

## EDITORIAL VIEWS

Anesthesiology  
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### *A Change in Format for ANESTHESIOLOGY*

THIS ISSUE OF ANESTHESIOLOGY reflects several changes in the format and editorial organization of the Journal. These include, first, a change in the categories in which papers are published; second, the addition of a group of Associate Editors; and, third, the retirement of four Editors from the Editorial Board.

The format changes are simple in design yet significant in terms of their implications. Beginning with this issue, the categories Original Articles and Clinical Reports will be replaced by categories entitled Clinical Investigations, Laboratory Investigations, and Case Reports. In other words, laboratory research previously published as Original Articles will now be designated Laboratory Investigations and clinical research previously published as either an Original Article or as a Clinical Report will now be designated Clinical Investigations. Case reports previously published as Clinical Reports will now be published as Case Reports, and the remaining categories will be unaltered. The intent underlying these changes is twofold. First, the Editorial Board contends that properly performed clinical research should not be characterized, as it often has been in the past, as less major than laboratory research. The requirements underlying properly conducted research are well defined and either are or are not fulfilled as part of the study, whether it was carried out in the clinic or the laboratory. If the requirements are met and if the subject is of interest to our audience, then the paper should be equally recognized as scientific investigation—clinical or laboratory. The second intent

underlying this change is more subtle, and, we hope, will be welcomed by our readers—and, as importantly, by our contributors. We wish to send the message that the current Editorial Board and its Editor-in-Chief are committed to publishing the very highest quality clinical research being produced anywhere in the world. We have heard the comments that ANESTHESIOLOGY is excessively committed to publishing results of laboratory research—at times arcane—and, in the minds of some, of only limited clinical relevance. That this impression is not new<sup>1-3</sup> is of little comfort or reassurance. However, perhaps in contrast with the past, high-quality clinical research is presently being conducted, and the new categories should highlight, rather than obscure, its presence. Surely this month's clinical science contributions support this contention. In addition, we also reaffirm the fact that ANESTHESIOLOGY remains committed to publishing the results of the highest quality laboratory research in our discipline that provides insights—present or future—into improved clinical care.

This expression of interest in clinical research by changing the title of categories of papers published has recently been similarly addressed by *The British Journal of Anaesthesia*.<sup>4</sup> Interestingly, the approach of *The British Journal of Anaesthesia* has been to eliminate Clinical and Laboratory Investigations, replacing them with Original Articles. Perhaps there is some truth to the adage that, "There is nothing new under the sun."

The second substantive difference noted in this issue of ANESTHESIOLOGY is the designation on the masthead of ten respected investigators—physician scientists and non-physician scientists—as Associate Editors. Our objective in this regard is to expand the expertise of the Editorial Board beyond that possessed by the current Editors. Even with this expansion, there are areas of clinical

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Address reprint requests to Dr. Saidman: Editor-in-Chief, Anesthesiology, T-105, University of California, San Diego, San Diego, California 92093.

care and laboratory science not yet represented by either the Editors or Associate Editors, and, as before, we will continue to rely on our Consultant Reviewers for their expertise in these areas.

Finally, this month's masthead reveals the departure of four members of the Editorial Board: Carl Hug, Edward Lowenstein, Ronald Miller, and Harvey Shapiro. They have provided expertise in their respective areas of interest, and their presence as Editors has added prestige to ANESTHESIOLOGY. In addition, Ronald Miller has served in a superb manner as Editor in charge of Clinical Reports for the past 9 years, and it is perhaps fitting that the Clinical Reports category be retired as he retires as Editor. My sincerest and most deeply felt thanks go to the retiring Editors for their efforts on our behalf, and I join the Editorial Board in welcoming three new Editors—

Dennis Mangano, Donald Stanski, and Michael Todd—as members of the Editorial Board.

LAWRENCE J. SAIDMAN, M.D.  
*Editor-in-chief*  
*Anesthesiology, T-015*  
*University of California, San Diego*  
*San Diego, California 92093*

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Anesthesiology  
70:2–4, 1989

## Changing Perspectives in Monitoring Oxygenation

IN THIS ISSUE OF ANESTHESIOLOGY, Tremper and Barker<sup>1</sup> provide a very useful review of pulse oximetry—a tool that has taken the clinical anesthesia world by storm. They describe some of the technical difficulties that had to be overcome in its development, but it is interesting to consider the changes which have occurred in clinicians' perspectives on monitoring oxygenation.

In the late 1800s and early 1900s, two observations were to prove of great importance to future generations of clinicians. A French engineer/physiologist, Paul Bert (1833–1886), was interested in mountain sickness and was the first to demonstrate the relationship between partial pressure of gases and their physiological effects. He noted that animals in a low-pressure chamber died when the oxygen tension fell to a mean of 0.035 atmospheres (approximately 26 mmHg). He subjected himself to a pressure of one-third of an atmosphere and, when his consciousness was dimming, breathed oxygen with recovery. In 1920, Barcroft submitted himself to simulated high altitude for 6 days, with a radial artery surgically exposed for blood sampling. He noted that, at these low inspired oxygen levels, his arterial saturation was always lower than in blood equilibrated *in vitro* with a simultaneously ob-

tained sample of alveolar gas—the first demonstration of an alveolar-arterial oxygen difference.

Perhaps it was the survival that was demonstrable following various types of experimental hypoxia, coupled with very incomplete understanding, which encouraged certain anesthesia practices as recently as the early 1940s. When the author became a House Anaesthetist in London in 1949, it was common to induce nitrous oxide and oxygen anesthesia for brief minor surgery in Emergency Department operating rooms by starting with several breaths of 100% nitrous oxide.  $FI_{O_2}$  was then increased, often only to 0.10, for the next several minutes. It is not surprising that the technique was falling out of favor. However, despite the common postoperative vomiting, headache, and confusion, full recovery was the rule and the technique was employed in thousands of patients. At that time, awareness of the importance of maintenance of oxygenation was increasing, but monitoring consisted of watching the patient's color and cardiovascular responses, and perceptions of lower levels of tolerance were inappropriately optimistic. Electronic monitoring was virtually unknown.

Measurements of oxygen saturation of hemoglobin became clinically important in the 1950s in the diagnosis of cardiac disease. The advent of effective cardiac surgery stimulated the growth of cardiac catheterization laboratories. Calculations of cardiac output and right-to-left shunt derived from oxygen content measurements and the Fick equation became common in clinical application. This, together with the advent of "Respiratory Failure

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Address reprint requests to Dr. Fairley: Department of Anesthesia, Stanford University, California 94305.

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