

TV and PEEP changes do not significantly affect SVV can be used to guide intraoperative fluid management with any of these ventilator settings.

## Background

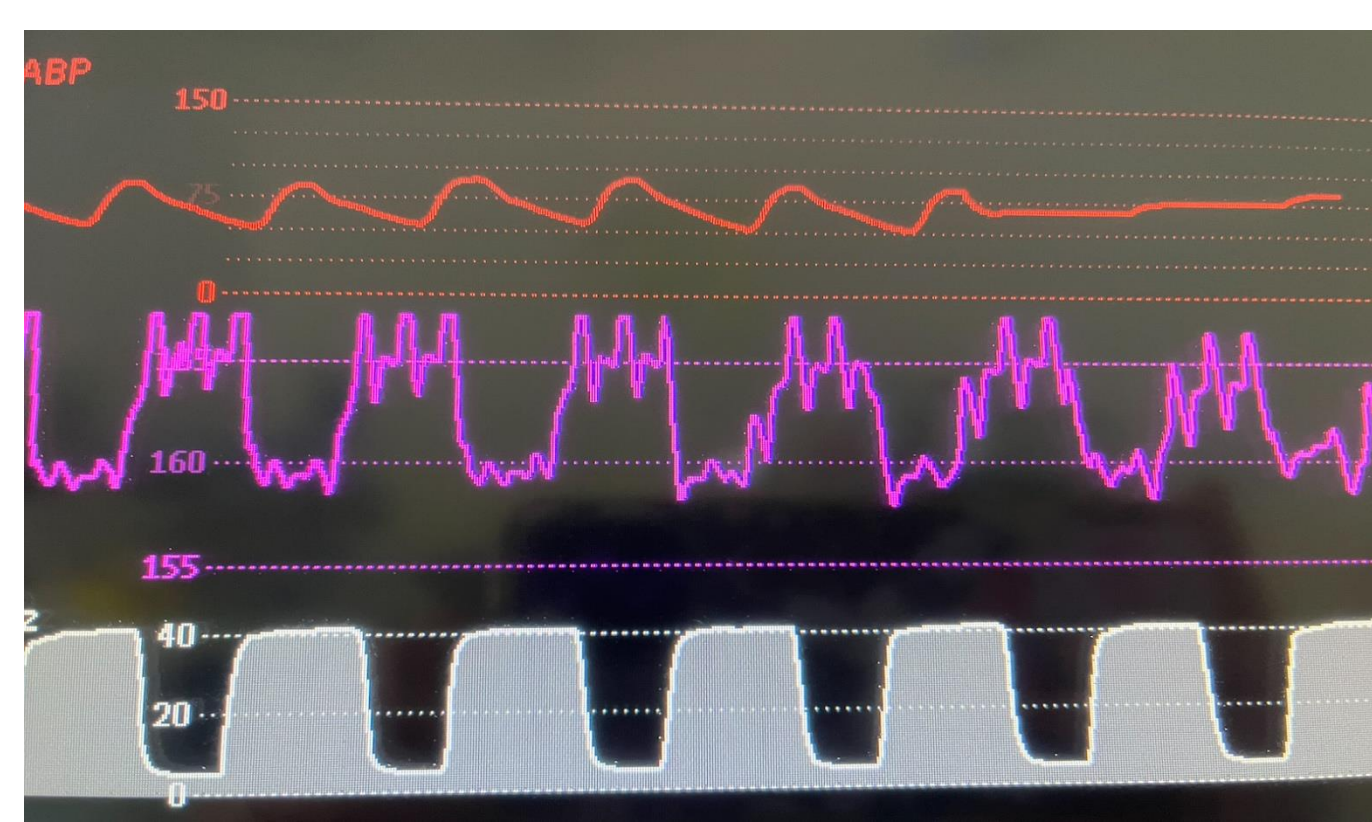
•**Stroke Volume Variation (SVV)** : SVV reflects changes in stroke volume during the respiratory cycle due to fluctuations in intrathoracic pressure, which impact venous return.

•**Clinical Application:** SVV is commonly used to evaluate fluid responsiveness and guide intraoperative fluid management.

•**Tidal Volume Considerations:** While SVV has been validated with a tidal volume (TV) of 8 mL/kg, **ARDSNet guidelines** recommend a lower TV of 6 mL/kg for lung-protective ventilation.

TV ml/kg	PEEP 0	PEEP 5
6	1	2
8	3	4

Table 1: Tidal Volume and PEEP parameters for ventilation



## Design/Sample

**Participants:** Adult patients scheduled for elective procedures requiring general anesthesia and mechanical ventilation.

