Quality Improvement

KING'S IMPROVEMENT SCIENCE

A Theory of Change of the quality improvement training programme at King's College Hospital

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This research was conducted by King's Improvement Science (KIS) in collaboration with the Quality Improvement and Innovation (QI&I) team at King's College Hospital (KCH). The project mapped out how, why and under what conditions the quality improvement (QI) training programme is expected to impact the capabilities of staff to undertake QI activities and ultimately improve care. Its aim was to provide insights to strengthen the Trust's QI approach and training offer, but its findings would be of interest to any healthcare organisation delivering a QI training programme.

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Executive summary

Background

- The National Health Service (NHS) aims to provide high-quality care, which can be defined as care that is safe, clinically effective, efficient (productive), equitable, and focused on creating positive experiences for patients and staff.
- There are significant resource constraints in the NHS, but investment in quality improvement (QI) tools and approaches can lead to more efficient care as well as better outcomes, safety and patient and staff experience. For example, a QI project at King's College Hospital (KCH) reduced the amount of time staff spent looking for urgent care items while simultaneously avoiding approximately £11,500 in costs over 6 months.
- Training staff in QI approaches can enable them to make improvements within their immediate working environment and create an organisation that is dynamic and more responsive to emerging problems.
- The aim of this project was to map out how, why and under what conditions a QI training programme is expected to impact the capability of staff to undertake QI activities at KCH, and to use this understanding to strengthen the Trust's QI approach and training offer.

Method

- We developed a **Theory of Change (ToC)** to address the project aims. A ToC is a diagram that shows how, why and under what conditions the training programme is expected to lead to changes in staff capability, and ultimately improve the quality of care.
- We analysed information gathered during workshops and interviews with QI&I team members, hospital staff, and patient and public contributors, in order to create the ToC. A total of 27 people took part in the project.
- We have tested and iterated the emerging ToC model extensively to ensure that it comprehensively captures the views of the study participants and stakeholders.

The Theory of Change

Below is a summary of our visual map (the Theory of Change) of how the QI training programme is expected to impact staff capability and ultimately improve care.

Figure 1. Visual road map (the Theory of Change) of how the quality improvement (QI) training programme is expected to impact staff capability and ultimately improve care.
KCH = King's College Hospital; QI = quality improvement.

The **ultimate impacts goals** (at the centre of the diagram) of the QI training programme are:

1. improvements in the way that QI is carried out (i.e., better QI support and infrastructure);

2. creating a QI culture, which sustainably improves the quality and experience of care and the day-to-day running (operations) of the hospital for patients and staff.

The **indicators of success** (intermediate outcomes) towards these ultimate goals are:

1. improved awareness of QI, uptake of the training/support and improved knowledge, skills and confidence of staff to undertake QI activities;

2. increased number of QI projects that are team-based, aligned with priorities and needs, and sustained;

3. increased use of data and patient and public involvement in QI;

4. increased sharing, collaborating, learning, spreading, and scaling of QI within KCH and beyond.

The four categories of **early activities and outcomes** needed to impact the indicators of success and ultimate goals are:

1. Inputs: the essential "ingredients" that need to be in place to allow the programme to happen – such as senior leaders actively supporting and enabling QI, and staff time being released for the training and QI activities.

2. Capability Building: the core activities of the training programme, which includes broader activities such as awareness raising of QI, as well as different levels of QI training and practical support for staff and patients.

3. QI Initiation and Implementation: this includes key activities required for effective improvement projects, such as clear mechanisms for staff, patients and the public to raise ideas for improvement, and the use of data to monitor performance and drive change.

4. Connecting and Sharing: this includes key activities for developing collaborative QI networks and sharing and spreading QI learning and initiatives.

We also identified nine **key assumptions and contextual factors** that underly and influence the success of the QI training programme. These are: (1) staff and patients feeling safe and supported to raise issues, make changes and face challenges; (2) the motivation and willingness to participate in training and QI; (3) the effectiveness of the QI methodology and training; (4) data being used appropriately and transparently; (5) sustainability being considered at the start and throughout QI work; (6) effective leaders that support staff; (7) QI governance structures in place; (8) widespread collaboration and an openness to change; and (9) accessibility, inclusiveness and diversity are a key part of the training, patient and public involvement, and QI (i.e., all activities on the ToC).

Findings and recommendations from the study

The current QI training provided at KCH was very well received by study participants. However, the existence of effective QI training was seen as essential but not sufficient in isolation to build a culture of QI and sustainably improve care. Hence, the recommendations that we are making as a result of this study are also aimed at the wider embedding of QI across the organisation, including senior leadership support, awareness raising of QI, and demonstrating that the organisation recognises and values improvement activities. While the primary aim of this study was to provide insights to strengthen KCH's QI training approach, the findings and recommendations would be of interest to any healthcare organisation delivering a QI training programme.

Leadership and organisational approach

- Leaders should have a thorough **understanding of QI** and be **actively** promoting, supporting and enabling QI activities throughout the organisation.

- There should be stronger connections between **quality improvement**, **planning/ redesign, assurance and control** such that they form a comprehensive approach to maintaining and improving quality.

- A **holistic evaluation framework** drawing on pre-existing data as much as possible is required to evaluate and monitor the progress of the QI training programme. Ideally, this should enable measurement / monitoring of the early and intermediate outcomes identified on the ToC.

Diverse engagement and involvement

- Staff at all levels require support to identify **protected time** to engage in the training, QI and patient and public involvement, recognising that this investment can lead to higher quality, more efficient services and cost savings.
- Staff at all levels, patients, and the public from a range of diverse backgrounds need to be **listened to, involved in, and actively supported and empowered to do QI**. Establishing a **diverse project team and involving all relevant stakeholders** as early as possible was seen as particularly important by study participants.
- Active efforts are required to create an environment where **all staff, patients, and the public feel safe to raise issues and make changes.**
- New activities are required to ensure that patients and carers are **meaningfully involved with QI from the very start and kept informed about progress and the changes made as a result of their involvement**.

Communication and collaboration

- All communications around QI and the training should use **simple and plain language**.
- Activities are required to **increase staff and patient awareness of QI, its value, and how to be involved**.
- Leaders and staff at all levels should look **within and outside** the hospital to **understand what is already happening and build collaborative improvement partnerships, groups, and networks**.

QI training and support

- The QI training should have **different levels** (ranging from induction to advanced) and be as **accessible** as possible for all staff and patients (e.g., bitesize or "on-the-go" options).
- **A broader set of QI practical support and resources** (in addition to training) are needed to support and facilitate QI work (e.g., accessible QI coaching, a QI platform).
- Creating l**ong-term and sustainable improvements** in the quality and experience of care should be a central part and goal of the QI training programme and support. However, creating sustained changes and improvements in the NHS can be challenging and requires sustained investment of effort and resources.
- **Accessible data training, support and infrastructure** are needed to allow staff to do data-driven QI.

Section 1: Background

In section 1, we describe why this project was carried out and the overall aim of the project.

Background

The National Health Service (NHS) in the UK has been described as "*crying out for investment and improvement*" as it performs worse than other countries on key health and performance indicators.[1,2] Quality improvement (QI), sometimes referred to as continuous quality improvement (CQI), can be used to improve the quality of care as well as release resources through cost avoidance and increased efficiency. For example, a QI project at King's College Hospital (KCH) reduced the amount of time staff spent looking for urgent care items while simultaneously avoiding approximately £11,500 in costs over 6 months.

> ***Quality*** *can be defined as care that is: safe, clinically effective, efficient (productive), equitable, and focused on creating positive experiences for patients and staff.*

QI is a systematic approach that involves using specific tools, methods, and data to understand problems and develop and test sustainable solutions.[3,4] QI provides people closest to the problems, such as those delivering and receiving care, with the knowledge, skills and tools to make them better.[4] There are several different QI approaches and tools, many of which were initially developed in industry and have since been adapted and used in healthcare.[4,5,6]

Decades of research have demonstrated that it is not a simple question of whether these QI tools and approaches are effective, but more a matter of when, how, and under what conditions they are effective. QI can deliver better care and performance when supported by appropriate infrastructure, leadership, collaboration and training.[7,8,9] Almost all NHS providers rated as 'outstanding' by the Care Quality Commission (CQC) have clear models for QI across their trusts, but not all NHS providers with QI programmes are rated as 'outstanding'.[10]

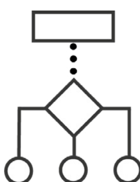
In its 2018 report, the CQC identified key features that facilitated the success of QI programmes in the NHS. Some of these features included having a strategic plan for QI, effective leadership for QI, building improvement skills across all levels and putting the patient at the centre.[8]

Similarly, in the NHS and Virginia Mason Institute (VMI) collaboration, five different NHS organisation delivered the same QI training programme with proportionally similar resources but had notable different results.[7] All five organisations invested heavily in QI infrastructure, a training programme, and leadership behaviours that enable improvement. All five CEOs saw moving to a coaching style of leadership (i.e., "from problem solvers to problem framers") as essential for developing an improvement culture within their organisations.

Trusts that were more successful in the NHS-VMI collaboration differed from the less successful trusts in three main ways:

1. In the years leading up to the NHS-VMI collaboration, more successful trusts had **stable leadership** and made deliberate efforts to develop and maintain a **shared set of simple and unambiguous organisational values** that everyone was aligned to.

2. There were **higher levels of social connectedness**, particularly reciprocal and distributed social networks (in other words "everyone talking to everyone"), at more successful trusts.



3. The more successful trusts used a **top-down (instead of bottom-up) structured approach to target their improvement activity** to areas that were salient organisational and national priorities. The trusts that adopted this approach had already invested considerable time in developing collective understanding of and alignment to the organisational values and priorities ('cultural work').

Research shows that there is no one-size-fits-all approach to developing and embedding QI capacity and capabilities within NHS organisations. The timing, form and importance of facilitative activities and conditions will heavily depend on the structure, context and state of the healthcare provider. Every improvement journey looks different with its own unique challenges and successes. The current quality improvement and innovation (QI&I) team at King's College Hospital (KCH) started its QI training journey in 2016. To date, there have been several iterations of the QI&I team's identity and training offer.

Project aims

The aim of this study was to create a Theory of Change (ToC) map (a diagram) for how, why and under what conditions the QI training programme at KCH is expected to impact the capability of staff to undertake QI activities and ultimately improve care.

The map will show the ultimate goals of the programme and the way the programme activities are expected to lead to change and impact these goals. More specifically, our objectives were to identify:

- the early and intermediate outcome(s) required to impact the ultimate goals of the training programme;
- the activities and knowledge sharing mechanisms required to bring about the outcomes and ultimate goals;
- and the assumptions and key contextual factors influencing the success of the QI training programme.

The findings of this study are expected to support KCH to continue its QI journey in a way that is grounded in the experiences of staff, QI specialists and patient and public members at the hospital. A list of recommendations and areas for focus at KCH are provided at the end of this document.

Section 2: Methods

In section 2, we summarise our overall approach, what we did and how we analysed the data.

