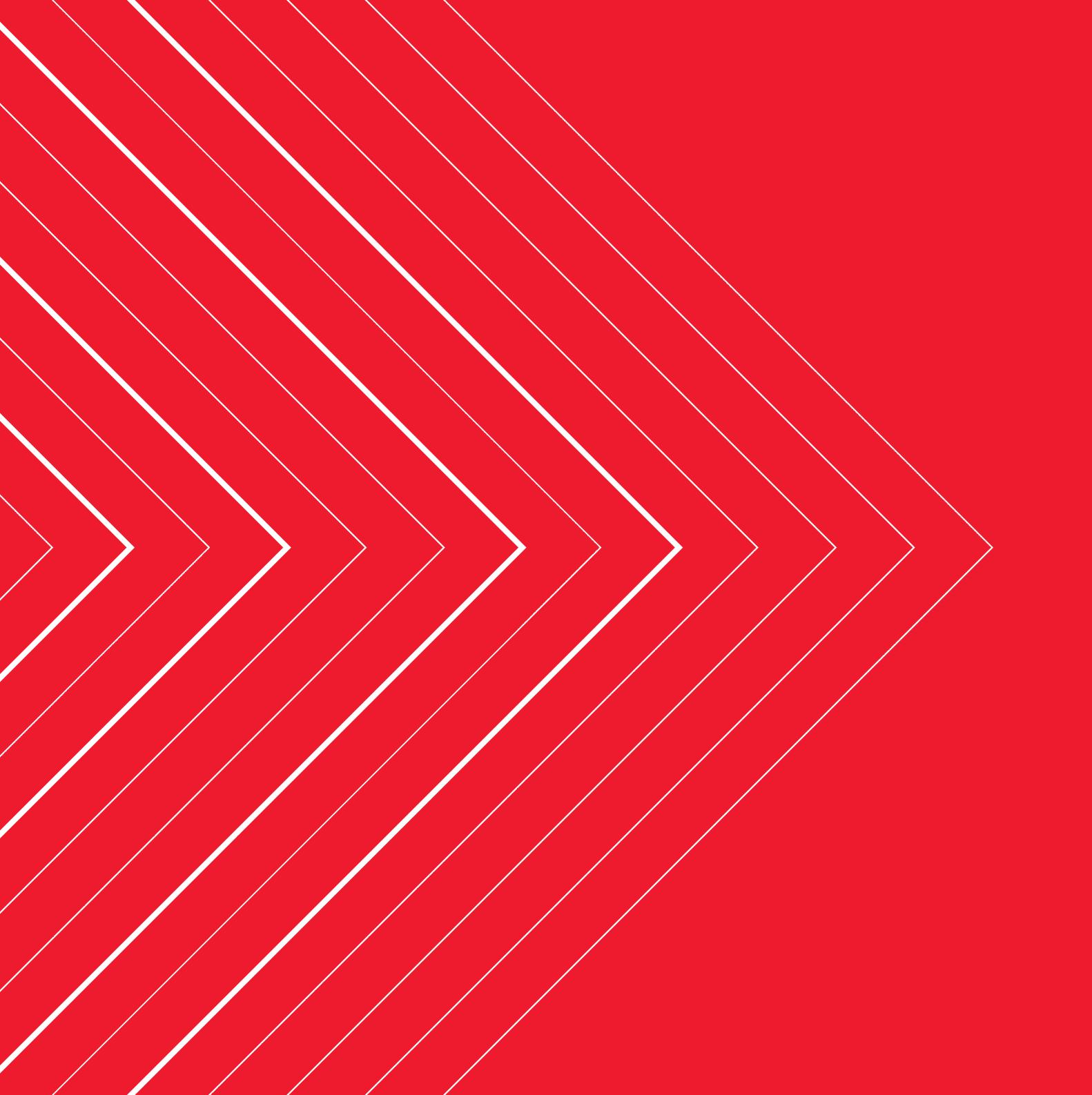
- recognise the importance of joint working between the ward or surgical admissions unit, surgeons and anaesthetists, porters and the theatre team
- recognise the value of running different processes at the same time ('parallel processing') in order to reduce the patient turnaround time
- understand how delays in patient turnaround can affect your key measures, eg turnaround times, finish times and over-runs, total contact time per list
- identify, plan and implement improvements in patient turnaround procedures
- develop measures to help identify and sustain improved patient turnaround procedures
- agree standards and protocols to speed up activities while ensuring safe, robust processes
- develop the skills for staff to own their own processes and to drive their own improvement work
- develop a culture of continuous improvement to constantly review and improve patient turnaround.

*'Well organised patient turnaround requires perfect co-ordination with the whole multidisciplinary team.'*

Ronnie Baustita - staff nurse, West Middlesex University Hospital NHS Trust

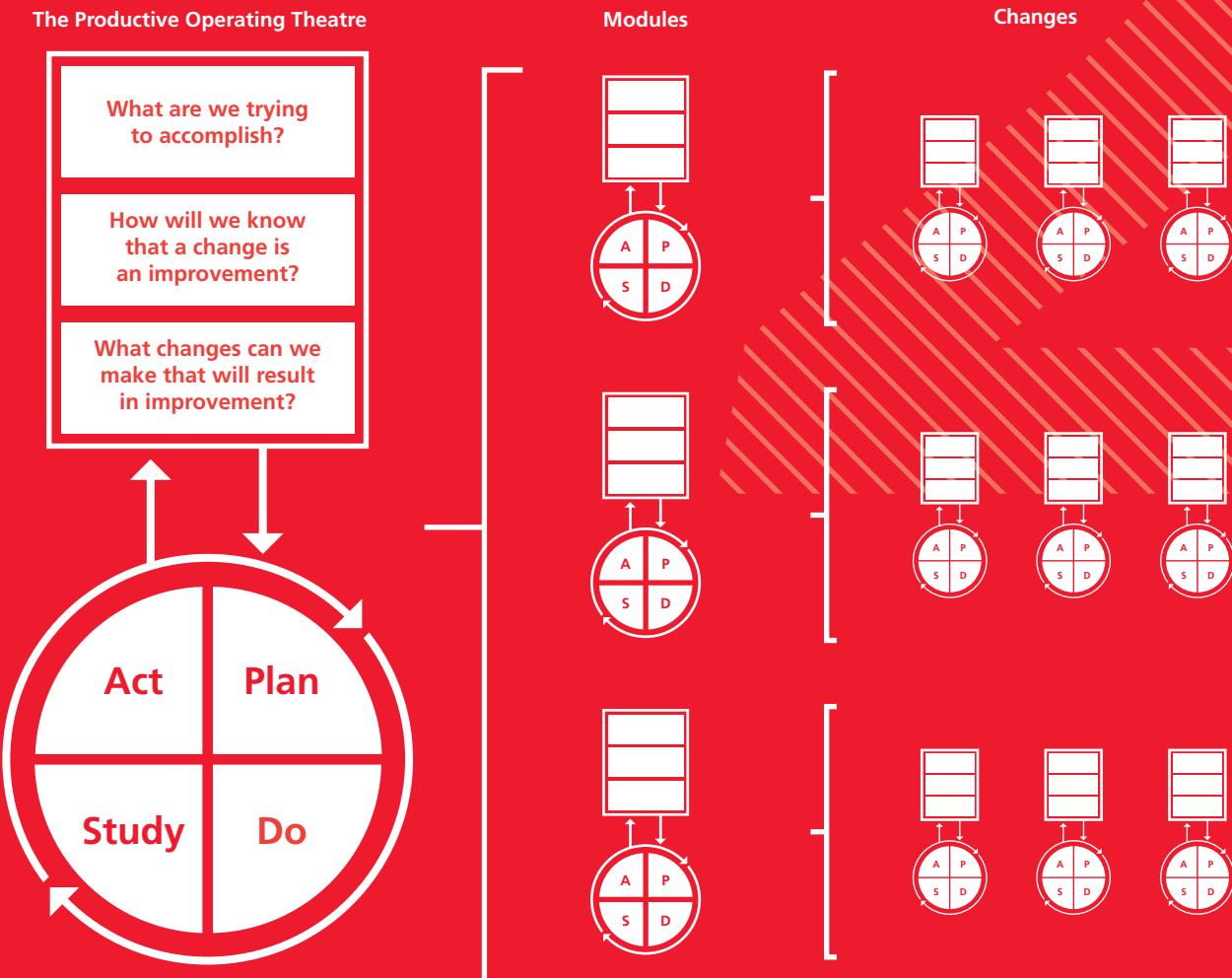
## What tools will you need?

Tool	Toolkit section reference number
Meetings	1
Activity follow	5
Video waste walk	6
Interviews	7
Photographs	8
Video	9
Process mapping	11
Cost / benefit analysis	12
Quick changeover	15
Timing processes	16
5 Why analysis	18



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

This module is structured to help you work through the model for improvement<sup>1</sup>. Within the module you will implement many smaller changes, developing and testing each one through small cycles of the model. The cumulative impact of these changes will come together to achieve the overall aims of the Patient Turnaround module. This, along with changes that are made within each of the other modules within the programme, will contribute to achieving the overall aims of The Productive Operating Theatre.

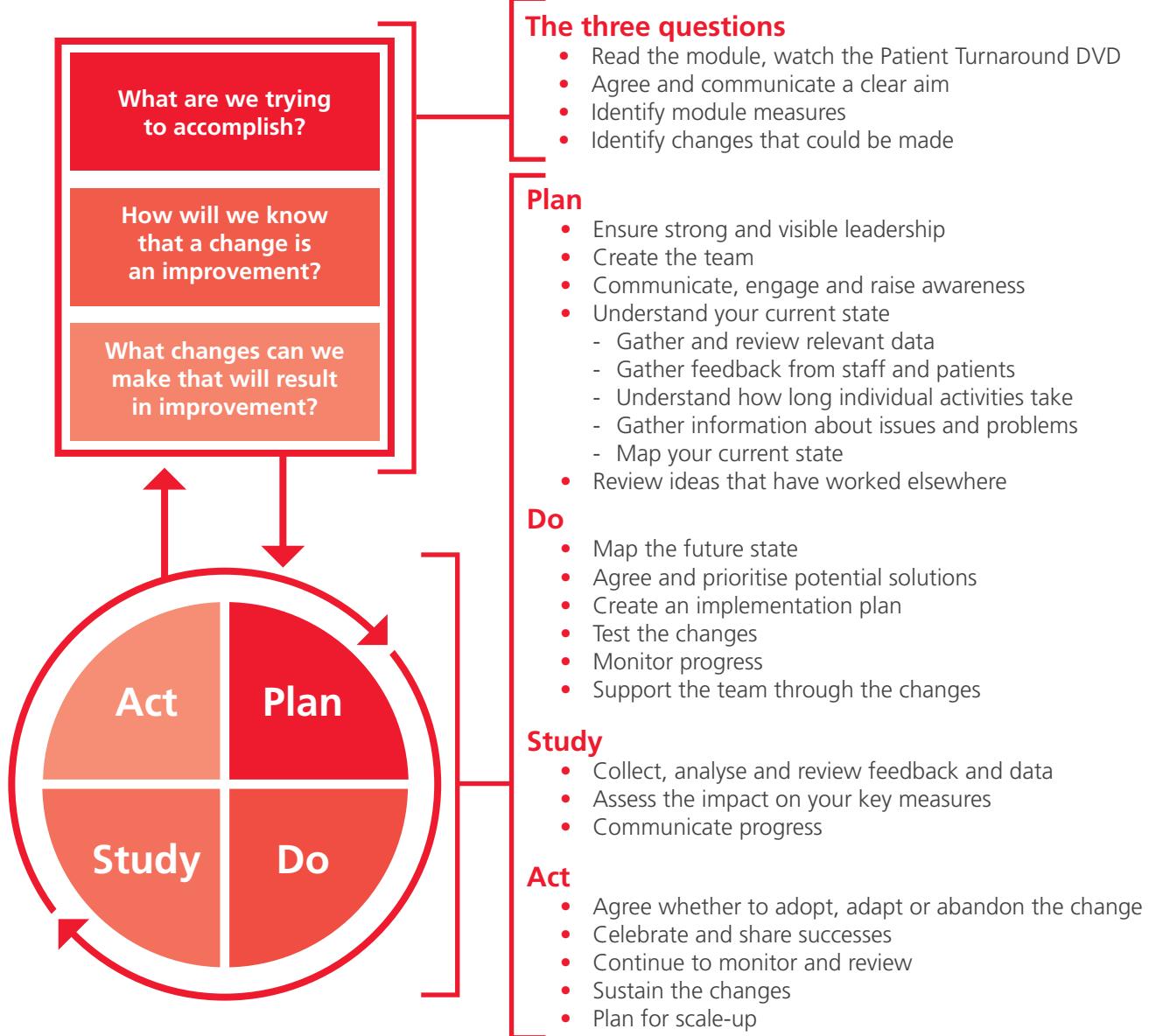


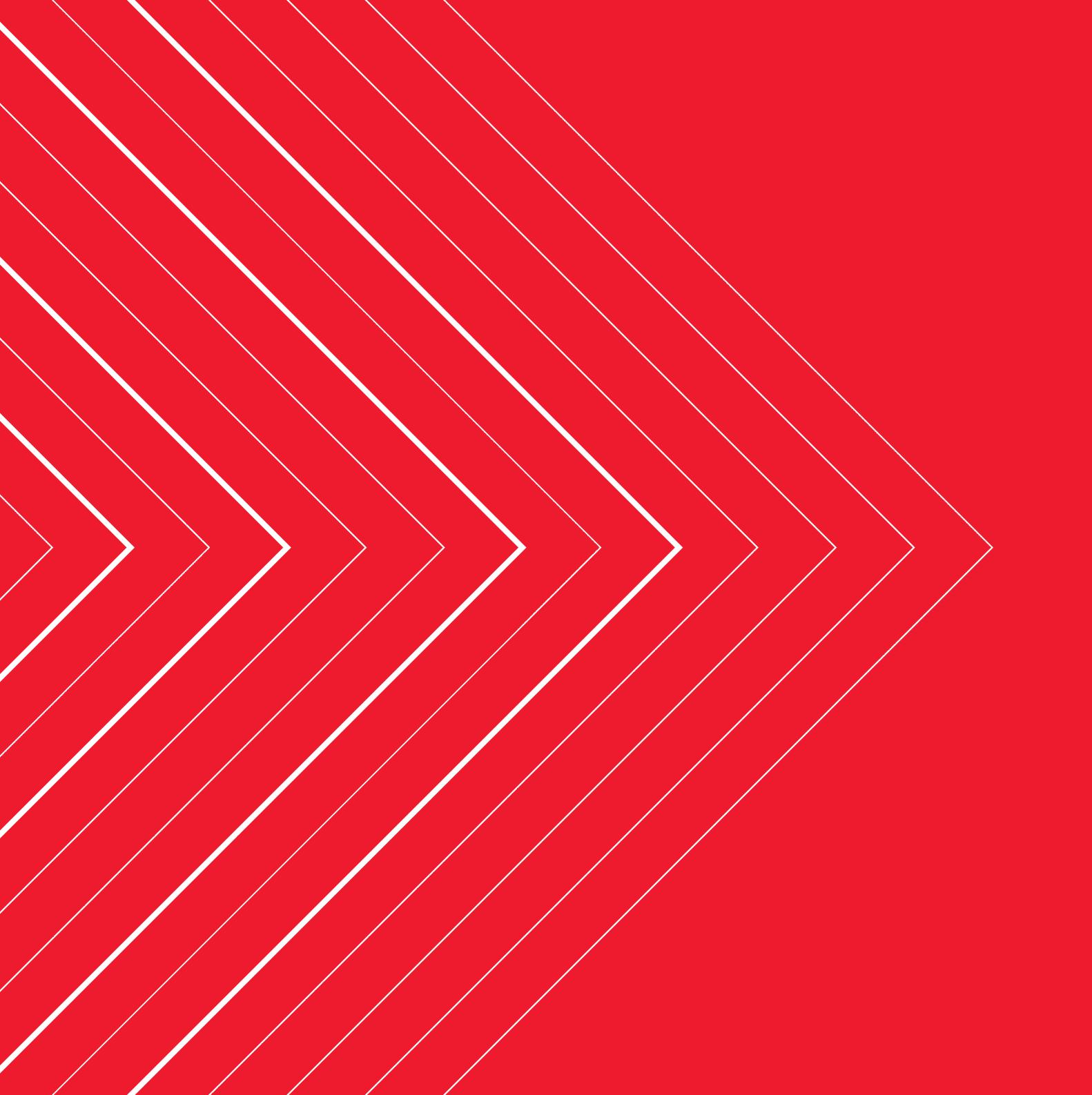
<sup>1</sup>Langley G, Nolan K, Nolan T, Norma C, Provost L. (1996)  
The improvement guide: a practical approach to enhancing organizational performance.  
San Francisco: Jossey-Bass



# How will you do it in your theatre?

## The model for improvement





### ***3. The three questions***

Before you start to implement the Patient Turnaround module, make sure that you are clear about what approach you are going to take.

