

# BMJ Open Quality Identifying and prioritising the key components of a Quality Improvement Network for allied health professionals and psychological therapists: a group concept mapping project

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## ABSTRACT

**Introduction** Despite growing enthusiasm for quality improvement (QI), the complexities of modern healthcare continue to create gaps in our ability to consistently deliver the most effective and efficient care for patients, and improvement activities often fail to achieve widespread uptake even when there is robust evidence of their benefits.

**Methods** We undertook a novel, mixed methods evaluation and planning project using group concept mapping (GCM) methodology to identify and prioritise the ways in which our recently established Quality Improvement Network (QIN) could support allied health professionals, psychological therapists and administrative staff in their daily work to improve patient outcomes and experience. Mid-level leaders across our therapy services department contributed towards a statement generation activity and individually sorted these statements into themes. Each statement was rated for perceived importance and current success. Multidimensional scaling and hierarchical cluster analysis were applied to the sorted data to produce themed clusters of ideas within concept maps. Priority values were applied to these maps to identify key areas for future QIN activity.

**Results** Overall, 34 participants took part in ideas generation, 20 in sorting and 30 in the rating activity. A five-item cluster map was agreed on, containing the following named clusters: data support; practical skills and training; time and resources; embedding a QI culture; and sharing ideas and working together. Statements contained within each of the five clusters highlight the importance of supporting a range of activities spanning the technical and human aspects of QI at an individual, group/team, organisation and wider systems level.

**Conclusion** GCM provided a structured and systematic approach for identifying the perceived support needs of allied health professionals, psychological therapists and administrative support staff in relation to QI. The findings from this project provide a useful benchmark from which to track targeted QI support in an applied healthcare setting.

## INTRODUCTION

Rising demands for efficiency and effectiveness coupled with increasingly limited

### WHAT IS ALREADY KNOWN ON THIS TOPIC

- ⇒ Quality improvement (QI) is a multifactorial and multifaceted activity with varied contextual, people and process related factors impacting on design, delivery and outcome.
- ⇒ To deliver safe and effective patient care, a substantial proportion of the healthcare workforce must be committed to delivering, and sometimes leading, improvement work in a clinical setting.

### WHAT THIS STUDY ADDS

- ⇒ We undertook a novel, mixed methods evaluation and planning project to investigate and prioritise the perceived support needs of allied health professionals, psychological therapists and administrative staff working across our local therapy services department in relation to QI activities.

### HOW THIS STUDY MIGHT AFFECT RESEARCH, PRACTICE OR POLICY

- ⇒ Understanding the QI support needs of specific groups of healthcare professionals and priorities for their successful implementation is essential to ensure effective improvement efforts can be developed and evaluated with the greatest impact for high-quality patient care.
- ⇒ QI support in an applied healthcare setting should include range of activities spanning the technical and human aspects of QI at an individual, group/team, organisation and wider systems level.

resources are placing UK healthcare systems under significant and sustained pressure.<sup>1</sup> Quality improvement (QI) is ‘the combined and unceasing efforts of everyone—healthcare professionals, patients and their families, researchers, payers, planners and educators—to make the changes that will lead to better patient outcomes (health), better system performance (care) and better professional development (learning)’.<sup>2</sup> For this to happen systematically, a substantial proportion of the healthcare workforce must be committed

to learning and changing as well as capable of implementing, and sometimes leading, improvement work in a clinical setting.<sup>3</sup> Enthusiasm for QI continues to gather momentum,<sup>4</sup> with improvement approaches, methods and tools forming a core component of many undergraduate and postgraduate training programmes. However, the complexities of modern healthcare continue to create gaps in our ability to consistently deliver the most effective and efficient care for our patients<sup>5</sup> and QI activities often fail to achieve widespread uptake, despite robust evidence of their benefits.<sup>6,7</sup>

Recently, there has been increasing awareness that healthcare systems need to adopt the science and practice of QI more systematically.<sup>1</sup> Drawing on knowledge from a wide range of disciplines and sectors, improvement science is an applied field of study focusing on theories, methods and approaches that facilitate or hinder efforts to improve quality, and the scientific study of these complex social interventions in the specific contexts where they occur.<sup>8</sup> Improvement science provides clinicians with theoretical frameworks and technical skills to study systems, understand variation, build learning, and determine the best evidence-based interventions and implementation strategies to deliver safe and effective patient care.<sup>9</sup> However, there remains a paucity of empirical evidence to support the effectiveness of QI approaches<sup>4</sup> and healthcare organisations continue to struggle with the adaptive side of change, which relates to unleashing the power of people and their motivations to advance and sustain improvement work at scale.<sup>9</sup>

