

FRESH SEPSIS TRIAL:

Fluid Responsiveness Evaluation in Sepsis-associated Hypotension

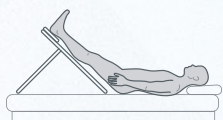
Demonstrates Improved Patient Outcomes When Using Dynamic Measures to Guide Fluid Decisions¹

RESEARCH QUESTION

Will resuscitation that is guided by dynamic assessments of fluid responsiveness in patients with septic shock improve patient outcomes?

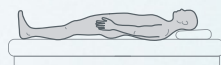
STUDY DESIGN

- Prospective randomized controlled trial
- 13 hospitals in the United States and the United Kingdom
- 124 patients presenting with sepsis and hypotension
- Randomized 2:1



Intervention (n = 83)

Fluid management using passive-leg-raise-guided stroke volume responsiveness



Usual care (n = 41)

STUDY CONCLUSION

Physiologically informed fluid and vasopressor resuscitation demonstrated lower net fluid balance, reduced risk of renal and respiratory failure, and greater likelihood of a patient being discharged home alive.

FRESH IN PERSPECTIVE:

Results Validate Findings of Retrospective University of Kansas Study

PROSPECTIVE	FRESH Study ¹ – 2020 multi-center randomized controlled trial		
Variable	SV Guided n = 83	Control n = 41	Δ/P Value*
Fluid Balance (liters)	0.65 ± 2.85 L	2.02 ± 3.44 L	1.37 L P = 0.021*
ICU LOS (days)	3.31 ± 3.51	6.22 ± 10.72	2.91 days P = 0.113
Pressor Use (hours)	40.74 ± 51.23	55.64 ± 87.42	15 hours P = 0.426
Mechanical Ventilation Initiated	17.7%	34.1%	RRR = 48% ² Absolute = 16.4% P = 0.04*
Initiation of Renal Replacement Therapy	5.1%	17.5%	RRR = 71% ² Absolute = 12.4% P = 0.042*
More Likely to Be Discharged Home Alive	63.9	43.9%	20% P = 0.035**
RETROSPECTIVE	University of Kansas Study ^{3,4} – 2017 single-center study		
Variable	SV Guided ³ n = 100	Control ³ n = 91	Δ/P Value ³
Fluid Balance (liters)	1.77 ± 0.60 L	5.36 ± 1.01 L	3.59 L P = 0.022*
ICU LOS (days)	5.98 ± 0.68	8.87 ± 1.18	2.89 days P = 0.03*
Pressor Use (hours)	32.08 ± 5.22	64.86 ± 8.39	32.78 hours P = 0.001*
Mechanical Ventilation Initiated	29%	57%	RRR = 51% P = 0.0001*
Initiation of Renal Replacement Therapy	6.25%	19.5%	RRR = 32% P = 0.01*

* P value < 0.05 demonstrates statistical significance.

** Not included in formal statistical testing.

FRESH resuscitation protocol on reverse.

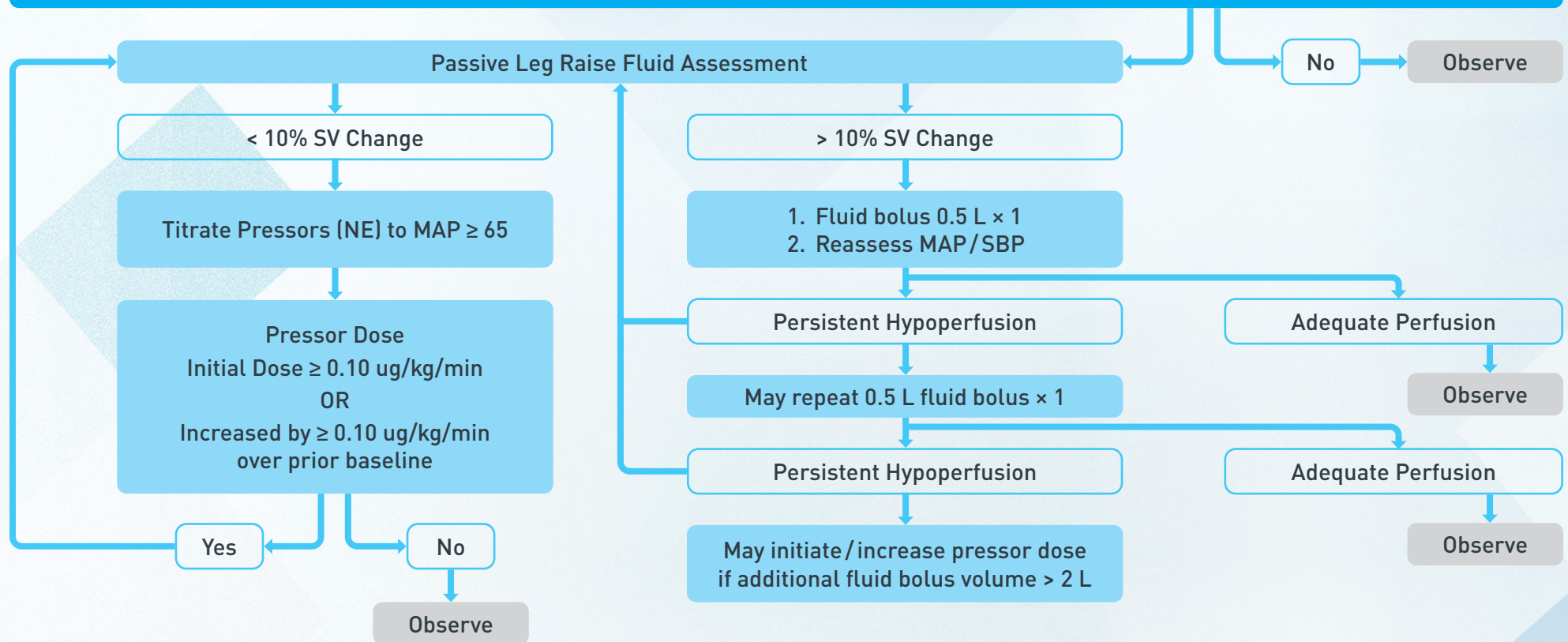
FRESH: RESUSCITATION PROTOCOL¹

Clinical decision is made to treat the patient with either fluid and/or vasoactive medications.

This may be due to:

- MAP < 65, SBP < 90, or BP is rapidly trending lower
- Low urine output
- Any other clinical indication to administer/after fluid bolus or pressors

Vasoactive medication may be de-escalated at the clinician's discretion, but re-escalation should trigger this PLR algorithm.



1. Douglas IS, Alapat PM, Corl KA, et al. Fluid response evaluation in sepsis hypotension and shock: a randomized clinical trial. *Chest*. 2020;158(4):1431-1445.
 2. Data on File. Baxter Healthcare Corporation. Relative Risk Calculations. October 2020.
 3. Latham H, Bengtson C, Satterwhite L, et al. Stroke volume guided resuscitation in severe sepsis and septic shock improves outcomes. *J Crit Care*. 2017;28:42-46.
 4. Latham H, Benstson C, Satterwhite L, et al. Sepsis resuscitation based on stroke volume optimization improves outcome and reduces cost of care. *Crit Care Med*. 2018;46:709.

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