Take time to read through the module carefully, and watch the Patient Turnaround DVD in order to understand the full scope of what is involved. (The DVD is available in your box set and as an online resource 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 Patient Turnaround improvements.

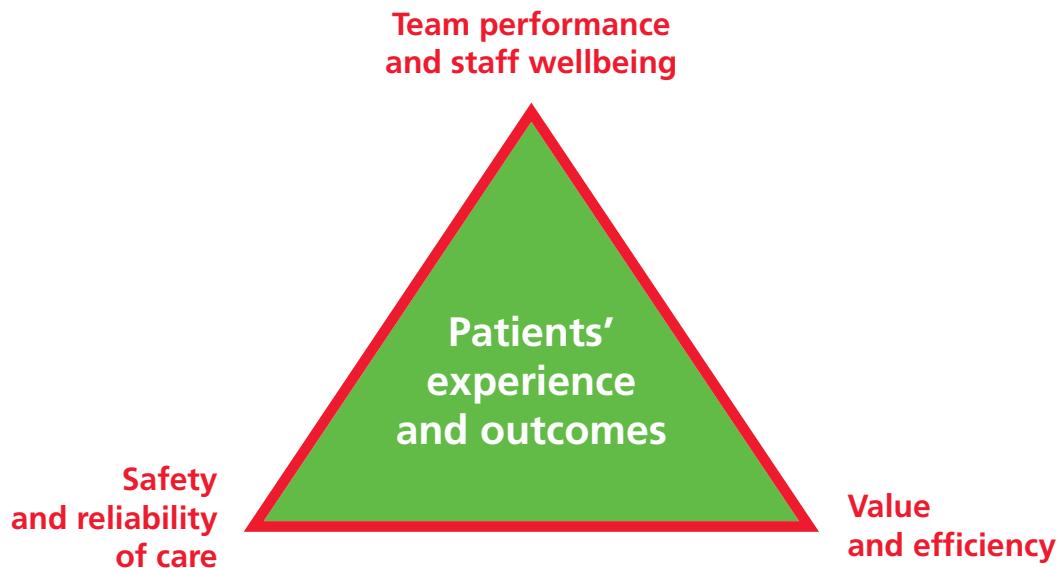


## 1. What are we trying to accomplish?

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 Patient Turnaround module will contribute to achieving both your local vision for The Productive Operating Theatre and the overarching aims of the programme to improve:

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

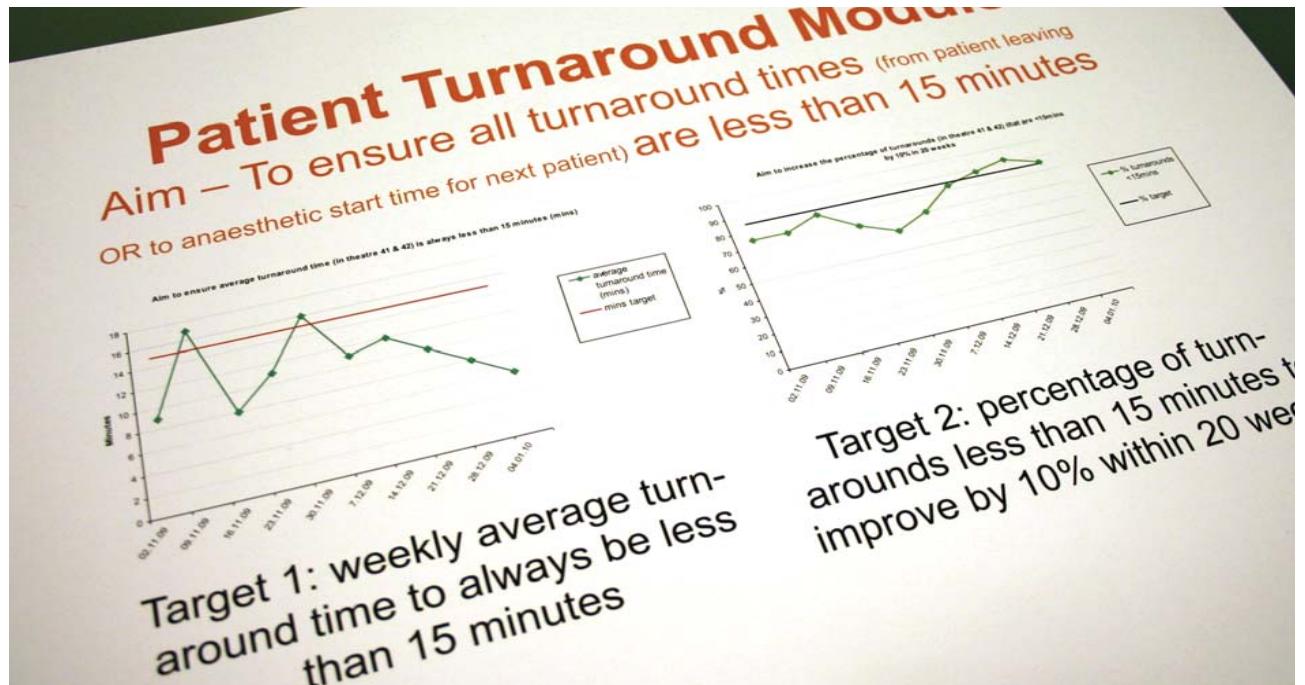


As a team set an aim for what you want to achieve from this module according to **SMART** principles

Principles for setting a <b>SMART</b> aim:	
<b>Simple</b>	give the aim a clear definition (eg we aim to reduce the time taken from the end of one procedure to the start of the next)
<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

You have already developed a vision for your programme; ask yourself how the Handover module can contribute to achieving your vision. Record your thoughts on a flipchart.

Once agreed as a team, communicate the module aim on your Productive Operating Theatre notice boards showing how the aims of this module link to your vision.





## **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 an 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 improvement from the Patient Turnaround module be represented in this set of measures?

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

### **Module measures session**

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

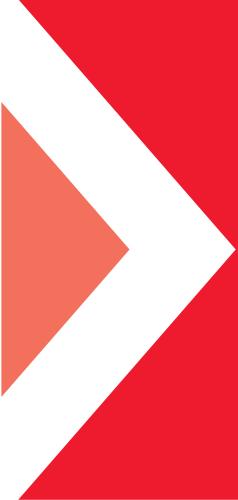
The aims of this session are to:

- refresh the team's understanding of how to use measurement to drive improvement
- understand how the Patient Turnaround 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 present information that is as close to 'real time' as possible in order to make it more meaningful for the team
- complete a measures checklist for the module.

Once your measures are agreed, start collecting, analysing and reviewing your data. Remember to share the progress on your Knowing How We Are Doing board.

Remember your measures can be both qualitative, such as asking staff and patients their opinions, and quantitative, such as how long each component of patient turnaround takes.

## Example measures



Here are some ideas of measures for Patient Turnaround. You may already be collecting some of these – your choice may also be influenced by any specific issues within your own area.

- Number of minutes for each patient turnaround
- Financial cost of delays during patient turnaround
- Number of minutes late that each session finishes and the reasons why
- Glitch counts related to turnaround, eg equipment for the next procedure not in the theatre
- Percentage of procedures turned around within a target time
  - by theatre or list.

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

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

For more examples of how to present patient turnaround data see Measures supplement.

[www.institute.nhs.uk/theatres\\_resources](http://www.institute.nhs.uk/theatres_resources)

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

Having read the module and agreed on a clear aim, you will be starting to use the data to identify the problems and issues that you have during patient turnaround. You will start to identify changes that you could make within your department that may result in improvement in your patient turnaround procedures and processes.

You will have an overall idea of what you want to achieve from this module but the detail of how you can achieve it will become clear as you work through the module. With your team, think through and agree a number of different solutions for improving the patient turnaround process for patients and staff in your organisation. Then agree how you will test these ideas through a series of **Plan Do Study Act (PDSA)** cycles. Involve your service improvement expertise right from the start, as they will be able to help you with this.

The next section, **Plan**, will guide you through the process of preparation, understanding of your current situation, and how to test your change ideas. You will also find some examples of changes that have been shown to work at other sites. However, the success of this module in your organisation will depend on involving everyone and working together as a team, developing meaningful data and having a structured approach to working through the module.

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

#### Examples of changes that have been successful at other sites:

- Agreeing with the team the reasons for having a well prepared patient ready to be sent for and in the operating suite ready to proceed.
- Determining the best time to send for the next patient.
- Moving patient preparation closer to the theatre to reduce variation in transfer times.
- To clarify each team member's role in turnaround, eg the operating department practitioner preparing the anaesthetic equipment rather than going to recovery.
- Scheduling the operating list in order to have the right patient ready for theatres, eg x-ray procedures after 9am.
- Streamlining the handover in recovery to release the anaesthetist for the next procedure.
- Communicating any changes to the list running order to the ward or patient preparation area.

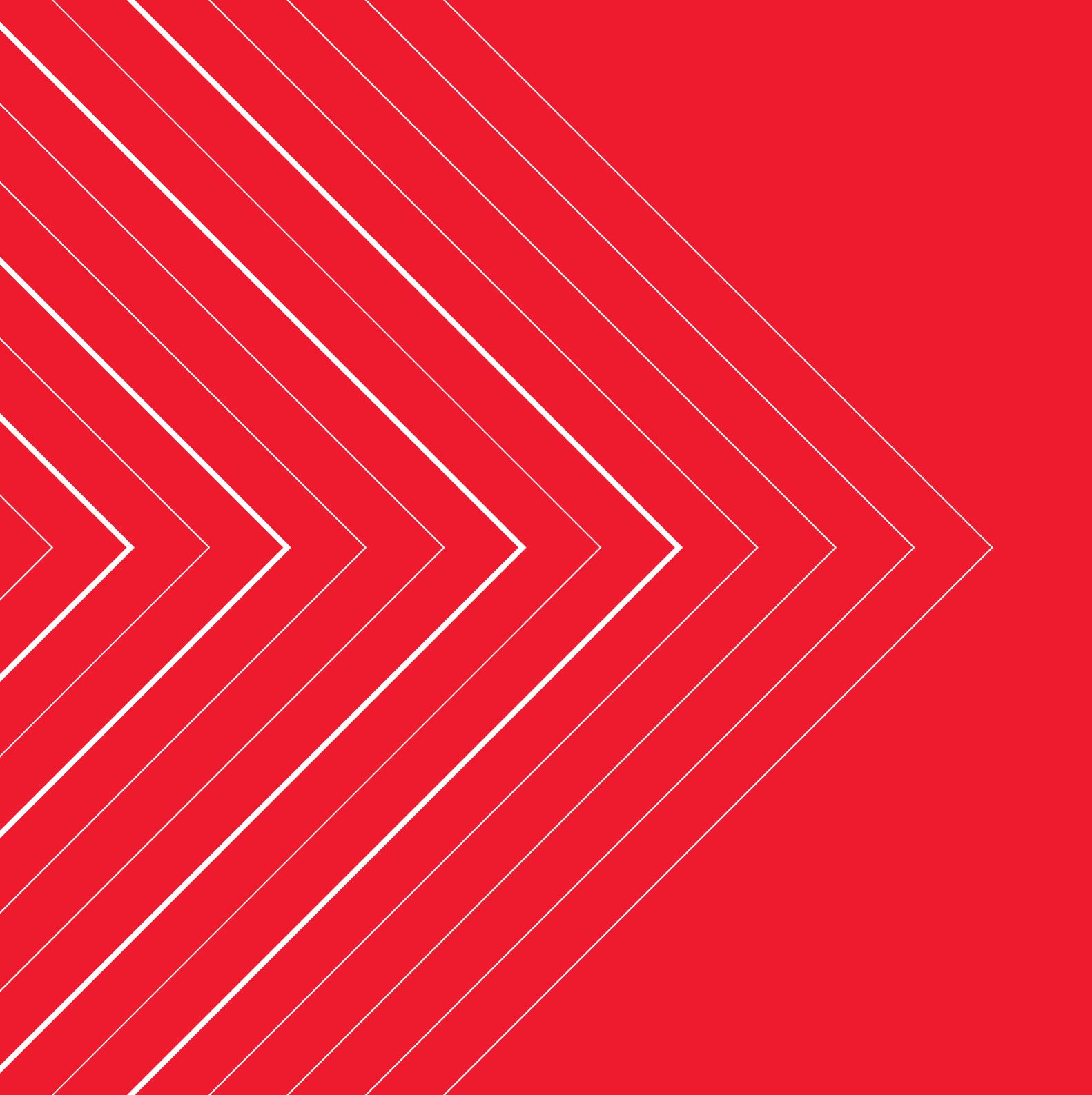


## The three questions – milestone checklist

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

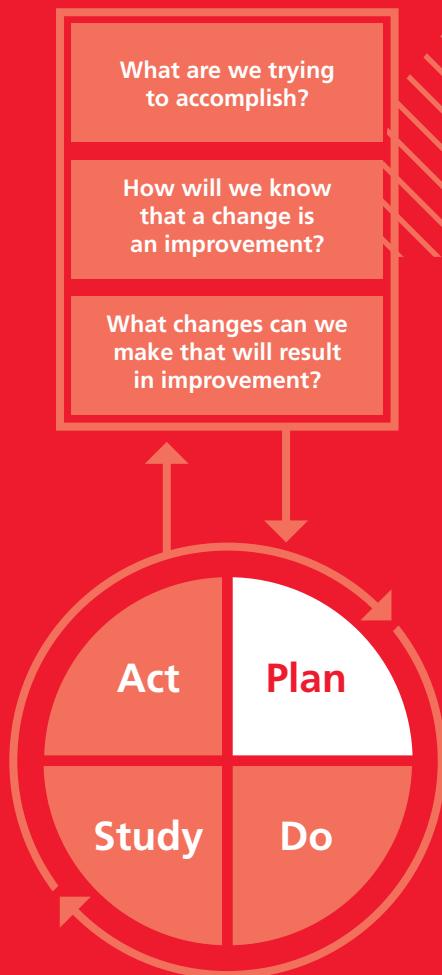
Checklist	Completed?
Read the Patient Turnaround module and watched the DVD	
Agreed and communicated a clear aim for the module	
Held a module measures session	
Have identified module measures in relation to Patient Turnaround	
Thought about and discussed what changes you will make	

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 (PDSA cycles) for implementing the Patient Turnaround module.