Overall approach

In this study, we developed a ToC map for the QI training programme. The ToC map is a diagram outlining how, why and under what conditions the QI training programme is thought to work, and lead to change. The map includes: the **ultimate impact goals** (i.e., the ultimate change or impact the programme is trying to achieve), the **short-term and intermediate outcomes** ("indicators of success") that must exist to reach the ultimate goals, the **programme activities** and the **assumptions and environmental conditions** needed to facilitate the programme.

We collected and analysed qualitative data (i.e., written notes and audio recordings) in the study, which were used to create and update the ToC. The Aspen Institute Community Builder's Approach to Theory of Change[11] and guidance by De Silva and colleagues[12] were used to guide the study design.

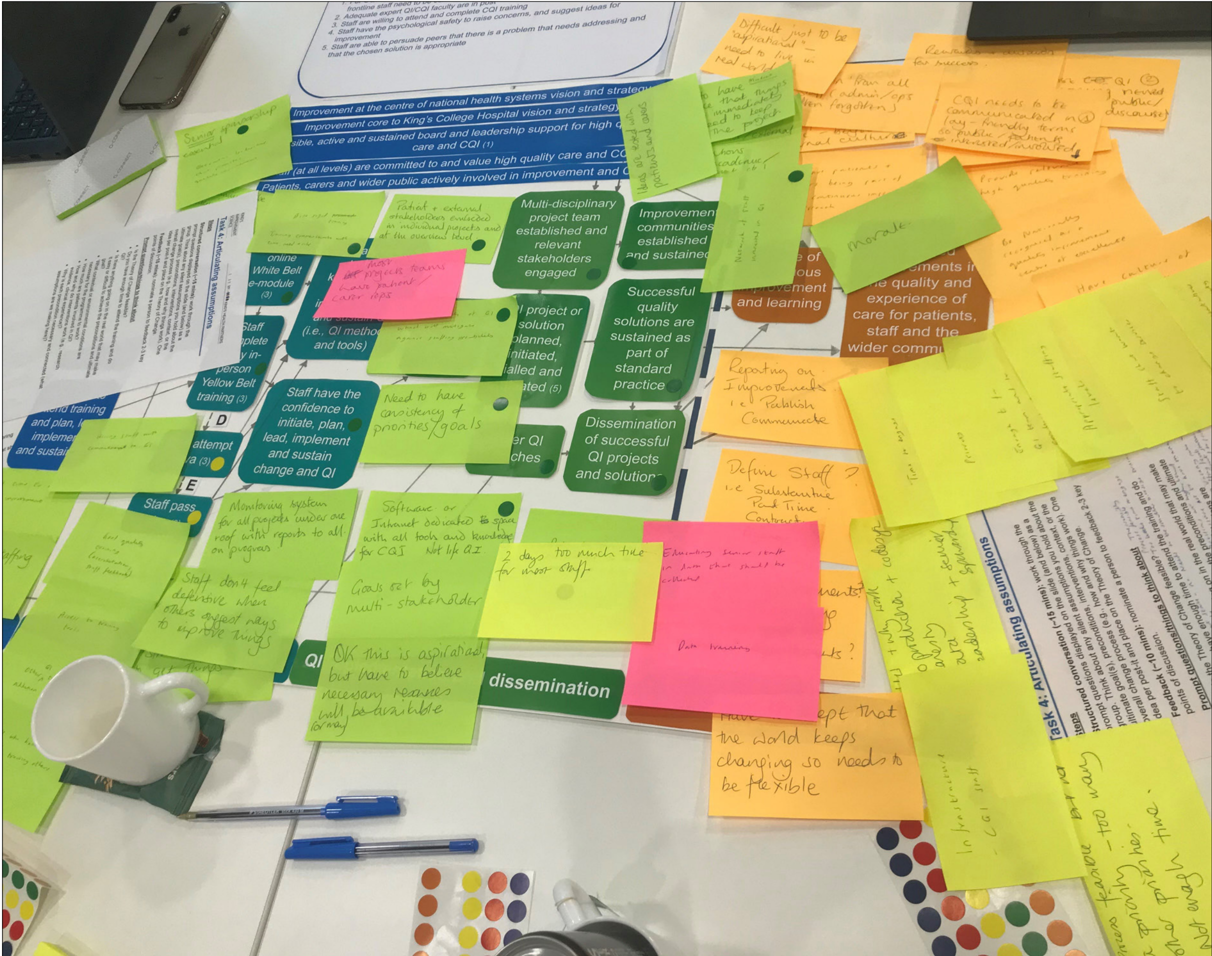


Figure 1. A photograph of the participants' written notes on the Theory of Change map during the first workshop

Procedure and analysis

The ToC was gradually developed and updated in phases. The very first version of the ToC was created using information from the hospital's QI training materials and research reports (the research reports used to create the ToC are asterisked in Section 6: References). Members of the QI team, hospital staff, and patient and public members who had signed up to or completed the in-depth two-day QI training were invited to take part in the study.

Of the 91 potential participants, 20 people took part in the study (six QI team members, 12 hospital staff members and two patient and public members). An additional seven patient and public members also contributed to workshops in the final phase of the study. Most of the staff were either nurses or managers.

Two interactive workshops were completed. One in November 2022 and one in February 2023. There were 7 participants in each workshop (some participants attended both workshops). The workshops involved reviewing and providing feedback on the ToC through a series of interactive tasks and discussions. Ten people who were unable to attend the workshops completed a virtual or in-person interview instead. The ToC was updated after each workshop and each block of interviews (three times in total). The updated version was distributed to the participants for further feedback. All the written notes from the workshops and audio recordings from the interviews were then analysed by four researchers using a framework analysis approach.[13] The analysis was used to identify overarching themes and subthemes in the qualitative feedback. The findings of the framework analysis were then used to update the ToC.

In the final phase of the study, the ToC map and findings were presented to eight patient and public contributors for review and feedback (in three workshops in September and October 2023). Overall, the patient and public contributors felt that the findings resonated with their experiences and that the diagram made sense, but they were sceptical about whether the ToC and QI could deliver improvements because of the current context/environment at the hospital (e.g., resource constraints). Many of the points raised by the patient and public contributors aligned with the feedback from study participants. However, several points, especially around the way patient and public involvement (PPI) is done at KCH, were not raised in the earlier workshops. The patient and public feedback has been integrated into the qualitative feedback and conclusion section of this report. The ToC map was also further developed in response to the feedback from patient and public contributors. Three final versions of the ToC were created with varying levels of detail.

Section 3: Findings

In section 3, we summarise the findings and the ToC map.

Theory of Change

The ToC map in **Figure 2** was developed using the qualitative findings outlined in **Section 6: Appendix**. While substantial efforts were made to ensure that the ToC was aligned with the qualitative feedback, not all details could be included on the ToC map, which is intended to be a simple reference for key components of the change process rather than a detailed plan of precisely how the change process will happen. Two other versions of the ToC map (a simple and detailed version) are provided in **Section 6: Appendix.**

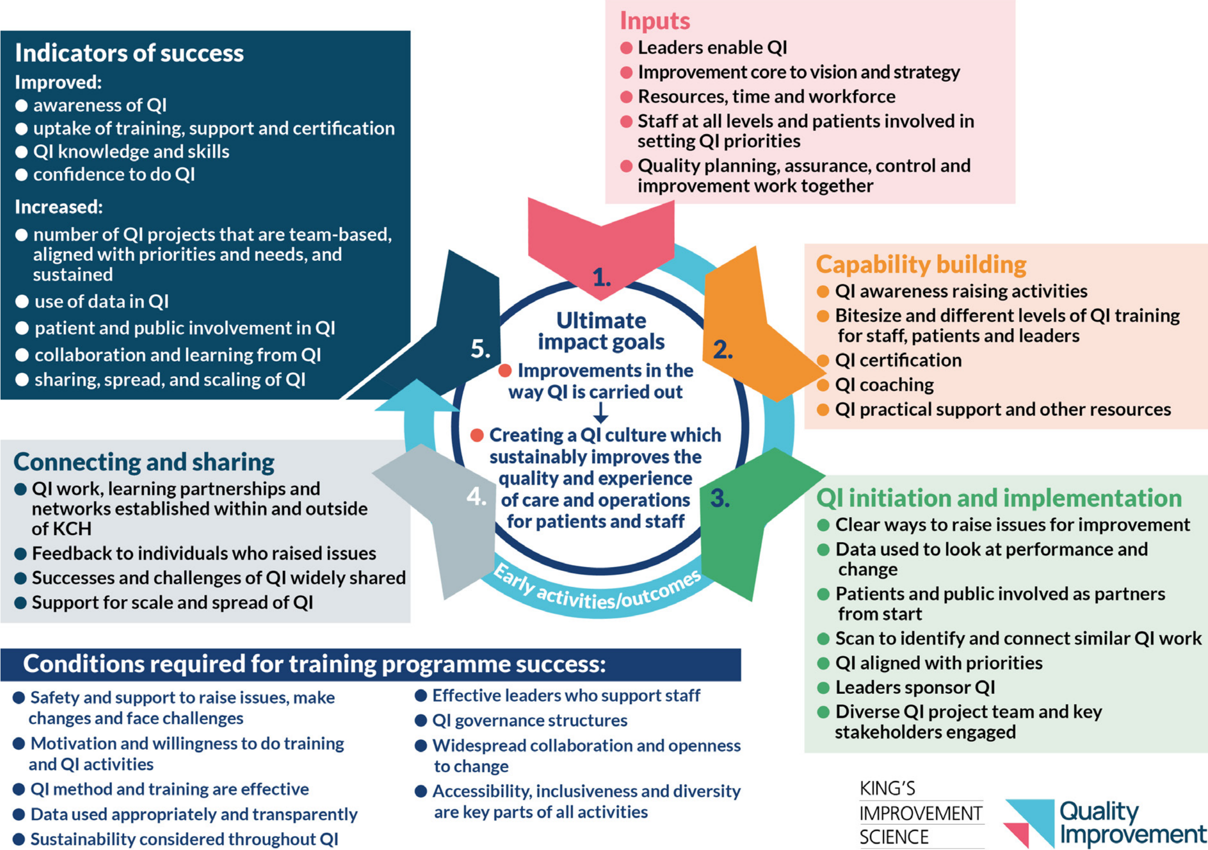


Figure 2. Visual road map (the Theory of Change) of how the quality improvement (QI) training programme is expected to impact staff capability and ultimately improve care. KCH = King's College Hospital; QI = quality improvement.

A landscape version of Figure 2 is available at https://kingsimprovementscience.org/projects/developing-a-theory-of-change-for-the-quality-improvement-training-programme-at-kings-college-hospital

Ultimate Impacts Goals

The ultimate impacts goals of the training programme at the centre or 'heart' of the ToC map are:

1. improvements in the way that QI is carried out (i.e., better infrastructure, systems and processes supporting QI), and

2. creating a QI culture, which is closely linked to sustainable improvements in the quality and experience of care and operations (day-to-day running of the hospital) for patients and staff.

Creating sustained changes in the quality and experience of care was seen as a particularly important goal but very challenging to do in practice. Sustained changes require continued attention and efforts over time to ensure that the changes are embedded into the routine work of the hospital.