Improvement in healthcare is described as 20% technical and 80% human.<sup>10</sup> This renewed focus on the human side of QI may ensure the sustained success of efforts to improve health and healthcare.<sup>9</sup> Individual projects are more likely to succeed where teams operate beyond professional/disciplinary boundaries and are interdisciplinary, collaborative, responsive and consultative.<sup>11</sup> A culture of continuous learning and improvement can be facilitated through informal interactions, or spontaneous communities of practice, where knowledge, skills and ideas are shared, discussed and developed.<sup>7</sup> This emphasis on the mindsets, relationships, processes and structures enabling learning networks to flourish highlights the often-underplayed relational work of QI in applied healthcare settings<sup>7,12</sup> and raises important questions about creating the suitable conditions for individuals and teams to advance and sustain improvement in clinical settings.<sup>9</sup>

## MATERIALS AND METHODS

### Design

We undertook a local, stand-alone evaluation and planning project using group concept mapping (GCM) to explore how our recently established Quality Improvement Network (QIN) could support teams in their daily work to deliver safe and effective patient care. Our specific objectives were to (1) identify the QI support needs of

staff working within the allied health professions and psychological therapies; (2) prioritise these needs; (3) identify whether each of these needs is currently being met; (4) plan areas for future-targeted QIN activity.

GCM is a mixed methods participatory approach that combines qualitative data collection approaches with quantitative analysis tools via a series of individual and group processes (ideas generation; structuring of ideas; analysis and interpretation) to produce a series of concept maps.<sup>13</sup> These concept maps provide accessible, visual representations of how participants conceptualise the relationships between ideas they generate on a particular topic.<sup>14</sup> GCM has been used in a variety of settings by members of this project team and other authors to plan, evaluate and make improvements to existing healthcare interventions and services.<sup>15–19</sup> However, to the best of our knowledge, this is the first time GCM has been used to investigate and prioritise the perceived QI support needs of National Health Service (NHS) staff in an applied healthcare setting.

### Setting

Data collection took place in a large NHS foundation trust over a 6-month period (June 2021–November 2021). The organisation is one of the largest teaching hospitals in England, employing around 16 000 staff and providing academically-led acute, specialist and community services across the region, UK and internationally. The Trust was rated outstanding by the care quality commission for the second time in 2019 and was awarded Global Digital Exemplar status in 2017 based on previous investment and adoption of technology as part of the drive to continually improve patient care and safety.

The therapy services department consists of 850 allied health professionals, psychological therapists, support workers and technical/administrative staff, providing clinical services to children and adults in a variety of hospital, community, education and primary care settings in multi-disciplinary teams. The QIN was established in November 2020 following a strategic review of departmental objectives during the COVID-19 pandemic and aims to provide an interactive forum to develop and share innovation and support best practice in relation to service improvement, audit and research.

### Sampling and recruitment

We purposively sampled 52 staff members across the 6 therapy disciplines (table 1). Participants were Agenda for Change Band 7 or 8 clinicians, or equivalently banded administrative staff, with line management responsibilities as a defined part of their role. Participants were identified in consultation with senior managers and included staff from adult and paediatric services working across a variety of hospital and community-based settings.

### Data collection and analysis

GCM consists of five stages, which are described sequentially below.

**Table 1** Sampling and participation

Professional group	Sampling pool	Ideas generation	Sorting	Rating
Clinical psychology	6	3	2	3
Dietetics	6	5	2	5
Occupational therapy	9	6	6	6
Physiotherapy	13	10	8	7
Podiatry	9	5	1	5
Speech and language therapy	7	3	1	3
Administration	2	2	0	1
Total	52	34	20	30

### Stage 1: ideas generation

Participants were sent an email containing information about the GCM project, and asked to complete the following focus prompt/incomplete sentences as many times as they wished, creating a new statement for each idea:

A specific way the Therapy Services Quality Improvement Network could support my team in their day-to-day work to improve patient outcomes and experience is....

The email contained a secure web link to the groupwisdom platform, which participants could access via a unique username and password generated by the GCM project team. Participants who wanted to take part in the ideas generation phase but did not wish to log on to the online platform were invited to submit their ideas in paper format or via return email. These responses were uploaded onto the groupwisdom platform by LR using the participant's unique username and password.

