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QUALITY IMPROVEMENT SERIES

Quality improvement in practice—part three: achieving the triple aim through the systematic application of quality improvement

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Abstract

The triple aim is defined as the simultaneous pursuit of improvement across three areas: population health outcomes, quality of care and value for the system. Since the triple aim framework was first introduced in 2008, it has been applied in various contexts across several countries. The triple aim has been proposed as a core purpose of the integrated health and care systems in England. However, little has been written about how the systematic application of quality improvement can support the process of achieving the triple aim, despite the increasingly widespread use of quality improvement methods and tools in the quality of care element of the triple aim. This article, the third in a three-part series about applying quality improvement to practice, puts forward a step-by-step guide for healthcare systems to use their existing quality improvement capabilities to help them achieve the triple aim, with examples and learning from the authors' experience at East London NHS Foundation Trust.

Key words: Innovation; Quality improvement; Triple aim

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Introduction

The triple aim is defined as the simultaneous pursuit of the three goals of improving population health outcomes, improving quality of care and improving value for the system in terms of both costs and sustainability. The framework was first introduced in 2008 by Don Berwick, Tom Nolan and John Whittington, with the aiming of shifting the focus away from how we can improve services, to how we can redesign the system to optimise outcomes for the population (Berwick et al, 2008).

Meanwhile, quality improvement is the application of a systematic method to solve complex problems, involving the people closest to the issue in discovering and testing new ideas, and measuring improvement of the system over time (Shah, 2020). This article, the third in a three-part series on quality improvement, describes how this approach, which is now being applied across many healthcare providers and systems to improve services, can be used to achieve the triple aim. The authors present a step-by-step guide, outlining how services can leverage their existing quality improvement capabilities to improve triple aim outcomes for the populations they serve, illustrating this with examples from work the authors have supported at East London NHS Foundation Trust. This article also outlines the similarities and differences between using quality improvement for service improvement and using quality improvement for triple aim work.

The triple aim framework has been identified as a core purpose for the new integrated care systems in England (UK Government, 2021). As such, adopting a systematic and consistent approach to achieving the triple aim will be an important step that will enable trusts to learn effectively across different geographical regions and contexts.

The triple aim and its application in healthcare

Since its inception, the triple aim has served as a guiding framework for many healthcare systems in differing contexts (Whittington et al, 2015). The Institute for Healthcare Improvement described 141 global triple aim pioneer sites, with varying scope in terms

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of their size, population coverage and the type of care they provide (Whittington et al, 2015). This includes chronic disease care (Ory et al, 2013), mental health and addictions services (Farmanova et al, 2016), and services for homeless people (National Centre for the Homeless Council, 2019), ethnic minority communities and employees of a healthcare organisation (Whittington et al, 2015). Use of the triple aim to improve care has spanned across different countries, including the UK, United States of America and Germany (Hildebrandt et al, 2012; Pimperl et al, 2017).

Despite this burgeoning global interest, reported outcomes from the application of triple aim efforts appear inconsistent (Donahue et al, 2018). Many service providers struggle to balance the simultaneous pursuit of quality, outcomes and cost-effectiveness, often concentrating on just one or two of these key areas (Coyne et al, 2014; Hendrikx et al, 2016). Consequently, implementing the triple aim remains challenging, particularly in terms of defining a population, deciding what to improve, how to measure and track improvement over time, and learning which interventions work and should be scaled (Farmanova et al, 2016; Hendrikx et al, 2016; Ryan et al, 2016; Obucina et al, 2018).

Quality improvement to achieve the triple aim

East London NHS Foundation Trust (ELFT) provides community, mental health and primary care services for roughly 1.8 million people across East London, Bedfordshire and Luton, with approximately 6500 staff members. The organisation has been applying quality improvement across all areas of its operations since 2014, with demonstrable results at scale (Shah and Course, 2018).

Since 2018, ELFT has worked with the Institute for Healthcare Improvement to develop and implement a strategy for embedding the triple aim across its population-based work. Using triple aim approaches developed by the Institute for Healthcare Improvement, the trust has adapted the quality improvement-based approaches and tools that it applies to service improvement to its triple aim work at the population level. The sequence of improvement shown in Figure 1 adapts the usual step-by-step approach for all quality improvement work, aligning to the triple aim methods outlined by Whittington et al (2015), which describe the steps of identifying a population, understanding needs and assets, choosing measures and a theory of change, creating a governance structure and developing a portfolio of projects. Although this approach is depicted as a linear process, as with all quality improvement work, it is likely that teams and projects will revisit earlier stages as they progress their work and learn about the population and system they are working with.

