Sticking points—how to handle difficult blood draws

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Feature Story

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Veins collapse. Patients panic. Samples hemolyze. Children kick. Difficult venipunctures are simply part of the everyday drill for most phlebotomists, who have to be prepared for many different eventualities. "Anybody who expects just routine draws is quickly disappointed," says Dennis Ernst, director of the Center for Phlebotomy Education in Corydon, Ind. "Because you have five or six categories of patients who present challenges—and you never know who’s going to walk in the door."

In an interview with CAP TODAY, Ernst explains steps phlebotomists can take to avoid being blindsided when drawing blood from drug addicts, obese people, critical care patients, the elderly, children and neonates, needle-phobic patients, and others. It’s not just about getting the blood in the tube, he says. "It’s also about making sure the process doesn’t compromise the sample and affect test results."

Patients in critical care units are the most common class of potentially difficult draws because they are subject to more frequent laboratory testing, they may have injuries, incisions, or edema that restrict their drawing sites, and the multiple infusion lines attached to them are often in the way. These lines can be used as an access point into their circulatory system. But such line draws have a downside, Ernst warns.

"The problem is when you draw blood from a line, you save the patient from the discomfort of a stick, or even yourself from the challenge of a difficult draw. But the line draw comes with variables that can change the test result." For example, if the line isn’t flushed before the sample is withdrawn, the sample can be diluted with saline or contaminated with IV fluids. Samples drawn from lines are often hemolyzed, which can alter test results or lead to specimen rejection and a venipuncture.

Most nursing services in the ICU are going to draw from the line whenever they can because it’s quicker and easier than venipuncture, especially if the patient has difficult veins, Ernst says. Facilities that actually have a policy against line draws are rare. But because it’s a challenge to get accurate results from a line draw, "it’s a conundrum for the lab: Line draws are convenient, yet problematic."

Whether the phlebotomist is using a syringe with a needle going into a vein, or a syringe attached to a central line, minimizing pressure during the draw will help avoid problems. "You want to pull slowly, because if you pull quickly you will hemolyze red cells and that will alter test results or lead to a rejected specimen. Those red cells can sustain a little pressure, but when they’re pulled too hard through the beveled opening of the needle, or the narrow opening of a cannula in the case of a line draw, a lot of sheer forces are exerting right at that tip."

While hemolysis generally occurs in about three percent of all samples drawn at the average facility, studies have shown that as much as 24 percent of line draws can hemolyze. "Line draws are just notorious for hemolyzing samples, and you are never going to get rid of that potential. But you can minimize it."

A draw that is difficult before it is even begun is one in which the patient is unable to speak and does not have a bracelet. "What should happen is the phlebotomist should go to the nurse, say I can’t draw this patient until they have a bracelet, and when the bracelet is on, ask the caregiver to state the patient’s name. Nurses may feel put out about that, but the phlebotomist is really the last line of defense, and it comes to laboratory-induced medical mistakes. Everybody has seen patients who have somebody else’s arm bracelet on; it happens a lot."

Studies have also shown that between seven percent and 16 percent of ID bands contain erroneous information.

The elderly patient can prove especially challenging for the phlebotomist. Dehydration, loss of vein patency, and low blood pressure are typical issues, while arthritis, injury, or stroke may give elderly patients a limited range of motion, making it impossible to hyperextend their arms to survey for available veins.

"The biggest problem is fragile, delicate veins that blow. That means you put a
and an assistant to make sure the baby isn’t moving. “You always need someone
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choose from. Their antecubital areas—the ‘go-to’ place for a venipuncture—are
unable to communicate. “So all our skills are technical when it comes to finding veins.
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stubborn, says Ernst. “It’s all about professionalism. You have to remain above the
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he says, “you just come up empty.”

Using a smaller-volume tube, which exerts less negative pressure to the inside of the
vein, is one way to avoid collapsing veins. "The forward-thinking phlebotomist anticipates any situation that might arise by stocking
the tray with a wide variety of supplies to accommodate different scenarios," Ernst
says.