> *Sustainability definitely should be at the heart of everything that is planned for.*
> **Interview participant**

Surrounding the ultimate goals are the early and intermediate activities and outcomes that collectively should impact the goals. The early activities and outcomes were grouped into four categories: **Inputs, Capability Building, QI Initiation and Implementation, and Connecting and Sharing**.

Inputs

The Inputs are the key building blocks required for the programme to happen. Specifically, leaders supporting and enabling staff to do QI; quality and improvement being core to KCH's vision and strategy; adequate resources, time and workforce for the training programme and QI; staff at all levels, patients and the public are involved in setting QI/improvement priorities; and a single, consistent system where quality planning/redesign, assurance, control and improvement are interconnected and work together to plan, maintain, and improve quality.

> *… buy-in from the top is probably the key to all this to be honest.*
> **Interview participant**

> *The biggest barrier to the ultimate goals is staff not having the time to go to the training.*
> **Workshop participant**

Capability Building

The second category, Capability Building, is the core of the training programme. The first set of activities in this category are QI awareness raising activities tailored to the interests and needs of all staff, patients, carers and the public. This is because people need to be made aware of the existence and value of QI and the training before they can engage in it. The awareness raising should use a range of different activities and mediums and simple and plain language.

The second set of activities includes staff, leaders, patients and the public being provided with the appropriate level of training to equip them with the knowledge, skills and confidence to do QI. The training should have different levels ranging from a brief induction e-learning module to a lengthy and in-depth QI coaching programme. If desired, trainees can also work towards and obtain certification in QI methods. The training should be made as accessible as possible for different groups and staff members by offering Bitesize, "on-the-go" and/or refresher training.

Examples of successful and unsuccessful QI work and reasons why the work did or did not work could also be incorporated into the training to further support learning with concrete examples. Alongside the training, staff, patients, and the public should be able to access QI coaching and a range of other types of practical support and resources to support and facilitate their ability to do QI (including a QI online platform, templates/tools, data training and an accessible repository of current and past QI projects).

> *We need training. We need events and we need communication. We need coaching.*
> **Interview participant**

QI Initiation and Implementation

The third category, QI Initiation and Implementation, outlines key activities and outcomes required for effective QI project initiation and implementation. First and foremost, there need to be clear ways for staff at all levels, patients and the public to raise issues for improvement (e.g., reflective team routines for staff and close links between the QI team and the patient experience, complaints and involvement teams for patients and the public).

Patients, carers and the public should be involved as equal partners from the very start and throughout any QI work (e.g., from the point of deciding what should be improved and how). Data should also be used appropriately and transparently by senior leaders and staff to understand the issue and the impact of any changes in the short and long-term.

> *Any kind of importance would come down to the involvement of patients and public, making sure they're involved.*
> **Interview participant**

Senior leaders and the QI team should also support staff to align QI work with organisational and national priorities as much as possible. The QI work should, where possible, be linked to any similar QI work and networks within and outside the hospital. A scan (by the QI team or staff) to identify similar work will likely be required at the outset to create these linkages. Establishing a diverse team for the QI work and engaging with all relevant stakeholders (i.e., those who can or are affected by the issue/improvement) was also considered as fundamental for creating relevant and long-term improvements in care. Finally, senior staff sponsoring QI work was considered as important, as it can provide oversight, accountability and high-level support to unblock barriers.

Connecting and Sharing

The fourth category, Connecting and Sharing, involves sharing and spreading QI work both within and outside the hospital. Specific time and effort need to be allocated to creating learning partnerships and peer networks/groups within and outside the hospital. QI partnerships and networks can foster learning, avoid duplication, save time, provide a safe space for talking about what has and has not worked, and increase the reach and impact of QI. These networks could involve learning visits, QI events/showcases, sharing of the successes and challenges of QI in regular meetings, and cross-departmental or organisational QI programmes. A wide range of stakeholders from within and outside the hospital should be involved in these networks to ensure

differing perspectives are included and to overcome care fragmentation (e.g., patients and the public, voluntary sector, other trusts and community services).

> *I'm really a keen advocate of networking and sharing information. I think having opportunities to share information with external partners that allows us to critically look at our own practice and learn from others.*
> **Interview participant**

Staff and patients who raised issues or have been involved in QI work should also be kept informed of the progress of the work and the impact of their involvement (this can motivate and encourage further involvement). Not keeping patients and carers informed about the progress of the project or the impact of their involvement can lead to frustration and disengagement. Many people become involved in QI because they want to see changes as a result of their involvement. If changes cannot be made, then patients and carers should be informed about this decision and given a reason why.

As part of a broader QI communication strategy, the small and big successes, challenges and learning from QI work at the hospital should be widely shared and celebrated within and outside the hospital. Demonstrating the relevance and tangible benefits of QI was considered as essential to increase staff, patient and public engagement. Finally, there should be specific QI team support to spread and scale QI work that has been successful.

> *There is a value in talking about success and failures.*
> **Interview participant**

Indicators of Success

Between the early activities/outcomes and the ultimate goals are the indicators of success. These are the intermediate outcomes that would indirectly indicate success and need to exist to make progress towards the ultimate goals. These indicators include: improved awareness and uptake of QI and the training programme; improved knowledge, skills and confidence to do QI; an increased number of QI projects that are team-based, aligned with priorities, and sustained; increased use of data in QI; increased patient and public involvement in QI; and increased sharing, collaborating, spreading and learning from QI. For there to be progress towards the ultimate goals, these indicators of success should be evident across every level from junior to senior staff and patient and public members.

Assumptions

Finally, at the bottom of the diagram, are **key assumptions and contextual factors (i.e., conditions)** that underly and influence the success of the QI training programme, these are:

1. Staff and patients **feeling safe and supported** to raise issues, make changes and face challenges;

2. Motivation and willingness to participate in training and QI;

3. The **effectiveness** of the QI methodology and training programme;

4. Data being used **appropriately and transparently**

5. Sustainability being considered at the start and throughout QI work;

6. Effective leaders that support staff;

7. QI governance and oversight structures in place;

8. Widespread **collaboration** and **openness** to change;

9. Accessibility, inclusiveness and diversity being an essential part of the training, patient and public involvement, and QI (i.e., all activities on the ToC).

> *"…just generally, assumption that staff are supported in quality improvement ideas, speaking up about ideas, and then assuming that they're supported and then carrying out training, attending training, and then delivering QI implementation."*
> **Interview participant**

> *"… it's always an assumption is to make sure that there is a diversity and it's been increasing in diversity and voices."*
> **Interview participant**

> *"We have to collect data and share them diligently no matter how it looks."*
> **Interview participant**

Section 4: Conclusions and recommendations

The current QI&I team at KCH began its QI training journey in 2016. While there has and continues to be progress in the training offer, the findings of this study suggest that QI remains at the fringes of the hospital. It is not yet part of "*the way things are done around here*". In other words, there is yet to be a truly sustained culture of improvement. The CQC highlight that QI is not an optional extra but a necessary approach for hospitals in order to provide high quality and sustainable care.[8]

> *We would want to have a culture of continuous improvement, because that's how we make changes in healthcare. And as you know, healthcare is continuously changing and we need to keep up to date with it. But the reality of it is that the culture doesn't exist.*
>
> **Interview participant**

The KCH QI training was well received by study participants and seen as essential but not sufficient in isolation to build a culture of QI and sustainably improve care. Features of the context were consistently highlighted as constraining or facilitating the effectiveness of the training. One of the most frequently mentioned features was leadership at all levels thoroughly understanding QI and actively supporting and enabling all staff and patients to participate in QI activities. Effective leadership for QI creates the right conditions for it to flourish. It is closely linked to several other key contextual factors, including protected time for staff to engage in QI, QI governance and oversight (which is linked to organisational priorities, progress monitoring and accountability), and an environment where staff and patients feel listened to, empowered and safe to raise issues and make changes. While experiences of leadership varied, a lack of leadership support for QI could be a barrier for doing QI at KCH.

Resource constraints and staff shortage were also frequently mentioned as key contextual factors impacting the uptake and effectiveness of the training. All staff, including leaders and junior staff, are working in difficult conditions with high levels of economic and workforce constraints. Staff at all levels require adequate and protected time to allow them to do the training and QI. Investment of time in QI can release resources through improved efficiency and productivity while simultaneously improving the outcomes and experiences of patients and staff.[14]

In addition to contextual factors, participants highlighted the importance of awareness, accessibility, and sharing of QI for the uptake and impact of the training programme. Participants spoke about the need to make QI and the training more visible and accessible to all staff, patients and the public. Engaging in QI and the training programme starts with awareness about its existence.

Widespread sharing, collective problem-solving and improvement-focused peer networks within and outside the hospital were also consistently mentioned as important for the effectiveness, reach and impact of QI. It is more efficient to learn from the successes, challenges and missteps of others – rather than make the same mistakes ourselves. Peer communities can also energise and support each other through challenges and provide a degree of peer accountability.[15] Truly partnering and collaborating with patients, carers and the public as early as possible to deliver improvements was also seen as essential, but inconsistently done at KCH. These are

the people on the receiving end of services so their input, alongside staff "on the shop floor", is vital. Seeking the input of different and diverse perspectives irrespective of role and seniority can increase the relevance, uptake and impact of QI.

Below are our key recommendations and areas for attention based on the findings of this study. Each will contribute towards and interact with each other to facilitate KCH's vision to provide outstanding care and become a listening and learning organisation, where improvement becomes embedded in everything the organisation does.[16] Many of our recommendations overlap with the components of NHS IMPACT, which is the new, unified approach to improvement in the NHS (e.g., developing leadership behaviours, embedding into management systems and processes, investing in people and culture).[17] The findings and recommendations of this study would be of interest to any healthcare organisation planning to or delivering an organisation-wide training programme for QI.

Key recommendations from the study

Leaders and organisational approach

> *...it's about the people at the top or the people who hold the power being completely on board and understanding the methodology and actually encouraging the methodology.*
> **Interview participant**

- **As a priority, leaders should have a thorough understanding of QI and be actively promoting, supporting and enabling QI activities throughout the organisation.** We recommend training and inducting everyone in a leadership position in the importance of QI as a tool for improving organisational performance. This should include KCH's QI approach and their role in facilitating QI (e.g., coaching style of leadership, sponsorship and governance, creating routines to allow for improvement). In trusts that have successfully embedded a culture of improvement, all staff in leadership positions are expected to undergo QI training.[7,8]

> *... having the support of your manager definitely would make it easier. I often think it's a bit pointless training a Band 5 nurse in QI methodology, if everybody above them [...] has not done it or certainly if the ward manager has not done it because nobody is talking in the same language which makes it really difficult.*
> **Interview participant**

Leaders set the precedence for how the organisation works, so their visible endorsement of QI and the ethos of listening, learning and improving is essential for training programme success and reaching KCH's vision of being a listening and learning organisation. Leaders actively supporting and participating in improvement initiatives strengthens the importance of a continuous improvement and learning mindset. Leaders also have an instrumental role in the oversight and governance of improvement work (through sponsorship and reporting mechanisms). Greater attention to QI and its relation to other features of the quality system (e.g., quality assurance) are required at senior strategic, operational and Board and Executive level (e.g., via standing agenda item and reporting at Board level).

