The AANA Foundation Malpractice Closed Claims Study: A Descriptive Analysis

The AANA Foundation Closed Claims Researchers evaluated 245 closed claims spanning from 2003-2012. The majority of claims comprised CRNA providers who are mainly male, independent contractors, certified between 1980-1999, and with malpractice coverage limits of $1 million/$3 million. The median age for all claimants was 50 years old, and 63.7% of claimants were female. For those claims where race was known, 54% of claimants were Caucasian. Most adverse events occurred in a hospital with an outpatient admission status. The majority of adverse events were identified as intra-anesthesia. The top five surgical procedures associated with these claims were orthopedic, general surgery, cosmetic, obstetric, and neurologic procedures. An adverse event leading to death occurred in 35.1% of claims. Regardless of severity of injury, reviewers determined that 45.5% of negative outcomes were preventable, 32.7% of the anesthesia treatment was inappropriate, and 29% of negative outcomes were caused by CRNAs’ actions. Reviewers found that no AANA Standards were breached in 45.7% of claims; however, Standards 4, 5, and 3 were the most common standards breached. The most costly severity classification was major permanent injury (ie, paraplegia, blindness, loss of two limbs, or brain damage) with a median payment of $299,810.

Keywords: Anesthesia adverse events, Certified Registered Nurse Anesthetists, descriptive analysis, malpractice closed claims.

Materials and Methods

This analysis includes claims where CRNA providers were identified in a CNA insurance policy with a variety of policy types (eg, occurrence, claims-made). Four hundred twenty claims resulting in adverse events from 2003-2012 were identified by CNA Insurance. Claims were included in review if they were deemed “closed” (ie, all action, legal or otherwise has ceased) by the insurance company and involved a CRNA or student nurse anesthetist. One hundred seventy five claims were excluded from analysis due to the following: duplicate claims, inadequate documentation for review, nursing board and state licensing issues, deposition, claims where CRNAs were named in suit but not involved in adverse event, reopened cases, and minor dental allegations. Two hundred forty five claims were included in the final analysis.

Three sources of information...
were used to develop this closed claims database. A spreadsheet provided by CNA Insurance listed provider information including but not limited to insurance notice of claim, expense and total monies paid out, and insurance description of loss. A 23 item administrative data collection tool was used to identify additional details about the provider such as certification of provider (if applicable), policy type, and coverage limits. The vast majority of analysis stems from the 103 item electronic clinical data instrument housed within Survey Monkey. This data instrument was first illustrated in 2001 but has undergone revisions since its inception. Claims provided by CNA Insurance mainly consisted of narratives, depositions, and claim manager evaluations. On occasion, reviewers had access to the anesthesia record, medical record, and clinical progress notes.

Fifteen reviewers were selected based on diverse clinical expertise from a variety of settings and years of experience in both the clinical and academic settings. All research claim reviewers were trained to use the electronic data collection instrument and participated in a protocol session to ensure uniformity in data collection, the review process and the verification process (See Figure 1). All claims underwent a 3 step verification process to minimize error and risk of bias. Claims were first evaluated by the reviewers who were responsible for extracting and interpreting relevant data from the claim documents and entered data into the clinical data instrument for each claim. Data that reviewers assessed included, but were not limited to, patient demographics, patient pre-existing medical condition, anesthesia and surgical management, physical status, clinical setting, pharmacologic agents used, positioning, use of monitors, negative outcome and resulting injury, basis of the lawsuit, and reviewer’s assessment of episode and standards breached. Reviewers were given pertinent guidelines and AANA standards that reflected evidence based practice at the time claims were made. See Electronic Appendix Table 1 at www.aana.com/closed claims for AANA standards.