Interim analysis of these statements by the project team enabled us to identify the point at which data saturation was achieved<sup>20</sup> and no new ideas were being generated through the additional qualitative responses received.<sup>14</sup>

### Stage 2: statement reduction

We reduced the full list of statements generated in stage 1 to a manageable list of statements. When statements contained more than one idea, we divided them into separate statements. We then applied a keyword to each statement and formed lists of statements containing the same keywords. Finally, we eliminated duplicated statements and combined those which contained similar ideas.<sup>14</sup>

### Stage 3: sorting activity

A random number was assigned to each statement in the groupwisdom platform and we printed the statements onto individual cards. We asked participants to sort the cards by creating individual piles of statements which they considered to be similar in meaning. Participants were asked to give each pile a name which reflected the meaning of its content and to record these names with the corresponding statement numbers.

### Stage 4: rating activity

In this activity, participants logged on to a secure web link and rated each statement on a five-point Likert scale for both perceived importance and current success (1=relatively unimportant/support need currently not being met at all; 5=extremely important/support need is successfully being met).

Again, participants were provided with the option of paper-based versions of the rating tools. LR uploaded these responses onto the groupwisdom platform using the participant's unique username and password.

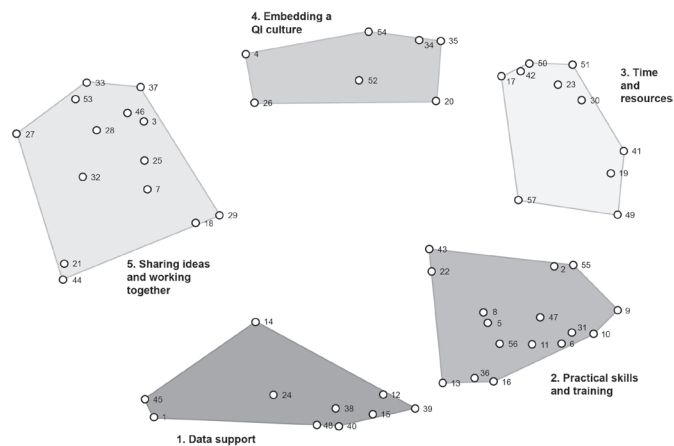
### Stage 5: data analysis

Analysis of the sorting and rating data was performed via the groupwisdom web-based platform.

First, we applied multidimensional scaling to generate a point map, which represented each numbered statement and the relation between them based on a summed square similarity matrix.<sup>21</sup> Statements considered conceptually similar by participants during the sorting phase were positioned closer together on the point map.

Hierarchical cluster analysis was then used to partition the point map into non-overlapping clusters.<sup>14</sup> We used the groupwisdom platform to combine clusters one at a time while examining the statements contained within each cluster to ensure they still conveyed the overall theme. We continued this data reduction process until it no longer made sense to progress to the next iteration as the contents of the cluster were considered too conceptually diverse. Maps were examined which contained as many as 15 clusters and as few as 4 clusters, before agreeing on the final 5-item cluster solution. The groupwisdom platform suggested labels for these clusters based on the names participants gave to their piles during the sorting exercise, and the project team chose the final cluster names based on these suggestions. Model fit was assessed using the stress value, which indicates the goodness of fit between the point map and the total similarity matrix. The acceptable range for GCM projects is between 0.205 and 0.365.<sup>21</sup>

We examined the importance and current success ratings at an individual statement level by generating a go-zone plot for each of the five clusters. Mean values are



**Figure 1** Cluster map.

used to divide these plots into four quadrants.<sup>14</sup> Statements that are situated in the top-right quadrant were rated above the mean for importance and current success (high importance/high success), whereas statements in the bottom-right quadrant were above the mean for importance, but below the mean for success (high importance/low success). The go-zones were used to identify staff priorities for future QIN activity.