● **There should be stronger connections between quality improvement, planning/ redesign, assurance and control such that they form a comprehensive approach to maintaining and improving quality.** An effective, interconnected quality management system (QMS) allows for improvement work to be co-ordinated and targeted at what matters most to patients and staff. Carefully balancing resources across all four components can allow the organisation to work together towards the shared goal of providing the highest quality care to patients.[18] For this to happen, each quality team (including QI&I) will need to ensure they have consistent internal processes within and between their teams. There will also need to considerable investment and co-development of data systems and reporting frameworks to underly the QMS. Leaders and the QI&I team should work with frontline teams to align QI work with organisational and national priorities.

> *QI has to be part of the organizational governance structure for it to work.*
> **Interview participant**

● **A holistic evaluation framework drawing on pre-existing data as much as possible is required to evaluate and monitor the progress of the QI training programme components and ultimate goals.** Ideally, this should enable measurement / monitoring of the early and intermediate outcomes and activities identified on the ToC. Participants identified several specific indicators for these outcomes, which can be grouped into eight broad categories: (1) QI awareness, interest and sharing; (2) enabling leadership; (3) safe and open environments; (4) training uptake, experience and translation; (5) patient and public involvement; (6) diverse stakeholders and teams; (7) QI stage, impact and sustainment; and (8) financial and internal operations.

Diverse engagement and involvement

> *An inclusive, respectful, diverse and transparent culture [...] where all voices are valued and heard.*
> **Patient and public contributor**

● **Staff at all levels require support to identify protected time to engage in the training, QI and patient and public involvement, recognising that this investment can lead to higher quality, more efficient services.** Leaders and managers should support staff to create the time and space for training, QI and patient and public involvement (being careful in their approach as it can add further pressures to an already pressured workforce). Resource consequences for this could be reduced by offering a range of shorter QI training options. Integrating improvement and QI into inductions, job roles, and/or appraisal processes can further facilitate protected time as well as staff seeing improvement as part of their everyday work.

● **Staff at all levels, patients, and the public from a range of diverse backgrounds need to be listened to, involved in, and actively supported and empowered to do QI.** Establishing a diverse project team and involving all relevant stakeholders as early as possible was seen as important for reaching the programme goals. An inclusive and diversity focused framework should be adopted to ensure that all voices are included and heard, such as, junior staff, older patients, those with diverse disabilities and underrepresented groups. This framework could include inclusive leadership, flexibility, and specific efforts to support diverse physical, psychological, and social needs. Diverse teams and stakeholders can harness the strength of different knowledge, skills and

perspectives to create relevant and sustainable improvements.[19] Managers and leaders can play a key role in ensuring that junior staff feel encouraged and empowered to be involved, especially as QI was generally seen as "top-down" within the organisation.

> *They're not involved. I think their voice is more important, because they're the ones who know what changes need to be made. But it almost seems that the changes and the decisions is more of a top-down approach [...] the people who were on the shop floor who were raising concerns and were coming up with very good ideas of how things could work differently, they were not listen to and it almost felt like it was imposed on them.*
> **Interview participant**

- **Active efforts are required to create an environment where staff and patients feel safe to raise issues and make changes.** Leadership behaviour is key in creating an environment where staff and patients feel safe and supported to speak up with ideas or concerns and make changes.[20,21] Leaders can role model behaviours and create space and routines for reflective practice, performance monitoring, and raising ideas or issues. Leaders that are open, inclusive, compassionate and demonstrate humility and integrity can create safe and learning orientated environments. Also, if staff believe that their contributions are valued, they are more likely to speak up. High levels of trust and collaboration within teams can also create a feeling safety. Hearing about the experiences of others and openly talking about issues/challenges as learning points rather than punitively may encourage an open and learning orientated environment.[21]

> *...you need to start with changing the culture, and really embedding that compassionate leadership and psychological safety, where people feel they can speak up.*
> **Interview participant**

- **New activities are required to ensure that patients and carers are meaningfully involved with QI from the very start and kept informed about progress and the changes made as a result of their involvement.** Patient and public contributors stressed the importance of ensuring that involvement is truly collaborative, inclusive and non-hierarchical, where all voices are respected and valued.

> *PPI means we leave hierarchy at the door so there is no us and them.*
> **Patient and public contributor**

Currently, patient and public involvement (PPI) in QI is variable at KCH and can be perceived as a "*nice to have*" rather than essential. QI projects should include at least one patient/public representative (ideally 2-3). Active efforts are required to make patients and carers feel safe to speak up and raise concerns. Clearer systems are needed to allow patients and carers to raise issues for improvement and then be able to see that they have been meaningfully addressed or turned into improvements (e.g., updates on progress throughout the project, and simple "you said, we did" documents to communicate changes). Responses to complaints or raised issues should explain if and how it could be addressed, and if it is not possible, an explanation as to why. Payment for time, reward and/or recognition for involvement were also considered as important and are recommended by involvement guidance and standards.[22,23] However, we cannot assume that all contributors will want the same payment, reward or recognition and this should be discussed and agreed at the start of any involvement work.

There were several suggested activities which could facilitate more involvement in QI at the trust:

1. QI&I team working closely with the patient advice and liaison service (PALS), patient groups, and the complaints and involvement teams;

2. systems and processes for patients, carers and the public to raise issues for improvement directly with the QI&I team;

3. patients being involved in developing QI&I team priorities and workplans, such as a QI reference/steering group;

4. education/training for staff on the value of and how to do meaningful, inclusive and non-hierarchical involvement (ideally, embedded within the QI training);

5. training and support for patients to increase knowledge, skills and confidence to be involved. Patients and the public should be involved in the development and delivery of any PPI-related training or support;

6. patient involvement being championed and driven forward by managers and senior staff.

Communication and collaboration

● **All communications around QI and the training should use simple and plain language**. Everything should be as inclusive and accessible as possible. Communications should also be relatable, interesting and focus on what matters most to staff and patients. Specific tests of the accessibility of the language and materials could be performed.

> “*CQI [continuous quality improvement] needs to be communicated in lay-friendly terms so public/patients interested and involved. Otherwise, QI risks becoming seen as bureaucracy.*”
> **Workshop participant**

● **Activities are required to increase staff and patient awareness of QI, its value, and how to be involved**. A variety of awareness raising activities should be used, such as, newsletters, posters, champions, a QI website, events, and outreach work with staff and patients. The benefits and successes of small and big QI work should be widely celebrated and shared. Examples of successful small and big QI projects could also be incorporated into the training itself to showcase the benefits of QI.

> “*The lack of engagement is because of lack of awareness [...] people just need to be made more aware of it.*”
> **Interview participant**

● **Leaders and staff at all levels should look within and outside the hospital to understand what is already happening and build collaborative improvement relationships, groups, and networks**. All staff need to be actively supported and encouraged to develop and maintain these collaborative learning partnerships, groups and networks (including a consideration and commitment of time/resources). Ideally, the groups/networks should include a range of stakeholders, including patients and the public, other hospitals, primary care, voluntary sector and community services.

> *We can save a lot of time and resources by learning from each other.*
> **Interview participant**

The QI&I team could support the development of these networks by:
1. scanning to identify and connect staff with individuals working on similar projects within and outside the hospital;

2. provide support to connect with peer coaches/networks;

3. providing education on the value and how to develop improvement networks;

4. facilitating the development of improvement groups, forums, and learning visits;

5. running QI-related events and showcases.

QI training and support

> *The QI team is the Continuous Improvement Team that did my, that carried out the yellow belt team training, they were the best thing.*
> **Interview participant**

● **The QI training should have different graded levels (ranging from induction to advanced) and be as accessible as possible for all staff and patients (e.g., bitesize, refresher or "on-the-go" options)**. The form of and communication around the QI certification assessment (viva) needs to be carefully considered to ensure it is accessible and does not deter staff (e.g., communicated as a sharing and learning process rather than a pass/fail test). Where possible, training should be delivered in person, targeted at teams/groups and integrated/connected to other training available at the hospital (e.g., safety). The accessibility could be increased by delivering some sessions in departments.

A greater focus on human factors and systems thinking in the training may also deepen the understanding of problems and potential solutions.[8,24] Providing examples of successful and unsuccessful QI work and reasons why the projects were or were not successful within the QI training sessions could support learning of the benefits and challenges in delivering QI projects or initiatives.

> *Not everybody will be able to do two whole days of training, bitesize training should be considered.*
> **Workshop participant**

● **A broader set of QI practical support and resources (in addition to training) are needed to support and facilitate QI work (e.g., accessible QI coaching)**. Greater attention to the role of communications, data infrastructure, QI coaching and other types of practical support are recommended. QI coaching was a valued aspect of the training programme, but participants wanted this to be available to anyone regardless of whether they have done the training. The QI&I team should focus on developing easily accessible, quick and "on-the-go" QI support/advice, by for example providing readily available coaching (by the QI&I team or peers) or a QI "helpline" and drop-in sessions for quick advice. Peer coaches can allow for local, team-level support and capability.

> There's nothing worse than being excited about something, you get to a critical stage, you need help and then you can't get it.
> **Interview participant**

Other types of support that were suggested by participants include:

1. QI platform or website with access to templates/tools, peer networks, and analytical support;

2. a repository of past and ongoing QI projects which can be easily accessed by staff;

3. customised QI sessions delivered to teams/groups;

4. publication and funding support;

5. mechanisms to support staff to spread and scale successful improvements.

● **Accessible data training, support and infrastructure are needed to allow staff to do data-driven QI**. Appropriately and transparently using data to understand problems and the short and long-term impact of change were seen as essential. Data should be used as a lever for learning rather than for management control and blame.[8] This will require leadership commitment, IT/data infrastructure, data training, data, and reporting frameworks.

● **Creating long-term and sustainable improvements in care should be a central part and goal of the QI training programme**. Creating sustained changes and improvements in the NHS is challenging and requires continued investment of efforts and resources over time. This is why developing a culture of continuous improvement was seen as a very important and closely linked goal of the training programme. A continuous focus on improvement as part of people's daily work (i.e., a culture of improvement) would result in ongoing monitoring of and improvements in the quality of care. We recommend that staff are supported to and educated on how to create long-term and sustainable changes, by for example, encouraging careful planning for sustainability from the start and at critical points in the project, providing a written or visual outline of current best practices for a task, and encouraging staff to work in teams to make improvements.[25]

> A lot of focus will be on getting a project going and moving forward and kind of finishing it. And then it's actually what happens after that. And sometimes I think that's the bit that things fall down.
> **Interview participant**

Limitations to this project

There are a few key limitations to this study that are important to hold in mind while interpreting the findings. First, while considerable efforts were made to recruit as many trainees as possible, only ~20% (20) of those invited took part. The main reasons given for not taking part were that people did not have the time or did not work at the hospital anymore. All main themes were raised early in the study and mentioned consistently by participants, suggesting that we had an adequate sample size to capture the key themes for this study. Previous ToC studies have recruited between 15-38 participants for ToC development workshops.[5,26]

Second, while efforts were made to align the ToC with the qualitative feedback as much as possible, not all details could be included on the ToC map. The ToC map is intended to be a simple reference for key components of the change process rather than a detailed implementation plan. Relatedly, efforts were made to ensure that the ToC map remained data driven (e.g., continuously moving between the data and ToC map, sending the updated map to study participants). However, the research team made the final decision of what was or was not included and how the information was included on the ToC map. Finally, the data collected in this study are a snapshot of a single point of time and therefore the ToC will need to be iterated and adapted as the programme progresses.

