Introduction to Quality Improvement

Aims and Objectives of the Workshop

By the end of the session the participants will have:

- An understanding of what quality improvement is and why it's important
- Developed an aim statement and explored some diagnostic methods
- Familiarity with quality improvement methods and techniques
- The ability to apply the model for improvement to their work

The First Law of Improvement

"Every system is perfectly design to achieve exactly the results it gets."
Dr Paul Bataldan

Improving Quality is about making health care safe, effective, patient centred, timely, efficient and equitable. All staff have a role to play in ensuring that healthcare services continue to improve. At present the evidence is clear that healthcare is not always safe and can lead to poor patient experience and outcomes. At the same time, NHS finances are under increasing pressure, Healthcare services need to respond to this by improving efficiency, driving up quality and reducing levels of harm.

"Staff work in the system. The job of the manager is to work on the system and improve it with the help of their staff."
After Myron Tribus

What is Quality Improvement?

Quality improvement draws on a wide variety of methodologies, approaches and tools. Many of these approaches share some underlying principles including a focus on:

1. Understanding the problem, with a particular emphasis on what the data tells you
2. Understanding the processes and systems within the organisation, particularly the patient pathway, and whether these can be simplified
3. Analysing the demand, capacity and flow of the service
4. Choosing the tools to bring about change, including leadership and clinical engagement, skills development, and staff and patient participation
5. Evaluation and measuring the impact of a change.

What is Quality?

Within healthcare, there is no universally accepted definition of 'quality'. The US Institute of Medicine defines quality as:

Quality is the degree to which health services for individual and populations increase the likelihood of desired health outcomes and are consistent with current professional knowledge
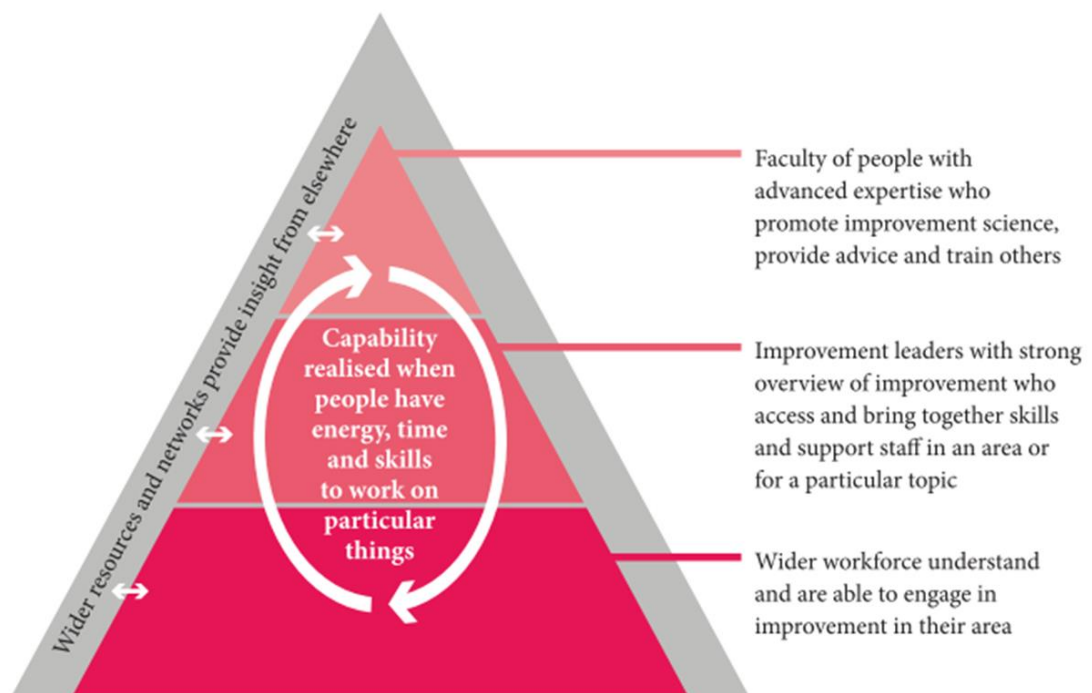
The Institute of Medicine has identified six dimensions of healthcare quality.

THE DIMENSIONS OF QUALITY

Safe
Avoiding harm to patients from care that is intended to help them.

Effective
Providing Services based on evidence and which produce a clear benefit.

Person Centred
Establishing a partnership between practitioners and patients to ensure care respects patients' needs and preferences.

