

How to Locate a *Healthy Vein*

A Superficial Vein
for ALL venipuncture procedures - blood draw.....

In 2009, BD hired a research company called Sagentia to survey the world, the laboratory world, to identify THE NUMBER ONE problem in the blood draw/blood test process. And the 'world' said it was the problem of locating a vein for the blood draw procedure – in essence, the problems were the failed attempts, the multiple stick events, and the rupture veins. And then BD called Vein Access Technologies.

Truth be known, this “locate of vein” problem doesn’t occur JUST in blood draws, it occurs in ALL venipuncture procedures: blood draws, IVs, injections of contrast, plasmapheresis, blood donation, kidney dialysis, and Factor VIII injections.

The magnitude of the problem spans 4 disciplines [Nursing, Radiology, Laboratory Medicine, and Emergency Medicine] to the tune of:

- 1 billion blood draws each year in the USA
- million IVs
- million Injections of Contrast
- million Kidney Dialysis treatments
- million plasmapheresis collections
- million blood donations
- million Factor VII injections

And the industry recognized failed attempts rates for these procedures are 30-40% failure to access a vein on the first attempt, and each attempt after that – till a vein is finally accessed. This 30-40% failure rate translates into millions/billions of attempts to locate a vein.

And factored into that is the fact that ***'not all veins are created equal'*** and many of the veins accessed rupture upon venipuncture, or does not produce the sample quantity and sample quality needed for that blood collection procedure, or produces an infiltrate when it is a venous infusion.

This article will discuss the *Healthy Vein* vs. the Unhealthy Vein - because, not all veins are created equal. And not all veins should be used for vein access (venipuncture). But no one have ever before described this anatomical and physiological fact – so this information is NOT taught in any academic or training program in the USA, or any where else in the world up to this date.

Vein Access Technologies has this information. VAT performed a STEM analysis (Science, Technology, Engineering, and Math analysis) on the entire venipuncture procedure – from locating a vein, to dilating, a vein, to grading a vein, to accessing

that vein with a needle. And the scientific observations and changes that came out of that analysis are astounding – advancements in the practice of venipuncture that will make this generation the THIRD GENERATION in the vein access procedure.

- The FIRST generation of vein access was bloodletting with a razor – correctly called phlebotomy. This lasted 1400 years – from the 5th-19th centuries. This history will not be covered in detail in this article. When cutting with a razor, one was sure to cut a vessel, a few vessels, even including some arteries.
- The SECOND generation of vein access is the current generation, which uses a needle for vein access – and is incorrectly still called phlebotomy. This era has lasted 162 to years, to date. It began with Wood's and Pravaz' version of the hypodermic needle in 1853. This is when *treatment bloodletting* became *diagnostic blood testing* and the needle blood transfusion and the IV was born. Again, this history will not covered in detail in this article. But suffice to say that the when using a needing to access a vein it became very necessary to locate an almost microscopic target, and so the conundrum began.
- This THIRD generation is the Vein Access Technologies' generation where a scientific method has been discovered and developed to LOCATE, DILATE, and GRADE a *healthy* vein 100% of the time, and ACCESS that *healthy* vein 99% of the time on the first stick attempt. This was discovered and described in 1994. But like many scientific advancements, it takes a while reach the masses. Conundrums solved. Problems solved.

So what is this method of *Locating a Healthy Vein*. It is a new palpation technique, a new TOUCH technique. So, while we can describe this in writing, it must be taught in person – you can't 'read a touch', you can only 'feel a touch'. But we can thoroughly describe the technique. And for those 10% of you who are *natural born stickers* (you know, that one person, on that particular shift, in that particular hospital, that everyone calls when everyone else has tried and failed – that one), you will probably be able to read the description, perform the technique, and capture the essence and the exactness of it. For the rest of you, you need hands-on-training.

This description will be done in parts – as it is detailed, and lengthy, and full of science.

