Published in final edited form as:

Qual Manag Health Care. 2017 ; 26(2): 55–62. doi:10.1097/QMH.0000000000000128.

Interactional Resources for Quality Improvement: Learning from Participants through a Qualitative Study

Joanna Veazey Brooks, MBE, PhD¹, Ksenia Gorbenko, PhD², and Charles Bosk, PhD³

¹Assistant Professor, Department of Health Policy and Management, University of Kansas School of Medicine;

²Instructor, Department of Population Health Science and Policy, Institute of Healthcare Delivery Science, Icahn School of Medicine at Mount Sinai;

³Professor, Department of Sociology, Department of Anesthesia and Critical Care, Senior Fellow, Leonard Davis Institute of Health Economics, University of Pennsylvania

Abstract

BACKGROUND—Implementing quality improvement in hospitals requires a multi-faceted commitment from leaders, including financial, material, and personnel resources. However, little is known about the interactional resources needed for project implementation. The aim of this analysis was to identify the types of interactional support hospital teams sought in a surgical quality improvement project.

METHODS—Hospital site visits were conducted using a combination of observations, interviews, and focus groups to explore the implementation of a surgical quality improvement project. Twenty-six site visits were conducted between October 2012 and August 2014 at a total of 16 hospitals that agreed to participate. All interviews were recorded, transcribed, and coded for themes using inductive analysis.

RESULTS—We interviewed 321 respondents and conducted an additional 28 focus groups. Respondents reported needing the following types of interactional support during implementation of quality improvement interventions: 1) a critical outside perspective on their implementation progress; 2) opportunities to learn from peers, especially around clinical innovations; and 3) external validation to help establish visibility for and commitment to the project.

CONCLUSIONS—Quality improvement in hospitals is both a clinical and a social endeavor. Our findings show that teams often desire interactional resources as they implement quality improvement initiatives. In-person site visits can provide these resources while also activating emotional energy for teams, which builds momentum and sustainability for quality improvement work.

Corresponding Author: Joanna Veazey Brooks, PhD, MBE, Assistant Professor, Department of Health Policy and Management, University of Kansas School of Medicine, 3901 Rainbow Blvd, Mail Stop 3044, Kansas City, KS 66160, jbrooks6@kumc.edu, 913-588-0354 (W).

Statement of Authorship: All authors listed contributed adequately to be considered authors on this paper.

Conflicts of Interest and Ethical Adherence: We declare no conflicts of interest and we submitted our project to the appropriate Institutional Review Board.

IMPLICATIONS—Policymakers and quality improvement leaders will benefit from developing strategies to maximize interactional learning and feedback for quality improvement teams. Further research should investigate the most effective methods for meeting these needs.

Keywords

quality improvement; qualitative methods; interactional resources

BACKGROUND

In an effort to improve health care quality and curb rising costs, the Patient Protection and Affordable Care Act¹ created financial incentives to achieve the “Triple Aim” of improved patient experience of care, improved population health, and reduction in the cost of health care through value-based payment models, such as bundled payments and accountable care organizations.² The Centers for Medicare and Medicaid Services (CMS) expects to move 90% of all Medicare fee-for-service payments to value-based payment models by 2018.³ Commercial payers are also rapidly moving to value-based payment models.⁴ To survive and thrive in this value-based environment, hospitals are encouraged to improve quality of care and patient satisfaction, while at the same time containing rising costs.

Many value-based payment models include incentives to reduce hospital-acquired conditions, in particular infections. CMS currently includes surgical site infection (SSI) measures in two programs: Hospital Value-Based Payment (HVPB) Program and the Hospital Acquired Condition (HAC) Reduction Program.^{5,6} In order to avoid financial penalties, hospitals must reduce the rates of hospital-acquired conditions such as SSIs. In addition, performance relative to other organizations is now publicly available on the Hospital Compare website, giving hospitals and health systems a reputational as well as financial incentive to outperform peers in SSI reduction.⁷ In response to these pressures, hospitals and health systems are devoting resources to initiate and sustain quality improvement (QI) projects, efforts to improve care delivery that are likely to affect outcome measures such as SSI rates.

Of the many factors that impact whether a QI initiative will succeed or not, “soft,” difficult-to-measure factors are critically important. For example, recent research has identified social context as centrally important to the success and sustainability of quality improvement, a concept that includes micro-, meso-, and macro-level factors.^{8–10} Other scholars have shown the importance of leadership^{11–13} and the role of organizational culture^{14,15} in successful QI and patient safety initiatives. However, both leadership and organizational culture typically resist precise operational definitions.

