

Evaluating Safety of Handoffs Between Anesthesia Care Providers

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ABSTRACT

Background: Anesthesia care providers frequently exchange care of patients among one another. This daily process of information exchange could be a potential source for adverse events.

Objectives: Our objectives were to determine if the current handoff system is ineffective and if more standardized methods available for the exchange of patient information could improve the effectiveness of handoffs.

Methods: We distributed a survey to all anesthesia staff, residents, and nurse anesthetists. The survey queried the following: handoff adequacy, location for best handoff, method for best handoff, and need for inclusion in the electronic medical record.

Results: We received 80 completed initial surveys from anesthesia staff, residents, and nurse anesthetists. Of those surveyed, 20% found the existing handoff process inadequate. Most reported both giving and receiving a poor or incomplete handoff within the previous year (84% and 57%, respectively), and 25% related an adverse outcome to a poor handoff. An overwhelming majority, 89%, felt that standardization of this process could improve patient care; 68% reported that ideal handoffs would occur in the record, as well as in person; and 62% believed that handoffs should be incorporated into the electronic medical record.

Conclusions: These data will be used to improve the method of the patient care handoff and have assisted us in devising techniques that can be incorporated into daily practice,

advancing the safety of handoffs and decreasing complications. A handoff screen has been included on the electronic anesthesia record, encouraging a more formalized procedure for handoffs, thereby promoting patient safety.

INTRODUCTION

Patient transfer of care occurs frequently among anesthesia providers. Prior to 3:00 pm at our institution, transfer of care between anesthesia providers usually occurs at least 5 times per operating room. As inevitable as transfer of care may be, this daily process of information exchange could be a potential source for adverse events. The Joint Commission (formerly known as the Joint Commission on Accreditation of Healthcare Organizations) report *Root Causes of Anesthesia-Related Events*¹ identified communication errors as the leading root cause of anesthesia-related sentinel events.

In recognition, our department implemented a mandatory handoff protocol within our electronic anesthesia record. Anesthesia providers should complete this handoff protocol prior to transferring the care of a patient to another anesthesia care provider.

We asked ourselves if this standardized handoff protocol would improve the adequacy of the transfer of care as well as patient safety. In response, we developed a clinical study analyzing the departmental response to implementation of our handoff protocol. We distributed surveys both before and after incorporation of the new electronic handoff protocol. Analysis of these data identified any perceived changes in errors associated with anesthesia handoffs. The surveys also assessed perceived changes in anesthesia-related complications and patient safety. Our hypothesis was that a comparison of surveys would demonstrate perceived improvements in handoff adequacy and patient safety after implementation of the electronic handoff protocol.

METHODS

Anesthesia care providers in our department—staff, residents, and nurse anesthetists—completed surveys prior to implementation of the electronic handoff protocol. The paper surveys contained nine

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questions regarding delivery/receipt of a poor handoff in the past, the need for standardization of the handoff, and any adverse outcomes that could be linked to an inadequate handoff. The resident tallied the results, and the clinical research coordinator calculated them. After the implementation, only residents who had used the electronic handoff protocol received a pilot survey. The surveys asked the following: method and location for best handoff, handoff adequacy before and after implementation of the handoff protocol, and perceived changes in patient safety and incidence of complications after inclusion of the handoff protocol in the electronic medical record. Anesthesia care providers examined adoption of the protocol by retrieving completed handoff protocols from our electronic data recording system.

RESULTS

We received 80 completed initial surveys from anesthesia staff, residents, and nurse anesthetists. Of those surveyed, 20% found the existing handoff process to be inadequate. Most reported both giving and receiving a poor or incomplete handoff within the previous year (84% and 57%, respectively), and 25% related an adverse outcome to a poor handoff. An overwhelming majority, 89%, felt that standardization of this process could improve patient care; 68% reported that ideal handoffs would occur in the record, as well as in person; and 62% believed that handoffs should be incorporated into the electronic medical record.