### Patient and public involvement

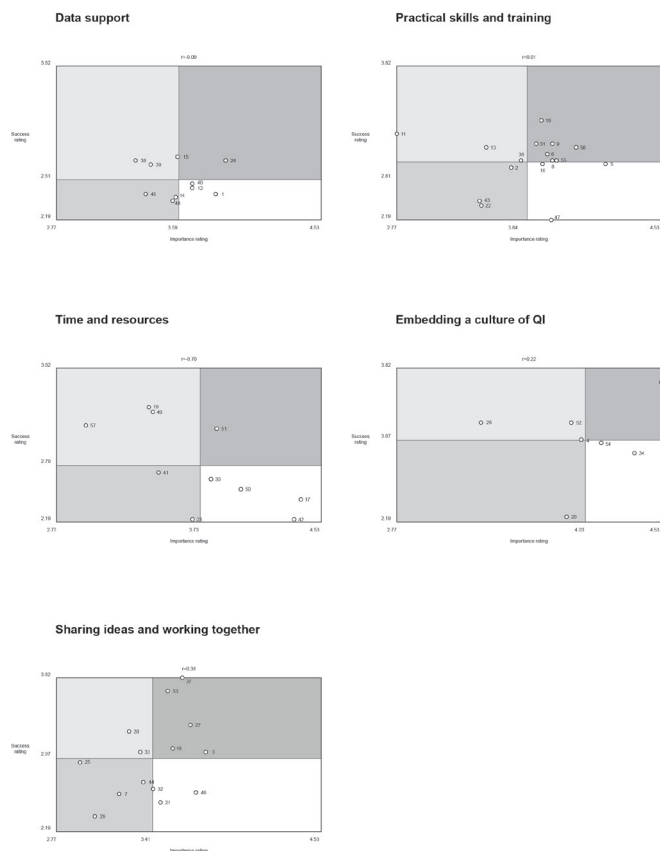
Patients and members of the public were not involved in the design, recruitment or dissemination of the study.

## RESULTS

Overall, 34 participants took part in ideas generation, 20 in sorting and 30 in the rating activity.

A total of 130 statements were produced during the ideas generation stage. These were distilled to a final set of 57 unique statements for sorting and rating. Multidimensional scaling resulted in a point map with a stress value of 0.245. A five-item cluster map was agreed on, containing the following named clusters: (1) data support; (2) practical skills and training; (3) time and resources; (4) embedding a QI culture; and (5) sharing ideas and working together.

The cluster map is shown in [figure 1](#). Here, each statement is represented by a numbered point on the map. The points are grouped into the above-named clusters. The five clusters identified by this GCM project, together with their location on the cluster map, illustrate how participants conceptualised the QI support needs of their teams in a clinical setting. A wide variety of QI activities were identified by participants during the ideas generation task. During the sorting task, these activities were broadly categorised into the technical ((1) Data support and (2) practical skills and training) and human ((3) time and resources, (4) embedding a QI culture and (5) sharing ideas and working together) aspects of QI described by Godfrey *et al.*<sup>10</sup> The statements contained within each of the five clusters highlight the importance of adopting a multilevel approach to supporting QI activity at an



**Figure 2** Go-zones.

individual, group/team, organisation and wider systems level.<sup>22</sup>

Go-zones were generated for each of the five clusters ([figure 2](#)). Online supplemental table 2 provides an overview of the individual statements included within each of the five themed clusters. We have highlighted the QI support needs perceived by participants to be of both high importance/high success (upper-right quadrant of each go-zone) and high importance/low success (lower-right quadrant of each go-zone) and discuss these in relation to the wider QI literature in the subsequent section of this paper.

## DISCUSSION

We undertook a local evaluation and planning project using GCM methodology to investigate and prioritise the key components of a QI network for allied health professionals, psychological therapists and administrative staff working across our therapy services department. The concept maps presented in this paper conceptualise the ways in which our recently established QIN is perceived to successfully support teams in their day-to-day work to improve patient outcomes and experience, as well as identifying areas for future-targeted QIN activity.

QI is a multifactorial and multidimensional activity, with varied contextual, people and process related factors impacting on design, delivery and outcome.<sup>7</sup> Ferlie and Shortell<sup>22</sup> emphasise four groups of success factors for QI:



leadership at all levels; a culture supportive of learning and change; teamwork; and appropriate information systems. Participants in this GCM study identified a wide range of QI support needs, which broadly mapped across these four areas and encompassed both the technical and the human aspects of QI in an applied healthcare setting.<sup>10</sup> The stand-alone GCM project reported in this paper informed a local implementation plan, which identified a number of short-term, medium-term and longer-term objectives to support future QI activity. In this section, we present an overview of our key findings within the context of the wider improvement literature to identify the critical components required to successfully support QI activity for staff working across our therapy services department, as well as enabling the reader to establish transferability of principles from this GCM project to their own clinical teams and organisations. Although not the primary focus of this paper, we briefly report on some of our early attempts to address the areas for targeted QIN activity described below to illustrate the sustainability of the work undertaken as part of this GCM project.