## **Ensure strong and visible leadership**

Safe, reliable patient turnaround is essential to the smooth running of the operating list. It links strongly with several of the other process modules in the programme, and therefore requires commitment and support and participation from a cross section of the multidisciplinary team to ensure success. Support from senior leaders will help your team to implement this module, and ensures sustainability.

### **Enablers for a successful Patient Turnaround module**

- You need the support of your senior leaders, executive lead, clinical director or directorate manager. You may need more than one of these roles depending on your organisational structures. For example, your clinical director or lead clinician in anaesthesia will be pivotal in influencing theatre and ward teams to work in tandem with patient preparation and recovery staff. This will improve the reliability of your processes on the day and help to find solutions for the issues that cause errors and delays in the turnaround process.
- The role of clinical champions may be important in devising safe, efficient solutions but also for engaging their colleagues to improve turnaround procedures.
- Ensure that your senior theatre practitioners, coordinators and team leaders understand the impact of delays and errors in patient turnaround on the safety and efficiency of the operating sessions. Are they driving improvement and working with their teams to find 'real time' solutions?

## Create the team

The programme team should understand the importance of involving all groups of staff in implementing the changes tested in PDSA cycles as well as evaluating the results.

You will need to identify a team to take this module forward. This should include a champion(s) who will have the vision and ability to take patient turnaround forward with the support of the programme leader and service improvement expert. This module will involve several disciplines and has important links with the Session Start-up, Patient Preparation, Scheduling and Team-working modules, and may link to work your organisation is doing on The Productive Ward programme.

Consider involving your:

- theatre manager and matron
- anaesthetists and surgeons
- theatre coordinator and team leaders
- theatre and recovery staff
- portering staff
- improvement leader
- data analyst
- relevant stakeholders as appropriate to your own structure.

As this module links so closely with the Patient Preparation, Session Start-up and Handover modules, it is advisable to have at least one member of the team involved in each project team to improve the opportunity for these modules to support each other to achieve their aims.

The team should meet regularly (see Toolkit, tool no.1 Meetings). The meetings will provide you with the opportunity to review your progress, data, any challenges and solutions, and importantly identify and agree your next steps.

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## Communicate, engage and raise awareness

As part of the start-up phase for implementing the Session Start-up module, it is important that the clinical team in the test area understand what session start-up 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 your team are fully informed and ready to go.

- Meetings.
- One-to-one discussions.
- Posters, newsletters and theatre message book.
- Information on your Knowing How You Are Doing board including measures and quotes from staff and patients.
- Email.

### Clinical engagement

Crucial to this module is clinical engagement. We know from visioning sessions and from data gathered during testing that clinicians arriving late into theatre is an issue in many organisations which prevents a prompt session start-up. There are many reasons why this may be the case and it is often beyond their immediate control.

This module provides the tools to understand the many processes involved in the session start-up period and address the issues that prevent clinicians arriving in theatre on time and starting promptly.

In addition to the clinicians in the project team recruit surgical and anaesthetic champions who you can work with to understand what causes the delays and how the issues can be addressed, and also influence their colleagues.

*'Engaging consultant colleagues is probably best done by consultant colleagues. The simple act of sitting down over a coffee and explaining what we are trying to do won over a number of unexpected allies.'*

James Clarke – consultant anaesthetist, Elective Orthopaedic Centre

## Understand your current state

To be able to progress with any improvement, you need to understand what is actually happening during patient turnaround - the 'current state' of the processes that you are working on. This involves examining all aspects of the current situation and gathering information from a variety of sources.

Safe, reliable and efficient patient turnaround relies upon several important elements coming together. These will vary in sequence according to whether an anaesthetic room is used for induction of anaesthesia.

Key steps are:

- completing the preparation of the next patient in a timely fashion
- sending for the next patient so they are ready in the anaesthetic room (if used)
- transferring the previous patient to recovery and handing over their care
- preparing the anaesthetic room
- clearing away the instruments from the previous operation and cleaning the theatre
- setting up the instruments and equipment for the next procedure.

Each of these elements can be broken down into a number of smaller processes and tasks, and must take account of your organisation's policies and procedures (or may seek to revise them). It is important to take all of these into consideration as you develop your understanding of your current state and begin to plan your improvements.



The key to efficient turnaround is to do as much as possible in advance, eg setting up the instruments for the next procedure in a preparation area. Run as many of the critical processes as possible in parallel. For instance, can the operating department practitioner prepare the anaesthetic equipment, drugs etc while the anaesthetist hands over the patient to recovery staff? If you have enough staff could they do this during the previous operation?

It is also important to understand the relationship between these elements so that you can focus your improvements on the areas which will have the biggest impact. For example, the ODP or anaesthetic nurse may always feel under pressure to rush to clear the anaesthetic machine in the theatre before starting the next procedure. Each organisation will have its own individual issues to focus on.

Sometimes organisations may allocate more than one anaesthetist to a list, so some turnaround processes will run concurrently, rather than sequentially so reducing the time taken.

## Gather and review relevant data

As part of the second question, 'How will we know that a change is an improvement?', you will have re-visited the Knowing How We Are Doing module and agreed your measures for Session Start-up. You now need to start gathering and reviewing the relevant data.

Ensure that you:

- gather your baseline data to support the measures that you have identified
- gather information on delays in theatre due to poorly organised patient turnaround
- review all of the data in order to be able to understand your current state
- look at data specifically concerning your patient turnaround performance:
  - are your theatres performing well in this area?
  - do you actually have a problem? If so, is it general or confined to certain areas? Are discrete elements of the process causing the most problems?



*'We looked at our turnaround time data and found they were within the target we set so we didn't feel there would be any benefit to the staff or the patients to spend time in this area.'*

Lisa Elliot – service improvement lead, Central Manchester University Hospitals NHS Foundation Trust

What other data have you collected and what does it show? You may decide at this point to collect additional information.

- If waiting for the next patient is a problem, it will be helpful to collect the reasons for the delays and to prioritise the main areas for improvement – a simple Pareto chart is useful to visually display this data. For examples and for more information on using Pareto charts see [www.institute.nhs.uk/qualitytools](http://www.institute.nhs.uk/qualitytools)
- It may also be helpful to capture data on glitches (issues and problems) that affect start-up so that you can see what the common problems are in specific clinical areas (see Toolkit, tool no.20 Glitch count).
- How do you currently share this information as a team and can this be improved?
- For guidance about how to analyse and present your data see Measures supplement [www.institute.nhs.uk/theatres\\_resources](http://www.institute.nhs.uk/theatres_resources)

At this stage it is important to balance the data you can gather with softer information about how staff are feeling. Use interviews (Toolkit tool no.7) and simple questionnaires. You may also wish to consider emotional mapping, see: [www.institute.nhs.uk/ebd](http://www.institute.nhs.uk/ebd)

## Make sure you have good quality data

Data quality is critical to accurate reporting and this may require a high level of attention within this module. Missing data can significantly affect your recorded start times and run charts.

Make sure all of the members in your team realise the importance of the data that they collect.

It helps to share some anonymous examples of the impact of poor data collection with the team. The quality of start time data can be particularly poor due to the reliance on theatre staff entering information during a busy step in the patient pathway. You may need to work with the team to feedback and raise awareness of the importance of the accuracy of data in reflecting patient turnaround.

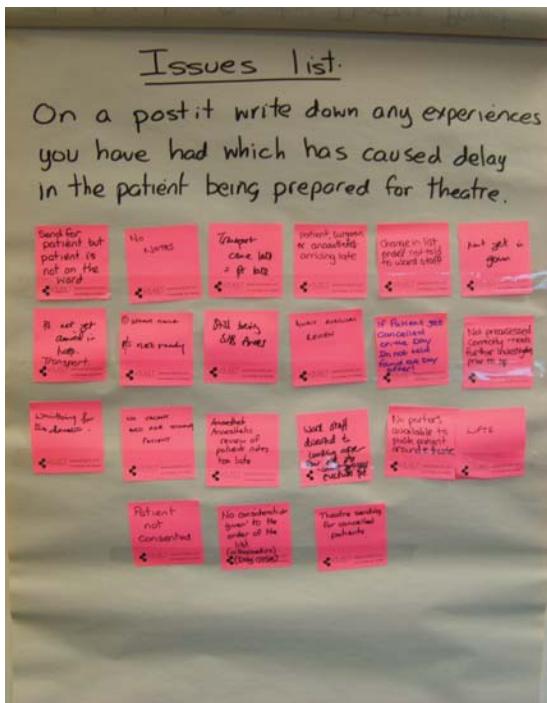


*'We couldn't understand discrepancies between the times we were recording for turnaround and what we saw happening. Then we realised that the clocks in the anaesthetic room and the operating theatre were giving different times, and neither of them was correct! We replaced all the clocks with radio synchronised clocks.'*

Chris Huber – consultant orthopaedic surgeon,  
West Middlesex University Hospital NHS Trust

## Gather feedback from staff and patients

In order to fully understand your current situation you will need to obtain good quality feedback from the full multi-disciplinary team. You can start this through group sessions and one-to-one discussions. Remember to record the feedback. It is not always possible to get busy teams together as a group so you may need to look at alternative ways to gain feedback. You may wish to consider a questionnaire to capture people's issues and perceptions.

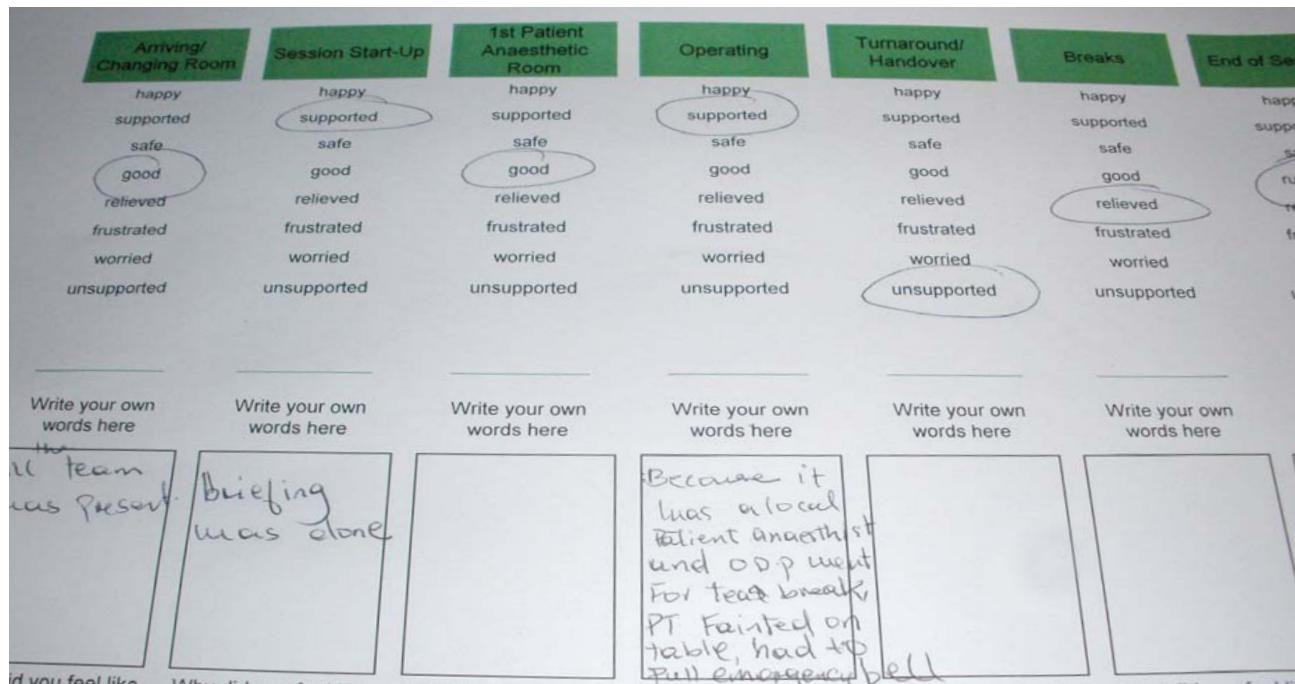


Flip charts are useful as they can be put up in the department and comments can be added by teams who were not able to participate in the session. This can be a good way of gaining the views of a broad group of staff, particularly surgeons and anaesthetists who often find it difficult to get together to attend group sessions. Place the flipchart where everyone has access so they can record their views.

