



Featured Article

Safety culture among pediatric surgeons: A national survey of attitudes and perceptions of patient safety[☆]



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ABSTRACT

Purpose: Improving the culture of safety within health care is an essential component of preventing errors and improving overall health care quality. The purpose of this study was to characterize the attitudes and perceptions of patient safety among pediatric surgeons.

Methods: We conducted a cross-sectional online survey of American Pediatric Surgery Association members. Survey items assessed surgeons' knowledge, attitudes, and perceptions of patient safety. We performed descriptive statistics and evaluated associations between respondent characteristics and survey responses.

Results: Response rate was 38% (353/928). Surgeons in academic practice (96% vs 83% private, $P = 0.01$) and in leadership positions (98% vs 92%, $P = 0.03$) were more likely to feel actively engaged in patient safety initiatives. Surgeons in private practice were less likely to feel safe having their own children undergo surgery at their institution (80% vs 96% academic, $P < 0.005$).

Conclusion: Pediatric surgeons have disparate attitudes and perceptions of patient safety within their hospitals. Significant variation exists based on surgeon characteristics. These findings underscore the need to identify barriers to surgeon engagement and develop educational initiatives to empower surgeons as leaders in improving patient safety culture.

Level of evidence: V.

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Over the last 15 years, since the Institute of Medicine published two reports [1,2] highlighting the significant contribution of medical errors to patient morbidity and mortality, there has been a major focus within health care on the elimination of preventable harm to patients. When it comes to the care of surgical patients, surgical “never events” carry a particularly large burden as they often result in significant adverse

outcomes and cost [3]. Focus on prevention of never events in surgery has led to widespread changes in the delivery of surgical care in the United States. Hospitals accredited by the Joint Commission are required to use the Universal Protocol in the operating room, regularly assess safety culture within their hospitals, and create infrastructure to respond to adverse events and understand why they occur to prevent similar future events [4].

Safety culture is a concept that originated in non-health care industries, known as high-reliability organizations. These industries consistently demonstrate the ability to conduct complex and intrinsically hazardous operations with a lower than expected rate of adverse events. These principles have been adopted into health care with challenges to this translation. The Agency for Healthcare Research and Quality describes several key attributes of an organization with a robust safety culture [5]. These attributes include acknowledging the high-risk nature

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of an organization's activities, even with the most routine operations; achieving consistently safe operations through all facets of the organization; exhibiting a blame-free environment that allows individuals of all levels to self-report errors and/or near misses without fear of retribution; encouraging patient safety solutions with collaboration across ranks and disciplines; and committing organizational resources to address safety concerns. Achieving a culture of patient safety within health care requires institutions to become self-identifying organizations that can continually learn from their own experiences. Many pitfalls that hinder the improvement of the culture of safety exist within health care. These complexities include poor teamwork and communication, culture of low expectations, and an authority gradient.

Elements of a culture of safety include establishing safety as an organizational priority, promoting effective teamwork, encouraging patient engagement, providing organizational openness or transparency, and expecting individual accountability [6]. A shared core value system and institutional goals are promoted through education and training. These attributes require strong and committed leadership that promotes engagement and empowerment of all employees. The traditional hierarchical relationships among operating room personnel that are intrinsic to the surgical environment may inhibit a culture that promotes patient safety and teamwork [7]. Surgeons must lead the change to a culture of safety not only in the operating room, but also across all aspects of surgical care. To identify potential education and training interventions aimed at improving safety culture within children's surgery, we designed a survey to understand the knowledge, perceptions, and practice of safety culture among North American pediatric surgeons.

1. Methods

1.1. Survey development

We conducted an online survey of all active members of the American Pediatric Surgery Association (APSA). A subcommittee of the APSA, the Quality and Safety Committee (QSC) designed this study. This group identified generalized themes that centered on the knowledge, attitudes, perceptions, and practice of patient safety. The APSA QSC committee developed and vetted a series of survey questions through an iterative process. The University of Texas Committee for the Protection of Human Subjects granted approval. In this report, we will focus on the survey questions addressing knowledge, attitudes, and perceptions surrounding the culture of patient safety.

