MODIFICATIONS OF THE VIAL/SYRINGE HOLDER FOR THE DOSE CALIBRATOR

To the Editor: There are two problems which are frequently encountered with plastic vial/syringe holders when used with radioisotope calibrators. The first problem is the frequent breakage of the holder when placing it into the chamber of the dose calibrator. Broken handles of the vial/syringe holder accounted for the majority of breakages. This is due to repeated dropping of the fragile lucite holders against the metal ionization chamber of the dose calibrator. This problem can be easily solved by reconstructing the dipper's handle with a stronger and more durable material. We have found that a handle made of polycarbonate is very effective in providing the strength necessary to prevent breakage of the handle due to the possibility of any stress incurred upon contact. None of the handles made of polycarbonate (21 polycarbonate handles were manufactured) have been broken over a period of three years. Judging from this encouraging result, we believe that it would be beneficial to fabricate the entire vial/syringe holder utilizing polycarbonate in order to completely eliminate the breakage problem and thereby reduce the cost of frequent replacement of the lucite holders.

Another problem associated with the usage of the vial/syringe holder is that the opening in the holder designed to hold the syringe is too large for small syringes (e.g., 1 and 3 ml). As a result, the syringe is held at the bottom of the holder (Fig. 1, left) which makes it somewhat awkward to retrieve the syringe from the holder, and in some cases it may even cause the radioactive liquid to be injected into the syringe cap if the plunger is pushed accidentally. In addition, readings taken of various radioactive samples of 1- and 3-ml syringes in that position are in error by up to 3.2% (n=80). These small but significant differences (p=0.026, paired t-test) in radioactivity measurements may be caused by geometry effects in the ion chamber well (*1*).

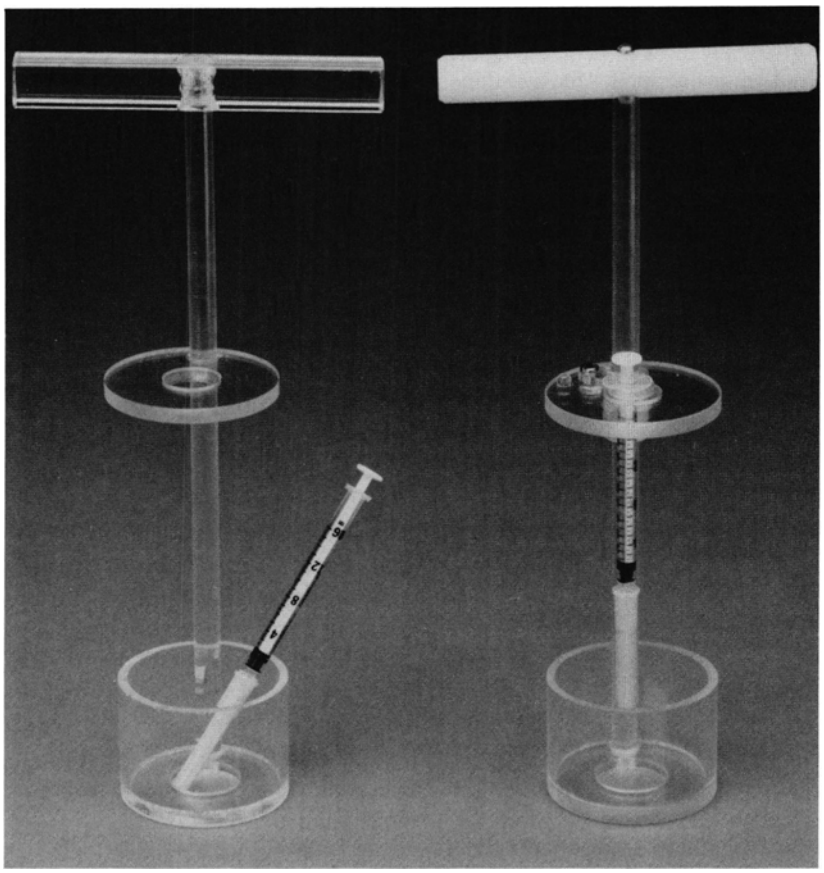

FIG. 1. A 1-ml tuberculin syringe is shown sitting at the bottom of a lucite vial/syringe holder (left), while another 1-ml syringe is held at the appropriate geometric position in a modified holder (right). The handle of the modified holder is made of polycarbonate.

