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A Methodological Approach to the Revision of Morbidity and Mortality Conference

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Abstract

Objective: To evaluate a comprehensive format revision of Morbidity and Mortality (M&M) Conference in a department of surgery at a large academic institution.

Design: A 25 item questionnaire with a Likert scale was administered to faculty and residents of the Department of Surgery prior to implementation of a new M&M format. One year after the new format implementation the same questionnaire was administered. The responses from the pre-test were compared to the one year post implementation survey. Aggregated Agreed and Strongly Agreed faculty and resident responses were analyzed to assess statistical significance of changes in assessments.

Setting: University of Kansas Medical Center, Tertiary Care Center

Participants: Faculty and residents in the Department of Surgery at the University of Kansas Medical Center.

Results: There were 32 respondents in 2014 and 46 respondents in 2015. Both residents and faculty reported statistically significant improvement from 2014 to 2015 for 10 (46%) items after implementation of the new M&M format. Improvements impacted several aspects including attendance, educational value, and a shift to a non-blame culture. There were no statistically significant differences between resident and faculty responses.

Conclusions: Altering the format of M&M conference at our academic institution has improved resident and faculty perception of the conference across multiple areas. These changes have improved resident education and satisfied ACGME requirements, while providing an unbiased forum for staff and residents to critically assess cases to enhance surgical education and improve patient outcomes. Applying a systematic approach to the revision of M&M practices was associated with increased participation, satisfaction, and greater educational content, resulting in improved outcomes.

Keywords: ACGME; Morbidity and Mortality; Revision; Surgery

Competencies: Patient care, Medical knowledge, Practice-based learning and improvement, Interpersonal and communication skills, Professionalism, and Systems-based practice.

Introduction

Morbidity and mortality (M&M) conference is a well-established forum for residents and staff to discuss adverse clinical events with the goal of identifying opportunities for enhancement of performance by both individuals and care delivery systems. The origins of M&M conference are traced to Dr. Earnest Codman's end result card system, a radical departure from the practice of medicine at the time which created a platform for critical assessment of patient care. This controversial system of examining outcomes of surgical treatment placed his career in jeopardy and eventually led him to open his own hospital to preserve this important practice [1,2]. Fortunately, subsequent generations of surgeons adopted and refined Dr. Codman's system, transforming the concept into a forum that has a unique role in surgical education and quality practice. M&M conference has commonly been referred to as "the golden hour of surgical education" while regarded as a critically important component of resident education. In 1983, the Accreditation Council for Graduate Medical Education (ACGME) mandated regular M&M conferences to enhance learning from adverse patient outcomes or "near misses" and to foster a culture that facilitates open discussion of mistakes, promotes accountability and transparency, and prioritizes patient safety and quality assurance in clinical care [4]. The M&M conference strategy optimally provides a solid foundation within academic medicine to improve patient outcomes while enhancing education, however, the format and value placed in this conference varies based on the culture across departments or units [4-7]. We sought to revise our department M&M conference to abandon the culture of blame-style case assessment which has been known to be an integral part of surgical M&Ms with a new emphasis on ACGME core competencies and incorporate best practices from the literature to elevate our patient care delivery to the leading edge of evidence based surgical care [4-10]. This study assessed a one-year, pre-post format change questionnaire. To determine the value for both residents and faculty for outcomes based M&M conference platform.

Materials and Methods

This is a study of a 22-item questionnaire that was approved by the University of Kansas Health System Institutional Review Board. The

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items were developed based on a literature review of M&M format changes that focused on reporting surveys of participants in M&M conferences (Table 1). The questionnaire utilized a 5-point Likert scale from strongly agree to strongly disagree with a not applicable option. The questionnaire was administered to faculty members and residents of the Department of Surgery prior to implementation of the new M&M format. The same questionnaire was administered at the end of the academic year prior to graduation of current residents so that the solicited responders were the same. Some of the changes to the format of M&M included revolutionizing self-reporting of adverse events by using an anonymous web based RED Cap database by which residents, advanced practice providers, and attending physicians could enter any cases they believed to be an M&M during that week. Three detailed cases were presented at every M&M conference and these cases were selected each week by an organized selection panel of attending surgeons chosen by the Department of Surgery Chair. A standardized PowerPoint template was used for each case presentation Table 3 which included root because question analysis with evidence based answers supported by the literature and ACGME core competencies within presentations (patient care, medical knowledge, practice-based learning and improvement, interpersonal and communication skills, professionalism, and systems-based practice). Strategic conference scheduling at 7am on the late start OR day each week was initiated to promote engagement and attendance rather than the previously scheduled biweekly evening conference. All recipients received two e-mail reminders and one in person reminder during a mandatory grand rounds conference over the course of 6 weeks to complete the survey. The responses from the pre-test were compared to the one-year post implementation survey. Aggregated Agreed and Strongly Agreed faculty and resident responses were analyzed to assess for statistical significance (Table 2). Descriptive and chi-square/Fisher's exact tests were performed. All analyses were computed using IBM SPSS statistics for Windows.

