



Clinicians on POC—read this and weep

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Cover Story**

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If point-of-care testing were a movie, the obvious rating would be PG—pathologist guidance suggested. This story, on the other hand, may be slapped with an NC-17 rating, if only for the dialogue. When it comes to talking about point-of-care testing, things move quickly from the good to the bad to the ugly. And when clinicians are the ones weighing in, well, let's just say it's not for the faint of heart.

But perhaps the best way to approach the clinician-pathologist POC debate is to view it as an unrated film, the kind with subtitles and a running time of three-plus hours. It may be difficult, if not downright objectionable, and it is likely to get on your nerves a bit. On the other hand, there's plenty here to consider, which, like a good film, should keep you talking long after the lights go up.

The cast: a handful of physicians and an RN/perfusionist, nearly all recommended to CAP TODAY by their pathologist colleagues and, in one case, by another clinician. These caregivers have earned the respect of their laboratory counterparts and vice versa. Many have worked out successful POC protocols in ways that make everyone happy, from patients to hospital CEOs to everyone in between. Care has improved, costs are in check. No one has had their CLIA certification yanked out from under them.

Still, it's a sensitive topic. As one clinician put it at the start of his interview, "I have to be politically careful in what I'm saying. Because I like working here."

Many clinicians, not surprisingly, also like working with POC tests. Some even demand them.

"It's not a nice thing to have. It's not a luxury. It's an essential tool," says Robert Hannan, MD, attending cardiac surgeon, Miami Children's Hospital.

In fact, he says, even as the patient population at his hospital has become younger, smaller, and sicker, outcomes have improved. (The drop in mortality rates was reported in "Fast without the furious—surgical POC testing," CAP TODAY, February 2004.) Clearly one of the reasons for that has been point-of-care testing, he says.

Dr. Hannan credits a fellow clinician, Anthony Rossi, MD, with kicking off the POC parade at Children's. When Dr. Rossi arrived as director of the cardiovascular ICU four years ago, he did so with a flourish, revamping the unit and bringing with him a bent toward bedside testing. He worked closely with Steven Melnick, MD, PhD, chief, Department of Pathology and Clinical Laboratories—"We love working with Steve. It's a very productive, complementary relationship," says Dr. Hannan—and the hospital now uses POC technology to obtain blood gases, electrolytes, and serial lactate levels in the operating rooms as well as in the ICUs.

As the hospital made the transition, "We rapidly evolved from being interested to being extremely interested to being fervent believers to now believing point-of-care testing in the cardiac ICU is as essential as a ventilator or intravenous fluid or oxygen," says Dr. Hannan.

He's not the only one sold on the concept. At Baystate Medical Center, Springfield, Mass., POC testing was seen as a way to improve turnaround times and reduce iatrogenic blood loss. The POC cartridges require, on average, a mere 0.2 cc's of blood, versus the 2 to 10 cc's needed for tubes or syringes, says Thomas Higgins, MD, chief, critical care division. Average daily sampling was cut by more than half.

It's easy to see why many caregivers are sold on POC testing. Less obvious, but more interesting, is the pattern that emerges as they discuss the arrival of POC tests at their institutions. Most echo Drs. Hannan and Higgins in noting the push came from the clinical side, from nurses, surgeons, emergency room and critical care physicians, anesthesiologists. Noticeably absent from that list is the laboratory. It's not that labs are against POC testing per se. But they lack the fire in the belly that clinicians have.

One reason is speed. No need to have Einstein explain it—the clinicians are quite vocal in explaining how relativity plays out in the hospital.

"When you're dealing with a critically ill patient, one minute may feel like a half hour. In the laboratory, a minute is a minute," says Neil A. Halpern, MD, chief, critical care medicine, and medical director, respiratory therapy, Memorial Sloan-Kettering Cancer Center. This time dilation is profound, he contends. "The laboratorians don't feel the same pressure. They don't really know what the clinician experiences in caring for these patients."

It's impossible to understand the dynamics of the operating room environment unless you're in it, says Gregory Nuttall, MD, associate professor of anesthesiology, Mayo Clinic. When he hears that a lab result will be available in 30 to 45 minutes, his response is simple: "Chuck it. We won't do the test, and we'll just throw the blood bank at the patient instead."

His $E=mc^2$ is time=blood loss. He needs a test that gives results in minutes. When faced with a patient who has a gaping hole in his body and is bleeding, the last thing he wants to hear is that the labs will be back in an hour. "An hour!" says Dr. Nuttall. "This person's losing maybe a unit, two units of blood in that time, maybe more." Add to that the 45-minute wait for blood products to be ready, and the time has stretched to an unconscionable length.