RATIONALE

While there is growing recognition that composition of QI teams and their leadership matter for implementation, less is known about the continued interactional needs that QI teams, once established, need to maintain energy and sustain their QI work. By *interactional needs*, we refer to support and information that teams desire, which can only be acquired through interactions with others. To investigate this question, we studied hospital teams participating

in a national surgical quality improvement program as they were implementing it in their organizations. Through two rounds of site visits, which included observations, semi-structured interviews, and focus groups, we aimed to identify the types of interactional support hospital teams sought to optimize their QI implementation.

METHODS

Study context

This study reports on findings from a qualitative evaluation of a large national intervention, the Safety Program for Surgery (the Program), conducted in 195 hospitals in 37 states from 2011–2015, with funding from the Agency for Healthcare Research and Quality (AHRQ).¹⁶ Specific aims of the Program were to: 1) reduce surgical site infections (SSIs) and other complications of surgery, and 2) improve the culture of safety in surgery using the Comprehensive Unit-based Safety Program (CUSP) model.^{17,18} Hospital teams participating in the Program most often focused on the colorectal surgical service line because the SSI rate on this services tends to be high. The CUSP model originated in the Intensive Care Unit (ICU) setting at the Johns Hopkins Hospital and showed success in reducing central line-associated bloodstream infections (CLABSI).^{19–21} In the Safety Program for Surgery, CUSP components, such as training in the science of safety, learning from defects, and developing an interdisciplinary team with support of executive leaders, were applied to the perioperative setting.

At the time of site visits (2012–2014), the only existing agreed-upon bundle for reducing infections in surgery was the Joint Commission's Surgical Care Improvement Project (SCIP). SCIP measured hospital adherence to perioperative processes, such as antibiotic use and normothermia management. However, by the time hospital teams joined the AHRQ Safety Program for Surgery, evidence was accumulating that strong performance on SCIP measures did not necessarily correspond to improvement in surgical outcomes. Thus, the SCIP measures were officially “retired” in December 2015.^{22–25} In the absence of a best practice bundle, the CUSP model was building on frontline knowledge and awareness of potential causes of surgical infections and complications. Hospitals in this study explored a variety of interventions that targeted what they believed were the most frequent contributors to infections, as informed by material presented by the National Project Team, individual team members, team meetings, and literature reviews of published research on the topic.

Study Design

The qualitative study was submitted to the Institutional Review Board and was found exempt from IRB review under the human subject research in quality improvement rubric. We received institutional approval from all participating organizations, and respondents gave informed verbal consent to take part in the study. To protect confidentiality of participants, we have removed identifiers.

Hospital sample

We contacted state leads (usually employees of the state hospital associations) in eight states, who contacted their hospital teams to gain permission for the qualitative evaluation

site visits. Three states declined or were unable to participate. The qualitative research team conducted 26 site visits at hospitals in the remaining five states over two years (2012–2014). We visited 16 different hospitals, which varied on a number of characteristics, including region, rurality, size, teaching hospital status, and previous experience with quality improvement initiatives (see Table 1). We visited 10 hospitals twice, approximately a year apart. (Two hospitals from the first year declined a second visit, and four additional hospitals were added in the second year). This research design allowed us to assess organizational dynamics over time. We added 4 hospitals in second year and 2 hospitals from the first year declined a second visit. Site visits lasted between 1 and 5 days. Before each visit, we asked team leaders (often physician champions and QI leads) to create an agenda for us that typically included observations in the operating room in the morning, interviews during the afternoon, and one or two focus groups with the team.

Data Collection

During hospital site visits, we conducted 780 hours of observation, interviewed 321 people, and conducted 28 focus groups with health care workers across a wide range of roles and positions (see Table 2). Interviews lasted between 15 minutes and 2.5 hours. During interviews, we asked participants about the composition of their surgical safety team; quality improvement projects their teams initiated; lessons learned from these projects; challenges they encountered; and plans for the future. The open-ended format of the interview encouraged participants to explore additional topics unique to their experiences and institution. We investigated teams' evolving needs for interactional support as they implemented the Safety Program for Surgery.

