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Where there's flow,
there's life

CardioQ-EDM – cornerstone of your Enhanced Recovery Protocol

EDM

Enhanced Recovery

Enhanced Recovery protocols are based on best practices delivered by a multi-disciplinary healthcare team. The objective is the quicker recovery of patients following surgery.

Enhanced Recovery programs have demonstrated improved outcomes and shorter hospital stays in many surgical procedures including colorectal, endocrine, gynecological, urological, vascular and orthopedic.

The evidence base has led to guidelines for surgical teams wishing to implement an Enhanced Recovery program.

Six areas have been identified:

1. Referral
2. Pre-operative care
3. Admission to hospital
4. Operative care
5. Post-operative care in the hospital
6. Follow-up

Evidence-based interventions along the surgical care pathway markedly decrease postoperative morbidity, decrease length of hospital stay and decrease time to resumption of activities of daily living.

Operative Care

Evidence-based operative care by the surgical team centers on a series of proven **key elements:**

Minimally invasive surgery: Shorter incisions and laparoscopic surgical techniques reduce the stress of surgery.

Intraoperative fluid management: Esophageal Doppler guided fluid management has been shown to reduce complications, reduce intensive care admissions and reduce length of hospital stay.

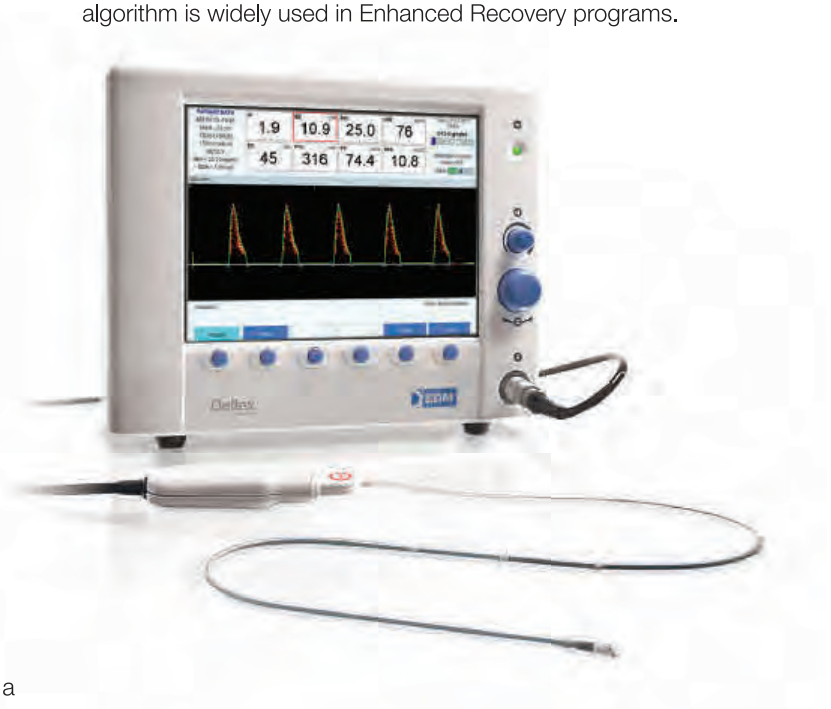
Modern anesthesia and pain relief: Modern anesthetics allowing faster recovery, improved local anesthesia and pain relief.

These individual interventions are more effective when implemented together than alone – 'the sum is greater than the parts'.

Doppler Guided Fluid Management

Hypovolemia is detrimental to patient outcome and has been identified as the primary cause of non-surgical postoperative complications. Fluid overload can also be hazardous for surgical patients. The answer is individualized fluid management: giving the right amount of fluid at the right time to meet each patient's needs.

Individualized fluid management using Esophageal Doppler Monitoring (EDM) and a 10% change stroke volume optimization algorithm is widely used in Enhanced Recovery programs.



Programs continue to expand in a number of countries. In the UK, the Enhanced Recovery Partnership (ERP) has published a guide that includes evidence supporting widespread adoption of Enhanced Recovery in the NHS and achievement of stated goals; i.e., reduced length of hospital stay after surgery, increased surgical throughput, no increase in readmissions and high levels of patient satisfaction.

Intraoperative fluid management is a cornerstone of Enhanced Recovery and the use of EDM guided fluid management is supported by the UK ERP in line with the National Institute of Clinical Excellence (NICE) Guidance (MTG3), the NHS Operating Framework 2012/13 and the Department of Health Innovation Health and Wealth Review 2011.

"The Enhanced Recovery Partnership fully supports the use of intra-operative fluid management technologies to deliver individualized goal directed fluid therapy."

Doppler is recommended

Randomized, controlled trials using the CardioQ-EDM have demonstrated that early fluid management intervention reduces post-operative complications, reduces intensive care admissions, and reduces the length of hospital stay.

