



Published in final edited form as:

*JAMA Surg.* 2013 January ; 148(1): 29–35. doi:10.1001/jamasurgery.2013.403.

## SURGEON-REPORTED CONFLICT WITH INTENSIVISTS ABOUT POSTOPERATIVE GOALS OF CARE

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### Abstract

**Objective**—To examine surgeons' experiences of conflict with intensivists and nurses about goals of care for their postoperative patients.

**Design**—Cross-sectional incentivized U.S. mail-based survey.

**Setting**—Private and academic surgical practices.

**Participants**—2,100 vascular, neurological, and cardiothoracic surgeons.

**Main Outcome Measures**—Surgeon-reported rates of conflict with intensivists and nurses about goals of care in patients with poor post-surgical outcomes.

**Results**—The adjusted response rate was 55.6%. Forty-three percent of surgeons report sometimes or always experiencing conflict about postoperative goals of care with intensivists, and 43% report conflict with nurses. Younger surgeons report higher rates of conflict than older surgeons with both intensivists (57 vs. 32%,  $p=0.001$ ) and nurses (48 vs. 33%,  $p=0.001$ ). Surgeons practicing in closed ICUs report more frequent conflict than those practicing in open ICUs (60 vs. 41%  $p=0.005$ ). On multivariate analysis, the odds of reporting conflict with intensivists were 2.5

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This work was presented as a three-minute quick shot presentation at the 7<sup>th</sup> Annual Academic Surgical Congress in Las Vegas, NV, on February 16, 2012.

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**Authors' potential conflicts of interest:** The authors have no potential conflicts of interest to report.

times higher for surgeons with fewer years of experience as compared to their older colleagues (OR: 2.5, 95% CI: 1.6-3.8) and 70% higher for reporting conflict with nurses (OR: 1.7, 95% CI: 1.1-2.6). The odds of reporting conflict with intensivists about goals of postoperative care were 40% lower for surgeons who primarily manage their ICU patients than for those who work in a closed unit (OR: 0.6, 95% CI: 0.4-0.96).

**Conclusions**—Surgeons regularly experience conflict with critical care clinicians about goals of care for patients with poor postoperative outcomes. Higher rates of conflict are associated with less experience and working in a closed ICU.

## INTRODUCTION

Conflict in the intensive care unit (ICU) is a significant public health problem as more than 70% of ICU clinicians report experiencing conflict weekly.<sup>1,2</sup> The combination of caring for acutely ill patients, end-of-life decision making, and coordination of large multidisciplinary teams can lead to frustration, communication breakdown, and discord between members of the healthcare team. The epidemiology of ICU conflict is well-described.<sup>1</sup> This conflict has been associated with lower quality patient care,<sup>3,4</sup> higher rates of medical error,<sup>5</sup> higher levels of staff burnout,<sup>6,7</sup> and greater direct and indirect costs of care.<sup>2,8</sup> ICU conflict can occur between the healthcare team and patients' families, among members of the intensive care team (intra-team conflict), and between different groups of clinicians caring for the same patient (inter-team conflict), most notably between surgeons and intensivists.<sup>1-4,9</sup>

Two primary contributors to ICU conflict are particularly relevant to surgeons: patient-doctor relationships formed prior to the ICU admission and discussions of end-of-life care.<sup>3,4,10</sup> Others have shown that surgeons have a strong sense of personal responsibility for patient outcomes that may influence the surgeon's interaction with critical care clinicians as well as discussions about end-of-life care.<sup>3,10-15</sup> Surgeons are often reluctant to switch goals of care from cure to comfort, particularly in the postoperative period.<sup>3,10,14</sup> Although these sources of conflict have been well described by intensivists, it is unknown whether surgeons appreciate these conflicts.

We examined whether surgeons recognized and reported conflict with intensivists and nurses about goals of care for their patients, specifically in the setting of a poor postoperative outcome. In addition, we explored how often surgeons report conflict with ICU clinicians, as well as surgeon factors associated with such conflict.