Section 5: References

1. Anandaciva, S. (2023). *How does the NHS compare to the health care systems of other countries?* Retrieved from https://www.kingsfund.org.uk/insight-and-analysis/reports/nhs-compare-health-care-systems-other-countries

2. Limb, M. (2023). The NHS is "crying out for investment," say authors of study comparing 19 health systems. BMJ, 381, 1451. doi:10.1136/bmj.p1451

3. Healthcare Quality Improvement Partnership. (2020). *A guide to quality improvement tools*. https://www.hqip.org.uk/resource/guide-to-quality-improvement-methods/#.YvbJdBzMJc8

4. *Jones, B., Kwong, E., & Warbuton, W. (2021). *Quality improvement made simple: What everyone should know about health care quality improvement*. Retrieved from https://www.health.org.uk/publications/quality-improvement-made-simple

5. *Balayah, Z., Khadjesari, Z., Keohane, A., To, W., Green, J. S. A., & Sevdalis, N. (2021). National implementation of a pragmatic quality improvement skills curriculum for urology residents in the UK: Application and results of 'theory-of-change' methodology. *The American Journal of Surgery, 221*(2), 401-409. doi:10.1016/j.amjsurg.2020.12.007

6. Olaitan, A., Tien, T., Russ, S., Tapper, J., Herrington, E., Green, J., & Chaudhri, S. (2023). Quality improvement in urological care: Core methodological principles. *Journal of Clinical Urology, 0*(0). doi:10.1177/20514158221144344

7. *Burgess, N., Currie, G., Crump, B., & Dawson, A. (2022). *Leading change across a healthcare system: how to build improvement capability and foster a culture of continuous improvement*. Report of the Evaluation of the NHS-VMI partnership. Retrieved from http://wrap.warwick.ac.uk/169460

8. CQC. (2018). *Quality improvement in hospital trusts: Sharing learning from trusts on a journey of QI*. Retrieved from https://www.cqc.org.uk/sites/default/files/20180911_QI_hospitals_FINAL.pdf

9. Shah, A., Chitewe, A., Binley, E., Alom, F., & Innes, J. (2018) Improving access to services through a collaborative learning system at East London NHS Foundation Trust. *BMJ Open Quality*, 7(3):e000337. doi: 10.1136/bmjoq-2018-000337

10. CQC (2017). *The state of health care and adult social care in England 2016/17*. Retrieved from https://assets.publishing.service.gov.uk/media/5a823e6fe5274a2e87dc1e71/NEW_CQC_SoC2017_Web_accessible.pdf

11. *Anderson, A. A. (2006). T*he Community Builder's Approach to Theory of Change: A Practical Guide to Theory Development*. New York, NY: Aspen Institute.

12. *De Silva, M., Lee, L., & Ryan, G. (2015). *Using Theory of Change in the development, implementation and evaluation of complex health interventions*. London, UK: The Centre for Global Mental Health at the London School of Hygiene & Tropical Medicine and The Mental Health Innovation Network.

13. Ritchie, J., & Spencer, L. (1994). Qualitative data analysis for applied policy research. In A. Bryman & R. G. Burgess (Eds), *Analysing Qualitative Data (pp. pp. 173-194)*. Routledge.

14. Shah, A., & Course, S. (2018). Building the business case for quality improvement: A framework for evaluating return on investment. *Future Healthcare Journal*, *5*(2), 132-137. doi: 10.7861/futurehosp.5-2-132

15. The Health Foundation. (2014). *Effective Networks for Improvement*. Retrieved from https://www.health.org.uk/publications/effective-networks-for-improvement

16. *King's College Hospitals. (2021). Strong Roots, Global Reach: King's Strategy 2021 – 2026. Retrieved from https://www.kch.nhs.uk/Doc/mi%20-%20338.8%20-%20king%27s%20strategy%202021-2026.pdf

17. NHS IMPACT. (2024). *The Five Components of NHS IMPACT*. Retrieved from https://www.england.nhs.uk/nhsimpact/about-nhs-impact/

18. Shah A. (2020). How to move beyond quality improvement projects? *BMJ*, *370*, m2319. doi:10.1136/bmj.m2319

19. *Hibbert, P. D., Basedow, M., Braithwaite, J., Wiles, L. K., Clay-Williams, R., & Padbury, R. (2021). How to sustainably build capacity in quality improvement within a healthcare organisation: a deep-dive, focused qualitative analysis. *BMC Health Services Research*, *21*(1), 1-13. doi:10.1186/s12913-021-06598-8

20. Aranzamendez, G., James, D., & Toms, R. (2015). Finding Antecedents of Psychological Safety: A Step Toward Quality Improvement. *Nurse Forum*, *50*, 171-178. doi:10.1111/nuf.12084

21. O'Donovan, R., & McAuliffe, E. (2020). A systematic review of factors that enable psychological safety in healthcare teams. *International Journal for Quality in Health Care*, *32*(4), 240-250. doi:10.1093/intqhc/mzaa025

22. Faulkner, A., Yiannoullou, S., Kalathil, J., Crepaz-Keay, D., Singer, F., James, N., Griffiths, R., Perry, E., Forde, D., & Kallevik, J. (2015). *4Pi National Involvement Standards*. Retrieved from https://www.nsun.org.uk/wp-content/uploads/2021/05/4PiNationalInvolvementStandardsFullReport20152.pdf

23. UK Standards for Public Involvement. (2023). *UK Standards for Public Involvement*. Retrieved from https://sites.google.com/nihr.ac.uk/pi-standards/home

24. McNab, D., McKay, J., Shorrock, S., Luty, S., & Bowie, P. (2020). Development and application of 'systems thinking' principles for quality improvement. *BMJ Open Quality*, *9*(1):e000714. doi: 10.1136/bmjoq-2019-000714.

25. Silver, S. A., McQuillan, R., Harel, Z., Weizman, A. V., Thomas, A., Nesrallah, G., Bell, C. M., Chan, C. T., & Chertow, G. M. (2016). How to sustain change and support continuous quality improvement. *Clinical Journal of the American Society of Nephrology*, *11*(5), 916-924. doi: 10.2215/CJN.11501015

26. De Silva, M. J., Breuer, E., Lee, L., Asher, L., Chowdhary, N., Lund, C., & Patel, V. (2014). Theory of change: a theory-driven approach to enhance the Medical Research Council's framework for complex interventions. *Trials*, *15*(1), 1-13. doi:10.1186/1745-6215-15-267

Additional references used to create the Theory of Change

*Brown, A., Lafreniere, K., Freedman, D., Nidumolu, A., Mancuso, M., Hecker, K., & Kassam, A. (2021). A realist synthesis of quality improvement curricula in undergraduate and postgraduate medical education: what works, for whom, and in what contexts?. *BMJ Quality & Safety, 30*(4), 337-352. doi:10.1136/bmjqs-2020-010887

*Gabbay, J., Le May, A., Connell, C., & Klein, J. H. (2018). Balancing the skills: The need for an improvement pyramid. *BMJ Quality & Safety, 27*(1), 85-89. doi: doi:10.1136/bmjqs-2017-006773

*Jones, B., Horton, T., & Warbuton, W. (2019). *The Improvement Journey: Why organisation-wide improvement in health care matters, and how to get started.* Retrieved from: https://www.health.org.uk/publications/reports/the-improvement-journey

*Loper, A. C., Jensen, T. M., Farley, A. B., Morgan, J. D., & Metz, A. J. (2022). A systematic review of approaches for continuous quality improvement capacity-building. *Journal of Public Health Management and Practice, 28*(2), E354. doi: 10.1097/PHH.0000000000001412

*National Quality Board. (2021). A shared commitment to quality for those working in health and social care systems. Department of Health and Social Care. Retrieved from www.england.nhs.uk/publication/national-quality-board-shared-commitment-to-quality

*Department of Health and Social Care. (2023). *NHS Constitution for England*. Retrieved from https://www.gov.uk/government/publications/the-nhs-constitution-for-england/the-nhs-constitution-for-england

*Smith, F., Alexandersson, P., Bergman, B., Vaughn, L., & Hellström, A. (2019). Fourteen years of quality improvement education in healthcare: a utilisation-focused evaluation using concept mapping. *BMJ Open Quality, 8*(4), e000795. doi: 10.1136/bmjoq-2019-000795

*Wright, D., Gabbay, J., & Le May, A. (2022). Determining the skills needed by frontline NHS staff to deliver quality improvement: Findings from six case studies. *BMJ Quality & Safety, 31*(6), 450-461. doi:10.1136/bmjqs-2021-013065

Section 6: Appendix

Qualitative findings

The qualitative feedback from the study participants and patient and public contributors are summarised in Table 1. This is organised according to the 8 overarching themes and 18 subthemes developed during the framework analysis.

Table 1. Qualitative finding of the study summarised according to broad themes and subthemes.

Themes / Subthemes / Description of each subtheme	Example of quotes for each subtheme
Theme: General feedback	
Subtheme: Accuracy and feasibility The ToC was described as largely accurate and comprehensive, but the feasibility of it (and QI) was questioned by participants and patient and public contributors because of the context (e.g., resource constraints, leadership support and organisational ownership of the ToC).	"It's very good and there's a lot of detail in there that's right." "Theoretically process feasible; too little time to engage, priorities, a lot to do?"
Subtheme: Plain language Communications around QI, the ToC, and the training should be as accessible and inclusive as possible (i.e., avoid jargon like continuous QI or white/yellow belt training, use simple and plain language, and visual communication). It should also be done in a way that resonates with and is relatable and interesting to staff, patients and the public.	"CQI [continuous quality improvement] needs to be communicated in lay-friendly terms so public / patients [are] interested and involved. Otherwise, QI risks becoming seen as bureaucracy."
Theme: Ultimate impact goal(s)	
Subtheme: Scope of the ultimate impact goals Three ultimate impact goals were identified in the study. These include (1) improvements in the way QI is done at the hospital (i.e., better support, infrastructure and systems for QI); (2) creating a QI culture; (3) sustained improvements in the quality and experience of care and operations (the day-to-day running of the hospital) for patients and staff. Views on the goals were mixed. However, most participants and the patient and public contributors stressed the importance of the aiming for improvements in the quality and experience of care for patients <u>and</u> staff. Staff experience was seen as closely interrelated to patient experience. Creating a QI culture was also seen as very important and closely linked to sustained improvements in care. Culture was seen as a holistic and multi-dimensional term referring to an environment where staff continuously want	"The aim will be to ensure that there is impact on the wider system. There will be no point of having a QI team, resources, and methods if it is not implemented in services and operations." "… the ultimate goal is the patient, the patient experience and their care." "All the hospitals with the highest CQC [Care Quality Commission] scores, they normally perform really well when it comes to workforce."

to improve and feel safe and empowered to do so. Widespread interest in and sharing of QI were also considered as key features of a QI culture. KCH was seen as not currently having a QI culture.

