



Improvement Cymru Academy Guide



What is Quality Improvement?

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Introduction

Healthcare services are built on a series of complex processes and the quality and safety of healthcare services depends upon how these processes work and interact with each other as well as the values, behaviours, and skills of the healthcare professionals within these processes, and their interaction with people and their surroundings.

The aim of quality in healthcare is to provide care that puts patients at the centre to ensure everyone receives the same effective and efficient care, regardless of personal characteristics, social-economic status, and geographical location with access to services within an appropriate timescale to increase patient safety.

Knowledge of quality improvement is vital for anyone who works in healthcare to improve services for people across Wales by giving the time, resources, and skills they need to solve problems where quality and safety fall short of expectations.

What is Quality?

Quality in healthcare is defined by the World Health Organisation (WHO) (https://www.who.int/health-topics/quality-of-care#tab=tab_1) as *'Quality of care is the degree to which health services for individuals and populations increase the likelihood of desired health outcomes'*. Quality in healthcare can also be defined as *'meeting everyone's healthcare needs consistently every time and all the time'*.

The Institute of Medicine (IOM) released the six domains of quality in a report titled *'Crossing the Quality Chasm: A New Health Care System for the 21st Century'* in 2001. The IOM identified 6 domains to form the basis of the aims for healthcare. In response to a book called *'To Err is Human'* (Donaldson, Corrigan and Kohn, 2000). This text raised the profile of patient deaths from medical errors in comparison to other causes of death, such as breast cancer and road traffic accidents. Since 2001, the six domains have been adopted by healthcare providers and organisations around the world. The Welsh Government has published legislation for healthcare quality *'the Health and Social Care (Quality and Engagement) (Wales) Act 2020'*. The legislation has a concept known as the quality standards that encompasses the six domains of quality, as well as the five enablers

to support quality work: leadership, culture and valuing people, data to knowledge, current knowledge, and whole systems perspective.

The six domains of healthcare quality are commonly referred to using the acronym STEEEP. It is also recognised that some organisations use an additional step within the six domains of sustainability to form STEEEPS.

Safety – avoiding harm to services users and staff

Timely – providing care within an appropriate timescale to avoid harmful delays

Effective – providing services or treatments that benefit patients based on scientific evidence and refrain from providing treatments and services that do not benefit patients

Efficient – avoiding any waste that does not add value to the patient or the desired outcome e.g. staffing, money, supplies or time

Equitable – providing care that does not vary in quality because of personal characteristics

Patient-Centred – providing care that is respectful and responsive to patient's values and needs

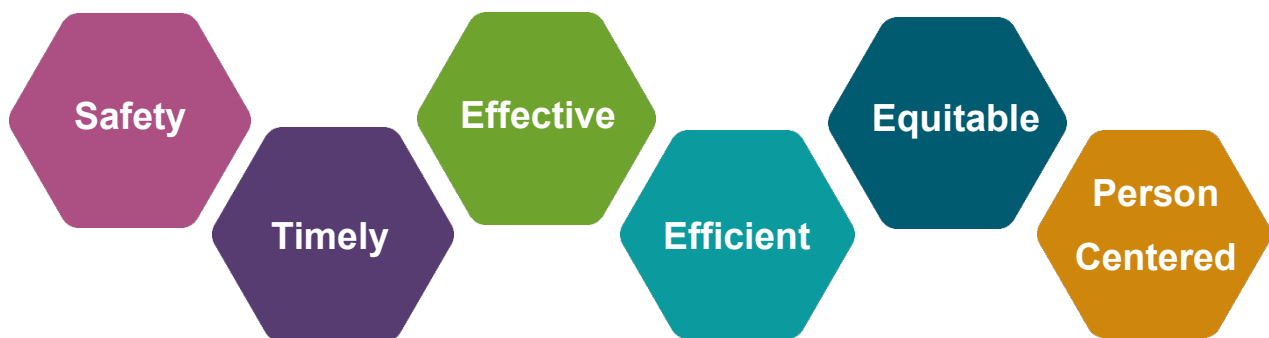


Illustration: Improvement Cymru (2022)

What is Quality Improvement?