## MATERIALS AND METHODS

### Participants

We selected a random sample of neurosurgeons, vascular, and cardiothoracic surgeons. We chose these specialties because they were likely to perform high-risk operations and have patients who frequently require intensive care postoperatively. These subspecialties have relatively homogeneous practices with patient populations that have multiple comorbidities. We excluded other surgeons who routinely care for patients in the intensive care unit in order to avoid specific confounding issues. Trauma surgeons were excluded due to the routine performance of emergency surgery, transplant surgeons were excluded due to their concern for resource allocation and surgical oncologists were excluded due to the heterogeneous nature of surgical oncology whereby surgical oncologists who specialize in breast or endocrine surgery would be unlikely to care for patients in the intensive care unit. We randomly selected participants from the membership lists of the American Association for Neurological Surgery Cerebrovascular Division, regional vascular surgery societies

(Midwestern, New England, Eastern, and Western societies), and the Society for Thoracic Surgery.

We mailed a total of 2100 surveys, 700 to each specialty, via the US Postal Service. The survey packet also contained a stamped addressed return envelope and a laser-pointer pen valued at \$2.85 as an incentive to complete the survey. In March 2010, we mailed the first round of surveys. We sent a second mailing (including a return envelope but no pen-incentive) to non-respondents. Finally, because of a high proportion of non-responders from the neurosurgical group due to incorrect addresses, we mailed a third survey with an additional laser-pointer pen as well as a letter of support from a neurosurgical key opinion leader. Prior to this third mailing, we validated these addresses through an internet search. We could not verify the addresses of 180 members of the original neurosurgical cohort; therefore, we replaced these members with 180 randomly selected new participants. The survey was completed in August 2010.

This study was approved as exempt, including a waiver of written consent, by the Institutional Review Boards of the University of Wisconsin and University of Chicago.

## Survey

We designed a survey to assess surgeon attitudes and practices regarding advanced directives, withdrawal of life-supporting therapies, and decision making surrounding high-risk operations. First, we performed a qualitative study using semi-structured interviews of surgeons and other physicians involved in perioperative care to examine surgeons' attitudes and routines surrounding the use of advanced directives and withdrawal of life supporting therapies postoperatively.<sup>15,16</sup> This study, in addition to work by others, identified conflict between surgeons and ICU clinicians that stems from decisions about the use or withdrawal of life supporting therapies in postoperative patients.<sup>3,4,10,14,15</sup> Using these results, we designed survey questions to explore the validity and generalizability of our qualitative findings to a larger group of surgeons.

To assess the face validity of the survey questions, we performed cognitive interviews with ten surgeons. To avoid interviewing actual survey recipients, the surgeons who were interviewed performed high risk operations routinely (transplant, surgical oncology, and trauma) but were not members of the subspecialties included in the study target population. To inform questionnaire design, we asked respondents to think aloud as they read survey items and explain their interpretation of each item to ensure that the intended focus of the question was clearly understood.<sup>17,18</sup> We incorporated each respondent's input in a step-wise fashion.

Our final survey included items about the surgeons' experiences with conflict during the care of patients who have poor postoperative outcomes. Using a four-point Likert scale of "Never", "Rarely", "Sometimes", or "Always", respondents were asked to rate how often they experienced conflict about the goals of care for their postoperative patients with poor outcomes with critical care physicians, nursing staff, and other groups. In addition, we gathered data on surgeon gender, specialty, number of years in practice, practice setting (academic vs. private practice), number of high-risk procedures per month (defined as procedures having >1% operative mortality or significant morbidity), percentage of patients routinely requiring ICU care postoperatively, and the administrative model for the main ICU where the surgeon practices (open, closed, mixed, or other). We defined an open ICU as a unit where an intensive care physician was primarily responsible for all patients and a closed ICU as a unit where the operative surgeon was primarily responsible for his/her patients. A mixed ICU combines elements of both open and closed unit.

