



Nonroutine Event Reporting in the Healthcare Setting

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Abstract

Incident reporting has been the gold standard for collecting patient safety data for many years now. What this system fails to do is identify the more commonly occurring events that often go unidentified due to underreporting. A direct consequence of this is that most of the events leading up to a more serious adverse event remain undiscovered. Previous studies used the Comprehensive Open-ended Nonroutine Event Survey, also called CONES, and found that nonroutine events were frequent and found in at least one in twenty patients (Lieberman, 2020). They also found that they captured and identified a wide variety of system failures and were associated with an increased workload for the provider and significant patient physiological disturbances (Lieberman, 2020). The inability of traditional incident reporting to capture lower acuity events fails to explain common reasons for case cancellations and postoperative pain. Together, both events contribute to worsening financial outcomes for the healthcare institution that is directly related to financial loss from the cancellation or increased expenditure from extended hospital stays. The addition of nonroutine event reporting may contribute greatly to process improvements within a system which may then lead to redesigned patient safety protocols and better patient outcomes.

Introduction

The current statistics behind medical errors in the United States are staggering. Studies have shown that an estimated 250,000 deaths a year can be attributed to medical errors (Anderson, 2017). The financial consequences felt by healthcare institutions are substantial and impose a great need for process improvement. Presently, one of the systems designed to tackle this issue involves event reporting and this has become the most frequently used method of capturing safety data. One issue here is that providers typically only report serious adverse events that resulted in considerable patient harm. Nonroutine events, or "near-misses", are rarely reported especially when they did not result in notable patient injury. Nonroutine events can be defined as any event that creates a disruption in the delivery of optimal care (Lieberman, 2020). Since nonroutine events, or NRE's, are not necessarily always associated with immediate or potential harm, these events are inaccurately detected by the current system of event reporting. NRE's often lead to more serious adverse events so their identification has the potential to aid in the improvement of patient safety protocols.

The concept of a nonroutine event first made an appearance in the healthcare setting around fifteen years ago. The concept was designed to note and examine any fluctuation or divergence from standard operating procedures. This idea was adapted to the healthcare setting from nuclear power plants where any nonroutine event, or "near-miss", had the potential to have catastrophic consequences. In the healthcare setting, a nonroutine event can be classified as any facet of healthcare delivery that was perceived by the provider to be a delineation from what was defined to be optimal care for that patient in that specific situation. One of the differences which provide the greatest challenge when comparing the healthcare setting to nuclear power plants is the variability that exists between the patients themselves. Defining "optimal care" therefore becomes a definition that must be redesigned, and tailor-fitted to each patient. The current system of event or incident reporting fails to provide in-depth information regarding issues within a healthcare delivery system as it relates to process design or protocol, technology, or communication oversight. Additionally, nonroutine event reporting completed together with traditional incident reporting, as opposed to incident reporting alone, may help illuminate any conflicting priorities between providers during the perioperative phase.



Methods and Results

In their study, Lieberman, Slagle, Whitney, et al. attempt to not only define but also categorize and highlight the prevalence of nonroutine events during the delivery of anesthesia. Over the span of six years, they collected audio and visual data from 556 cases which were gathered from three separate healthcare institutions. As mentioned before, a nonroutine event was identified as any delineation from the delivery of optimal care. The cases were examined for nonroutine events specifically surrounding the anesthesia provider. Of the 556 cases, 173 nonroutine events were identified from 111 cases. Of the 111 cases, 69.4% were considered to have some impact on the patient and 12.7% were determined to have caused some injury to the patient. Furthermore, among the 111 nonroutine containing cases, 35.1% of them contained more than one recorded event and 14.4% contained three or more nonroutine events. In this study, patient impact was most related to the cardiovascular system, which was closely followed by airway, and finally human factors relating to drug administration or equipment failures. This data becomes paramount in highlighting the prevalence of nonroutine events in the healthcare setting.

An article published by Oken, Rasmussen, Slagle, et al. in *Anesthesiology*, provided the comparison of a Comprehensive Open-ended Nonroutine survey, or CONES, to a hospital's current quality assurance, or QA, process. This comparison was accomplished with the administration of a survey in the post anesthesia care unit and data was captured from both processes over a thirty-month period. CONES was completed for 183 cases and 55 of these cases were noted to contain at least one nonroutine event. The QA process recorded 159 cases with 98.6% of them displaying at least one nonroutine event. While the severity of the outcomes was higher in cases that underwent the QA process, the CONES process was able to capture greater incidences of anesthesia related injury.