At Baystate, the push for POC came from a nursing educator, though Dr. Higgins says he was also intrigued. He was relatively new at Baystate when the first POC system was adopted there in 1997; before that, he'd been at the Cleveland Clinic, which had a stat lab specifically for the ICUs and ORs that produced remarkably fast turnaround times for the ventilated patients. "A lot faster than I was getting at Baystate," Dr. Higgins says. "So the time savings really appealed to me." Conditions change quickly in patients with acute respiratory syndrome, and physicians need to be able to react just as fast. "If you're dealing with 30- to 35-minute turnaround time, you're constantly leaving the bed and coming back."

Dr. Higgins doesn't knock Baystate's lab. It's "very good compared to places across the country, where I've heard of turnaround times of two and three hours for stat lab work," he says. Before instituting POC testing, he says, stat blood gases took 20 to 40 minutes, and stat hematocrits and the like took 40 to 90 minutes. "But that's still a long time if you're there at the bedside trying to manage things." Bedside testing gives him results in two minutes from the time of draw.

Clinicians also differ on matters of accuracy, which may be another reason they're the ones who push for POC testing. No one wants inaccurate test results—they're worthless. But accuracy, like beauty, is in the eye of the end user. Picture Saul Bellow arguing with an IS wonk about his computer needs. The former doesn't give a whit about cache size, MHz, or firewalls. If he can see the words on the screen as he types, he's in business and can move on to his real work—writing his next masterpiece. Honestly, a Tandy Radio Shack 100 would do the trick. The systems specialist, on the other hand, cringes at the thought, knowing Mr. Bellow's words will bob up on a shaky LCD, will never find their way to a Zip drive, and will never be pruned by AutoCorrect.

Likewise, clinicians say they don't always need the same precisions and accuracies that are de

rigueur in a clinical laboratory. Test results don't exist in a vacuum—they just need to be good enough to get the job done.

"If all you wanted to do is know if someone is spilling glucose in their urine, you don't need to know how much—just that they are," says Jeffrey S. Vender, MD, professor and associate chair of anesthesiology at Northwestern University's Feinberg School of Medicine, Chicago, and chairman of the Department of Anesthesia and director of critical care services at Evanston Northwestern Healthcare.

Ditto for PCO₂s, says Dr. Higgins. "When I'm adjusting the ventilator, I care if the patient's PCO₂ is 50 versus 70. It doesn't bother me too much if my machine is saying 50 and it's really 52. It's not going to make much of a change in my clinical decisionmaking." Repetition also takes the edge off of mild inaccuracies, he says. His patients may have three to six blood gases performed in a 24-hour stretch. "There's some reassurance that you're moving in the right direction, and if there is a slight bias or imprecision, it's mitigated by the fact that you're sampling repeatedly."

Laboratorians hold themselves to a different (and higher) standard of testing accuracy. They're using better instrumentation and have more expertise, which is all well and good inside the lab. But outside those walls, their standards may be as wasted as caviar at a frat party. It may be better, says Dr. Vender, for labs to ask clinicians, "What do you need?" rather than telling them, "Here's what we can deliver."

Obviously no one's demanding a Coulter counter in the emergency room. "We're only going to run point-of-care testing when it expedites our disposition decision on the patient," says Michael Shafé, MD, director of emergency services, Department of Emergency Medicine, Medical College of Georgia, Augusta. It's written into the protocols: Caregivers cannot use a POC in the ED unless it will immediately help them make a decision to admit or discharge, or unless the patient is critically ill. At his institution, the 30-minute CBCs didn't slow them down, but the troponins, which took longer, did. So now they perform POC troponins on chest-pain patients to move them along quickly.

With those differences in mind, it makes sense that clinicians would be eager to seek out point-of-care testing and labs a little less so. As Dr. Halpern put it when first approached for this story, pathologists "aren't interested in point-of-care testing."

Dr. Nuttall agrees. "It's a sideshow to them," he says. "The lab wants to run big batch testing, and do their thing, and make a lot of money. And they do a great job of it. But that's why it [POC] tends to get driven by people like me, or others who aren't in the lab. We see an advantage to this, because we know it allows us to do a better job taking care of our patients." Labs, on the other hand, are more likely to focus on the cost and regulatory hassles of POC, which stacks things in favor of central-lab testing. "Or maybe I'm just jaded in how I see things going right now," Dr. Nuttall says.

Others are downright grim.

