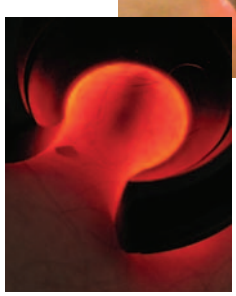
# No More Stab-in-the-Dark IV Sticks!

**By Jeffrey Lindsey, PhD, EMT-P**

Sometimes you just get lucky when you attempt an IV. But often the vein is difficult to feel and virtually impossible to see; you take a stab at it, without success. Now there's good news on the IV front: The Veinlite LED may end these guessing-game attempts to find difficult veins on patients.

I received our trial Veinlite LED, and my department immediately began putting it to the test. One of our EMT "subjects" typically has difficult-to-see veins due to his dark complexion, but with the Veinlite LED, we had no trouble distinguishing the vein.

We didn't need to use the Veinlite LED on every patient, but found it useful on patients with dark skin, on pediatric patients and on patients who typically present difficulties for us in finding a vein.



Side-transillumination allows for penetration of light into tissue for vein imaging up to 6 mm in depth. Disposable covers protect it from any biohazardous materials.

The device is shaped like a horseshoe and lined with two dozen LED lights. Twelve orange LEDs find superficial veins, and another 12 red LEDs find deep veins or veins in patients with dark skin.

How do the orange and red lights enable you to see veins? According to TransLite, the company that sells the Veinlite LED, it's about the light itself. Superficial veins less than 3 mm deep can sometimes be seen as blue-green areas under the skin. In addition to the type of light used, visualization of these veins also depends on the properties of the skin.

The skin reflects the short-wavelength light (blue and green) and absorbs the long-wavelength light (orange and red). The reflected light from the surface of the skin is intense enough to overpower the transmitted light, thus limiting the naked eye's visualization of superficial veins to sub-millimeter depths.

Historically, two ways have been used to reduce reflected light and enhance visualization of deeper veins. The first method uses *cross-polarization*. Not all the reflected light is cancelled, however, and the imaging of some of the deeper and smaller veins is limited. Vein imaging with cross-polarized light is limited to a depth of 1 mm or less.

The second method, *transillumination*, has been used for years for imaging subsurface veins and such structures as tendons and ligaments. In this method, a light source is aimed directly at the skin, and the area can be examined as a translucent region around the light. The depth of light penetration is between 3 and 6 mm, depending on frequency (up to 3 mm of depth for the shorter wavelength orange light and up to 6 mm for the red light). Transillumination light waves are easily absorbed by deoxygenated hemoglobin in venous blood and show up as dark areas in the skin.

The Veinlite LED uses a new method of transillumination, *side-transillumination*, for enhanced visualization of veins. This method uniformly transilluminates a small region of the skin so that much better imaging of veins is achieved without shadows. Uniform side-transillumination means that smaller veins can be seen with great clarity. Side-transillumination also allows for penetration of light into tissue for vein imaging up to 6 mm in depth, depending on the size of the vein.

The Veinlite LED comes with disposable covers to protect it from any biohazardous materials. The device is powered by a rechargeable lithium-ion battery, weighs only 3 oz. and is fairly easy to use.

Like any new device, it may take some time to incorporate it into your everyday practice, but we found it an invaluable new addition to our kits.

**For more information, contact TransLite at 281/240-3111, e-mail info@veinlite.com, or visit www.veinlite.com.**

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