Table 3. Contributory Factors in Nonroutine Event-Containing Cases

Contributory Factors	Contributory Factor Subcategories	Count* (% of Total Nonroutine Events, n = 173)
Provider-related factors	Error in judgment	32 (18.5)
	Inadequate knowledge	35 (20.2)
	Inexperience	58 (33.5)
	Interruption or distraction	25 (14.5)
	Preoperative preparation	7 (4.0)
	Stress/workload/fatigue	22 (12.7)
Patient-related factors	Patient preexisting disease	68 (39.3)
	Patient unexpected response	71 (41.0)
Teaching/supervision	Error related to teaching	62 (35.8)
	Inadequate supervision	38 (22.0)
Team factors	Communication	50 (28.9)
	Transfer of care	20 (11.6)
	Other staff action/inaction	2 (1.2)
	Inadequate support	7 (4.0)
	Patient positioning	3 (1.7)
Surgical Factors	Surgical action	28 (16.2)
	Surgical requirement	42 (24.3)
Equipment Factors	Equipment failure	16 (9.2)
	Equipment usability	30 (17.3)
System Issues	Equipment failure	33 (19.1)
	Equipment usability	13 (7.5)
	Policy and procedures	25 (14.5)
	Environmental factors	23 (13.3)
	Logistical/system issues	8 (4.6)
	Environmental factors	5 (2.9)
	Logistical/system issues	13 (7.5)

*Percentages of contributory factors may sum to greater than 100% as each nonroutine event may have multiple contributory factors

Example Outline of Nonroutine Event:

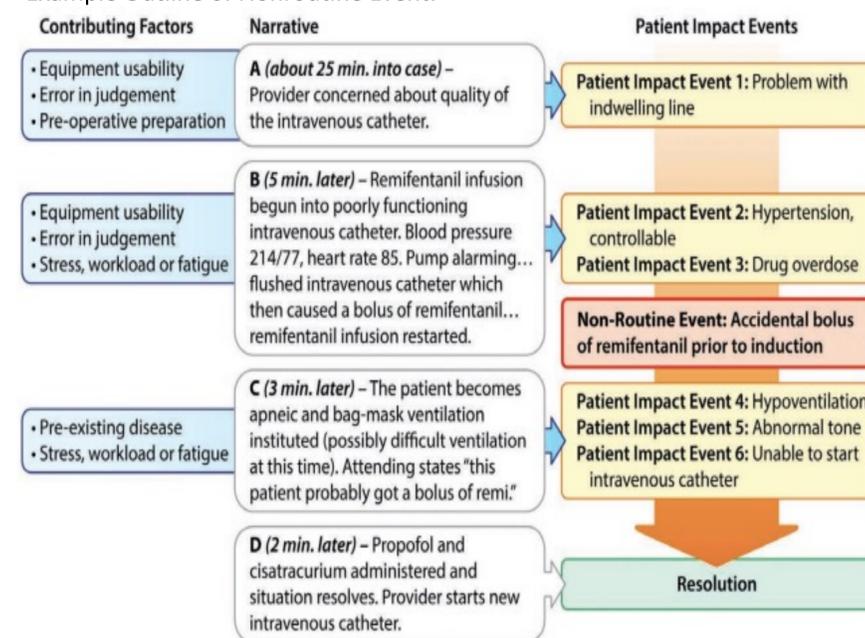


Fig. 2. A selected nonroutine event and its associated detailed description, contributory factors, and patient impact events.

Discussion

This review was prepared with the goal of identifying inadequacies in the preoperative, intraoperative, and postoperative area by identifying any nonroutine events that hold the potential to cause patient harm. By doing so, it may be decided that process improvement can take place and the proper changes will act as preventative measures that ultimately improve patient safety. The Lieberman, Slagle, Whitney, et al. study helped characterize and outline the nature of nonroutine events, and therefor helped illuminate flawed healthcare processes within several institutions. Identifying the moments in which they most commonly exist is of utmost importance and their correction will surely lead to improved patient safety. The CONES process captured a large variety of events as opposed to the QA group because it relied less on self-reporting. CONES was also noted to provide a better representation of the overall surgical patient population while the data gathered from the QA group came from an older patient population. QA systems tend to capture only specific events and fail to capture moments of suboptimal care which also help highlight deficiencies within a healthcare institution. Overall, the CONES process was able to identify a greater number of instances that carried the potential for patient harm.

Conclusions

Many of the challenges that are faced today with identifying nonroutine events lie within the definition of a nonroutine event. The smallest diversions from what is considered standard care can be viewed by some to be insignificant and by others to be the start of a larger issue. Studies and reviews such as this one can easily act as a fine-tuning tool that may be utilized to continuously identify and maybe even redefine nonroutine events. Furthermore, and more importantly, it may be used as a tool that helps us perfect our craft as healthcare providers by allowing us to provide our patients with better and safer methods of healthcare delivery all while improving patient safety.

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