There's an App for That! How Mobile Technology Changes Reporting of Morbidity and Mortality

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Purpose: Morbidity and mortality (M&M) conferences are critical to medical education and have been mandated by the Accreditation Council for Graduate Medical Education (ACGME) in surgical programs since 1983. Despite the patient safety improvements and educational benefits of these conferences, many adverse events are underreported. The objective of this project was to compare the reporting of adverse events before and after the dissemination of a HIPAA (Health Insurance Portability and Accountability Act)-compliant mobile M&M reporting application.

Methods: An anonymous, web-based, HIPAA-compliant, M&M reporting mobile application based on REDCap (Research Electronic Data Capture) was instituted in August of 2017. The list of possible complications was based on the ABOS (American Board of Orthopaedic Surgery) complication list for part II. The interface is accessible through all mobile platforms and all residents were encouraged to use the app for real-time reporting of complications. Prior to its use, M&Ms were reported in response to a monthly e-mail reminder. Using an unpaired t-test, we compared reporting before and after the implementation of the mobile application.

Results: All reported events were tallied from August 2016 through July 2018. Prior to the implementation of the application, there were 54 adverse events reported, with a mean of 4.0 per month. After launch of the app, a total of 176 adverse events were reported over this period, with a mean of 14.67 events per month. In an unpaired t-test comparison, there was a statistically significant difference in events reported with $P < 0.0001$. Additionally, adverse events such as death, reoperation, pulmonary embolus, cardiac arrest, and reintubation were categorized as either major or minor. Before the implementation of the application, 31/54 (57%) were major events. After the implementation of the application, 104/176 (59%) were major events.

Conclusion: An anonymous mobile reporting method for M&M significantly increased the reporting of both major and minor complications. This suggests that traditional methods of M&M reporting may grossly underestimate complication rates that can negatively impact patient safety and quality improvement efforts. Further research is needed to determine if an anonymous mobile reporting app can improve patient safety.