when such patients develop pulmonary complaints, involvement with lymphoma should be strongly considered. One cannot discern, from the data presented in this article, the relative probabilities of a neoplastic vs an infectious explanation in such a setting. Suffice it to say that both are common, and both must be considered.

Certainly the most useful information provided by this article can be found in Figure 1 (see page 732). Here the authors report the yield of various techniques to retrieve diagnostic material from the lungs or pleura. The apparent futility of either bronchoalveolar lavage or bronchial brushings is notable. Although these techniques are useful for documenting infectious etiologies of pulmonary processes in immunocompromised patients, they appear to be of very limited value for the diagnosis of lymphoma. In contrast, however, the results of other commonly employed diagnostic techniques were mixed. The use of transthoracic needle aspiration (TTNA), a commonly used approach in other settings, yielded the diagnosis in only 2 of 9 patients in this series. Whether the now widespread use of flow cytometry to aid our pathologic colleagues will enhance the efficiency TTNA is speculative, but plausible. As mentioned above, mediastinoscopy was diagnostic in only 1 out of 3 patients. The approaches which seemed, from this series, to most frequently produce the diagnosis were transbronchial biopsy (55%), pleural fluid cytology (75%), and open lung biopsy (75%). Viewed from another perspective, however, these data also show the substantial probability of false-negative results from any diagnostic procedure. The clinician can then conclude that in the rare patient where the index of suspicion is high, and knowledge of the diagnosis is critical to the patient’s care, more than one diagnostic test may be required to ultimately make the diagnosis.

In summary, “The pulmonary manifestations of AIDS-related non-Hodgkin’s lymphoma,” despite the problems of a retrospective review, provides treating physicians with a valuable database. It may be concluded that involvement of the lung, pleura, and mediastinal or hilar nodes are more common than previously believed. Finally, until prospective studies are performed and published, the data in this series suggest that the most useful techniques for diagnosis, short of open lung biopsy, are transbronchial biopsy and pleural fluid cytology.

James W. Lynch, Jr., MD
Gainesville, Florida

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Pulmonary Function Tests Before Surgery

Surgeons, anesthesiologists, and internists all may care for the patient about to undergo surgery. Assessing the risk of surgery is a necessary part of the presurgical evaluation as the physiologic stress of anesthesia and surgery can be considerable. The carefully rendered medical history and physical examination are the time-honored and proper first steps to evaluate the patient being considered for surgery. Medical leaders through writings, accreditation agencies through the risk of loss of accreditation, and third-party payers through financial reward emphasize the importance of the medical history and physical examination. For many physicians, however, estimates of the level of surgical risk made on the basis of the medical and physical are too imprecise: preoperative testing is believed necessary to help refine risk estimates and better guide perioperative management.

Diagnostic testing to help assess surgical risk is seductive to physicians for several reasons. First, test results reported as normal or abnormal based on a cut point seem to offer more certainty than vague medical history or physical examination findings. A cut point in spirometric values below which surgery is believed prohibitive has eluded us to date for most surgery types. Series of patients undergoing major surgery despite very severe spirometric values continue to be published.1 Second, some patients are reassured by aggressive testing especially when the test process confers little risk itself. The “complete” evaluation by one’s physician suggests great concern for the patient’s welfare and outcome. Third, physicians may receive extra reimbursement for diagnostic testing with some
Physicians have been shown to be human as their test ordering behavior is related to their financial interest in the testing laboratory. Thus, physicians have several reasons to want to order preoperative screening tests.

Before physicians order diagnostic tests to assess surgical risk, the following should be carefully considered.

1. Will the test results sufficiently alter the estimate of surgical risk derived from the medical history and physical examination such that the surgery should be canceled, postponed, or changed in nature?
2. Will the test results lead to possible changes in perioperative management, which have been shown to decrease perioperative morbidity and mortality, and improve outcomes?
3. What is the cost of the test?
4. What is the risk of the test itself?

Pulmonary function tests before surgery have been ordered for decades to help assess the risk of surgery. The elegance of the test is related to its simplicity and its extreme low risk. Originally, preoperative testing of pulmonary function was used to assess the risk of pulmonary resection for tuberculosis. The classic article by Stein et al suggested that abnormal pulmonary function was strongly related to outcomes of thoracotomy. Several other studies in the 1960s and 1970s supported this concept. In the 1980s, critical reviews of the literature regarding pulmonary function before surgery suggested that previous work may be flawed and invalid because of the unappreciated study design issues. On this basis, the American College of Physicians guidelines regarding pulmonary function tests before surgery were rightfully vague given the lack of valid studies. At the same time, more carefully done investigations of the value of pulmonary function tests indicated that the relationship between spirometric values and perioperative pulmonary complications may not supersede information that can be gained from the medical history and physical examination.