Timely
Reducing waits and sometimes harmful delays

Efficient
Avoiding Waste

Equitable
Providing care that does not vary in quality because of a person's characteristics

Learning Objectives

Learning Objectives:

1. If the programme meets your expectations what will you be doing differently afterwards?
2. What might get in the way of putting into practice what you learn?
3. What experience have you had of quality Improvement?
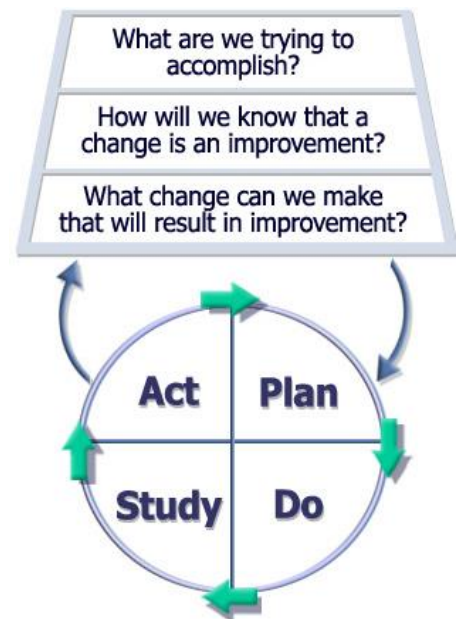
The Model for Improvement

The Model for Improvement is a framework for accelerating improvement. The model is based on three fundamental questions:

1. What are we trying to accomplish?
2. How will we know that a change is an improvement?
3. What changes can we make that will result in improvement?

Any effort to improve something should provide the answers to these three questions.

This is an approach to continuous improvement where changes are tested in small cycles that involves planning, doing, studying, action (PDSA) before returning to planning and so on.

Each cycle starts with hunches, theories and ideas and helps them evolve into knowledge that can inform action and ultimately produce positive results

Crafting your aims and measures

Features of a good aim statement

A worthwhile topic, Outcome focused, Measurable, Specific population, Clear timelines, Succinct but clear.

[Adapted from Tom Nolan in The Improvement Guide]

1. Questions to ask to encourage your team to move from the problem to an outcome and not a solution

2. Convert your problem into an aim statement as a group. Your aim should:

    1. Describe an outcome and not a solution
    2. Use plain English and contain no weasel words
    3. Include a target condition

4. Consider how you would measure your aim

Your Aim Statement:

"**Weasel words** are words that have no specific and obvious and **singular** meaning. They bring no clear images to mind of what is meant."
Best practice, effective, evidence-based, excellence, high quality, high value, responsive, value, value-added, world class and many more!

Flow Charts / Process Maps

What is Process Mapping and How Can it Help?

Processes within healthcare have evolved over many years and through many organisational changes, this means there are often many layers to pathways and complicated systems that have built up over time.

A good way to review systems and/or pathways to understand where improvements are needed is to work with frontline teams to process map. This is a simple exercise which facilitates a positive and powerful opportunity to create a culture of ownership within the multidisciplinary team to focus on areas for improvement.

A process map is a visual way of representing and understanding a step by step picture of processes, either one aspect or a whole patient pathway. It helps staff to understand the way the system works, and review each step of the process to understand those adding value and those that do not currently work well for service users or staff.

As a team, process mapping can support open communication and consideration of all improvement areas, engaging representatives from different parts of the system to consider all interdependencies across the system. This can be a positive strategy for engaging stakeholders, all members of the multidisciplinary team and those resistant to considering new ways of working.
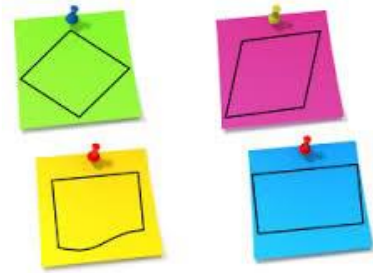
It also provides a measureable baseline on ' where are we now'.

When Does it Work Best? Top Tips

1. Map the process first to make sure that everyone involved agrees each step of the process. Avoid focusing on the challenges and solving them before your process map is complete.
2. Sessions facilitated by someone outside the immediate team can allow all members to participate fully in the mapping exercise, and provide an opportunity for someone who is removed from the process to ask challenging and clarifying questions
3. Having a large wall space! If you are mapping the process by hand you will need a long stretch of wall to put up a continuous piece of paper, to identify each step with lots of coloured post its and flip chart paper and markers to capture comments along the way
4. If mapping electronically during session it is essential that the team can see the process as you map; consider using a projector and a confidence typist to keep up!