## Statistical Analysis

After removing all surveys that were returned to sender and surveys completed by ineligible respondents (junior residents and non-physicians), an Internet search was used to estimate the percentage of non-respondents due to inaccurate contact information. We used a sample of 60 respondents (20 from each specialty) and 60 non-respondents to estimate the percentage of non-respondents due to faulty contact information. Using the American Association for Public Opinion Research (AAPOR) guidelines, we calculated the adjusted response rate with the following formula:  $\text{Response Rate} = R / [(R) + e(T - R - NE)]$ , where  $R$ =eligible respondents,  $e$ =proportion of non-respondents estimated to be ineligible,  $T$ =total number of surveys, and  $NE$ =ineligible respondents (including return to sender).<sup>19</sup> As a surrogate marker for non-response bias, we looked for evidence of forward response wave bias. To do this, we calculated response time for each survey and identified clusters of early and late responders. Rates of surgeon-reported conflict were compared between the early and late responders.

We defined our primary outcome as surgeon-reported conflict with critical care physicians and with nursing staff. We collapsed the response frame for conflict into dichotomous variables (“Never/Rarely” vs. “Sometimes/Always”). On sensitivity analysis, we found no difference in our outcomes between the collapsed responses and the four point response frame. We performed bivariate analyses using the Chi-squared test. We next developed a multivariate logistic regression model including basic demographic characteristics, such as gender and surgical subspecialty (vascular, cardiothoracic, or neurosurgery); and variables that were significant on bivariate analysis at  $p = 0.1$ , including years in clinical practice, practice type (private, academic, or private with academic affiliation), and ICU administrative model (closed, open, or mixed). Of note, we did not find that ICU administrative model was a statistically significant variable for conflict with nursing staff on bivariate analysis ( $p=0.85$ ), but we included it in our multivariate model of conflict with nursing staff because this was a variable of considerable interest for our explanatory model of ICU conflict. All statistical analyses were performed using SAS version 9.1 (SAS Institute Inc., Cary, NC)

## RESULTS

### Participants

We received completed surveys from 912 respondents, and 203 were returned to sender. The adjusted response rate as calculated by the AAPOR guidelines was 55.6%. There was no significant difference in the rates of reported conflict between early and late responders, suggesting no evidence for forward response wave bias, our surrogate measure for non-response bias.

Survey respondents were evenly distributed with respect to years in practice (Table 1). There were approximately equal proportions of respondents who practiced in an academic versus a private setting. The majority of respondents (57%) described the administrative model for their main ICU as mixed. About one-third of respondents practiced primarily with an open model (32%), whereas a smaller proportion worked in hospitals with a closed ICU model (11%).

### Surgeon-Reported Conflict

Forty-three percent of surgeons reported sometimes or always experiencing conflict with critical care physicians, and a similar percentage (43%) reported sometimes or always experiencing conflict with nursing staff about the goals of postoperative care (Table 2).

Although 50% of our respondents felt that the emphasis on outcome measures such as physician profiling was a challenging aspect of surgical practice, a greater number of surgeons identified the difficulty of managing clinical aspects related to poor outcomes or communicating with patients and their families as a somewhat or very challenging aspect of surgical practice. Moreover, 73% of respondents noted that managing their own discomfort about poor outcomes was a significant challenge (Table 3).

### **Conflict with Critical Care Physicians**

On bivariate analysis (Table 4), surgeons with less than 10 years of experience were significantly more likely than surgeons with greater than 30 years of experience to report conflict with critical care physicians (57 % vs. 32%,  $p<0.0001$ ). In addition, surgeons in academic practices reported significantly more conflict compared to those in private practice (52% vs. 36%  $p=0.0006$ ). Forty-one percent of surgeons practicing in an open ICU and 42% practicing in a mixed ICU reported conflict with critical care doctors, whereas 60% of surgeons practicing within a closed ICU model reported conflict with critical care doctors ( $p=0.005$ ).

