Quality Improvement: An Introductory Guide for Trainees & Trainers

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Why become involved in QI?

Through rotating between departments, hospitals and trusts, trainee doctors can act as the "eyes and ears" of the NHS to identify problems and suggest potential solutions[1]. However, too often barriers exist to trainees engaging in Quality Improvement (QI), including busy clinical workloads, lack of knowledge about QI, frequent rotations between posts, lack of support networks and negative attitudes towards change from colleagues[2].

QI can provide a systematic approach to tackling problems and implementing changes that will lead to better patient outcomes, working environments and professional development. To achieve these aims, QI needs to become part of everyone's daily work.

For the trainee the benefits of becoming involved in QI include:

- The satisfaction of becoming involved in projects that lead to improved patient care and working conditions;
- An opportunity to develop leadership experience & show innovation, qualities that are vital to their development as future healthcare leaders;
- Develop skills in measurement, data collection and data interpretation;
- Learning how to bridge the gap between evidence based medicine and best practice in clinical settings;
- Help to develop resilience through better understanding of how healthcare systems work and how patients relate to them;
- Career development and boost future job applications – both at higher training and consultant level.

The QI Committee and Psychiatric Trainee's Committee of the Royal College of Psychiatrists have produced this guide to encourage trainees to become involved in QI, tips for staring a project and QI stories to inspire their involvement.

We recognise that QI may be unfamiliar to many supervisors and this guide can help them to support trainees in undertaking QI.

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1) Francis R (2013) Report of the Mid Staffordshire NHS Foundation Trust Public Inquiry. London: The Stationery Office
2) Zarkali A ert al. (2016). Trainees leading quality improvement Faculty of Medical Leadership & Management.

Frequently Asked Questions

What is QI?

QI is a systematic method best used for tackling for complex problems that are not completely understood and the answer isn't known. It uses the knowledge and experiences of those closest to the issue – the staff and service users – to identify potential solutions and test them out. There is no right and wrong in QI, it is about learning and experimentation to solve problems.

Why is QI different to audit?

Traditional clinical audit demonstrates whether healthcare is provided in line with standards – such as those set out by National Institute for Health and Care Excellence (NICE) – but too often fails to result in any improvement[3]. QI is a method for implementing and testing change.
QI should always involve some form of measurement to know whether a change you have implemented has resulted in improvement or not. This may involve traditional clinical audit, but other forms of measurement such as patient and staff questionnaires can also allow you to compare against a baseline to demonstrate improvement.

	AUDIT	QUALITY IMPROVEMENT
Aims to:	Compare current practice against set standards	Improve an aspect of healthcare
Can be used for:	Processes where clear standards exist	Any area of an organisation, often systems
Methodology:	Formalised approach	Range from pragmatic approach to formalised methods & data analysis
Need identified from:	Often planned or mandated programme for quality assurance	Usually identified from a service need
Led by:	Often managers	Everyone

3) Jamtvedt G, et al. Audit and feedback: effects on professional practice and health care outcomes. Cochrane Database Syst Rev. 2006 Apr 19;(2).

