

UC Davis

UC Davis Previously Published Works

Title

The care and keeping of clinicians in quality improvement.

Permalink

<https://escholarship.org/uc/item/1mz5d774>

Journal

International journal for quality in health care : journal of the International Society for Quality in Health Care, 32(7)

ISSN

1353-4505

Authors

Shaikh, Ulfat
Lachman, Peter
Padovani, Andrew J
[et al.](#)

Publication Date

2020-09-01

DOI

10.1093/intqhc/mzaa071

Peer reviewed

Research Article

The care and keeping of clinicians in quality improvement

ULFAT SHAIKH¹, PETER LACHMAN², ANDREW J. PADOVANI³, and SIOBHÁN E. MCCARTHY⁴

¹General Pediatrics, University of California Davis Health, 2516 Stockton Blvd, 3rd Floor, Sacramento, CA 95817, USA, ²International Society for Quality in Healthcare (ISQua), 4th Floor, Huguenot House, 35-38 St Stephens Green, Dublin 2, Ireland, ³Center for Healthcare Policy and Research, University of California at Davis, 2103 Stockton Blvd, Sacramento, CA 95817, USA, and ⁴Institute of Leadership, Royal College of Surgeons in Ireland, Reservoir House, Ballymoss Road, Sandyford, Dublin 18, Ireland

Address reprint requests to: Ulfat Shaikh, Professor of Pediatrics and Director for Healthcare Quality, UC Davis Health, General Pediatrics, 2516 Stockton Blvd, 3rd Floor, Sacramento, CA 95817, USA. Tel: +1-916-734-5387;

E-mail: ushaikh@ucdavis.edu

Editorial Decision 24 June 2020; Accepted 24 June 2020

Abstract

Objective: Although frontline clinicians are crucial in implementing and spreading innovations, their engagement in quality improvement remains suboptimal. Our goal was to identify facilitators and barriers to the development and engagement of clinicians in quality improvement.

Design: A 25-item questionnaire informed by theoretical frameworks was developed, tested and disseminated by email.

Settings: Members and fellows of the International Society for Quality in Healthcare.

Participants: 1010 eligible participants (380 fellows and 647 members).

Interventions: None.

Main Outcome Measures: Self-efficacy and effectiveness in conducting and leading quality improvement activities.

Results: We received 212 responses from 50 countries, a response rate of 21%. Dedicated time for quality improvement, mentorship and coaching and a professional quality improvement network were significantly related to higher self-efficacy. Factors enhancing effectiveness were dedicated time for quality improvement, multidisciplinary improvement teams, professional development in quality improvement, ability to select areas for improvement and organizational values and culture. Inadequate time, mentorship, organizational support and access to professional development resources were key barriers. Personal strengths contributing to effectiveness were the ability to identify problems that need to be fixed, reflecting on and learning from experiences and facilitating sharing of ideas. Key quality improvement implementation challenges were adopting new payment models, demonstrating the business case for quality and safety and building a culture of accountability and transparency.

Conclusions: Our findings highlight areas that organizations and professional development programs should focus on to promote clinician development and engagement in quality improvement.

Barriers related to training, time, mentorship, organizational support and implementation must be concurrently addressed to augment the effectiveness of other approaches.

Key words: quality improvement, quality management, leadership, quality management, training, education, human resources, quality culture, quality management, quality management, needs assessment, healthcare system, organization science, healthcare system, teamwork, human resources

Background

Successful quality improvement (QI) interventions demonstrate the immense potential of QI to improve healthcare delivery and enhance health [1, 2]. Published literature has attributed challenges in replicating and scaling up these successes to lack of a supportive organizational context and culture and to the paucity of frontline clinician engagement in QI interventions [3, 4]. Frontline clinicians play a crucial role in implementing, spreading and adapting innovations to the needs of their unique contexts and settings [5]. In this paper we focus on the issue of clinical engagement in QI, a bidirectional relationship between clinicians and their organizational contexts [6]. For example, an engaged clinician will demonstrate a positive attitude toward QI, while their organizations will provide them with the conditions and opportunities to improve quality within their usual professional roles and responsibilities [6].