Identify a population segment

In traditional quality improvement work, the first step is to identify the quality issue that needs to be worked on, such as patient safety, flow or staff experience. In triple aim work, the first step is to identify the population segment that will be focused on. A population segment represents a group of people with a common characteristic; this could be related to a certain health condition, life stage, geographical location or demographic factor. Figure 2 provides an example of how the population was segmented at ELFT.

The questions below can be used as a guide to help teams identify a population segment to work with:

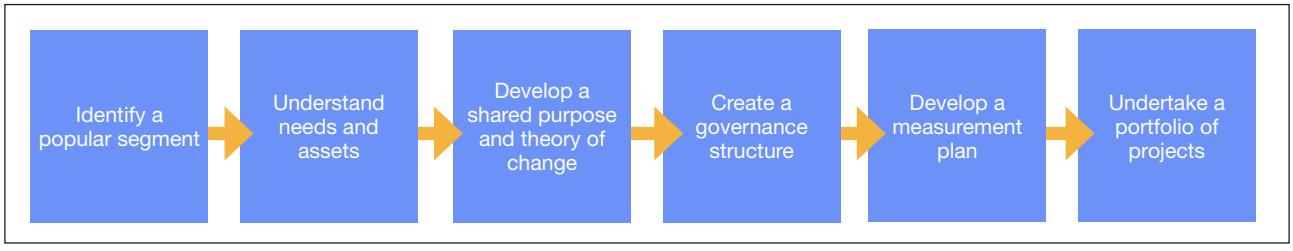

Figure 1. Systematic approach to applying quality improvement for triple aim work.

