

Use of Plethysmographic Variability Index Derived from the Masimo(®) Pulse Oximeter to Predict Fluid or Preload Responsiveness: A Systematic Review and Meta-Analysis.

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This systematic review and meta-analysis assessed the accuracy of plethysmographic variability index derived from the Masimo(®) pulse oximeter to predict preload responsiveness in peri-operative and critically ill patients.

A total of 10 studies were retrieved from the literature, involving 328 patients who met the selection criteria.

Overall, the diagnostic odds ratio (16.0; 95% CI 5-48) and area under the summary receiver operating characteristic curve (0.87; 95% CI 0.78-0.95) for plethysmographic variability index to predict fluid or preload responsiveness was very good, but significant heterogeneity existed. This could be explained by a lower accuracy of plethysmographic variability index in spontaneously breathing or paediatric patients and those studies that used pre-load challenges other than colloid fluid.

The results indicate specific directions for future studies.