

time of its use.

Although we have no analytic data on the content of the problematic normal saline, we believe that it may have contained excessive quantities of oxidizing agents. The presence of bacteriostatic compounds can interfere with  $^{99m}\text{Tc}$  labeling of many radiopharmaceuticals, presumably by an oxidative mechanism (9); the normal saline used, however, did not list bacteriostatic agents in its labeling. One possible explanation may relate to the concentration of dissolved oxygen in the normal saline used for reconstitution of the Sn-PYP (10). Another possible explanation may relate to the selection of the elastomeric material used for the vial stopper since certain closures can affect the stability of stannous ion (11) and can leach potent chemicals used in its manufacture into the vial contents (12).

In summary, our observed cluster of poor quality  $^{99m}\text{Tc}$ -RBC labeling procedures was apparently related to the source of normal saline used for reconstitution of the Sn-PYP. Product-specific incompatibility should be considered whenever product-related problems are not readily explained.

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## NOTES

\* TechneScan PYP, Mallinckrodt, St. Louis.

† Abbott, North Chicago, IL

‡ Invenex, Orlando, FL

§ Lyphomed, Rosemont, IL

¶ American Regent Laboratories, Shirley, NY

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## TECHS AS RESEARCHERS

**To the Editor:** After reading Maria Nagel's article "Research As An Integral Part of a Nuclear Medicine Technology Curriculum", September 1989, I had mixed feelings. The idea of teaching basic research skills to technologists is beneficial for a variety of reasons, notably it would improve the ability to read and evaluate the field's literature. This could be accomplished in several lectures.

In a four-year program (or even the "three and one" program), there would be enough elective hours available to add a two-credit hour course. But, how does one integrate an additional two-credit hour course into the two-year associate degree program?

Especially a program whose curriculum is already overcrowded?

Her statement that "as part of the nuclear medicine team, the nuclear medicine technologist must be able to conduct and assist in research activities" struck a raw nerve. Based on manpower surveys published in the *Journal of Nuclear Medicine Technology* as well as other health-related publications, it is clear that there exists a critical shortage of nuclear medicine technologists. I feel that the first priority of any program should be to educate and train good clinical technologists. My experience, admittedly limited, indicates there are more technologists working in community-based hospitals and medical centers than in large research-oriented facilities.

Although research is an important venue, it should be subordinate to the training of competent clinical technologists. Moreover, it is imperative that we seek ways to fill vacant positions and maintain our current technologists in the field before total burnout occurs.

Are we trying to teach our students to become researchers rather than staff technologists?

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**Reply:** I read Ms. Garrett's letter with interest. She made some points which I should like to address: I believe that her supposition that students could learn to "read and evaluate the field's literature" after a series of "several" "lectures" would instead give them only a superficial set of tools and would not imbue in them the ability to think independently.

Her point about there not being enough time for a two-hour research course in the two-year associate degree program is inappropriate. We have been teaching this course to not only two-year students in nuclear medicine technology and radiography, but also to students pursuing one-year pro-