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Stop the Blame Game: Restructuring Morbidity and Mortality Conferences to Teach Patient Safety and Quality Improvement to Residents

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Abstract

Introduction: Adverse events leading to patient harm are rarely the result of an individual error but are instead due to a series of errors resulting from system breakdowns. Thus, the Accreditation Council for Graduate Medical Education requires all residents to participate in quality improvement and patient safety programs. However, a major reported obstacle to sustainable quality improvement and patient safety curricula, as well as meaningful practice improvement, is the small number of faculty with expertise or training in these topics. **Methods:** This workshop provides a simple framework for redesigning traditional morbidity and mortality conferences for faculty who have minimal quality improvement training. The materials associated with this publication include a standardized presentation template, sample teaching points, and a faculty facilitator's guide. **Results:** Between August 2014 and February 2015, 135 trainees from one of our tertiary training sites attended seven of these redesigned conferences. The largest gains were made in teaching residents how to use a systems-based approach to analyze medical error and how to identify corresponding error-reduction strategies. Residents also perceived themselves as more likely to put their knowledge into action through filing an incident report after attending the conference. The one item that did not change was the residents' perception of safety culture at their institution, suggesting that attendance at a monthly conference is not sufficient to change culture. **Discussion:** Similarly formatted M&Mconferences may help institutions address several aspects of the ACGME CLER program that provides programs with periodic feedback regarding trainee education on patient safety and quality improvement as well.

Keywords

Patient Safety, Quality Improvement, Morbidity and Mortality, Systems Theory

Educational Objectives

By the end of this workshop, facilitators will be able to:

1. Identify appropriate teaching cases that can be used for an interactive, patient safety and quality improvement-focused morbidity and mortality conference.
2. Analyze a case using a systems-based approach.
3. Incorporate basic quality improvement tools, such as fishbone diagramming and process mapping, into their morbidity and mortality conference.
4. Recognize how this structured approach can meet requirements for ACGME Clinical Learning Environment Review.

Introduction

The Institute of Medicine's *To Err Is Human* report attributed 98,000 preventable deaths annually to medical errors.¹ A more recent analysis estimated more than 210,000 deaths.² As a result, emphasis has been placed on educating health care providers to promote patient safety and quality improvement. Within graduate medical education, the Accreditation Council for Graduate Medical Education (ACGME) requires all residents to participate in patient safety and quality improvement programs as part of their

Appendices

- A. Instructor's Guide.docx
- B. Standardized Presentation Template.pptx
- C. Presentation Template Script.docx
- D. Sample Process Map.pptx
- E. Sample Fishbone Handout .pptx
- F. Sample Quality Improvement Teaching Points.docx
- G. Postconference Questionnaire.docx
- H. Survey Responses.docx
- I. Multidisciplinary Conference Participants .docx

All appendices are peer reviewed as integral parts of the Original Publication.

core competencies.³ This was further emphasized with the ACGME Clinical Learning Environment Review (CLER), which provides programs with periodic feedback regarding trainee education on patient safety and quality improvement.⁴ One way to educate trainees and faculty, promote interdisciplinary discussion, and improve care is by transitioning morbidity and mortality (M&M) conferences away from the older models to one focused on patient safety and quality improvement principles. The M&M conference offers an important and unique opportunity for medical professionals to discuss and learn from medical errors. However, this conference may carry a negative connotation due to the traditional perception that its objective is accusatory and punitive.⁵ We have developed a restructured format for a quality improvement–centered M&M conference that strives instead to identify and mitigate the systems-based issues that are truly at the heart of a majority of medical errors.¹ The goal of our restructured M&M conference is to foster a culture of patient safety among trainees, faculty, administrators, and other caregivers that relies less on blame and encourages teamwork and communication.

Reviewing MedEdPORTAL publications available on this topic, we learned that Gribovskaja-Rupp, Redlich, Treat, Webb, and Anderson designed a curriculum to improve oral presentation skills of junior residents in order to prepare them for M&M conferences.⁶ Their curriculum encourages residents to categorize the complications of the case as a systems issue, technical issue, or other, with a recommendation to review the literature for further delineation. However, the above-reviewed curriculum is focused more on presenting the case. MedEdPORTAL also offers several standardized patient cases or simulations in which complications occur and trainees must identify and mitigate harms.⁷⁻⁹ A wider literature review revealed a resource by Bechtold et al. that proposes a similar format of an M&M conference using a modified root cause analysis.¹⁰ Bechtold et al. also describe choosing and focusing on cases with an identified systems issue rather than on a case more suited to peer review. However, their resource does not lay out specifics for the logistics of such a conference and also does not address teaching or use of quality improvement tools in the conference. Our resource is novel in that we propose a general format that can be used for any M&M conference that focuses on how system issues contributed to an error, uses quality improvement tools to analyze the error, incorporates quality improvement didactics, and develops action plans that could prevent not only the error in the case being discussed but future errors as well.