Following each visit, summaries of observations and qualitative memos were shared with hospital team leaders and quality improvement champions at each site to be discussed with their teams. This memo exchange served as a participant-checking process to confirm that observational data analysis was consistent with participants' experiences.^{26,27}

Analysis

To analyze systematically the interactional needs that hospital teams shared with us during site visits, we used an iterative coding and analysis approach. Interviews were audio-recorded, professionally transcribed verbatim, coded using Dedoose software, and analyzed for themes.²⁸ We followed an inductive analysis methodology, allowing key themes to emerge from the data.²⁹ First, our team open-coded a subset of interviews until no new categories were found. The resulting codebook consisted of 26 categories. A team of researchers and undergraduate research assistants used the codebook to complete coding of the data. This study focuses on the "Ethnography Team," which we defined through a deliberative process and team discussion as "instances when respondents directed questions to the qualitative researchers during the site visits, requested feedback or advice, as well as explicit references to the impact of our presence." Two authors (JVB and KG) conducted a second round of coding to identify sub-themes within the code, wrote a series of iterative memos,³⁰ and shared evolving qualitative memos to ensure validity of themes.³¹ CB provided critical feedback on the manuscript drafts. Our team discussed themes to be

included in the final analysis; choice of quotes from participants; structure of the findings; and implications for policy and practice.

RESULTS

Our analysis revealed three types of interactional resources needed by participating hospital teams:

1. Teams took advantage of our visit to gain a fresh perspective on their progress in the Program;
2. Teams desired organizational insight about innovative practices from other sites; and
3. Teams needed additional visibility and continued momentum for QI work at their institution.

Desired Insight about Implementation Progress

Hospital teams wanted us to reflect on their progress relative to the Program timeline and goals. For example, one executive leader asked “is there anything that you think that I could do to help move us along better?” A QI leader was clear that: “any information you can give us that will help us make this work... I want this to work.” These questions were common during our visit, and show commitment on the part of teams we visited to do the best they could to succeed in improving safety and quality in surgery at their organizations. Teams repeatedly expressed a desire for feedback about their organizational progress and status in both formal and informal ways (see Table 3).

Respondents also desired our outside perspective about their organization generally. A state lead explained that her team volunteered to participate in the qualitative site visits because “having the third set of eyes is really helpful for a lot of hospitals and it gives them the support.” Some teams wanted feedback about their patient safety environment more generally. For example, a resident in one hospital asked us at the end of the interview:

Have you all noticed anything that we do or don't do here that you feel is a gaping hole in patient safety that, 'oh, I can't believe they don't do this here' or something that you're surprised that we don't do? 'Cause I feel like we do a pretty good job, but...

While asking for an outside perspective could make teams vulnerable to critique, respondents believed this feedback would ultimately help them learn and improve. One physician explained that an outside opinion was valuable for him because it would highlight what he may fail to notice

it's the...[things] that you do on a daily basis and you keep doing it and it's always been done this way and so you sometimes have blinders on and you don't see that, hey, you know, this probably shouldn't happen... So sometimes it's good to sit back and have somebody look from the outside and give opinions... They see things that you normally don't pay attention to.

Desire for Learning from Peers

Our respondents frequently inquired about clinical innovations we had seen at other sites, which they thought could be implemented at their institutions. Most of the questions focused on new directions for improving perioperative outcomes: implementing new protocols in perioperative care, conducting independent small-scale studies, and learning about patient education and infection prevention (see Table 4).

Respondents were aware of the value of knowledge transfer that can happen through horizontal learning from their peers. Many hospitals were eager to hear insights from other hospitals—so that experiences of other teams could be used to improve their workflows and practices.

I just would love to hear what other hospitals do. That's all I would like... I don't want their secrets per se, but... for people that are doing a separate tray for closing... I want to know how they're working it. What they're finding that works. Again, I mean, I just, you try to Google data... and it's just not as available as you would think. [Nurse]

This nurse further explained she wanted to “take [all] our knowledge and create one wheel,” in order to improve the results incrementally in every participating hospital (e.g., reduce incidence of surgical infections). For some respondents, this second-hand learning through non-clinical researchers was insufficient to satisfy their curiosity. For example, a few respondents expressed a desire to conduct site visits and shadow peer clinicians at other institutions themselves.

In addition to learning about clinical innovations, respondents were interested in the inevitable comparative knowledge that resulted from horizontal sharing. For example, one nurse was curious “what [other hospitals'] safety is like; what their culture is like and what kinds of issues they have, to see how we compare to that.” Comparing their accomplishments with peer hospitals was sometimes a source of pride and sometimes a source of anxiety. Some hospitals liked the inevitable comparison, confident that their hospital would come out on top. For example, a sterile processing technician told us:

I think we're one of the better ones. I think we try to stay on top of things, new products, new innovations, new knowledge. We plan ahead so that we can integrate newer things. Versus, 'I'm not doing it that way. I've been doing it this way.' ...I think we're, like I said, we're ahead of the game.

Being compared and judged against and by peers also meant that hospitals did not always feel comfortable sharing their information. As one QI leader told us, “I think there might be some hesitation with some of the hospitals locally to be sharing too much that would go... [to] the state, or people that they don't know.”