For clinicians with formal management or quality assurance roles, QI engagement can involve coordinating a strategic approach to QI, leveraging resources to promote implementation and negotiating barriers to improvement [6–9]. The engagement of clinicians is likely to be more successful if clinicians lead the process of identifying best practices, evaluating performance and developing improvement initiatives [10]. Nonetheless, healthcare systems struggle with meaningful and sustainable engagement of clinicians in QI efforts [11]. Possible challenges to engaging clinicians include competing clinical and organizational demands, competing QI initiatives, inadequate staffing and resources, lack of leadership support and lack of peer support [4, 10].

It is critical for organizations to strategically align the priorities of frontline clinicians and leaders and board members in building improvement capacity [6]. A deeper understanding of strategies to alleviate barriers to involvement in improvement initiatives for clinicians who do not have specific organizational roles in QI will strengthen and sustain this alignment. Key factors that determine human behavior are cognitive (knowledge, expectations and attitudes), behavioral (skills, practice and self-efficacy) and environmental (social norms, access in community and influence on others) [12]. Five key habits of improvers are learning, influencing, resilience, creativity and systems thinking, which may further indicate specific skills to foster when developing leaders in QI [13]. These factors may directly influence active engagement in QI by clinicians, which in turn can affect QI capacity and a culture of improvement within healthcare systems [14].

To identify facilitators and barriers to develop and sustain clinicians in QI, we conducted a survey of members and fellows of the International Society for Quality in Healthcare (ISQua), a global professional organization that focuses on facilitating improvements in the quality and safety of healthcare [15]. Our aims were to identify factors that enhance the self-efficacy and perceived effectiveness of clinicians to participate in and lead QI activities. We hypothesized that self-efficacy and perceived effectiveness in conducting and leading QI activities are higher with formal training in QI methods,

experience in QI, working in organizations that recognize and reward participation in QI, including QI as part of everyday job responsibilities, mentorship in QI and connection with a professional or peer network in QI [16].

Methods

We developed a 25-item survey questionnaire informed by QI theory and feedback from content experts to identify factors that influence clinicians' self-efficacy and perceived effectiveness in QI [3, 5, 6, 10, 13, 16, 17]. The variables chosen for our analysis were grounded in QI theory and included formal training in QI, years of experience in QI, access to and usage of professional development resources in QI and organizational support for QI. The questionnaire utilized was developed specifically for this study, was based on a rigorous review of current literature on the topic and took an average of 10 min to complete. It was tested for face validity and content validity by QI and survey design experts from multiple countries, pretested by QI practitioners and iteratively edited based on feedback provided by these individuals. The survey was distributed by email to current members as well as current and past fellows of ISQua [15]. The majority of ISQua members and fellows have clinical backgrounds. The ISQua Fellowship is an online continuing education program for healthcare professionals that offers the opportunity to be part of a global community of QI learners.

At the time the survey was disseminated, ISQua had 647 current members and 380 current or past ISQua fellows. The survey was distributed via email by ISQua to a total of 1027 individuals; 1010 emails were successfully delivered, and 17 emails returned undeliverable. Emails were sent a total of four times over a 4-month period. Email analytics showed that 158 individuals clicked on the link to the survey. Individual responses were kept confidential, and only aggregate data was used for data analysis. Human subject research approval was obtained through the University of California, Davis, and the Royal College of Surgeons in Ireland.

Data were analyzed by descriptive statistics, bivariate analysis and ordered logistic regression. The key outcomes of self-efficacy and perceived effectiveness in QI were self-reported by respondents on a Likert-type scale, ordered from a minimum score of 0 to a maximum score of 10. Likert-type scales convey information about relative rank [18]. For example, a score of 10 is ranked higher than 5, but a score of 10 is not necessarily twice as good as a score of 5. Our analyses showed that our key outcomes were normally distributed for clinicians and non-clinicians when examined both jointly and separately. While parametric statistical methods such as ordered logistic regression do not require outcomes from Likert scales to follow a normal distribution, we document normality to provide confidence in our analysis [2]. Given that our outcomes consisted of multiple ordinal values, we applied the proportional odds ordered logistic regression model to estimate the odds of variables being associated with higher self-efficacy or perceived effectiveness scores.