When considered at an individual statement level, analysis of the go-zones for each of the five clusters identified many areas in which our QIN was successfully perceived to be *#35 promoting a culture of change and continuous improvement*. Successful innovation requires experimentation.<sup>5</sup> Workplace cultures that foster an open, learning, inclusive environment where vision, values and goals are freely shared and clearly communicated are associated with successful improvement activity.<sup>4 7</sup> The QIN was established during the COVID-19 pandemic at a time when reduced bureaucratic constraints, quicker decision-making, fewer financial and procurement hurdles, clarity of purpose and shared priorities enabled healthcare teams to achieve improvement goals at pace.<sup>11</sup> For this reason, we were able to successfully overcome some of the barriers to effective change management, such as unengaged staff, professional tribalism and managerially driven improvement,<sup>7</sup> to create a dynamic learning community with the ability to accelerate and deepen capacity for improvement.<sup>23</sup>

While there is increasing recognition in the improvement literature that everyone in the team, including patients, should play an active role in a robust quality management system,<sup>24</sup> QI remains an activity undertaken by experts or early adopters, often in isolation from their peers.<sup>25</sup> Participants in this GCM project identified *#54 involvement of all Team members, irrespective of banding* as a specific area for targeted QIN activity. A commitment to *#54 Embed quality improvement discussions into staff meetings, team meetings, supervision and appraisal* was identified as another way in which the QIN might continue to support a positive improvement culture at an individual, team and departmental level.

In relation to 'sharing good practice and working together', participants in this GCM project identified several support needs that were being successfully met by

the QIN, including *#18 signposting to relevant professionals/resources to encourage effective collaboration*, *#27 promoting wider MDT service improvement, linking in with nursing and medical staff* and *#37 celebration of good experiences/outcomes as well as review/reflection of things we could do better*. However, participants also highlighted the importance of *#46 providing a platform where we can share our work with those in senior management and commissioning roles* as a priority area for future-targeted QIN activity. We recently hosted our first Therapy Services Learning and Sharing Event in response to the feedback obtained from this GCM project. Staff from across the department were encouraged to display posters of ongoing and completed QI projects at a series of drop-in sessions attended by senior managers and multidisciplinary healthcare colleagues. The posters were then shared more widely on the Trust intranet site, raising the profile of the therapy services department within our organisation.

We chose to purposively sample mid-level leaders across the therapy services department. As the liaison between senior managers and frontline clinicians, mid-level leaders are often the ones required to turn high-level organisational aims and objectives into actions at a departmental or unit level<sup>26</sup> and are therefore recognised to play a crucial leadership role in the implementation of improvement efforts.<sup>27 28</sup> In relation to the technical aspects of QI support, the mid-level leaders taking part in this GCM project identified several areas of high importance/high success, including but not limited to, *#9 ongoing supervision/mentorship support through the lifespan of a project* and *#10 support with how to take a specific idea forward as an improvement project*. However, they also recognised that, while important, improving knowledge and skills would not achieve sustainable change alone.<sup>10</sup> Consequently, *#5 offering training and guidance on how to change practice in response to outcomes/conclusions of completed QI projects* as well as *#47 support to develop the skills to write business cases*, were identified as important areas for future QIN support.

Large volumes of data are collected in healthcare. However, this data is often not made available to staff or service users in a timescale or format useful for improvement work.<sup>24</sup> Participants indicated that the QIN should also support them to *#1 work with data management teams to ensure data is easily accessible and useable*, as well as providing *#12 training on how to capture data* and *#40 support with data analysis*. Intentional efforts to engage with mid-level leaders in this way may help to optimise their capacity to lead and facilitate improvement, influencing senior decision-makers to embed sustainable changes in service delivery that accurately reflect the on-the-ground needs and realities of frontline clinicians and the communities they serve.<sup>28</sup> Furthermore, this GCM project has informed a series of interactive workshops for mid-level leaders that are currently undergoing local evaluation prior to being rolled-out to staff working across all levels of the therapy services department as part of our annual QI training and development programme.



The term slack has been defined as ‘the cushion of resources within an organisation that facilitates innovation and change by providing crucial time and support for learning and creativity to occur’.<sup>29</sup> Jones *et al*<sup>30</sup> described slack as comprising the positive conditions for thought and action, providing both ‘thinking space’ and ‘somebody to do the doing’. Participants in our GCM project acknowledged the important and successful role the QIN had played to #51 *improve awareness of job planning and importance of time for staff development amongst senior staff and managers*. However, #17 *providing staff with protected time, space, permission, encouragement and skills to collaborate on planning and delivering improvement*, #30 *support to embed QI activities as core business in all clinical roles* and #42 *support the case for adequate staffing to allow staff to be released for protected CPD time/quality improvement* were identified as three important areas requiring development to support QI activity.