Teams at smaller rural hospitals expressed concern about being unfavorably compared to large academic medical centers with more resources. An executive leader asked “Are you doing many hospitals this size? ...Are you doing many critical access hospitals?” In another interview, a nurse was similarly curious: “Are there other small hospitals involved?” An anesthesia provider at a community hospital expressed some skepticism about the possibility

to transfer learning from “a big, brilliant, beautiful [institution]” to a small rural hospital with fewer resources. Aware of the differences, participants in community hospitals explained they had to adapt the QI implementation to meet their local needs and corresponding constraints. One executive leader at a small rural hospital, for example, explained: “We have to be able to filter what can apply here. We have very small numbers. We have rural financing.”

In sum, we observed our respondents seeking both collaboration and competition with peers. Many respondents were curious about their peers’ process innovations and performance. They were eager to learn from other teams in order to solve the intractable problem of surgical infections. Yet, they were also worried about being unfairly compared with larger or better resourced institutions, or if they were such a place, seeking confirmation that they were indeed ahead of their peers.

Need for Visibility and Momentum

Quality improvement leaders, or “champions” as they were frequently referred, reported that our face-to-face presence improved the visibility of the Program at their hospitals. From their perspective, this improved visibility helped demonstrate an institutional commitment to QI that served to bolster teams and provided momentum and renewed purpose. Typically near the end of our visit, respondents across roles often mentioned the benefits of our in-person site visit (see Table 5).

Our respondents found qualitative site visits particularly helpful at hospitals where previous interventions had fizzled out, blunting enthusiasm for new QI efforts. One surgeon explained he had trouble motivating others to “jump on board” with the Program. He continued “in fact I was glad you folks came because [the project] was kind of sputtering.” In another institution, a QI leader reported that our visit showed the hospital administration’s dedication to support the Program: “a lot of the times you’ll hear from the staff, you know, well they say they’re go[ing to] do something, but then it never gets done.” Instead, this manager wanted to demonstrate to her colleagues that there was institutional commitment to positive culture change that would persist even in the face of normal staff turnover.

Cause if a manager leaves or a director leaves or, you know, even a staff member who was committed to something leaves, it just seems like what they were doing just disappears and I think having this continued presence is really good. [QI leader]

Our visit helped to provide what this respondent described as a “continued presence” for this and other patient safety interventions. According to our respondents, our visit rendered the involvement in a large national program real, bringing faces to disembodied voices on conference calls. A team leader at a small hospital, for example, summarized the benefits of their participation in the Program as follows: “I feel like... sometimes projects like this are a way to level playing ground and to play with the big boys.” Respondents also described how face-to-face visits met the need to feel connected to a larger project, and affirmed they were focusing on the right things as they joined others in the larger goal of improving quality of patient care.

I think [it] feels like we're connected to doing what the rest of the country's doing and we're doing the right thing... And when we have some kind of connection... that was... a big deal for everybody. It was like, "Ooh we're involved in this national study? How exciting!" [Nurse]

Site visits also had an impact on how teams viewed their hospital's participation in the project. As one respondent shared with us during a focus group, "[your visit] helps us to feel like we're part of something too, and not just a research number."

Lastly, our participants commented on their experience of participating in a qualitative study. Some felt they were finally heard. For example, one respondent told us at the end of the interview "Thanks, thanks. That was like a therapy session. I feel lighter" [ancillary staff]. A nurse vented frustrations to us and then said "I kind of threw up on you. Sorry about that. I have a lot of pent up in there." Others were concerned whether they had overshared, and would double- and triple-check that their interviews would remain confidential: "Maybe I shouldn't say anything... my daughter is in college, so I need my job" [nurse].

DISCUSSION

We found that hospital teams sought feedback on their QI implementation efforts. QI teams wanted to learn from others, assess their comparative progress, and desired external affirmation of their efforts. Sites reported that research visits had interactional benefits, as they stimulated more face-to-face group meetings, reflection on collective QI efforts, and made teams' continuing QI work more visible to each other and the wider organization. Our research highlights that interactional needs of hospital teams might go unmet if only internal meetings occur within the organization. Our data show that hospital teams need outside perspectives, opportunities to collaborate and compare, and external interactions that build momentum and provide validation of QI efforts. These interactional resources and opportunities need to be built into program design.