For example, the model estimates the odds ratio (OR) of a respondent who is a clinician reporting a higher self-efficacy score compared to a respondent who is not a clinician.

Results

The survey was delivered by email to 1010 individuals, which included 380 ISQua fellows and 647 ISQua members, some of whom were also ISQua fellows. We received 212 responses from 50 countries, with a response rate of 21%. Participants ranged in age from 23 to 77 years; 48.4% were male, and 50.3% were female. Most respondents worked in urban settings (76.1%), 12.6% worked in suburban settings, and 5.7% worked in rural settings. Most respondents reported working in a city, county or state government hospital or clinic (25.8%); a medical college, university or academic health center (21.4%); or a nongovernment hospital or clinic (17.6%). Most respondents (44.3%) worked in large organizations with 1000 to over 5000 employees.

The majority of respondents (80.6%) reported that they had received formal education or training as a clinician. A clinician was defined in the survey as 'a health care professional (such as a doctor, dietitian, nurse, physical therapist, pharmacist, etc.) who is trained to provide clinical care to patients'. Of the clinicians who responded to the survey, 59.1% were physicians, and 25.8% were nurses. They had worked an average of 18.50 (SD 10.9) years as a clinician after completing their clinical education and training.

During a typical work week, 39.1% of respondents spent the majority of their time in clinical QI activities, 19.2% in the clinical care of patients, 15.1% in health professions education and 11.4% in research. Approximately 75% percent of respondents had participated in a QI project or initiative, 65% had led a QI project or initiative, and 55% had advised or coached a QI project or initiative. Most respondents, 59%, held a formal administrative title related to QI. Examples of such administrative titles were Director, Senior Director or Manager for Quality. Respondents had been involved in QI activities an average of 11.6 (SD 8.7) years. Most respondents rated their ability to conduct QI very highly, with approximately 74 and 64% of respondents rating their self-efficacy and effectiveness in QI respectively as 8 or higher on a 10-point scale.

Professional development opportunities in QI that were utilized by respondents were formal QI training outside their organization (63.6%), QI organizational memberships (63.5%), QI conferences (61.2%), online QI training (59.8%) and formal QI training within their own organization (54.9%). Most respondents reported that their organization provided them with dedicated time to participate in QI activities (77.8%) and recognized and rewarded their participation in QI (67.1%).

Respondents reported that the most successful clinical QI project or initiative that they were involved in resulted in improved patient safety or reduction in medical errors (33%), reduced waits and delays in care (15%), reduced overuse of unnecessary services (14%), improved patient- or family-centered care (11%) and reduced health disparities (7%). The following factors were attributed most frequently to successful QI projects and initiatives: members of the QI team who were trained in QI methods (34.4%), mentorship and coaching in QI (32.5%), interprofessional QI teams (31.1%), participation in QI activities recognized and rewarded by the organization (22.2%) and connection to a network of individuals in QI (20.3%). Over half (55%) of respondents worked in organizations that used electronic health records to generate QI data.

Factors significantly related to 'higher self-efficacy' in conducting and leading QI activities were dedicated time for QI (OR = 4.2), mentorship in QI (OR = 4.1), membership in a QI organization (OR = 2.7) and a professional network in QI (OR = 2.6). Similarly, dedicated time to conduct QI (OR = 4.3), mentorship in QI (OR = 3.0), membership in a QI organization (OR = 2.0) and a professional network in QI (OR = 2.0) were significantly related to 'higher perceived effectiveness' in conducting and leading QI activities. Having access to or utilizing even one additional professional development resource was significantly related to higher self-efficacy and perceived effectiveness in conducting QI (OR = 1.3).

Clinicians reported higher self-efficacy and perceived effectiveness in QI than non-clinicians, although this difference was not statistically significant. Respondents with formal administrative titles in clinical QI were significantly more likely to report lower self-efficacy (OR = 0.4) and lower perceived effectiveness (OR = 0.33) in QI compared to respondents without formal administrative titles in QI. The number of years of experience as a clinician, years of experience conducting QI or gender was not correlated with self-efficacy or perceived effectiveness in QI.

