"Anesthesia providers, patient outcomes, and costs": The AANA responds to the Abenstein and Warner article in the June 1996 Anesthesia and Analgesia


On July 10, 1996, President Zambricki sent the response published here to Anesthesia and Analgesia as a letter-to-the-editor. She acknowledged that the piece was too long to be published as a standard letter because of the detail required to explain and substantiate the AANA's statements and requested that it be published as an "invited editorial." Ronald D. Miller, MD, editor-in-chief of Anesthesia and Analgesia declined to publish the AANA's response to this article.

Dr. Miller stated that he was "receptive to publishing some type of response from" President Zambricki, but only if it were "markedly condensed" or it was not "solely directed toward countering the Abenstein-Warner paper." He preferred that President Zambricki wait to write and submit a revised article until after publication of four letters previously accepted for publication by Anesthesia and Analgesia. The letters are due for publication "probably in the December 1996 issue."

The AANA's formal response under AANA President (1995-96) Christine Zambricki's signature is being published as an editorial in this issue of the AANA Journal.

President Zambricki's detailed letter explains and substantiates AANA's objections to the article. It was deemed important that nurse anesthetists, anesthesiologists, and other interested parties have the opportunity to view the complete response.

Key words: Anesthesia, anesthesia costs, anesthesiologists, Certified Registered Nurse Anesthetists, delivery systems, nurse anesthetists, patient outcomes.

Editor's note: Another article on this topic has been submitted to the AANA Journal and is under peer review at the present time.
The June 1996 issue of Anesthesia and Analgesia contained an article by J.P. Abenstein and Mark Warner, entitled “Anesthesia Providers, Patient Outcomes, and Costs.” This paper was presented as an abridged version of a document submitted by the Minnesota Society of Anesthesiologists to the Minnesota Commissioner of Health. An accompanying Perspective from the Editor-in-Chief indicates that the editors of Anesthesia and Analgesia did considerable soul searching about whether a peer-reviewed scientific journal should publish a paper related to “policy making more than science.”

To the publication’s credit, the editorial board recognizes a difference between political posturing and scientific inquiry; however, the article’s publication has raised an issue that, in our minds, is equally serious. It is whether the editors and reviewers believed that the intention to influence policy making exempts an article from the same standards for factual accuracy and completeness, sound reasoning, and the proper application of statistical methods that apply to scientific publications.

The relationship between anesthesia-related mortality and ASA membership

The primary thesis of this article is that improvements in patient outcomes associated with the administration of anesthetic agents has resulted almost exclusively from growth in the number of practicing anesthesiologists. To support this thesis, the authors state that since “Beecher and Todd’s 1954 documentation of high perioperative mortality rates, the number of anesthesiologists has grown sixfold, and at the same time, and at virtually the same rate, patient outcomes have improved. This association is shown in Figure 4.” In Figure 4, the authors show a steady increase in American Society of Anesthesiologists (ASA) membership from nearly zero in 1940 to approximately 32,000 in 1994, and a steady decrease in anesthesia-related mortality rates from 0.1% in 1942 to nearly zero in 1994.

If the mortality rates shown in Abenstein and Warner’s Figure 4 are derived from the studies reviewed on pages 1277 through 1280 and summarized in Table 4 of their paper, then the figure does not correspond completely with the data. A more faithful presentation of the results of these studies is presented in our Figure 1. When all published data listed in Table 4 are incorporated into Abenstein and Warner’s Figure 4, it becomes apparent that a marked decrease in anesthesia-related mortality rates to almost undetectable levels occurred prior to 1981. Furthermore, there are two precipitous reductions in mortality occurring during the intervals of the 1950s and 1970s respectively. However, the dramatic rise in ASA membership continued throughout the 1980s and early 1990s.

While the fact that anesthesia-related mortality rates decreased while ASA membership increased is consistent with the hypothesis that anesthesiologists contributed to declining mortality, there is inadequate proof of a causal relationship. The growth in ASA membership was paralleled by similar growth in the number of CRNAs (see Figure 1), growth in the number of malpractice attorneys, improvements in anesthetic agents, increased acceptance of monitoring standards, and increases in the length of education for both CRNAs and anesthesiologists.

Finally, Abenstein and Warner fail to note that the highest anesthesia-related mortality rates reported in their review of the literature occurred prior to 1950, when two-thirds of the anesthesia administered in the United States was delivered by untrained personnel because of a shortage of qualified anesthesia professionals (i.e., either anesthesiologists or nurse anesthetists).