*'On one particular day, I felt unsupported during the patient turnaround period because some of the team weren't available. The local patient collapsed at the end of the procedure and we had to pull the emergency bell for help.'*

**Patsy Cowan – staff nurse, West Middlesex University Hospital NHS Trust**

Here is an example of emotional mapping used at West Middlesex University Hospital NHS Trust and at Royal Devon and Exeter NHS Foundation Trust, capturing qualitative data from staff. The tool was adapted from Experience Based Design. For more detail: [www.institute.nhs.uk/ebd](http://www.institute.nhs.uk/ebd)



*'To capture how the staff felt during different stages throughout the session we adapted the patient emotional mapping tool. It's a good way of getting qualitative data on how your staff are feeling about their work at different times of the day.'*

Claire Bradford – theatre matron, Royal Devon and Exeter NHS Foundation Trust



## Examples of areas to explore with your teams

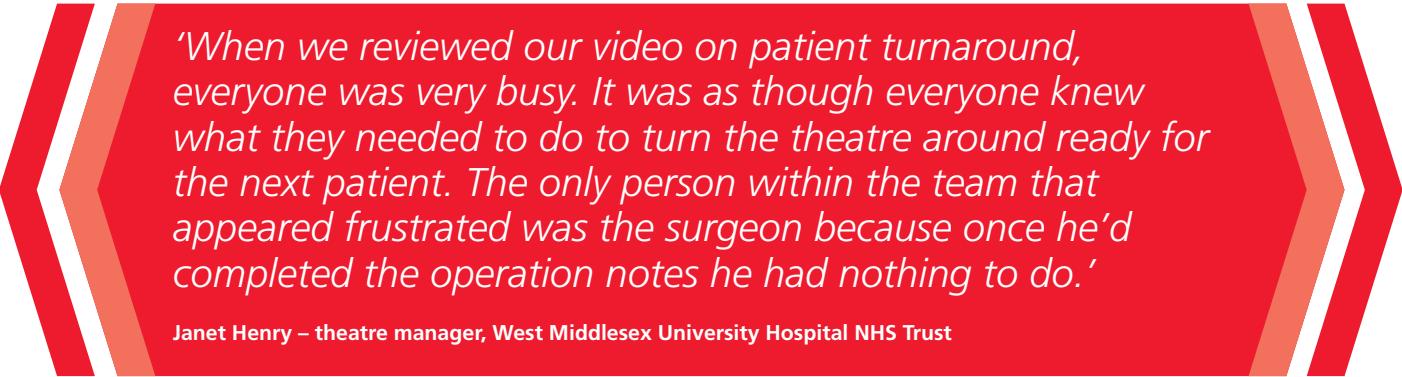
What does patient turnaround actually mean to the team?
What is the general feeling about patient turnaround within your department?
What is your understanding of definitions of patient turnaround times?
What are the processes and tasks that need to be completed during the turnaround period? Which processes are carried out to a defined standard and which are open to individual routine? Who is doing what? List the types of processes and tasks that fall within them.
Discuss as a team the importance of a prompt and efficient start to the session
As a team identify the impact that delays and potential cancellation can have on patients and the rest of the organisation?
From their experience, what issues affect patient turnaround on a day by day basis? List these issues as well as their impact.
Do they feel part of a team that has a shared goal and supports each other to achieve what is required?
How are problems escalated and managed? Are team members active in finding solutions for themselves? For example, if there is no orderly available to collect the patient do they actively find a solution or simply wait for an orderly to become available?
Do teams have any kind of performance data that is currently fed back to them? If so, what are they and what do they do with it?
How do patients feel while waiting in the anaesthetic room? How can we assess this?

## **Record processes and activities through photographs and filming**

It may be helpful to take photographs (Toolkit tool no.8) and film footage (Toolkit tool no.9) of the patient turnaround process – note that you will need written consent if you photograph or film patients and your organisation may require the same for staff. However, experience shows that they will usually give their consent quite readily when they understand that you are trying to improve your processes and procedures. Use the films and photographs to demonstrate variation in practice when you want to implement standard operating procedures.

For example, you may wish to follow each process involved in patient turnaround:

- who sends for the next patient, how and when?
- on arrival to theatre how is the patient checked-in and who stays with the patient?
- how is handover conducted?



*'When we reviewed our video on patient turnaround, everyone was very busy. It was as though everyone knew what they needed to do to turn the theatre around ready for the next patient. The only person within the team that appeared frustrated was the surgeon because once he'd completed the operation notes he had nothing to do.'*

**Janet Henry – theatre manager, West Middlesex University Hospital NHS Trust**

Review the photographs and films with your team; ask them to highlight key tasks and responsibilities that are crucial to a safe and reliable patient turnaround. What is the most logical way to accomplish the various tasks? Do you see unnecessary duplication?

Also ask them to note any issues, delays or opportunities to reduce waste that they can identify. A video waste walk can also help you here, see Toolkit tool no. 6.

## Identify waste

- Map the high level processes occurring in patient turnaround.
- Look out for duplication of work.
- Walk through elements of the process with a patient in order to see it from their perspective.
- Sit in the theatre and watch what is happening during patient turnaround. Where is the anaesthetist, the ODP, team leader, surgeon?
- Talk to staff and understand their point of view all along the process.
- Use your insights to plan for a formal process mapping exercise.

### 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, travel, walking and searching. Things not within reach, things that are not easily accessible
- 3. Overproduction** – producing more than is needed or earlier than needed by the next process
- 4. Transportation** – moving materials unnecessarily
- 5. Waiting** – staff unable to do their work because they are waiting for something such as people, equipment or information
- 6. Inventory** – too much stock, work in progress or patients waiting in a queue
- 7. Over-processing** – performing unnecessary steps that do not add value



## Understand how long individual activities take

Understand how long each process and task takes - do this by using the Toolkit, tool no. 16 timing processes:

- capture the same process with different people performing it
- compare the times to understand variation in practice and time taken
- bear in mind that the time for a process may vary based on the speciality, the case mix or the number of patients on the list.

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

Review the activity follows and see how much 'waste' can be identified eg, how many interruptions are there, or how much time was required to search for equipment such as lithotomy leg-rests, scalpel blades, sutures, etc? Can these elements be reduced?

Analyse your process timings:

- what is your anaesthetist's average time between exit of theatre and returning to the anaesthetic room?
- identify a target turnaround time, how often do you achieve it?
- how long does it take the porter to bring a patient to theatre?
- how long does it take the ODP/anaesthetic nurse to prepare the equipment for the anaesthetist?
- how long does it take to clear the surgical instruments away and make the theatre ready for the next procedure?

Turnaround Examples (Knowing how well we are doing)						
A Theatre	B Entry to Rec	C Time pat sent for	D Time pt arrived	E Start of anes	F T/A Time	(8min) Good No Good
8	12.15	11.55	12.15 (syon)	12.20	5	✓
8	11.30	11.15	11.35 (syon)	11.40	10	X
8	15.05	14.38	14.45 (syon)	14.55	-10	✓

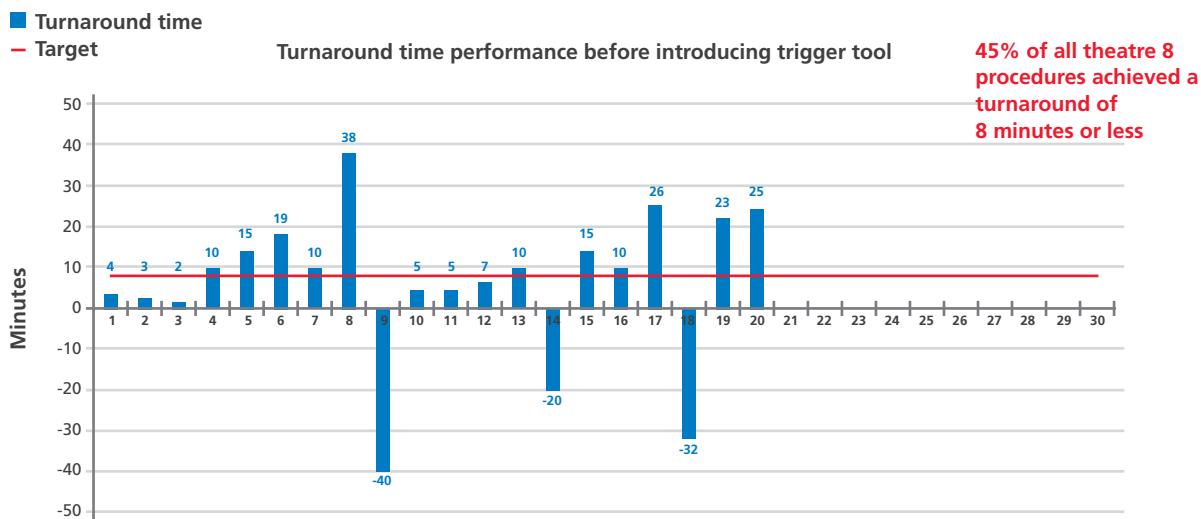
Patient transfer time:

1. 20 mins
2. 20 mins
3. 7 mins

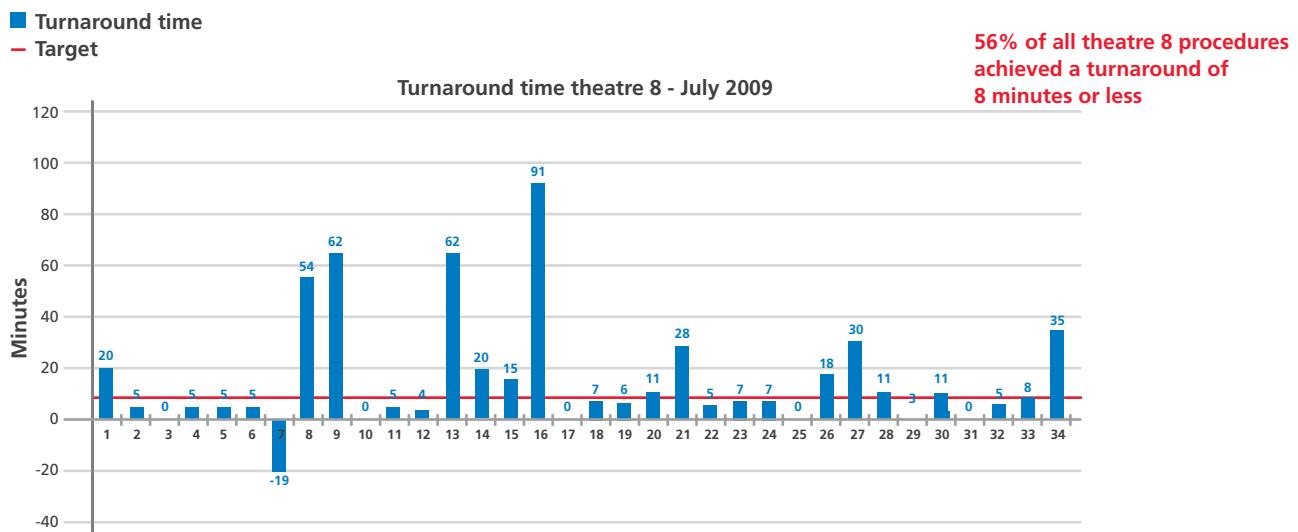
Turnaround time :

1. 5 mins
2. 10 mins
3. -10 mins  
(Second anaesthetist present)

Convert the data you have collected for your current turnaround procedures into results that can be displayed on graphs and display this information on your Knowing How We Are Doing board.



Note that in this example, where the anaesthetic on the next patient starts before the previous operation has been completed, turnaround time is shown as negative.



## Gather information about issues, problems and reasons for delay

With your team identify recurring issues, problems or delays that prevent them from doing their job efficiently and effectively. This will provide you with a base line and help you identify the priorities for improvements. This can be re-audited after changes have been implemented to allow you to demonstrate any improvement.

- Collect glitches (issues that cause delays and problems) for a period of time, initially over one month. Collect them on a daily basis through your team debrief. You can present this information in a Pareto chart to identify the most common causes. See the Toolkit, tool no. 20 Glitch count. For more information on using Pareto charts see [www.institute.nhs.uk/qualitytools](http://www.institute.nhs.uk/qualitytools)
- Collect reasons for late starts.
- Review incident data to see if there are any issues arising during patient turnaround.

### Pareto chart

A simple but effective way to demonstrate the reasons for delays. This allows the team to focus on the key issues by examining the root causes for the most significant problems.

For information on using Pareto charts see [www.institute.nhs.uk/qualitytools](http://www.institute.nhs.uk/qualitytools)

*'When reviewing theatre utilisation the patient turnaround times need to be considered in a different way than time lost due to late starts or early finishes. This is because there are clinically important activities within this process. You need to work in partnership with clinicians in deciding what can be changed.'*

Lisa Elliott – service improvement lead, Central Manchester University Hospitals NHS Foundation Trust

# Map your current state

## Pulling together your data to create your current state

You will now need to review all of the information, data and feedback you have gathered during the prepare phase in order to get a clear understanding of how your current turnaround process works.

Gathering all of the data and information that you have collected together so far, will provide you with a well rounded view of your current patient turnaround process. By analysing all this information together you, as a team, will begin to identify:

- areas of good practice and successes that can be shared and spread throughout your service
- issues and barriers that are preventing your team from consistently achieving good patient preparation
- initial ideas for changes that could result in an improvement.

Putting effort into gathering information at this point will result in a richer perspective on the challenges for all the individuals involved in this complex process. This will provide you with the information you and your team need to start creating your desired future state. Do not forget to review the glitches relating to patient turnaround that have been recorded at the briefing and checklist stages in theatre.

If large gaps during the operating session are attributed to poor patient turnaround, it may be an idea to discover if this is particular to only a specific ward or anaesthetic practice.

Make sure your findings have been quality checked and displayed with the 3-second rule.

***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
- invite key stakeholders to participate and offer feedback
- allow sufficient time to make good progress - two to four hours
- display the information where the team can see it, and understand the current state
- use a facilitator who 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.

As described earlier there are several elements that come together in patient turnaround. Many of these occur in parallel:

- sending for the next patient
- preparing the anaesthetic room and equipment
- 'sign-in' for the next patient
- taking the previous patient to recovery and handing over
- clearing the theatre and setting-up for the instruments for the next patient
- starting the anaesthetic.

It may be useful to map out these processes, using process mapping, Toolkit tool no. 11, in parallel to understand the timelines and any key timings that run across these processes. It is important to include all the results of the analysis, timings and issues on your map.

### **Get your teams together**

Process map your current state with all stakeholders.



To map your current state:

- get everybody involved in session start-up together
- if this is not possible hold a number of small group sessions for each of the different processes
- include representatives from the relevant areas involved in each process.

List all the issues, risks and all the positive things that you want to keep from your current state on a flipchart. Try to build agreement on a possible future state map whilst everyone is present.

*'There are two activities going on at the same time in the orthopaedic theatre. Half of the team was clearing the theatre from the last operation whilst the other half was getting the sets ready for the next operation.'*

Kiran Sethi – senior staff nurse orthopaedics, West Middlesex University Hospital NHS Trust

# Turnaround Theatre 8

Surgeon

Writing OP notes

Pop out to see other Patients

Coffee

?

Images for next case

Teaching last/next case

Anaesthetist

Escort last Patient to Recovery

Handover to Recovery Staff

Addressing Post-op Complication w.i.

Wash hands

Return to Anaesthetic Room

ASK where the patient IS?

Check Trauma list Pm find Ultra Sound Machine

The next Patient is in the Anaesthetic Room

End of Turnaround

CDP Anaesthetic Nurse

Escort Patient to Recovery with Gloves

Still with gloves on Return to theatre TO Clear & Clean for next Pt.

