Uncovering Cultural Barriers to Quality Improvement Learning in a Trauma Program: An Ethnographic Study

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OBJECTIVE: Quality improvement (QI) training is an essential component of postgraduate surgical education and can occur through formal and informal education programs. Informal QI education requires that faculty take advantage of learning opportunities in the hospital setting. Trauma rotations appear ideal opportunities for informal QI learning given that performance improvement is a mandatory component of care at verified trauma centers. It is unclear, however, whether QI initiatives within trauma programs are well integrated into trainee education. This study explored the QI learning environment in a level 1 academic trauma center.

STUDY DESIGN: An ethnographic study using observation and interviews methods. The theoretical lens of hidden curriculum was used to interpret the data and generate hypotheses around faculty and trainee experiences.

SETTING: University of Toronto and Sunnybrook Health Sciences Center.

PARTICIPANTS: Twenty-seven observations involving more than 50 faculty and trainees; seventeen interviews with faculty and surgical trainees.

RESULTS: All faculty and trainees endorsed QI and informal QI learning. Discrepant experiences were found regarding opportunities to learn and do QI in the clinical setting. Faculty viewed themselves as perpetually doing and teaching QI while trainees perceived little to no QI learning. Trainees identified Morbidity and Mortality rounds as the main opportunity for QI learning; however, traditional teaching style through "pimping" and a largely clinical focus acted as barriers to QI education. Furthermore, trainees chiefly viewed QI as service to the institution, rather than as a form of learning, which contributed to their disinterest in taking up informal QI lessons.

CONCLUSION: Informal QI education is highly valued and desired in academic trauma centers but enduring teaching methods, inconsistencies in the cultural learning environment and a hidden curriculum devaluing QI learning are persistent barriers to change. (J Surg Ed 76:497–505. © 2018 Association of Program Directors in Surgery. Published by Elsevier Inc. All rights reserved.)

KEY WORDS: quality improvement, postgraduate education, trauma, surgery, qualitative research

COMPETENCIES: System-Based Practice, Practice-Based Learning and Improvement

INTRODUCTION

Quality improvement (QI) learning is a high priority in postgraduate medical education.[1-3] QI learning can be achieved through formal and informal curricula that operate in parallel to impart QI knowledge to trainees.[4,5] A formal QI curriculum is usually delivered within the academic department, and contains planned curricular content and project-based QI learning.[5] The informal curriculum is delivered in the hospital setting providing learning specific to a particular problem during routine

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clinical care; faculty attitudes, beliefs and behaviors related to QI may also be transmitted therein.[5-7] Informal curricula are shown to positively impact trainees' QI learning; in addition, clinically-situated exposure to QI can improve trainees' related skills.[4,5] For example, in one study, surgery trainees participating in hospital-based multidisciplinary teamwork training for trauma patient resuscitation improved their communication and team performance competencies, as well efficiency in patient care.[8]

While informal QI learning is felt to be important there is widespread acknowledgment of the challenges associated with implementing it.[9-11] These challenges include organizational barriers, such as faculty lack of willingness or expertise to engage trainees in institutional initiatives, and clinical workload barriers that prevent trainees' inclusion in institution-based QI.[9,12] Less observable but equally impactful are the known cultural barriers: a hidden curriculum that de-prioritizes QI skills and capacity and undermines their significance in the eyes of the evolving physician.[12-15] Academic centers in particular are critiqued for placing higher value on scientific output in the form of basic science or clinical research, creating a disincentive for trainees to engage in elective QI training or efforts.[12] In addition, the dearth of evidence that QI training for trainees leads to better patient outcomes may reinforce reluctance among both trainees and faculty to get involved.[12,16-18]

Surgeons have historically recognized and valued QI principles and processes, most notably through the surgical morbidity and mortality conference (M&Ms).[19-22] Despite this tradition, challenges implementing surgical QI curricula to reflect changing competency requirements have been described.[23-24] Existing surgical QI curricula, of which few are published, are mostly formal, project-based exercises with limited requirement for institutional engagement.[24-25] There is currently no consensus on the optimal approach for delivering QI education in surgical residency.

Within surgery, academic trauma programs would appear ideally suited for informal QI learning in the hospital setting, as verified trauma centers are required to have active performance improvement and patient safety programs.[26] Trauma programs could therefore expose trainees to essential QI tools: clinical registries, external benchmarking and continuous QI processes.[26-28] However, there are no trauma-based QI curricula in the scholarly literature.[29] Moreover, whether the presence of trauma QI activity translates into QI educational opportunities for trainees is unknown.

