

Cheetah Medical™ Education presents — FAST FLUID FACTS

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WHAT IS SHOCK?

Simply put, shock is a state of insufficient blood flow to individual organs. Shock is inadequate perfusion. It is quite common. Some form of shock is seen in about a third of ICU patients¹

What is the hallmark of an uncompensated or refractory shock state? Decreased Blood Pressure (SBP/ MAP). How is hypotension typically treated? IV fluids are given in an effort to **improve perfusion** by increasing circulating blood volume and cardiac output.²

Early, adequate hemodynamic support of patients in shock is crucial to prevent worsening organ dysfunction and failure.²

In patients with septic shock (a form of distributive shock) and other shock types including hypovolemic and cardiogenic, fluid administration is carefully weighed against the use of vasoactive drugs and/or inotropes. Noninvasive and direct measures of stroke volume can guide resuscitation efforts to increase cardiac output, oxygen delivery, and perfusion.

CLINICAL SHOCK STATES ¹		CHEETAH NICOM & STARLING SV			
CLINICAL SHOCK STATES	Parameter	Normal Adult Range ²	Cardiogenic Shock	Septic Shock	Hypovolemic Shock
	BP (MAP)	> 65	↓	↓	↓
	Heart Rate (HR)	60-100	↑	↑	↑
	Cardiac Index (CI)	2.5-4.0 l/min/m ²	↓	early ↑ late ↓	early ↑ late ↓
	Total Peripheral Resistance Index (TPRI)	1970-2390 dynes • sec/cm ² /m ²	↑	↓	↑
	Common Stroke Volume Response (ΔSVI) to Dynamic Assessment		ΔSVI <10%	ΔSVI ≥10%	ΔSVI ≥10%
	ΔSVI ≥10% Predictive of 15% increase in CO with 500cc ³				

Dynamic Assessments Directly Challenge the Heart with Volume to Measure its Response:
 Passive Leg Raise (PLR) Maneuver — Translocation of 250-300cc of blood from lower extremities into the heart⁴
 Fluid Bolus Challenge (FB) — Rapid Infusion of 250cc of fluid over 3-5 minutes⁴

References: 1. Vincent JL, and De Backer D. Circulatory Shock. N Engl J Med 2013; 369:1726-34. 2. Sramek BB. Systemic Hemodynamics and Hemodynamic Management. 2002. Instantpublisher.com ISBN 1-59196-0460-0. 3. Cannesson M et al. Assessing the diagnostic accuracy of pulse contour variations for the prediction of fluid responsiveness. Anesthesiology 2011; 115:231-241. 4. Cecconi M et al. What is a fluid challenge? Curr Opin Crit Care 2011; 17:290-299.

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With Cheetah's 100% noninvasive hemodynamic profile, clinicians can:

- View advanced hemodynamic parameters to help manage perfusion quickly and easily without the risks and time associated with invasive lines.
- Manage clinical shock states: Septic, Hypovolemic, and Cardiogenic.
- Assess the effectiveness of fluids, vasopressors and inotropes.
- Quickly assess in real time if your patient is responding to fluid resuscitation by trending continuous Stroke Volume/Index (SV/SVI) changes, even in the presence of arrhythmias and regardless of ventilation status.
- Assess a patient's response to volume, by directly measuring Stroke Volume/Index (SV/SVI) changes after IV bolus administration or passive leg raise (PLR).

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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!

1. Vincent JL et al. Sepsis in European intensive care units: Results of the SOAPStudy. Crit Care Med 2006; 34: 344-353.
2. Vincent, J.L., and De Backer, D. N Engl J Med 2013; 369:1726-1734
3. <http://www.cheetah-medical.com/clinical-applications/sites-of-care/emergency-department/and>
<http://www.cheetah-medical.com/clinical-applications/sites-of-care/critical-care/>

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