"…if you've also got that culture, then actually you will be able to implement sustained changes across the Trust."

Theme: Key contextual factors

Subtheme: External quality standards

Comparisons against other trusts, national quality standards and external inspections can and have created more of an interest in QI at the hospital. Ensuring that national standards were met or exceeded was seen as important.

"Not just improvements? Need to be aiming to be as good as national requirements?"

Subtheme: Leadership support

Leaders at all levels of the organisation understanding and actively supporting and enabling QI was seen as essential to allow staff to do QI and reach the ultimate goals. This was largely because of their role in setting priorities, decision making, allocating resources and building the hospital's culture. Board and Executive team support was seen as particularly important. Leaders that were clear, responsive, compassionate and promoted a collaborative and psychologically safe working environment were considered as key. While experiences varied, leaders were sometimes seen as a barrier to doing QI at the hospital. Staff spoke of not being supported, encouraged or listened to, counterproductive leadership styles and QI being dismissed. Mandatory leadership training and skill development were highlighted as important.

"… buy-in from the top is probably the key to all this to be honest."

"When I was at [Place 1], very strong QI leadership, but it was how business was done. If you don't put in the Board or the Executive Team all of this won't get supported."

"…when I tried to implement using the model and the tools that I'd been taught on that [QI training]; people higher up the chain than me dismissed those models…"

Subtheme: QI governance and internal processes

Developing QI governance structures and a data-driven quality management system (QMS) were seen as essential for enabling QI and reaching the ultimate goals. A QMS connects quality improvement, planning/redesign, control and assurance activities such that they work in synchrony to maintain and improve quality. Governances sets priorities and provides oversight, progress monitoring and accountability. A lack of accountability and progress monitoring of QI work was raised as an issue by participants and patient and public contributors. Patient and public contributors suggested setting timescales as one way to increase accountability/monitoring. The QI team developing consistent internal team systems/processes and QI being integrated into job roles, induction and appraisal processes were also seen as important for facilitating QI and the

"QI has to be part of the organizational governance structure for it to work."
"I think at [the Trust] it's not the way we do business. It's not front and centre."

"I agree with that [integrating QI into job roles, hiring and appraisal processes], cause a lot of people probably don't get involved, because they will think it's not their role."

QMS. Integrating into job roles/induction can set an expectation for QI and increase awareness, time and oversight.

Subtheme: Capacity: Budget, time, and wellbeing
Capacity, in terms of funding, protected time, resources and staff wellbeing to develop, deliver and attend the training and do QI, were consistently mentioned by staff and patients as essential but were currently viewed as major barriers to reaching the ultimate goals. There are enormous pressures on staff and the NHS. Staff were described as immensely overworked and "*very stressed*".

"The biggest barrier to the ultimate goals is staff not having the time to go to the training."

"Staff's time and wellbeing: hard to make QI core activity for staff when they are under so much pressure."

Subtheme: Importance, priority, and relevance
QI needs to be valued and seen as a priority for time, energy and resources to be allocated to it. Demonstrating the relevance and tangible benefits (i.e., "the carrot") of QI were highlighted as important for success, including staff feeling and taking ownership of QI work. However, competing priorities and, understandably, bedside care tends to take precedence. QI is not currently a priority and needs to be "reframed and rebranded" within other organisational priorities to make it core to all staff. A clear quality and improvement focused vision and priorities that are driven forward by leaders ("Everyone walking the talk") can underly staff priorities and impact behaviour. The QI team encouraging QI that is aligned/linked to the trust's vision and priorities was suggested as a programme activity.

"You can fluff it up as much as you like but if there's no clearly evident benefit then you probably aren't going to capture their attention."

"Staff need to see QI as core. Need to reframe where QI fits within the priorities of the organisation."

Subtheme: Openness, psychological safety and learning mindset
Staff being open to change, being able to tolerate "things not working" and feeling safe enough to raise quality issues/ideas for improvement were seen as important for enabling QI. Psychological safety and "freedom to speak up" was seen as a core part of creating a QI culture. However, not all staff feel as if they are being listened to or feel safe enough to raise issues. Developing an environment where failure is used as a shared learning experience (rather than punitively) and challenges are widely shared were suggested as a way to encourage an open and psychologically safe environment.

"Really embedding that compassionate leadership and psychological safety, where people feel they can speak up."

"There are traditionalists, we have always done it this way, not everybody wants to change which is an assumption."

"What sparks my interest is the psychological safety where we're almost identifying and using failure as a learning point, not as a judgment point."

Theme: Patients and the public

Subtheme: Patient and public involvement (PPI)

Partnering with and involving patients, carers, and the public across the whole improvement journey was seen as essential. From co-producing QI priorities and deciding what needs to be improved all the way through to dissemination and learning. Patients should be included in QI project teams, and involved in developing the QI training, and internal and external QI networks. Patient and public contributors stressed the importance of ensuring that involvement is inclusive, diversity focused and done in a non-hierarchical, collaborative way, where all voices are respected and valued. Certain groups, such as older patients and those with diverse disabilities, have, historically, not been included. The role of power dynamics also requires attention/consideration in the way patient and public involvement (PPI) is done. Ensuring that PPI contributions are recognised and rewarded was also highlighted as very important (e.g., compensation for time) by patient contributors. However, we cannot assume that all contributors will want to be recognised and rewarded in a similar way. Contributors should be consulted at the outset to determine if and how they would like to be reimbursed. KCH largely operates a volunteer model for PPI, where time is given in gratitude, and this can create hierarchy and impacts on power imbalance. Currently, PPI in QI is variable at KCH and can be perceived as a "nice to have" add on. Key barriers to PPI include staff time and a lack of understanding of the value and how to meaningfully involve patients, patient awareness and capacity, digital exclusion, and the timing of PPI. Patient and public contributors saw staff time and strict NHS deadlines as the primary barriers, which can result in poorly executed PPI (e.g., "tokenistic", inflexible). An "us & them" narrative and the perception of PPI as "slowing down the process" were also raised by patient contributors as obstacles in initiating PPI. Due to past negative experiences, pre-work may also be required to develop trust between staff and patients before PPI work can take place. Patient contributors also highlighted major barriers in turning complaints/issues into meaningful improvements (complaints treated as problems rather opportunities to do better or valuable information and a lack of action to address issues) and the inadequate responses they received when

"I'd want it [PPI] in QI to be more like come join the team and work with us to make the change."

"…for me any kind of importance would come down to the involvement of patients and public, making sure they're involved."

"PPI means we leave hierarchy at the door so there is no us and them."

"Currently, PPI is the exception in QI projects; the latter tend to not be co-produced with PPI members."

raising complaints ("sorry, we can do better" or "lessons will be learned" without any commitment or evidence of addressing the issue). This issue is particularly problematic for cross-departmental and external contractor issues, possibly due to lack of accountability and ownership. Relatedly, patient contributors highlighted the importance of clearly evidencing changes (as a result of PPI and QI) and being provided feedback about their involvement and the project (e.g., via a simple "you said, we did" document). A key motivation for people to engage in PPI is to share their experiences and see changes as a result. A lack of action in response to patient feedback and limited communication on the impact of their involvement or progress addressing an issue can be discouraging and lead to frustration and fatigue. Training staff how to meaningfully involve patients in QI and the QI team working closely with and linking into complaints and patient involvement networks/teams were suggested as ways to overcome barriers. Providing training to patients on QI and involvement was also suggested. It is essential that patients are involved in developing and delivering any PPI-related training. Any PPI-related training should be embedded within staff QI training.

Theme: Capacity building

Subtheme: Training strategy

The training itself was seen as "helpful", "very engaging", and essential to allow staff to do QI. Participants had several suggested changes to enhance the accessibility, relevance and impact of the training. First, including systems thinking, human factors and built in time for people to talk about challenges at the start of the training. Second, tailoring the training to certain groups and need (i.e., training "dose" guided by level of involvement and professional group). Broadening the scope of QI and encouraging different, graded levels of involvement was seen as important to increase the accessibility of QI. Third, selectively delivering the training to teams and groups to encourage team-based QI could improve the success of QI work. Fourth, integrating QI training into other quality and safety-related training and part of the mandatory KCH induction. This was seen as "planting" the "seed" from the beginning and ensuring that all staff are aware of QI and its relation to other parts of the quality system.

"Without training, I don't think anyone can complete a QI project. That's the most important thing."

"I really enjoyed it actually [...] the yellow belt, that was called yellow belt then, really helpful. It was a lot of fun; people underestimate fun."

"Not everybody will be able to do two whole days of training, therefore bitesize training should be considered."

"We used to put people through a QI programme but we'd choose which wards or departments it was going to be, in a focused way, and then they come with their team […] If we carry on

Fifth, where possible, training should be delivered in person. Sixth, increasing the feasibility and inclusiveness of the training by providing ad-hoc sessions on wards, "bitesize" versions (delivered in smaller chunks over a longer period) and brief refresher session(s). Finally, participants questioned the requirement to do a project and/or viva assessment (QI certification) as part of the in-depth 2-day training because it can be "off-putting" and reduce engagement. The form of the viva assessment was seen as pass/fail and arbitrary but the act of sharing, learning and discussing was not.

just training individuals we will never get that sustained change because people learn and work as teams."

"Viva at end of training may be off-putting to staff."

Subtheme: QI coaching and other support
While the training was well-received, reaching the ultimate goals was seen as needing more than training in isolation. Specifically, participants highlighted the role of communications, QI and data infrastructure, coaching, and other types of practical support and resources. QI coaching was a valued aspect of the training programme, but participants wanted this to be available to anyone regardless of whether they have done the training. Peer coaching and trainees supporting others were highlighted as ways to empower teams and facilitate team-level QI capacity. Participants also highlighted the importance of being able to access support and advice quickly, e.g., "There's nothing worse than being excited about something, you get to a critical stage, you need help and then you can't get it". A range of other resources were suggested to support QI, including communication activities like newsletters and a website, outreach work and ad-hoc sessions to teams, funding and publishing support, a "toolbox" of QI templates, repository of past and present QI projects, a QI platform for joint working, resources and analytical support, and processes to support the spread, scale and commercialisation of successful QI work.

"We need training. We need events and we need communication. We need coaching."

"I found that [QI coaching] very useful to almost have someone checking up on you as you progress. Because I think a lot of times people start QI projects, and then they don't finish, because there's no accountability."

"To encourage staff to mentor within their teams, directive, and empowerment support. To focus on what is happening at a team level and put less pressure on QI groups."

"You need to have a library or way online of capturing what people have changed."

"QI platform for staff (ie IT platform): this should offer access to tools, analysis, templates etc."