Personal strengths that contributed to respondents' effectiveness in QI were curiosity (63.7%), the ability to identify problems that need to be fixed (57.1%), reflecting on and learning from experiences (45.3%), facilitating ways to enable people to share ideas (32.5%), being a team player (26%) and making connections between activities and contexts (20%).

The most frequent barriers to conducting QI were lack of time (45.3%), lack of mentorship in QI (24.5%), lack of organizational support for QI (20%) and inadequate access to QI content or information (19.3%). Respondents reported that top QI implementation challenges faced by their organizations were adopting new payment models (44.4%), demonstrating the business case for quality and safety (24.7%), building a culture of accountability and transparency (24.2%), reducing cost and removing waste (21.9%) and managing data collection and reporting (21.3%) [17] (Fig. 1).

Discussion

As the quality movement enters its third decade, sustained and accelerated improvement will require that frontline clinicians be engaged in and lead quality improvement initiatives [4]. Our study demonstrates that five key factors are required for QI in healthcare organizations (Fig. 2):

(1) Dedicated time for quality improvement: Clinicians have higher self-efficacy and perceived effectiveness in conducting and leading QI activities if they have dedicated time to conduct QI, receive mentorship and coaching in QI and are part of a professional QI network. Organizations represented by survey respondents have the foresight to invest in QI, as evidenced by the majority of survey respondents reporting that their organization provided them with dedicated time to participate in QI activities.

(2) Working within multidisciplinary improvement teams: The factor that was most frequently attributed to successful QI projects and initiatives was working within interprofessional QI teams. The success of interprofessional teams was augmented by training in QI methods and including QI as part of employees' job responsibilities. Respondents identified that facilitating ways to enable people to share ideas and being a team player were key personal strengths that contributed to their effectiveness in QI. Attention to fostering these teamwork skills in professional development programs for

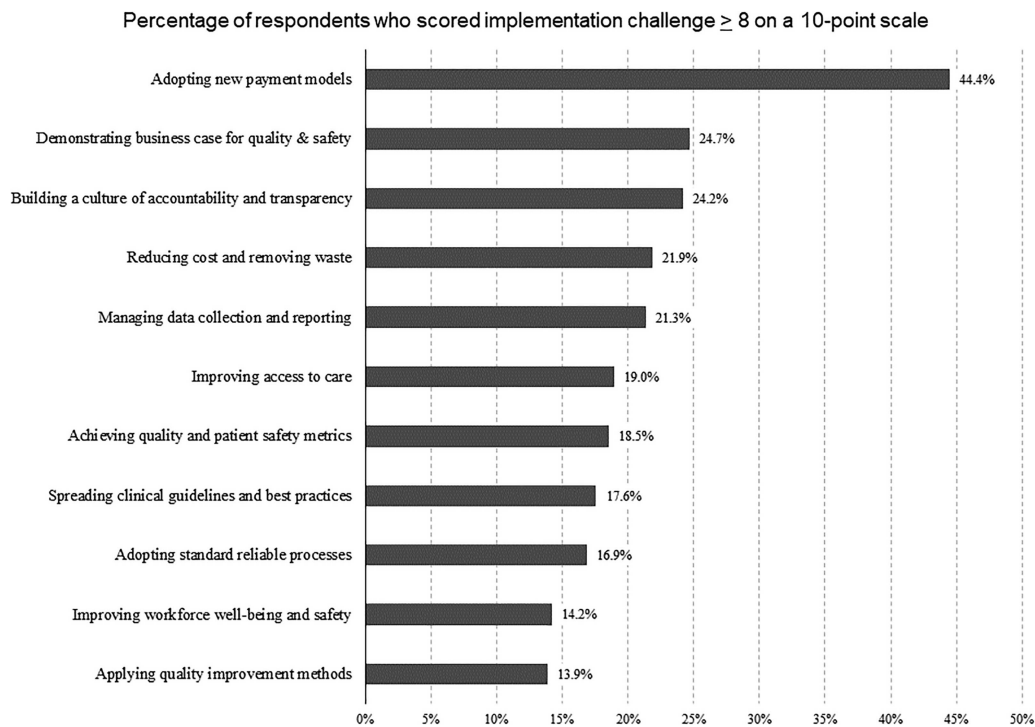


Figure 1 Key implementation challenges in healthcare quality improvement.

