of morbidity may be very difficult to measure (eg, how many IQ points does a patient lose when he is hypoxic for a few hours?). One cost-benefit analysis concluded that pulse oximetry "pays for itself" if only one in 40,000 hypoxic episodes were to result in death. The medical community uses a commonsense approach to monitoring standards; it has never waited for outcome studies to mandate new modalities that have obvious lifesaving potential. There are no well-designed studies showing that intraoperative monitoring of blood pressure reduces mortality, yet no one would administer anesthesia today without a blood pressure monitor.

Thus, while Rutledge et al show that pulse oximetry may have a limited effect on the utilization of ABG analysis, their study raises a more important question: is pulse oximetry becoming a standard of care in the ICU? I suspect that the answer is yes, and that it will become a standard in the absence of definitive outcome studies. The authors have acknowledged this fact in the design of their study by using retrospective controls. Hypoxia is not good for people, and it occurs often in the critically ill. How can we afford not to monitor arterial oxygenation in these patients?

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Cellular Characterization of Lung Cancer
A Caveat

Lung cancer is increasingly being characterized at the cellular and molecular level, with a corresponding convergence of the traditional differences between small cell anaplastic and non-small cell lung cancers. The cell surface glycoproteins expressed on lung cancer cell lines can be detected by monoclonal antibodies, both in the cell lines and in clinical specimens. Expression of these glycoproteins appears to precede traditional cytologic evidence of malignancy by approximately 2 years. Gastrin-releasing peptide, a growth factor for lung cancer cell lines, has been demonstrated to be elevated in the bronchial washings and urine of smokers compared with non-smokers. Variations in the expression of the tumor suppressor gene, p53, are related to the risk of developing malignancy in several settings, including lung cancer, and the current report of Mitsudomi et al (see page 362) will greatly enhance its assessment in lung cancer.

As the authors note, the ability to obtain adequate tissue for analysis of "early" lung cancer lesions has been hindered by the clinical use of fiberoptic bronchoscopy, which provides extremely small tissue specimens. The use of polymerase chain-reaction technology and a single-strand conformation polymorphism assay allows detection of point mutations, a critical need for understanding changes in p53 expression.

While exploitation of this technology will allow increasing study of premalignant bronchial lesions, there is an important caveat to be kept in mind. Most of the growth factors described for cancer are, in fact, variations on growth factors involved in normal tissue repair and inflammation. We must be alert to the flood of articles that will describe changes "specific" to lung cancer. The boundary between "reversibly premalignant" and "early cancer" needs careful definition before these markers become widely used clinically.

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