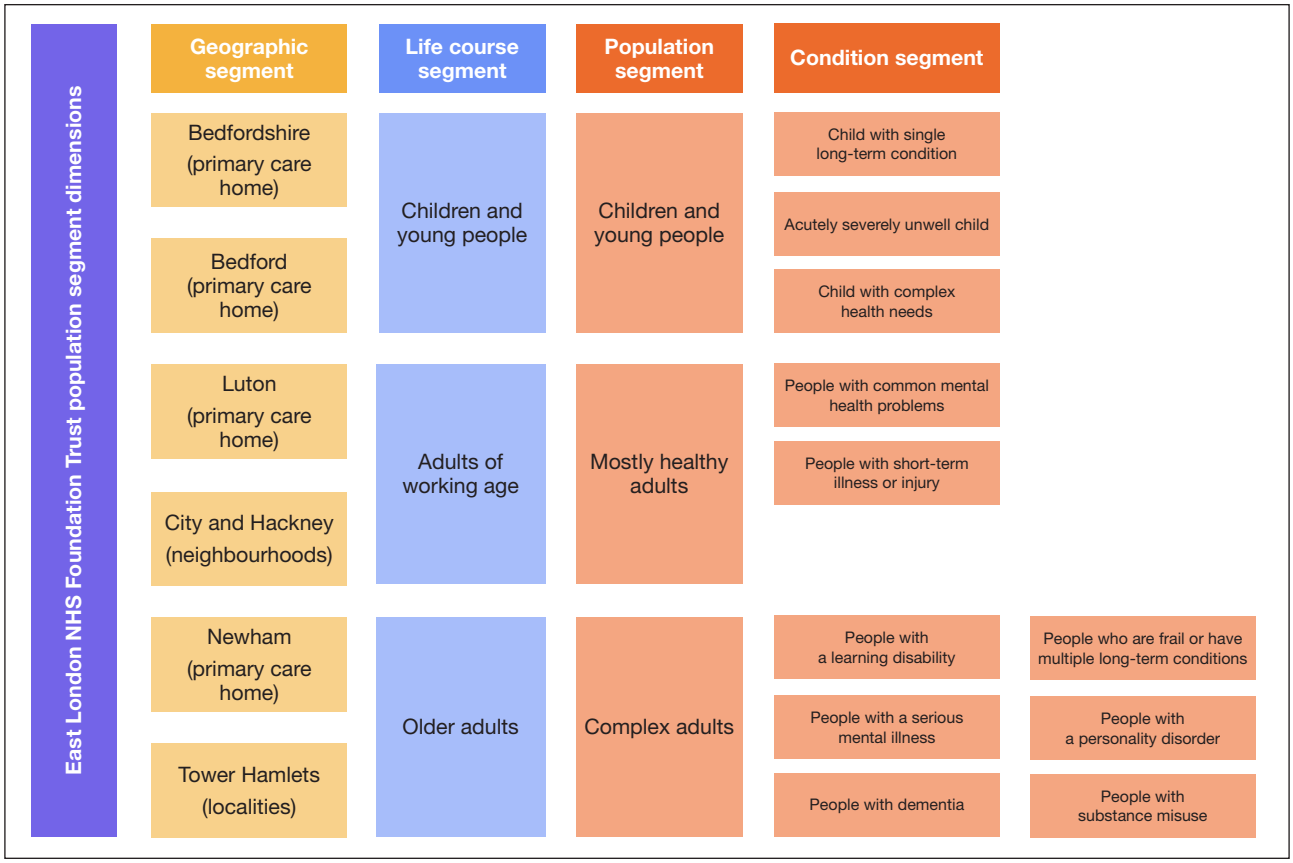

Figure 2. Population segmentation model used at East London NHS Foundation Trust.

- Is there a group of people who are not thriving, or whose needs are not being well met by the healthcare system?
- Is there work already happening with this population? (It is often easier to start working with a population when there are already partners and projects underway)
- Is there a particular energy or political will around improving services for a particular population?
- Will it be possible to engage with all three aspects of the triple aim with this population?
- Is there accessible data for this population?
- Are there one or two agencies or organisations who are keen to partner with the trust in working with this population?

Examples of the population segments that ELFT have applied the triple aim approach to include people with learning disabilities who are at risk of being prescribed antipsychotic medication; young people aged 14–16 years at risk of self-harming; working-age adults with severe mental illness who are being supported in primary care or outpatient services; and the homeless population of Tower Hamlets who were living in hostels. These population segments can be even more specific if necessary; one ELFT project focused on residents of Leighton Buzzard aged over 65 years with moderate or severe frailty, mild cognitive impairment or diagnosed dementia, who have two or more underlying physical health long-term conditions.

Understand needs and assets

Traditionally, healthcare has been based on a deficit model, with a focus on identifying and fixing health problems (Van Bortel et al, 2019). This fails to recognise the capacities, skills and strengths of individuals (Kretzmann and McKnight, 1996), essentially making them passive recipients of care rather than active agents (Foot and Hopkins, 2010). Triple aim work builds a portfolio of projects based on an understanding of both needs and assets in the population (Whittington et al, 2015).

Need is commonly defined as the capacity to benefit. Identifying a health need is usually the first step towards implementing an effective intervention to meet this needs and improve population health (Wright et al, 1998). Meanwhile, assets are factors or resources that enhance the ability of individuals, communities and populations to maintain their health and wellbeing (Morgan and Ziglio, 2007). Assets can exist at an individual, community or organisational level.

In traditional quality improvement work, teams might use tools such as cause-and-effect diagrams or flowcharts to understand the system before they develop a theory of change about how to improve it. In triple aim work, ELFT has used the three-part data review tool to simply and systematically understand the needs and assets of the population they are working with (Klein and McCarthy, 2010). This involves:

- Interpreting readily available quantitative data on the population to understand patterns of care usage, outcomes and inequalities
- Conducting interviews with people in the selected population of interest to understand what matters most, which assets in the system they have built trusted relationships with, and what they feel works well (or not so well)
- Conducting interviews with the people who support the selected population, whether in a professional role or informal caring role.

From these three types of data, the project team can then establish an initial understanding of key areas that enable individuals within the selected population to thrive and that could be strengthened as part of the triple aim work, as well as potential interventions that could be tested, key stakeholders in the population that the team could partner with and any existing work currently happening in the system. As a core principle, teams should gather just enough data to help them learn and move to action, knowing that they can continue to build on this as the work progresses. Distributing data collection among the team can help make use of existing expertise, connections and spaces to interact with service users. A variety of sources is also important to prevent data becoming too focused on staff or service perspectives alone.