The pilot study involved only residents with experience using the electronic handoff protocol, comprising 13% of the population who had completed the initial survey. According to this follow-up survey, 80% noted that the electronic handoff protocol assisted in providing a more useful and complete handoff. Only 10% reported giving or receiving a poor or incomplete handoff, and none felt that a poor handoff contributed to an adverse outcome. Meanwhile, 80% felt that the electronic handoff protocol has improved patient care.

Overall, handoff protocol adoption among staff anesthesia providers was estimated to be 90%, nurse anesthetists 94%, and residents 66%. These percentages might be slightly lower than expected because of new department members' unfamiliarity with the protocol.

DISCUSSION

Because of the lack of standardization, the ability to carefully deliver pertinent patient information is limited by the communication skills of the anesthesia care provider being relieved. Studies have suggested that handoffs are frequently characterized by communication failures and environmental barriers.^{2,3}

Many highly specialized workplaces and disciplines, such as the National Aeronautics and Space Administration and nuclear power plants, have devised specialized handoffs in order to transmit vital information. Data from these efforts support a standardized method for the information exchange during handoffs.⁴

At the University of California, San Francisco, Vidyarthi⁵ took an in-depth look into the transfer of care in the medicine department. By way of illustrating the complexities inherent in handoffs, one case studied the admission of a patient to the intensive care unit from the emergency department for shortness of breath that involved 9 different care providers and 11 total handoffs in the first 48 hours of the patient's hospital stay. Other studies have shown that communication is the number one cause of sentinel events, wrong-site surgeries, and medication errors.⁵

Medical facilities around the country are looking to address the issue of poor handoffs. A digital handoff process at New York Presbyterian Hospital/Columbia University Medical Center has shown dramatic success in improving workflow during the transfer of patients from the operating room to the intensive care unit. The protocol contains information regarding past medical history, allergies, ease of intubation, drug infusions, blood products, and urine output. The goals for the project are to increase efficiency during transfer as well as to improve communication and outcomes, thereby reducing medical errors.⁶

Once the anesthesia care providers in our department utilize the electronic handoff protocol in more cases, they will all receive a follow-up survey over the next several months.

CONCLUSIONS

A review of the literature points to the necessity of standardization in the handoff process to optimize communication with the ultimate goal of reducing medical errors to improve patient outcomes.

Our study revealed the dissatisfaction many anesthesia care providers at our institution have with nonstandardized handoff methods. Most believed that handoffs should occur both in the record, as well as in person. As a result of these findings, a handoff menu has been included as a mandatory field on the electronic anesthesia record to institute a more formalized procedure for patient transfers, thereby promoting patient safety.

Extrapolating the results from the pilot survey indicates that standardization via the electronic handoff protocol will adequately meet our goals for improving patient safety and decreasing errors associated with handoffs.

Pending data from the department-wide follow-up survey will assist us in devising techniques that can be incorporated into our daily practice to improve the method by which patient handoffs occur. We hope that this improvement, in turn, will decrease the incidence of anesthesia-related complications.

REFERENCES

1. McQueen-Shadfar L, Taekman J. Say what you mean to say: improving patient handoffs in the operating room and beyond. *Simul Healthc*. 2010;5(4):248-253.
2. Groah L. Hand offs—a link to improving patient safety. *AORN J*. 2006;83(1):227-230.
3. Rogers SO Jr, Gawande AA, Kwaan M, et al. Analysis of surgical errors in closed malpractice claims at 4 liability insurers. *Surgery*. 2006;140(1):25-33.
4. Bajaj P. What's new in patient safety and how it will affect your practice. *Indian J Anaesth*. 2007;51(5):363-364.
5. Vidyarthi A. *The Patient Handoff, Opportunities for Improvement. Webinar*. Critical Care Trends: Today and Tomorrow series for AstraZeneca. October 2007.
6. Levitan D. Digital handoff smoothes flow between OR and ICU. *Anesthesiology News*. 2010;36(6):6.

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