5. Put down **all steps** of the process, the map will only be useful to the team if it is an honest illustration of the system. The map should show how things are and what happens now, rather than what should happen. Only when you see the current state, wards and all, can you work with staff to make improvements

6. Have the right people in the room—it is essential to have representatives from all aspects of the process involved in this mapping activity, everyone's input is needed to fully understand each step. This supports highlighting areas where there is variation in understanding the process and capturing if there is duplication of tasks/roles

7. Undertaking this activity close to the environment where the process happens allows the team to 'walk' the process if required to gain further insight or clarity of understanding

Mapping—How You Do It

1. The map must have a title, date, and colour key. You can use different colour 'post it' notes, pens or coloured boxes along the process to mark details e.g.

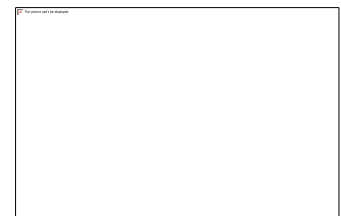   Process Step   Issue / Problem   Ideas/Suggestions

2. Discuss the key players in the process, write them individually on a post it note and place them on the very left hand side of your process map back drop. This allows you to map when in the process there are transition points between departments/services/professionals

3. Use different shaped boxes or notes to mark decision points along the process, including points of entering or exiting the process

4. Consider rating the steps with dots to show large, medium or small value to the patient

5. Define the start and end points preferable head of time—not too big a chunk, other processes may be identified and can be parked and dealt with later

6. Include time frames on stages in the process if possible It is useful to have flip chart/magic white board for ideas, discussion points and 'parking' ideas

Next Steps

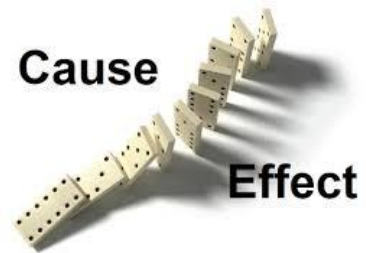Once the map is completed identify areas that do not add value and consider removing them:

1. Identify bottlenecks, constraints, waste or duplication - understand how you can deal with them

2. Identify and understand variations in clinical practice - how can this be standardised? Identify areas/opportunities for improvement—generate ideas for improvement

3. Using all the above 4 points, talk through the ideas and identify the ones that will convert into actions. Organise/prioritise them within your project and develop an action plan to test them using PDSA Cycle as part of you're an improvement framework

4. Use what you learn from the current state map to develop your 'future state map'

Fishbone Diagram (Cause and Effect)

What is it and how can it help me?

Cause and effect analysis helps you think through causes of a problem thoroughly, including its possible root causes. It is only by identifying the main causes that you can permanently remove the problem, or reduce the delay. A cause and effect diagram is a tool that helps you do this. The 'Effect' is the problem you are working on, for example 'waiting times'. The tool can help you identify major causes and indicate the most fruitful areas for further investigation. It will help you understand the problem more clearly.

By going through the process of building the diagram with colleagues, everyone gains insights into the problem, alongside possible solutions. The people involved benefit from shared contributions, leading to a common understanding of the problem. The cause and effect diagram is sometimes called a fishbone diagram (because the diagram looks like the skeleton of a fish) or the Ishikawa diagram (after its inventor, Professor Kaoru Ishikawa of Tokyo University).
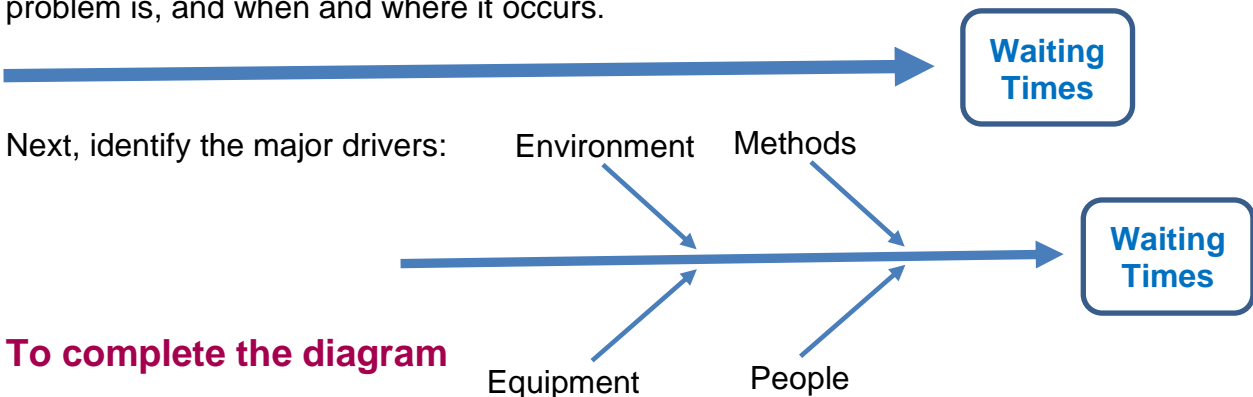
When does it work best?