"We've heard of institutions where the clinical lab has refused to provide point-of-care testing because they were afraid it was going to hurt the revenue stream in the laboratories," reports Dr. Hannan.

Central labs are insulated from patient care, Dr. Halpern says. "They think their laboratory is the core of the medical facility. They commonly do not realize they are a service industry to patients and clinicians and should be "reaching out" of the lab to enhance clinical care. This may even mean that labs themselves should introduce POC testing where appropriate. And thankfully there are labs where this happens. The fact is, I can do at the bedside all the essential acute-care tests that the central laboratory does."

Before coming to Memorial Sloan-Kettering, he supervised the ICU, OR, and respiratory therapy stat labs at the VA Medical Center in the Bronx. As he immersed himself in the POC world, he learned the ins and outs of all types of POC devices—desktop, handheld, bedside, in vivo, ex vivo.

Like any good laboratorian, he struggled with connectivity. And he went through multiple CAP inspections as the laboratory director until the hospital's labs moved to one CLIA number.

As a POC insider, Dr. Halpern can recite a list of common objections to bedside testing. "Clinicians, labs say, cannot run the tests. They don't have the education or experience to manage POC testing. Their egos are so big they won't admit to the need for being trained on the instruments. They do not take QC seriously. Also, they do not care about data management."

Maybe clinicians couldn't handle POC, Dr. Halpern concedes, at least not in the early days of POC testing. But today that's no longer true. "No. 1, the new blood gas/electrolyte analyzers are pretty idiot-proof," he says. "No. 2, most of them, if not all, are available with auto-quality control. No. 3, these devices can be linked to information systems with intelligent algorithms that will take an electrolyte offline and inform the central laboratory that there's a problem with the point-of-care device. And it will take the electrolyte offline when the auto-QC doesn't function. New POC software systems have solved data management and connectivity problems."

The real problem, says Dr. Halpern, is the laboratory is wed to the idea of QC being done by humans, rather than seeing it as something that just needs to be done, period. Separating people from the process is difficult. "That's hard to accept, because a machine is doing a person's job—or at least the way the person viewed their job in the past. But the fact is, quality control has never been done the way an actual lab test is performed." Maybe, he suggests, past QC practices actually fell short, and today's people-free QC systems actually function closer to the mark.

Moreover, he continues, labs aren't always up to speed on the newer POC devices. Instead, they may be most familiar with older POC models, which work fine but "have far more tubes and moving parts under the hood than the newer devices. The older machines were indeed difficult for clinicians to master. But clinicians have moved on. The latest, module-based incarnations are quite easy to use. It's just not that hard."

Such statements aren't easy to hear, he acknowledges. "That's an emotional thing for a laboratorian, to be told someone else can do what they do, without the long training." But remember: He's referring to only a handful of devices. "The fact is, we don't say a doctor can work a big CBC or a 50-analyte chemistry analyzer. We're saying they can run machines built and designed specifically for ICUs or ERs or ORs, designed with the doctor, nurse, or respiratory therapist in mind, with the limitations of experience and time that they have."

At Mayo, the PT and APTT POC tests are simple to do and nearly "goofproof," Dr. Nuttall says, though he's quick to note the preanalytic pitfalls.

An easy-to-operate machine isn't the end of the story—there's QC and QA and every regulatory issue under the sun. Because of that, says Dr. Shafé, when it comes to using POC devices, "I don't allow our doctors to touch the things."

"I don't trust them," he explains. "Doctors think that they can violate protocols and go around the system, anytime. I trust my nurses because they have to follow directions, but physicians think they can get away with breaking the rules."

Eventually he hopes to train his clinicians on the POC tests, saying he's a firm believer in having doctors step in to perform nursing duties when needed. His hospital recently instituted bedside cardiac markers, and at the beginning of June deployed a POC whole-blood analyzer for arterial blood gases, electrolytes, BUN, creatinine, and co-oximetry. Once the nurses are up and running on the new tests, the doctors may follow. "But not initially," Dr. Shafé says with a laugh. "I have enough trouble getting them to write down the times they order things, the time they saw the patient, so Lord knows that I can't count on them to follow through with this."

Jim Donnelly, RN, CCP, is equally adamant about keeping POC testing in the hands of a few well-trained caregivers. Like Dr. Shafé, he could almost be mistaken for a laboratorian in his zeal to safeguard POC. At Hamot Medical Center, Erie, Pa., POC lab work is mostly done by the perfusion

staff—a half-dozen individuals. The anesthesiologists would like to partake, Donnelly says, but fall short on QC/QA. "I don't want those anesthesiologists screwing up my ability to do point of care by not complying."

