

Toward Best Practices for Surgical Morbidity and Mortality Conferences: A Mixed Methods Study

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OBJECTIVE: To assess formats for surgical morbidity and mortality conferences (M&M) for strengths and challenges.

DESIGN: A mixed methods approach with local observations to assess key domains of M&M practice (i.e., goals, structure, and process/content) and surveys to assess participants' expectations and experiences.

SETTING: Surgical departments of two teaching hospitals (Boston, USA and Leiden, Netherlands).

PARTICIPANTS: Participants of surgical M&M, including attending surgeons, residents, physician assistants, and medical students (total $n = 135$).

RESULTS: Surgical M&M practices at both hospitals had education as its overarching goal, but varied in structure and process/content. Expectations were similar at both sites with $\geq 80\%$ of participants ($n = 90$; 67% response) expecting M&M to be focused on education as well as quality improvement (QI), blame-free, mandatory for both residents and attendings, and to lead to changes in clinical practice. However, compared to expectations, significantly fewer participants at both sites experienced: a QI focus (both $p < 0.001$); mandatory faculty attendance ($p = 0.004$; $p < 0.001$) and changes to practice (both $p < 0.001$). In comparison, at the site where an active moderator and QI committee are present, respondents seemed more positive about experiencing a QI focus (73% vs 30%) and changes to practice (44% vs 16%).

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CONCLUSION: Despite variation in M&M practice, the same (unmet) expectations existed at both hospitals, indicating that certain challenges may be more universal. M&M was reported to be well-focused on education, and certain aspects (e.g., active moderator and QI committee) seemed beneficial, but expectations were not met for the conference's focus and function for QI. Greater exchange of "best practices" for M&M may enhance the conference's value for improving surgical care. (J Surg Ed ■■■■-■■■. © 2017 Association of Program Directors in Surgery. Published by Elsevier Inc. All rights reserved.)

KEY WORDS: morbidity and mortality conference, continuing education, quality improvement, patient safety

COMPETENCIES: Practice-Based Learning, Systems-Based Practice

INTRODUCTION

Morbidity and mortality conferences (M&M) are an established and honored practice in surgery, aiming to improve surgical care through case-based learning.¹⁻³ M&M practice is specifically related to the Accreditation Council for Graduate Medical Education (ACGME) core competencies "practice-based learning" and "systems-based practice," but ultimately has the potential to address all 6 core competencies.⁴⁻⁶ Although both education and quality improvement (QI) are shared goals for most surgical M&M conferences, considerable heterogeneity in M&M practice is apparent in the literature.^{1-3,6-13}

M&M practice has been categorized in to 3 domains, including "goals," "structure" (e.g., frequency and participants) and "process/content" (e.g., case selection, presentation, and discussion),⁵⁻⁷ which have been discussed in various

studies. However, fewer than half of all surgical M&M studies included in a recent systematic review of the M&M literature,⁷ discussed all domains. Together with the absence of consensus on a best practice for M&M, the limited exchange of practices poses challenges for institutions seeking a format that best fits the local context and is still effective to drive learning and improvement. Variation in M&M practice may to some extent be appropriate to account for contextual differences and to meet local needs. In any case, this variation offers an opportunity to share and learn from each other's (best) practices.

This study sought to evaluate all domains for surgical M&M practice in relation to participants' perspectives at 2 hospitals with different formats for surgical M&M. A mixed methods approach was used, including local observations and surveys of participants' expectations and experiences of M&M. We hypothesized that comparison of the different formats would reveal different strengths and challenges, but that participants' expectations would be more similar. The aim of this study thus was to compare practices and the extent to which expectations matched experiences in order to learn from each other's strengths and challenges.

METHODS

Design and Setting

This mixed methods study assessed M&M practices of the surgical departments of tertiary teaching hospitals Brigham and Women's Hospital (Boston, USA) (BWH; Hospital 1) and Leiden University Medical Center (Leiden, the Netherlands) (LUMC; Hospital 2). Both departments have a long tradition of surgical M&M and seek to continuously improve their practice, but have different formats which allows for comparison and exchange of practices. Just as surgical M&M practice is thought to have emerged in the early 20th century in the United States,² so too it is considered common practice in the Netherlands for over a century. In prior publications, both departments have described specific aspects of their practices, such as special M&M conferences at the beginning of the curriculum at BWH¹⁴ and routine doctor-driven adverse outcome reporting used for M&M at LUMC since 1997.¹⁵ Both the ACGME and the Dutch Central College of Medical Specialists mandate residency programs to organize M&M conferences.^{16,17} Although the institutions are of similar size (BWH: 793 beds; LUMC: 882 beds), the BWH Department of Surgery includes more and larger-sized surgical divisions that participate in the surgical M&M (Appendix A).

For the qualitative part of this study, M&M conferences were observed by a single observer at both sites, which resulted in written descriptions that were presented to local M&M leaders for verification. Observations were guided by

key elements of M&M practice identified through review of the literature and preceding interviews with involved clinicians at both centers. To quantitatively assess expectations and experiences of M&M, identical anonymous surveys (Table 1) were distributed at both sites. At Hospital 1, printed surveys were distributed, after verbal instructions, among all participants ($n = 80$) at a regular surgical M&M conference without prior announcements. Surgical attendings, residents, and physician assistants of Hospital 2 ($n = 55$) were invited per e-mail to fill out the survey online (SurveyMonkey; in Dutch) and reminders were sent after 1 and 2 weeks. Survey design was based on the observations and key elements found in the literature and included 6 statements covering the 3 domains of M&M practice: goals (focus of M&M⁷), structure (mandatory presence^{6,12}), and process/content (blame-free environment^{2,8} and changes to individual practices^{8,18}). Expectations and experiences were measured on 5-point Likert scales (0-4), ranging from "strongly disagree" to "strongly agree" and "never ($\pm 0\%$)" to "every time ($\pm 100\%$)" (Table 1). A 5-point scale was used to provide respondents with a neutral response category (2), but also with more gradations of (dis)agreement (0 and 1; 3, and 4), to prevent tendencies to overselect the center of the scale to avoid voicing extreme opinions (central tendency bias), or tendencies to disproportionately select extreme categories (extreme response styles).¹⁹ Two open-ended questions asked participants to identify a key factor of success of their conference and to suggest an idea most likely to improve its quality. Ethical approval was obtained from the Institutional Review Board (#2016P001807) in the American hospital, and was not required for this type of study under Dutch law.

Analyses

Characteristics of local M&M practices were compared across the 3 domains (i.e., goals, structure, and process/content).⁵⁻⁷ Positive and negative response categories for expectations and experiences were clustered (i.e., 0 and 1; 3 and 4) without changing the valence (i.e., negative, neutral, or positive) to allow for statistical comparison. This resulted in 3-point scales for expectations (1: [strongly] disagree; 2: neutral; 3: [strongly] agree) and experiences (1: [less than] rarely; 2: sometimes; 3: [more than] often), which were also used to visualize the survey data. Proportions of participants reporting to expect (i.e., [strongly] agree) and experience (i.e. [more than] often) were compared per statement using McNemar's test for paired data (i.e., % expected vs % experienced). Missing values were excluded. A statistically significant difference between expectations and experiences reported for a statement *within* a hospital, was defined as an unmet expectation. Responses of attendings were compared with those of others using the Chi-square test or Fisher's exact test if expected count was

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