**Ventilation Strategy:** Settings assigned randomly based on predefined parameters (Table 1).

**Monitoring:** Esophageal balloon catheter used to assess intrathoracic pressure changes.

### Data Collection

Once patients were stabilized, the following were recorded:

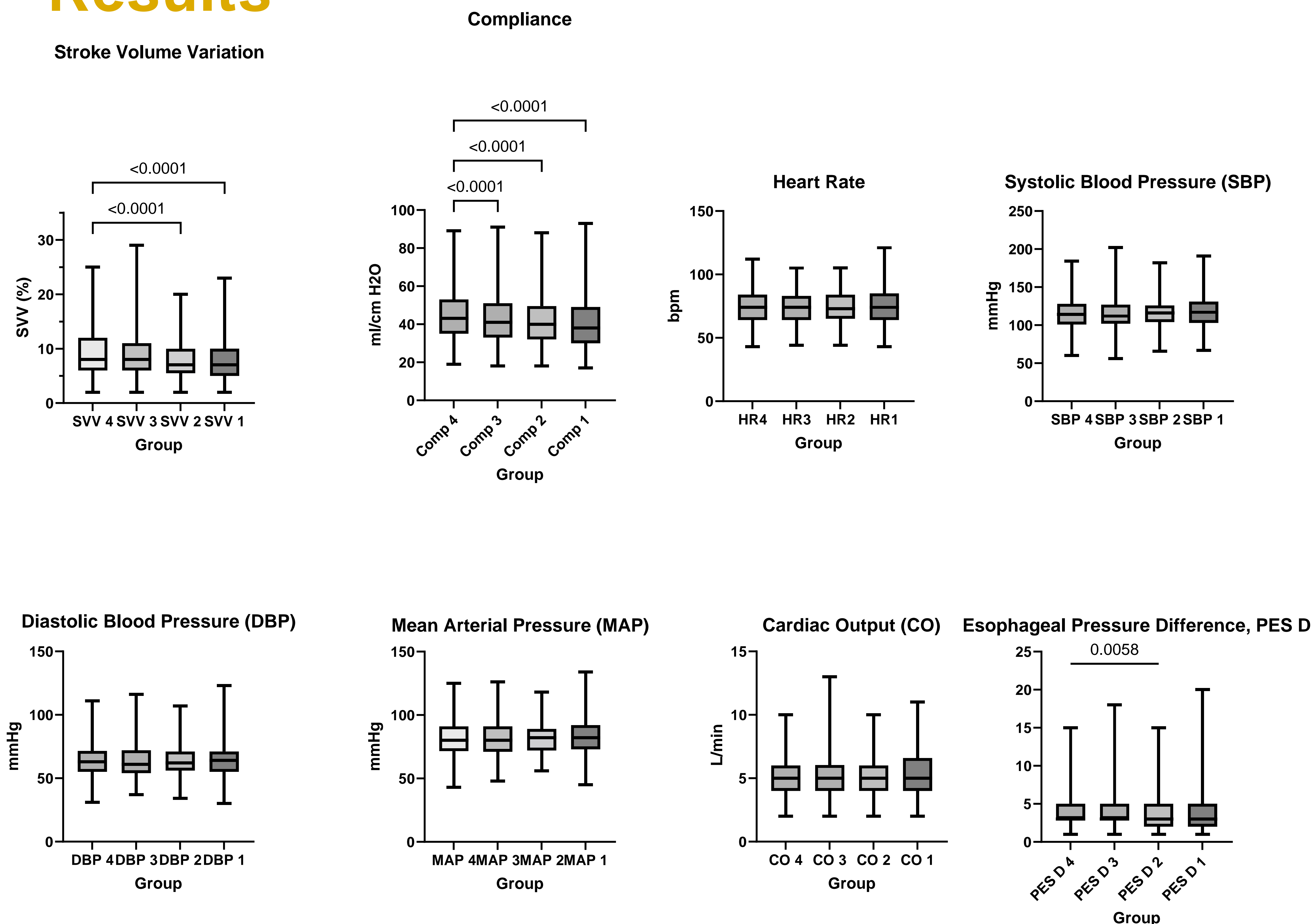
Blood pressure (BP), stroke volume variation (SVV), and cardiac output (CO) (via Edwards ClearSight), Esophageal pressure and Lung compliance

### Statistical Analysis

•One-way ANOVA used to evaluate changes in measured parameters.

•Comparisons made across different tidal volume (TV) and positive end-expiratory pressure (PEEP) settings.

## Results



## Demographics

Elective Surgery	Number of patients	males	females
Ortho	120	86	55
Vascular	6		
General	5		
Urology	2		
Plastics	5		
Ob/gyn	3		
		141	

## Summary

•**SVV Stability:** Analysis of 273 measurements showed no significant impact of tidal volume (TV) or positive end-expiratory pressure (PEEP) on stroke volume variation (SVV) across all groups. Median SVV remained consistent at **7–8**, indicating reliability in SVV-guided fluid management. These are statistically significant differences but would not be considered clinically significant.

•**Lung Compliance:** Median values ranged from **38–43**, with minimal variation across different ventilation settings.

•**All Hemodynamics:** Maintained a stable median of **5 L/min** across all groups.

**These findings suggest that SVV-guided fluid management does not change significantly. To fully confirm its clinical utility in this setting would require a study of fluid responsiveness with these ARSNET consistent ventilator settings**

## References

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2. Berkenstadt H, Margalit N, Hadani M, Friedman Z, Segal E, Villa Y, Perel A. Stroke volume variation as a predictor of fluid responsiveness in patients undergoing brain surgery. *Anesth Analg* 2001;92(4):984-9. doi: 10.1097/00000539-200104000-00034
3. Cannesson M, Le Manach Y, Hofer CK, Goarin JP, Lehot JJ, Vallet B, Tavernier B. Assessing the diagnostic accuracy of pulse pressure variations for the prediction of fluid responsiveness: a "gray zone" approach. *Anesthesiology* 2011;115(2):231-41. doi: 10.1097/ALN.0b013e318225b80a
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