There is no one single definition of quality improvement for healthcare. The British Medical Journals' (BMJ) quality improvement series uses the Academy of Medical Royal Colleges' definition that describes quality improvement as '*To make a*

difference to patients by improving safety, effectiveness, and experience of care by using understanding of our complex healthcare environment, applying a systematic approach, and designing, testing, and implementing changes using real time measurement for improvement'. Paul Batalan from the Institute of Healthcare Improvement (IHI) defined quality improvement as 'the combined and unceasing efforts of everyone – healthcare professionals, patients and their families, researchers, payers, planners and educators – to make the changes that will lead to better patient outcomes (health), better system performance (care) and better professional development (learning)'.

Both these definitions describe quality improvement in healthcare and the main themes we see in all quality improvement definitions are:

1. Understanding of the complex healthcare environment.
2. Applying a systematic methodology and approach to tackle complex problems.
3. Uses real-time measurement.
4. A team approach to generate ideas, test changes, implementation, and sustainability.
5. Co-production with relevant stakeholders.
6. Continuous improvement.

Quality improvement goes further than the traditional management of healthcare which uses the principles of project management. Whilst these skills are important, the principles of quality improvement are better suited towards complex issues where the problem is not fully understood and therefore, we do not know the solution.

Principles of Quality Improvement

You do not need to be an expert in quality improvement to undertake an improvement project, but you do need to know the principles of quality improvement. Quality improvement happens when we combine improvement knowledge with subject matter expert knowledge. Subject matter expert knowledge comes from the teams who are currently involved in the process that is undergoing improvement.

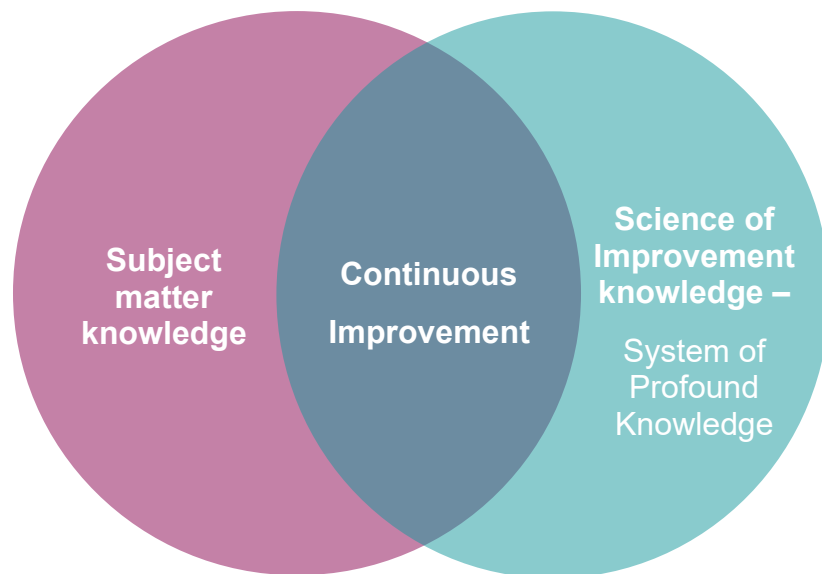


Illustration: Improvement Cymru (2022)

System of Profound Knowledge

The System of Profound knowledge is a theory of management that was created by William Edwards Deming and provides a framework for improving an organisation.

There are four components of the System of Profound Knowledge which are referred to as lenses: Appreciation of a System, Understanding Variation, Theory of Knowledge, and Human Behaviour.

Appreciation of a system:

This lens helps understand the entire system and how the elements of a system influence and interact with each other, and how the system relates to its environment. For example, a hospital is built up of different people, equipment, work groups and departments. Therefore, to improve, it is important to understand how the different parts interact and influence each other.