The tools used at ELFT were developed and adapted through a number of tests within the triple aim project team, as well as with the Institute for Healthcare Improvement, the clinical team and service users. For example, an ELFT team working to improve the quality of life of people with learning disabilities spoke to service users and carers to understand what was working well and what was not. Overall, 70 staff members from those teams then came together in a virtual session to discuss what they had learnt, identify strengths and assets in system, highlight current challenges and potential solutions, and highlight the work that was already going on in the system to address this. From this session, the team were able to map the different assets of this population at individual, community and organisational level.

Develop a shared purpose and theory of change

As with all quality improvement work, teams pursuing triple aim goals will need to create a shared purpose around what really matters and build a theory of change regarding how to achieve this goal (Whittington et al, 2015). In a traditional quality improvement project, an aim statement is used to create shared purpose and specify the desired quality standard, timescales, scope and boundaries of the work. In triple aim work, there will not be a single aim, as the goal is to work towards three aims simultaneously. Therefore, teams must create a simple purpose statement that articulates what they are trying to achieve, using language that can unite all the stakeholders and generate urgency. For example, in work that ELFT supported across the healthcare system in Tower Hamlets to improve outcomes for children with asthma, the three-part data review included interviews with children and parents. One child described a bad asthma attack as a ‘monster day’, which helped the team create a purpose statement of ‘stopping the monster days’.

In a quality improvement project, a theory of change is illustrated through a driver diagram, which is a one-page visual depiction of the change ideas and key drivers (structures, processes and operating norms) that need to be tested and influenced to achieve the aim (Provost and Bennett, 2015). However, no single project is likely to impact on all three aspects of the triple aim at a population level. Therefore, the theory of change in triple aim work will involve a portfolio of projects, depicted as a driver diagram. Some projects will

impact on only one area of the triple aim, while others will impact on two or potentially all three aspects of the triple aim. Together, the portfolio of projects should represent the team's theory of how to improve population health outcomes, quality of care and value for the selected population segment.

By the time a team has conducted a three-part data review and identified assets within the system, they will often have collated a large number of current initiatives and potential new ideas to test. Improvement tools can help teams to narrow down their ideas and decide what to include in the initial portfolio of projects that will form the theory of change. For example, a team at ELFT used a 2x2 grid to narrow down ideas when working to improve quality of life for people with learning disabilities. All the potential ideas and projects were placed on a grid with two axes of impact and ease of implementation. The team used multi-voting to choose their top ideas that fell within both the high-impact and easy-to-implement quadrant.

Projects in the portfolio may vary in complexity. Some may be quality improvement projects, representing complex issues that will need thorough testing and iteration. Other projects may be less complex and require a more standard project management approach, such as community awareness campaigns, service redesign or training initiatives. The learning and insights from the three-part data review should inform the development of the theory of change and portfolio of projects. Some of the projects within the portfolio may already be in existence within the system, led by other agencies or organisations. The portfolio of projects should also help to identify the key stakeholders to partner with.

Figure 3 provides an example of a driver diagram, representing the portfolio of projects from an ELFT team who worked to improve triple aim outcomes for people with both respiratory conditions and common mental health conditions in Newham, East London.

