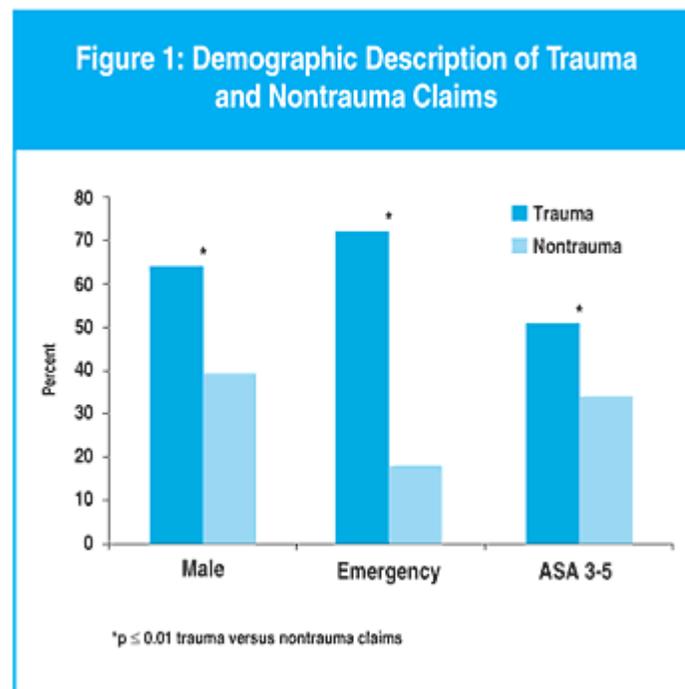


Sharar, SR: Does Anesthetic Care for Trauma Present Increased Risk for Patient Injury and Professional Liability? A Closed Claims Analysis. *ASA Newsletter* 66(6): 9-10 & 21, 2002.

## Full Text

The astounding frequency of traumatic injury in the United States – 59 million persons (one in four) injured annually, 36 million emergency room visits, 2.6 million hospital discharges and 145,000 deaths – explains the regularity with which many anesthesiologists encounter such cases. As a result, "trauma anesthesia" is a somewhat transparent subspecialty of our practice in that to varying degrees, all physician providers of perioperative anesthetic care find themselves anesthetizing an acutely injured trauma victim. Nonetheless, the distribution of trauma care among hospitals is neither random nor equal due to the preferential use of "designated" trauma centers, geographic maldistribution of hospitals and/or administrative preference to transfer trauma patients to other hospitals for economic reasons.<sup>1</sup> Likewise, the distribution of trauma care among anesthesiologists is unequal due to these hospital factors but also as a result of personal aversions to trauma care: it occurs at inconvenient times (nights and weekends), carries a low reimbursement rate (due to the high frequency of uninsured victims), presents a high-stress environment, results in unpredictable and often poor patient outcomes and exposes providers to increased professional liability risk. The validity of these arguments is variable, however, ranging from confirmed (low reimbursement rates for trauma care<sup>2</sup>) to virtually unknown (anesthetic outcomes and professional liability risk).



*Frequency (in percent) of trauma claims compared to nontrauma claims by patient sex (male), emergency nature of case and critical illness (ASA physical status 3-5). Values for trauma claims exceed those for nontrauma cases in all categories (p<0.01).*

In order to specifically assess the patient injury and professional liability risks of trauma anesthesia care relative to elective anesthesia care, we examined the ASA Closed Claims Project database between 1987 (the year after ASA "Standards for Basic Anesthetic Monitoring" were enacted) and 1999. The database consists of standardized summary data on closed anesthesia malpractice claims collected from 35 professional liability carriers that insure approximately half of the practicing anesthesiologists in the United States and is described elsewhere in detail.<sup>3</sup> All claims for trauma-related anesthetic care (defined as care provided within three days of acute injury for surgical treatment of blunt or penetrating trauma, burns, drowning or environmental injury) were reviewed to identify patterns of causation, injury, standard of care and liability. Findings were then compared to those for nontrauma claims occurring during the same period.

Of the 1,814 claims in the database for the time period selected, 87 (4.8 percent) involved trauma anesthesia care. Consistent with the national demographic pattern of traumatic injuries, the majority of claims involved men (64 percent compared to 39 percent for nontrauma claims,  $p < 0.01$ ) [Figure 1]. Also consistent with the concept that traumatic injuries frequently require urgent and nondeferrable operative management, the majority of trauma claims (72 percent) involved emergency anesthesia and surgery, compared to only 18 percent for nontrauma claims ( $p < 0.01$ ). The high acuity of anatomic and physiologic derangement in trauma patients was demonstrated by the high frequency of abnormal ASA physical status (51 percent of trauma claims were labeled ASA class 3-5 compared to 34 percent for nontrauma claims,  $p < 0.01$ ).