This study aimed to identify ways to optimize informal QI learning opportunities for surgical trainees within academic trauma programs. Using ethnography we sought to characterize QI learning by surgical trainees on a trauma rotation, and the local quality culture that shaped the informal QI curriculum. We used the hidden curriculum construct as a thinking tool through which to explore how trauma program physicians and surgical trainees view informal QI learning within their day-to-day practice.[6,30] In accordance with previous authors, we defined the hidden curriculum as "*the ideological and subliminal messages of both the formal and informal curricula*" which "*can be both human and structural . . . transmitted through human behaviors and through the structures and practices of institutions*".[6]

METHODS

Study design

From April 2015 to March 2016, we conducted an ethnography within the trauma program at an academic trauma center. Ethnography is an anthropological methodology that accounts for how people in a given environment experience and make meaning of it.[31] Ethnography has been used to explore quality issues and QI education specifically in medical and surgical M&Ms[22,31-33] and is widely used to explore institutional QI work.[34,35] Qualitative techniques of observation and semi-structured interviewing were used.

Study setting and participants

The study institution is a level 1 trauma center treating approximately 1700 seriously injured patients annually. The institution's trauma program is part of the Division of General Surgery. All trauma program faculty and surgery trainees in the Division of General Surgery at the study institution during the study period were eligible to participate; this included five trauma surgeons, one trauma hospitalist, three trauma fellows and approximately 20 trainees. Also eligible were faculty in emergency medicine and anaesthesia who contributed to the trauma program as Trauma Team Leaders and clinical educators. All surgery trainees assigned to the Division of General Surgery services are expected to attend M&Ms, which are synonymously called QI rounds in this program. All potential participants were made aware of the study through email and in-person presentations made by the study investigators. Interview participants signed written consent forms. Ethics approval was obtained.

Data collection and analysis

Data were collected by an anthropologist. Ethnographic observations were conducted during general surgery and trauma M&Ms, and morning handover reports. All sessions were audio-recorded and extensive handwritten

notes taken; notes were later transcribed into reconstructed field notes for analysis using the audio-recording to clarify content.[36] Field notes included the researcher's reflections on the data collected and analytic memos.[37] Data also included emails and text messages that participants shared with the researcher during the study.

In addition to observations, semi-structured interviews were concurrently conducted. The research team developed an interview guide informed by the on-going observations, the literature and team expertise. We selected interview participants based on their roles and experience within the trauma program capturing a wide range of perspectives (i.e. purposive sampling). Interviews were conducted in person or by telephone, were audio-recorded and transcribed. Ethnographic interviews, i.e. informal conversation with participants during observations, were recorded by hand. Data were analyzed in a manner consistent with ethnographic data analysis, iteratively and inductively by two team members with expertise in qualitative methods, who coded and categorized the data while triangulating observational and interview findings.[38] Constant comparisons were used and discussion was ongoing to establish major findings, which were then brought to the study team.[39] Data were collected and analyzed to the point of theoretical saturation.[39] Nvivo11 Pro software was used for data management (QSR International).

RESULTS

We conducted 27 observation sessions including 19 general surgery and trauma M&Ms and 8 morning handover reports. Each observation session lasted between one and one and a half hours. Approximately 50 different faculty, staff and trainees who attended these sessions at varying times were included in the observations. Seventeen formal interviews were completed with 7 faculty members from trauma surgery, emergency medicine or anaesthesia, 3 trauma fellows, and 7 surgical trainees. Interviews lasted on average 27 minutes. Among faculty participants, QI training and experiences varied: two participating faculty held institution leadership positions specific to quality; one held a designated QI position within a department; one held a graduate degree in QI science; and, one held a specialist certificate in QI. To protect participant privacy additional characteristics are not reported.

Navigating the QI imperative

In general, faculty, fellows and trainees expressed similar beliefs regarding the value of QI as a clinical and educational goal for surgical trainees. However, as groups, they described discrepant experiences regarding trainee exposure to QI in-action and QI learning opportunities. To examine these experiences we first describe participants' perspectives on the importance of contributing to QI in their roles as trauma physicians and trainees. Next, we explore the challenge, as experienced by trainees, of identifying QI learning opportunities in an environment where the focus of learning is predominantly clinical and where QI is largely viewed as service. We examine how the structure and delivery of M&Ms reinforces traditional teaching and learning expectations. In conclusion, we highlight how and why surgical trainees struggle to imagine and incorporate informal QI learning into their everyday practice, despite faculty efforts to teach it.