Wash hands

Prepare Table 4 next case

Wash again

Prepare Drugs for next Patient If time Coffee

Patient has not arrived Registration lesson/ Staff delay

Handover from Ward Nurse!! Patient has arrived OR collect Patient from D.S.I (use the 100 locker keys)

End of Turnaround

Scrub Nurse First

Clear Sets Remove Sharps

Wash Hands

Handover to Recovery Staff

Help clear

Re-Set Theatres

Coffee

2nd Scrub Nurse

Help Clear depending on Case

Wash hands check Sets scrubs

Waits

End of Turnaround

Circulator

Help clear

Wash Hands

Open trays

Assist Scrub Nurse

\*3 team-member turning the theatre around

HCA

Help Clear

Wash floor

Re-Set Theatres

Wash hands

## Review ideas that have worked elsewhere

Throughout this module you will work to develop your own ideas to achieving safe, efficient turnarounds between patients. The solutions you adopt will be specific to your teams and your organisation, but reviewing examples of what has worked well elsewhere will help prompt ideas about what could work in your organisation.

### Example 1: West Middlesex University Hospital NHS Trust

At West Middlesex Hospital we looked at the turnaround time in the orthopaedic theatre. There were a lot of gaps between procedures leading to list over-runs and frustrated staff. Despite phone calls to the ward before sending for patients, the theatre porter was still being asked to wait while the ward staff continued to get the patient ready for surgery.

In the planning stage it was decided to select one session per week, working with an orthopaedic surgeon champion. The turnaround workshop included:

- orthopaedic surgeon
- surgical ward charge nurse
- theatre matron
- consultant anaesthetist
- theatre porter
- central admissions representative
- pre-assessment representative
- facilitator.

Firstly, we reviewed our aims for the module. The current state was process-mapped, highlighting what each member of the team was doing before, during and after the turnaround process.

We agreed to select a standard time to send for the next patient. This time needed to be specific for this theatre and speciality (orthopaedic). It needed to take into account how long it took to get the patient from the ward to the anaesthetic room. A Standard Operating Procedure was drafted by those in the workshop and was tested.

The main components of the new procedure were:

- an agreed member of staff sends for the next patient at an agreed ‘trigger point’. We decided our trigger was the first swab count at the start of wound closure
- once the patient leaves theatre for recovery, the operating department practitioner goes straight back to prepare the anaesthetic equipment.

The new process was filmed so that staff could review it at a later date.

## The patient story

This was the first patient on the operating list. The time when anaesthetic activity commences is recorded as the start time.



On this day there were two anaesthetists, a consultant and a specialist registrar, so induction of the first patient was quick. The patient was soon in the theatre having surgery.



As the patient comes towards the end of the surgery, the ‘trigger’ is instigated and the next patient is sent for.



Theatre staff phone the ward to alert them the next patient is being sent for shortly.



The ward check is carried out with the operating department practitioner; ward nurse (DSU) and the patient.



The operating department practitioner takes the time to reassure the patient.



Meanwhile, the second anaesthetist prepares drugs for the next patient.



Here the anaesthetist and the porter have transferred the patient to recovery which is close to the theatre.



The ODP/anaesthetic nurse is now free to return to the theatre to clear the anaesthetic machine.



The anaesthetist prepares to anaesthetise the next patient.

The trial period spent introducing the trigger tool in order to improve turnaround was successful as the staff felt they were all included in the decision to send for the next patient and that everyone was now aware of each others' roles and the complexities of them.

*'Our work on turnaround has had a huge impact on the efficiency of the theatre department. After showing staff the issues that hold up the work, this highlighted how quite small changes in the running of the theatre can have a much greater impact, than trying to introduce a completely new way of working. I would say it works because all staff were involved and they contributed ideas on how we could improve turnaround time.'*

Lisa Clarke – orthopaedic theatre sister, West Middlesex University Hospital NHS Trust

## Example 2: Central Manchester University Hospitals NHS Foundation Trust

When we decided to review our Patient Turnaround process, we began by agreeing our aim.

Initially we found out what definitions and targets were being used by our Trust board. Then we worked with surgeons and anaesthetists to agree the final definition. As a result everyone was clear about the standard we expected.

We then started to collate the data from our theatre management system. It became clear that the weekly average time taken for patient turnaround was generally within the agreed target of 15 minutes, however not all patient turnarounds achieved this.

In order to understand our process several patient turnarounds during one of the theatre sessions, were videoed. This allowed us to see where potential glitches may occur. We then recorded the glitches for any turnarounds that were greater than 15 minutes.

We discovered that the long turnarounds were usually as a result of clinical need such as patients that had undergone spinal anaesthetics or invasive monitoring. The review of the video also showed us that there was a smooth process in place.

Despite having no apparent problem to resolve, we set two improvement targets:

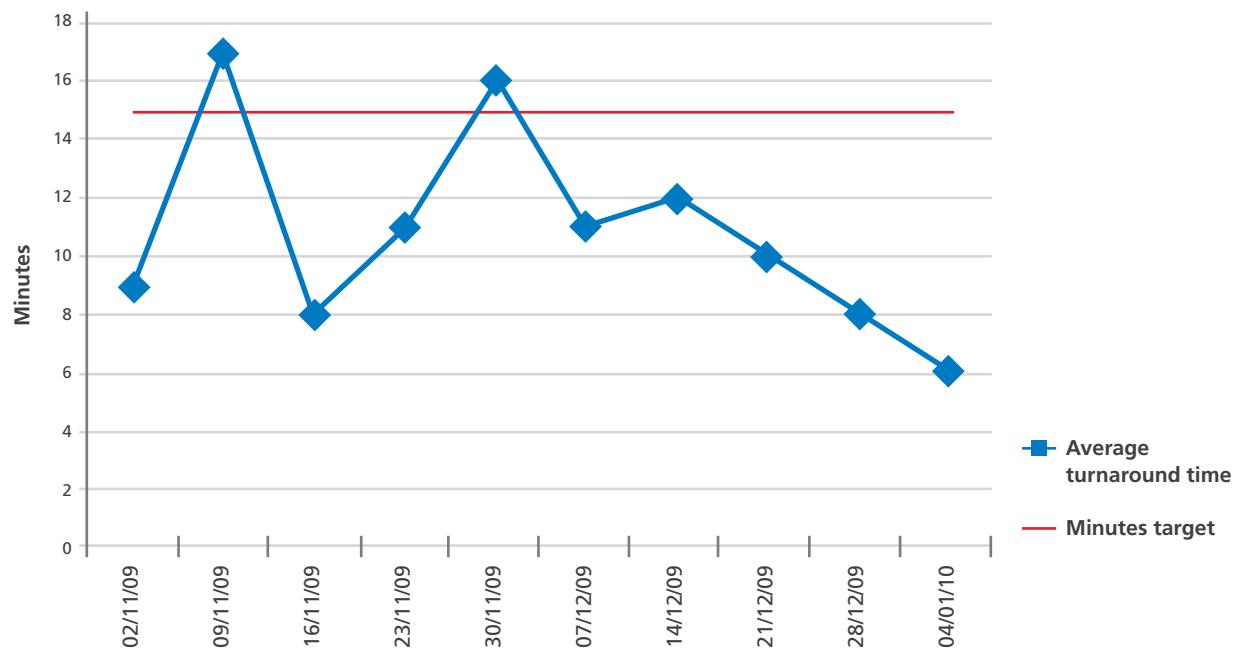
1. for the weekly average turnaround time to be less than 15 minutes
2. for the % of turnarounds that achieve this to increase by 10% within 20 weeks

By displaying the data on the knowing how we are doing board, and by engaging the surgeons and anaesthetists in the programme, we achieved multiple small improvements that combined to achieve our goal.

*'Patient turnarounds can be improved by better communication at team brief and with good handover processes.'*

Julie Brough – clinical link facilitator, Central Manchester University Hospitals NHS Foundation Trust

Aim to ensure average turnaround time (in theatre 41 and 42) is always less than 15 minutes



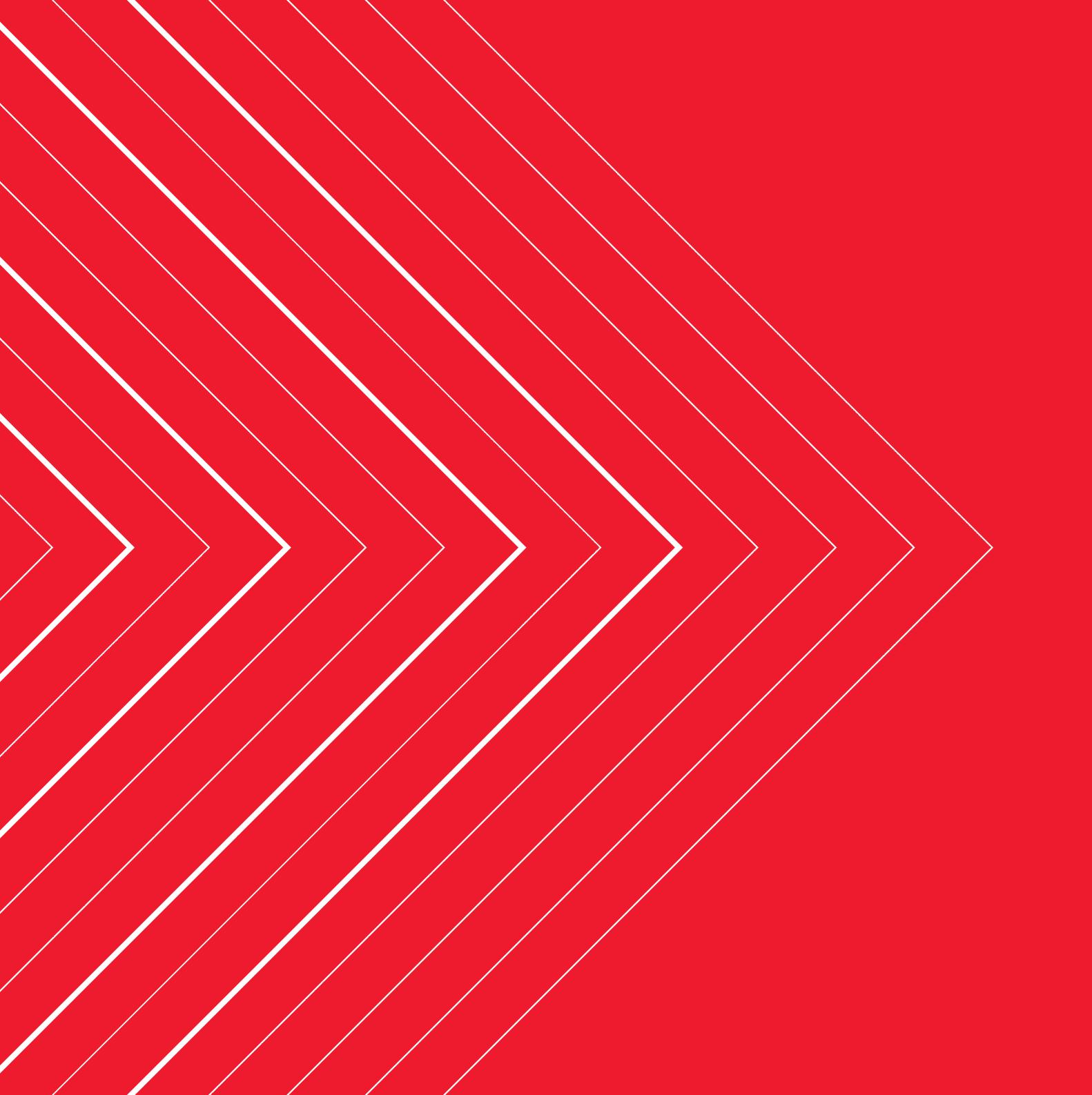


## Plan – milestone checklist

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	
Made sure you have good quality data	
Gained feedback from the team	
Recorded processes using photos and videos	
Understood how long individual activities take during turnaround	
Gathered information about issues and problems	
Mapped your current state	
Reviewed examples of what has worked well 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

Through your data collection you will have a good understanding of your current situation and the issues that are causing problems.

Now it's time to think about exactly what you want to change and how to make the improvements happen.

Remember that implementation works best when staff are involved and are encouraged to develop their own solutions. This will result in a shared goal that engages all members of your team.

### Review your module aims

This is a good point to review your initial module aims to make sure you remain focused on what you are trying to achieve.

After understanding your current state you may wish to revise some of your aims. If you do revise your aims make sure you remember to communicate the new aims with your wider team.

*'Sometimes you need to look at your turnaround when there are issues, such as the next patient being pushed into the theatre before the staff have had time to clear the area from the last patient. This can be very frustrating for the staff that feel rushed and not listened to. In the past, this has led to poor communication, lack of consideration of infection control, and could lead to a clinical incident.'*

Ninda Sra – theatre co-ordinator, West Middlesex University Hospital NHS Trust

## Map the future state

Effective group facilitation is key to the success of this session. You will need a facilitator who is experienced in process mapping, has the skills to guide the team through the session and is able to challenge and draw out the best ideas from everyone in the team.

For more guidance 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)

To map your future state:

- get everybody involved in patient turnaround together
  - if this is not possible hold a number of small group sessions
- invite representatives from the relevant areas involved, eg recovery, porters
- give plenty of notice to ensure as many people can attend as possible
- send a detailed agenda so the team understand what they have been invited to and why their participation is important.

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.

Discuss how your team might work more effectively together to complete all of the tasks needed to get the theatre turned around quickly and efficiently.

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 fewer 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)

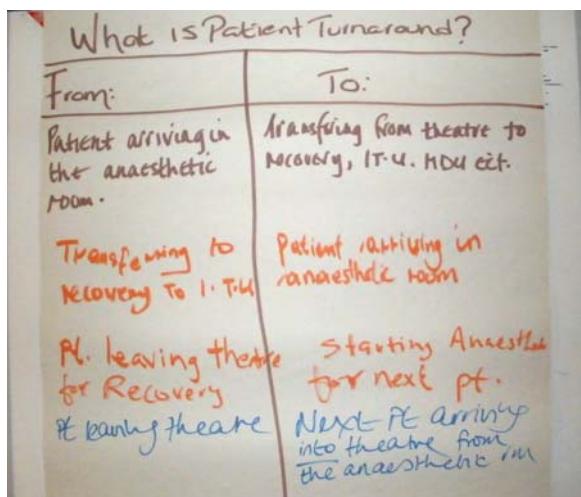


***Tip:*** *The support and active involvement of clinicians is crucial, but busy surgeons and anaesthetists may be reluctant to engage with improvement work unless they understand what the potential advantages are.*

## Agree and raise awareness of your definition of patient turnaround

All members of your team need to be clear about exactly what your definition of patient turnaround is. This will vary between organisations and as many staff move between organisations during their careers, confusion can be more common than expected. Setting a standard definition will also help to set expectations of the team for a more effective turnaround.

Once agreed, communicate the definitions widely across all of your teams.



