Assessing the current state of quality improvement training in urology in the UK: Findings from the General Medical Council 2018 trainee survey

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Abstract

Objective

The General Medical Council of the UK (GMC) has identified the need to support doctors through education in safety and quality improvement (QI) methods. This study reports findings from the GMC annual survey of 2018 from urology trainees regarding the state of QI training and their training needs.

Material and methods

We designed a set of four questions to assess how QI methods are being taught nationally; and inserted them in the 2018 annual GMC trainee survey for urology. This is a cross-sectional study assessing the current state of QI training and mentoring received by trainees and their self-assessed ability and confidence in completing a QI project as part of training requirements. Data were statistically analysed in Stata 15 stratified by Local Education Training Boards (LETBs)/Deanery and by specialty trainee level (ST3 to ST7).

Results

In total, 270 responses were received from urology trainees. Data showed significant variation across the country. Responses from ST3-7 trainees ranged from 5-20% on completing >3 QI projects, while 7-58% replied that they have done none. Across all ST grades, 40% of trainees stated they have not undertaken QI, whereas 0-27% reported they have not received any mentoring on QI to-date. There was significant variation across training region too: 11-74% of trainees answered that they have received training in QI methods; and 58-100% responded being confident in undertaking QI projects. Across all LETBs, 1-3% responded that they uploaded projects on national websites for dissemination; finally, a range of 0-18% stated they had completed >3 projects.

Conclusion

This is the first national snapshot of QI training for the entire urology specialty in the UK. The study demonstrates wide variation in QI training and activity undertaken by trainees and shows a lack of systematic implementation of QI education across training regions.

Keywords: quality improvement, quantitative research, cross-sectional study, survey, urology trainees

Practice points

- The QI part of the GMC survey showed that there is currently great variation across the country
- More than 75% of trainees said that they have not undertaken QI training before or they are not sure
- Despite high variance by regional level regarding mentoring in QI, the majority of trainees reported they are confident in undertaking QI projects
- The results point out a gap in the teaching, mentoring and conduct of QI projects that remains to be addressed by innovative curriculum development

Notes on contributors

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Elena Pallari is a Biochemical Engineer with work experience in the evaluation of pharmaceuticals, healthcare services and educational interventions. She previously worked as a Research Assistant for
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Phil Cornford is a Urological Surgeon and Cancer Lead at Liverpool University Hospitals NHS Trust and current chair of the SAC in Urology. He was involved in the setting up of Urology National selection the development of the ST-simulation bootcamp and is currently working with Roland on the re-write of the Urology curriculum.

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Introduction

Quality improvement (QI) methods are now well established as formal approaches within healthcare and an important priority in the medical profession for the improvement of patient care. Recently, the Accreditation Council for Graduate Medical Education (ACGME) in the USA launched the new core
competencies report outlining the requirements for systems-based practice and participation in quality improvement activities. Likewise, the Association of American Medical Colleges (AAMC) recommends competency in quality improvement is integrated in undergraduate to postgraduate training and the American Board of Surgery (ABS) considers QI competency as a mandate for maintenance of certification. Similar developments have taken place in the UK, where the Royal College of Physicians launched the Quality Improvement Hub in 2016 in an effort to support physicians in undertaking QI work and navigating through the tools they need to achieve this. The General Medical Council (GMC) encourages the development of systematic and relevant QI activities to the clinical work. All of the above professional bodies thus view education and competency in QI as important attributes in the modern physician and surgeon and an essential mechanism to control costs whilst improving patient outcomes. The new GMC framework on promoting excellence and setting the standards for medical education and training includes QI as a general professional capability for all doctors in training and assessment.

The views of these leading medical organisations about the central importance of QI skills in the physician workforce are also reflected by initiatives undertaken by hospitals and other healthcare delivery organisations. In recent years, there have been numerous national policy initiatives and mandates in many countries worldwide to establish QI teams and services within healthcare organisations (e.g. Healthcare Quality Improvement Partnership in the UK) – and to augment the physician workforce’s capability in undertaking QI and patient safety on-the-job projects. These initiatives have created a demand for QI skills trained physician personnel. These pressing hospital-related and institutional-level requirements to improve healthcare quality have thus led to calls across training levels and specialties for the development of core training, the engagement of house-staff in QI activities, and the creation of a cultural alignment of QI efforts with institutional initiatives.