Collectively, our data suggest that QI is a social endeavor; it requires connections across organizations, settings, and professionals representing different groups. Previous research has recognized the important role of social and cultural factors when implementing QI interventions.³² For example, the success of the CLABSI intervention in Michigan was difficult to replicate in a new context because the key success factors included not only a technical checklist, but also the ways that cross-occupational interactions were changed and routinized.^{33,34}

One way to consider the power of interactional resources is to consider their ability to generate emotional energy for teams. Emotional energy is a concept in sociological theory that explains group action.³⁵ Collins describes emotional energy as "a feeling of confidence, courage to take action, boldness in taking initiative. It... makes the individual feel not only good, but exalted, with the sense of doing what is most important and valuable"³⁵ Interactional resources—through outsiders' perspectives, peer comparison, and affirmation via site visits—all have the power to affirm, motivate, and sustain individuals and teams in the difficult work of QI. Interactional resources can provide teams with affirmation that their work is seen and valuable.

Our findings could be influenced by a self-selection bias. We cannot be sure the hospitals entering the Program were like those that did not, and the hospitals that agreed to site visits are similar to those that did not. Hospital teams that agreed to a visit may have been more open to an outside perspective than other hospitals, whether from a sense of optimism or a desire to improve. Respondents may have also selectively chosen what to say and do in front of visitors, potentially biasing our data. For example, although we observed the surgical time-out in all site visits, we cannot know whether it happens in exactly the same way when no observers are present. Because we often depended on our hosts at each site to identify interviewees, we also cannot be sure we always interviewed people with the most diverse opinions about the Program. However, we met and interviewed skeptical and unhappy people in every organization we visited, though in most places they were a minority.

Our study also highlights the importance of hospital diversity in large QI projects. While larger academic medical centers are quite accustomed to participating in collaborative efforts aimed at quality improvement and research projects, small and rural hospitals are often entering these initiatives for the first time. These organizational differences are likely to translate into different comfort thresholds about sharing information and asking for help. We found that rural hospital teams wanted to be understood and evaluated in their context, and that special attention should be paid to hospital teams, which face different challenges and have different strengths due to size and geography.³⁶ While many states have existing surgical collaboratives, facilitating connections across different geographical regions among similar organizations may prove especially beneficial.³⁷

Our findings suggest that in order to facilitate QI implementation, project champions, hospital administrators, and funders will benefit from providing interactional peer and mentor support to their teams and in encouraging free exchange of information across sites to facilitate “Continuously Learning Health Care.”³⁸ In addition, developing ways to help hospitals commit and recommit to QI is needed. In our study, face-to-face visits acted as a natural pausing, reflecting, and reinvigorating activity, but we are certain this is not the only way. Future research should consider other routes to bring quality improvement activities to the top of the attention queue. Even with optimal structures in place, teams need sustained energy to make QI projects successful. Understanding the optimal amount of interactional support and alternative avenues for providing it will help inform future quality improvement initiatives. Against the backdrop of widespread change fatigue in organizations,^{39–44} sustainability remains elusive. Our findings indicate that interactional resources that generate emotional energy are an overlooked but potentially powerful tool in reinvigorating project interest and maintaining momentum for change in health care organizations.

Acknowledgments

This research was funded by the Agency for Healthcare Research and Quality HHSA2902010000271. We also wish to thank Catherine van de Ruit for assistance with data collection, our colleagues at the Armstrong Institute for Patient Safety and Quality at Johns Hopkins Medicine, and undergraduate research assistants at the University of Pennsylvania. We are also thankful to the participating hospitals and each of our interviewees who graciously shared their experiences with us.