After initial electronic data collection, claims were then assigned to team leaders. Team leaders were defined as those who participated in the previous claims analysis with experience in analyzing anesthesia malpractice claims. Team leaders were assigned “completed” claims for review and ensured data collection was complete and reflected congruence with the team leader for inter-rater reliability. Disparate interpretations of data were resolved prior to final data entry. All approved changes to data items were made by an authorized nurse research staff member to ensure the completion of data entry and provide an additional layer of quality assurance. After data entry for all claims was complete, all data point sources were merged and exported into an Excel file. Data were then cleaned by research staff to ensure duplicate entries were removed. Claims were also de-identified and assigned an AANA Claim ID number for final import into an Access database for further analysis. After all data were merged into a single database, all final audits for quality assurance were conducted by a member of the research team. The descriptive analysis presented in this paper does not reflect all of the categorical data collected during this data collection cycle. Research findings are presented as frequencies or percentages (See Electronic Appendix Table 2 at www.aana.com/closedclaims). Definitions for severity of injury for closed claim reporting of medical professional liability were taken from the National Association of Insurance Commissioners (See Electronic Appendix Table 3 at www.aana.com/closedclaims). Severity of injury is a scale ranging from 1 to 9 with 1 being the least severe injury while 9 indicates death. Qualitative analysis of reviewer’s assessment of claims will occur at a future date; however,
a discussion around the methodology will be provided in this article. The purpose of the qualitative analysis will be to further explore adverse events, describe preventable errors, and to identify mitigation strategies to reduce them given that the narrative portion of the claim review yields unique insights into the basis of the claim. This study was IRB approved by The American Institute of Research.

Limitations
The descriptive data discussed in this article are meant to highlight key data points found in the closed claims database. This article does not include further statistical analysis or description of patients with multiple co-morbidities or those who are at high risk for negative outcomes based on factors such as age or multiple comorbid conditions. Additionally, these research findings do not evaluate the appropriateness of procedure, planned anesthesia technique, or pharmacologic agents used. With the exception of the reviewers’ conclusions, the research findings reported here are not meant to infer causation or imply direct relationships. The data presented here should not be construed as alluding to trends in malpractice (given the use of one insurance company), nor identifying trends in anesthesia adverse events among CRNAs nationally. It is the second phase of this study through use of qualitative content and thematic analysis of detailed narrative from the reviewer assessment that will illuminate the anesthesia adverse event.

Results
Provider Characteristics
Of 245 claims, 51% of CRNA providers (n = 125) were identified as independent contractors for their primary employment arrangement; the rest were either an employee of a group (n = 20, 8.2%), hospital (n = 13, 5.3%), or other employment arrangement. There were more male providers (n = 162, 66.1%) than female providers (n = 83, 33.9%) in the dataset. The majority of policy holders (n = 174, 71%) held coverage limits of $1 million limit per claim and a $3 million aggregate limit per policy year. Fifty five percent (n = 140) of adverse events took place between the years of 2006-2008. Years of experience does not appear to be a factor in terms of frequency of occurrence of adverse events. CRNAs practicing less than 10 years or more than 50 years, accounted for only 2.9% of claims, while 29% (n = 72) of providers were certified from 1990-1999 and 25.3% (n = 62) were certified from 1980-1989.

Patient Demographics
There were more female patients (n = 156, 63.7%) with adverse events than male patients identified in the claims. The majority of patients were classified as physical status II or III (n = 199, 81.2%) with a median age of 50. Thirteen claims were classified as pediatric cases. Reviewers could determine patient race for only 85 claims, of which the majority of claimants were Caucasian (n = 45, 54%) followed by African American (n = 19, 22%) and Hispanic (n = 14, 16%). The most notable pre-existing conditions amongst all claimants were respiratory (n = 100, 40.8%) and endocrine/renal (n = 75, 30.6%). Only 25.3% (n = 62) of claimants were determined to be at risk for a cardiac event. Height and weight were only reported in 29.4% (n = 59) of claims, of which 30.5% (n = 18) claimants had a body mass index (BMI) between 25 - 29.9 (ie, overweight) and 69.5% (n = 41) claimants were known to be obese with a BMI exceeding 30.