The importance of QI skills education has permeated through to training programme directors’ level. Studies surveyed the views of programme directors about the current state of QI in graduate surgical education. Eight-five percent of those surveyed stated that education in QI is ‘essential’ or ‘very essential’ to future professional work in the field of surgery. Likewise, in another study 90% of training programme directors stated that they consider education in QI as ‘important’ or ‘very important’ to a resident’s future success in otolaryngology. Within urological training, programme directors have expressed a strong interest for residents to learn QI methodology (89% of those surveyed) and importance of understanding how to apply it towards conduct a QI project (86% of those surveyed).

Research gap

Despite the above educational, clinical and regulatory perspectives on the importance of QI skills training from leading organisations and physicians, the current state of affairs in QI skills training within medical education face numerous challenges as documented in a recent systematic review. These included: misperception of QI compared to clinical research, lack of knowledge on QI methods, and scepticism about the impact of QI on patient outcomes and institutional performance. Other recent reviews focused on safety skills education (a specific aspect of QI) and revealed lack of widespread knowledge of the safety and quality evidence base and specific techniques within the medical workforce. Such barriers have meant that widespread adoption of QI skills by penetration into the physician and surgical workforce to support continuous service improvement remains an issue.
A significant gap in our understanding of how to address such bottlenecks remains the lack of detailed study of the trainees’ perspective. To the best of our knowledge, large scale trainee or resident physician surveys have not focused on QI skills learning, development or application – focusing typically on trainees’ perception of their clinical skills training instead. Developing such a survey and conducting it at scale would offer a broad-based ‘training needs analysis’ for QI skills within the training curriculum. Such an analysis offers a necessary first step in designing relevant to trainees and scalable QI skills training programmes.

The study we report here aimed to address this gap. We designed and conducted a training needs analysis on QI skills for UK urological surgery trainees – via integrating it within the annual GMC trainees survey of 2018.

Methods

Study design

This was a cross-sectional descriptive survey-based study assessing the current state of QI training and mentoring received by trainees and their self-assessed ability and confidence in completing a QI project as part of training requirements. King’s College London Research Ethics Committee reviewed the study and deemed it did not require ethical review as it was part of a standard professional education survey, regularly carried out by the GMC, to which we were formally invited to contribute (see section below).

Study materials and procedure

We designed a set of questions around QI skills training for completion by all urology trainees of the UK. The questions were designed based on a balance between gathering important information for our training needs analysis purposes yet keeping the survey very short so that it could be feasibly delivered as part of the GMC annual survey – hence the four of questions was set from the start to be small and highly prioritised. The questions were developed by EP and worded by a team that included expertise in medicine and surgery (JSAG) and improvement science (NS, ZK). The finally selected questions (n=4) are shown in Box 1.

These questions were subsequently reviewed and approved both by the Specialist Advisory Committee (SAC) in Urology (Urology SAC) and GMC. They were ultimately inserted in the 2018 GMC annual trainee survey of 2018. This is an annual assessment by the GMC of the quality of training provision completed by trainees to get their views on satisfaction with existing training. Upon conclusion of the survey data collection, the data were compiled by the GMC and subsequently shared with the research team in fully anonymised format for analysis.
1) Have you received any training in quality improvement methods to date?  
yes/ no/ unsure

2) To what extent do you agree or disagree with the following statement? I am confident that I can complete a quality improvement project.

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<th>Disagree</th>
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3) Where did your mentoring on quality improvement take place in the last year?

a. Locally  
b. Within your trust  
c. Regionally within your training programme  
d. Nationally through your own/another professional network  
e. Elsewhere: (please specify)

4) During your specialty training, how many quality improvement projects (excluding audits) have you completed to date?

0  1  2  3  more than 3

Box 1. Final questions on quality improvement skills inserted into the GMC annual 2018 survey

Statistical analysis

To comply with the GMC’s requirement for complete anonymity of survey responses, data were provided to the research team in grouped format. GMC did not provide raw scores for individual trainees or training regions, as this could potentially break respondent anonymity. Subsequently, we pseudonymised each region to further prevent inadvertent identification.