References

1. Patient Protection and Affordable Care Act. Sect. 2010; 18001
2. Berwick DM, Nolan TW, Whittington J. The Triple Aim: Care, Health, And Cost. *Health Aff (Millwood)*. 2008 May 1; 27(3):759–69. [PubMed: 18474969]
3. Francis J, Clancy C. Implementing Performance Pay in Health Care: Do We Know Enough to Do It Well? *J Gen Intern Med*. 2016 Apr; 31(Suppl 1):6–7. [PubMed: 26951268]
4. Collins S, Piper KB “Kip”, Owens G. The Opportunity for Health Plans to Improve Quality and Reduce Costs by Embracing Primary Care Medical Homes. *Am Health Drug Benefits*. 2013; 6(1): 30–8. [PubMed: 24991345]
5. Medicare C for, Baltimore MS 7500 SB. Usa M. Hospital Value-Based Purchasing [Internet]. 2015. [cited 2016 Sep 23]. Available from: <https://www.cms.gov/Medicare/Quality-Initiatives-Patient-Assessment-Instruments/hospital-value-based-purchasing/index.html>
6. Medicare C for, Baltimore MS 7500 SB. Usa M. Hospital Acquired Conditions [Internet]. 2015. [cited 2016 Sep 23]. Available from: <https://www.cms.gov/Medicare/Quality-Initiatives-Patient-Assessment-Instruments/Value-Based-Programs/HAC/Hospital-Acquired-Conditions.html>
7. Medicare Hospital Compare Quality of Care [Internet]. [cited 2016 Sep 18]. Available from: <https://www.medicare.gov/hospitalcompare/search.html>
8. Kaplan HC, Provost LP, 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 Jan 1; 21(1):13–20.
9. Kaplan HC, Brady PW, Dritz MC, Hooper DK, Linam WM, Froehle CM, et al. The Influence of Context on Quality Improvement Success in Health Care: A Systematic Review of the Literature. *Milbank Q*. 2010 Dec 1; 88(4):500–59. [PubMed: 21166868]
10. Fulop, N., Robert, G. Context for successful quality improvement | The Health Foundation [Internet]. [cited 2016 Aug 23]. Available from: <http://www.health.org.uk/publication/context-successful-quality-improvement>
11. McAlearney, Ann Scheck, Hefner, Jennifer, Robbins, Julie, Garman, Andrew N. Leading in Health Care Organizations: Improving Safety, Satisfaction and Financial Performance [Internet]. Emerald Group Publishing Limited; 2013. The role of leadership in eliminating health care-associated infections: A qualitative study of eight hospitals; p. 69-94. *Advances in Health Care Management*; vol. 14[cited 2016 Aug 23]Available from: [http://www.emeraldinsight.com/doi/abs/10.1108/S1474-8231\(2013\)0000014008](http://www.emeraldinsight.com/doi/abs/10.1108/S1474-8231(2013)0000014008)
12. McAlearney AS, Butler PW. Using Leadership Development Programs to Improve Quality and Efficiency in Healthcare. *J Healthc Manag*. 2008 Oct; 53(5):319–31. discussion 331–2. [PubMed: 18856137]
13. McAlearney AS, Hefner JL. Facilitating central line–associated bloodstream infection prevention: A qualitative study comparing perspectives of infection control professionals and frontline staff. *Am J Infect Control*. 2014 Oct; 42(10, Supplement):S216–22. [PubMed: 25239713]
14. Singer SJ, Gaba DM, Geppert JJ, Sinaiko AD, Howard SK, Park KC. The culture of safety: results of an organization-wide survey in 15 California hospitals. *Qual Saf Health Care*. 2003 Apr 1; 12(2):112–8. [PubMed: 12679507]
15. Singer SJ, Falwell A, Gaba DM, Meterko M, Rosen A, Hartmann CW, et al. Identifying organizational cultures that promote patient safety: *Health Care Manage Rev*. 2009 Oct; 34(4): 300–11.
16. Weeks, K. Sustaining Gains Achieved through a National Surgical Unit-based Safety Program (SUSP) to Reduce Surgical Site Infections. 7th Annual Conference on the Science of Dissemination and Implementation; 2014; Bethesda, Maryland.
17. Lubomski, L. Using Evidence-Based Interventions and the Surgical Unit-based Safety Program (SUSP) to Reduce Surgical Site Infections and other Surgical Complications: A National Project to Improve Surgical Outcomes. Available from: http://www.ihconline.org/userdocs/news/recruitment_flyer_action_ii_feb2012.pdf