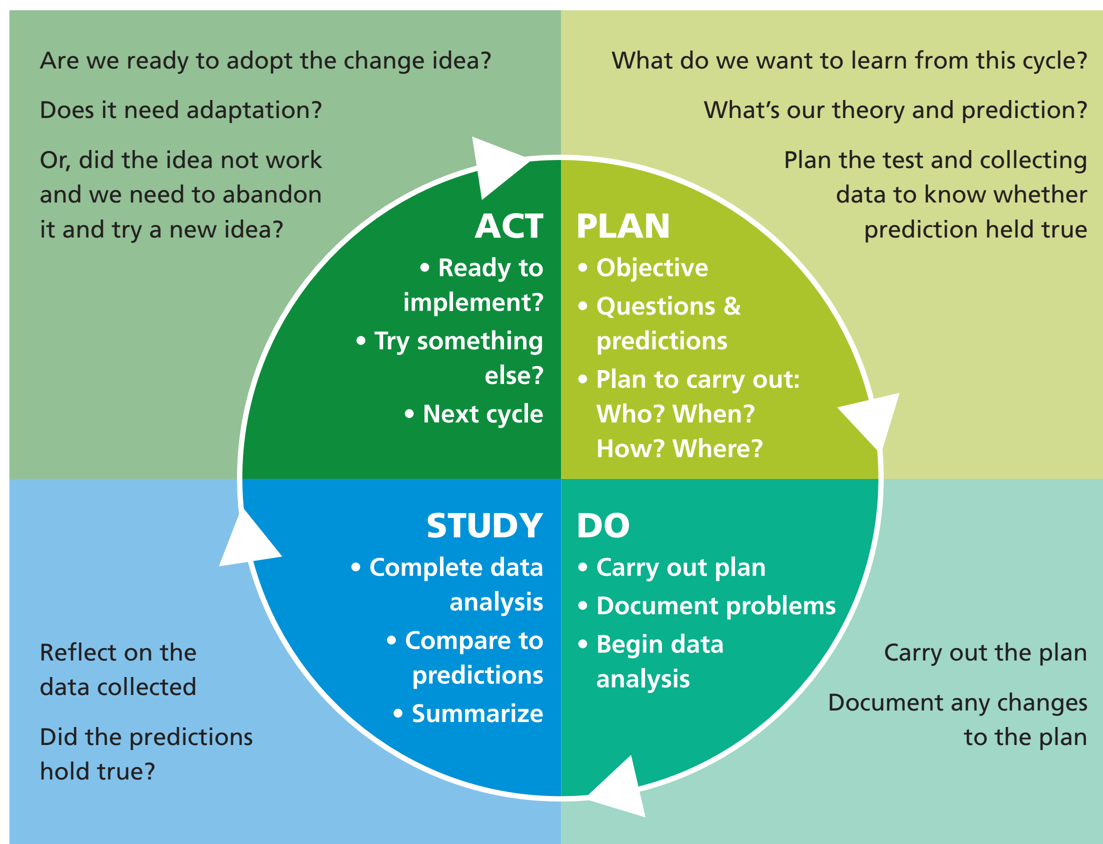
What is the Model for Improvement?

The Model for Improvement helps a team to develop and test out an intervention. The first stage helps teams to frame and identify a measurable aim by asking three questions:

- What are we trying to accomplish (what is the aim)?
- How will we know that a change is an improvement (what is the measure)?
- What change can we make that will result in an improvement (what is the intervention)?

The change is then tested out using a series of **Plan-Do-Study-Act** cycles.

Figure 1: PDSA Cycle



There are other QI methodologies to be aware of, such as Lean and Six Sigma, as these can be helpful depending on the context (see resource section for further information).

How can I identify my measures?

The outcome measure should directly relate to the aim. It is important to identify a measure that is well defined with clear instructions on how data can be collected so that the results are reliable and reproducible by others. For example, when aiming to improve patient satisfaction with ward rounds the measure could be standardised questionnaires based on a five point Likert scale. Process measures may also be helpful to identify – these are measures that will help lead to your aim. Continuing the previous example, process measures to improve patient satisfaction could include the number of patients who are given access to daily structured activities on the ward.

What is a run chart?

Run charts involve plotting data over time and allows the effect of changes to be analysed in real time. If data points are within the control limits this indicates the results are doing so as part of variation we see in everyday life (normal variation). If data points are outside the control limits, this indicates something different has happened (special-cause variation). This can be due to the effect of an intervention or other outside factors such as staff sickness. There are online resources available to help create and analyse run charts (see resource section).

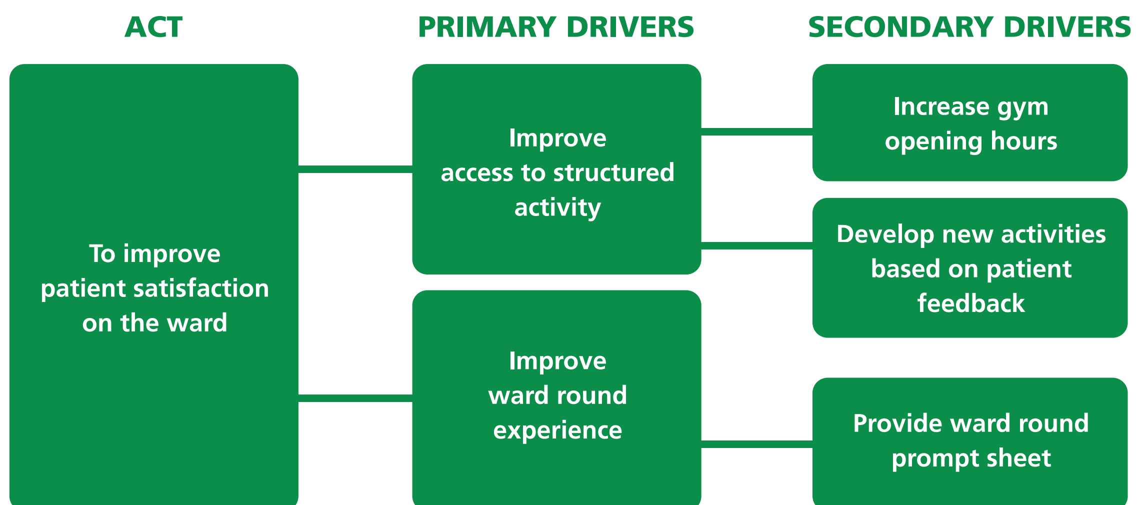
What is process mapping?