Perception of QI roles and culture

Study participants unanimously agreed that QI was imperative to delivering high quality trauma care and teaching the delivery of trauma care. To this end, faculty described QI as integral to their roles and responsibilities as both physicians and educators. Many felt QI was intrinsic to their everyday work and they viewed themselves as "*active participants*" who "*kind of just live and breathe it*" by "*doing QI all the time.*" They explained this as a process of continuously examining what they do as health care providers and trying to get better at it. This included having a plan-do-study-act mindset, a constant eye to mitigate patient safety risks, and making communication improvements.

> "*Our job is not just to work in medicine; our job is to improve medicine. And we are the best people to do it because we, not just myself, but all the people who are working in the frontlines, we do this day in and day out, we can definitely see places where things are not working as well as they might.*" *(F06)*

Faculty and fellows spoke about the seamless integration of doing and teaching QI opportunistically as situations arise with trainees. As one staff explained, "*If a resident is not doing a good job, you have to take a moment to teach quality improvement. I do that a lot. It's a medical responsibility when you're in a big academic center.*" *(F02)* In interviews, they described teaching opportunities during patient resuscitation in the trauma bay, bedside rounds, and morning handover report as being typical and frequent.

> *"The other day when we did a thoracotomy on a patient, that's a high risk procedure, obviously for the patient, but also for the staff as far as needle stick and laceration injuries, so we needed to clear anyone out of the operative field who was not actually doing the operation. So that was something I*

pointed out explicitly, 'Okay, now we're starting a very high risk procedure,' so. . . " (F04)

Trainees endorsed QI knowledge and skill as important to both their learning and practice, however, most did not describe the same exposure to the continuous informal QI lessons that faculty did. This perspective was clearly expressed when the researcher informally asked a senior trainee how QI is taught in trauma, to which he replied, *"It's not."* Many trainees with plans to practice as trauma surgeons believed that the lack of QI training could be detrimental to when they become junior trauma faculty who are expected to lead QI initiatives.

"QI training is much more important as a senior because whenever you get a job you're just going to be told, 'Okay, you're in charge of QI in this hospital,' that's what's going to happen. There's no training, now you're the assistant trauma director and then 'Here, here's the QI, review all of these QI charts.'" (T02)

While faculty perceived QI to be inseparable from their clinical work, trainees talked about QI happening around them, not by or through them. They referenced hospital initiatives involving their patients but described themselves as outsiders who were somewhat removed. These included institutional efforts to decrease urinary tract infections, implement trauma bay protocols and improve hand hygiene. Some felt unable to contribute to systems-based problem-solving because they were too inexperienced to have the knowledge or too transient to have the time. Others viewed QI to be outside their scope as trainees and more within the domain of program and hospital administrators.

"I think quality improvement things, like handover issues, presumably the Chiefs and other people are exchanging emails and trying to come up with actual codified approaches to minimize bad outcomes and that's, I think, the quality improvement part. It's not happening, I don't really think at the resident level." (T01)

In light of this belief, the act of doing everyday QI remained relatively elusive to trainees. Those interviewed identified weekly M&Ms as the main source of their QI exposure and the only place where they would potentially learn about QI in a purposeful way.

M&Ms

Attendance at M&Ms was mandatory for trainees and although they perceived them as the main source of informal QI education, M&Ms were fraught with several challenges that were both observed and described. From the faculty perspective, scheduling was viewed to be the primary problem. Most interviewed faculty explained that their attendance at M&Ms depended on whether their clinic that day was finished, or they were in the operating room or trauma bay, or whether they had the energy to attend. Though faculty attendance was expected, only 2 or 3 of the 6 trauma surgery staff were there regularly. Trauma team leaders attended infrequently. No faculty minimized the importance of M&Ms but busy faculty schedules meant some rarely or never attended and cancellations were common. Many trainees felt that inconsistent faculty attendance was a barrier to learning. Some interpreted faculty non-attendance as disinterest in QI, which reinforced their perception that it was neither a faculty nor program priority. They drew comparisons with other surgical programs, where M&Ms were also mandatory, to illustrate how faculty attendance shaped their own behaviors and beliefs about the local QI culture.