18. Wick EC, Hobson DB, Bennett JL, Demski R, Maragakis L, Gearhart SL, et al. Implementation of a surgical comprehensive unit-based safety program to reduce surgical site infections. *J Am Coll Surg*. 2012 Aug; 215(2):193–200. [PubMed: 22632912]
19. Pronovost P, Needham D, Berenholtz S, Sinopoli D, Chu H, Cosgrove S, et al. An Intervention to Decrease Catheter-Related Bloodstream Infections in the ICU. *N Engl J Med*. 2006 Dec 28; 355(26):2725–32. [PubMed: 17192537]
20. DePalo VA, McNicoll L, Cornell M, Rocha JM, Adams L, Pronovost PJ. The Rhode Island ICU collaborative: a model for reducing central line-associated bloodstream infection and ventilator-associated pneumonia statewide. *Qual Saf Health Care*. 2010 Dec; 19(6):555–61. [PubMed: 21127114]
21. Sawyer M, Weeks K, Goeschel CA, Thompson DA, Berenholtz SM, Marsteller JA, et al. Using evidence, rigorous measurement, and collaboration to eliminate central catheter-associated bloodstream infections. *Crit Care Med*. 2010 Aug; 38(8 Suppl):S292–8. [PubMed: 20647786]
22. Surgical Care Improvement Project (SCIP) [Internet]. [cited 2016 Sep 23]. Available from: https://www.jointcommission.org/surgical_care_improvement_project/
23. Ingraham AM, Cohen ME, Bilimoria KY, Dimick JB, Richards KE, Raval MV, et al. Association of surgical care improvement project infection-related process measure compliance with risk-adjusted outcomes: implications for quality measurement. *J Am Coll Surg*. 2010 Dec; 211(6):705–14. [PubMed: 21109157]
24. Hawn MT, Richman JS, Vick CC, Deierhoi RJ, Graham LA, Henderson WG, et al. Timing of surgical antibiotic prophylaxis and the risk of surgical site infection. *JAMA Surg*. 2013 Jul; 148(7):649–57. [PubMed: 23552769]
25. Stulberg JJ, Delaney CP, Neuhauser DV, Aron DC, Fu P, Koroukian SM. Adherence to surgical care improvement project measures and the association with postoperative infections. *JAMA*. 2010 Jun 23; 303(24):2479–85. [PubMed: 20571014]
26. Yang Y, Rivera AJ, Fortier CR, Abernathy JH. A Human Factors Engineering Study of the Medication Delivery Process during an Anesthetic: Self-filled Syringes versus Prefilled Syringes. *Anesthesiology*. 2016 Apr; 124(4):795–803. [PubMed: 26845139]
27. Curtin M, Fossey E. Appraising the trustworthiness of qualitative studies: Guidelines for occupational therapists. *Aust Occup Ther J*. 2007 Jun 1; 54(2):88–94.
28. SocioCultural Research Consultants, LLC. Dedoose [Internet]. Los Angeles, CA: 2015. Available from: dedoose.com
29. Boyatzis, RE. Transforming Qualitative Information: Thematic Analysis and Code Development. 1. Thousand Oaks, CA: SAGE Publications, Inc; 1998. p. 200
30. Crabtree BF, Miller WF. A Template Approach to Text Analysis: Developing and Using Codebooks. *Doing Qual Res*. 1992; 3:93–109.
31. Birks M, Chapman Y, Francis K. Memoing in qualitative research Probing data and processes. *J Res Nurs*. 2008 Jan 1; 13(1):68–75.
32. Shortell SM, O'Brien JL, Carman JM, Foster RW, Hughes EF, Boerstler H, et al. Assessing the impact of continuous quality improvement/total quality management: concept versus implementation. *Health Serv Res*. 1995 Jun; 30(2):377–401. [PubMed: 7782222]
33. Bosk CL, Dixon-Woods M, Goeschel CA, Pronovost PJ. Reality check for checklists. *Lancet Lond Engl*. 2009 Aug 8; 374(9688):444–5.
34. Dixon-Woods M, Bosk CL, Aveling EL, Goeschel CA, Pronovost PJ. Explaining Michigan: developing an ex post theory of a quality improvement program. *Milbank Q*. 2011 Jun; 89(2):167–205. [PubMed: 21676020]
35. Collins, R. Interaction ritual chains [Internet]. Princeton university press; 2004. [cited 2014 Feb 6]. Available from: <http://books.google.com/books?hl=en&lr=&id=3NirI6P8f5EC&oi=fnd&pg=PR7&dq=interactional+ritual+chains&ots=fGXE6Vk9H8&sig=2Fx6yOm4EPrW-BnI-3JBcKz2whg>
36. Tupper, J., Coburn, A., Loux, S., Moscovice, I., Klingner, J., Wakefield, M. Strategies for Improving Patient Safety in Small Rural Hospitals [Internet]. Agency for Healthcare Research and Quality (US); 2008. [cited 2016 Aug 31]. Available from: <http://www.ncbi.nlm.nih.gov/books/NBK43729/>

37. Kemp, K. Networking for Rural Health. [Internet]. 2002. [cited 2016 Aug 31]. Available from: <http://www.academyhealth.org/files/ruralhealth/qualityimprove.pdf>
38. Smith, M., Saunders, R., Stuckhardt, L., McGinnis, JM., America C on the LHCS in, Medicine I of. Best Care at Lower Cost: The Path to Continuously Learning Health Care in America. [Internet]. National Academies Press (US); 2013. [cited 2016 Jul 28]. Available from: <http://www.ncbi.nlm.nih.gov/books/NBK207212/>
39. Brooks, JV., Gorbenco, K., van de Ruit, C., Bosk, C. The Dangers of Quality Improvement Overload: Insights from the Field [Internet]. Health Affairs Blog; [cited 2016 Jul 19]. Available from: <http://healthaffairs.org/blog/2014/03/07/the-dangers-of-quality-improvement-overload-insights-from-the-field/>
40. McMillan K, Perron A. Nurses Amidst Change: The Concept of Change Fatigue Offers an Alternative Perspective on Organizational Change. Policy Polit Nurs Pract. 2013 Apr 2.1527154413481811
41. MacIntosh R, Beech N, McQueen J, Reid I. Overcoming change fatigue: lessons from Glasgow's National Health Service. J Bus Strategy. 2007 Nov 6; 28(6):18–24.
42. Bernerth JB, Walker HJ, Harris SG. Change fatigue: Development and initial validation of a new measure. Work Stress. 2011 Oct 1; 25(4):321–37.
43. Kotter, JP. Leading Change: Why Transformation Efforts Fail [Internet]. Harvard Business Review. 2007. [cited 2016 Jul 19]. Available from: <https://hbr.org/2007/01/leading-change-why-transformation-efforts-fail>
44. Torppa CB, Smith KL. Organizational Change Management: A Test of the Effectiveness of a Communication Plan. Commun Res Rep. 2011 Feb 2; 28(1):62–73.