Ernst distinguishes between alternative sites and unorthodox sites for draws. "Not all veins are fair game," he says. “A lot of people out there don't know the limitations that the Clinical and Laboratory Standards Institute puts on site selection and they will choose an unorthodox site like the front of the wrist, which is clearly against standards.” But there are acceptable alternatives to the antecubital area, he adds. Examples would be the back of the hand, the thumb side of the wrist, or, with physicians’ permission, the feet and ankles.

Usually phlebotomists are not required to physically chart that they were unable to obtain a sample, unless they've completely given up on all the options and they have nobody to go back to. “If everybody who can draw blood in the facility has tried this patient and nobody is getting any luck, then somehow that would need to be communicated to the physician who has to decide what to do next.” Sometimes, he says, “you just come up empty.”

A flexible attitude is also important when patients are demanding, ornery, crabby, or stubborn, says Ernst. “It’s all about professionalism. You have to remain above the fray and in a state of mind that is constantly at the service of the patient regardless of the patient’s state of anxiety or temper.” Patients do have the right to refuse a venipuncture, but phlebotomists need to project a steady purpose: They are there to provide a service even if patients are not sure they need or want that service.

The major issue with oncology patients is the effect of chemotherapy on the body. “Chemotherapy really riddles the veins. It makes them difficult to find, sometimes makes them sclerosed, and diminishes their size and elasticity. And elasticity is important because that’s often the hallmark of a vein when we’re palpating the site to find one. We feel for something that bounces back. With oncology and geriatric patients, the veins often don’t feel typical, and even when we do find them, they’ve often gotten so small in diameter that even the smallest needles in our arsenal aren’t small enough.”

Neonates often present the same issue—with the added feature of their being unable to communicate. “So all our skills are technical when it comes to finding veins. In addition, their veins are so underdeveloped, we’re limited in the sites we have to choose from. Their antecubital areas—the ‘go-to’ place for a venipuncture—usually not as well defined as they are in older children and adults. You often have to default to the back of the hand, and their hands aren’t very big.”

Drawing neonates requires a phlebotomist to have a gentle touch, steady hands, and an assistant to make sure the baby isn’t moving. “You always need someone
near the antecubital. When you turn the switch on, the device vibrates mildly. The

“Once a child is in the procedure, then the only thing you need to do is

Ernst is aware of a tactile distraction device called the “Buzzy.” It resembles a bee

The use of tourniquets on obese patients is one example of how the difficulties of a

Among the most common situational challenges phlebotomists might encounter is

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vibration combined with the cold sensation from the wings essentially drown out the pain of needle insertion.

Instruments that can detect veins, such as Accuvein AV300, Veinlite, Venoscope, and Wee Sight, could soon become much more common. "Tissue illuminators have been around for a while, but non-contact vein illumination systems are relatively new in the marketplace," Ernst says. The first one came out about eight years ago and cost more than $20,000. Devices have since shrunk and become less costly. The handheld Accuvein AV300 came out in 2009 and costs about $4,000. "They're a long way from being used in every facility, but I think they'll become more and more widely accepted because of their portability and cost-effectiveness."

Despite the many precautions phlebotomists can take, in Ernst's experience about three to five out of 100 patients will have a violent reaction to a venipuncture. "Unexpectedly, the patient just reacts adversely, and you have to be ready. If you expect that everybody has the potential to react that way, then you're always ready. You've got to have the presence of mind to do what's necessary to protect the patient as well as yourself, such as releasing the tourniquet quickly and getting the needle safely secured."

But phlebotomists can minimize those risks as well as the risks of difficult draws by correctly stocking their trays for different kinds of patients and being mentally prepared for the unpredictable, Ernst says. "That's the nature of health care. Every phlebotomist has to expect the unexpected."

Anne Paxton is a writer in Seattle. The Center for Phlebotomy Education’s "Phlebotomy Channel," an online video streaming platform, will soon include a lecture on difficult draws.