It's probably a relief for most laboratorians to hear these sentiments—finally, caregivers who get it, who see that putting POC testing into the hands of their colleagues is like handing martinis to trick-or-treaters.

For all their complaints about labs dragging their feet on POC testing, clinicians aren't necessarily asking labs to become POC leaders. Indeed, that may be an impossible role for them to fill. Dr. Nuttall, for one, acknowledges that his fellow clinicians, who should know better, can be slow to accept POC, and he's had his fill of the "frankly stupid" comments made by fellow clinicians regarding its worth. Labs may not have any better luck, even if they're armed with air-tight studies. "You know how physicians are," Dr. Nuttall says. "Sometimes you can show them all the data and they still don't want to do it." He knows of at least one hospital where the anesthesiologists and surgeons sabotaged the lab's efforts to set up POC testing. "I sound like a real downer right now, but I'm trying to be realistic."

"Realistic," for POC, is likely to mean the push will continue to come from those who need it most—speed-crazed clinicians at larger institutions with fairly high volumes. These are the people who will track down the latest devices, write the initial protocols, and recruit the support of others.

That should include the laboratory, obviously. But clinicians are realizing other hospital colleagues are equally important, if not more so. For POC testing to work, they need to line up many sponsors.

"It's not just the lab we had to work with," says Dr. Shafé. At Medical College of Georgia, he began with a simple premise: that the true cost of a POC test had nothing to do with cartridge price and everything to do with patient turnover. He then carried that message to the CEO and senior administration at his hospital, explaining to them the larger logic of paying more for POC cardiac markers—it would allow ED physicians to make decisions on three patients in the same amount of time it took to turn around a cheaper troponin done in the central lab.

By starting at the top, Dr. Shafé says he was able to circumvent the usual, isolating cost silos. "Everybody has to make their budget—it's the budget, it's the budget, it's the budget," he says. "What you need to do is get the people holding the laboratory folks accountable for that budget and have them share the responsibility"—in his case, throughout the Emergency Department. Even though cartridges would be paid for out of the lab budget initially, the lab would also be credited for boosting revenues. "Every institution can do this, if you go to senior administration first."

He did approach the laboratory for another purpose—to ask them which POC tests were the best. Though he had some ideas of his own, he wanted to bounce them off his lab's POC experts. And now that the devices are in use, the lab controls all the equipment. "We allow them to continue to bill for it, and to do the quality assurance and quality control, because that is their area of expertise. All we're trying to do is improve patient care. We're not interested in political turf wars." Again and again it comes up. Compliance, calibration, maintenance—all that falls to the lab. Using the result to care for patients—that's the responsibility of clinicians.

Northwestern's Dr. Vender predicts a day when much of the current day-to-day laboratory tests will be seen as reference lab-type work, while the remaining acute-care tests will be done at the bedside. He could be right—maybe clinical lab tests and point of care will settle comfortably into separate orbits. Or perhaps labs will embark on revanchist policies and pull POC back into their own sphere.

In the meantime, clinicians see themselves behind the wheel, while everyone else is part of the pit crew. And they're going to continue to drive POC into the hospital whether labs like it or not, "in areas we never thought possible," says Dr. Vender.

For those who hope that POC will simply go away, it may be instructive to peek in at Memorial

Sloan-Kettering.

Other than bedside glucoses, the institution does not allow POC testing. After too many years of freewheeling POC, during which too many clinicians were hanging out too many POC shingles, the lab put its foot down. "In days gone by, where we had point-of-care testing facilities right next to the intensive care unit and OR, for example, people would come in the middle of the night and use the equipment. No one knew they were doing it, and it wasn't legal for them to do it. But it was being done," says Martin Fleisher, PhD, acting chair of the Department of Clinical Laboratories and chief of the clinical chemistry service.

When Dr. Halpern came to Memorial Sloan-Kettering, he found the lack of POC testing services troubling. "I left a system where I could get a blood gas and electrolytes in one to two minutes, and came to a system where it takes longer. Even though we have a very nice stat lab, it's one avenue away and depends on a pneumatic tube, and turnaround time varies from five to 20 minutes on critical tests."

Of the various battles he's had to fight, POC was not one of them. Not at first. And not right now. But as the institution moves toward building a new critical care facility in the next two to three years, he may pick up his sword. "That would be the time I would look to re-institute point of care, either bedside to bedside, or on a remote cart, or in a smaller laboratory."

"Check back with me then," he says, to see if POC has taken root again. "If it does, it will be in better soil, thanks to manufacturers, clinicians, and-not least-the laboratory itself."

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