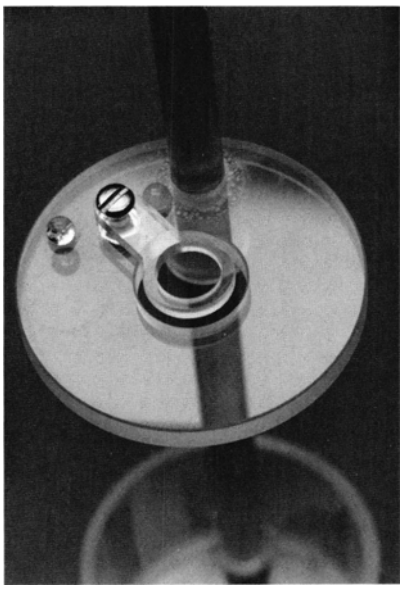

FIG. 2. A close-up view of an attached and movable adaptor for centering a small syringe.

This phenomenon illustrates that the accuracy of the radioactivity measurement is affected by the position of the radioactive source in the ion chamber well of the dose calibrator. Readings taken near the bottom or top of the chamber well are lower than the actual radioactivity because a significant number of photons escape from the detection volume of the chamber in these positions.

We have designed a movable, self-centering adaptor that is permanently mounted onto the holder (Fig. 2). This hinged adaptor can be swung over the opening to allow the centering of a small syringe (i.e., 1 or 3 ml) in an upright position, maintaining the same geometric position as a large syringe (Fig. 1, right). Since the adaptor is movable, it can be moved away from the central opening, thus allowing a

larger syringe to be used in the holder.

In conclusion, we have used these modified vial/syringe holders successfully at our institution for the past three years. We believe that these modifications would be helpful in using the sample holders for measuring radioactivities with a dose calibrator.

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REFERENCE

1. Kowalsky RJ, Perry JR. Quality control of radiopharmaceutical. In: *Radiopharmaceuticals in nuclear medicine practice.* Norwalk, CT: Appleton & Lange; 1987:123–146.

To the Editor: We would like to clarify an erroneous interpretation of the "Essentials and Guidelines of an Accredited Educational Program for the Nuclear Medicine Technologist" (Essentials), which occurred in the editorial, In My Opinion, in the March 1992 issue of the *Journal of Nuclear Medicine Technology.* The 1992 revision of the Essentials does *not* eliminate the requirement for clinical education in radioimmunoassay procedures. On page 9 of the Essentials, Section IIB curriculum, item 2.b.l.i, the content area delineates study of nuclear medicine in-vivo and in-vitro procedures. Item 2.b.2.c. delineates provision of supervised clinical education, experience and discussions. . . in performing an appropriate number and variety of procedures to achieve desired clinical competencies. Guidelines for the curriculum content area (page 11) give general directions for instructional materials, supervised clinical education, laboratories, laboratory supervision and students. Again, under the item, supervised clinical education, the guidelines state that "the type and quantity of nuclear medicine procedures and the extent of training provided should be appropriate to achieve desired competencies for the clinical education of the student and will include laboratory experience."

While the extent of training for RIA procedures available within a community's resources may vary, the Review Committee has not encountered nor would we anticipate a situation where *no* clinical experiences were available. The Review Committee did remove the "160 hours" time frame, which in itself was a guideline. The hours had been published as a guideline for what the Review Committee considered an appropriate period of training. However, concern was expressed that similar guidelines were not provided for other content areas. Since type and variety of procedures do change within the practice of nuclear medicine, the wording ". . .extent of training provided should be appropriate to acheive desired competencies. . ." is more descriptive of the standard.

We do appreciate the concern expressed over what the author felt was a severe deficiency. The same rationale which identified the need for clinical education of RIA was the basis for inclusion of the requirements in the revised Essentials.

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