### Example:

Check with your wider team what their definition of patient turnaround is. Different team members will have different variations so it is important that you get as wide a view as possible. Strategically place a flip chart asking the question to get an overview from your teams.

*'At West Middlesex University Hospital NHS Trust we agreed that our definition of turnaround is from when the patient leaves the theatre to be transferred to recovery, until the moment the anaesthetist starts on the next patient.'*

Hugh Rogers – consultant urologist, West Middlesex University Hospital NHS Trust

## Creating a Standard Operating Procedure (SOP)

This is a simple exercise that clearly communicates the new way of working. It has the added benefit of helping to set the standard for new, agency or bank staff.

An example is featured below.

Action	Why	When	Who
① At trigger point (Point of closure) Agree call for next patient	Next patient arrives in the anaesthetic room at the correct time	At defined trigger point Th 8 orthopaedics point of closure	Lead Nurse
② Swab counts + instrument checks	Standard theatre procedure	Point of closure	Scrub/ Circulating
③ Remove instruments	Clear for next case	After count	Circulating
④ Patient leaves theatre	Transfer to recovery	End of case	Anaesthetist + Scrub
⑤ Meet Prep next patient in anaesthetic room	Minimise any delay when anaesthetist arrives from recovery	After 1st patient left for recovery	ODP/ Anaesthetic Nurse
⑥ Theatre prepared for next case	— II —	During change over of patient	All Theatre Staff
⑦ Anaesthetic start	Start of next case	When anaesthetist returns from rec	Anaesthetist

Standard Operating Procedure drafted in the Patient Turnaround workshop

## West Middlesex University Hospital NHS Trust Standard Operating Procedure for Patient Turnaround

Task	Action	When	Who
1. Prepare anaesthetic room for next procedure	Set up anaesthetic room, identify drugs and consumables required for next procedure	After knife to skin of previous procedure and anaesthetist agrees safe to leave	ODP
2. Prepare instruments for next procedure	In prep-room set up instrument trays for next procedure	During previous procedure	Theatre team
3. Call for next patient	Phone the ward and send porter for next patient	Pre-determined trigger point agreed by team, eg first count of instruments at wound closure	Lead nurse or deputy
4. Swab counts instrument checks sign-out	Standard theatre procedure	End of procedure	Scrub nurse
5. Prepare theatre for next procedure	Remove instrument trays and clean theatre	End of procedure	Theatre team
6. Transfer patient to recovery	Handover to recovery ODP/anaesthetic nurse returns to the theatre to clear theatre anaesthetic machine	End of procedure	Anaesthetist and porter
7. Prepare patient for next procedure	Minimise delays whilst anaesthetic is handing over previous patient	End of procedure	ODP/anaesthetic nurse
8. Anaesthetic starts on next patient	Start task 1 again		

## Reframing issues into enablers

Review the issues and barriers that are preventing you from achieving the aims of the module. Don't forget to include the outputs from your original visioning session where you raised issues as well as your vision for a perfect list.

A simple group exercise can 'reframe' negative feedback around difficulties in achieving effective patient turnaround into positive statements, based on themes that can become enablers for improvement.

This exercise also helps to clarify some of the issues that may fall outside the scope of this particular module, or even the programme.

### Example: re-framing your issues into key enablers for improvement

Issues and barriers	Enablers
>>>>>>>>>>>>>>>>>>>>>>>>>>>>	
Lack of enthusiasm from theatre staff to get involved with ward issues	A team that has a common purpose to achieve a safe and reliable process of getting the patient to theatres in a timely fashion, in order to prevent delays between procedure which could lead to late finishes and patient cancellation
Often the patient is not ready on the ward when the porter arrives	Mechanisms should be put in place in order to work with the ward, eg communicating with the ward if there has been an unavoidable change in the order of the list
No agreement on who and when the next patient should be sent for	Introduce a standard operating procedure for who sends for the next patient and when
Lack of clinician engagement	Surgeons and anaesthetists invited to share their views with the working group and their ideas included in the future state
Poor team-work	Collaborative multidisciplinary team working to focus on solutions and has 'can do' attitude
Lack of effective communication between departments	Improve interdepartmental communications Completed documentation with auditing process
Poor coordination and management drive	A proactive and responsive team leader with a cohesive team with a patient-centred vision

## Agree and prioritise potential solutions

Your teams will have identified many issues and potential solutions. It will be necessary to prioritise which of these you should address and in what order.

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

Some of the issues and barriers identified may be beyond the scope of the module or the influence of theatres. However, these issues still need to be taken forward to the appropriate area within your organisation, with a clear indication of the impact that the issue is having on your patients, or your theatre service.

Where possible provide the person who will be taking this forward with clear evidence of the problem, backed up with some data, such as turnaround times from the electronic theatre system.

- Issues can be taken forward by the programme leader. There may be occasions where this needs to be escalated to the executive leader or steering group 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 such as Patient Preparation, Session Start-up, Team-working, Well Organised Theatre and Handover. 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. This is an excellent opportunity to build a collaborative working relationship with an other Productive programme.



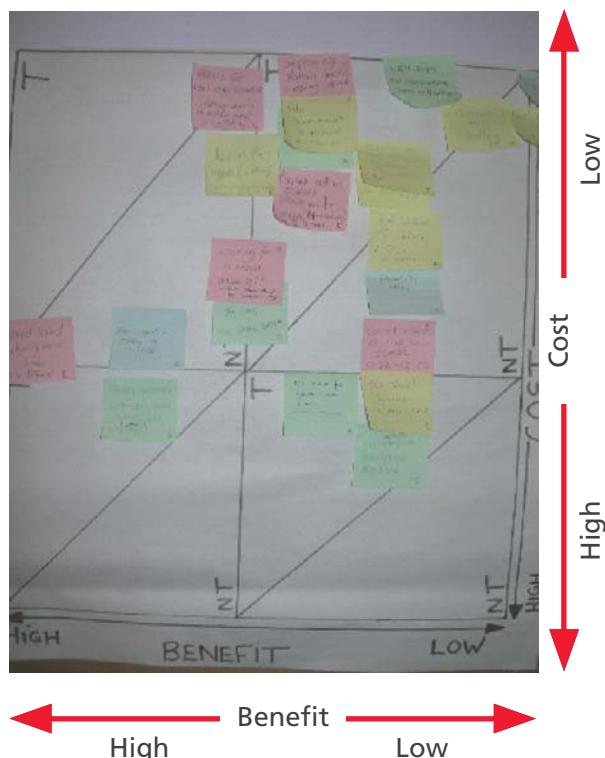
***Tip:*** *In this phase you are not implementing a complete new process, but rather testing out individual ideas and actions. Some actions will be implemented quite easily but others will take longer to achieve. Do not be disappointed if your first efforts are not successful, it often takes several iterations to get a new element to work well.*

## Carry out a Cost / benefit analysis

Depending on the number of ideas which have been identified and are within the scope of this module, you may need to prioritise the ideas as well as the timing of testing.

To do this, carry out a cost / benefit analysis (see Toolkit tool no.12). This can help you to identify which ideas to implement and in what order, based on the cost it will take to implement and the potential benefit that may be gained. Low cost solutions with a high benefit provide a 'quick win', this is good to capture your staff's attention and generate enthusiasm.

### 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 put to the bottom of the priority list for implementation.

## Create an implementation plan

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

For the Module action planner sheet see [www.institute.nhs.uk/theatres\\_resources](http://www.institute.nhs.uk/theatres_resources)

<b>Module Action Planner Sheet</b> <b>Patient Journey inc- start-up &amp; turnaround</b>						
Status Key	= Understood	= Underway	= Complete	= Sustained		
No	Action	Who	When	Progress	Initial	
<b>1. Management issues at 8am impacting on start times – sickness for example</b>						
a.	Co-ordinator need to be supernumery – ideally should be Band 7 but can also be a Band 6 practitioner	Angela & Claudette				
b.	Co-ordinator roster needs developing to spread the co-ordinator role over all specialities of staff	Angela & Claudette				
c.	Need clear roles & responsibilities for the co-ordinator role	Angela & Claudette				
d.	Specified team leader for the day in each theatre to run the list – needs development	Angela & Claudette				
e.	Clarity is needed for the Band 7 role	Angela & Claudette				
<b>2. Equipment issues including missing or non-functioning equipment, stock location &amp; levels</b>						
a.	Most of the identified issues should be resolved following the full introduction of WOT	Lynda, Mick & Bridie				
b.	? Develop a checklist of general duties to include signing for work completed	Lynda & Bridie				
c.	Stock lists for each area in order to ensure items are available	Lynda, Mick & Bridie				
d.	Development of a 'Where are they board?'	Lynda, Mick & Bridie				
e.	Need to understand and develop a tool to document when items/equipment are sent for repair (by whom, when where etc)	Lynda, Mick & Bridie				
f.	Process of instrument preparation needs mapping and issues resolved					
<b>3. Issues around the OR MIS computer and the current poor uptake in entering data</b>						
a.	Ensure computers are shut down correctly at the end of each day	Jane				
b.	All staff to have functioning access card & required training – if staff haven't got this then see Jane	Jane				
c.	Ensure authorisation rights are transferred to Jane	Jane				
d.	Auditing of OR MIS Usage	Julie & Sharron				
e.	Communicate to all night/07:30 starting staff a change in practice – ALL computers to be turned on at 07:30 to allow them to warm up before required at 8am	Jane				

## 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 your team and organisation are happy to scale-up your solutions to all theatres.

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 have identified 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 your data
- staff are encouraged to comment and make suggestions about the changes
- you plan to identify and help solve any problems that may occur during implementation
- you set a specific date to start
- you set a defined study period – this 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.

## Monitor progress

During the Plan stage you collected a considerable amount of information to help you understand the current processes in patient turnaround. You will be able to use this as a baseline against which you can measure your progress.

Throughout your defined test period continue to collect and review your data as described in Knowing How We Are Doing.

- Monitor initial data for signs of improvement – share any evidence with the team to encourage them to persevere.
- Gather feedback from the team whilst you are testing the potential solution – how are things going and are there any problems?
- Encourage suggestions – the team 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 so 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 your organisation's newsletters.
- Review your implementation plan to make sure all actions are on track.

It is likely that you will have to revisit some of your measures as you begin to collect, analyse and review your information and perhaps modify your measures, or the way you measure to make sure that you are getting the information you need in a timely and manageable way. Consider the following questions:

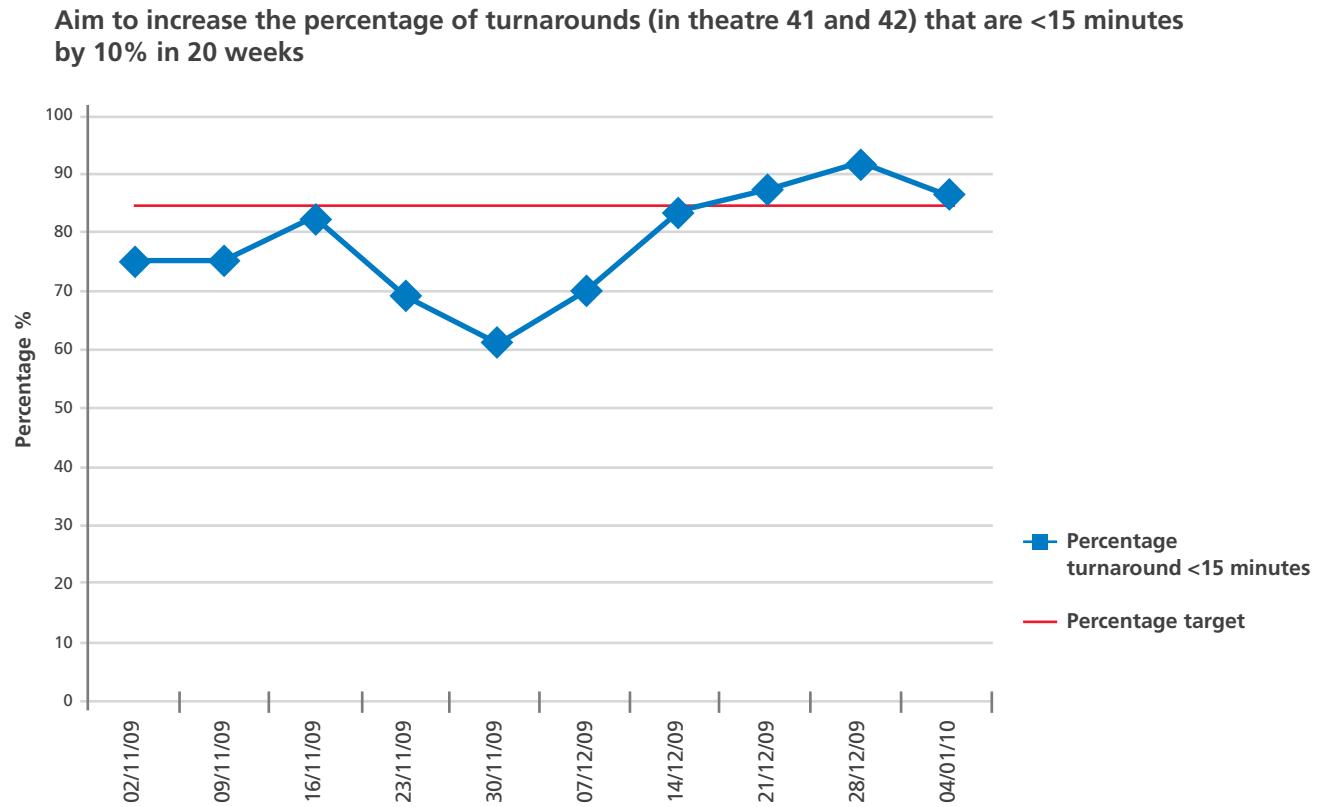
- is the data easy to collect?
- are the measures providing you with useful information?
- can the teams understand how the data is presented?
- is there other information you could collect?

### 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 percentage of lists in which turnaround is less than 15 minutes.



## 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 to reduce turnaround times to 8 minutes or less
<b>Do the results indicate we are achieving those outcomes?</b>	eg percentage of turnarounds that reach the standard
<b>Are we confident we have made the correct conclusion?</b>	eg if turnarounds exceed the standard time, do we know the real reasons why?
<b>Do the results indicate that we should be doing something else?</b>	eg if the turnarounds are consistently delayed by the same issue focus on that issue in your next round of improvement cycles
<b>Are the measures useful?</b>	eg you may also need to ask whether we have measured enough examples to draw conclusions
<b>Would some other measures tell us more?</b>	eg time a particular element of the turnaround procedure

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 clinical engagement
- open and clear communication about the changes and the impact they are having (positive and negative)
- time to dedicate to the module and attend the progress meetings.

### Managing the challenges of implementation

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

- resistance to the change
- lack of commitment to the future state.

If you come across any issues share them with your programme leader or service improvement leader, who will be able to work with you to find strategies to overcome them.