Theme: Implementation and sustainment
Subtheme: Listening to everyone: Diverse voices and project teams
Participants consistently highlighted the importance of listening to and involving staff across all grades and roles (including junior, operational and administrative) as well as including diverse and varied stakeholders in QI work as soon as possible (including patients, carers and the public). A diversity focused, inclusive, open and respectful approach was seen as essential. Establishing a

"They didn't think it was applicable, so the people who were on the shop floor who were raising concerns and were coming up with very good ideas of how things could work differently, they were not listen

diverse and multidisciplinary project team was seen as "fundamental to all goals" and the longevity of QI projects. Engaging the "right" people (e.g., senior and operational staff) was also perceived as critical. Currently, decision-making and QI are "very top-down" at KCH, where participants reported that "people at the bottom" do not feel listened to or involved. QI was generally seen as the responsibility and remit of management or senior staff. Participants highlighted that staff "at the bottom" should be involved as they have the lived experience and know what needs to change. Also, staff who are listened to and feel valued will be more likely to engage. Specific activities are required to encourage staff at all levels and patients to be involved in QI and ways for people to raise issues, including "Ideas for improvement sessions" lead by leaders and facilitated by the QI team (where people can anonymously submit issues for Executives to raise but not address) and incorporating improvement into incident reporting/complaints.

to and it almost felt like it was imposed on them".

"those on the operational side which will help to prevent a project from falling apart."

"It needs to be explicit and it doesn't seem to be the case, but it's always an assumption is to make sure that there is a diversity and it's been increasing in diversity and voices."

"An inclusive, respectful, diverse and transparent culture […] where all voices are valued and heard."

Subtheme: Data

Appropriately and transparently using data to monitor performance and the impact of changes was seen as essential for QI. It can provide a "true representation" and remove some subjectivity/politics from improvement. However, at KCH, this can be seen as a "tick box exercise" or "nice to have add on". Participants reported that audits could be perceived punitively, and poor audit results were not linked to QI. QI projects also do not always draw on data that already exists at the hospital. Accessible and easy data training and support are required to increase capacity and confidence to use and report data appropriately. Data training was seen as one part of a broader set of improvements needed in the infrastructure facilitating effective use of data at the trust (e.g., automated data harvesting, reporting frameworks and sharing of data across departments).

"We're in the business of trying to sustain practice that are best practice and that means we have to collect data and share them diligently no matter how it looks."

"honesty interpreting data with bias; data-led."

"Data training and/or support/ resources available to all levels of staff: Essential if data is to be processed accurately."

Subtheme: Sustainable changes

Ensuring that QI projects lead to sustained improvements in care, services and operations was seen as particularly important by many and "the bit we tend to forget about". Creating sustained changes was seen as very difficult with the constantly changing environment, workforce and

"Sustainability definitely should be at the heart of everything that is planned for."

"Sustained is critical."

priorities. Specific activities are required to make sure that any changes that are introduced can be sustained, e.g., planning for sustainability at the outset and throughout projects and focusing on a team-based approach to QI. Any changes should also be financially and environmentally sustainable.

"So, the improvement isn't just led by one person. It's the team. That way you get sustainability because otherwise you take the individual away the project stops."

Theme: Knowledge sharing mechanisms

Subtheme: Awareness raising strategy

Participants consistently spoke about the lack of awareness or visibility of QI and the training programme at KCH. Greater efforts are needed to ensure that staff, patients and the public are aware of QI work taking place and the training programme. The communication strategy should address the "branding issue" of QI as an activity only for senior staff and scepticism about QI work delivering. Participants also felt that it should be aligned to KCH priorities. Participants highlighted the importance of using digital, non-digital and in person communication activities to increase awareness. Several suggested modes of communication were suggested, including a website, newsletter, QI events and showcases, social media posts (e.g., TikTok), magazines, posters, in person outreach work and ambassadors/champions.

"The lack of engagement is because of lack of awareness […] people just need to be made more aware of it."

"Increase awareness within the Trust of CQI team and what they offer. Including via physical presence in Trust wards (i.e., not just emails/virtual comms)."

Subtheme: Sharing, learning, and connecting within and outside the hospital

Participants consistently spoke about the value in connecting, sharing and learning from QI successes and challenges within and outside the hospital. Successes of all sizes should be shared and celebrated. Equally, sharing learning from challenges was seen as building towards an open and psychological safe environment. Connecting with peers or people working on similar projects within and outside the hospital and/or creating cross-departmental and -organisational QI networks can foster learning and critical reflection, avoid duplication ("re-inventing the wheel"), save time, and increase the reach and impact of QI. Connecting with external trusts, the voluntary sector and other community-based teams/organisations was highlighted as particularly important. Creating and maintaining internal and external networks does, however, require time and commitment and this should be taken into consideration. Involving patients, the public and patient-related organisations in

"There is a value in talking about success and failures."

"QI should provide a platform for peer to peer working."

"I'm really a keen advocate of networking and sharing information. I think having opportunities to share information with external partners that allows us to critically look at our own practice and learn from others."

"[TheTrust] should really be actively encouraging people to be going on sort of fellowships, where they're meeting people from outside of [Place 1], sorry, across [Place 1] and across the region and beyond, because you

these groups/networks can ensure there is a balance of perspectives. Performing a scan for similar work/networks at the start of a project was suggested to support staff to benchmark and learn from what already exists, sense check their work, and connect to key groups/stakeholders. Participants also highlighted that staff should be actively encouraged by managers to connect and collaborate internally and externally. Several activities were suggested to increase connecting and sharing, including cross-departmental QI groups, peer QI coaches, regular QI forums, a peer QI network at the trust, QI events, QI team facilitating links between staff and alignment with trust priorities, and cross-organisational improvement work.

get ideas from other people that you can bring back to the Trust."

Theme: Measuring success

Subtheme: Measuring success

Measuring progress with the ToC and towards the ultimate goals was seen as important by participants and patient and public contributors but difficult and complicated because there are many ways in which success can be measured. Participants highlighted the importance of drawing on data that already exists at the trust. Participants also highlighted that evidence of actions (e.g., seeing a wards visual board and staff engaging in QI work) can sometimes be more informative than verbal reports. Presenting progress/strengths alongside areas for improvement can place both types of data into context and may support and accelerate progress. When asking about measuring the ultimate goals, participants would frequently refer to the other outcomes and activities listed on the ToC, suggesting that cumulatively the short and intermediate outcomes can be used as indictors for ultimate goals. A range of indicators for the ToC were suggested in the study (too many to list here individually). These indicators can be grouped into several broad categories, including: (1) QI awareness, interest and sharing; (2) enabling leadership; (3) safe and open environments; (4) training uptake, experience and impact; (5) patient involvement; (6) diverse stakeholders and teams; (7) QI stage, impact and sustainment; and (8) financial and internal operations.

"Set goals need to be tangible, specific and measurable."

"Ultimate goal must be measurable and clear e.g. how do we measure that we have achieved a culture of continuous improvement and learning? How do we define "culture"?"

"QI can be difficult to measure."

"…whatever it is you do, it probably needs to be built into things that are already in place because we have tons and tons of data at [the Trust]."

"…it will be most important to measure people who move forward from the white belt and move on and do yellow belt, and then actually do a QI project…"

Simpler version of the Theory of Change

King's College Hospital (KCH) Quality Improvement (QI) Training Theory of Change

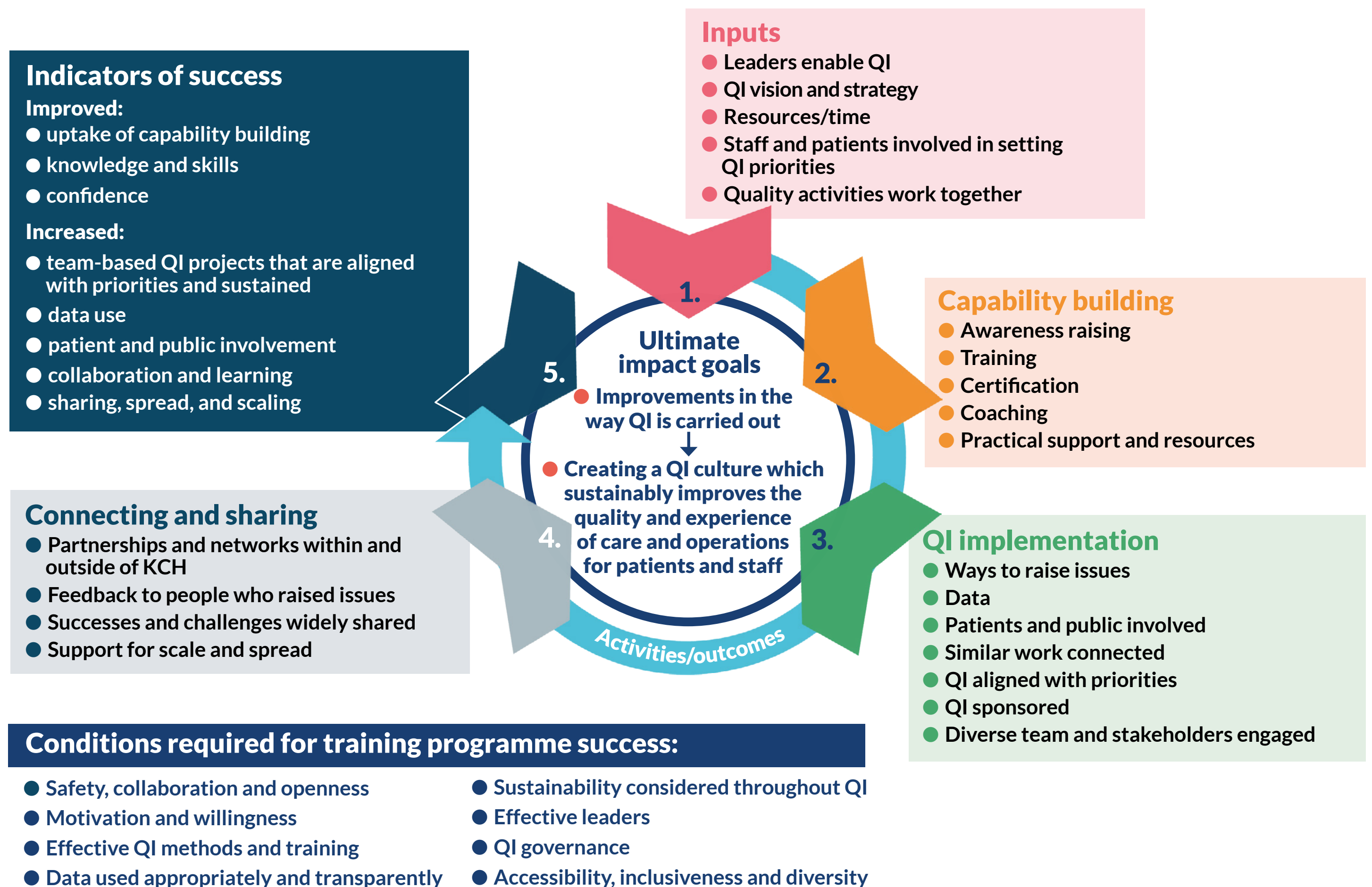


Figure 1. A simplified version of the Theory of Change map for the quality improvement (QI) training programme at King's College Hospital (KCH).

Click here for a landscape version of this diagram.