Process mapping can aid understanding of a process within a system, for example, a referral pathway or clerking an inpatient admission. It can be used to help a team understand how a particular system or process works, who is involved and how it flows. This can allow unnecessary delays, steps, duplicated efforts or bottlenecks and constraints to be identified that can then form the basis of specific interventions that can then be tested out.

What is a driver diagram?

A driver diagram is a visual tool showing the various factors that impact on the project aim. Primary drivers are factors that lead to achieving the project aim. For example, a project aiming to improving satisfaction with an inpatient ward may have a primary driver to improve patient experience of ward rounds. Secondary drivers are specific interventions aimed at achieving the primary drivers. Continuing the previous example, secondary drivers could include providing ward round prompt sheets to patients before the ward round.

Figure 2: Example Driver Diagram



Tips on starting a QI project

1. Identify your project

Is there a problem with a system or process that contributed to an adverse event? Is there a new guideline that could be implemented more effectively? Could things be done better to improve training or working conditions? The tools outlined above, such as process mapping and driver diagrams, can be used to identify targets for interventions.

2. Work with others

Projects are more likely to succeed where senior members of staff such as the ward manager or consultant are in support. Ideally, involve patients in co-production as they can provide powerful reasons to introduce change. Supervisors or other senior colleagues with experience and enthusiasm for QI can act as a mentor.

3. Identify the need for change

Change can be daunting. It is important advocate for better services, training and working conditions. It can be helpful to use best practice guidelines, research and case studies from elsewhere to show there can be a better way. Become an agent for change.

4. Are the objectives SMART? Are they:

SPECIFIC	THE OBJECTIVES NEED TO BE CLEAR AND WELL-DEFINED.
MEASURABLE	WHAT WILL BE MEASURED TO SHOW AN IMPACT?
ACHIEVABLE	ESPECIALLY GIVEN AVAILABLE RESOURCES, KNOWLEDGE AND TIME.
RELEVANT	DO THE OBJECTIVES ALIGN WITH THE GOAL OR TARGET?
TIME-BOUND	SET A TIME FRAME THAT IS NOT TOO SOON TO BE UNREALISTIC AND NOT TOO LONG TO ENCOURAGE PROCRASTINATION!

5. Start small and scale up

It can be intimidating to try and make a change. Start with small scale tests of change, for example, one patient, one ward, and then scale up. Start with making change as an individual then use that experience to convince others.

6. Demonstrate Improvement

Feedback results on a continuous basis to demonstrate improvement and/or learning. Distribute results through posters in staff rooms and patient areas.

7. Embed change into practice

Think about the environment and systems in which you work. Incorporate change into systems to make it as easy as possible for improvements to be sustained. Don't let projects fade away by passing them on to colleagues when moving between departments.

Trainee QI stories

1. Encouraging meaningful activities in patient with serious mental illness

Dr Musa Ekundayo is a ST4 psychiatry trainee in Derbyshire Healthcare NHS Foundation Trust. He undertook a QI project with his trainer Dr Paul Rowlands, consultant psychiatrist, aimed at improving the quality of life of patients registered under Chesterfield community mental health team.

"NICE defines meaningful activities as any physical, social and leisure activities tailored to each persons need and preference. Encouraging such activities in patients with serious mental illness can help meet some of their basic needs such as having a sense of belonging and purpose in life, but also help to reduce the risk of heart disease, diabetes and CVA.

Using the Model for Improvement we identified the nature and scope of the problem, the changes that need to be made, such as ensuring that clinicians discuss meaningful activities with patients at every consultation (this can be by simply asking "how do you spend your time?").