On multivariate logistic regression, a strong and statistically significant association persisted between surgeon experience and surgeon-reported conflict with critical care physicians. The odds of surgeons reporting conflict with critical care physicians were 2.5 times higher for surgeons with less than 10 years of experience than for those with more than 30 years of experience (OR 2.5, 95% CI 1.6-3.8). In addition, the odds of surgeons reporting conflict with critical care physicians was 40% lower for surgeons practicing within a mixed or open model of ICU administration compared to those practicing in a closed ICU (mixed: OR 0.6, 95% CI 0.4-0.96, open: OR 0.6, 95% CI 0.4-1.0).

### **Conflict with Nursing Staff**

On bivariate analysis (Table 5) an association between surgeon experience and reported conflict with nurses was demonstrated. Surgeons with less than 10 years of experience were significantly more likely than surgeons who had been in practice for more than 30 years to report conflict with nursing staff regarding goals of care for postoperative patients who had poor post-surgical outcomes (48% vs. 33%,  $p=0.0014$ ). Surgeons in academic settings reported more conflict with ICU nurses than their counterparts in private practice (50% vs. 39%,  $p=0.02$ ). In contrast to the experience of conflict with critical care physicians, the model of ICU administration was not associated with significantly higher rates of conflict with nurses (open: 44%, mixed: 43%, closed 45%,  $p=0.85$ ).

On multivariate analysis, a statistically significant association was found between surgeons' experience and reported rates of conflict with nursing staff. The odds of surgeons reporting conflict with nursing staff was 70% greater in surgeons with less than 10 years of experience compared to surgeons with more than 30 years in practice (OR 1.7, 95% CI 1.1-2.6). The administrative model of ICU care was not associated with increased rates of conflict reported by surgeons with nurses.

## **COMMENTS**

Over 40% of surgeons who routinely perform high-risk operations report conflict with critical care physicians and nurses regarding the goals of care for their patients with poor postoperative outcomes. Surgeons who report higher rates of conflict have fewer years in practice and work in an academic setting. Additionally, surgeons who practice in a closed ICU report higher rates of conflict about the goals of care with critical care physicians, but

not with critical care nurses. These findings have important implications for surgeons, critical care clinicians, and their patients.

For surgeons, these findings suggest that learning how to manage personal discomfort in the setting of a poor operative outcome may take time and experience. Prior work by our group and others has shown that surgeons have a particularly difficult time switching goals of care from cure to comfort postoperatively, especially given the perception of a direct link between the surgeon's performance and the patient's outcome.<sup>11,13,14,20,21</sup> When critical care clinicians, who have had no direct role in the patient's operation, suggest a change in the goals of care from survival to comfort, conflict may ensue. Surgeons with more experience may be more accepting of the limits of surgical therapy and may have developed more robust coping strategies for the inevitable unwanted outcome.

For critical care clinicians, it is important to note that the ICU administrative model can contribute to conflict with surgeons. Surgeons typically have a relationship with their patient that begins preoperatively and extends throughout the patient's recovery. Because of this longitudinal relationship, surgeons see themselves as the primary decision-makers for their postoperative patients. The structure of a closed ICU likely poses a barrier to the continuity of the surgeon-patient relationship and contributes to conflict when the surgeon is replaced as the primary decision-maker for his/her patient by an intensivist.<sup>3,13-15,21</sup> As Cassell and colleagues have noted, intensivists working in a closed ICU are charged with allocation of scarce resources for the good of the entire unit, while surgeons focus primarily on their "covenantal" responsibilities to individual patients.<sup>14</sup> The administrative model of a closed ICU thus promotes conflict with its juxtaposition of clinicians with competing viewpoints.