Anesthesia and Surgical Management
Most adverse events occurred in hospitals (n = 171, 69.8%) followed by ambulatory surgery centers (n = 54, 22%), and the reminder occurred in other settings. Of the 59 claimants with a BMI over 25, 87.8% received anesthesia in a hospital setting and 15.3% in an ambulatory surgery center. The majority of adverse events were confirmed to have occurred during the intra-anesthesia period (n = 167, 68.2%); however, 38.8% (n = 95) of the events became apparent to the provider during the intra-anesthesia period. Interestingly, 24.1% (n = 59) of events became apparent after discharge to home and 14.3% (n = 35) became apparent in the PACU. Patients in the dataset were categorized preoperatively as outpatient (n = 122, 49.8%), inpatient (n = 80, 32.7%), and planned admission (n = 34, 13.9%). Most frequently represented surgical categories were orthopedic (16.3%), general surgery (14.3%), cosmetic (10.2%), obstetrical (10.2%), and neurological (8.2%) procedures. Most claims involved general anesthesia (n = 106, 43.3%), followed by 18% (n = 44) of a combination of planned anesthesia techniques (eg, regional and general anesthesia). The remaining anesthetic plans were monitored anesthesia care (n = 41, 16.7%) and regional anesthesia (n = 36, 14.7%). In claims where pharmacologic agents were clearly disclosed, intravenous agents (n = 105, 42.9%) (eg, propofol, ketamine), and analgesic agents (n = 106, 43.3%) (eg, fentanyl, morphine) were the most identified agents. In 56 (22.9%) of claims, pre-induction activities were identified as the basis for and/or contributed to the lawsuit. Pre-induction activities that may have been the basis for the lawsuit were defined as pre-anesthetic actions involving assessments, such as physical examinations, and performing a chart review for laboratory findings and relevant clinical data. The median amount (ie, payment + expenses) for all claims was $72,445 with the highest median payment of $299,810 for major permanent injury defined as paraplegia, blindness, loss of two limbs, or brain damage. Significant permanent injury defined as deaf-
ness, loss of limb, loss of eye, loss of one kidney or lung, had a median total payment $227,854.50.

Negative Outcomes
Ninety three percent of the complaints were related to anesthesia care alone; however, 28.6% were identified as being potentially related to both anesthesia and surgery. Patient positioning was a factor in 28 (11.4%) claims. In 31.8% (n = 78) of claims respiratory events caused the negative outcome, and 41.6% (n = 102) of patients suffered a central nervous system injury. Most claims resulted in death (n = 86, 35.1%) followed by claims involving a temporary and permanent injury. Of the adverse events that occurred, 45.5% of negative outcomes were preventable and 32.7% of the anesthesia management was deemed inappropriate. Of the 245 claims reviewed, 29% of negative outcomes were caused by CRNAs’ actions. No AANA standards were breached in 45.7% (n = 112) of claims. When there was a failure to meet an AANA Practice Standard, the common breaches were with AANA Standards 4 (n = 54), 5 (n = 47), and 3 (n = 37) (See Figure 2).

Discussion
Some notable differences have been identified between the initial AANAF Closed Claim project and the current study. The initial study reviewed 151 CRNA related claims from St. Paul Fire and Marine Insurance Company that occurred between 1989-1997. Patients within the current 2003-2012 claims cohort appear to have a higher physical status (PS II or III, 81.2%) compared to the initial 1989-1997 claims cohort (PS I or II, 75%) suggesting an increase in patient physical status prior to procedure. Additionally a pronounced inverse difference in the inpatient and outpatient admission status was seen between the studies. Claims in the current study were associated with more outpatient (49.8%) than inpatient (32.7%) admissions, while the initial study had fewer outpatient (33%) admissions compared to inpatient (48%). These findings suggest that the trend in outpatient admissions are impacting the occurrence of malpractice claims in these settings as well. Another difference noted between the two studies was the designation of primary anesthesia technique. Though general anesthesia (43.3%) was the most common primary anesthesia technique in this study, 73% of claims in the initial study involved general anesthesia as the primary anesthesia technique. In both studies the most common negative outcome was due to a respiratory event (31.8%, 2003-2012 vs. 39%,1989-1997) and the most common serious injury was death (35.1%, 2003-2012 vs. 44%,1989-1997). Pre-induction activities were identified as the basis of the lawsuit for 22.9% of claims in this study and 17% of claims in the initial study. In addition, reviewers for both studies determined that negative outcomes were preventable in approximately 45% of the claims; however, reviewers deemed that anesthesia management was inappropriate in 32.7% of the 2003-2012 claims cohort compared to the initial study where reviewers deemed 52% of the claims involved inappropriate anesthesia management.