This resource includes a comprehensive guide for facilitators, a standardized template for the conference, sample teaching points, and a guide for the breakout quality improvement activities used during the session. We are currently in our third year of using this conference format at one of our tertiary training sites that hosts two large academic internal medicine residency programs. This conference format was designed for categorical internal medicine residents; however, it can easily be adapted to residents or interprofessional trainees in any other field.

Methods

This conference format was designed originally for internal medicine residents in all years of training. However, it could easily be adapted for residents or interprofessional trainees in any other field. One upper-level resident is chosen to present the conference along with a faculty facilitator. All other attendees are required to participate only in the discussion and the breakout session quality improvement activities during the conference.

Learners receive education using PowerPoint presentations, small-group discussions with case discussions to supplement learning, and feedback and reflection with course facilitators as materials are presented.

Resource files include an instructor's guide (Appendix A), a standardized presentation template used to present the case (Appendix B), talking points for the slides (Appendix C), and a sample process map handout to be given to attendees (Appendix D). Also included are a sample fishbone diagram (Appendix

E), sample quality improvement teaching points (Appendix F), the questionnaire given to trainees (Appendix G), and the aggregated mean responses to the survey questions (Appendix H).

Conference Overview

We hold our conference monthly for 60 minutes. Smaller programs may have fewer cases and may choose to have less frequent conferences (e.g., quarterly). The structure of the conference focuses on three key concepts: a nonpunitive environment, multidisciplinary participation, and structured case presentation.

Nonpunitive Environment

We reorganized our resident M&M conference to be a monthly deidentified (both patient and provider) case-based review focusing on system lapses rather than individual errors. Cases are selected based on appropriateness for open reporting and discussion, timeliness of the event, and the likelihood of drawing meaningful conclusions and developing lasting action plans. The instructor's guide (Appendix A) includes further details. To implement, a point person is needed to receive all potential cases. This can be a trainee, faculty member, or administrator. At our institution, these cases are collected by our chief resident in quality and patient safety. The chief resident in quality and patient safety seeks out cases from patient safety officers, trainees, faculty, and other interprofessionals. These parties may submit cases to the chief resident in quality and patient safety as well. If a trainee is selected to collect the cases, then a faculty mentor should review the proposed cases each month to ensure the cases meet the above criteria.

Multidisciplinary Participation

Based on the content of the case, we invite interprofessional leaders to attend, including physicians, nurses, administrators, pharmacists, case managers, and patient safety officers. These individuals are given details about the conference in advance and invited to comment.

Structured Case Presentation and Discussion

Second- and third-year residents are selected at the beginning of the academic year to present at the conference while on an ambulatory rotation. The resident presenter reviews the selected case and interviews parties involved. A standard presentation template (Appendix B) is provided to the resident for use during the conference. The conference is facilitated by a trained quality improvement facilitator. To implement at your institution, the facilitator should be trained in basic quality improvement theory, which includes systems thinking and use of basic tools such as fishbone diagrams and process mapping.

Preparation

About 3 to 4 weeks prior to the conference, the assigned resident presenter is notified. The facilitator chooses a case, as described above, in which a patient safety issue or medical error has occurred that resulted in some morbidity or mortality. Once a case is chosen, the facilitator provides the case information to the resident presenter along with the blank M&M PowerPoint template (Appendix B). They review the case and identify potential areas of concern. However, it is essential to emphasize that the case should not be presented based on chart review alone. Further investigation should be undertaken to investigate the true root causes of the medical error. In-person or telephone interviews are arranged and conducted with the residents or staff members involved in the case to get a more accurate representation of what actually happened and the motivation behind their decision making, similar to a root cause analysis. If the resident feels comfortable conducting these interviews, he or she may choose to do so alone. Otherwise, the facilitator should assist with interviews.

Resident-Specific Preparation

After investigation is completed, the resident develops the narrative to be included in the presentation and a process map of the events. A process map is the description of an event or process in the form of an

