The use of serum as a "control" has no bearing here. Of course it should be so used! But never let it be argued that because it most closely resembles the serum tested, it magically becomes a standard.

Fact 2: The standard described in Fact 1 should be routinely run with each procedure as a means of checking the original calibration, or for actual calibration. For example, we may calibrate the absorbance readings each time we do glucose determinations by using a 100 mg/100 ml standard, and check it with a 200 mg standard, and vice versa. The method is also checked with reference serum.

Another example: Alkaline phosphatase is standardized for different colorimetric procedures with pure p-nitrophenol, inorganic phosphate, phenolphthalein, etc. in solution. Pure end products are used primarily because purified enzymes are not commercially available. Again, the solvent should not be an indefinable serum.

I bring all this up because we chemists should not become prone to believing that standardization in impure, undefined media is preferable. We can, however, define standards anyway we want, within limits, and by doing so put clinical chemistry into an incomprehensible maze. This admonishment is aroused by the actions of some of our statistically oriented colleagues—not to mention purveyors of reference sera and automation—who are publishing, printing, and otherwise advocating standardization with sera without mentioning the fact that their use must be referred back somewhere and somehow by someone to the pure substance in a definable solution.

Samuel Meites
Clinical Chemistry Laboratory
Children's Hospital
Columbus, Ohio 43205

Precise Descriptions in Papers

To the Editor:
Reagent preparation is the foundation of chemical analyses. Correct, precise directions, although derivied by some as "cookbook," are a necessity in a team with various technical background.

When preparing aqueous solutions, the chemist can usually use the anhydrous and hydrated forms of the solute interchangeably. It must be remembered though, that a mother and child is not the same as a mother with child; water of hydration should be described and taken into account.

A chemist cannot personally check all principles and practices upon which his current activity rests. As a result, we are frequently bewildered when some procedures "work" while others do not; bewilderment turns to confusion when other workers note the converse.

Two incidents in our experience have raised concern in this area. The first involved our inability to make a sodium acetate buffer to pH 3.80 as described (1). A personal communication from the author revealed, however, that the solute used was the trihydrate, not the anhydrous form indicated in the literature, and that the molarity was actually ½ that indicated in the literature. Returning to the laboratory, we found that the pH of the buffer still did not come out as expected until 50% more acetic acid was added than indicated by the authors. Well, one might say "add the acid and be done with it," but the linearity of the method has been shown to be sensitive to electrolytes (2).

The second incident involved a nickel chloride solution used as an enzyme inhibitor (3). The concentration proposed is 0.1 mol/liter, and the author indicated that the weight should be determined to the nearest 0.1 mg. This precision is superfluous, however, since the reagent described is anhydrous salt, while the weight indicated is precisely that necessary to prepare a 0.1 molar solution of the hexahydrate.

We cannot expect the editor of a scientific journal to check in detail all data presented. We should be more exacting in our description of "Materials and Methods." It seems that a few extra lines in the proper place would be of real assistance to us in the field.

References

Rudolph G. Mueller
Gordon E. Lang
St. Mary's Hospital
Milwaukee, Wis. 53211

Medical Laboratory Automation, Inc.
520 Nuber Ave., Mt. Vernon, N.Y. 10550
914/684-0366
Ask your dealer about FREE
PIPETTE RACK.

Circle No. 20 on Reader's Service Card

NATIONAL REGISTRY IN CLINICAL CHEMISTRY
For information write:
Mrs. Suzanne Roethel
1155 Sixteenth Street, N.W.
Washington, D.C. 20036

for Safety and Precision

You can’t beat the system

...And safety!
Your hand never touches the disposable tip. Important for quality control before use because you don’t contaminate the clean tip. Important for your own safety after use because you don’t subject yourself to contamination from residual pathogenic material.

Shouldn’t you standardize on the MLA System?
*Reprint of clinical evaluation available on request.