For resources that may be of use to you visit [www.institute.nhs.uk/qualitytools](http://www.institute.nhs.uk/qualitytools) and see the tools:

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

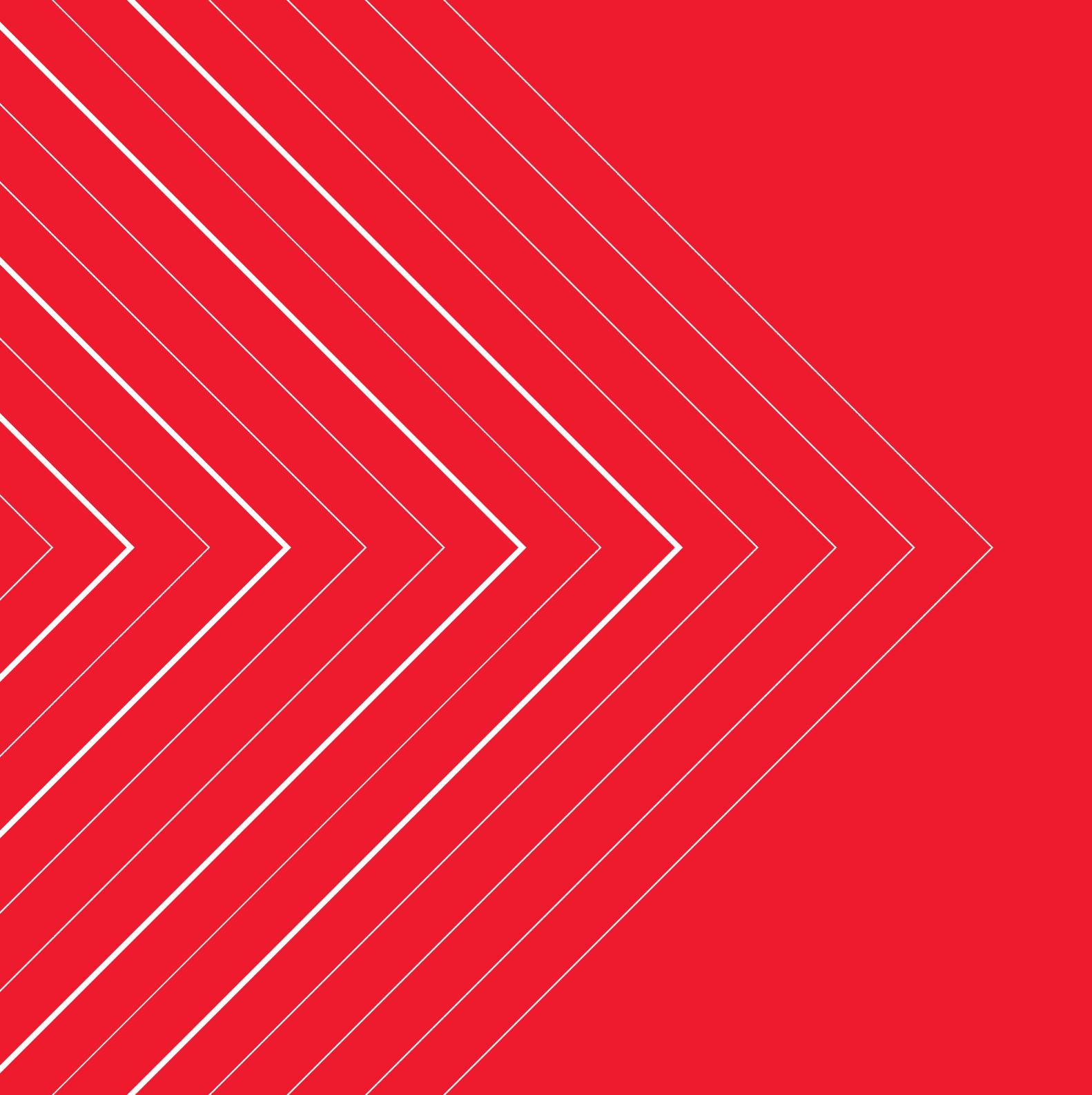


## Do – milestone checklist

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

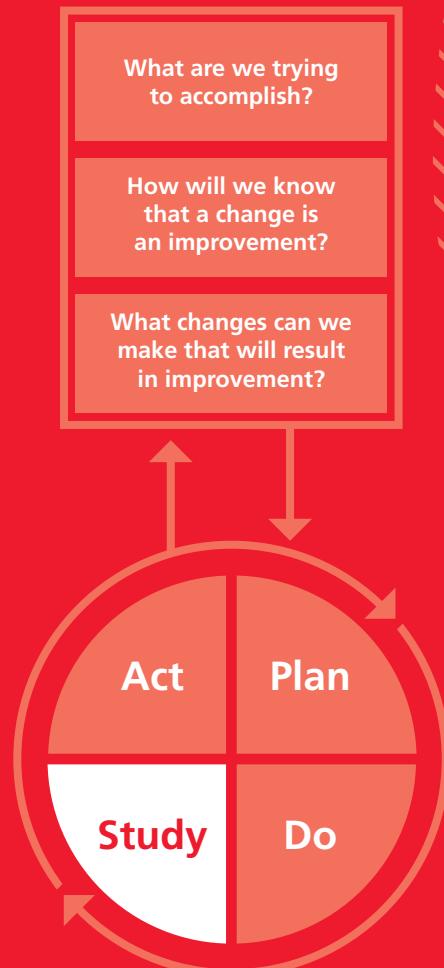
Checklist	Completed?
Mapped your future state	
Reviewed your module aims	
Agreed and raised awareness of key definitions	
Agreed and prioritised potential solutions	
Carried out a cost / benefit analysis	
Created an implementation plan	
Tested the changes	
Monitored the progress of the change	
Supported the team in their new way of working	

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 stage, your team will reflect on how successful the changes they implemented have been. This will occur after the original test period has been completed.

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 test phase you will have been reviewing your changes regularly with your team at progress review meetings. The Study phase marks the completion of your defined test of change, it is at this point you will need to review the impact of the change through gathering the relevant information.

## Collect feedback from your teams

What impact have the changes had on the staff groups involved – theatre teams, surgeons, anaesthetists, porters, ward staff and managers?

- Are the changes having a positive or negative impact on them? Pay particular attention to any negative feedback
- Do they have suggestions on how the process can be improved further?
- Collect stories and examples to provide the **qualitative** perspective of the change.

There are many ways to collect qualitative feedback from your teams 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)

## Collect data

As you have tested your changes you should have continued to collect, analyse and reviewed your key measures, to show the impact they have had from a **quantitative** perspective.

Assess the impact the changes have had on your key measures, for example:

- has there been an improvement in start time?
  - overall, by theatre, by session
- has there been a reduction in over-runs?
- has there been a reduction in glitches?

For more information on how to analyse and interpret your data see Measures Supplement

[www.institute.nhs.uk/theatres\\_resources](http://www.institute.nhs.uk/theatres_resources)

## 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 your 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. Ensure all staff are informed.



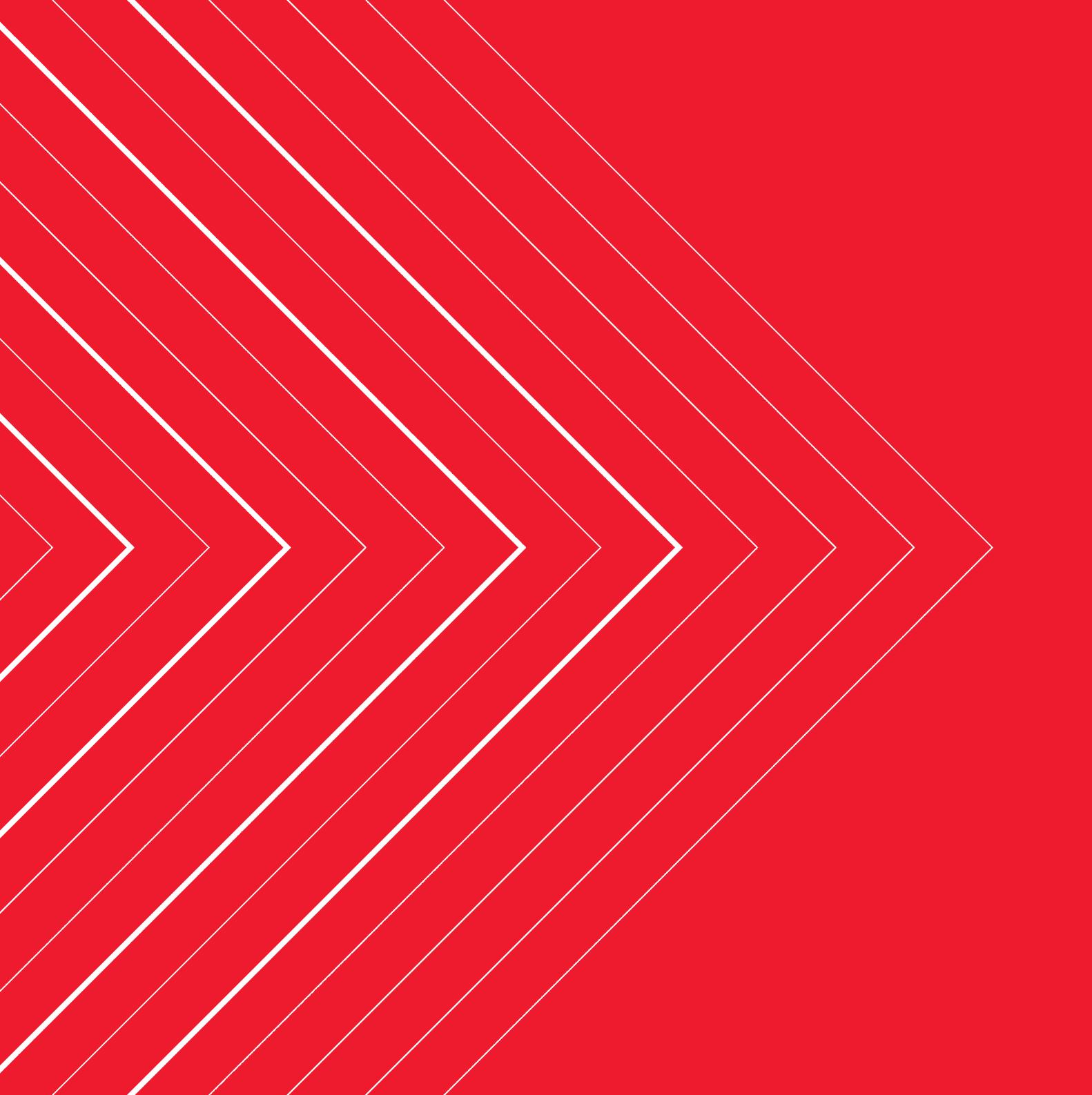


## Study – milestone checklist

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

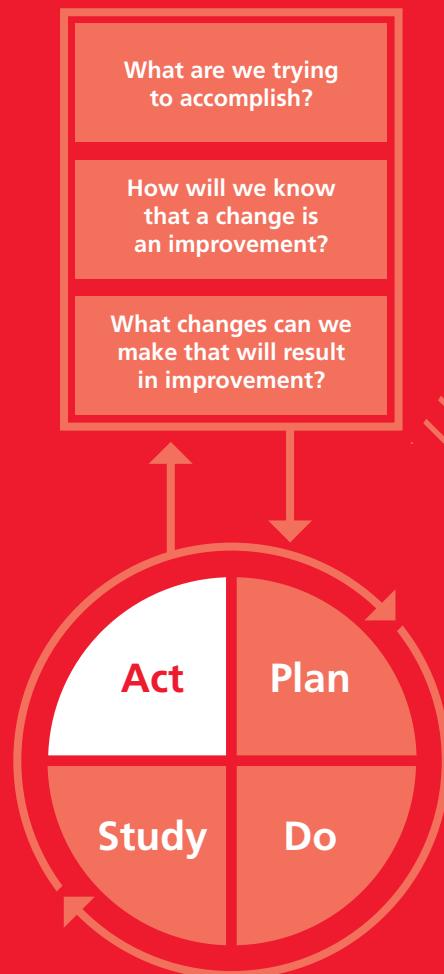
Checklist	Completed?
Collected, analysed and reviewed feedback and data	
Assessed the impact on your key measures	
Communicated progress by updating the Knowing How We Are Doing board	

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 changes, ensure improvements are sustained and plan for scale-up across the organisation.



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

Once your team has undertaken the data analysis and reviewed the feedback, they will need to decide whether to:

- **adopt** the change if it has been a success and work with the steering group to plan scale-up to other areas
- **adapt** the process in some way to 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 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 programme? 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).

## 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:

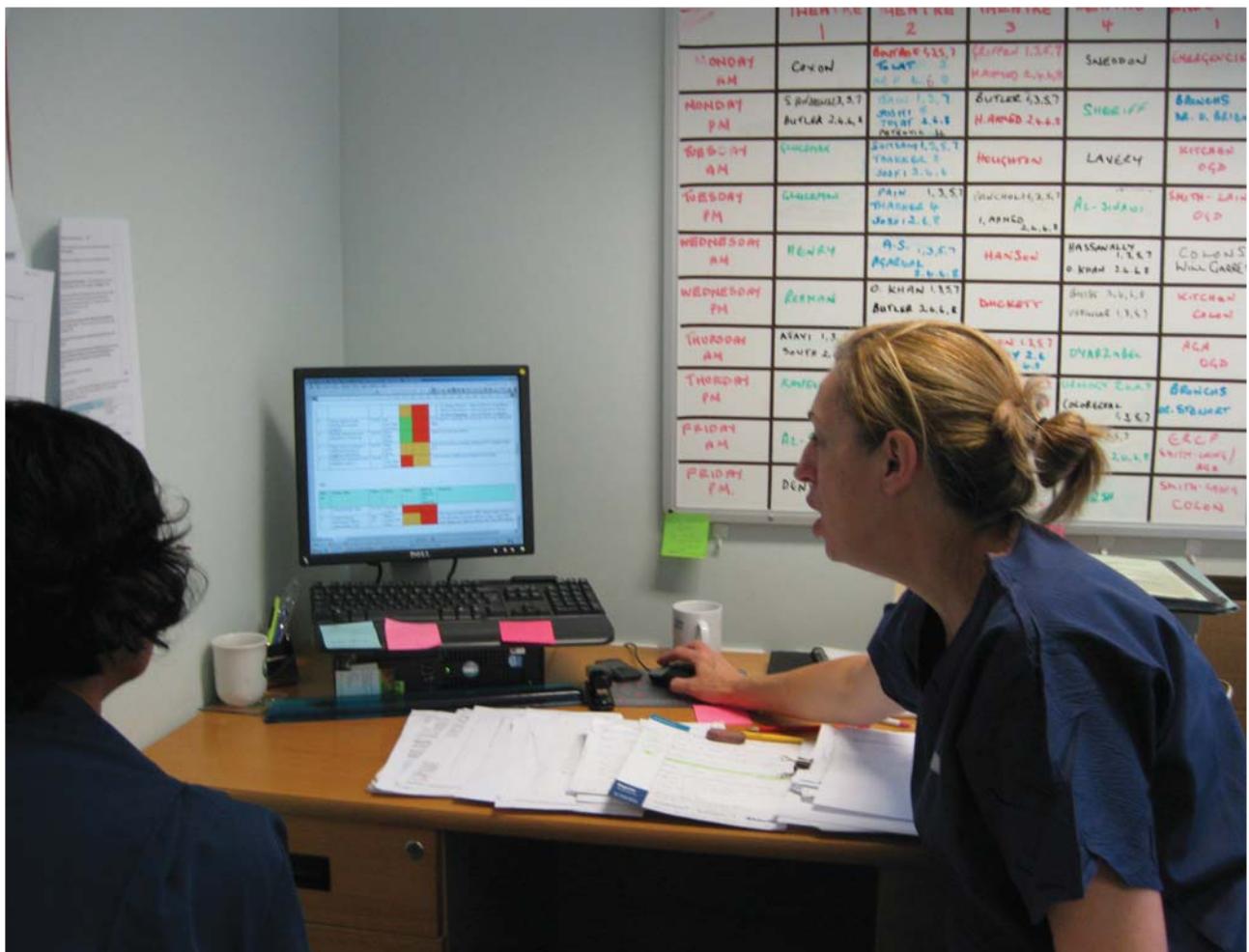
- wall displays
- emails
- newsletters
- weekly review meetings
- audit mornings
- presentation and sharing events
- submit your case studies of improvement to share nationally at [www.institute.nhs.uk/theatres](http://www.institute.nhs.uk/theatres)

As you communicate your improvements to the team consider what is important to different groups of staff. Ensure that senior management are aware of what you have achieved and who was involved. Too often only problems are escalated – it is good to report progress and see teams and the service developing. It is also satisfying for staff to know that their good practice is identified and recognised by senior managers.



