gies in the workup of a solitary radiographic lung lesion failed to mention any other options available to the diagnostican. Three of the four strategies mentioned (sputum cytology, image directed fine-needle aspiration, bronchoscopic examination, and open biopsy) are invasive procedures. The model the authors proposed does not include the possibility of procedural complications that may (positively) affect the overall favorability of a sputum cytology analysis.

The approach to the problem presented must involve many specialties, such as a pulmonologist, a radiologist, a thoracic surgeon, and a pathologist. Whereas a plain tomographic film finding of a solitary lung lesion can be given an accurate diagnosis (benign or malignant) in as many as 67% of cases, the diagnostic dilemma mentioned only applies to the remaining 33%. Given the baseline case of a mass of less than 3.0 cm in diameter, we would try to reduce the diagnostic uncertainty further with the aid of added radiographic imaging, specifically thin-section CT aided by a reference phantom. The technique, pioneered by Zerhoome et al., where the tomographic attenuation of the lesion is compared with the standardized reference, has been shown to increase the accuracy of the radiographic diagnosis to nearly 77%, with a specificity of 97%. The actual additional cost incurred is negligible. The procedure is not commonly done at all centers, however.

In addition, there are other newer modalities that may be used before one resorts to the invasive procedures mentioned. These include CT (iodinated) contrast enhancement of nodules (specificity, 76.9%; and sensitivity, 100% for pulmonary nodules 6 to 40 mm in diameter), digital radiography, dual-energy digital radiography, and FDG-PET scanning (specificity, 100%, and sensitivity, 89% for nodules 2 cm or more in size). Each of these radiographic adjuncts can select the patients that need more definitive analysis, significantly improving the yields of these tests and improving also the overall cost-effectiveness of the workup.

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To the Editor:

Drs. Fefer and Suster raise several important issues about the
evaluation of solitary lung lesions. We believe that it is important
to emphasize that the perspective that we chose was that of a clinician
attempting to find out whether a lung lesion was malignant or not.
In other words, the diagnosis is pursued until one gets a definitive
answer. The imaging modalities that Drs. Fefer and Suster cite
improve the pretest probability of disease, possibly close to 1.
However, it has been our experience that, while imaging may
increase or decrease a clinician's level of suspicion, the results of
such procedures are not viewed as definitive and that all lesions are
worked up to the extent possible.

The newer imaging techniques cannot reduce the cost of
workup unless their results can be accepted as definitive.
Whether or not these techniques had been used, the diagnostic
options in our analysis would still be pursued, albeit with a higher
prevalence of disease. We did indirectly model the use of such
modalities in our sensitivity analysis by varying the prevalence of
disease over a wide range (1 to 100%).

Fefer and Suster correctly noted that we did not fully model
complications of each of the diagnostic procedures. We noted
that this was a limitation of our study. We did, however, indirectly
model the costs of treating complications in our sensitivity
analysis by varying the cost of each test over a wide range. We
also noted that our analysis did not evaluate the problem of lung
lesions from a screening perspective, which further limited the
broad applicability of our study.

We chose to model a small segment of the population of
patients with pulmonary lesions from one perspective. We found
that only at a high prevalence of disease does sputum cytology
become cost effective. From the particular perspective that we
modeled, one should go directly to open biopsy for surgical
candidates over 30, to bronchoscopy for younger patients, or to
CT directed fine-needle aspiration for those who are not opera-
tive candidates.

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A Sedation Protocol to Prevent
Self-Exubtation

To the Editor:

We read with interest the article about self-exubtations pub-
lished by Atkins et al. (November 1997) in CHEST. In our
medical ICU, self-exubtation was also a problem associated with
potential serious morbidity and mortality. As a quality improve-
ment project, we developed a sedation protocol with lorazepam
(Ativan) as a continuous drip, since agitation appeared to be the
major factor contributing to these self-exubtations. The physician
institutes the sedation protocol in the order sheet and sets a
target Ramsey score, and the nurse titrates the lorazepam drip to
aim for this specific level of sedation. Using this sedation
protocol, we were able to decrease the self-exubtation rate from
as high as 25% to a present level of under 10%. This sedation
protocol has now been adopted by all the other adult ICUs at
Saint Vinices Hospital.

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