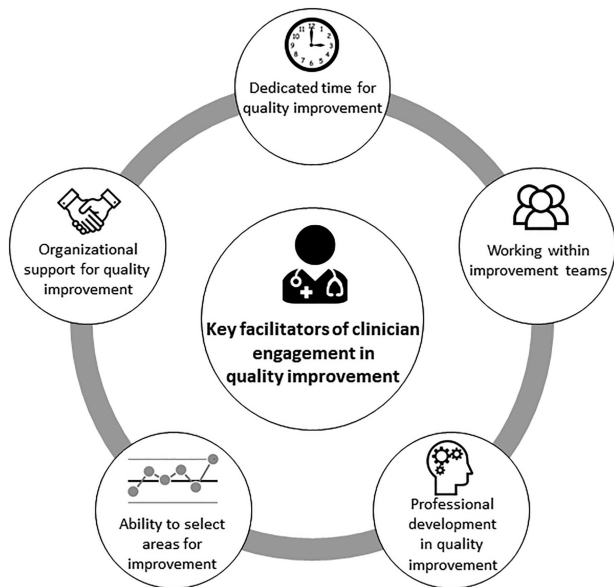


Figure 2 Framework for clinician engagement in quality improvement.

clinicians will help enhance the effectiveness of training in improvement methods.

(3) Professional development in quality improvement: Our findings highlight areas that organizations and professional development programs should focus on for optimal clinician development in QI. Key barriers to conducting QI, namely, time constraints, inadequate mentorship in QI, lack of organizational support for QI, inadequate access to QI knowledge and skills and suboptimal engagement of frontline clinicians in QI, will simultaneously need to be addressed

to enhance the effectiveness of other organizational and professional development approaches. One surprising finding was that responders with formal administrative titles in QI were significantly more likely to report lower self-efficacy and lower perceived effectiveness in QI compared to responders without formal administrative titles. It is possible that responders with formal administrative roles in QI may be more realistic about the complexity of conducting and leading QI compared to responders without these titles. Respondents with greater number of years of experience as a clinician or conducting QI reported the same level of self-efficacy compared to those with fewer years of either. These results probably also reflect the likelihood that responders with more experience may be more conservative when evaluating their own self-efficacy and effectiveness compared to those with less experience [19].

It is worth noting that simply having access to professional development resources was correlated with greater self-efficacy and perceived effectiveness in QI, although to a lesser degree than when responders actively utilized these resources. This finding may indicate that individuals who have access to professional development resources for QI may work for organizations that either have a culture of QI or preferentially hire individuals who engage in clinical QI. Professional development opportunities in QI most frequently cited by survey responders included formal QI training outside their organization, QI organizational membership, QI conferences, online QI training and formal QI training within their organization.

(4) Ability to select areas for improvement: Our study suggests that involvement in the selection of QI problems to address is likely to be a key enabler of clinician engagement in QI. Clinicians are willing to improve care in areas that they view as high priority or that interests them, thereby fulfilling both intrinsic and extrinsic drivers of engagement in QI. Research has demonstrated the importance of context to improved clinical outcomes, which in turn is largely dependent on organizational leadership and commitment [4, 20, 21].

Engagement of clinicians in areas that address issues relevant to their organizational context will be more readily adopted and sustained since they have local meaning and significance [14].

(5) Organizational values and culture of quality improvement: Prior research has emphasized the role of innovation-values fit—the degree to which the target audience believes that adopting the innovation is aligned with or deviates from their values—as an important consideration for implementing change [22, 23]. The challenge of achieving this fit is reflected in our survey findings which detail top QI implementation challenges. These were building a culture of accountability and transparency, adopting new payment models, managing data collection and reporting, demonstrating the business case for quality and safety and adopting standard reliable processes. These challenges have been reported by other studies and likely represent the growing international focus on QI and value-based care [14, 17, 24–28]. Despite these challenges, it is reassuring that organizations represented by survey respondents have the foresight to invest in QI as evidenced by the majority of survey respondents reporting that they held a formal administrative title related to QI and that their organization recognized and rewarded their participation in QI.