illustration in which each step is summarized chronologically in a text box. Each box or step is connected by arrows until the process is complete. This quality improvement tool helps to identify each step in a process or event where there is the potential for error and can serve later as the target for proposed action plans.¹¹ The resident next develops a fishbone diagram identifying the factors that contributed to the event. A fishbone diagram, also known as an Ishikawa, is a quality improvement tool used to identify and categorize factors that contributed to an adverse event. The diagram is an illustration that resembles a fish, with the adverse event labeled and the head of the fish as a text box. Radiating upwards and downwards from a central horizontal line, each category of contributing factors is labeled as one of the bones. There are many ways that these categories can be divided, but to make it easy to remember, we use the six Ps mnemonic: patient, policies, personnel, plant (or place), procedures, and politics. The full description of each of these categories is included in the instructor's guide (Appendix A). Next, factors that fall into each of these categories are written horizontally along each bone.¹¹ Slide 17 in Appendix B provides an example of a completed fishbone diagram. Appendices C and D also contain an example of a completed process map and a blank fishbone diagram with descriptions of each category. After analyzing the event, the resident identifies and proposes action items that may prevent the occurrence of similar events in the future. Lastly, the resident prepares some review of the literature regarding the particular type of event or proposed action plan relevant to the case. This information is entered into the presentation template and sent to the facilitator for review and editing.

Facilitator-Specific Preparation

The facilitator also prepares a patient safety or quality improvement teaching point for the conference. These teaching points are brief and typically relate in some way to the case being discussed. Our presentation template (Appendix B) and script (Appendix C) contain example teaching point slides, but topics presented have included handoffs, checklists, situational awareness, communication, cognitive errors, and types of bias (see Appendix F for a list of teaching points by case). The facilitator assembles and edits the completed PowerPoint and invites members from all departments and specialties involved in the case to attend the conference. On the day of the conference, the facilitator and resident present together and lead a discussion and reflection on the case. At our institution, the resident typically presents the case, and the facilitator usually guides the discussion of the fishbone/action items and delivers the teaching point. The facilitator also provides a handout for the conference attendees with a copy of the case process map on one side so that any latecomers are able to catch up on the details of the case. The other side of the handout includes a blank fishbone diagram and a description of each category (Appendices D and E show a sample handout).

Session Logistics

An outline of the agenda for the conference is provided in the [Table](#). The rules of the conference are outlined prior to beginning the conference. The case is first presented in a narrative format based on review of the medical record and information obtained by interviewing any relevant staff. Following the narrative, process mapping is used to summarize the case. The facilitator then presents a brief review of systems theory followed by the selected quality improvement teaching point. After this brief didactic, there is an interactive portion of the conference in which the presenter facilitates the completion of an Ishikawa or fishbone diagram using input from the audience to identify and discuss factors that contributed to the adverse event. The presenting resident then shows the completed fishbone and discusses any additional points not brought forth by the attendees. The resident next provides a brief literature review based upon the type of error or possible solutions to the problem. The final portion of the conference focuses on the development of action items to address system deficiencies. The presenting resident and facilitator share proposed interventions and solicit input from conference participants. The facilitator records recommended action items and follows up on proposed initiatives.

Table. Conference Agenda and Logistics for Quality Improvement Morbidity and Mortality Conference

Topic	Presenter	Time	Brief Description	Slides ^a
Introduction	Facilitator	3-5 min	Introduce the conference, describe the agenda, review ground rules and expectations for the conference, emphasizing a culture of safety.	3-Jan
Case narrative	Resident	5-10 min	Chronological description of the events of the case as determined from chart review and interviews.	5-Apr
Process map	Resident	2 min	Concise review of case in the form of a process map.	6
Systems theory	Facilitator	1-2 min	Brief introduction and review of systems theory.	7
Quality improvement teaching point	Facilitator	5-7 min	Quality improvement teaching point chosen by facilitator that is relevant to the case being discussed.	13-Aug
Fishbone activity	Facilitator	10-12 min	Review concept of fishbone, then lead interactive discussion of factors that contributed to this error.	14-16
Completed fishbone	Resident	1-2 min	Resident displays the completed fishbone and discusses any points not yet covered in the group discussion.	17
Literature review	Resident	5-7 min	Topic chosen by resident that pertains to error being discussed or possible action plans.	18
Action plans	Both	7-10 min	Brief review of ranking error-reduction strategies, followed by interactive discussion of proposed action plans as well as suggested plans from audience.	19-20
Conclusion	Resident	1-2 min	Brief review of important aspects of case, factors contributing to error, and proposed actions.	21

^aSlides referenced from Appendix B

Evaluation

The success of the curriculum is determined by measurement of resident satisfaction and self-reported resident proficiency or confidence with using quality improvement tools to analyze errors. A five-item questionnaire was developed to assess resident comfort. The first three questions assess trainee confidence with utilizing a systems-based approach to analyze medical errors, identifying contributing factors in system failures, and developing error-reduction strategies. The remaining questions, adapted from the Agency for Healthcare Research and Quality hospital survey on patient safety, assess the willingness to submit incident reports as well as the perceptions of a culture of patient safety at our hospital.¹² Survey items are measured on a 5-point Likert scale, where higher values denote greater confidence or likelihood. The brief survey was completed by all residents attending the conference during our study period. See Appendix G for a copy of the survey.

