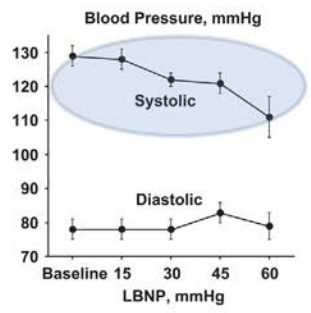
Cheetah Medical™ Education presents —

FAST FLUID FACTS

STROKE VOLUME: THE NEXT VITAL SIGN

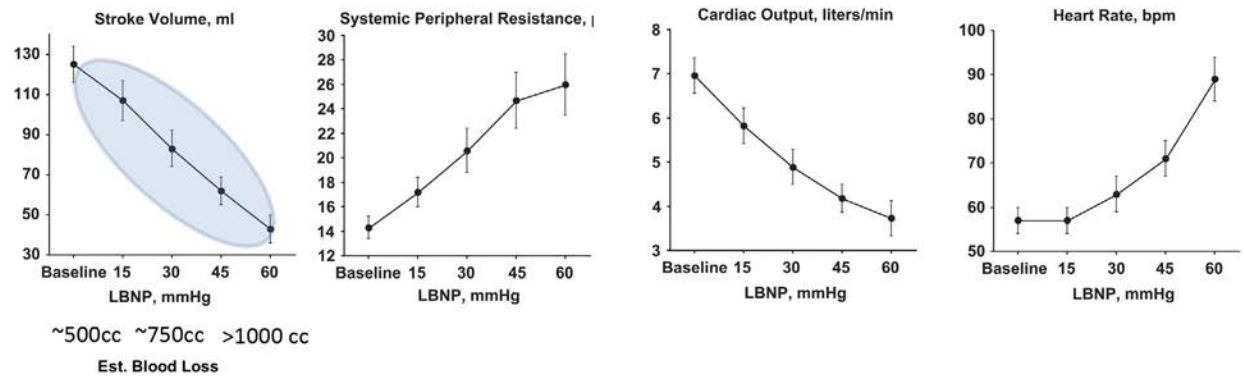
By Annie Stedman, RN, BSN, CEN

What would you say is the #1 Vital Sign used in the Emergency Department? Blood Pressure, perhaps? What if there was actually something better? Stroke Volume — mL/beat of flow coming out of the heart — is actually the leading indicator of perfusion changes.[1] With intravascular loss, the body works hard to maintain blood pressure at all costs. The body counters a reduction in flow (SV) with an increase in vascular resistance. The blood pressure remains unchanged. SV lets you see changes earlier than blood pressure. SV lets you around the corner of blood pressure to see what is coming next.[2]



With Approximately 1L Intravascular Loss:

- ✓ Stroke Volume changes early and the largest amount
- ✓ TPR rises to compensate
- ✓ CO falls less than SV because HR may compensate
- ✓ HR is unpredictable with age, beta blockers, etc.
- ✓ BP changes minimally — from 130 to 115 systolic



Covertino, VA et al. Stroke Volume and sympathetic responses to lower-body negative pressure reveal new insights to circulatory shock in humans. Autonomic Neuroscience: Basic and Clinical 2004; 111: 127-134.

This is something we have known since the 1940's[1] and today we have a technology that can provide that number for us not only accurately but also 100% non-invasively — Cheetah Medical's Starling SV monitor. This is allowing us new views into our patient's physiology in settings where this information has not been readily accessible in the past. And now it is even easier (and faster) to see those perfusion changes with the release of the new 5.5 software.

The ED is the first department within the hospital that patients encounter, and it is our first chance to get things right, to get them on the right treatment pathway as soon as possible. How do we best do that? With accurate, easy to obtain, and simple to use data!

Instead of relying only on MAP and physical assessment, (which have been shown to be less accurate than we have appreciated)[3] we can now have better information about perfusion and fluid effectiveness earlier. Better and earlier information can help us reach diagnoses earlier and more confidently; enabling earlier therapy.

The ED is a dynamic department and we NEED a dynamic way to assess our patient's perfusion status. There is so much amazing work done every hour of every day in the ED, often with very limited amounts of data. Real-time feedback about how our patient's physiology is changing using their SVI, shows the bedside nurse and provider how fluid and other drugs are affecting their patient's physiologic state. Using stroke volume in this way is being adopted as a best practice in medicine world-wide, and it is being shown over and over to change outcomes for patients, both clinically and economically.[3]

In the ED time is critical. In fact, every minute counts. That is why we have made doing a dynamic assessment of fluid responsiveness easier and faster than ever before with the new Starling SV 5.5 software platform.

- Obtain fluid responsive data about your patient within minutes.
- See trends develop over time at a glance.

- Perform a noninvasive fluid challenge more easily with the LIFT.

- Carry Cheetah to any hypotensive emergency with the new Rapid Response Bag.

Implementing best practice is now easier and faster, which is as it should be in the ED. **Because minutes matter.**

To see a live demo of the new 5.5 software, please click here or visit: https://vimeo.com/301260686

Be sure to stay tuned for more on stroke volume as the leading indicator of a perfusion change in Part 2 of this newsletter!

References:
1. Barcroft H et al. Post hemorrhagic fainting. Study by cardiac output and forearm flow. The Lancet 1944; 489-491.
2. Covertino, VA et al. Stroke Volume and sympathetic responses to lower-body negative pressure reveal new insights to circulatory shock in humans. Autonomic Neuroscience: Basic and Clinical 2004; 111: 127-134.
3. Marik, PE. Fluid Responsiveness and the Six Guiding Principles of Fluid Resuscitation. Critical Care Medicine, 44(10):1920-1922, October 2016. (His citations to support NOT using MAP or Physical Assessment are #s 12, 14, 15, 21, 22)
4. Latham HE et al. Stroke volume guided resuscitation in severe sepsis and septic shock improves outcomes. J Crit Care 2017; 42:42-46.

cheetah-medical.com

For questions, comments, or what you'd like to see in another edition, email us at socialmedia@cheetah-medical.com

We LOVE hearing from you!

Download the Cheetah Medical app.
Available for both Apple and Android Smart phone Devices.

Please follow us on:

Cheetah Medical, Inc.
600 SE Maritime Ave Suite 220, Vancouver, WA 98661 USA
866.751.9097 • 360.828-8685 • cheetah-medical.com

R-MRK-160 Rev.01