Limitations

Since our study included only QI practitioners, we acknowledge the possibility of sampling bias, since individuals less involved in QI activities may have different views regarding facilitators and barriers to QI. However, we believe that focusing on QI practitioners provides us with information relevant to designing programs that support the development of clinicians in QI. Our study has a response rate of 21% which could additionally contribute to sampling bias. However, published literature indicates that the average response rate of email surveys is 25% and that surveys with lower response rates (20–25%) yielded as accurate or more accurate results than surveys with higher response rates (50–70%) [29, 30]. This may be because surveys with low response rates primarily include respondents who might be more motivated to providing accurate and relevant information compared to individuals with a lower level of interest in the survey topic. We additionally believe that our survey respondents are likely representative of our population of interest of individuals committed to development of clinicians in QI and therefore likely to provide accurate information.

Conclusions

We have identified key factors to enhance the development of leaders in QI in healthcare organizations. Dedicated time for QI, multi-disciplinary improvement teams, professional development, ability to select areas for improvement aligned with individual priorities and interests and an organizational culture of improvement are key ingredients. Although factors such as organizational priorities, healthcare funding models and patient populations influence local QI activities and levels of implementation, clinician engagement in QI is critical for scaling up and sustaining improvement. Integrating clinicians into QI efforts within their own areas of influence by supporting professional autonomy and leadership roles at the clinical microsystem level could be an effective approach.

Future research needs to focus on interventions to address the QI implementation challenges highlighted by our study and ways to optimally support clinicians' selection of QI problems in order to achieve high-value care. Generating evidence in these areas will

support a culture of transparency, accountability and the adoption of new payment models. Our study also indicates the need for greater use of implementation science research designs, including prospective research studies that identify tailored and context sensitive strategies that address barriers to implementation in real time [22, 23, 26, 31].

Our findings highlight key considerations for the development of clinicians in QI. The results of this study can be used to develop organizational strategies for clinician engagement in QI as well as highlight crucial areas that professional development programs in QI should include. In order to simultaneously attain goals of improving population health and delivering high-value health care, developing and testing strategies that align clinical engagement in QI with healthcare management decision-making is an essential area for further research.

Acknowledgements

The authors would like to thank Julie Rainwater and Daniel J. Tancredi for feedback on survey design and Sinead McArdle and the ISQua team for administering the distribution of the survey.

References

- Haynes AB, Weiser TG, Berry WR *et al.* A surgical safety checklist to reduce morbidity and mortality in a global population. *N Engl J Med* 2009;360:491–9.
- Siriwardena AN, Shaw D, Essam N *et al.* The effect of a national quality improvement collaborative on prehospital care for acute myocardial infarction and stroke in England. *Implement Sci* 2014;9:17.
- Kaplan HCPL, Froehle CM, Margolis PA. The model for understanding success in quality (MUSIQ): building a theory of context in healthcare quality improvement. *BMJ Qual Saf* 2012;21:13–20.
- Sfantou DF, Laliotis A, Patelarou AE *et al.* Importance of leadership style towards quality of care measures in healthcare settings: a systematic review. *Healthcare (Basel)* 2017;5:73.
- Horton T, Illingworth J, Warburton W. *The Spread Challenge- How to Support the Successful Uptake of Innovations and Improvements in Health Care*. London, UK: The Health Foundation, 2018.
- Pannick SSN, Athanasiou T. Beyond clinical engagement: a pragmatic model for quality improvement interventions, aligning clinical and managerial priorities. *BMJ Qual Saf* 2016;25:716–25.
- Urquhart R, Kendell C, Folkes A *et al.* Making it happen: middle Managers' roles in innovation implementation in health care. *Worldviews Evid Based Nurs* 2018;15:414–23.
- Birken S, Clary A, Tabriz AA *et al.* Middle managers' role in implementing evidence-based practices in healthcare: a systematic review. *Implement Sci* 2018;13:149.
- Ree E, Johannessen T, Wiig S. How do contextual factors influence quality and safety work in the Norwegian home care and nursing home settings? A qualitative study about managers' experiences. *BMJ Open* 2019;9:e025197.
- Ling T, Soper B, Buxton M *et al.* *How Do You Get Clinicians Involved in Quality Improvement?* London, UK: The Health Foundation, 2010.
- Wilkinson J, Powell A, Davies H. *Are Clinicians Engaged in Quality Improvement?* London, UK: The Health Foundation, 2011.
- Bandura A. *Social Learning Theory*. Englewood Cliffs, NJ: Prentice-Hall, 1976.
- Lucas B, Nacer H. *The Habits of an Improver*. London, UK: The Health Foundation, 2015.
- Ramaswamy R, Reed J, Livesley N *et al.* Unpacking the black box of improvement. *International J Qual Health Care* 2018;30:15–9.
- International Society for Quality in Health Care (ISQua). <https://www.isqua.org/> (Published 2020; 15 January 2020, date last accessed).