The grouped nature of the dataset determined the type of descriptive and inferential analyses that could be carried out and reported. Data were statistically analysed collectively, by the UK Local Education Training Boards (LETBs)/Deanery and by trainee level (ST3, ST4, ST5, ST6, ST7). The percentages per category in the five items were approximated by our team using the diagrams (up to integer level-no decimal points were used), and the frequencies were computed using as total number of observations N=260, to accommodate for the fact that in certain questions the number of responders was less than 270 (but no less than 260).

The one sample χ² was used to test the hypothesis of majority (50%) of a response (or cluster of responses, as described in results) versus the rest of the responses. The analysis was conducted separately for each LETB, separately for each trainee level, but also for their totals. All analyses have been conducted in STATA 15 and a chi-square (χ²) test was performed for noncontinuous variables, with a p value of less than 0.05 for statistical tests considered statistically significant.

Results

In total, up to an estimated 270 responses were received from urology trainees (in grouped format). Data showed significant variation across the country, with results being statistically significant, p<0.05. There was a great variation cross region where 11-74% of respondents answered that they have
received training in QI methods (Figure 1). Between 58% and 100% responded being confident in undertaking QI projects – nationally (Figure 2), whereas 0-27% reported they have not received any mentoring on QI up to date (Figure 3). From all LETBs, 1-3% responded that they uploaded projects on national websites for dissemination; finally, a range of 0-18% stated they had completed >3 projects (Figure 4). Responses from ST3-7 trainees ranged from 5-20% on completing >3 QI projects, while 7-58% replied that they have done none, and across all ST grades, 40% of trainees stated they have not undertaken QI.

There was no specific QI education programme that respondents were aware of (Table 1). This reached statistical significance across all groups and in both subgroups analysed (overall, within each LEBT and at each level of training, *p*<0.001 in all cases). In all but one LEBT, the majority (within each LEBT and each training level, as well as over the totals) of the individuals responded that they were confident to participate in a QI project (*p*<0.001), except LEBT 10 (*p*=0.160). In most cases, the majority (within each LEBT and each training level, as well as over the totals) of the individuals responded that they ‘participated in 3 or more QI projects’ (*p*<0.05), except LEBTs 3,10, and 13 (*p*>0.05).

**Discussion**

QI is a general professional capability for all postgraduate trainees in medicine in the new curricula submitted to the GMC. This study, for the first time to our knowledge, elucidates the state of training in, and delivery of, QI projects by UK urology trainees – thus offering a training needs analysis for this trainee cohort. Although less than 25% of trainees said that they have received QI training, more than 75% said that they feel comfortable in undertaking QI work. These may suggest that perhaps these respondents or even more who said that they had participated in more than 3 QI projects, really refer to audit projects rather than QI projects. Our findings raise questions around the variability of QI activities as informed by educational pedagogies and current training structure. The large variability in the responses indicates the need for a formalised QI curriculum and pedagogies.

Although we did not ask about QI curricula content specifically, our findings potentially point out to variability of implementation across the LEBTs training programmes. It may also point to the variability in the availability of QI mentors too. A survey from program directors within paediatric programmes pointed out great variability in QI curriculum design, content, and evaluation of within paediatric residency programs. Similarly, in another study fewer than half of paediatric trainees responded that they use standard QI methods making the case of standardising nationally QI curricula for systemic improvement. Furthermore, these gaps were also replicated in a systematic review focusing on physicians, where lack of appropriate QI curricula was found. The goal of any educational programme should be to enable the effective knowledge transfer of QI concepts, models and tools from the educators to the trainees, in a coherent manner across UK training programmes. Perhaps practical demonstration of examples of QI work from the set-up to the evaluation should be included within QI skills training across training programmes. Subsequently, trainees could contribute to the evaluation of the mechanism or strategy of improvement within the context of a specific QI project within their own services. Within that, they could identify, measure and report appropriate outcomes on the processes-of-care, patient outcomes, or measures of organisational benefit. These could be assisted by the use of the SQUIRE guidelines in the reporting of QI projects. Such an approach requires further development and testing; its ultimate aim would be to offer trainees a standardised training package in practical QI skills. Finally, it can be used to upskill the trainers as well.