Table 1

Hospital Characteristics

	Hospitals Visited (N = 16)	No. (%)
Type	Academic Medical Center	4 (25%)
	Community	12 (75%)
Bed Size	600+	3 (19%)
	401–600	2 (12%)
	201–400	5 (31%)
	50–200	3 (19%)
	0–50	3 (19%)

Table 2

Interviewees by Role

Interviewees by Role	N = 321
Nurses	126
Ancillary Staff	41
QI/Infection Prevention	37
Physicians	38
Physician Extenders	23
Technicians	21
Senior Leadership	13
Pharmacists	5
Other/Unknown	17

TABLE 3**FEEDBACK TEAMS DESIRED ABOUT IMPLEMENTATION PROGRESS**

Informal Feedback Desired	
What'd you see? What do you think? [Surgeon]	
What do you think about us? You just [...] watch[ed] us for a few minutes, and what do you think? [Nurse]	
I'd like some sort of feedback from you guys if things aren't the way [co-worker] and I have kind of outlined for you. I suspect you're not going to see that, but if you see a significant discordance between what we're perceiving and what you're perceiving as you go through the day, that'd be real helpful for me from a management point of view as to where we need more support for those team leaders... I want this to work. So anything you can do to help me make it work, I'd really appreciate that. [Q1]	
What have your observations been? [Focus Group]	
I think from my perspective, I would love to know... if you saw any difference in the dynamics between different [surgical] teams. From those you have observed. ...if those things were different, that's interesting to me. [Focus Group; Nurse]	
Formalized Feedback Desired	
Question: so we are going to get a report back from you? Is that what you're going to do? Or are you going to do an aggregate for [State]? [Q1]	
I'll be very interested—will you be getting us some kind of a feedback on today?" [IP]	
And then will there be—I know, like you said, you won't give recommendations maybe specifically, but will there be any results that will be shared? [Nurse]	
Well, so, the outcome will be like a summary of what your reflections are? [Q1]	

TABLE 4**HORIZONTAL LEARNING—CLINICAL INNOVATIONS**

Are [others] doing similar bundles like this? [Nurse]
But more specifically, with the colorectal [surgery]... what do you think is the biggest factor that's going to [...] make the biggest difference? I mean we're looking at pre-op[erative] stuff. We're looking at skin preps. We're looking at conduct in the OR. [Surgeon]
Well maybe I can ask you this. Other facilities. Preoperative bathing. Do a lot of other organizations have a standard process for their preoperative patients? [Nurse]
It's good to find out 'cause nobody has all the right answers, but it's good to know what other people are doing and how we can apply them here, so we appreciate any feedback. [Sterile Processing Department]
We wanna see other places. We wanna find out what the best [...] We do what we think is good, but we know there're better ways. So we wanna find out what's better. How can we improve from what you guys are seeing. [Surgeon]

TABLE 5**VISIBILITY AND MOMENTUM FOR QI TEAMS**

I'm really glad you guys came 'cause I think it gives us some momentum. [Nurse]
I think it's beneficial to your project at this hospital that you guys came here so [it] can be visible to the surgical staff [Pharmacist]
I think having someone from even a national level or another state coming in from a project like that... really does that validation in and of itself, they can tell leadership, hey, this is really happening and they came to visit us. [State lead]
I really appreciate you guys coming here and it means a lot to us. [Focus Group]
We're glad to be able to be here [...] and so that we can validate that what we're, the direction we're pulling in is one, we're all pulling in the same direction and it's the right direction. [Surgeon]
I really appreciate you being here and...speaking with us and opening our eyes. [Tech]
This is the first time I've ever participated in any study or anything like this. I do think it's interesting because we don't hear about a lot of the initiatives being enforced or taking place. ...So I think this is great." [Tech]
And you all coming here has given them a voice, which is huge, and I knew it would be. I knew it would be. [Nurse]