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Use of structured presentation formatting and NSQIP guidelines improves quality of Surgical Morbidity and Mortality Conference

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ABSTRACT

Background: Surgical Morbidity and Mortality (M&M) conference lacks a standardized structure across institutions. We compared implementation of structure and National Surgical Quality Improvement Program's (NSQIP) definitions to organize our M&M and identify cases for discussion *versus* the usually used method at many centers of case identification by an attending surgeon or resident.

Methods and Materials: A prospective study was performed, over a 10-wk period, to compare the identification of adverse events and the educational value of our M&M conference before and after implementation of structured NSQIP-defined presentations. Chart review was performed by a trained surgical clinical reviewer and trained NSQIP resident of all cases over the study period to identify NSQIP-defined occurrences. All presented M&Ms were evaluated for adequate reporting of adverse events and areas for improvement on a three-point scale. Surveys were administered before and after intervention to assess educational value to resident and faculty on a five-point Likert scale. Survey and presentation data were compared using Student's *t*-tests. *P*-values <0.05 were considered significant.

Results: Before intervention, 15% of NSQIP-defined occurrences were identified compared with 81% after intervention ($P < 0.01$). Thirty-three percent of deaths (1 of 3) before intervention were identified *versus* 100% (4 of 4) identified after intervention. Surveys obtained from faculty, residents, and students of individual presentations found improved clarity and educational content in cases presented (2.6-2.8) and improved identification of etiology (2.5-2.8), learning points (2.1-2.7), and opportunities for prevention of future adverse events (2.1-2.6) (all $P < 0.01$). Residents and faculty overall found that the postintervention model better identified adverse events (3.0-3.7, $P = 0.02$), opportunities for prevention (2.8-3.3, $P = .04$), and promoted improved transparency (2.9-3.8, $P < 0.01$). Eighty-five percent of participants supported the changes in M&M conference.

Conclusions: Incorporation of a clearly defined structure using NSQIP definitions for morbidity and identification of every mortality in our M&M conference standardized identification of adverse events thus improving conference quality. Consideration of the use of this structure should be given to other surgical departmental M&Ms.

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Introduction

The Surgical Morbidity and Mortality (M&M) conference is a collaborative peer review process viewed as an essential aspect of institutional quality improvement (QI) and surgical education in training programs across the United States. While the Accreditation Council for Graduate Medical Education mandates a weekly M&M or QI conference,[1] the approach and format of this conference lie at the discretion of individual programs. National survey data have demonstrated a wide variation in what surgical complications are presented, how deaths are reviewed, and opinions regarding how discussions for prevention of future occurrences should be conducted.[2] While the benefits and value of an M&M conference are clearly evident,[2] no universal structure has been implemented in surgical training programs across the United States despite an increased emphasis on quality and safety in surgical health care. Investigators have sought to improve the surgical M&M by incorporating a structured presentation and analysis of complications.[3,4] Using this approach, studies demonstrated improved educational outcomes based on preintervention and postintervention surveys at both the attending and resident level. While structuring presentations streamlines learning potential in the conference setting, this approach does not identify which cases should be chosen for presentation.

The American College of Surgeons and National Surgical Quality Improvement Program (NSQIP) have significantly contributed to surgical QI efforts in health care. On a systems level, hospital participation in NSQIP is associated with reduction in adverse postoperative events over time[5] and substantial cost saving.[6] The implementation of resident NSQIP-based QI projects has demonstrated improvement in clinical quality metrics.[7] In addition, NSQIP can provide personalized trainee outcomes reports to expose trainees to hospital QI efforts. The increasing presence of NSQIP in surgical training creates an opportunity for the integration of NSQIP in the Surgical M&M Conference. Traditional M&M reporting systems have been shown to grossly underreport actual occurrences as compared to NSQIP definitions,[8] and subsequent studies integrating NSQIP definitions into the surgical M&M conference have documented substantial improvement in the accuracy of reported complications.[9,10]

In this study, we hypothesize that structured presentations with the utilization of NSQIP definitions to guide case discussion within the surgical M&M conference will increase reporting of complications, improve presentation of cases, and better identify areas for overall improvement, thus improving overall quality of the conference.

Materials and methods

A prospective study was performed to compare the identification of adverse events and the quality and value of our M&M conference following implementation of structured presentations and NSQIP definitions for morbidity and identification of every mortality. The George Washington Institutional Review Board approved this study. During the initial 5-wk control period, the traditional Surgical M&M Conference at our institution was evaluated. This consisted of a weekly hour-long conference presented by the senior-most resident of each service. All cases from the prior week were listed, and morbidities and mortalities were identified for presentation and discussion at the discretion of the senior-most surgical resident on service in discussion with the involved faculty. Major complications including deaths, returns to the operating room, and technical surgical complications were generally expected to be presented; however, no defined structure for presentation or definitive identification of occurrences existed before intervention.

Following the initial 5-wk control period, the intervention phase was initiated. All presenting residents were trained on the NSQIP definitions for adverse events and provided a definition hand out detailing all relevant NSQIP definitions (Table 1). In M&M conference, residents were expected to list M&Ms according to NSQIP-defined occurrences in a standardized chart format (Appendix A). Presenting residents were also provided a format for presentation to highlight complication etiology and identification of learning points. Following this education period, all M&Ms were identified and presented per NSQIP criteria by presenting residents. Faculty and nonpresenting residents were not informed of the change in identification of adverse events or format of presentation.

Table 1 – NSQIP-defined surgical 30-d occurrences used in postintervention surgical M&M.

Adverse event	Definition
Wound complication	Superficial incisional surgical site infection
	Deep incisional surgical site infection
	Organ space surgical site infection
	Wound disruption
Respiratory complication	Pneumonia
	Postop unplanned reintubation
	Pulmonary embolism
	On ventilator >48 h
Renal complication	Urinary tract infection
	Acute renal failure
	New dialysis
CNS occurrences	Cerebrovascular event/stroke
Cardiac occurrences	Intraop or postop cardiac arrest requiring CPR
	Intraop or postop myocardial infarction
Other occurrences	Transfusion intraop or postop (within 72 h of OR)
	Venous thrombus requiring therapy
	Clostridium difficile infection
Unplanned return to the OR	
Readmission	
Death	

CNS = central nervous system; CPR = cardiopulmonary resuscitation; OR = operating room.