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A postoperative visit reveals a significant number of complications undetected in the PACU ☆

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ABSTRACT

Study objective: To determine whether a postoperative visit (POV) detects significant perioperative complications that are undetected in the PACU discharge note (PDN).
Design: Retrospective comparison of PDN and POV notes over a 348 day period.
Setting: PACU and patients' hospital rooms.
Patients: The study population included 15,992 adult surgical inpatients discharged from the PACU directly to their hospital rooms following surgery and had postoperative visits between July 2012 and June 2013. Cardiac, obstetrical and Day Surgery patients were excluded since they had they separate postoperative checks by their respective services.
Interventions: A POV Service performed a POV within 24 h. of PACU discharge on 93% of all eligible inpatients.
Measurements.: Comparison of PDNs and POV notes of patients who had significant complications noted in the POV.
Main results: Excluding PONV, the number of significant perioperative complications noted at the POV was small, 145 out of 15,992 = 0.91%. 100 of these 145 = 69.0%, were not noted in the PDN, meaning that, on the average, 1 in every 160 (15,992/100) patients discharged from the PACU to the nursing floor had a significant complication of some type, either undetected in the PACU or developing within 24 h. Some, such as cardiac, were picked up most of the time in the PACU, whereas others, e.g., postoperative neuropathies, were missed most of the time.
Conclusions: Almost 70% of significant complications detected by a postoperative visit were either missed or not apparent in the PACU.

1. Introduction

Until recently, anesthesiologists routinely made postoperative visits to surgical inpatients on the floor.[1,2] The main purpose of these visits was to detect perioperative complications. In December 2009, The Center for Medicare and Medicaid Services (CMS) changed its regulations and allowed the Post Anesthesia Care Unit (PACU) Discharge Note to serve as an officially authorized surrogate of a postoperative visit in the United States.[2] However, some potentially serious perioperative complications may not manifest themselves in the PACU immediately after surgery or may recur on the floor. To address this problem, the anesthesia department in a large teaching hospital set up a formal Postoperative Visit Service (PVS) whose threefold mission was: (1) to perform a visit on all

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postoperative patients discharged from the PACU to a surgical nursing floor; (2) to report complications on an electronic anesthesia reporting system (EARS), and (3) to notify clinicians about their patients' complications.

The purpose of this study was to determine whether the PACU Discharge Note is a valid substitute for a formal postoperative visit to patients on the floor as a vehicle for detecting perioperative complications. The specific hypothesis was that PACU discharge notes during the study period would miss many of the potentially serious complications noted in the postoperative visits.

2. Materials and methods

To test this hypothesis, we conducted a retrospective study of all the perioperative complications that the PVS reported in the department's electronic anesthesia reporting system (EARS) from July 8, 2012 to June 20, 2013 and compared the complications reported by the PVS in EARS to the patients' PACU discharge note. The study involved all patients who first came to the PACU from the operating room and were then transferred to a nursing floor following PACU discharge. The patient study population comprised a number of surgical specialties (Table 1), representative of those in large general hospitals performing many thousands of procedures in a given year with a variety of surgical and anesthetic techniques. PACU nursing staff members were not briefed to be alert for specific complications, thereby eliminating a potential source of bias. Appendix A outlines the procedure used in the PACU for discharging patients to the nursing floor. Appendix B shows the PACU Discharge Form in use at our institution and the form for recording the postoperative visit.

2.1. Collection of data through the PVS and EARS

Residents rotating on the PVS were instructed to visit all postoperative admitted patients within 24 h following PACU discharge, assess them for complications, and ask them about the items on a standardized checklist. Upon completing the visit, the residents recorded their findings on the postoperative follow-up section of the printed PACU Discharge Note (see Appendices A and B), that combined a checklist with a free-form text field to describe additional types of complications not in the checklist and/or to enlarge upon items noted in the checklist. Because the printed form included both the PACU discharge note and the postoperative visit note, the resident could easily check the PACU discharge note to ask about the status and evolution of issues previously detected in the PACU. After placing the fully completed paper form in the patient's chart, the resident then entered the postoperative data, electronically, into EARS in the hospital computer on each nursing floor.

2.2. Categories of significant complications

The definition of a significant perioperative complication that could be anesthesia-related included one or more of these events: (1) a physical injury, other than a neuropraxic event, such as a lip laceration or corneal abrasion; (2) a neuropraxic event that if untreated, could develop into a long-term debilitating disorder such as a postoperative neuropathy; (3) an adverse physiological or psychological event with the potential to impede, complicate or jeopardize recovery from anesthesia and surgery and/or worsen the patient's physical or emotional status. The EARS database generated listings of patients with significant postoperative complications in 24 different categories (see Table 4). Although the study covered just under one year, the 24 categories of complications were based on data accumulated over the two-year period from the inception of the PVS until the study period began and included all significant perioperative complications that were encountered over this two-year time period.

For one complication, postoperative nausea and vomiting (PONV), we were unable to distinguish whether PONV recorded at the time of the postoperative visit was a recurring or a new event. When the PACU Discharge Note/Postoperative Visit Form was deployed, it did not include an entry for PONV in the PACU, only that PONV was adequately controlled at the time of discharge from the PACU. In addition, we are unable to correlate opiate administration with the PONV, since we did not record whether a patient received PCA or other opiates at the time of the postoperative visit.

2.3. Coding procedure

Initially, the EARS database developer assigned the complications noted by the residents in their postoperative visits to one of the 24 categories (see Table 2). Then, two of the investigators, working independently, compared the entries from the complications recorded in the EARS database against the written form containing both the PACU Discharge Note and the Postoperative Visit Note for each complication (see Appendix B). Each of the two investigators determined whether the complication noted by the PVS in EARS and in the LMR was also noted in the PACU discharge note. Discrepancies between the EARS data, the postoperative note and the PACU discharge note relative to category of complication also were recorded. In a very few cases, the investigators reassigned a complication to a different category. When coders disagreed, they discussed their choices and resolved their differences. When a patient had more than one complication, the complications were analyzed and reported separately. If EARS designated a patient as having a postoperative complication and there was a PACU discharge note but no postoperative note in that patient's chart, the investigators utilized the EARS data entered by the resident.

2.4. Inter-rater reliability

Inter-rater reliability between coders using Cohen's coefficient of agreement for nominal scales was 94%.[3]