

Modification of the Surgical Morbidity and Mortality Meetings as a Tool to Improve Patient Safety

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The recognition of the inevitability of errors in fields such as aviation, nuclear technology, electronics and pharmaceutical industries has been followed by impressive quality improvement and error reduction since the turn of the last century.^{1,2} In surgery, the incorporation of this concept has been slow despite the increased attention of the public, media and professional groups. These groups believe that encouraging the reporting and study of errors will lead to system improvements and a safer healthcare.^{1,3} Openness to discussion and study of errors with an understanding that errors must be accepted as evidence of systems flaws and not character flaws has consistently been central to their message.^{1,3}

The morbidity and mortality meeting also referred to as the golden hour of surgical education, is one of surgery's most important forums for discussion of adverse events and errors.^{4,5} It is a required component of training under the regulations of postgraduate residency programs in surgery.^{1,2,4,5} Typically, the resident presents the patient's clinical course and the rationale for the care provided. These decisions are then criticized by the experienced senior surgeons in attendance and any perceived errors in patient care are highlighted.⁶ This format uses as its primary premise that residents learn from their mistakes and through this education, the subsequent quality of patient care is improved.^{4,6,7}

However, despite its recognized educational value, the morbidity and mortality meeting as it exists in many institutions is grossly inadequate to justify its traditional and on going role in surgical quality control and patient safety.^{1,2,4-8} Critical issues of patient safety are discussed but the essential safety lessons that is important to the education of the resident are often glossed over or ignored. Against a background of requirements on the need to ensure quality education for residents and an increasing public demand for improvements in patient safety, there is an urgent need to modify the morbidity and mortality meeting as it is a powerful tool to teach safety lessons from real-life cases and to make those lessons into a living curriculum.⁸

Ernest Amory Codman, a surgeon at the Massachusetts General Hospital in the early 1900s, developed an "End Results" system in which detailed patient history and clinical outcomes were documented, adverse events were systematically reviewed and their causative errors categorized.⁵ Similarly the Clinical Pathologic

Conference of the early 1900s made correlations between clinical presentation and findings at autopsy as basis for surgical education by relating the findings at autopsy retrospectively to the patient's premorbid symptoms and hospital course. It also encouraged the assessment of the effectiveness of any treatment including surgical procedures and was thus a foundation for error analysis and patient safety.⁹ Both the End result system and the pathology-based conference are the forerunners of the surgical morbidity and mortality meetings of today.⁶

The format of the meeting varies and in most institutions and there are no specific guidelines for the content as the rules and conduct have been passed from one generation of consultant, residents and medical students to the next.¹⁰⁻¹²

However, the recent worldwide proliferation of healthcare delivery improvement initiatives underscores the need to reassess the existing metrics of surgical morbidity and mortality meetings.^{13,14} Miller et al. observed limitations in the morbidity and mortality meeting as a comprehensive mechanism for reporting, monitoring and responding to surgery and its complications. They suggest that it maybe hindered by several shortcomings that manifests as an asymmetrical focus on the activities of the surgeon rather than systems of care, residents and consultants ambiguity regarding the primary goals of the meeting and underreporting of complications which creates an environment of defensiveness and blame.¹⁵⁻¹⁸ Pierluissi and colleagues concurred by noting that the discussion of errors at the morbidity and mortality meeting tends to be implicit rather than explicit, thus limiting the open discussion that should facilitate subsequent reporting of adverse events and errors and in turn improve patient safety.¹¹

It is logical to assume that if a resident is exposed to a complication or error in an educationally meaningful manner early in his career, he will be less likely to create that complication as his career progresses. Moreover, if that complication arises, he will be more likely to detect it earlier and to treat it more effectively.^{5,8} This will ensure that residents are developing into competent surgeons and professionals in core competencies of patient care, pathology and surgery, interpersonal and communication skills, and systems-based practice.^{19,20} Methods to teach these have proven to be challenging for medical educators and attempts to integrate them into existing educational formats have not been too successful.²¹ Based on recent literature, the Morbidity and Mortality Conference may be an essential tool in implementing these core competency skills.^{4,5,9,11,12} Dr. Leo Gordon has described specific

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and elaborate procedures for enhancing the educational value of the morbidity and mortality meeting as a curriculum in patient safety. His modification known as the morbidity and mortality matrix involves specific recommendations for case selection, preparation, a moderator role in the conference, presentation content, communication and discussion.^{8,21} Modifications such as this have been associated with greater conference attendance, participation and changes in perceptions of the value of the morbidity and mortality meeting.^{5,6,10,22,23} The evolution of a paradigm shift in the morbidity and mortality meeting is summarized in Table 1.

Table 1: Evolution of paradigm shift in morbidity and mortality meeting.