We used the clozapine clinic of 80 patients as our cohort. We wanted to identify patients that were not engaging in any form of meaningful activities, to explore the reasons for this and educate them on the benefits of engaging in meaningful of activity. The lead nurse gave every patient attending clozapine clinic over a 5 week period a questionnaire to complete. We analysed the data and identified those patients who were not engaging in any form of meaningful activity, and started working with them individually.

We used the PDSA model to identify the causal relationship between changes in process and outcomes. In total, 68 patients completed the questionnaire of which 4 were not involved in any form of meaningful activities. We were then able to support 3 in securing and engaging in meaningful activity - one started a part-time job, one a voluntary job and the third joined an art group - making the QI project a great success.

We presented the results of the QI project to the team encouraging them to maintain the process through continually repeating the cycle to maintain the benefits."

HINTS AND TIPS

Paul’s views:

“Discussing improvement work with junior doctors and others using a QI framework is a great way to develop a dialogue around improving services. Because QI starts from a position of wanting to understand current reality it has built into it an approach that leads naturally to generating constructive feasible ideas. Many years ago I became fed up with repeated audit cycles that changed nothing – QI and the understanding it brings to complex systems, processes and flows was a revelation, as was discovering the specific QI tools that can be used to leverage change within systems.

“The approach of QI – which is all about understanding and collaboration and little about accusation and blame – appeals instinctively to problem solving people such as doctors and whenever a trainee is taking on a project I will always look to frame it in QI terms perhaps trying to understand the outcome we are trying to change through an Ishikawa diagram. As a trainer, QI prompts a lot of learning on my part and the process is almost always an exchange that generates new ideas. I’d recommend anybody new to the ideas to read a little around it and think of how this approach can inject new life into the essential work of trying to achieve the best for our patients and their families.”

2. Incorporating basic physical health investigations into an established community Clozapine clinic in Devon.

Dr Jason Hancock is a ST7 trainee in Liaison Psychiatry. As part of his Masters in Applied Health Services Research Jason worked with an established community Clozapine clinic in Exeter, Devon, to develop an intervention (LiveWellCloz) to incorporate basic physical health monitoring and investigations into the clinic.

Psychiatric trainees are often well placed to complete a QI project that aims to improve detection of physical health co-morbidities within inpatient populations. Instead we decided to incorporate basic physical health monitoring and investigations into an existing community Clozapine clinic in Exeter, Devon. Baseline data analysis indicated that prior to our QI project only a small proportion of this population were having the NICE suggested minimum physical health investigations performed and communicated with their GP. We decided to perform physical health monitoring and investigations, including blood tests and ECGs, within the Clozapine clinic as part of the patient's routine monthly review. Patients then received their annual Clozapine medical review and physical health results at their next clinic visit with their consultant psychiatrist.

We started the process by facilitating patient involvement sessions to determine if patients were likely to accept receiving physical health investigations in this clinic setting. We also held regular 'core group' meetings with a local consultant, clinic nurse and pharmacist to plan our approach and review our progress. During the first year a number of PDSA cycles were conducted to help develop the clinic. These tests of change helped us to develop the process for inviting patients to the clinic, the wording of the invitation letter, the process for acting on blood test results, the physical layout of the clinic, how physical health results were recorded, and how results were communicated with GPs. Over the course of the year as the project developed as two additional community consultant psychiatrists asked to take part after observing how reviewing their own patients in this setting could improve the quality and efficiency of their own annual Clozapine medical reviews.

Over the first year the intervention was offered to 52 out of 80 patients attending the clinic. There were significant improvements in both the proportion of all clinic patients receiving minimum physical health investigations and a significant improvement in the communication of these results with the patient's GP.

We asked for feedback throughout using patient evaluation forms after each clinic. We also conducted qualitative interviews with a sample of patients and primary and secondary healthcare professions in order to determine if the intervention was acceptable. Despite some initial concerns regarding potential communication difficulties between primary and secondary care the intervention was deemed acceptable by all patients and healthcare professionals interviewed.