"When you go from center to center, you learn the culture and you learn what you have to do on any given day. . . Some centers it's an absolute must, you're going to rounds no matter what; others it's kind of like, "Well I know rounds are happening and I know they're important but today is so and so's OR day and we always go until five," so then I know it's totally fine to not go. I guess the level of seriousness with which the staff takes it is perceived by the trainees and that's how we take it up." (T04).

Trainees were acutely attuned to faculty presence and interactions at M&Ms, a place where their own knowledge and behavior were also on display. They valued the occasions when multiple staff were present and they could observe them in discussion to *"get the benefit of their collective wisdom." (T01)* Yet, trainees were also found to be uneasy at M&Ms. For example, during most sessions trainees consistently took seats around the perimeter of the meeting room while faculty occupied the center table leaving many empty chairs. The body language of junior trainees entering late and forced to take a seat at the table for lack of perimeter seating was palpably uncomfortable. On one occasion when the researcher invited a trainee to join her at the empty center table the trainee replied simply, *"I can't sit at the table."(FN 03)*

Faculty perspectives varied on QI learning at M&Ms. Some faculty with decades of experience perceived explicit QI teaching to be minimal, explaining, "*I think a lot of M&Ms suffer from the same issue – like what*

do you get out of these besides a lot of banter and discussion about an interesting case?" (F03) A more nuanced role of M&Ms in enculturating trainees to the quality culture was recognized by others.

> *"A major part of QI rounds is you actually want to show the trainees that you don't sweep this under the rug, you don't hide it, you get everyone in the room, you hear everyone's perspective, you come up with ideas and we want the trainees if they have suggestions to improve it, to contribute. It's teaching them to be in this culture of quality improvement is what it is supposed to be." (F01)*

Other faculty viewed M&M discussions to be very *"clinical"* and "*staff-driven"* acknowledging that "*you don't really hear very much from the residents." (F07)* Most trainees in fact spoke very little unless assigned to present the case or called upon directly to answer faculty questions. "Pimping" was common and expected. This well-known form of public and direct questioning of trainees' knowledge by faculty was intended to "*challenge the residents*" in a positive educational way. Faculty was observed to ask very general opinion-seeking questions, for example, "*What do you think happened?"* or "*What can we do differently here?" (FN09)* More specific knowledge-based questions often put trainees on the spot, for instance, "*What are the indications for considering a stoma in penetrating colon injuries?" (FN03) "Is this the classic approach for a traumatic abdominal wall hernia?" (FN08*). From trainees' perspectives, pimping during M&Ms did not always serve the purpose of gathering everyone's perspectives and contributing to a QI culture as described above. Rather, pimping reinforced the traditional knowledge and power differences between faculty and trainees, which acted against the inclusive solution-generating ethos of QI that some faculty described. As explained by one trainee: "*Some rounds are very pimp heavy so they'll fire a lot of questions at the residents and it can be very intimidating." (T06)* As a result, trainees remained mindful of their positionality as novices and described limiting their comments and questions in discussions.

> *"I think if there was more of an environment where residents felt like they could really question why certain staff made certain decisions, I think that would be very good learning. But it's not something that — it's not that it's not encouraged, but you really don't see the residents saying to the staff, "Why did you decide to do this instead of this". Where I think it's those questions that lead to the most meaningful educational discussions". (T03)*

Observations confirmed that during M&Ms many QI issues were indeed mentioned including deficiencies in inter-specialty handover communication (FN02); inadequate availability of equipment, beds and human resources (FN02, FN03, FN11, FN22); palliation protocol in a trauma patient (FN02); failure of documentation (FN04, FN22, FN23); operational delays (FN06, FN19); appropriate use of imaging (FN08, FN24); trainee handover communication (FN24); inter-professional team communication (FN12, FN17); managing medical error (FN13); standardized protocol adherence (FN02, FN27), and field triage criteria adherence (FN27). However, these issues were infrequently taken up as QI teachable moments as clinical discussion with traditional pimping styles dominated.

QI as service or learning opportunity

The prevailing view among trainees was that QI activities were not considered learning opportunities. Trainees' repeated reference to a QI/learning dichotomy supported this idea that learning about trauma patient care and contributing to QI were two very separate domains. This belief was especially salient when describing the type of teaching that happened currently at M&Ms:

> *"You do learn things from M&Ms, they're not at all about quality improvement, they're more about teaching residents. (Q: Teaching what?) . . . Teaching general surgery principles using those cases as examples, but not necessarily focused on improving hospital processes". (T06)*

As such, most trainees described M&Ms as having the dual objectives of learning *and* identifying improvement opportunities. Sometimes these two objectives were viewed to conflict with one another. If too much focus was to be placed on QI, trainees perceived little learning could be achieved. They articulated a need to separate learning about trauma patient care and improving it in this context.