Old Paradigm	New Paradigm
Forum for discussion of adverse events and errors	Patient safety tool for error reduction and a platform for improving surgical practice
Primary premise: education by analysis of errors and through this quality of patient care is improved	Primary premise: emphasis on teaching safety lessons from real-life cases and to make these a living curriculum
Under appreciation of the need for specific guidelines for the content and conduct of the meeting	Concept of morbidity and mortality matrix
Selective discussion of adverse events and errors	Hypothesis that all errors and adverse events are treasures that must be discussed to create a culture of safety
Critical issues of patient care are discussed but the essential safety lessons that is important to the education of the resident are often glossed over or ignored	Review of adverse events in a multidisciplinary group setting with analysis and feedback provided by multiple experts
Asymmetrical focus on the activities of the surgeon which creates an environment of defensiveness and blame	Appreciation of systems of care and the need to develop professionals in core competencies of patient care, communication skills and systems-based practice

The perceived improvement in attendance and participation is significant and can be attributed to several of the changes made. Changing the time of the conference to the early morning when minds are freshest and before the other activities of the day begin limits the excuses for being late or absent and indicates the departmental priority placed on the meeting.¹⁰ The conference

has a designated moderator who directs questions to the residents and consultants appropriately instead of passively awaiting a discussion. A review of the case by the resident and unit consultant is encouraged and he/she should also be present and be prepared to comment on the facts and surgical decisions surrounding the case. In general, the consultants will make contributions and comment in a manner that is stimulating and encourage others to consider lessons learned from the case to avoid similar problems in the future.^{6,8,24,25} The mini-grand rounds style of the traditional morbidity and mortality meeting is abandoned, more cases are presented in the allotted time, permitting more discussion and posing of questions to the residents. The resident is the focus of attention and is considered to be "on a plane with every surgeon in the room."^{1,23-26} This implies that the facts of the case should always be reviewed completely, the laboratory studies must be obtained, appropriate radiological investigations should be selected for presentation and the literature as it relates to the case should be reviewed for presentation.^{5,8,10,23}

Following the implementation of the modified morbidity and mortality meeting in most institutions, the general impression is that complications are more often than previously thought, the result of delays in decision processes or failure to appropriately analyze preoperative risk factors in elective cases.^{18,21} Risucci and colleagues in their survey of residents and consultants found that clinical signs (tachypnea, tachycardia, increased blood urea nitrogen and decreased hematocrit) were perceived as insignificant rather than triggers for investigation or intervention. Consequently, the sentinel complication (e.g., leaking anastomosis or postoperative hematoma) was diagnosed and treated in an untimely and inappropriate manner, with devastating consequences. They are of the opinion that the modified morbidity and mortality meeting facilitates a much more detailed description and analysis of a patient's entire clinical course, enabling participants to appreciate that in many instances, the true cause of a complication can be traced back to the preoperative period, where deficiencies in case selection, patient optimization, or diagnosis often predispose patients to complications that occur intraoperatively or postoperatively.^{5,6,18,21} This may account for the observation that complications presented during the modified morbidity and mortality meeting were more often attributed to the preoperative period and less often to the postoperative period compared to cases presented prior to modification of the conference. Furthermore, participants were more likely during the modified morbidity and mortality meeting to identify the need for specific future preventive actions, especially those related to preoperative judgment and management.^{6,8,21}

In the past, many morbidity and mortality conferences had as a central feature the discussion of culpability and the acceptance of blame by the responsible unit and surgeon.⁶ The discussion and analysis of error as an aspect of personal failure is thought to be a potent stimulus for education. However the recent emphasis on correcting adverse events is not through any assessment of blame or personal culpability. Thus, the accusations of error and the

accompanying blame festival that was once a tradition of many meetings may be outdated.^{5,8,11,19} Instead, a focused discussion based on factors within the system of clinical care predisposing to a given error and how these can be corrected for future error prevention may be of increasing importance.^{6,10,12,14} It is part of human nature to be reluctant to reveal one's mistakes. A study of interns and residents in surgery reports that amongst residents who admitted to making a serious mistake, only 54% let their consultants know about it. Deep psychological reasons are likely explanations for these behaviors, including feelings of denial, infallibility and fear.^{1,24} Hasan and Brown reported improvement in quality of care derived from a modified morbidity and mortality meeting in gastroenterology.²⁷ They used a highly structured meeting as a means of monitoring patient care and enhancing trainee education.^{4,7,10} Major features of the conference format are critical analysis of individual complications and a systematic comparison of complication rates with published or accepted rates.²⁷ With appropriate modification, it is conceivable that the morbidity and mortality meeting in surgery can systematically reduce the incidence of errors, promote patient safety and ensure optimal outcome in patient care.

In the new world of unrelenting surgical evolution, there is an urgent need to engage with postgraduate surgery program coordinators to reexamine the traditional morbidity and mortality meeting. There is a paradigm shift and the platform for improving surgical care with a heightened sensitivity to improve patient safety is the modified morbidity and mortality meeting.

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