The tool quickly helps you to fully understand an issue and to identify all the possible causes—not just the obvious. If you know the cause of the delay, you are then better placed to implement the solution.

What does it do?

5. The tool enables a team to focus on the content of the problem rather than its history or the differing interests of team members.
6. Creates a snapshot of the collective knowledge and consensus of a team around a problem
7. Focuses the team on the root cause of the problem—not its symptoms

How to use it

First identify the problem. Write it in a box and draw an arrow pointing towards it. Think about the exact problem in detail. Where appropriate, identify who is involved, what the problem is, and when and where it occurs.
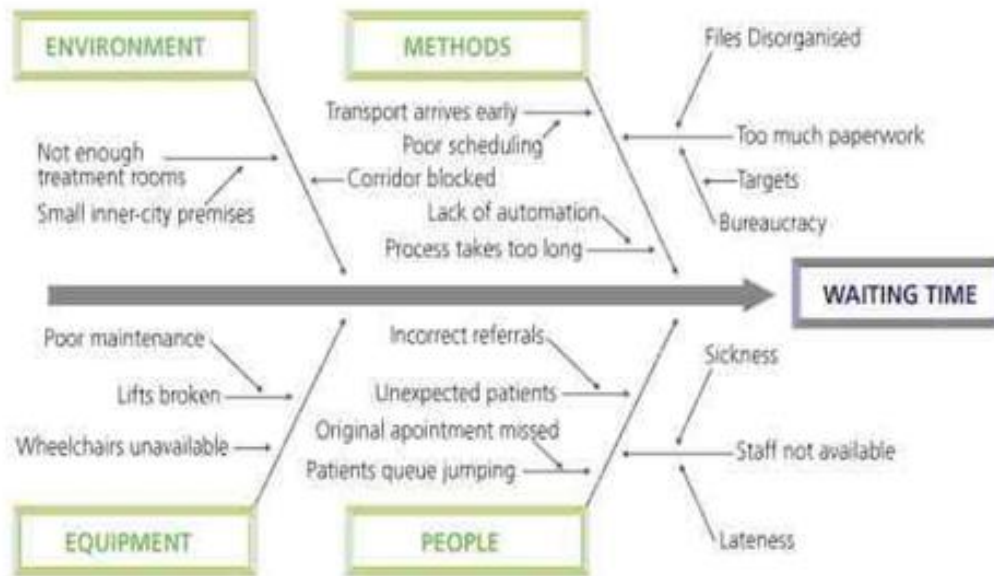
Waiting Times