Detailed version of the Theory of Change

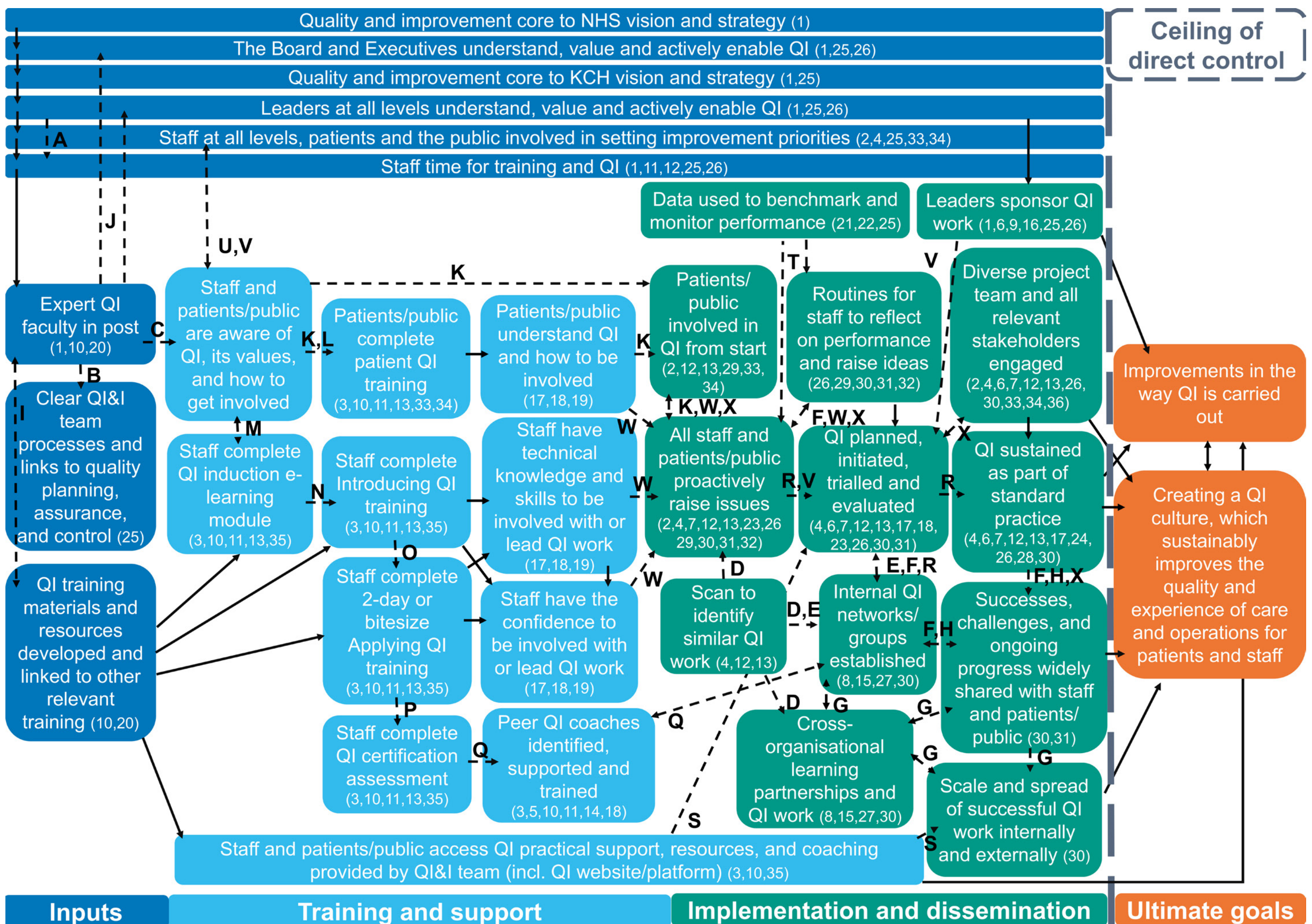


Figure 2. A detailed version of the Theory of Change map for the quality improvement (QI) training programme at King's College Hospital (KCH).

The map shows all the outcomes (in the blue, cyan, and turquoise boxes) that collectively are expected to impact the ultimate goals (in the orange boxes).

The ultimate goals are behind a "ceiling of direct control". The ceiling of direct control was included on the map to show that while the training programme can impact the ultimate goals, the goals are large multi-dimensional goals that are impacted by many factors and are not in direct control of the training programme.

The activities/ interventions required to bring about the outcomes and ultimate goals are indicated by the letters between the boxes on the diagram.

The assumption and conditions underlying and influencing the success of the programme are the small numbers in brackets listed in each of the boxes.

The meaning of the letters and numbers are provided below.

Dotted or solid arrows connect the boxes to one another. Dotted arrows are used when an activity/ intervention is required to move from one outcome (box) to the next. Solid arrows are used when no activity/intervention is required to move from one outcome (box) to the next.

NHS = National Health Service; QI = quality improvement; KCH = King's College Hospital.

Activities/interventions

Embedding into roles and organisation

A. Improvement and QI are integrated into hiring, induction and appraisal processes (including hybrid, part-time or rotational QI roles).

B. QI&I team develop clear internal processes and links between quality improvement (QI) and planning, assurance, and control

Awareness, connecting and sharing

C. Communication activities to increase staff, patient, and public awareness of QI, its value, how to be involved, the training programme and QI work, events, opportunities, and priorities using range of digital and non-digital activities, simple and plain language, and relatable content (e.g., newsletters, events, outreach, posters, blogs, champions, website).

D. QI&I team support staff to identify best practice, similar QI work taking place within and outside the hospital, and if appropriate, connect with others and build partnerships and networks.

E. Leaders and QI&I team support staff to establish and maintain internal QI networks and groups through developing regular QI forums, QI events, and connecting and facilitating groups.

F. Regular QI forums, meetings, and events for presentations and discussions of QI work.

G. Leaders and QI&I team support and encourage staff at all levels to identify, connect with and share QI work with a range of external groups/people and develop cross-organisational QI projects through engagement events, visits, ongoing collaborative meetings or communities of practice.

H. Communication activities to widely share successes, challenges, and progress of QI work using a range of digital and non-digital activities, simple and plain language and relatable content (e.g., newsletters, events, outreach, posters, blogs, champions, website).

Activities/interventions

Training and support

I. QI&I team develop and maintain the QI training curricula, materials/resources/templates and link QI training to other relevant training (e.g., quality, safety).

J. QI&I team provide in-person sessions for the Board and Executives and leaders at all levels to understand QI as a tool for improvement, its value, King's College Hospital's QI approach, and their role in enabling QI (e.g., sponsorship, governance, developing a quality management system).

K. QI&I team provide support for involving patients, carers, and the public through connecting with patient and public involvement groups, patient advice and liaison and complaints teams, establishing specific systems to include patients from the start in QI planning and work, and training staff on meaningfully involving patients, carers and the public. Accessibility, diversity and inclusion are prioritised.

L. QI trainers provide in-person sessions for patient representatives to understand QI, King's College Hospital's QI approach, and guidance to support meaningful involvement.

M. Trust Induction QI e-learning module provided to all levels of staff at induction.

N. QI trainers provide Introducing QI training sessions to all levels of staff.

O. QI&I team provide 2-day or bitesize version of the Applying QI training course.

P. QI&I team conduct QI certification assessment.

Q. QI&I team support the identification and training of peer QI coaches.

R. QI coaching provided by either QI&I team or peer coaches (can be accessed by all staff regardless of training).

S. QI&I team provide a range practical support, resources/materials and coaching (e.g., QI website or platform with tools and resources, repository past and ongoing QI projects, support for funding, customised QI sessions to teams/departments and process to support scale and spread).

T. Accessible data training and/or support available to all levels of staff.

Activities/interventions

Identifying and raising ideas for improvement

U. Staff at all levels, patients, carers and the public from a range of diverse backgrounds are involved with and coproduce improvement priorities.

V. Leaders and QI&I team encourage and align QI work with improvement priorities.

W. Clear ways for staff, patients, carers and the public to feedback and raise issues for improvement (e.g., "ideas for improvement" session ran by QI&I team and lead by an executive, improvement integrated into incident reporting, safety and complaints procedures, confidential form to submit ideas to QI&I team, leaders creating routines for staff to reflect on performance and raise issues for improvement).

X. There are clear ways to meaningfully respond to and feedback progress on improvement/QI work to staff, patients, carers, and the public who raised issues for improvement (e.g., updates provided on QI website, individual who raised issues are provided with an explanation of the course of action).

Assumptions about the how things work, the context and evidence-base underlying the programme

Motivation and willingness

1. Improvement is a priority in the NHS and at the trust.

2. Patients, carers and the public are willing and motivated to be involved and/or co-produce QI work.

3. Staff, leaders, patients and the public are willing and motivated to attend QI training courses, support, and certification.

4. Staff and leaders are willing and motivated to be involved with or lead QI work.

5. Staff and leaders are willing and motivated to be a peer QI coach.

6. The specific QI project/initiative is relevant and/or a priority for the involved stakeholders.

7. Staff and leaders can persuade peers/stakeholders that there is a problem that needs addressing.

8. Staff are willing and supported to form, be involved in, and/or lead QI networks, groups or collaborations.

9. Senior leaders are willing to sponsor QI work.

Time, resources, and capacity

10. Adequate expert QI faculty and budget/funding for training programme.

11. Staff, leaders, patients and the public have the time to attend the QI training course, support and certification.

12. Staff, leaders, patients and the public have the time to be involved with or lead QI work.

13. Staff, leaders, patients and the public have the physical and mental wellbeing (capacity) to attend the training and be involved with or lead QI.

14. Staff and leaders have the time to be peer coaches.

15. Staff and leaders have the time to form, be involved in and/or lead QI networks, groups or collaborations.

16. Senior staff have the time to sponsor QI work.

Assumptions about the how things work, the context and evidence-base underlying the programme

Effectiveness and suitability

17. Lean and Model for Improvement are effective QI methodologies (King's College Hospital's approach).

18. The QI training courses are useful, effective and relevant.

19. Technical QI knowledge, skills and confidence are required to successfully implement and sustain QI.

20. QI&I team are supported to keep their QI knowledge and skills up to date.

21. There is accessible audit, data, and IT support.

22. Data are used appropriately and transparently.

23. There are quality issues that need to be addressed and can be changed with available QI skills and resources.

24. Sustainability and succession planning are considered from the start and throughout the project.

Leadership and governance

25. There are established governance and management structures and processes for QI.

26. Effective leaders are supportive of QI activities. Effective leadership varies by context (e.g., clear and responsive, compassionate, soft and firm, actively listening to staff, and supporting them in their work).

27. Leaders and managers support and encourage staff to develop internal and external QI networks and collaborations.

28. Improvements align with and/or exceed the national standards of high-quality care.

Learning mindset and environment

29. Staff at all levels, patients, carers and the public feel safe and supported to raise concerns and suggest ideas for improvement.

30. There is widespread collaboration, openness to change, and inclusive work environments.

31. Staff at all levels are supported to face challenges/setbacks

32. Staff at all levels are actively looking for issues for improvements.

Assumptions about the how things work, the context and evidence-base underlying the programme

Accessibility, inclusion and diversity

33. Patient and public members are recruited from a wide-range of backgrounds, communities, and/or groups.

34. Patient and public outreach and involvement is done in an accessible and inclusive way (e.g., diverse communication, social and mental health needs are considered, flexibility).

35. The QI training and support are done in an accessible and inclusive way.

36. QI project team members and involved stakeholders are recruited from a wide-range of backgrounds, communities, and/or groups.