The investigation is this issue of CHEST by Lawrence et al (see page 744), should lead the clinician to further question the value of pulmonary function tests before major abdominal surgery. Using a nested case control design, the authors identified 82 patients who suffered serious perioperative pulmonary complications at a single medical center over a 9-year period. The authors matched each patient with a pulmonary complication by type of surgery and age to a control patient who did not suffer a pulmonary complication. Using appropriate analysis, they found that the risk of perioperative pulmonary complications was most strongly related to findings on lung examination and chest radiograph. The findings from spirometry were not related to the risk of perioperative pulmonary complications on univariate analysis. On multivariate modeling, even when pulmonary function tests were forced into the model, spirometry did not add to risk estimates. The study was well conducted and avoided many of the pitfalls of retrospective analysis. Nonetheless, the limitation of a retrospective study of this type should be discussed. Patients who are included in a study of this type all have had surgery. Patients with severely abnormal spirometry may be judged not to be operative candidates by physicians and never enter the hospital or study database. Thus the study sample is necessarily a subset of the whole of patients being considered for abdominal procedures. As the authors point out, future studies of this issue require a prospective design and optimally should include at least a description of the patients whose surgery was canceled because of perceived prohibitive pulmonary risk.

Where should investigators in this area go from here? First, important postoperative end points for investigations of perioperative risk need to be better defined and their epidemiology and cost investigated. The end points chosen should be shown to be related to outcomes such as return to presurgical (or better) functional status. These outcomes are likely more relevant to what the patient would want to know in making a decision about surgery and also are more likely related to cost considerations. Second, multicenter investigations will need to be conducted to investigate this area in a timely manner. Serious perioperative pulmonary complications such as the need for long-term ventilator support are uncommon after most surgical procedures. Nonetheless, this end point is important to consider as it is an outcome that physicians and patients justifiably fear. Single-center studies, in order to generate enough events, will require a long study duration during which time changes in surgical technique and anesthesiology may make the findings moot. Third, future investigations of pulmonary function tests or newer modalities hypothesized to predict surgical outcome should always be compared with medical history and physical examination findings. Physicians will always perform medical histories and physical examinations. To ignore this data when assessing risk is foolish.

How should clinicians now use pulmonary function tests? First, pulmonary function studies never should be routine before surgery. Almost all surgeries not involving the abdominal or chest cavity are inherently of very low risk for serious perioperative pulmonary complications. Spirometry before these procedures is very unlikely to be of help to decide whether the surgery should be done or to alter perioperative management. For surgeries of inherently higher pulmonary
risk such as upper abdominal procedures, spirometry should be used rarely, given the current state of the literature. For example, in the case of a truly elective upper abdominal procedure in which the functional ability of the patient cannot be assessed because of lower extremity disability and equivocal findings on lung examination and chest radiograph, spirometry may tip the physician one way or the other in deciding to proceed. It is unlikely, however, to alter perioperative management as aggressive perioperative prophylactic measures such as incentive spirometry should be used independent of the spirometric values. In surgery in which resection of pulmonary parenchyma is planned, pulmonary function tests are of value. It is ironic that the value of preoperative spirometry was first demonstrated in surgery of this type.

David S. Macpherson, MD, MPH, Pittsburgh

Associate Professor of Medicine, University of Pittsburgh, Pittsburgh Veterans Affairs Medical Center.

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Advance Directives
Changing Our Expectations

In spite of 20 years of use, the promise of advance directives has yet to be realized.1,2 In this issue of CHEST (see page 816), Tonelli provides a critical analysis of the current use of advance directives. He finds the advance directives’ purported protection of autonomy to be a weak claim and concludes that they provide only limited benefits in clinical practice. He argues that these benefits could be better achieved by developing professional standards and guidelines regarding the provision of end-of-life care. Tonelli concludes that it is time to “pull the plug” on advance directives; we suggest the problem lies instead in our unrealistic expectations of what they can do.

The appeal—and apparent promise—of advance directives is that they provide choice, certainty, and control over death: the ultimate exercise of autonomy. Individuals who complete advance directives see them as a legal trump card that can be played in order to control future medical care decisions. They assume that preferences about care are easily known by patients and upheld by clinicians. This conception does not account for the uncertainty innate in most medical situations, much less the subtle influence and power held by those who determine what options will be offered. We argue that these expectations of choice, certainty, and control are misguided, and propose instead that advance directives have a more limited, yet equally important role: furthering the process of negotiation necessary for end-of-life care.3

The advance directive movement was premised on a basic mistrust in the ability of physicians to make treatment choices for patients. Patients feared that overtreatment would be routinely provided. As a remedy, advance directives sought to wrest control of these decisions away from clinicians, granting autonomous choice to the patient. As Tonelli points out, it should have been anticipated that attempts to transfer decisional control to the patient or surrogate, without addressing broader questions in clinical practice, would fail. While we do not wish to remove the patient from the decision-making process, it is perhaps naïve to expect that advance directives can change long-established social practices within medicine or help the sick overcome their vulnerability.4 This is too much to expect of an advance directive, no matter how well crafted.

By writing down or conveying to a surrogate what preferences the patient has regarding end-of-life care, the patient attempts to guarantee that these will be respected. This approach assumes preferences are static traits that can be biopsied like a tumor or measured like hemoglobin. But a preference is not a personality trait that is stable across time, rather it is only relevant within a particular social context. Preferences are not discovered, they are created. Determining a preference involves considerable negotiation among the actors involved. It is only through such interaction that meaning and agreement can be