In the survey, we collected demographic information, practice setting, and asked surgeons whether they functioned in any formal leadership, education, or safety roles within their hospital. We asked surgeons whether they feel that their primary institution practices safe surgery and if their leaders value safety. We asked questions to assess knowledge about and attitudes toward safety culture, including the use of checklists in the operating room and formal handoffs, of individual surgeons. We also asked open-ended questions about all of these previously mentioned topics to allow surgeons to elaborate beyond the quantitative responses. The survey included patient care scenarios to elicit specific examples of how surgeons function within the safety culture framework of their hospital. The survey was administered online using Survey Monkey (Appendix A). All active APSA members and candidate members were administered the survey. Participation was encouraged with two follow-up reminder emails over a three-week interval.

1.2. Variables and data analysis

Standard frequency analyses for demographic variables and other survey responses were performed. Number of years since graduation from fellowship was analyzed as a continuous variable. Likert scales were dichotomized into agree/strongly agree versus neutral/disagree/

strongly disagree. Chi square/Fisher's exact test was performed as appropriate for categorical variables, and Kruskal Wallis test performed for continuous variables to evaluate associations between respondent characteristics and survey responses regarding knowledge, attitudes, and practice. A P value <0.05 was considered significant.

The qualitative data were analyzed using content analysis to identify themes and enhance understanding of quantitative findings. The content analysis method is a systematic data coding and analysis procedure [8–10]. This method involves the categorization of specific quotes from participants with the use of codes developed iteratively. The codes were used to group the data into representative themes. Four separate reviewers (the manuscript writing committee and an expert in qualitative research) evaluated the qualitative responses and came together to form consensus on the themes that emerged. The quotes presented in this manuscript were chosen because they illustrate the broader themes. These themes do not necessarily represent the opinions of the majority of pediatric surgeons who responded to the survey, but they did surface repeatedly and their interpretation can help shed light on reasons behind the quantitative findings.

2. Results

2.1. Demographics

The survey was administered to 928 APSA members with 353 (38%) responses. The vast majority (87.8%) of respondents reported that they operate primarily at children's hospitals—49.7% freestanding and 38.1% within an adult medical center. Respondents reported working in predominantly academic (65.3%), predominantly private (9.4%), or mixed (25.3%) practices. Most respondents (56.7%) reported holding leadership positions at their institutions, with 43.4% in education and 21.0% in safety positions. The median years since fellowship completion was 13 (range 0–32 years).

2.2. Perception of safety culture at primary hospital

The majority of respondents (93.2%) felt that their administration valued safety among its top priorities, and would feel safe having their children undergo an operation at their institution (92%). The only respondent characteristic that was significantly associated with feeling that "Administration at my institution values safety among their top priorities" was being in a safety position: 100% of those in safety positions agreed with this statement compared with 92% of those not in safety positions ($P = 0.03$). Respondents in academic practice and mixed private practice with academic affiliation were more likely to feel safe having their own children undergo surgery at their institution compared with those in private practice (96% and 90% vs 80%, $P = 0.005$). Respondents who identified as having a position in education were also more likely to feel safe (98% vs 91%, $P = 0.02$). Most respondents (89.2%) felt encouraged by surgeon leaders to report safety concerns.

Although most respondents felt encouraged to report safety concerns, they raised some important potential barriers to reporting in the open-ended comments:

- 1) There is lack of feedback regarding what happens after events are reported.

I am extremely proactive in bringing multiple safety issues to the administrators at various levels with little or no response.

We are encouraged to report events, but rarely get any feedback.

I am encouraged to report safety concerns. I don't believe that much has been done about the safety concerns that I have raised.

- 2) Surgeons do not have time to report safety concerns, nor are they incentivized to report such concerns.

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