

Diary of the "mad" med-lab techs

Back in 1969 ...

Seeing the "40th Anniversary" cover of *MLO* in October reminded us that with the first issue in 1969, Chuck had already been working as a phlebotomist for two years. The lab was a different world then. In most labs not only were eating, drinking, and *smoking* allowed while processing specimens, but if you did not dine there, you probably went hungry. Forget using purifying bleach that left counter surfaces dull; some labs used furniture or metal polish. Many lab techs got their intro to the lab as phlebotomists, glassware washers, or media makers. Yes, lab techs did their own phlebotomy and collected samples for blood cultures and blood gases, performed bleeding times and clotting times at the bedside, along with collecting blood from babies for sweat chloride tests. In some hospitals, lab techs also performed X-rays and assisted with cardiac catheterizations.

Lab technology was easily as much an art as a science. We made their own bacteriology media, and odor was a significant part of bacterial identification. In many labs, manual cell counting for WBC, RBC, and platelets in blood was the rule rather than the exception. Coagulation testing meant tilt-tube. Mouth pipetting was the norm; only with WBC/RBC pipettes would tubing and a mouthpiece be used. Many techs have tales about getting a mouthful of urine, serum, spinal fluid, or reagent. How did we survive? The mystery is that most of us did.

Lab techs often made their own chemistry controls from pooled "normal" and "abnormal" sera, establishing values by running aliquots for as many tests as appropriate. Most chemistry analyzers required controls to be run every 10 patient samples, so a lot of controls got used.

Three items that, today, are taken for granted were hard-fought for by lab-tech pioneers — many hospitals just did not think that certain items were cost-effective or even necessary: 1) gloves (seldom used unless the lab tech had a *known* hepatitis patient); 2) needle boxes, especially in patient rooms (needles were recapped and later cut or ground up to dispose of them); and 3) antihepatitis vaccinations (unless the lab professionals wanted to pay for those themselves).

The lab was, and is, a wondrous place to work. We have witnessed wonderful and exciting advancements during these past four decades. The new generation of laboratorians will find this work as challenging and rewarding as we did — and a whole lot safer.

—*Chuck Millstein, MBA, MT(ASEP), CIDir(NCA); and Barbara Millstein, MT-CLS(NCA), MedLabSupp(TN)*

Do you know about shiga-toxin assays?

As a recently retired hospital-lab microbiology supervisor [30+ years' to the bone yard], my concerns center around droves of "baby boomers" following my footsteps out the door, while well-educated-but-inexperienced techs begin filling these vacancies. This column is dedicated to providing answers and suggesting

solutions to a variety of lab problems — and other things that just plain tick me off. What impact will this have on patients and providers? I discovered firsthand how diverse and inconsistent culturing and reporting practices are from one institution to another when our lab began participating in College of American Pathologists' site inspections.

Shiga-toxin assays: Assays for the detection of shiga-toxin-producing *Escherichiae coli* have been around for several years, yet many microbiology labs have not incorporated this test into their routine stool-culture batteries. Amazingly, it has taken a long time to get labs to even culture for the most common of the shiga-toxin producers, *E coli* O157:H7.


Enterohemorrhagic *Escherichiae coli* (EHEC) produce two potent cytotoxins called shiga-like toxins (SLT). These cytotoxins are produced not only by *E coli* O157:H7 but also by other serotypes. Studies have shown that an EIA (enzyme-linked immunoassay) for EHEC detects approximately 40% more EHEC O157:H7 than does conventional culture and also is able to detect 20% more shiga-toxin-producing *E coli* that are non-O157:H7. I believe it.

In my lab, we gathered our own in-house data to decide for ourselves the value of the shiga-toxin assay. We sent all specimens positive by the shiga-toxin assay to our state health department for confirmation and serotyping. Only 50% were confirmed as *E coli* O157:H7. The other half were non-O157:H7 serotypes or non-typeable strains of shiga-toxin-producing *E coli*. This was a no-brainer.

Consider the repercussions of missing a shiga-toxin-producing *E coli*, in this age of antibiotic overuse. Providers are too quick to start an antibiotic regimen on patients with acute gastrointestinal illness before lab results are available. Treating a patient infected with a shiga-toxin-producing *E coli* with antibiotics can literally shut down the kidneys! Renal failure is life threatening, especially in the very young.

Want to hear some really interesting excuses for not incorporating the shiga-toxin assay into the stool-culture battery? "How do we bill for this?" My answer: Look in your codebooks; it is there. "Why do we not see this organism in our lab?" you ask. "How do you know if you do not *do the test*?" This test should be an integral part of the stool-culture battery, not an orderable test. Whether this test should be done should not be left up to the provider. It should replace specific plating media and latex serotyping kits for *E coli* O157:H7. To emphasize the importance of detecting and reporting shiga-toxin-producing strains of *E coli*, we always add a comment to a positive result:

Stool specimen positive for shiga toxins: Antimicrobial agents should not be used to treat shiga-toxin-producing *E coli*. There is no evidence that the use of antimicrobial agents will change the course of disease or is beneficial in any way. Moreover, antibiotic therapy may result in the release of more toxins from the bacteria and contribute to hemolytic uremic syndrome. Antimicrobial therapy does not accelerate recovery.

 Colleen K. Gannon, MT(AMT) HEW
the "Nancy Grace" for labs