An innovation of this study is that it is the first time that such a survey is addressed to specialty trainees and provides an important dimension in assessing the current state of QI training from the trainee
perspective – at national scale. The findings are also in agreement from an attitude survey of paediatric
trainees, whom 70% had no prior QI training and 82% did, responded that continuous QI is a positive
trend in healthcare, while 23% and 18% respectively remained undecided 26. Another survey showed
that more than 60% of trainees in radiation oncology had no proper training in QI methods, and only
27% of residents felt that they were adequately trained in patient safety 27.

In improving and informing the development of future QI education programmes, emphasis should be
placed on the development of experiential learning, informed by sociocultural theories 28. Supporting
leadership within hospital QI infrastructure and identifying pathways to engage relevant stakeholders
in this process are key drivers 29. Previously, an analysis showed significant variability of the ACGME
milestones essentially demonstrating variability of QI expectations across 26 specialties in the USA 30.
The identified barriers of time constraints and institutional change culture overlap with those found
from a study assessing the effectiveness of educational programs on medical event reporting 31. A
potential solution was an attempt to implement a QI collaborative across eight USA residency
programs, which provided a structural approach to achieve this in a unifying manner 32. As the GMC
survey results are evident of similar heterogeneity across the 13 LETBs across the UK with respect to
QI training implementation, perhaps emphasis should be placed in addressing such barriers and
introduce a collaborative approach.

We propose the provision of such contextual support and QI collaboratives to optimise practice-based
learning. For example, teaching trainees at a nationally organised courses, disseminating materials and
providing support regionally so they can undertake QI projects within their own programs, and using
online platforms for sharing best practices in QI project work virtually. We have started to develop
such a comprehensive supportive framework for the provision of QI training within UK urology trainees
– through the iterative development of a basic QI skills curriculum, which we have shown is feasible
and educationally effective. This approach remains to be further scaled up and evaluated.

Limtitions

Our study was limited in scope due to feasibility: we could only provide a small number of questions
to the annual GMC trainee survey, and hence excluded important topics such as curriculum content,
pedagogical tools or evaluation methods. Also, our sample size was substantial, but we cannot rule out
self-selection – due to the number of trainees who ultimately chose to participate in the survey. This
is a limitation of all survey studies. Finally, this was a cross-sectional study, hence we cannot establish
a cause and effect due to temporal restrictions between exposure and assessed outcomes.

Conclusions

This is the first national snapshot of QI training for any group of surgical trainees. The study
demonstrates wide variation in QI training, activity and understanding amongst trainees, and shows
lack of systematic implementation of coherent QI education across training regions. We propose that
these questions are annually included in the survey to offer a longitudinal perspective on the state of
training in formal QI skills training and mentoring within the trainees’ population, as QI initiatives are
introduced.
Figures

Figure 1. Q1: Have you received any training in quality improvement methods before?

Figure 2. Q2: To what extent do you agree or disagree with the following statement: I am confident that I can complete a QI project?

Figure 3. Q3: Where did your mentoring on quality improvement take place in the last year?

Figure 4. Q4: During your specialty training, how many quality improvement projects (excluding audits) have you completed to-date?
| LET B | Q2: 'no or unsure > 50%' | Q4: 'strongly disagree or disagree > 50%' | Q5: '3 or more projects > 50%'
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| ST level | Q2: 'no or unsure > 50%' | Q4: 'strongly disagree or disagree > 50%' | Q5: '3 or more projects > 50%'
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Acknowledgments

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Disclosure statement

NS is the Director of London Training & Safety Solutions Ltd which delivers patient safety, quality improvement, and team training to hospitals on a consultancy basis. There are no conflicts of interest identified by the rest of the authors whether academic, institutional, political, financial, personal or other.

The guarantor is JSAG.

References

Declarations of interest

Conflicting interests: NS is the Director of London Training & Safety Solutions Ltd which delivers patient safety, quality improvement, and team training to hospitals on a consultancy basis. There are no conflicts of interest identified by the rest of the authors whether academic, institutional, political, financial, personal or other.

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Guarantor: JSAG