The main challenges associated with leading this QI project as a trainee was the number of different health professionals involved and the initial reluctance of community consultant psychiatrists to move their annual Clozapine medical reviews into the Clozapine clinic. In part this was due to their concern that they were not sufficiently skilled in the interpretation of physical health investigations. This QI project would not have been possible without identifying a clinic nurse and a consultant willing to 'sponsor' it. Being able to then demonstrate the benefit of the intervention to additional consultants meant that they then approached us asking to take part. Finally utilising

existing tools (such as the LESTER positive Cardiometabolic health tool) to aid basic interpretation of physical health results helped to reduce the anxiety of consultant colleagues. Taking part in this project as a trainee was a fantastic opportunity to develop leadership skills and develop skills in both the development and evaluation of healthcare interventions. It also demonstrated that even without significant financial resources it is possible to significantly improve patient care.

HINTS AND TIPS

Jason's advice:

"Involve patients early in the development of any project ideas. Work with staff and consultants who are most enthusiastic first – they will help you convince their colleagues to change their practise. In this case consultants who were initially reluctant to take part approached us and asked to take part after they could see the potential benefits to their own practise.

"I found that using a variety of methods to evaluate your project helps you to understand more about what is working well, and how the intervention could be improved. In this case quantitative data, staff and patients surveys, and interviews with staff and patients were all used. Find a supportive senior - it could be a consultant, senior nurse or Pharmacist to 'sponsor' the project. Their support will be crucial to help you overcome barriers that you alone may not be able to tackle. Above all, persevere. Change takes time."

3. Inspiring and Driving Multi-disciplinary QI Led Change.

Dr Ross Runciman in a ST4 Trainee in General Adult and Old Age Psychiatry in the Severn Deanery, and vice-chair of the Psychiatric Trainee's Committee. Ross has been involved in developing a group in 2gether NHS Foundation Trust that sought to improve trainee involvement in QI and link projects with trust strategy.

Involvement in Quality Improvement (QI) work is strongly encouraged for junior doctors working in 2gether NHS Foundation Trust. Our experience as three trainee psychiatrists however, was that projects were frequently incomplete, had elements of duplicate work and did not always use robust methodology. Furthermore, we found that junior doctors were working in relative isolation from other multi-disciplinary colleagues.

We started by setting up a "QI café" where medical colleagues could meet with other junior doctors and talk about their QI projects and network. However, this didn't include the multidisciplinary team and had limited impact. Furthermore, QI projects were not being co-ordinated with little oversight. An additional problem was that many consultants weren't trained in QI methodology.

So, we lobbied our Director of Medical Education who commissioned training on QI methodology for consultants and supported trainees to do the same who didn't have access to QI training from other sources.

We also set up a team called QI: Inspiring & Driving Group (or QIIDG) to co-ordinate QI work, support training in QI methodologies and link this activity to the Programme Management Office (PMO) as well as the trust strategy. We have brought together a multidisciplinary team of nurses, psychologists, physiotherapists and doctors alongside non-clinical colleagues from the PMO to meet on a monthly basis. At the meetings we discuss emerging projects, how they link to the trust strategy and pool expertise to help move projects forward.

Our group is keen to reflect the good work being done across the trusts. So we established QI celebration boards in public areas in the hospitals and major outpatient receptions. It was really exciting to see what was already happening and perhaps not known by others in the trust. It was also a natural networking catalyst!

We recognised just as audits are co-ordinated in the trust, we needed to have an idea of what ideas and QI projects were taking place. To capture ideas and the enthusiasm of those looking for QI projects we were kindly enabled by the PMO who have a function in their project management software (Verto) which allows web based submission forms. To formalise active QI projects as well support colleagues to produce run charts, driving diagrams and the like we promoted the LIFE QI system.

Another resource avenue was the Intranet site – we were very inspired by the East London Foundation Trust Internet site – so began by bringing together internal and external resources for QI in one place. We added the different avenues for training, a QI contact list for all professions as well as the link to submit QI ideas via Verto.

Our measures were numbers of ideas submitted to Verto, new users on LIFE QI (an online QI resource) and projects submitted. Indeed we've started a project about our own group.

2gether is now in the process of merging with Gloucestershire Care Services, therefore our QIIDG invited colleagues from this new organisation so as the two trust come together QI activity is similarly co-ordinated, with a catalyst for this being from the new joint chief executive attending one of our meetings. Our work has led to project teams from both organisations collaborating on setting up QI training in house.

The above process has taken almost 3 years, with much work to do, but results for our efforts are starting to emerge. We now plan quarterly 'celebration events' with the first in May 2019. Here we will celebrate the QI work active across both organisations – highlighting the principle that QI was already happening in many places – but also stage workshops on QI methodology and sharing ideas. Finally we have an executive sponsor, the Director of Quality, who is helping us Inspire and Drive into the future!