Patients and their families are likely affected by the conflict that surgeons report with critical care clinicians. This can impact the overall experience of patients and their families in the ICU, with perceived conflict leading to decreased satisfaction with care and increased stress for families.<sup>1-4,9,22,23</sup> Changing the goals of care postoperatively may trigger conflict when those caring for the patient try to determine what is most in line with the patient's preferences. Our findings about surgeon reported conflict with intensivists underscore how important it is for patients to discuss their goals and values with their surgeon and surrogate decision makers preoperatively in order to inform postoperative decisions in the event of an undesired outcome.<sup>15,16,24,25</sup> Patients and their surrogates can be referred to other available resources for conflict adjudication to help guide treatment decisions such as a second opinion from a panel of senior clinicians or the hospital ethics committee.<sup>3,9,13,21,23,26,27</sup>

Our study has several limitations. Survey-based research can be subject to non-response bias, where non-responders differ systematically from responders. However, our response rate was robust, and there was no evidence of forward response wave bias, making the possibility of non-response bias low. Because conflict is not considered acceptable behavior, questions about conflict are subject to social desirability bias. As such, the true rate of conflict might be higher than our respondents reported. This survey also targeted three surgical subspecialties (vascular, cardiothoracic, and neurosurgery) to ensure the respondents routinely care for critically ill patients. It is unclear whether our results are generalizable to other surgical subspecialties.

Our survey did not specifically define the parameters of a "poor postoperative outcome" and so we cannot specify a clinical threshold that may prompt such conflicts. Also, we did not distinguish between closed ICUs run by surgeons versus closed ICUs managed by non-surgeons though this may prove to be an important determinant in rates of surgeon reported conflict.<sup>21,26,28</sup> Finally, although we noted a high rate of surgeon-reported conflict between surgeons and patients' family members, we chose not to focus on this finding here. The

primary focus of our survey was physician practices and as such, we did not generate enough information for a complete discussion of this important topic.

## CONCLUSION

Surgeons frequently experience conflict with critical care physicians and nurses about the goals of care for their postoperative patients with poor outcomes. Higher rates of conflict are reported by surgeons with fewer years of experience and those working in institutions with a closed model of ICU administration. This conflict is a significant public health problem that diminishes quality of care for critically ill patients and their families. Given the myriad challenges inherent in delivering the highest quality of care in these settings, clinicians from all backgrounds should focus on eliminating these inter-team conflicts to allow energies to be spent more productively on other clinical issues affecting safety and quality.

Interventions directed at the individual as well as the system level will be important to mitigate conflict in order to provide better care for our critically ill postoperative patients.

## Acknowledgments

The authors would like to thank Glen Levenson, PhD, in the Department of Surgery at the University of Wisconsin-Madison, for his invaluable help with statistical analyses as well as Ann Chodara at the University of Wisconsin School of Medicine and Public Health for her assistance with data collection and management. Dr. Schwarze had full access to all data in this study and takes responsibility for the integrity of the data and accuracy of the data analysis.

**Authors' Sources of Support:** Dr. Paul Olson is supported by the National Institutes of Health (T32 CA090217). Mr. Redmann was supported by a Shapiro Summer Research Award from the University of Wisconsin School of Medicine and Public Health. Dr. Alexander is supported by the Agency for Healthcare Research and Quality (K08 HS15699; R01 HS0189960). Dr. Schwarze is supported by a Greenwall Faculty Scholars Award and the Department of Surgery at the University of Wisconsin. These funding sources had no role in the design and conduct of the study; collection, management, analysis, or interpretation of the data; and preparation, review, or approval of the manuscript for publication.

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**Table 1**  
**Characteristics of survey respondents (N = 912)\***

Characteristic	N (%)
Specialty	
Vascular	327 (36)
Neurosurgery	312 (30)
Cardiac	273 (34)
Years in Practice	
0-10	196 (23)
11-20	215 (25)
21-30	233 (27)
31+	223 (26)
Gender	
Male	850 (94)
Female	50 (6)
Practice Type	
Private practice	343 (38)
Academic practice	323 (36)
Private with academic affiliation	167 (19)
Other	61 (7)
ICU Administrative Model	
Closed	96 (11)
Open	277 (32)
Mixed	500 (57)
Other	4 (0.5)
Number of High-risk Procedures per Month	
0	34 (4)
1-5	311 (37)
6-10	256 (30)
11+	239 (28)

\* Numbers do not sum to 912 because not all responders answers all questions.

