Where there’s flow, there’s life
When fluid management really matters,

Not all cardiac output devices are the same

Widely proven and suitable for use across the surgical population, oesophageal Doppler monitoring (ODM) using the CardioQ-ODM, is the only minimally invasive therapy to measure blood flow directly in the central circulation. The clinical benefits of the CardioQ-ODM stem directly from the use of a low frequency ultrasound signal to measure blood flow directly in the central circulation.

Only Doppler works

Only the CardioQ-ODM has the precision necessary to guide successfully a 10% Stroke Volume Optimisation (SVO) protocol. Its considerable evidence base is testimony to the unique ability of the CardioQ-ODM to recognise and monitor 10% changes in Stroke Volume. Other cardiac output devices do not have the required precision. Technologies using pressure as a surrogate for flow are confounded by changes in arterial compliance or impedance, regularly reporting changes in the wrong direction. As such, they are not appropriate to guide SVO without frequent, expensive, and time consuming recalibration by a more precise technology.

The Enhanced Recovery Partnership fully supports the use of intraoperative fluid management technology to deliver individualized goal-directed fluid therapy. This is recommended in the 2012-13 NHS Operating Framework, in the Innovation, Health and Wealth Review, and in NICE Guideline MTG3.

Flow versus Pressure

- Only direct flow measurement can detect such change precisely; surrogates cannot.
- Pulse Pressure Wave Analysis (PPWA) devices measure pressure not flow and are confounded by changes in resistance.

The CardioQ-ODM waveform

The green line indicates the velocity/time envelope that the monitor uses to make calculations. The white arrows indicate time and velocity values used for CardioQ-ODM calculations. The Stroke Distance (SD) is the area under the waveform and is the basic measured parameter upon which calculations of Stroke Volume (SV) and all other Cardiac Output (CO) and indexed measurements are made.
Only Doppler is recommended

The evidence in support of individually guided fluid management during surgery is centred on the implementation of oesophageal Doppler monitoring (ODM), using the CardioQ-ODM. The device has established an incomparable evidence base that is today acknowledged and endorsed by the National Institute for Health and Clinical Excellence (NICE). The NHS has therefore decided to adopt ODM at pace and scale.

In its 2015 medical technology guidance on the CardioQ-ODM (MTG15), NICE asserts that the technology should be considered for use in patients undergoing major or high-risk surgery or other surgical patients in whom a clinician would consider using invasive cardiovascular monitoring.

Randomised, controlled trials using the CardioQ-ODM have demonstrated that early fluid management intervention will reduce post-operative complications, reduce intensive care admissions, and reduce the length of hospital stay.

To date, more than 500,000 patients have benefited from the use of the CardioQ-ODM, and the NHS National Technology Adoption Centre (NTAC) audit of 1300 patients reported the benefits of ODM implementation in three hospitals:

- The post-operative stay was reduced by 3½ days and CVC use was reduced by 23%.
- The results also indicate a trend towards a reduction in readmission rates, re-operations and mortality.
- These real-world results replicate those from randomised controlled trials and as such, the technology constitutes a cornerstone of Enhanced Recovery.

To think Doppler.

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An oesophageal Doppler probe is inserted into the patient’s oesophagus, either nasally or orally. The transmit and receive piezoelectric crystals at the tip of the probe measure velocity of blood flow in the descending aorta.

Direct flow measurement

Placing a single-use probe in the oesophagus, the CardioQ-ODM monitor uses Doppler ultrasound technology to determine directly a patient’s central vascular blood flow and fluid status during the intraoperative period.

Easy to use and quick to focus, the device generates a low-frequency ultrasound signal, which is highly sensitive to changes in flow and measures them immediately.
High Impact Innovation

The NHS Operating Framework 2012 and the NHS Innovation Health & Wealth Review 2011 named ODM as one of six high impact innovations and called for the widespread implementation of ODM for fluid management in surgery. The recently launched Intraoperative Fluid Management Technologies (IOFMT) Adoption Pack from the NHS National Technology Adoption Centre (NTAC) – commissioned by the Department of Health (DH) – simplifies and facilitates the implementation process. For more information, visit www.ntac.nhs.uk.

In March 2012, NHS Supply Chain awarded Deltex Medical a two-year contract to supply the CardioQ-ODM to the NHS.

Fluid Management Monitoring Technologies can reduce mortality rates for elective procedures, improve the quality of care for more than 800,000 patients a year, and save the NHS at least £400m annually.


We will launch a national drive to get full implementation of ODM, or similar fluid management monitoring technology, into practice across the NHS.

Sir Ian Carruthers, OBE, (NHS Innovation, Health and Wealth Review 2011)

By complying with the implementation requirements for these high impact innovations by April 2013, NHS organisations pre-qualify for the CQUIN payment scheme, worth 2.5% of their revenue.

When fluid management really matters, think Doppler

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NHS National Technology Adoption Centre (NTAC) http://www.ntac.nhs.uk/HowToWhyToGuides/DopplerGuidedIntraoperative/Doppler-Executive-Summary.aspx.

Product Description

Contact ODM Monitor (Product Code: 9051-7103)
For adult and paediatric use (down to 3kg with KPD72) in operating theatre and critical care.

Surgical Probes

DP6 Doppler Probe (Product Code: 9070-7001)
6-hour oral/nasal Doppler probe for patients under anaesthesia or full sedation.

DP12 Doppler Probe (Product Code: 9070-7003)
12-hour oral/nasal Doppler probe for patients under anaesthesia or full sedation.

I2S Doppler Probe (Product Code: 9090-7012)
6-hour oral/nasal Doppler probe for anaesthetised, sedated and awake patients.

I2P Doppler Probe (Product Code: 9090-7013)
24-hour oral/nasal Doppler probe for anaesthetised, sedated and awake patients.

Critical Care Probes

I2C Doppler Probe (Product Code: 9090-7014)
72-hour oral/nasal Doppler probe for anaesthetised, sedated and awake patients.

DP240 Doppler Probe (Product Code: 9070-7005)
10-day oral/nasal Doppler probe for patients under anaesthesia or full sedation.

Paediatric Probes

KDP72 Doppler Probe (Product Code: 9081-7001)
72-hour paediatric oral Doppler probe 3kg and above.

To order please contact:
Customer Service: 0845 085 0001
Email: uk.sales@deltexmedical.com

For enquiries please contact:
General Enquiries: 01243 774 837
Fax: 01243 532 534
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