



We performed a prospective observational study to evaluate a novel, in-line blood gas analysis device against a conventional benchtop model, and assessed it while placing the enrolled patients under extreme physiological conditions, specifically deep hypothermic circulatory arrest” Miles et al (2016).

#### Summary:

Point-of-care testing is becoming increasingly relevant to the practice of anaesthesia and critical care medicine, especially in terms of minimisation of sample volumes and decreased time to decision making. We performed a prospective observational study to evaluate a novel, in-line blood gas analysis device against a conventional benchtop model, and assessed it while placing the enrolled patients under extreme physiological conditions, specifically deep hypothermic circulatory arrest.

ReTweet if useful... Evaluation of a novel in-line point-of-care blood gas analyser  
[@ivteam #ivteam](http://ctt.ec/n6a15+)

Click To Tweet

Eight patients were studied, and had between seven and 11 samples analysed for seven variables (pH, pCO<sub>2</sub>, pO<sub>2</sub>, HCO<sub>3</sub><sup>-</sup>, base excess [BE], K<sup>+</sup> and haematocrit ), using the device during the process of cooling to 20 °C on cardiopulmonary bypass, and subsequent

rewarming to normothermia. After Passing-Bablok analysis, the variables were evaluated for bias, limits of agreement and percentage error at above and below 30 °C. Of the measured variables, only pH (percentage error 2.4%) and potassium (19.8%) demonstrated acceptable (< 30%) percentage error over the full range of temperatures measured. Carbon dioxide, when stratified by temperature, was acceptable (< 30 °C percentage error 24.6%, > 30 °C percentage error 9.9%), but the overall percentage error of the dataset (45.8%) was excessively high. Bicarbonate and haematocrit both had an acceptable percentage error above 30 °C (25.2% and 18.5%, respectively), but similar to carbon dioxide, percentage error for the full range of temperatures exceeded 30%. These data differ from previous work examining this device, and highlights the difference between derived measures using different apparatuses when exposed to extreme physiological conditions.

Reference:

Miles, L.F., Giraud, K., Ferris, R., Klein, A.A., Martinez, G.C., Jenkins, D.P. and Saulankey, K. (2016) Evaluation of a novel in-line point-of-care blood gas analyser. *Anaesthesia*. 71(9), p. 1044-1052.

DOI: 10.1111/anae.13548

**Thank you to our partners for supporting IVTEAM**