> *"The goal behind QI rounds is not for it to be an educational thing; it's supposed to be a process thing where you find these problems and issues, and if you try to make it a learning experience I think it takes away from the objective of it, because if you try to really identify why was this medication given or who didn't give handover, then that's never educational. And then when they try to make it educational, the process and solving the objectives behind QI rounds gets kind of brushed aside." (T02)*

The QI/learning dichotomy was unintentionally reinforced through pimping, whether during M&Ms or in other clinical settings, because of faculty tendency to test clinical knowledge more often than engaging trainees in any impromptu improvement-related discussions.

> *"We get pimped on content questions in surgical approach. There are a lot of other environments where that happens all the time; it doesn't need to happen in QI rounds. Whereas never if I'm in the OR, scrubbed in, in the middle of a case do I get asked a QI related question. We probably get so little QI related teaching that I couldn't even think what that question would look like. But it's not something we learn anywhere else." (T03)*

Notwithstanding the fact that some trainees were unable to articulate a QI question, some did describe QI topics that were raised in and outside of M&Ms, discussions which they characterized as useful but not educational. Varied trainee opinions about what constituted a QI learning point suggested multiple understandings of QI were circulating. Some emphasized institution-based processes, *("Like our rate of wound infections or our adherence to standardized protocols" T03);* others emphasized guidance in clinical decision-making *("After the case, I asked the staff if we could talk about why the decision was made not to take the patient to the OR to explore but to monitor him clinically" T05).* Faculty also varied in their description of QI learning points. Many faculty appreciated that QI learning *in situ* was challenged by trainees' limited perspective on complex trauma patient care, their need to quickly learn hospital operational systems and processes, patient volume, and their focus on the medical expert role. None were surprised that trainees failed to identify the informal QI teaching moments that faculty themselves described in the context of this study.

DISCUSSION

Despite the critical role played by QI in verified trauma programs, our study demonstrated that informal QI education was not well integrated into the curriculum of surgical trainees. Using ethnography, important discrepancies in trauma faculty and surgical trainee views of QI learning in the hospital setting were identified. We found a hidden curriculum around QI learning in the clinical learning environment where a traditional surgical training culture (including hierarchical relationships and a division of service and learning domains) was a barrier to informal QI education.

In this study, surgical M&Ms were identified by trainees as the main source of informal QI learning, but they reported that lessons regarding clinical issues, rather than QI, dominated the discussion. In many centers traditional M&Ms have been redesigned to incorporate explicit lessons in system-based problem solving while maintaining teaching around surgical judgment and care.[40] Successful strategies and tools for enhancing M&Ms QI educational value include formalizing their structure and content; involving multidisciplinary staff and focusing on QI only; or implementing post-conference QI reflection exercises for trainees.[23,41-44] Several studies emphasize the need to include trained quality and safety specialists in M&Ms who can work with trainees and others to effectively close the loop on system deficiencies and complete the educational experience.[23,43] Together, these reports demonstrate that trainees and faculty largely benefit from systematizing the QI component of M&Ms such that systems-based problems and proposed solutions are made explicit, and action plans are identified, assigned and executed. Where M&Ms have been standardized, perceptions of improved faculty attendance and effectiveness for addressing QI issues have resulted.[41] Our findings confirm that even in an environment where QI learning is highly valued and anticipated, the absence of structure and unambiguous articulation of QI issues and solutions can lead trainees and faculty to continue with a traditional clinical interrogation of their care, an approach with which they are familiar and proficient. This traditional approach can result in a failure to fully explore QI learning opportunities. Standardization of M&Ms' format and content with subsequent directed reflection may be effective in enhancing QI insights for both trainees and faculty.