16. Weiner BJ, Shortell SM, Alexander J. Promoting clinical involvement in hospital quality improvement efforts: the effects of top management, board, and physician leadership. *Health Serv Res* 1997;32:491–510.
17. Lorch T. *What's Keeping Quality Leaders Up at Night?* Institute for Healthcare Improvement. <http://www.ihl.org/communities/blogs/what-s-keeping-quality-leaders-up-at-night-> (Published 2018; 15 January 2020, date last accessed).
18. Norman G. Likert scales, levels of measurement and the “laws” of statistics. *Adv in Health Sci Educ* 2010;15:625–32.
19. Kruger J, Dunning D. Unskilled and unaware of it: how difficulties in recognizing one's own incompetence lead to inflated self-assessments. *J Pers Soc Psychol* 1999;77:1121–34.
20. Ree E, Wiig S. Linking transformational leadership, patient safety culture and work engagement in home care services. *Nurs Open* 2020;7:256–64.
21. Wong CA, Cummings GG, Ducharme L. The relationship between nursing leadership and patient outcomes: a systematic review update. *J Nurs Manag* 2013;21:709–24.
22. Rangachari P. Innovation implementation in the context of hospital QI: lessons learned and strategies for success. *Innov Entrep Health* 2018; 5:1.
23. Turner K, Trogon JG, Weinberger M *et al.* Testing the organizational theory of innovation implementation effectiveness in a community pharmacy medication management program: a hurdle regression analysis. *Implement Sci* 2018;13:105.
24. Badash I, Kleinman NP, Barr S *et al.* Redefining health: the evolution of health ideas from antiquity to the era of value-based care. *Cureus* 2017;9:2.
25. Fredriksson JJ, Ebbevi D, Savage C. Pseudo-understanding: an analysis of the dilution of value in healthcare. *BMJ Qual Saf* 2015;24:451–7.
26. Alexander JA, Hearld LR. The science of quality improvement implementation: developing capacity to make a difference. *Med Care* 2011;S6–S20.
27. Abdallah A. Implementing quality initiatives in healthcare organizations: drivers and challenges. *Int J Health Care Qual Assur* 2014;27:166–81.
28. Zoutman DE, Ford BD. Quality improvement in hospitals: barriers and facilitators. *Int J Health Care Qual Assur* 2017;30:16–24.
29. Visser PS, Krosnick JA, Marquette J *et al.* Mail surveys for election forecasting? An evaluation of the Colombia dispatch poll. *Public Opin Q* 1996;60:181–227.
30. Keeter S, Kennedy C, Dimock M *et al.* Gauging the impact of growing nonresponse on estimates from a national RDD telephone survey. *Public Opin Q* 2006;70:759–79.
31. Brown CH, Curran G, Palinkas LA *et al.* An overview of research and evaluation designs for dissemination and implementation. *Annu Rev Public Health* 2017;38:1–22.