Results

Participants

Faculty and resident surgeons in the Department of Surgery at the University of Kansas Health System during the 2014-2015 academic calendar year. There was a 64% response rate in 2014 (32/50) and a 67% response rate in 2015 (46/69).

Significant changes

Statistical analysis of aggregate Agreed and Strongly Agreed faculty and resident responses between the pre (2014) and post implementation (2015) surveys was performed. Both residents and faculty reported statistically significant improvement from 2014 to 2015 for 10 (46%) items (Table 2). Improvements impacted several aspects including attendance, educational value, and a shift to a non-blame culture. An increased number of residents and faculty responding to the survey perceived that M&M was a well-attended conference (p=0.04), M&M conference better fulfilled its educational goals and (p=0.01), complications and deaths are discussed dispassionately without blame (p=0.01), and M&M provides an unbiased way to learn from surgical failures (p=0.02), and after revision of the format. There were no statistically significant differences amongst resident and faculty responses due to the low response rate to the question of identifying their position, only 22 in 2104 and 25 in 2015.

Table 1: M&M Survey Questions

S.No	M&M Survey Questions
1	M&M provides an unbiased way to learn from surgical failures
2	Complications and deaths are discussed dispassionately without blame
3	Faculty provide a good role model for dealing with surgical failure
4	Residents are called on to account for treatment decisions (oral board type)
5	M&M is a well-attended conference
6	I attend M&M conference regularly
7	Complications and interesting cases are discussed as frequently as mortalities
8	Only adverse, not good, outcomes are discussed
9	M&M conference fulfills its educational goals
10	Pertinent literature and visual aids are used in discussing cases at M&M
11	Residents are interested in M&M conference
12	I occasionally seek excuses not to attend M&M conference
13	Faculty amend or retell cases presented by subordinates
14	Residents, nurses, or others are blamed for poor outcomes
15	Facts at M&M are occasionally slanted or finessed
16	I am comfortable asking residents questions in the M&M conference
17	I am comfortable asking faculty questions in the M&M conference
18	The explanations offered by residents are relevant and useful
19	The explanations offered by faculty are relevant and useful
20	There are adequate presentation aids to assist with case presentation (text, slides, images, radiology, etc.)
21	Expert faculty are in attendance (whose subspecialty is relevant to the case(s) under review)
22	I typically walk away from M&M conferences with more confidence in managing a similar situation to the case(s) presented

Table 2: M&M Survey Responses

Survey Questions	#Agree Pre (2014)	% Agree Pre (2014)	# Agree Post (2015)	% AgreePost (2015)	Change Pre-Post Revision (Chi-square)	p=value
M&M provides an unbiased way to learn from surgical failures	10	31.3	27	57.4	5.2471	0.021983
Complications and deaths are discussed dispassionately without blame	7	21.9	24	51.1	6.8031	0.0091
Faculty provide a good role model for dealing with surgical failure	8	25	25	53.2	6.2207	0.012627
M&M is a well-attended conference	7	21.9	21	44.7	4.3275	0.037501
M&M conference fulfills its educational goals	6	18.8	22	46.8	6.5505	0.010485
Pertinent literature and visual aids are used in discussing cases at M&M	5	15.6	24	51.1	10.2912	0.001337
The explanations offered by faculty are relevant and useful	9	28.1	25	53.2	4.8794	0.027178
There are adequate presentation aids to assist with case presentation (text, slides, images, radiology, etc.)	3	9.4	22	46.8	12.3328	0.000445
Expert faculty are in attendance (whose subspecialty is relevant to the case(s) under review)	3	9.4	21	44.7	11.22	0.000809
I typically walk away from M&M conferences with more confidence in managing a similar situation to the case(s) presented	4	12.5	20	42.6	8.1298	0.004354