Next, identify the major drivers: Environment   Methods

Waiting Times

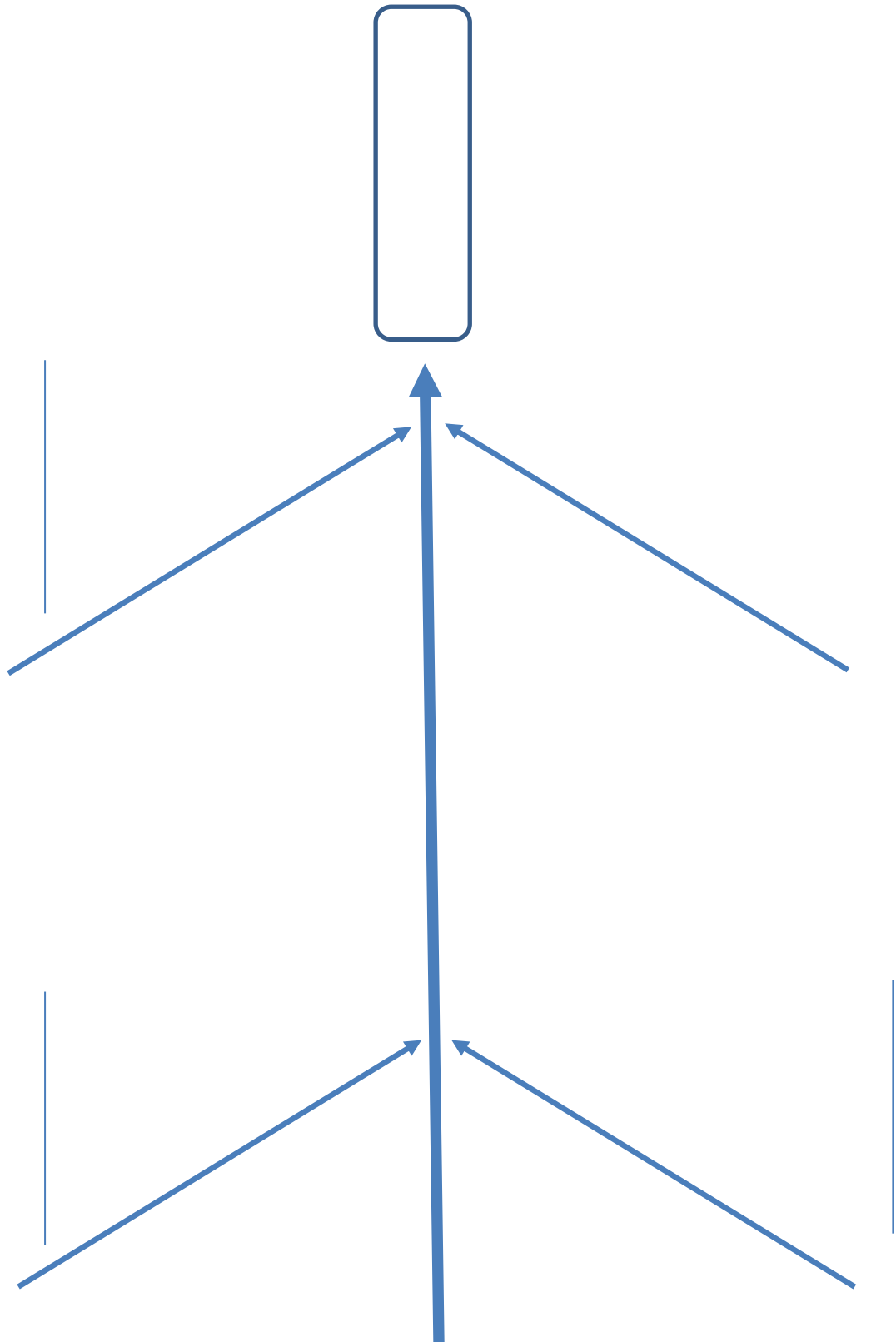## To complete the diagram

Equipment   People

Take each of the main categories and brainstorm possible causes of the problem. Then, explore one to identify more specific 'causes of causes'. Continue branching off until every possible cause has been identified. Where a cause is complex, you might break it down into sub-causes. Show these as lines coming off each cause line.

Analyse your diagram. By this stage you should have a diagram showing all the possible causes of your delay/problem. Depending on the complexity and importance of the problem, you can now investigate the most likely causes further. This may involve setting up interviews with patients and staff, undertaking process mapping etc.
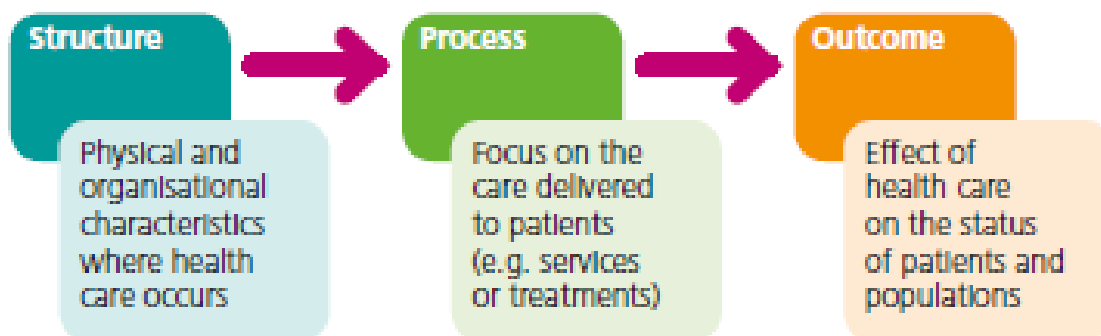

