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Introducing a Morbidity and Mortality Conference in Rwanda☆,☆☆

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OBJECTIVES: To assess the structure, format, and educational features of a morbidity and mortality (M&M) conference in Rwanda.
To determine factors associated with adverse events and to define opportunities for improvement.

DESIGN: Retrospective, descriptive study of all cases presented at a surgical M&M conference over a 1-year period. Cases were reviewed for factors associated with adverse events and opportunities for improvement. Factors were characterized as delays in presentation, delays in diagnosis, delays in the operating room, errors in judgment, technical errors, advanced disease, and missing resources or malnutrition. Opportunities for improvement were categorized at the physician or hospital level.

SETTING: University Teaching Hospital of Kigali, a tertiary referral hospital in Rwanda.

PARTICIPANTS: Cases presented at the surgical M&M conference over a 1-year period.

RESULTS: Over a 1-year period, there were a total of 2231 operations with 131 in-hospital mortalities. There were 62 patients discussed at M&M conference. Of those discussed, there were 34 (55%) in-hospital deaths and 32 (52%) unplanned reoperations. Common diagnostic categories included 30 (48%) gastrointestinal, 15 (24%) trauma, and 10 (16%) neoplasm.
Delays were commonly cited factors affecting outcomes. There were 22 (35%) delays in presentation, 23 (37%) delays in diagnosis or management, and 20 (32%) delays to the operating room. Errors in judgment occurred in 15 (24%) cases and technical errors occurred in 18 (29%) cases. Twenty-three (37%) patients had a critical resource missing and 17 (27%) patients had advanced disease. Malnutrition was associated with 11 (18%) adverse events. Participants identified opportunities for improvement in 48 (77%) cases.

CONCLUSION: M&M conference can be used in a low-resource setting as an educational tool to address core competencies of practice-based learning and improvement and systems-based practice. It can define factors associated with surgical adverse events and opportunities for improvement at the physician and hospital levels. (J Surg Ed ■:■■■-■■■. © 2017 Association of Program Directors in Surgery. Published by Elsevier Inc. All rights reserved.)

KEY WORDS: Rwanda, morbidity, hospital mortality, hospitals, teaching

COMPETENCIES: Practice-based Learning and Improvement, Systems-based Practice

INTRODUCTION

There has been a growing recognition of the need for surgical care around the world and with this has come the expansion of surgical services and training programs.[1] Rwanda is a low-income country with a surgical residency program that began in 2005.[2] The residency program expanded in 2012, more than doubling the number of surgical trainees in a single year, with faculty supported through the Rwanda Human Resources for Health Program.[3,4]

In the 2014 to 2015 academic year, there were 24 general surgical residents in the University of Rwanda surgical residency program. Residents rotate at 4 different teaching and referral hospitals in Rwanda with approximately half of all surgical residents at University Teaching Hospital of Kigali (Centre Hopitalier Universitaire de Kigali, CHUK) at any given time. CHUK is a 565-bed teaching and tertiary

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referral hospital in Kigali, Rwanda, with the department of surgery accounting for 25% of all hospital admissions.

With a greater number of faculty and residents, the educational program expanded, focusing on improving the quality of surgical education in Rwanda. Adverse events can add to an already heavy burden of disease and have been shown to increase the cost of medical care.[5,6] Approximately two-thirds of all adverse events are suspected to occur in low- and middle-income countries (LMICs).[7] There is a limited amount of data regarding rates and factors associated with adverse events in low-resource settings.[8] The postoperative mortality rate is one measure of outcome that is relatively easy to collect in low-resource settings.[9] Although the postoperative mortality rate provides information regarding the rate of complications, it does not describe factors affecting these outcomes.

Morbidity and mortality (M&M) conferences are one mechanism through which adverse events can be analyzed. In 2012, an M&M conference was introduced at CHUK. The primary attendees of the conference were surgical faculty, residents, and students. Through this conference, attendees discuss adverse events occurring in operative patients and potential factors contributing to these adverse outcomes. M&M conferences are found in numerous teaching institutions around the world and provide a venue for surgical trainers and trainees to discuss adverse events and factors influencing surgical outcomes.[8,10,11] The goals of the conference were to provide an educational venue to promote a broad range of competencies, stimulating critical thinking and self-reflection in surgical trainees. In addition, the M&M conference provided a forum for participants to discuss opportunities for improvement both at an individual level and at a hospital level. The M&M conference has been shown to be a useful quality improvement tool comparable to other quality improvement programs.[12-14] Based on comments from M&M participants, quality improvement and systems-based changes can be implemented, resulting in improved patient safety and outcomes.[15]

This study assesses the implementation of a surgical M&M conference at a tertiary referral hospital in Rwanda, illustrating common factors associated with surgical adverse events in Rwanda and defining opportunities for improvement at the physician and hospital levels. A critical review of the M&M conference can guide improvements in the conference and improve the educational aspect of the training program. In addition, an understanding of common factors associated with adverse events can provide opportunities for improvement in surgical care and management.

MATERIALS AND METHODS

This is a retrospective, descriptive study of all cases discussed at a weekly surgical M&M conference over a 1-year period (March 2014-Feb 2015). Conferences were held weekly, with 1 to 4 cases discussed at each meeting.

Case selection was determined by surgical faculty, with input from surgical trainees. Surgical staff and trainees regularly reported all cases of M&M on a white board. Mortality was also assessed through evaluation of ward and operative logbooks. Ward and operative logbooks did not collect data on other complications. Surgical residents entered this data into an Excel-based operative database.[16,17] From this list, cases were selected for the weekly M&M conference. Each surgical team aimed to present 1 case each week. Case selection was determined based on which cases were thought to have the greatest teaching points. Other factors included in case selection included worst outcomes and preventable errors.

Data were extracted from notes compiled during the conference, as summarized by a participating faculty member. There was no identifying information discussed at the conference or recorded in the notes. Data collected included age and Gender of the patient, operation performed, outcomes, factors related to the adverse event, and opportunities for improvement. Adverse events were defined as either an unplanned reoperation or in-hospital mortality. Other adverse events were considered, however, these are difficult to track and identify at this hospital. As a result, the cases presented at M&M conference are predominantly cases of unplanned reoperation or in-hospital mortality. Residents and faculty present at the M&M conference discussed factors related to the adverse event and opportunities for improvement. The study team subsequently categorized these.

Diagnoses were grouped into categories including trauma, infections, gastrointestinal, neoplasms, congenital abnormalities, and other. Trauma included cases of blunt and penetrating injuries. Infections included cases of necrotizing soft tissue infections and wet gangrene. Gastrointestinal diagnoses included peptic ulcer disease, appendicitis, typhoid intestinal perforation, and intestinal obstruction. Neoplasms included suspected tumors and cancers. All diagnoses were based on clinical and operative findings as histopathology were rarely available.

The primary end point was factors associated with adverse events presented at the M&M conference. The secondary end point was opportunities for improvement.

As an educational tool, identification of factors related to adverse events and defining opportunities for improvements emphasize the core competencies of practice-based learning and improvement and systems-based practice.

Factors related to adverse events were characterized as delay in presentation, delay in diagnosis or management decisions, delays in operating room (OR), error in judgment, technical error, advanced disease, missing resources, or poor nutrition. Delays in presentation included patients delaying at home, consulting a traditional healer before referral in the health center, delay at the district hospital, and trauma cases that presented more than 6 hours after