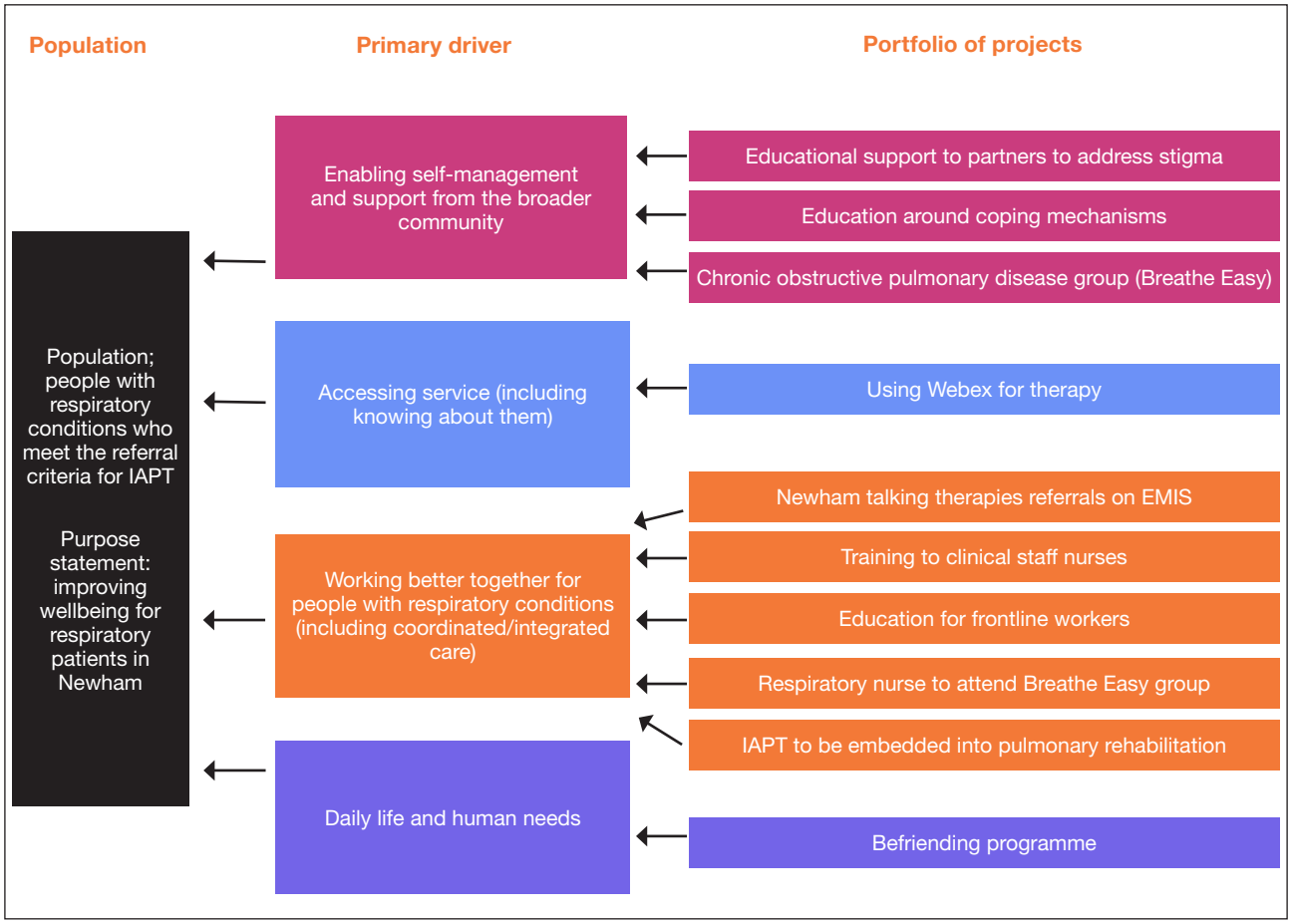

Figure 3. A driver diagram used by East London NHS Foundation Trust showing the portfolio of projects used to achieve triple aim outcomes. EMIS=educational management information system; IAPT=improving access to psychological therapies.

Create a governance structure

Applying the triple aim framework is a complex activity that will involving working across multiple organisations and at different levels of the system. Identifying assets will likely highlight a range of non-traditional partners who could influence outcomes. Creating a structure for oversight that brings together key partners is important to enable sufficient influence and leadership so that the work can progress. All quality improvement work requires changes to the current system and, therefore, is likely to encounter resistance. Because triple aim work requires collaboration across organisational boundaries and outside of healthcare, facing such challenges is even more likely. Having a governance structure that brings together senior leaders from the key stakeholders involved in the work can provide permission and support to remove barriers and enable the work to progress.

It should be noted that, although Figure 1 presents creating a governance structure as the fourth step, applying the triple aim requires senior leadership commitment from the outset. Governance comes into play at two levels: first, in defining the organisational or system strategy; second, in creating a bespoke governance structure to oversee the portfolio of projects.

Develop a measurement plan

As with any quality improvement project, triple aim work requires teams to have a way of gauging whether the changes they are making are resulting in improvement. The authors' experience supports that of the wider literature in suggesting that developing a measurement system is often an area that teams completing triple aim work find challenging (Hendrikx et al, 2016). In a traditional quality improvement project, teams develop an outcome measure (linked to the aim), two to five process measures (linked to the change ideas or drivers being worked on) and one or two balancing measures (to identify any unintended consequences) (Shah, 2019). In triple aim work, teams develop measures at the population level and at the project level.

