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*In reply:*—Dr. Gravenstein focuses on a critical point in my editorial<sup>1</sup> when he asks why we cannot “follow our clinical wits” and rely on “things that make sense intuitively” when making decisions relating to medical technology—broadly defined to include drugs, surgical operations, treatment regimens, and practice standards. One need only recall some of the reversals that have occurred during the past 10 yr with regard to several of our clinical practices that had been widely accepted, in part, because they seemed so obvious: Routine chest radiogram (and other studies) before surgery; hemoglobin of at least 10 g/dl preoperatively; use of barbiturates in global cerebral ischemia; and anesthetic gas scavenging to prevent alleged occupational disease, among others. An even broader array of technology, initially embraced enthusiastically because intuitively it seemed so valuable, has been found to have limited usefulness when the associated adverse events, economic costs, and true benefits were appreciated: for example, ketamine, pulmonary artery catheter, and intensive care.

Throughout medicine the message is the same: clinical wits and intuition are often misleading in technology decisions. In part, this may be so because clinical wits and intuition evolve from clinical experience that may be biased by the worst or most recent cases encountered, and theoretic constructs that may themselves be faulty due to knowledge gaps. Moreover, as noted in the inaugural editorial of a journal devoted to medical technology assessment, the increase of health care expenditures have averaged about 13%/yr for more than two decades, with between one-third and one-half of the increase related to technology.\* Unable to do more than we can pay for, there has been growing interest in spending more wisely. Thus, more objective assessment of medical technology has become an important activity within medical organizations (*e.g.*, American College of Physicians,

\* Perry S: New technologies and the need for technology assessment. *J Health Care Technology* 1(1):7-9, 1984.

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### More on Standards, Monitoring, and Outcome

*To the Editor:*—The stimulating Editorial<sup>1</sup> that accompanies the Harvard patient injury analyses,<sup>2</sup> boldly concludes that “the emperor is naked.” Orkin points out many reasons to expect an improvement in outcome following anesthesia, regardless of the mandatory use of pulse oximeters, capnographs, or adherence to the “Harvard Standards.”<sup>3</sup> Although the Danish may have the sociopolitical structure to test pulse oximeters in a national clinical trial, anesthesiologists in this

- REFERENCES
1. Orkin FK: Practice standards: The Midas touch or the emperor's new clothes? *ANESTHESIOLOGY* 70:567-571, 1989
  2. Eichhorn JH: Prevention of intraoperative anesthesia accidents and related severe injury through safety monitoring. *ANESTHESIOLOGY* 70:572-577, 1989

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American Medical Association), health policy advisory groups (*e.g.*, National Academy of Sciences' Institute of Medicine), health insurers (*e.g.*, Blue Cross Association, Health Care Financing Administration), US Congress (Office of Technology Assessment), other governmental agencies (*e.g.*, National Center for Health Services Research and Technology Assessment), and academia. Even the mundane automobile seat belt, which Dr. Gravenstein notes occasionally causes harm, has been studied and found to have a net benefit; however, recently, a National Academy of Sciences committee has concluded that the benefit of maintaining seat belts in school buses (1 life saved/yr) is too small to warrant its cost (\$40 million/yr).†

Clearly, the development of practice standards deserves the most objective decision-making process that we can muster. If this important work is stymied by lack of identifiable, objective nonlethal outcomes, then this is where we might direct attention.

† Johnson J: Study rejects requiring school bus seat belts. *NY Times*, A1, May 9, 1989.

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country will soon be forced to the monitoring standards set by the legal profession.\*

The Eichhorn data represents a powerful reference standard to be

\*Abramowitz M: Brain-Damaged Patient Awarded \$4.6 Million. *The Washington Post*, A22, March 24, 1989.