The AANAF Closed Claims Study illustrates that negative patient outcomes are seldom attributable to one provider and often involve the intersecting actions of team members. Seventy (28.6%) complaints were related to both anesthesia and surgery. Understanding the context within which adverse events occur is the next step in seeking to mitigate future occurrences and improve patient safety. The next step in the closed claims review process will include an in-depth qualitative content and thematic analysis.

Content/Thematic Analysis
Quantitative analysis of malpractice closed claims provides limited information regarding the claims; however, coupling qualitative data with the descriptive narrative supports a more in-depth examination. The AANAF closed claims researchers will conduct a content and thematic analysis of expert research narrative derived from sources such as, but not limited to, deposition transcripts, legal summaries, peer
reviews, claim manager evaluation, and economic analysis (See Figure 3). Thematic analysis is beneficial because it identifies key features (both similar and dissimilar) in the data corpus (ie, all content collected for a research project), allows researchers to identify unanticipated insights and psycho-social perceptions, as well as inform policy development and/or practice. The process involved in content and thematic analysis may provide clarity to an anesthesia adverse event. The examination of the information provides insight that may change practice to improve anesthesia care.

All closed claim research reviewers captured data from multiple sources using a 103 itemized electronic data collection instrument. Researchers were required to write narratives summarizing the sources reviewed within a claim. These narratives can be viewed as the composite of content from the data corpus whereby experts document their high-level appraisal of the event and critical elements of what had occurred. These narratives will be used in the content and thematic analysis: reviewer’s narrative, reviewer’s assessment, reviewer’s list of accusations, and reviewer’s description of lessons learned (See Table).

For this qualitative approach, research teams will comprise 3-5 members and will be assigned qualitative analysis of claims associated with a physiologic or anesthesia topic. The teams will devise specific research questions and select an inductive or theoretical approach to the qualitative analysis. The first iteration of the process is the development of codes through qualitative content analysis. Hsieh and colleagues define qualitative content analysis “as a research method for the subjective interpretation of the content of text data through systematic classification process of coding.” Qualitative researchers who use content analysis aim to create as many codes in terms of units of content to describe the narrative text. Though content analysis is subjective, data driven codes via text analysis is the main result of the process. As such the code itself is represented as a word or short phrase that saliently summarizes the essence of the text.

For the qualitative analysis, team leaders will serve as primary liaison for workgroup members and codebook editor. The codebook editor is responsible for managing the codebook via maintaining, updating, and revising the master list of codes devised by the workgroup as an aid while the codes undergo consensus and harmonization. Therefore, the team leaders will coordinate milestones by harmonizing coding efforts and facilitate refinement of codes, categories and eventual themes.

A preliminary inclusion and exclusion criteria for claims review will be developed by the team to determine which claims would undergo qualitative inquiry coding based on topic. The last four narratives for each claim will then be imported into a word processing document and line itemized for the coding process. Claims that do not meet inclusion criteria will be eliminated and the rationale for exclusion documented. Remaining
Conclusion

Though this descriptive analysis defines what data have been captured in the AANAF closed claims database, the closed claims researchers recognize that merely discussing quantitative data with a sample size of 245 does not necessarily describe CRNA trends in malpractice claims or adverse events. However, these data serve as a foundation for identifying anesthesia safety topics that interest CRNAs. Greater detail leading to the negative events found in this database are better addressed in a qualitative analysis format. Therefore, the AANAF closed claim research team will engage in additional work using qualitative analysis methods to more appropriately identify and describe safety concerns to support best anesthesia practice.

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DISCLOSURES

The authors have declared they have no financial relationships with any commercial interest related to the content of this activity. The authors did not discuss off-label use within the article.