The project-level measures operate much like process measures in a typical quality improvement project. However, at population level, teams will need to have measures that correspond to each arm of the triple aim: population health outcomes, experience of care and value or cost to the system. Table 1 shows three examples of population-level measures for triple aim work conducted at ELFT. A simple table can help a project team develop their list of population-level measures, with clear operational definitions, data source and frequency of collection. As with all measurement for improvement, data should

Table 1. Methods of measuring population-level triple aim outcomes for three projects at ELFT

	Measuring tool		
Population	**Population health outcomes**	**Experience of care**	**Value**
Young people aged 14–16 years at risk of self-harming	Self-reported prevalence of suicidal ideation/suicide among young people	School quality of life measure	Number of referrals from schools to child and adolescent mental health services
Newham residents who accessed front-door crisis services five times or more in the previous 2 years	Mean score from the dialogue outcome scale	Mean score from the three experience of care measures on the dialogue scale	Number of referrals to mental health services in Newham
People in Newham with asthma or chronic obstructive pulmonary disease who meet the referral criteria for the improving access to psychological therapies service	Difference in work and social adjustment scale score of each patient at discharge Number of patients discharged not achieving a reliable improvement in generalised anxiety disorder and the patient health questionnaire	Patient experience questionnaire score of patients at discharge Time between patients completing a patient experience questionnaire score at discharge	Number of times a patient has attended services through improving access to psychological therapies

be presented in a way that helps teams to learn about change and variation over time, using run or control charts (Shah, 2019).

Undertake a portfolio of projects

Once a team has undertaken a three-part data review, developed the portfolio of projects, created a measurement system and has a governance structure in place, the final step consists of progressing against the projects in the portfolio. Some of these projects pre-date the triple aim work, while others may be new. Some of the projects may require a quality improvement approach to testing and learning, while some may require more traditional project management approaches. At this stage, it is helpful for each project in the portfolio to have a project lead and team, as well as a designated programme manager who can coordinate and share learning across the portfolio. Table 2 shows examples of the projects that have formed part of the portfolio for ELFT's triple aim work with five different populations.

Table 2. Examples of projects that have formed part of the portfolio for five populations within ELFT's triple aim work

Population	Examples of projects within the portfolio
Working-age adults with a diagnosis of serious mental illness being supported in primary care or outpatient services	• Reviews by healthcare assistants within community mental health teams to check for patients experiencing serious mental health issues who have not had a GP review • Development of a care guidance booklet with service users • Mental health awareness sessions for Cycling Club Hackney and accommodation providers to build connections and opportunities for social interactions for individuals • Contact with patients who have not had an annual health check
Young people aged 14–16 years at risk of self-harming who attend a selected secondary school in each of the five boroughs that the trust operates in	• Drop-in support sessions for students • Self-harm support groups for parents • Information notice board at school • Assembly about self-harm delivered by a child and adolescent mental health services worker and consultant psychiatrist to year 8 group • Lesson on self-harm and resilience collaboratively designed and delivered by school staff and child and adolescent mental health services
People with a body mass index of over 30 kg/m^2 and their carers	• Lower limb dressing support • Equipment assessment form, including three pictures to establish the patient's weight distribution
People in Newham with asthma or chronic obstructive pulmonary disease and a comorbid mental health condition	• Clinical staff education sessions to develop skills in psychological and therapeutic support • Clarification of referral pathways • Breathlessness intervention group working on strengthening self-management • Online therapy to improve access
Newham residents who accessed front-door crisis services five times or more in the previous 2 years	• Proactive calling of frequent attenders to the crisis line • Frequent attenders multi-disciplinary team meetings • Using the DIALOG outcome scale to facilitate therapeutic engagement • Training home treatment teams/assessment and brief treatment teams, who are often first points of contact for people in crisis, on how to use the DIALOG outcomes scale • Referrals into Thames Reach services for short-term care • Partnering with the local addiction service

Key similarities and differences in applying quality improvement

For those familiar with using quality improvement as a systematic method, it will have become apparent that there are both similarities and differences in its application to improving an aspect of service quality and to achieving the triple aim for a population. The same systematic approach is used for both, from identifying the issue and understanding the system to developing a theory, identifying changes and measuring impact.