Some organisations may hesitate to invest in staff professional development in the resource-constrained environment in which they operate.<sup>28</sup> However, research in areas that has successfully embedded, and sustained, QI activity would indicate that slack is not a surplus or a luxury, but something that has to be built into an organisation for it to continually support innovation and improvement.<sup>29</sup> As the healthcare workforce continues to adjust to growing workloads, changing technologies and complex processes for delivering care, improvements in quality and patient safety will increasingly be viewed as both necessary and burdensome.<sup>9</sup> In addition to supporting QI activity at an individual and group/team level, the findings from this GCM project highlight the unique and innovative role that QI networks could play in working as advocates for innovation and improvement, coordinating improvement efforts, and giving a political voice to problems that need to be solved at an organisation or systems level.<sup>23</sup>

### Strengths and limitations

Despite being an exploratory single-centre evaluation and planning project, our sample size is within the acceptable range for GCM projects.<sup>14 21</sup>

During ideas generation, the mid-level leaders participating in this GCM project were encouraged to share the focus prompt with their clinical teams and submit a series of collective responses. However, the findings presented in this GCM project intentionally reflect the views and experiences of a specific staff group who function as a two-way conduit between different levels of the organisation<sup>26</sup> and should not be considered indicative of the 850 healthcare workers employed by our therapy services department.

Every effort was made to include participants across all six professional disciplines. Response rates were reasonable across the ideas generation (65%), sorting (38%) and rating (57%) activities. However, participation was not uniformly distributed across the six disciplines, with lower levels of representation across speech and language

therapy, clinical psychology and podiatry throughout all three phases of data collection.

Sorting can be a time-consuming activity. The recommended number of participants required for the sorting task is 25.<sup>21</sup> The relatively low level of participation in the sorting task within this GCM project could have biased the organisation and orientation of the final clusters. However, the sorting task is largely dependent on the statements provided during the ideas generation activity, for which there was a much higher rate of participation, and over 50% of our sample took part in the subsequent rating activities.

The asynchronous nature of the ideas generation, sorting and rating tasks meant that participants could complete these activities at their own convenience. The printing costs for this project were minimal and covered within our existing departmental budget. However, providing a paper-based option, particularly for the sorting task, encouraged staff participation; particularly among mid-level leaders who spend a relatively large amount of their working day on a computer. The asynchronous nature of the GCM processes and the relatively small sample size of this single-centre evaluation and planning project meant that the project team were able to enter data onto the groupwisdom platform on a ‘little-and-often’ basis as it was returned from individual participants. This did not prove to be a very time-intensive process.

QI initiatives are complex social initiatives, for which high levels of variance in context, content and application are often inherent and desired characteristics of the intervention.<sup>31</sup> However, healthcare improvers are encouraged to consider the utility of these findings within their own teams and organisations. Those lacking the necessary time and resources to complete their own GCM project may wish to undertake a rating exercise based on the 57 statements presented in this article to assist them in identifying priority areas for supporting future QI activity.

### CONCLUSION

Understanding the QI support needs of specific groups of healthcare professionals and priorities for their successful implementation is essential to ensure effective improvement efforts can be developed with greatest impact for patient care. This GCM project identified and organised the essential components of a QI network from the perspective of mid-level leaders working across our therapy services department. The conceptual framework presented in this paper illustrates the importance of supporting a range of activities spanning the technical and human aspects of QI in an applied healthcare setting at an individual, group/team, organisation and wider systems level. GCM provided a structured and systematic approach for identifying specific areas where our recently established QIN was perceived to successfully support teams in their day-to-day work to improve patient outcomes and experience and could be used to as

a useful benchmark from which to track future-targeted QIN activity in an applied healthcare setting. As the QIN continues to develop and mature, we intend to consult with staff on a quarterly basis, revisiting and adjusting the short-term, medium-term and longer-term objectives identified as part of the local implementation plan to ensure ongoing sustainability of the work presented in this paper.

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**Patient consent for publication** Not applicable.

**Ethics approval** The project was reviewed by the Trust Research and Development Department and deemed to fall within the remit of local service evaluation and planning work, making it exempt from formal HRA approval. The project was registered on the Trust's Clinical Effectiveness Register. Approval was obtained from the Information Governance Department prior to commencing data collection.

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