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## ICU Volume 6 - Issue 4 - Winter 2006/2007 - News and Innovations

### Industry

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#### Maquet Critical Care Unveils Neutrally Controlled Ventilation Technology

[www.maquet.com](http://www.maquet.com)

At the 19th Annual Congress of the European Society of Critical Care Medicine (ESICM) in September, Maquet Critical Care (Maquet) announced the launch of its latest breakthrough in mechanical ventilation, Neurally Adjusted Ventilatory Assist (NAVA). Maquet's new Servo-i ventilator with NAVA enables the patient's respiratory center in the brain to control ventilation on a breath-by-breath basis. The new NAVA technology also enables a complete evaluation of neural respiratory control via the diaphragm's electrical activity. In the words of researcher Christer Sinderby at St. Michael's Hospital in Toronto, Canada, "It offers a unique monitoring capability for the medical staff."

According to Maquet, the NAVA approach to mechanical ventilation is based on the patient's neural respiratory output. Signals from the respiratory control center in the brain are transmitted through the phrenic nerve to the diaphragm, where a catheter captures the electrical activity (Edi) and feeds it to the ventilator. NAVA responds to this reading by providing the requested level of ventilatory support to the patient. As the ventilator and diaphragm work with the same signal, ventilation can be adjusted to the patient's needs almost instantaneously.

The electrical impulse from the diaphragm offers the first signal that a change in ventilation is needed, making NAVA a marked improvement over conventional mechanical ventilators, which sense patient effort by either a drop in airway pressure or a reversal in flow, the last and slowest reacting step in the chain of respiratory events. Maquet has identified a series of benefits associated with NAVA technology, including: improved synchrony between the patient and ventilator; increased lung protection and patient comfort through more accurate ventilatory support; and the ability to use the ventilator's Edi signal to monitor various aspects of ventilation and inform decisions on patient sedation, unloading and extubation.

At present, NAVA technology is available on the Servo-i ventilator. The only equipment required in addition to the SERVO-i ventilator is NAVA software, an EdiModule and an Edi catheter. Maquet has stated that it will be possible for existing Servo-i users to upgrade their existing system with NAVA technology.

#### Dräger Medical Introduces New Technologies to Enhance Critical Care

[www.draeger-medical.com](http://www.draeger-medical.com)

##### Innovian®VF4

Dräger presented its Innovian® VF4 at Medica 2006. Innovian VF4 combines Innovian Perioperative Care and Innovian Critical Care (the next release of ChartAssist®). Innovian Perioperative Care is an operating room/anesthesia information management system that handles scheduling, pre-op, induction, intra-op and PACU. Innovian Critical Care is an intensive care documentation system with full electronic patient charting, scoring and printed reports. Innovian VF4 integrates these systems in one, easy-to-navigate interface, allowing clinicians a more comprehensive view of the patient's care experience. In addition, Pick and Go® technology incorporates data from Infinity® monitors into the Innovian database. Clinicians may access the web-based system from anywhere within the hospital's intranet network.

##### Infinity® Acute Care System™

Dräger recently launched its new Infinity® Acute Care System™, an innovative approach to managing and delivering acute care, integrating patient monitoring, therapy functions and information management. The system is designed to integrate most key acute patient care functions, including patient monitoring, ventilation, anesthesia, information technology, web applications and accessories, for virtually seamless data capture and access throughout the acute care process. Using the Medical Cockpit™ system hub, hospital staff may access patient and hospital information system data, access diagnostic images (using Siemens Medical Solutions syngo® technology), monitor patients and manage therapy devices.

##### Infinity® TeleSmart

Dräger recently introduced Infinity® TeleSmart, a patient-worn telemetry device. Infinity Tele- Smart features a color display, showing all

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monitored electrocardiogram leads, heart rate and pulse oxymetry at the patient's side. The device integrates WiFi technology, allowing for continuous monitoring, even when the patient is outside the network coverage area. Used in conjunction with Infinity CentralStation, Infinity TeleSmart provides fast data access, rapid assessment, decision support and clinical reporting.

#### **Pato Oxygen Sensor**

Dräger presented its new Pato oxygen sensor at Medica 2006. Pato, short for “ **P**aramagnetic thermal- conductive **o**xxygen analyzer,” uses paramagnetism measurement principles and thermal oxygen conduction to selectively measure oxygen within a mixture of gases. Pato thus enables inhaled oxygen concentration measurement without relying on traditional electrochemical measurement principles. The device has a simple, robust structure and automatically adjusts itself to changing environmental conditions every 20 hours. Pato is already in use in the aviation industry and in Dräger's Primus, Zeus® and Scio anesthetic systems.

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