**Table 2**  
**Rates of surgeon-reported conflict with other clinicians**

At times conflicts may arise among different parties involved in the care of a patient who has a poor post-surgical outcome. How frequently, if ever, do you experience conflict with each of these groups about the goals of care for your post-operative patients?	Sometimes/ Always
Critical care physicians	43%
Nursing staff	43%
Primary care physicians	23%
Ethics consultants	16%
Family members of the patient	60%
Surgical colleagues	18%

**Table 3**  
**Surgeon-reported challenges in surgical practice**

<b>How challenging, if at all, do you find each of the following aspects of surgical practice?</b>	<b>Somewhat/Very Challenging</b>
Communicating with family and/or patient about poor outcomes	64%
Addressing patient fears regarding morbidity and mortality	42%
Managing personal discomfort about poor outcomes	73%
Managing clinical aspects of poor outcomes	62%
Emphasis on outcome measures such as physician profiling	50%

**Table 4**  
**Surgeon characteristics associated with conflict with intensivists \***

Characteristic	N	% Reporting conflict with intensivists	Bivariate P-value	Multivariate Odds Ratio (95% CI)
<b>Gender</b>				
Female	50	54	0.12	Referent
Male	838	43		0.8 (0.4-1.6)
<b>Specialty</b>				
Neurosurgery	269	38	0.08	Referent
Vascular	323	47		1.6 (1.1-2.3)
Cardiothoracic	308	45		1.5 (1.0-2.1)
<b>Years in Practice</b>				
+31	217	32	<0.001	Referent
21-30	231	40		1.5 (1.0-2.2)
11-20	213	45		1.8 (1.2-2.8)
0-10	196	57		2.5 (1.6-3.8)
<b>Practice Type</b>				
Private	340	36	<0.001	Referent
Academic	318	52		1.4 (1.0-2.0)
Private with academic affiliation	163	44		1.3 (0.8-1.9)
Other	61	41		1.1 (0.6-2.0)
<b>ICU Administrative Model</b>				
Closed	96	60	0.005	Referent
Open	272	41		0.6 (0.4-1.0)
Mixed	496	42		0.6 (0.4-0.96)
Other	4	25		0.2 (0.02-2.3)

\* N does not sum to 912 because not all responders answered all questions.

**Table 5**  
**Surgeon characteristics associated with conflict with nursing staff \***

Characteristic	N	% Reporting conflict with nurses	Bivariate P-value	Multivariate Odds Ratio (95% CI)
<b>Gender</b>				
Female	50	54	0.11	Referent
Male	838	42		0.7 (0.4-1.3)
<b>Specialty</b>				
Neurosurgery	269	39	0.17	Referent
Vascular	323	47		1.6 (1.1-2.2)
Cardiothoracic	308	43		1.3 (0.9-1.9)
<b>Years in Practice</b>				
+31	217	33	0.001	Referent
21-30	232	42		1.4 (0.9-2.1)
11-20	213	50		1.8 (1.2-2.8)
0-10	195	48		1.7 (1.1-2.6)
<b>Practice Type</b>				
Private	341	39	0.02	Referent
Academic	317	50		1.4 (1.0-2.0)
Private with academic affiliation	163	43		1.1 (0.7-1.6)
Other	61	34		0.8 (0.5-1.5)
<b>ICU Administrative Model</b>				
Closed	95	45	0.85	Referent
Open	273	44		1.3 (0.8-2.2)
Mixed	496	43		1.1 (0.7-1.7)
Other	4	25		0.4 (0.03-3.9)

\* Numbers do not sum to 912 because not all responders answered all questions.