Results

We have implemented this restructured, quality improvement–focused M&M conference format for the past 3 years. Hypothetically, all categorical medicine residents in our program would have attended the conference at least once throughout their training, and about 15% have served as presenters. Besides residents, numerous faculty are typically in attendance, not only from the internal medicine department but often from other disciplines as well. We have had multidisciplinary quality improvement M&M conferences with psychiatry, general surgery, orthopedics, and the emergency department depending on the case presented. Other hospital staff, including patient safety managers, nurses, and even the chief of staff, have commonly attended. See Appendix I for a table of multidisciplinary conference attendees. We evaluated the effectiveness of our new conference format by studying seven of the monthly sessions from August 2014 through February 2015. These conferences were attended by 135 out of 186 total eligible internal medicine residents (73%). Surveys were collected from 80 residents, for a response rate of 59%.

Survey questions with aggregated mean responses are shown in Appendix H. Paired analysis of the pre- and postconference responses demonstrated a significant difference for questions one through four. When asked after the conference to assess their confidence in using a systems-based approach to analyze medical errors, 93% of residents ($p < .001$) rated themselves as “somewhat confident” or “very confident,” as opposed to 59% of residents before. When asked after the conference to assess their confidence in identifying contributing factors to systems failures, errors, or adverse events, 90% of residents ($p < .001$) rated themselves as “somewhat confident” or “very confident,” as opposed to 63% of

residents before. Similar gains in confidence were seen in identifying error-reduction strategies. Residents also rated themselves as more likely to file an incident report after attending the conference. However, conference attendance did not significantly impact the likelihood of residents worrying about being punished or receiving poor treatment for reporting an adverse event.

The three most common types of factors identified during our fishbone diagram constructions as contributing to medical errors were communication errors across disciplines, staffing constraints, and failure to follow hospital policies or best practices. Our seven M&M conferences in the study period produced five new resident-driven sustainable initiatives in our training program or hospital, such as development of a standardized admissions process from subspecialty clinics.

Discussion

Our quality improvement–focused M&M conference format effectively improved residents’ confidence in using a systems-based approach to analyze medical error and in identifying contributory systems issues and error-reduction strategies. It also facilitated initiation of several initiatives to improve patient care and safety at our institution. Other programs that have adopted similar approaches to M&M conferences have also demonstrated improvements in residents’ perception of a systems-based approach to error, but no improvement in trainees’ fear and reluctance to personally report errors.¹⁰ Similarly formatted M&M conferences may help institutions address several aspect of the ACGME CLER program that provides programs with periodic feedback regarding trainee education on patient safety and quality improvement as well.⁴ Several of the more detailed milestones from the ACGME CLER Pathways to Excellence can be addressed through restructured M&M conferences, specifically, reporting of adverse events, resident engagement, and education in quality improvement initiatives.

The attendance of hospital leadership at the conferences can improve buy-in from the residents and help improvement plans come to fruition. In turn, these changes can be reported back to the residents and hospital staff at subsequent conferences as evidence of the value of the M&M conference. Other sources have described similar value in incorporating hospital and program leadership, as well as multidisciplinary hospital staff, regularly into M&M conferences.^{13,14} The lack of quality improvement–trained faculty in residency programs is often identified as a barrier to providing this education to residents. However, our conference is facilitated by our chief resident in quality and patient safety, who began facilitating this conference after 2 months in the position, illustrating that the background knowledge required to lead this conference is not overly time consuming or cumbersome.

One limitation we noted with the conference was that despite a great emphasis on a culture of patient safety during the session, the residents’ belief that openly reporting patient safety issues would result in negative consequences was not affected by the conference. However, they did report that they would be more likely to report medical errors using the hospital’s anonymous event-reporting system. We used resident intent to file an incident report as a surrogate for reporting rates because our institution’s error-reporting system is anonymous and does not track what type of provider submits a report. These findings suggest that a conference alone may not be adequate to impact safety culture. Overall, the conference demonstrated improved comfort with patient safety and quality improvement tools; an overarching change in culture may somewhat lag behind and may need to be bundled with other initiatives.

Lessons Learned

The use of our format was limited to the medical facilities associated with a single residency program. However, the concepts are adaptable to other programs and facilities. Additionally, the inclusion of a quality improvement–trained facilitator is essential. This person keeps the conference on track and also serves to redirect discussion if a negative or accusatory environment develops. At our institution, the facilitator was also responsible for following up on action items discussed. Another obstacle that we

encountered was initial reluctance from the senior faculty to abandon the traditional M&M conference format. It was helpful to have support from the residency leadership to promote the implementation of this new format. In fact, we typically now have great faculty presence at the conferences, and they often contribute valuable insights to the discussion.

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Reported as not applicable.

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