Understanding variation:

This lens helps us to recognise that variation occurs in every process and not all variation is bad. You can use statistical analysis to understand and reduce variation within a system and distinguish between random and non-random variation (can also be known as common cause and special cause). For example, waiting times within a department may vary for different reasons such as staff availability, severity of the

condition, time of day etc... To improve services, we need to measure and understand variation and address the root cause of the problem. See our [Understanding Variation Toolkit Guide here](#) for more information.

Theory of knowledge:

This lens helps you to understand how knowledge is created and tested, and how to use data for improvement. It helps to avoid making assumptions and jumping to conclusions and encourages the use of scientific testing change theories. For example, if you want to reduce infections on a ward, you will need to collect data before and after the intervention with a small sample to understand the impact of the change before implementing it on a larger scale.

Human Behaviour:

This lens helps you understand the human aspect of systems such as behaviours, culture, and leadership. It allows you to appreciate the needs and expectations of the people who work in the system or who receive services from it, and to create a positive and supportive environment for them. For example, if you want to change the culture of an organisation then you need to involve all stakeholders in the process and provide feedback, recognition and empower staff. It is also important to understand the psychological factors that have an impact on human wellbeing such as fear and resistance. See our [Human Side of Improvement Toolkit Guide here](#) for more information.

Improvement Cymru Quality Improvement Wheel

Making improvements to your system involves a journey. The quality improvement journey, illustrated in diagram three shows the stages of the improvement journey. It maps out six key steps, with measurement throughout the journey and continuous improvement at the heart of quality improvement. This is depicted in a form of a wheel rather than in a linear process as the improvement journey is not linear. You may need to go back and forth between steps to be successful in your improvement journey.

Step 1: Identifying a Problem

The first action in a quality improvement project is to identify what the problem is that needs improvement. You will need to have a clear understanding of the problem and its' impact to address the root cause of the problem.

Step 2: Creating Conditions

At the start of any improvement project there must be the right conditions. A sense of urgency is needed to highlight why the change is important and needed. You will need to seek support from all the necessary levels of the organisational structure and involve the right people to build a clear and shared vision. By doing this, you will build the will for improvement and create a strong foundation for improvement efforts to be sustained.

Step 3: Understanding your System.

Healthcare systems are complex, and it is crucial that we get to know the entire system and not looking at processes in isolation. At this stage it is important to see the bigger picture and understand how parts of the system influence other parts of the system.

Step 4: Your Aim

You can establish your aim when you have a clear understanding of what the problem is and the current performance of your system. This relates to the first question in the model for improvement 'What are you trying to accomplish?' A clear aim will help to develop change theories.

Step 5: Change Theories

A theory of change is a way of explaining how a certain action or intervention can lead to the desired impact. There are several ways to develop change theories including brainstorming, nominal group technique and brainwriting. These can be put into a driver diagram and a prioritisation matrix which will help you evaluate the impact certain actions or interventions will have in your improvement project.

Step 6: Implement, Scale, and Spread

You are ready to implement a change when you have tested it in a variety of different situations and are confident that it is effective and will lead to an improvement. Once you have successfully implemented a sustained change, you will need to spread your change to other areas where appropriate to benefit as many people as possible. This will sometimes involve adjusting your change slightly depending on the context of where it is being used. Documenting each step of your improvement journey will help others when explaining the benefits and encourage buy-in.

Measurement for Improvement

Measurement for improvement addresses the second question in the model for improvement 'How will we know a change has made an improvement?'

Measurement for improvement is different from other types of measurement as it is for learning and not for judgement. Measurement is weaved into the entire improvement journey and can help us define our aims, develop change ideas, test change ideas, monitor progress and highlights areas for further learning.

Continuous Improvement

Continuous improvement is the process of making gradual and incremental changes to improve quality and safety. It is based on the idea that there is always room for improvement and small changes can lead to big results over time.



