seeking radiopharmaceuticals stringent requirements should be considered concerning the labeling efficiency. Even a 95% labeling efficiency, which is equivalent to 1 mCi of free ^{99m}Tc-pertechnetate out of a 20-mCi ^{99m}Tc-Sn-DIP, can create unacceptable artifacts and, therefore, it seems advisable to consider higher labeling efficiencies for bone scanning radiopharmaceuticals.

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REPLY TO "IMPURITIES IN A ^{99m}Tc-LUNG IMAGING KIT"

I would like to comment on the article "Impurities in a ^{99m}Tc Lung Imaging Kit," which appears on pp. 28-31 of this issue.

Organ distribution data in mice were presented in support of evidence obtained by thin layer chromatography that a substantial fraction of activity in the preparation was "dissociated from the macroparticles . . . The most significant radiochemical impurity present in the preparation was a ^{99m}Tc-protein which represented 12–14% of total radioactivity."

Results of organ distribution analysis as performed at New England Nuclear utilizing rats on NEN Pulmolite, Lot 7016, are presented in Table 1. In all cases the agent was prepared as described in the product labeling and the intact organs of interest assayed in a calibrated Capintec ion chamber.

TABLE 1. Organ Distribution Analysis in Rats

Organ	Distribution (percent injected dose, decay corrected) 15 min (n = 4)	24 h (n = 6)
Lung	91.6% Range: 90.5–93.3	3.1% Range: 2.2–4.2
Liver	1.1% Range: 1.0–1.3	13.1% Range: 11.1–14.4
Carcass	4.1% Range: 3.8–4.8	5.8% Range: 5.2–7.1
Spleen	0.1% Range: 0.0–0.1	1.7% Range: 1.3–2.5
Blood	1.1% Range: 0.9–1.1	0.9% Range: 0.8–1.1

All lots of Pulmolite manufactured to date have shown a *distribution of 85–95% of the injected dose to the lung at 15 min postinjection,* decay corrected. These results are, in my opinion, entirely consistent with an efficacious agent and are, of course, consistent with the requirements of the XIX edition of the *United States Pharmacopoeia.*

The organ distribution data presented by the authors in their Table 3 in support of the proposition that a soluble protein fraction is radiolabeled to an appreciable extent are, in my opinion, inadequate to justify the latter conclusion.

A radiolabeled soluble protein would distribute principally to blood, kidney, and bladder, *and the distribution of activity to these organs, as observed by the authors, clearly does not parallel the decline in observed distribution to lung over 1 h.*

The authors further report the relative distribution of activity to the kidney and lungs in human patients injected with NEN's ^{99m}Tc-stannous macroaggregated albumin. Region-of-interest studies in four patients reported to us from the Boston Children's Hospital describe a kidney distribution of activity of 2.5–7.5% of the injected dose (personal communication from Michael Davis).

In summary, we believe that further work should be done to correlate the in-vitro results reported by the authors with clinical observations and with animal distribution studies. The experimental distribution of activity described by the authors for the mouse may suffer from technique-related issues including questions of counting geometry and/or large dilutions of the labeled kit, beyond those demonstrated to be consistent with kit efficacy.

It is our belief that the agent should be prepared according to the manufacturer's instructions when such an investigation is conducted. It is my understanding on

the basis of personal conversations with one of the authors that repeat studies utilizing an ion chamber and an agent labeled with millicurie quantities of ^{99m}Tc produced results similar to those obtained by NEN's Quality Control Department.

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A VOICE FOR VOICE

I read with interest your item in the Sept. 1976 issue of the *Journal of Nuclear Medicine Technology* regarding continuing education.

The VOICE program is a progressive step and is instrumental in allowing the expertise and professionalism of the nuclear medicine technologist to be upgraded and documented. It would appear that competency should result from the outward effort applied to obtain the VOICE credits.

All too frequently our employers "forget" that our field is expanding so that without continuing education a portion of our skills applied would be from the dark ages of five years ago, no longer acceptable for good patient care.

For one, I'm very appreciative of any upgrading in continuing education, especially the suggestion of feedback to our employers.

Thank you for encouraging us to express our viewpoints.

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LICENSURE STAND SUPPORTED

The following is an excerpt from the Technologist Section-SNM Position Paper on Licensure (adopted June 1976 by the Executive Committee, Technologist Section; National Council Delegates, Technologist Section; Executive Committee, Society of Nuclear Medicine; Board of Trustees, Society of Nuclear Medicine).

"The Technologist Section feels that certification and/or proficiency examinations are the central points of all licensure approaches . . . upon which to evaluate the competency of nuclear medicine technology health care delivery.

"Essentials of education and training and accreditation of educational programs are important facets in striving for professional competency and should be incorporated into a licensure approach.

"Demonstration of a continued competency should be included in any licensure approach. Continuing education and performance-assessment methods are means of striving for continued competence. Continuing education is one of the primary objectives of the Technologist Section . . . which has implemented a system of review of its own and other continuing educational programs . . . for recording all continuing educational activities of a participant to account for and document his involvement in becoming increasingly competent.

"If licensure is deemed necessary, the Technologist Section supports a certain type of licensure as a method of assuring competency and protection to the public. From the Section's viewpoint . . . state licensure through state acceptance and adoption of national certification is the most practical approach. Since this laternative incorporates use of national standards but still allows for state control and adaptation to fulfill local needs, the national standards would be adopted by the states, thus maintaining uniformity and consistency and facilitating reciprocity and mobility between states. State adoption of national standards would be likely because of requirements for reimbursement under federal health insurance programs that services must be provided by health professionals who have been licensed or certified according to national standards.

"In conclusion, the Technologist Section feels that the above supported licensure approach is important as a way of maintaining competency and public protection. In developing licensure, the Section feels that the interaction of accreditation, certification, continuing education, national standards development, and licensure must be carefully considered since all of these will have an important affect/effect on the competency of nuclear medicine technologists and the quality of the health care they provide."

As president of the Milwaukee Area Associates and Technical Affilates, I urge each of you to support the Section's position on licensure to assure development and control of our *own* professional status, and not have a "back-seat" position by being a subtitle or underwritten clause of related organizations' licensure proposals.

Since licensure is a reality just around the corner, and certification and/or proficiency examinations are central points of all licensure approaches, it stands to reason that the Society of Nuclear Medicine *must* be a part of, if not *the* sanctioning authority of its professional members!

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