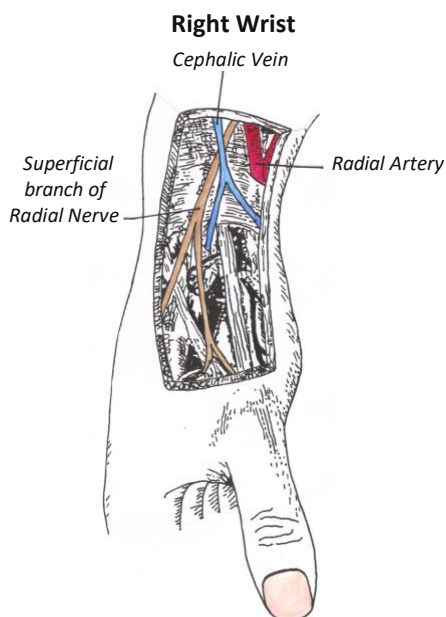
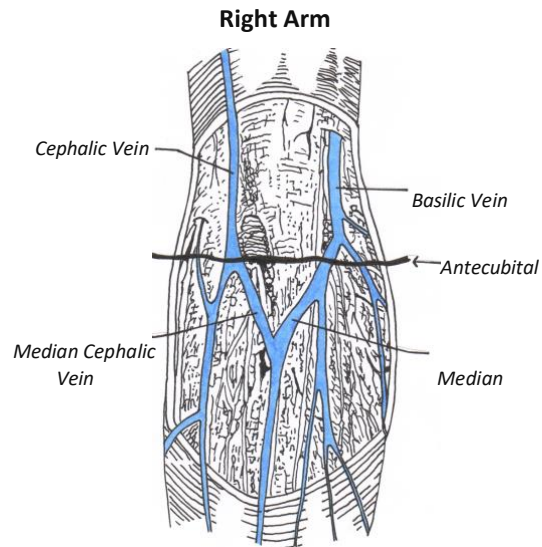
Anatomy of the Arm and Wrist for Vein Site Selection

Let's identify the veins that you will be accessing for blood draws -

In the **antecubital region**, the veins most often stuck are the median basilic, first, and the median cephalic, second.

Now, any of these veins CAN be stuck - **if** they meet the criteria for "healthy", which you will soon learn about.

The hand is **palm up** for an antecubital draw, with a natural bend in the arm at the elbow.



In the **wrist region**, the vein that should be stuck is the cephalic vein located on the shaft of the wrist (and, technically, it should be the more superior segment of this vein).

The hand is in the **handshake** position for a wrist draw, with the hand off the table and in alignment with the arm.

Antecubital Region

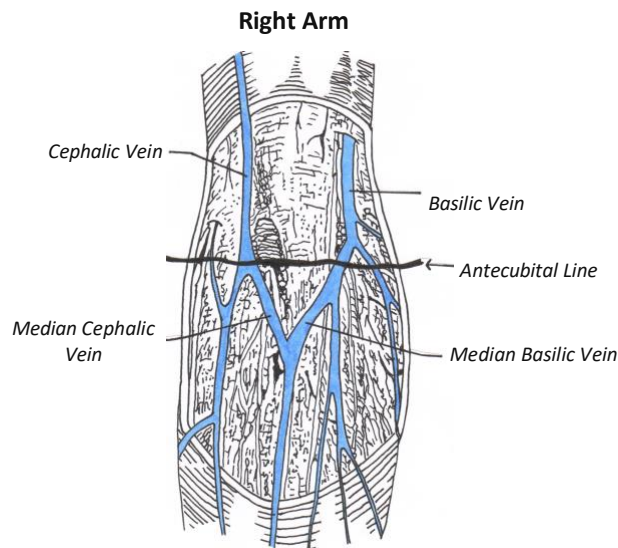
1. The antecubital region in the right or left arm is where 99.9999...% of your blood draws will occur. The veins in this region are easy to locate, easy to access with a needle, and usually are the healthiest veins for venipuncture. So, the antecubital region is the **first choice** for blood draws and IV pushes (like contrast, one time IV antibiotic administration, and Factor VIII injections, and short term (4-8 hour) fluid infusion).

Look at the diagrams of the antecubital region. When you study these diagrams and want to apply this information, place the arm on a table at a height that **allows for a natural bend in the arm and place the hand palm up**. Be sure that you are comparing the right arm to the right arm diagram and the left arm to the left arm diagram.

Note: Keep in mind, that although the anatomy is usually taught from the “top-down”, the venous blood is traveling (UP) from the fingers towards the heart.

2. There are a lot of veins in this antecubital region, and ALL of the academic and training programs (except Vein Access Technologies) focus only on the four identified in almost every anatomical vascular diagram: the **cephalic** vein, the **median cephalic** vein, the **basilic** vein, and the **median basilic** vein (nicknamed the cubital vein, after the antecubital region).

