cost from retreatment with radioiodide as well as from "... extended disability and income loss ..." To this we have to add expenses from possible anti-thyroid drugs in the interim as well as potential side effects from these medications (*2*).

3. The results of retreatment with radioiodide have been analyzed in some detail (*3*). If we define "cured" of hyperthyroidism as being euthyroid or hypothyroid, then expressions are available for describing the results as a function of the quantity of radioiodide administered. Each physician must determine for herself/himself what fraction of patients they wish to cure with a single dose of radioiodide, while leaving the remainder still hyperthyroid. Choices between radiation exposure, prolonged disease, and possible side effects of anti-thyroid drugs are not easy to make. If evidence mounts of the relative "benign" nature of larger doses of oral radioiodide, therapy of hyperthyroidiam will be simplified.

REFERENCES

1. Nordyke RA, Gilbert FI Jr. Optimal iodine-131 dose for eliminating hyperthyroidism in Graves' disease. *J Nucl Med* 1991;32:411–416.
2. Spencer RP, Kayani N, Karimeddini MK. Radioiodine therapy of hyperthyroidism: socioeconomic considerations. *J Nucl Med* 1985;26:663–665.
3. Spencer RP. Response of the overactive thyroid to radioiodine therapy. *J Nucl Med* 1971;12:610–615.

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REPLY: Dr. Spencer's thoughtful comments and general agreement with our approach to the treatment of hyperthyroidism with radioiodide are appreciated. Although not stated in our article (*1*), we agree that the use of anti-thyroid drugs both before and after treatment with ^{131}I adds to the cost and risk for many patients.

Dr. Spencer states that the choice between radiation exposure and prolonged hyperthyroidism will be simplified "if evidence mounts of the benign nature of larger doses of oral radioiodide." Perhaps so. In the meantime, we feel that our approach is simple enough. It clearly lays out the probability of cure of hyperthyroidism versus the amount of radioiodide administered. This allows both the physician and the patient to participate in the decision of how much radioiodide to use. Such informed decisions should be a major concern of both physicians and patients (*2*).

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REFERENCES

1. Nordyke R, Gilbert F, Jr. Optimal iodine-131 dose for eliminating hyperthyroidism in Graves' disease. *J Nucl Med* 1991;32:411–416.
2. Clinton J. From the Agency for Health Care Policy and Research. *JAMA* 1991;265:1508.

Cost Considerations for Xenon-127

TO THE EDITOR: The discussion on item 2 of the self-study test on pulmonary nuclear medicine in the March 1991 issue of the *Journal* starts with the unqualified statement that ^{127}Xe is "costly." While accepting that the unit price of ^{127}Xe is substantially higher than that of ^{133}Xe, the cost of providing a service with this agent need be no more (*1*). Two factors contribute to this. As your expert rightly points out, there is no point in performing a ventilation study in a patient with a normal perfusion examination. Clearly, the percentage of patients with a normal perfusion study will depend on the characteristics of the population studied. In a general hospital population, the number of patients who have unequivocally normal perfusion studies and therefore do not require ventilation is substantial (up to 80% on our practice), so that the number of patients requiring ventilation for diagnosis is much smaller than the total number referred for lung scintigraphy. Second, there is less waste due to radioactive decay during transport and storage. A further advantage is that, as the perfusion study is performed first, it is possible to select whichever projection shows the abnormality to best advantage; there should consequently be fewer equivocal examinations. Because of the higher photon yield and lesser absorption, the activity which needs to be administered to obtain an equal count rate is somewhat less.

Xenon-127 has been employed exclusively in this department for over 5 yr. The economic advantages at least balance, and probably outweigh, the unit cost differential with ^{133}Xe. The total cost of maintaining an adequate stock of either gas is similar once the different usage patterns are taken into account, and there is a substantial saving in the number of disposable ventilation systems used. A further significant, but unquantifiable, advantage is that the reduced number of examinations results in a substantial saving in radiation dose to staff.

Thus, although it is conventional to dismiss ^{127}Xe as impractical, it does, in reality, have substantial advantages and should be regarded as a routine rather than an exotic agent. The nuclear medicine community should bring pressure to bear on the commercial suppliers to make it available. If there is sufficient demand, a means of supply will be found.

REFERENCE

1. Nimmo MJ, Merrick MV, Millar AM. Economics of xenon-127, xenon-133 and krypton-81m for routine ventilation imaging of the lungs. *Br J Radiology* 1985;58:635–636.

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The Difference in Clearance Between Kit-Prepared Technetium-99m-MAG$_3$ and Radioiodinated Hippuric Acid

TO THE EDITOR: Müller-Suur et al. (*1*) reported that the renal clearance of kit-prepared ^{99m}Tc-MAG$_3$ was lower than that of ^{123}I-labeled o-iodohippuric acid (OIH) by about 50%. These results were based on studies in only 17 patients, who were examined at intervals of 2–8 days, as opposed to our simultaneous investigations in 124 patients using HPLC-purified ^{99m}Tc-MAG$_3$ under steady-state conditions (*2,3*). Their clearance calculations were performed during slope with the aid of totally different methods, and additionally, the radiochemical purity of 95% was not verified by HPLC but by a simplified method (*4*).

The renal clearances of different radiopharmaceuticals can be compared with each other only if the measurements are per-