Our data demonstrated that faculty described a high frequency of QI teachable moments outside of M&Ms, but that trainees did not identify these moments as frequently. These findings suggest that focusing trainees' on QI opportunities outside of M&Ms should be an important component of the informal QI curriculum. Opportunistic use of reflection tools or case logs through which trainees identify and summarize a QI problem they faced in an everyday clinical scenario may be useful. In such an exercise, the trainee can be encouraged to reflect and report back to faculty or QI specialists to enhance his/her own learning; reports can also be used to contribute to division or program level improvement initiatives. This may normalize and make more explicit to trainees that improvement work is constantly and intrinsically embedded in many faculty's everyday patient care, imagined more like an "improvement habit" than as additional or secondary work.[45]

From an organizational perspective, the introduction of tools and changes to M&Ms may seem reasonable to create meaningful QI learning opportunities. From a cultural perspective, these interventions do not address underlying and enduring norms and practices that appear from

our findings to challenge QI educational goals. The ACGME Clinical Learning Environment Review program has emphasized the transformational cultural change needed to address some of these known barriers.[46] True integration of trainees into hospital quality activities requires structured and well supported experiential learning such that faculty QI knowledge and capabilities are reliable and trainees derive clear and consistent QI teaching.[47] An organizational culture that explicitly prioritizes quality and safety as well as the experience and contributions of trainees is needed. Achieving such change in the surgical academic context may also require transformation of teaching traditions and norms. Pimping is a teaching method that is based on the power differential between staff and trainees.[48] While pimping has a long tradition in medical education and is standard pedagogical practice in most clinical settings, expectations of being pimped can lead to uneasiness among trainees such as found in our study. To mitigate their discomfort trainees took up several strategies in M&Ms, some of which are previously reported (both seriously and tongue-in-cheek) and some new; mostly they avoided sitting near staff, looking at staff and refrained from speaking up unless spoken to. Though pimping may not be taken seriously by everyone, and may in fact be welcomed by some, the degree of uneasiness that some trainees experience can lead to a level of inhibition or, as described in our study – intimidation, which impedes their inclusive participation in QI discussions. In this way, pimping can work against the goals of establishing a QI culture in which trainees are encouraged to freely speak up about quality issues and patient safety concerns without fear of being penalized or poorly evaluated for doing so.[49] This enduring aspect of the hidden curriculum that is embedded in the medical hierarchy must be more explicitly addressed for trainees to feel comfortable and safe identifying QI issues and contributing to QI discussions in the presence of senior physicians and even more senior learners. The challenges of navigating the medical hierarchy to foster the necessary creativity, curiosity and communication for successful QI learning must not be underestimated. It is incumbent upon faculty to reflect on their own teaching practice as well as their cultural environments to eliminate experiences of (unintended) intimidation for a more learner-centered model.[50]

Trainees' view that QI is a component of one's service to the organization, rather than of one's learning is a belief shaped by a long-standing tension between service and training in the academic environment.[51,52] This tension is perpetuated by the view that service and learning are opposed to one another; this dichotomy has been well-explored recently in the context of duty hour regulation, whereby learners are expected to achieve the same degree of specialized training in a lesser amount of time. Due to externally imposed time constraints, perceived service requirements (such as ward-based paperwork) tend to carry a negative connotation, and are often perceived as lacking educational value when compared to surgical trainees' operative cases.[53] Our findings reveal that in such an environment, where there is increasing pressure to learn more clinically in less time, trainees tend to view QI within the service domain. As a result, there is tacit reinforcement among them that participation in QI is of lesser or no educational value when compared to hands-on patient care activity.[52] Previous research among medical trainees has found similar attitudes.[32] This other dimension of the hidden curriculum that likely hinders achieving informal QI educational goals must also be confronted and re-framed if the clinical learning environment is to change and trainees are to incorporate such work into their professional identities.[54]

Study limitations: This ethnography has offered a novel "thick description" of surgical faculty and trainees' perspectives on informal QI education in an academic trauma program.[55] Given that data were collected from one site, findings may be limited in their transferability to other trauma centers where formal QI curricula exist and/or the structure of M&M and QI learning differs. For instance, in trauma centers where QI is linked to hospital financial incentives or different teaching styles are present, attitudes and behaviors related to QI education may differ and the findings from this study may therefore not completely resonate. This study represents a preliminary and exploratory effort to understand current beliefs and practices with respect to QI education in a trauma program.

CONCLUSION

Ethnography offers insights into how a culture of QI education may or may not be evolving in a given clinical learning environment. Faculty and surgical trainees in our trauma center highly value QI teaching and learning, but discrepancies exist between faculty and trainee perceptions regarding the quality of QI education. Improvement efforts should address identified organizational and cultural barriers to QI learning.

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