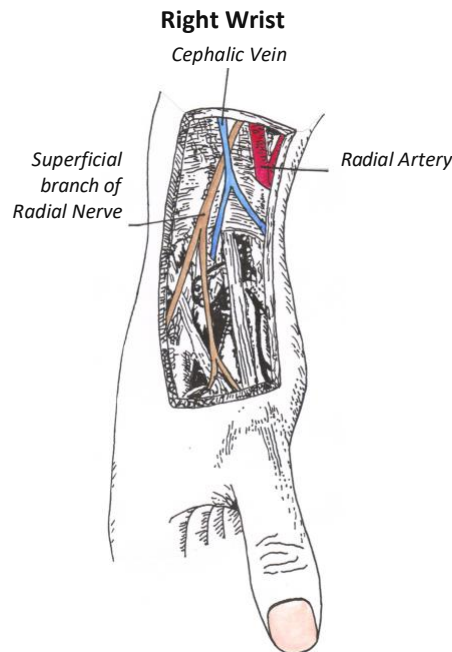
But ANY of the antecubital veins CAN be stuck - **if they meet the criteria for “healthy”**, which you will soon learn about. However, the **median basilic** (first choice) and the **median cephalic** (second choice) are the two most frequently stuck veins in blood draw. This is because they are usually the largest veins, and are in an anatomical position for easy access with the needle. (This means that, typically, the region palpated is most often just immediately below the antecubital line. The next most often palpated region is on the antecubital line. If the vein(s) are not palpable in these two specific regions – and remember to palpate BOTH arms – then expand the region.)



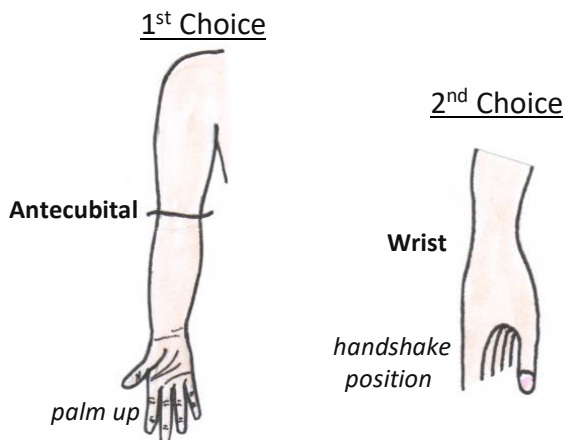
Wrist Region

1. So, now let's look at the wrist diagram. The vein in the diagram is colored blue and is the continuation of the **cephalic** vein from the antecubital region. In the wrist region, the cephalic vein is the vein that should be stuck.

2. Notice that the hand is in the handshake position, and the vein is then on the shaft of the wrist. This is important to notice because when you do antecubital draws, the hand is in the palm up position. But, since the wrist portion of the cephalic vein is on the shaft of the wrist, the hand must be placed in the handshake position in order to locate and access the vein.



So, back to the original statement – 99.9999....% of your blood draws occur in the antecubital region. But if for whatever reason, you cannot locate an antecubital vein, you will move down to the wrist.



I am going to mention it here – that old adage “start low and work your way up” is NOT correct!
Not even in IV therapies!

Dr. Gray (of *Gray's Anatomy*) dissected many cadavers to be able to describe, define, and draw these diagrams for us, as many other anatomists after him. What he and the other anatomists also discovered is that not all humans match these diagrams exactly. During my cadaver anatomy program, I learned that about 50% of the humans have anatomy just like the diagrams, but the other 50% have a variation of it. THEY HAVE THE VEINS, they're just not in that exact spot.

So, you can't trust a diagram to locate a vein for you - or you will "miss" 50% of the time.

That was never the mission of the anatomy diagram in the first place. It was never meant to be a map overlay that you place on a patient's arm to know where the vein is. The diagrams (merely) demonstrate that the human body consists of these structures and in this manner (with the usual Bell curve distribution of variation in location).

Do we need to know the name of the vein to stick it? NO. But the more you know about what you are doing the more confident you will (should) be; and the more confident you are, the more competent you will (should) be.

Do we need to know the diagram to locate the vein? NO. But the diagram should convince you that if a patient has an intact arm (i.e. arm, forearm, wrist and hand), then that arm has these veins, and it teaches you where to expect to locate these veins and, consequently, builds your confidence.

But, remember, we can't trust a diagram to locate the veins for us.

So, if we are not using a diagram to locate a vein, how are we going to locate veins?

And, no, we're NOT going to LOOK for one either!
(There are some inherent problems with this approach as well).

We are going to use, and trust, our

Sense of Touch

to locate a healthy vein.