
ICU Volume 14 - Issue 4 - Winter 2014/2015 - Advertorial

Beyond Point-of-Care Blood Gas Analysis

Innovative miniature in-line blood gas analyser supports rapid and frequent bedside blood gas measurements at critical times

□ To address the challenges of maintaining control of patient physiology in the ICU and the associated need for fast response, proactive critical care, a revolutionary in-line patient dedicated arterial blood gas analyser has been newly introduced. Uniquely, the new Proxima miniaturised analyser, developed by Sphere Medical (Cambridge, UK), enables blood gas testing to deliver rapid and frequent results directly at a patient's bedside.

Current point-of-care testing (POCT) technologies have certainly significantly reduced turnaround times for critical tests. However, this has consequently increased the workload of frontline care staff, taking them away from the patient at key times to manipulate blood samples and cartridges for analysis. Furthermore, this still requires significant amounts of patient blood. The new Proxima represents the next step on in POCT as it is actually attached directly to the patient through their arterial line, meaning that for the first time blood gas results can be delivered, like blood pressure results, within the patient's bed space.

Unlimited blood gas sampling

The CE marked Proxima System incorporates a dedicated bedside monitor, as well as a miniature Proxima Sensor integrated into the patient's arterial line. This disposable transducer can be used for monitoring blood gases and electrolytes over a 72 hour period as many times as required without loss of patient blood. Proven to measure to laboratory analyser accuracy, results are rapidly displayed on the bedside monitor and can be electronically transferred for permanent record. The system also carries out all quality control checks that would be undertaken on a traditional blood gas analyser to ensure validity of test results.

Patient dedicated

Specifically designed for use in critical care environments, particularly for unstable patients, it enables frequent direct measurement of arterial blood samples to aid early decision-making and ensure closer control of therapy. Since the caregiver can stay right by the patient to take these important measurements, the system has the potential to decrease the nursing dependency of the patient. Each patient can now have their own dedicated blood gas analyser and any nurse time away from them is minimised.

Conserving blood

Due to the fact that it is in-line, the Proxima System enables closed blood sampling. When a blood gas analysis is required, blood is simply withdrawn from the patient directly into the Proxima Sensor without the usual need to open the line, take a sample and walk away for analysis. Once analysis is completed, all blood is returned to the patient, thereby ensuring blood conservation and reducing the possibility of hospital acquired anaemia and consequent transfusions.

Clinical validation

Proxima has been fully evaluated and validated in a clinical setting. A recent observational method comparison study at Queen Elizabeth Hospital, Birmingham, UK, confirmed excellent agreement between Proxima and standard blood gas analysis. The study results wholly met the primary end-point to demonstrate excellent agreement with the standard bench top blood gas analysers at the hospital; measuring various arterial blood parameters of intensive care unit patients with a range of clinical conditions, including trauma, head injury, post-surgical recovery and sepsis.

Dr Tom Clutton-Brock, Senior Lecturer Anaesthesia and Intensive Care Medicine, University Hospital Birmingham and Chief Investigator for the study, commented, "The main aim of this study has been to determine whether Proxima gives the same clinical results as the reference bench top blood gas analyser when it is used on patients in a clinical environment. The answer is unequivocally yes. Just as importantly, the staff using the system really appreciated how simple it was to take a measurement with Proxima. We are really excited about the impact that this could have on management of sick and unstable patients."

Proxima will be available to view on Stand 32 at the Intensive Care Society, State of the Art Meeting, London, 8-10th December 2014. Or, find out more at www.spheremedical.com and watch a seminar given by Dr. Tom Clutton-Brock discussing the challenges of maintaining control of patient physiology in the ITU.

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