Tips

8. Make sure that your team agree on the problem statement. Include as much information as possible in the 'what', 'where', 'when' and 'how much' of the problem. Use data to specify the problem if possible
9. Aim to construct the diagram with the people involved in the problem
10. You can use the cause and effect diagram as a working document that is updated as and when you collect more data, or to trial various solutions
11. Use a paper surface so that you can transport the final diagram
12. Ideally, causes should appear in only one category

How will we know a change is an improvement?

Donabedian's (2005) three component approach for evaluating the quality of care underpins measurement for improvement: structure, process and outcomes. Measurement for improvement has an additional component: balancing measures.

Donabedian model for quality of care

When thinking about measurement for improvement there are three key areas to consider.

Outcome measures reflect the impact on the patient and show the end result of your improvement work. For example, reduced mortality, reduced infections or harm, reduced emergency admissions, improved patient experience.

Process measures reflect the way your systems and processes work to deliver the outcome you want. For example, the length of time a patient waits for a senior review, if a patient receives certain standards of care or not, if a member of staff washes their hands or not.

Balancing measures reflect unintended and/or wider consequence of the change (which may be positive or negative) and a deliberate attempt to measurement these and/or reduce their impact if necessary. For example, monitoring the emergency readmission rates following initiatives to reduce average length of stay.

Outcome measures remain the "ultimate validators" (Donabedian, 2005) of the effectiveness and quality of health care but sometimes may be difficult to define and/or have significant time lags. Process measures are important in quality improvement as they describe whether or not clinical care has been, in Donabedian's words, "properly applied" or "are we doing what we say we should do?". From an improvement perspective they make the important connection between behavioural changes and outcomes.

Choose your Measures

The starting point is:
• make sure that you measure your aim and objectives
• consider qualitative data analysis alongside quantitative data
• a few good measures are better than lots of "just in case measures".

Tools that help to select and identify important measures are:
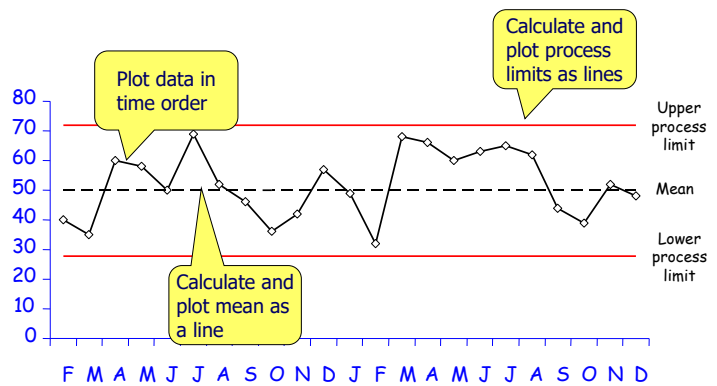• Mapping patient flow and/or process mapping
• Driver diagrams.

Your Measures:
Remember to include at least one outcome, process and balancing measure.

Choose your Measures

Presenting your Data

What is a control chart?

The control chart is a graph used to study how a process changes over time. Data are plotted in time order. A control chart always has a central line for the average, an upper line for the upper control limit and a lower line for the lower control limit. These lines are determined from historical data.

Why use one?

Use a control chart to:
1. help you make better decisions about how to react to your data
2. Show whether you are likely to hit a target in future

Making better decisions

No two weeks are the same are they? Whenever we plot performance data over time the numbers are always different (as in the example above). Walter Shewhart who invented the control chart discovered that he could classify variation into 2 types:

Common cause variation: Sum of many small variations from real but small causes that are inherent in any process. They cannot be traced back to a root cause but are stable over time & therefore predictable. This is often referred to as "chance" or "normal variation".

Special cause variation: Variation arising from a single cause not part of the normal process. It can be traced and identified. It is however irregular in time and therefore unpredictable.

Decision	Because
Do nothing	Performance ok
Contingency plans	Special cause variation
Process redesign	Common cause variation

Once you know which you are dealing with, it leads to fundamentally different decisions about what to do next (see table).

