



Preoperative evaluation

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The American Society of Anesthesiologists has produced basic standards for preanesthetic evaluation that apply to patients undergoing all techniques of anesthesia. For many years, preoperative evaluation consisted of a battery of "routine tests." Multiple national and international studies have questioned the usefulness and the need for this information. A changing economic environment promoting value-based anesthesia has also entered the equation. Based on available data, preoperative laboratory tests should only be ordered after history and physical evaluation indicate necessity.

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Until recently, in the minds of both health care professionals and the public, planning for anesthesia included a barrage of tests, visits to internists, cardiologists, and a variety of other specialists and admission to the hospital a day or two before surgery. Reasons for this attitude included the argument that broad-based testing and consultations were good screening for patients who might not otherwise seek medical advice on a regular basis. Indeed, it was suggested that the information thus gained might well negate the need for an annual physical examination, although little information helpful in guiding an anesthetic decision is obtained from a mammogram or prostatic antigen screen. Perhaps obtaining a battery of information might be medicolegally desirable should anything untoward happen later, presuming, of course, the doctor who ordered the test actually followed up and reviewed the results. Many hospital policies mandated routine testing and, as insurance companies usually paid in full, additional revenues could be collected, at little cost, by health care facilities. Surgeons might depend on referrals from internists who would then provide "medical clearance." But perhaps the most "compelling" reason given for shotgun evaluation was simply that it was felt to be "best for patients and doctors."¹

Broad spectrum preanesthetic testing was not considered necessary in the early days of anesthetic administration. John Snow (who anesthetized Queen Victoria for the birth of Prince Leopold in 1853) in his treatise on chloroform administration, under the heading of "*Preparations for the inhaling of chloroform*," noted that "the only direction which is usually requisite to give beforehand to the patient who is to inhale chloroform, is to avoid taking a meal previous to the inhalation."² Further on, he remarked on the importance of a physical examination: "On feeling the pulse of a gentleman, about 21 years of age in March 1855, who had just seated himself in the chair to take chloroform, I found it to be small, weak and intermitting and it became more feeble as I was feeling it. I told the patient that he would feel no pain, and that he had nothing whatever to apprehend. His pulse immediately improved. He inhaled the chloroform . . . woke up, and recovered without any feeling of depression. Now, if the inhalation had been commenced . . . without inquiry or explanation, the syncope which seemed approaching would probably have taken place and it would have had the appearance of being caused by the chloroform, although not so in reality." In effect, Dr. Snow had realized and emphasized the importance of the preanesthetic physical examination.

In the 19th century, anesthesia and surgical procedures were frequently carried out in the home; a bedroom or kitchen was converted to operating and recovery areas. Only

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after the beginning of the 20th century did it become routine to admit patients to hospitals. Between the World Wars, hospital stays became more acceptable and longer, perhaps because of new advances in surgical and anesthetic technique and a general need to study and observe more of these new phenomena. Municipal hospitals in cities such as New York often had 1000-2000 beds and even more. Hospital costs were escalating. As early as 1949, Green and Howalt suggested that a preadmission evaluation clinic was feasible.³ Some 25 years later, the ability of such an arrangement to decrease costs was demonstrated.⁴ This author (EAMF) developed an outpatient assessment clinic at a municipal hospital that processed 3500 patients over 3 years between 1972 and 1975 and showed significant savings in hospital days (up to 50% decrease in the stay).⁵ Abnormalities that necessitated rescheduling of cases were found in about 5% of patients. The majority of situations uncovered could be revealed by history and physical examination (eg, pregnancy, colds, uncontrolled diabetes). But the clinic was not generally enthusiastically received. Insurance carriers in 1975 paid flat rates of \$205 per inpatient day and only \$41 for outpatient evaluation and nothing for physician assessment. Hospital administrators preferred that beds were occupied with patients who were having "light" days (eg, blood tests, chest X-rays, resting) rather than "full service" days (eg, operating room, recovery area, intensive care nursing, etc.).

The freestanding ambulatory surgery movement was initiated in the United States in the 1970s. As anesthesia became safer because of improved and increased monitoring, and surgical procedures could be more easily performed with new (and expensive) equipment (eg, microscopes, lasers, laparoscopes), ambulatory practice grew such that now >75% of surgery performed in the United States is on an outpatient or same day admission basis. Although at first outpatient surgery was restricted to young, healthy individuals, age is no longer a deterrent to this practice. Now, as patients are admitted often on the day of surgery and time is limited, a comprehensive evaluation by an anesthesiologist some time before the operative day is desirable.

National standards

The American Society of Anesthesiologists, aware that national differences had developed in preanesthetic assessment, developed a task force some years ago to present reports intended to assist in decision making where scientific evidence is insufficient to present an evidence-based model⁶ (www.asahq.org). These practice guidelines are periodically revised and are intended to be adopted, modified, or rejected, according to clinical needs and constraints. Anesthesiologists from all over the US and from different practice settings participated. The task force used a multi-step process by reviewing literature, interviewing consultants and practitioners, reviewing results from opinion sur-

veys and random sampling of the ASA membership, and sponsoring open forums at major national meetings to build a consensus on the advisory. Preanesthesia evaluation is considered a basic element of anesthesia care and consists of the consideration of information from multiple sources such as the record, interview, physical examinations, and test results. The task force noted that a preanesthesia history and physical examination precedes the ordering, requiring, or performance of specific tests. However, much of the advisory focuses on the evidence or lack thereof of specific tests.

Laboratory screening

One of the first large studies to challenge the usefulness of routine preoperative laboratory screening was published over 20 years ago.⁷ The authors assessed the value of routine laboratory screening of 2000 preoperative patients over a 4-month period. The tests ordered included complete and differential blood cell counts, prothrombin time and partial thromboplastin time, platelet count, 6-factor automated multiple analysis, and glucose level. Sixty percent of these routinely ordered tests would not have been performed if testing had only been done for recognizable indications, and only 0.22% of these revealed abnormalities that might influence perioperative management. Chart review indicated that the abnormalities were not acted on nor did they exert any adverse anesthetic or surgical consequences. Conclusions were that, in the absence of specific indications, routine preoperative laboratory testing contributes little to patient care, and can reasonably be eliminated. Even when an irregular result is revealed, therapy is rarely changed.

In a review article published a few years later, Roizen, one of the authors of the study cited above, took the conclusions a little further.⁸ Pointing out that \$40 billion a year was spent in the United States on preoperative testing and evaluation, he noted that 60% is wasted. Likening it to the absurd statement that "If a little epinephrine is good, more is better," he noted that extra testing provokes iatrogenic disease by pursuit and treatment of borderline and false positive results, thereby increasing medicolegal risks and decreasing the efficiency of practice. Rather wistfully he suggested that we, as anesthesiologists, could turn such inefficiency to our advantage by showing the patient and the bureaucrat that we can use inexpensive technology (ourselves as perioperative physicians) to reduce costs substantially and improve the quality of care. Unfortunately, at this point, hospitals were still reimbursed for unnecessary testing. Further studies were undertaken. Health care workers and the public were still not convinced.

Attempts were made to design studies that would accurately identify essential preoperative tests. One French report considered the basic concepts concerning classification of studies evaluating diagnostic procedures and the specific problem of assessment of routine preoperative tests.⁹ The

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