Conclusions drawn by the Minnesota Department of Health Anesthesia Practices Study

Abenstein and Warner report correctly that the MinnesotaCare legislation of 1994 required the Minnesota Commissioner of Health to study and report to the legislature on anesthesia services pro-
vided in Minnesota healthcare facilities by nurse anesthetists and anesthesiologists.

In their Addendum on page 1282, the authors state the following as the report's conclusions:

"As a result of the reduced reimbursement to anesthesia providers and the increased focus on cost containment, Minnesota hospitals have had to examine their budgets and attempt to cut costs. Hospitals began to look for new service delivery models that would encourage the cooperation of providers in their delivery of services, maintain high quality, and be cost effective. Consequently, several hospitals made the decision to terminate their CRNAs from their hospital staff and contract for services. The providers are thus responsible for the billing and overhead costs, not the hospital, and for providing quality service to the patient. This decision, based on economics and the changing market, provider[s] cost savings to these hospitals. The impact of healthcare market dynamics will continue as the market demands shift and develop both locally and nationally."

"In summary, anesthesia services continue to be provided primarily in a 'care team' approach using both anesthesiologists and CRNAs, with current risk levels remaining very low. The market and demand for both CRNAs and anesthesiologists is changing and we can expect continued flux in this market for several years."

In fact, this quotation represents only one of four "key findings" in the Summary at the end of the Minnesota Department of Health's mandated report to the legislature on behalf of the Commissioner of Health. The other three "key findings" that appear on pages 23 and 24 of that report are:

"Limitations on the study made it impossible to fully evaluate the cost of service provided under each type of anesthesia employment arrangement. However, there are some findings worth noting. Anesthesia providers are paid equivalent amounts per case under Medicare, and will likely under Medicaid, as well, when new guidelines are implemented. Reimbursement is declining to all anesthesia providers, with the impact on the national and state healthcare market dynamics. The market demands shift and develop both locally and nationally."

Factual errors

Numerous factual errors in the Abenstein and Warner article could have been detected and corrected by the editorial board of *Anesthesia and Analgesia* prior to publication. In this regard, it is noteworthy that factual errors of the same nature in the document submitted by the Minnesota Society of Anesthesiologists to the Minnesota Commissioner of Health were excluded from the Minnesota Department of Health's final report.

For instance, Abenstein and Warner's statement that "education program accreditation, individual certification of professional aptitude, and political functions by nurse anesthetists" are consolidated (in contrast to the "independence" of anesthesiologists' board certification) is incorrect. Accreditation of nursing educational programs in anesthesia and certification of nurse anesthetists are responsibilities of separate bodies that include members who are not nurse anesthetists, including anesthesiologist members. Both of these accrediting and certifying organizations are autonomous from the American Association of Nurse Anesthetists, as every CRNA is aware.

Furthermore, Abenstein and Warner do not appear to understand credentialing of nurse anes-
thetists, as evidenced by their statement that nurse anesthetists' national certifying exam is "voluntary." In fact more than 40 states require certification as a nurse anesthetist in order for professional registered nurses to administer anesthesia. Legal and regulatory requirements for practice cannot be described as voluntary. Ninety-seven percent of nurses who administer anesthetics are CRNAs (i.e., they have taken and passed the national certifying examination). In contrast, anesthesiologists do not have to be certified to practice in any of the 50 states.

Abenstein and Warner stress that anesthesiologists are "physicians who hold unrestricted medical licenses" while nurse anesthetists are "registered nurses who hold licenses limited to nursing" [emphasis added]. Obviously, a medical license also is limited to medicine; yet, even within the scope of medical practice, would any practicing anesthesiologist, solely on the basis of an "unrestricted" medical license, claim the right to perform coronary bypass surgery without extensive postdoctoral training in cardiothoracic surgery? Such statements by the authors reveal a lack of objectivity.

Conclusion

There is scientific evidence that anesthesia-related mortality has decreased dramatically since 1945. At least some of the decline may be due to changes in methods of measurement rather than to changes in the safety of anesthesia. The American Association of Nurse Anesthetists believes that an exponential decline in anesthesia-related mortality has resulted from a marked increase in the proportion of patients who received anesthesia care from highly educated anesthesia specialists, both anesthesiologists and CRNAs. Safety has been improved further by the introduction of new anesthetic agents, increased understanding of the causes of adverse events associated with anesthesia, and dramatic technical improvements in monitoring equipment.

It is critically important for the AANA and the ASA to join in studying the cost-effectiveness of alternative delivery systems for anesthesia care. The AANA stands ready to meet with anesthesiologists who are interested in working together in developing models of care to meet future anesthesia needs in our country. We must seek to identify "best practices" that exemplify excellence in patient care and to report our findings in an objective and credible manner.

REFERENCES


Journal of the American Association of Nurse Anesthetists