Diagram 3: Improvement Cymru Quality Improvement Journey

Leadership and Governance

Leadership and governance are an important aspect of quality improvement through establishing a clear vision, strategy, and culture for quality improvement by creating structures and processes to support quality improvement activities. Effective leadership is needed from all levels of the organisation. Leaders should foster a culture for quality improvement and learning through collaboration, innovation, and by providing direction, support, and resources for quality improvement (QI). There should also be governance processes in place to support quality improvement by:

1. Identifying and addressing quality issues that need investigation and improvement.
2. Enable quality improvement to be conducted in a safe and transparent manner.
3. Allow the sharing of successful QI projects to share best practise.

QI methodology

There are many different approaches that can help you achieve better outcomes for your patients, staff, and organisation.

Model for Improvement

The Model for Improvement was developed by Gerald Langley and his colleagues in 1992 and has been used effectively in improvement studies. The first part of the framework is known as the planning phase and asks three fundamental questions. The first question asks, 'What are we trying to accomplish?', the second question asks 'How will we know a change has made an improvement? And the third question asks, 'What changes can we make that will result in an improvement?'

The second part of the framework is the doing phase and this incorporates the use of tests of change. Each test comprises small cycles called Plan, So, Study, Act (PDSA) cycles. The PDSA cycles are the vehicle for action and learning. PSDA cycles allow you plan your change idea, test them, study the impact, and decide what happens for the next cycle – Will you adopt the change idea, adapt the change idea, or abandon the change idea? What you decide will depend on the impact the change idea has had on your system (See our [Model for Improvement Toolkit Guide here](#) for more information).

Lean

Lean is a quality improvement methodology derived from the Toyota Production System in the 20th century. The aim of Lean is to eliminate any waste in the system whilst maximise customer value, which for healthcare is the patient. Lean focusses on improving the flow within a system and removes any activities that do not add value. This is achieved using Lean's five operating principles for continuous improvement which are:

1. To define what activities, add value to a patient.
2. Mapping the value stream – for healthcare this are the processes involved in delivering care.
3. Analysing the value stream by removing waste from them.
4. Allows patients to 'pull' value towards them so that their needs are met. Value in this instance could be staffing and resources.
5. Continuous Improvement. This means that we always strive for perfection.

Six sigma

Six Sigma is a set of tools and techniques that were developed by Motorola engineers in the 1980s. The aim of Six Sigma is to reduce defects and variability within a process. The term Six Sigma is the goal of achieving a defect rate of less than 3.4 million opportunities. This corresponds to six standard deviations from the mean in a normal distribution. It uses define, measure, analyse, improve, control (DMAIC) framework, and a range of statistical tools to uncover the root cause.

Getting started with Quality Improvement

Contact your quality improvement teams within your health board and find out what resources they have, and what support they could offer you. You can visit the Improvement Cymru Academy's webpage to book onto courses and visit our Resource Library to gain more knowledge of quality improvement. There are also more resources that are available from organisations such as The Health Foundation, The Kings Fund, East London Foundation Trust, NHS England, NHS Scotland, and the Institute of Healthcare Improvement. To start you can select a problem within your team to improve using the six steps to quality improvement, or even further improve on something that is working well.

Promoting Quality Improvement

Promoting Quality Improvement is vital because it aims to make the care you deliver safe, timely, effective, efficient, equitable and person-centred. You can promote quality improvement within your team. Quality improvement is a collaborative and participatory approach, and therefore should be done collectively. You can signpost your team to resources that are available from your Quality Improvement teams within your organisation, and from wider organisations such as Improvement Cymru.

If you have successfully completed a quality improvement project, then share your success with other teams, showcasing your improvement project at every opportunity. You could tell others when you are attending meetings and could put a poster of your quality improvement work on display within wards and departments, or possibly even publish it in a journal to promote quality improvement or apply for an NHS award.

Additional Resources

[If you are interested learning more about improvement please visit our website https://phw.nhs.wales/services-and-teams/improvement-cymru/improvement-cymru-academy/](https://phw.nhs.wales/services-and-teams/improvement-cymru/improvement-cymru-academy/) or email us at improvementcymruacademy@wales.nhs.uk to find out about the improvement courses we offer.

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