Table 3: Standardized Power point Slides

Title Page:
Surgery Service
Dates of Admission
OR Date
Diagnosis
Operations
Surgeons Involved in Case
Morbidity
Presenter
Background
NSQIP Calculator
Intra-operative Course
Post-operative Course
Classification of Event:
Delay in Diagnosis, OR or Treatment
Error in Diagnosis, Technique, Judgement, or Management
Patient Disease
Return to Surgery
Inattention to Detail
Failure of a Protocol
Communication Error
Equipment Failure
Health System Error
ACGME Core Competencies
Patient Care
Medical Knowledge
Practice-Based Learning and Improvement
Interpersonal and Communication Skills
Professionalism
Systems-Based Practice
Classification of Injury
Definite complication with no adverse effect on patient
Definite injury with no apparent disability
Fully recoverable injury with temporary disability
Partially recoverable injury with permanent disability
Death
Literature Review
Educational Points
Discussion

Discussion

M&M conference has been strongly validated as an important contributor to improving patient outcomes while enhancing resident education, and creating cultural change within surgical units, yet consensus on how best to conduct this event has not been reached. The published reports all concern limited changes in focused aspects of the conference rather than comprehensive revision. Our results validate that a methodological approach targeting key aspects of the process resulted in improvements in several areas including education, problem solving, use of evidence and literature, and cultural attitudes. Resident and faculty perception of the conference, particularly in the crucial areas of in-depth evidence-based review of cases, expert input from multiple subspecialists, and resident confidence in managing challenging situations all had improved perception after the format change. In the current format, three cases are analyzed per conference using a set protocol to allow adequate time for analysis, discussion, and reflection. This allows avoidance of the common challenge identified by Higginson et al. of insufficient time for in-depth review and accountability of errors in a supportive peer environment [5] Furthermore, Flynn-O'Brien, et al conducted a survey to determine surgery and medicine residents' perspectives on M&M conference and found that 87% of respondents agreed or strongly agreed that M&M conferences were valuable, educational, and contributed to improving patient outcomes, but many cited opportunities for improvement and reported a low rate of adverse event reporting. The primary reason cited for not reporting incidences to M&M was that they thought the reporting process was too cumbersome. In contrast, our M&M conference format uses an online, secure, easy to use RED Cap database that provides a quick template for case reporting and takes less than two minutes to complete. Staff report taking less than two minutes to complete an adverse outcome entry. This database also allows for secure storage of data for future use such as the presentation of particularly educational M&Ms at hospital wide quality improvement meetings and interdepartmental M&Ms. The revised M&M conference improves resident education and satisfies ACGME requirements while using root cause question analysis with evidence-based answers supported by the literature and discussing all ACGME core competencies within each presentation. It also provides a safe and unbiased forum for staff and residents to critically assess cases to enhance surgical education and improve patient outcomes. At the end of each case presentation any

attendee is able to ask the presenting resident questions about the case providing an open dialogue about the morbidity or mortality. If at any point a resident is unable to answer a question then the staff surgeon who performed the case will speak up and assist the resident. The revisions and standardization of M&M conference allows M&M to provide an unbiased way to learn from surgical failures and that complications and deaths are discussed dispassionately without blame. After the change in the structure of M&M more residents and faculty members agreed that they typically walk away from M&M conferences with more confidence in managing a similar situation to the case(s) presented. Overall more residents and faculty believed that M&M conference better fulfilled its educational goals after revision of the format.

Conclusion

This study demonstrates that making several changes in the M&M conference format can significantly improve M&M perception while impacting education, problem solving, use of evidence and literature, and approaching the "safe place" intended where people are held accountable but in a supportive, formative peer-driven system. Despite these impressive gains, however, only about half of respondents saw this as improvement. It is imperative that we continue to enhance our M&M conference. We believe that a systematic approach to the revision of M&M practices can achieve increased involvement, participant satisfaction, collegial thoughtful analysis and advice, sharing of expertise, and educational content, while resulting in improved patient care and learner outcomes.

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