In a traditional quality improvement project, the aim relates to a single aspect of quality. In triple aim quality improvement work, a single purpose statement can be helpful to create a shared purpose that brings all the stakeholders together and generates urgency, but it may also require multiple aim statements that are time-limited and measurable.

Similarly, measurement over time is used in both types of quality improvement work, but a traditional quality improvement project will likely use one or two outcome measures linked to the aim, a small number of process measures linked to the key drivers or change ideas being tested, and one or two balancing measures to identify any unintended consequences. Triple aim quality improvement work, on the other hand, will have measurement at both project and population level. Clearly, with more than one aim, more than one or two population-level measures will be needed to assess the work's impact on all three aspects of the triple aim.

In any quality improvement work, there are some change ideas that require testing in order to build degree of belief that they work as predicted. With triple aim quality improvement work, the theory of change involves a portfolio of projects, some of which will be relatively simple, while others will require more rigorous testing and learning approaches.

Finally, all quality improvement work should fully involve people who have experience of the system, whether from a patient or provider perspective. While traditional quality improvement work often involves service users and carers, triple aim quality improvement work will also involve the wider public, including individuals who belong to the selected population who may have no experience of using a particular service. Triple aim work will also involve providers outside of healthcare as key partners, as population health outcomes are largely impacted by factors outside of the direct control of healthcare delivery systems (Marmot et al, 2010).

Learning from applying quality improvement to the triple aim

From the authors' last 3 years of experimenting and learning about how to apply quality improvement to triple aim work at ELFT, there are six key learning points:

- It is crucial to emphasise the similarities in the use of quality improvement for service improvement and for triple aim outcomes, rather than the differences. It can feel overwhelming for teams to consider how to impact all three aspects of the triple aim for a population. Reinforcing the same structured approach to understanding and solving complex adaptive problems will help make the work feel more manageable
- Providing close support and opportunities to learn can be helpful for teams. Each triple aim project at ELFT has had close support from an improvement advisor and a named senior sponsor, as well as access to a data analyst. A wider learning system was also developed to bring all of the triple aim teams together to share learning
- The nature of triple aim work means that it requires more coordination than a traditional quality improvement project. The teams that progressed fastest at ELFT had a dedicated programme lead and a clear structure that allowed them to meet regularly with oversight from senior leaders
- Excessive efforts to keep understanding the system before starting improvement efforts should be avoided. Conducting a three-part data review should be quick, providing enough insight and learning to guide the development of a theory of change and portfolio of projects. There can be a tendency to slow at this stage and wait for more data before feeling able to proceed. Setting an agreed timeline as a team for this stage can be a helpful way to maintain progress, while acknowledging that there will be a need to continue to understand needs and assets, and improve the theory of change, as the work progresses

Key points

- The triple aim framework offers a way of bringing together partners within healthcare systems to improve population health outcomes, quality of care and value for the system.
- Quality improvement provides a systematic approach to achieving the triple aim, and allows trusts to use their existing experience with quality improvement to strive for broader population goals.
- There are many similarities, and some differences, between applying quality improvement to service quality improvement and applying it to efforts to achieve the triple aim for a particular population.

- The action-oriented approach of quality improvement is underpinned by a belief that testing changes is the fastest way to learn about a system. Therefore, it is important to rapidly test changes while ensuring that key stakeholders are involved at every stage and building an understanding of the current system in the theory of change
- With triple aim quality improvement work, there is often a desire to bring together all possible stakeholders at the start of the work to create a coalition of partners. While this can have merit, progress tends to be more rapid when one or two partners are identified to start the work with. This selection can be based on partners who are already working with the selected population, or who the trust has an existing relationship with, or who have expressed interest in partnering. This allows the team to move more rapidly to the stage of building a portfolio of projects and starting to introduce changes. There will be opportunity as the work progresses to bring in other stakeholders and broaden the portfolio.

Conclusions

As the healthcare system becomes more integrated in England, and formal structures begin to take shape with the triple aim as their core purpose, it is likely that more organisations will look to using their existing experience and knowledge with quality improvement to move beyond improving an aspect of quality for a service, to considering how to improve triple aim outcomes for a population. This article has demonstrated a step-by-step approach to using quality improvement to achieve the triple aim, with examples and learning from the authors' experience, which they believe is transferable and applicable to other healthcare systems.

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Conflicts of interest

The authors declare that there are no conflicts of interest.

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