Developing skills & experience in QI

The level of QI knowledge and experience trainees have should be considered when identifying appropriate QI projects for them to become involved with. Trainees should be encouraged to learn about QI methodology and data analysis, initially applying these under guidance of a supervisor. As trainees develop more skills and experience in QI, they should be encouraged to undertake independent projects. With greater experience, trainees should be able to proactively identify opportunities for QI, supervise other healthcare professionals in QI and lead and evaluate projects independently.

The trainee should reflect on their progress as a QI practitioner and lessons learned as part of their Work Place-Based Assessments and portfolio. Opportunities for WBPA include:

- Journal Club Presentation (JCP) – there are increasing numbers of journals publishing QI reports which can be evaluated through Journal Club Presentations.
- Assessment of Teaching (AOT) – QI project presentations can be a good opportunity for teaching about QI.
- Direct Observation of Non-Clinical Skills (DONCS) – can be suitable for assessing trainees who chair meetings about QI projects.
- Team assessment of behaviour (TAB) – can be helpful to gain feedback about communication and leadership skills.
- Reflections – can be about the challenges of introducing change, working with colleagues resistant to change, or leadership experience gained.

Other opportunities for demonstrating involvement in QI projects include presenting at local, national & international conferences as well as increasing opportunities to publish QI reports, such as in BMJ Quality Open.

The Role of the Supervisor in QI

Supervisors have a key role in encouraging and motivating trainees to become involved in QI. Through regular discussion and demonstrating commitment to QI, supervisors can act as role models to trainees. Supervisors should aim to developing trainee's intrinsic motivation, through discussing how QI can link to their own personal development and development of services to improve patient care, training and working conditions.

For many supervisors, QI may be relatively unfamiliar. Trusts often have QI training and advisors available who can be an invaluable source of information. Supervising trainees in developing QI skills and experience can help trainers to develop their own skills and experience in QI, allowing them to improve their own practice and development, as well as to lead and work effectively with QI services in their own organisation.

The Educational Supervisor

The educational supervisor should encourage trainees to consider a QI project at their initial meeting and guide them to working with the clinical supervisor and any QI resources and training that may be available in their local trust. The project can then be reviewed at the end of placement assessment for inclusion in their portfolio for their Annual Review of Competence Progression (ARCP).

The Clinical Supervisor

Clinical supervisors have an important role in encouraging and assisting the trainee in undertaking QI projects. This can involve identifying projects in their current place of work or helping to finish projects from a previous post. Ideally any new project should be clinically relevant to the post and be undertaken in collaboration with others members of the multidisciplinary team.

Supervisors with QI experience could incorporate QI teaching in supervision sessions. Alternatively, you can direct trainees to training resources (see additional resources) or help signpost them to QI support in your local trust.

Additional resources

- Information about Quality Improvement on the Royal College of Psychiatry Website:
  https://www.rcpsych.ac.uk/workinpsychiatry/qualityimprovement/usingqualityimprovement.aspx
- Trainee Improving Patient Safety through Quality Improvement (TIPS QI) guide to QI developed by and for junior doctors:
  https://tipsqi.co.uk/
- Quality Improvement Made Simple guide:
  http://reader.health.org.uk/QualityImprovementMadeSimple
- Health and social care QI platform built to support and manage QI work:
  https://www.lifeqisystem.com/
- More examples of QI projects in mental health on Mind Set QI Website:
  http://mindsetqi.net/quality-improvement/case-for-change-3/why-access-to-services/
- Website with guidance and examples of QI projects from East London Foundation Trust who have an established base in QI in mental healthcare:
  https://qi.elft.nhs.uk/
- Helpful textbook covering the theory and methodology of QI and patient safety:
  Patient Safety and Healthcare Improvement at a Glance. Edited by Panesar et al. Wiley Blackwell.
- BMJ Quality Open is an open access journal of QI reports:
  https://bmjopenquality.bmj.com/
- Institute for Healthcare Improvement Open School offer more than 30 free online course in QI related topics:
  http://www.ihi.org/education/IHIOpenSchool/courses/Pages/default.aspx
- Q Community has a network of members across the country who can help you to identify local mentors:
  https://q.health.org.uk/
- Helen Bevan's School for Change Agents has modules on how to effect change:
  http://horizonsnhs.com/school/
- Information about Always Events:
  https://www.england.nhs.uk/always-events/

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