Outcome measures in the two study groups are summarized in Table 1. Significant increases were identified in the group of trauma claims compared to nontrauma claims for two outcomes: death (40.3 percent versus 23.4 percent,  $p < 0.01$ ) and median payment (\$225,000 versus \$95,000,  $p < 0.01$ ). A trend toward an increased rate of brain damage was observed in the trauma group, although it was not statistically significant (16.1 percent versus 10 percent,  $p = 0.07$ ). There was no difference between trauma and nontrauma claims in the frequency of payment for malpractice claims (44.8 percent versus 47.1 percent), and somewhat surprisingly, there also were no differences in the proportion of claims for aspiration (2.6 percent versus 4.3 percent), awareness of intraoperative events (0 percent versus 2.4 percent) or difficult intubation (10.3 percent versus 9 percent). Thus, within the population of patients represented in the ASA Closed Claims Project database, trauma claims are associated with greater severity of injury (death and possibly brain damage) and also result in a higher median claim payment than nontrauma claims [Table 1].

**Table 1: Frequency of Outcomes for Trauma and Nontrauma Claims**

Outcome	Trauma	Nontrauma	p value
Death	40.3%	23.4%	< 0.01
Brain Damage	16.1%	10.0%	0.07
Aspiration	2.6%	4.3%	NS
Difficult Intubation	10.3%	9.0%	NS
Intraop. Awareness	0%	2.4%	NS
Standard of Care Met	50.6%	54.3%	NS
Adequate Records	51.7%	52.6%	NS
Payment Made	44.8%	47.1%	NS
Median Payment	\$225,000	\$95,000	< 0.01

Two additional endpoints of our analysis were the appropriateness of anesthetic care and the adequacy of anesthetic record-keeping, as judged by the anesthesiologist reviewers [Table 1]. These endpoints were chosen to indirectly explore the issue of whether providing urgent or emergent care in a critically ill patient at unpredictable times affects anesthetic decision-making and/or documentation. We found similar frequencies in both trauma and nontrauma claims for the frequency with which an appropriate standard of care was met (50.6 percent versus 54.3 percent) and the frequency of adequate anesthetic record-keeping (51.7 percent versus 52.6 percent). It appears that within this select population, trauma care does not impose additional impediments to anesthetic decision-making or documentation of care over what already exists for nontrauma care.

As with all studies based on the ASA Closed Claims database, these results must be interpreted carefully due to inherent limitations in the database. Numerical estimates of risk cannot be determined due to the absence of denominator data (i.e., total number of anesthetics provided) and the fact that not all anesthesia-related injuries result in a malpractice claim. In addition, data collection is retrospective and nonrandom. Nonetheless, we are able to draw several conclusions about patient injuries and professional liability from our analysis. First, these data suggest that, compared to nontrauma claims, trauma anesthesia claims involve more emergent patients, more critically ill patients and result in poor outcomes more frequently. Considering the urgency, medical acuity and likely outcome of caring for acutely injured patients, trauma anesthesia does often present a high-stress environment for providers. Second, although the frequency of claims payment is similar in both trauma and nontrauma claims, the median payment is higher for trauma claims. The reasons for this cannot be determined from our analysis but may include younger age or more severe injury in trauma claims. Third, in contrast to conventional wisdom that anesthetic complications of aspiration, difficult intubation and awareness of intraoperative events are more likely in trauma patients, there was no increase in claims for these complications in the trauma group compared to the nontrauma group. For example, we observed no trauma claims for awareness of intraoperative events despite reports that in the select population of hypotensive trauma patients the incidence of this complication may be as high as 43 percent.<sup>4</sup> These observations may reflect limitations of the database in that the true frequency of these complications in trauma patients cannot be calculated from closed claims data.

In summary, our review of ASA Closed Claims data reveals that trauma claims involve more emergent and more severely ill patients and result in larger claim payments than do nontrauma claims. These observations should be emphasized with regard to education, training, administration and reimbursement for trauma anesthesia care during the development and implementation of local and regional trauma care services.

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