Hitting a target

The control or process limits (red lines in example above) are an estimate of the range of common cause variation in your data. If there are no special causes present values will fall between these two lines. This gives us a limited ability to predict the future. Plot the target as a line on the control chart and see where it falls. Is it outside the lines or between the lines? This will tell you how likely the process is to hit the target in future.

Plan, Do, Study, Act (PDSAs)

What is it and how can it help me?

Once a team as set an aim and developed measures to determine whether a change leads to an improvement, the next step is to test a change in the real work setting. The four stages of the PDSA cycle:

Plan - the change to be tested or implemented
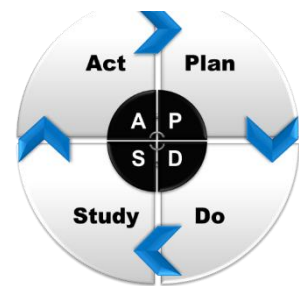**Do** - carry out the test or change
Study - data before and after the change and reflect on what was learned
Act - plan the next change cycle or full implementation

When does it work best?

You may not get the results you expect when making changes to your processes, so it is safer, and more effective to test out improvements on a small scale before implementing them across the board. Using PDSA cycles enables you to test out changes before wholesale implementation and gives stakeholders the opportunity to see if the proposed change will work. Using the PDSA cycle involves testing new change ideas on a small scale. Trying out a new way to make appointments for one consultant or one clinic.

Why test change before implementing?

- Learn and adapt
- Increase degree of belief
- Build a common understanding
- Evaluate costs and side effects
- Reduce total lead time of full implementation
- Test ideas under different conditions

Steps in the PDSA Cycle

Plan
- Plan the test or observation, including a plan for collecting data
- State the objective of the test
- Make predictions about what will happen and why
- Develop a plan to test the change (Who? What? When? Where? What data needs to be collected?)

Do
- Try out the test on a small scale
- Carry out the test
- Document problems and any unexpected outcome
- Begin analysis of the data

Study
- Review the data and study the results
- Complete the analysis of the data
- Compare the data to your predictions
- Summarise and reflect on what was learned

Act
- Refine the change, based on what was learned from the test
- Determine what modifications should be made
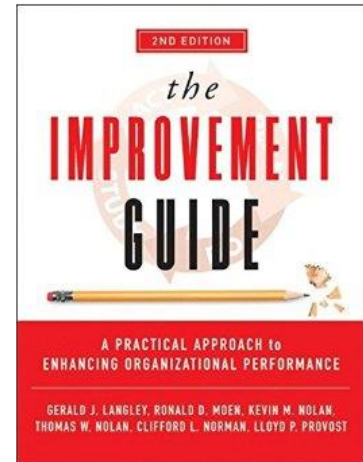- Prepare a plan for the next test

www.nhselect.nhs.uk

Possible PDSAs I could try?

Bibliography and Further Reading

An Introduction to The Model for Improvement

https://www.youtube.com/watch?v=jq52ZjMzqyI

The Improvement Guide, Langley et al, Josey Bass, 2009 (2nd edition)

7 Quality Tools references

A handy summary with links to the individual tools:
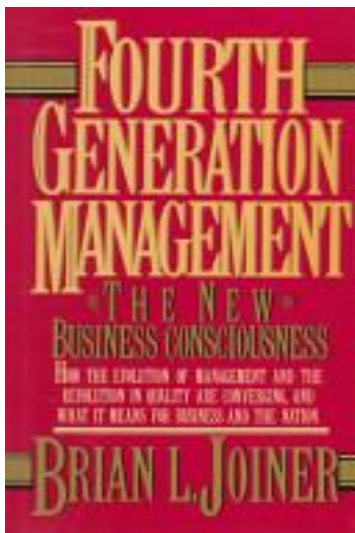https://en.wikipedia.org/wiki/Seven_Basic_Tools_of_Quality

Ishikawa, Kaoru (1985), What Is Total Quality Control? The Japanese Way (1 ed.), Englewood Cliffs, New Jersey: Prentice-Hall (Ishikawa created the 7 after hearing Deming talk in Japan)

Another useful source of information
http://asq.org/learn-about-quality/seven-basic-quality-tools/overview/overview.html

Application to management

Fourth Generation Management
Brian L Joiner, McGraw-Hill, 1994

Management on the mend: *The Healthcare Executive Guide to System Transformation*, John Toussaint, Thedacare Centre for Healthcare Value, 2015