## Continue to monitor and review

- It is important that you continue to collect, analyse and review your key measures to encourage sustainability in both the original area of implementation and the new areas that you have rolled-out 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 continue to monitor high level key measures.



## Sustain the changes

As much effort, if not more, needs to go into the roll-out and 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 in your roll-out plan.

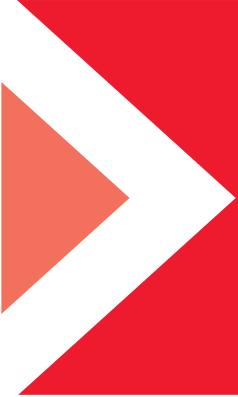
	Factor	Things to consider
<b>Staff</b>	Clinical leadership	<ul style="list-style-type: none"> <li>Recruit clinical champions to support and influence their peers through the changes.</li> </ul>
	Senior leadership	<ul style="list-style-type: none"> <li>Senior theatre staff and managers supporting and driving the improvements.</li> </ul>
	Training and involvement	<ul style="list-style-type: none"> <li>Provide training on the changes for those that are affected by them so that they understand any new systems and processes.</li> <li>Provide the information and develop a framework of review and support that will encourage active development of good practice.</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 change fits with your Productive Operating Theatre vision and the wider organisation strategy.</li> </ul>
	Infrastructure	<ul style="list-style-type: none"> <li>Formally incorporate any new roles and responsibilities that people have as a result of the changes into their job plans.</li> <li>Develop standardised processes 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.</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 across the four domains during roll-out.</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 theatre team, 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 patient turnaround processes may occur naturally to some extent as staff see and understand what you've achieved and the benefits it's 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 methodology and approach, but successful implementation and sustainability 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 rolled out across the whole theatre department? For example, once a standard procedure for preparing the anaesthetic equipment has been developed and tested with the showcase area, it would seem both practical and effective to use this across all theatres.

**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, as what works for major orthopaedic surgery may need some adaptation and development to be right for a day case unit.

But, 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 into account before embarking on your scale-up plan. The degree of success you achieve will depend on many factors.

**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 module's 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 difficult 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 the 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, guidance and examples of how the programme is being scaled-up 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 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 opportunities to improve it further. It is likely that as you roll-out and engage more teams, they will come up with 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 your wider teams to be able to influence and develop the new ways of working.

Continue to collect, analyse and review your data, new issues may emerge over time which will need to be addressed.

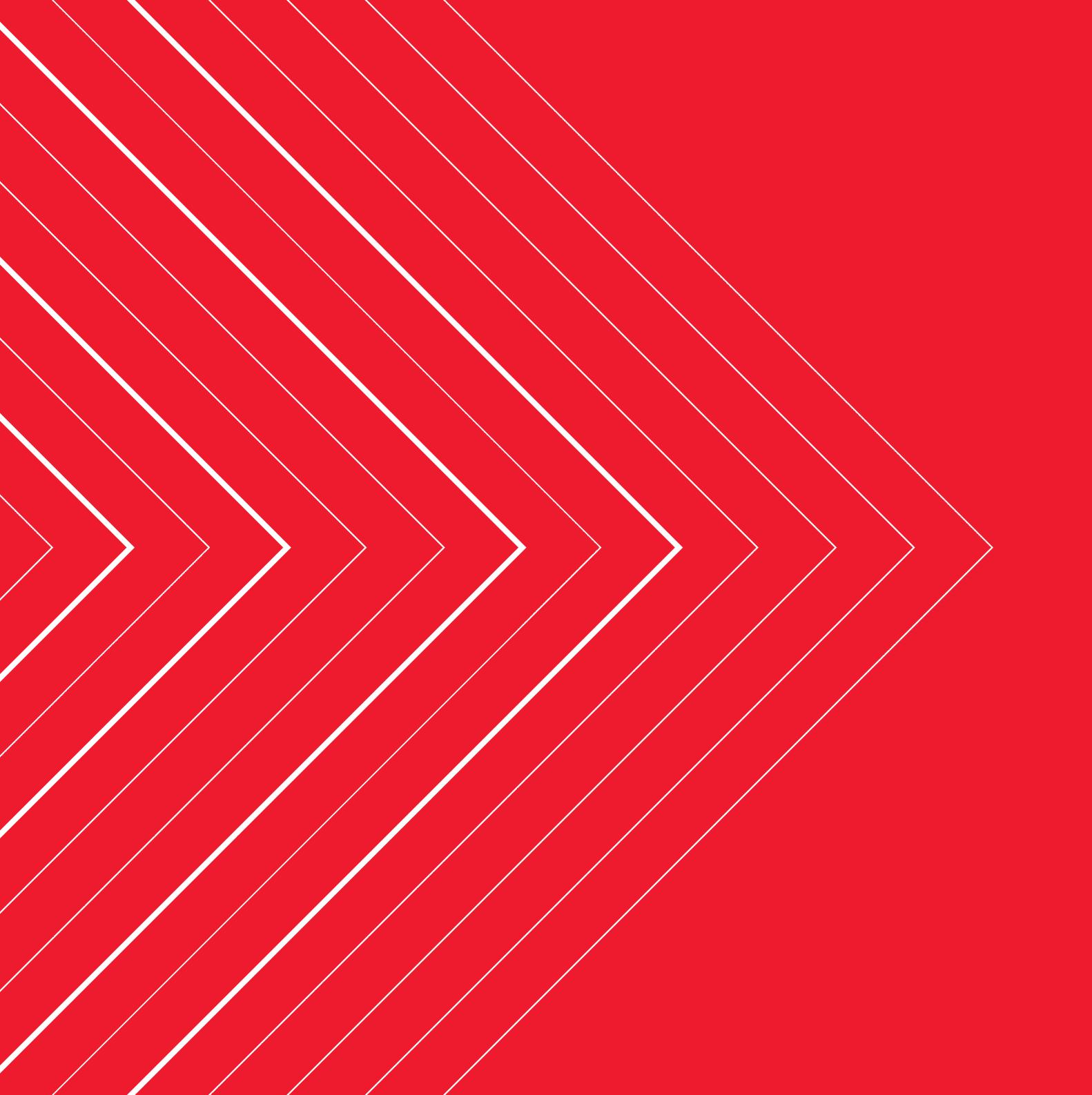
By doing this you will be creating a culture of continuous improvement within your department where improvement is seen as an integral part of the working day, not an additional activity. Furthermore, your teams will have the knowledge, skills and empowerment to lead this process themselves – the ultimate aim of The Productive Operating Theatre.

## 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 have been successful and should be adopted	
Agreed which changes need to be adapted and decide how they will be taken through another testing cycle	
Agreed which changes should be abandoned	
Celebrated and shared successes	
Agreed how you will continue to monitor your measures	
Completed the sustainability model to identify any factors that may need further work to increase sustainability	
Developed a plan for scaling-up changes that will be adopted	
Remember - don't stop improvement	

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?	

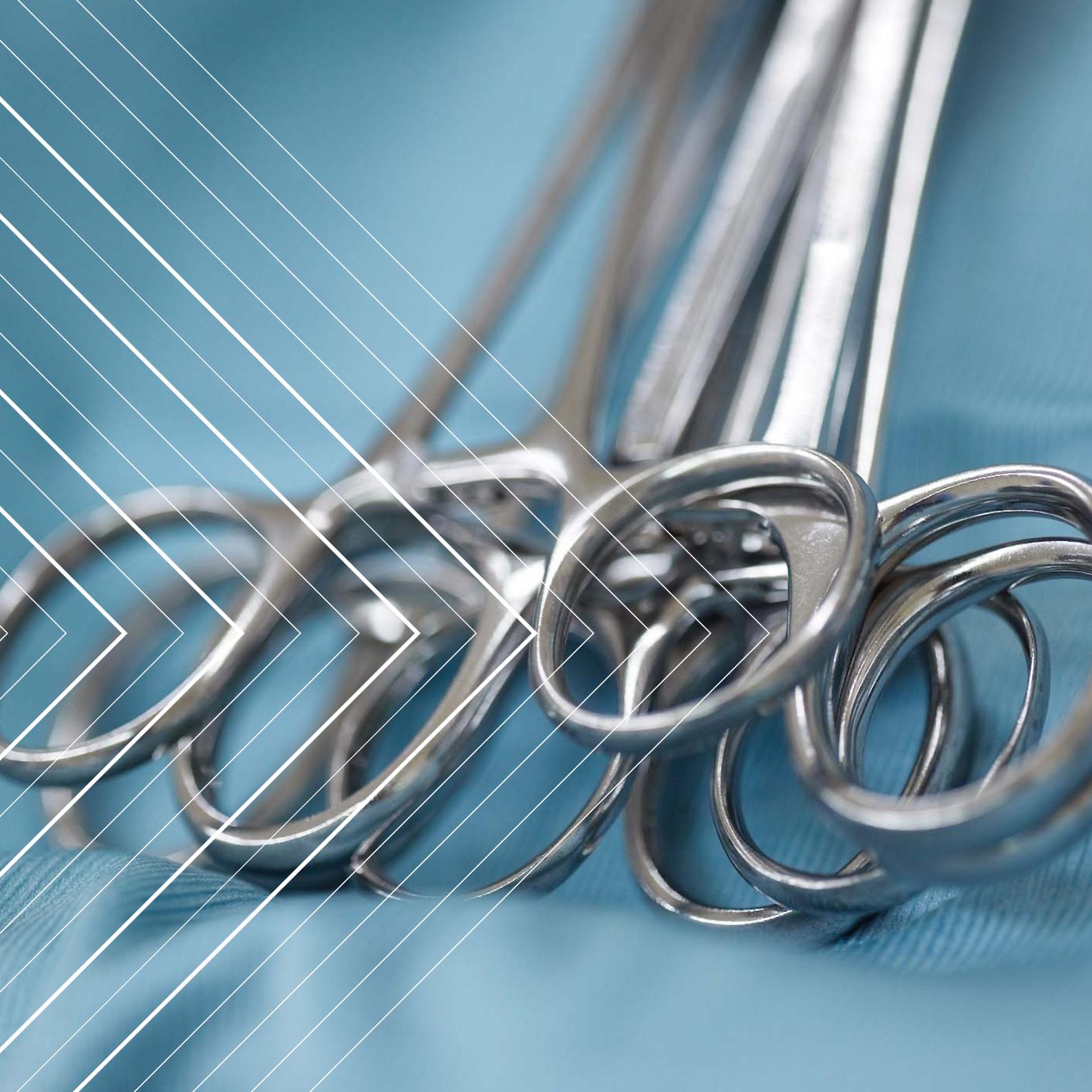


## **8. Learning objectives complete?**

Learning objectives were set at the beginning of this module. Test how successfully these objectives have been met by discussing your Patient Turnaround 'journey' 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 have been given, 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
Do you recognise the importance of joint working between the ward or surgical admissions unit, surgeons and anaesthetists, porters and theatre team	<ul style="list-style-type: none"> <li>• Good team-working ensures that all the actions needed for patient turnaround happen together</li> <li>• Team-working reduces the chances of error</li> </ul>
Do you recognise the value of running different processes at the same time in order to reduce the patient turnaround time interval	<ul style="list-style-type: none"> <li>• Being clear about each others' roles should improve the efficiency of turnaround</li> <li>• Every minute wasted costs approximately £20 - this resource could be used elsewhere within the department</li> </ul>
Do you understand how delays in patient turnaround can have an impact on key measures eg, start times, turnaround times, finish times and over-runs	<ul style="list-style-type: none"> <li>• Delays cause increased anxiety for patients and the possibility that patients may be cancelled</li> <li>• Additional pressure on staff to catch up time could result in error or increased likelihood that the list will overrun</li> <li>• Inefficient use of an expensive resource</li> </ul>
Did you learn how to identify, plan and implement improvements in the patient turnaround procedures?	<ul style="list-style-type: none"> <li>• Show evidence of progress and the impact the changes we make have had</li> <li>• Data is used to understand performance and to work with the team to improve our performance</li> </ul>
Have you developed measures to help identify and sustain improved patient turnaround?	<ul style="list-style-type: none"> <li>• Give examples of measures and show how they demonstrate improvement</li> </ul>
What skills have you developed during this module?	<ul style="list-style-type: none"> <li>• Understanding the PDSA cycle and how ideas can be tested using small cycles of change</li> <li>• Understanding and using data for improvement</li> <li>• How to use standards and protocols to improve processes</li> <li>• How to engage the wider team and use their knowledge and ideas to improve processes</li> </ul>
Have you developed a culture of continuous improvement to constantly review and improve patient turnaround?	<ul style="list-style-type: none"> <li>• Everyone in our team is aware of their part in improving our processes and regularly makes suggestions for further improvement</li> </ul>

## Acknowledgement

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Heart of England NHS Foundation Trust  
Medway NHS Foundation Trust  
Royal Devon and Exeter NHS Foundation Trust  
The Rotherham NHS Foundation Trust  
West Middlesex University Hospital NHS Trust