2012 Emery A. Rovenstine Memorial Lecture

The Genesis, Development, and Future of the American Society of Anesthesiologists Evidence-based Practice Parameters

SINCE 1992, practice parameters created by the American Society of Anesthesiologists (ASA) have been useful references for optimizing patient care. As a result, they are among the most sought-after documents in anesthesiology and medicine. Of the millions of queries to the ASA website annually, the single most visited URL after the home page is the one on practice parameters. Polls of ASA members conducted in 2009 and again in 2012 by the ASA revealed that members believe that standards, guidelines, and practice parameters are the single most valued resource offered to them.

ASA practice parameters have made significant contributions to clinical practice. In a 1999 report, the Institute of Medicine noted that anesthesiology is the only medical specialty that has made substantial gains in the area of patient safety: "The gains in anesthesia are very impressive and were accomplished through a variety of mechanisms including improved monitoring techniques, the development and widespread adoption of practice guidelines, and other systematic approaches to reducing errors."[1] The ASA continues its commitment to patient safety and, since 1999 has produced 12 additional practice parameters and 18 updates. In addition to providing guidance for clinical practice, these documents have scholarly interest and value. Between 2008 and 2012, 15 of the 50 most viewed articles in ANESTHESIOLOGY were ASA practice parameters, and four of these were in the top 10. Since 2000 the top two cited articles have been ASA practice parameters.[2,3]

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What Are Practice Parameters?

Practice parameters are developed by and for the members of the ASA and serve to improve patient safety and clinical practice in our profession. They are information resources for the systemization of clinical practice and take the form of guidelines, advisories, or other statements (*e.g.*, practice standards, practice alerts, consensus statements). Evidence-based practice parameters are an important subset of practice parameters. These documents, produced only in the form of guidelines or advisories, are developed from a systematic and standardized method for the collection, assessment, and analysis of evidence from the scientific literature, survey responses from independent expert consultants, and randomly selected samples of practicing anesthesiologists.

The goals of collecting evidence for these evidence-based practice parameters are as follows: (1) to maximize the accumulation of evidence by accessing information from multiple sources (*i.e.*, scientific, observational, and consensus opinion); (2) to enhance the accuracy of evidentiary findings and reduce bias; (3) to be transparent in reporting the findings; and (4) to evaluate the feasibility and practicality of implementing proposed recommendations.

How Did ASA Practice Parameters Become Essential Resources for Clinical Practice?

The ASA practice parameters have served as important resources for anesthesiologists and other healthcare workers for more than 20 yr. The early practice parameters were

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consensus-based, meaning that a group of knowledgeable individuals produced declarative statements that were not derived from the systematic collection and evaluation of scientific evidence. In 1990, the National Institutes of Health Agency for Health Care Policy and Research advised medical organizations, including the ASA, to use an evidence-based approach for guideline development. In response, the ASA formed the ad-hoc Committee on Practice Parameters and, in 1991, initiated the development of two evidence-based practice guidelines: "Practice Guidelines for Management of the Difficult Airway" and "Practice Guidelines for Pulmonary Artery Catheterization." These guidelines were subsequently updated in 2002, and the second update of the Difficult Airway Guidelines appears in the February, 2013, issue of ANESTHESIOLOGY.[4]

During the early development of evidence-based guidelines, it was noted that the anesthesia literature alone was not always sufficient to provide guidance for recommendations pertaining to certain unique aspects of the practice of anesthesiology. Over the next few years, a broader-based, multidimensional method evolved that contained four expanded components: (1) review and evaluation of all available published scientific evidence (ranging from randomized controlled trials to case reports), (2) meta-analytic assessments of randomized controlled trials whenever sufficient data were available, (3) collection of expert and practitioner opinion through formally developed surveys, and (4) consideration of informal opinions obtained from invited and public commentary. These sources of evidence form the foundation of the current evidence-based approach.

Implementation of the process begins with the selection of a task force that includes academic anesthesiologists and those from private practice, generalists, relevant subspecialists, pediatric and adult anesthesiologists, and occasionally specialists outside of anesthesiology. At least one member of the Committee on Standards and Practice Parameters serves on each task force to ensure adherence to the same rigorous process during the development of each evidence-based guideline and advisory. The resource commitment required for such an effort is not insignificant. Individual task force members, who volunteer their services, devote hundreds of hours of their time to develop each practice parameter. In addition, the committee retains two Ph.D. methodologists who are recognized experts in scientific methodology and biostatistics, to ensure that the process meets the exacting requirements of the scientific methodology outlined above.

The task force begins the process of developing an evidence-based guideline or advisory by defining the goals and objectives within the mandate established by the committee. Once these are established, interventions are identified that potentially impact patient care. A list of interventions and expected outcomes is created, and this intervention–outcome list, referred to as evidence linkages, is the critical foundation on which all evidence is collected and provides the basis for the eventual structuring of recommendations.

Many forms of evidence are considered in the development of a practice parameter; however, when available, construction of a recommendation depends on clear, unequivocal findings obtained from randomized controlled trials published in peer-reviewed journals. When this type of literature-based evidence is not available, the attention of the task force turns to other types of evidence, usually culminating in the creation of a practice advisory. The development of a practice advisory follows the same process used in the development of a practice guideline. In the absence of evidence from randomized controlled trials, however, the scientific literature is not sufficient to support a recommendation to the same degree as in a guideline. The advisory was instituted by the committee and authorized by the ASA in 1998.

What Are Future Plans for ASA Practice Parameters?

As long as ASA members find them beneficial, the production and updating of practice parameters will continue. Two years ago, the Multicenter Perioperative Outcomes Group was formed to promote multi-institutional collaboration on outcomes research to advance knowledge and improve patient care in perioperative medicine, largely through data sharing. In addition, the Anesthesia Quality Institute has embarked on a national anesthesia registry intended to expand ASA's focus on patient safety by fostering advances in quality care measurements that lead to improvements in anesthesia care. Information from these sources can contribute to an even broader understanding of patient safety and anesthesia care. The creation of these and other sources of anesthesia-related outcomes data offer new and extensive sources of observational evidence for use in the future development and continued growth of ASA practice parameters.

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