The evidence in support of individually guided fluid management during surgery is centered on the implementation of esophageal Doppler monitoring (EDM), using the CardioQ-EDM. The device has established an incomparable evidence base that has been recognized by the National Institute for Health and Clinical Excellence (NICE), the US Agency for Healthcare Research and Quality (AHRQ) and the US Centers for Medicare & Medicaid (CMS).

Direct flow measurement

Placing a single-use probe in the esophagus, the CardioQ-EDM monitor uses Doppler ultrasound technology to directly determine 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.

Doppler works

Widely proven and suitable for use across the surgical population, esophageal Doppler monitoring using the CardioQ-EDM, is a minimally invasive therapy to measure blood flow directly in the central circulation.

The CardioQ-EDM has the precision necessary to successfully guide a 10% Stroke Volume Optimization (SVO) protocol. Its considerable evidence base is testimony to the unique ability of the CardioQ-EDM to recognize and monitor 10% changes in Stroke Volume.

Doppler 10% stroke volume change algorithm

The 10% change algorithm was originally developed based on the precision of EDM to detect small changes in blood flow. It is this level of precision which allows EDM to successfully identify hypovolemia and guide the administration of fluids to correct it.

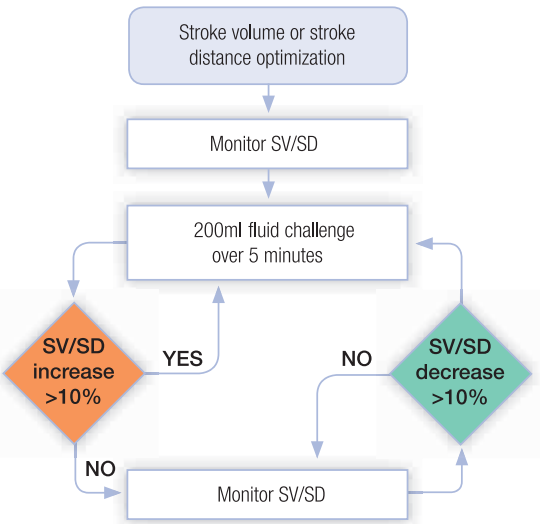
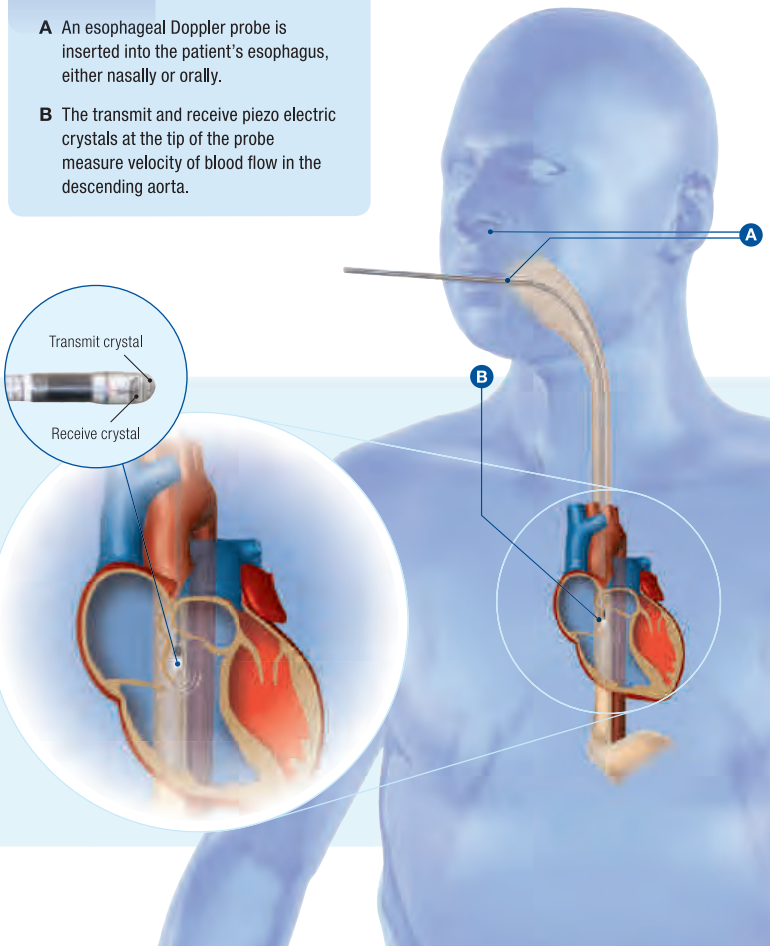


FIGURE 1

A An esophageal Doppler probe is inserted into the patient's esophagus, either nasally or orally.

B The transmit and receive piezo electric crystals at the tip of the probe measure velocity of blood flow in the descending aorta.



EDM

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Product Description

CardioQ-EDM Monitor (Product Code: 9051-7057)
For adult use in operating room and critical care.

Surgical Probes

I_2S Doppler Probe (Product Code: 9090-7015)
6-hour oral/nasal Doppler probe for anesthetized, sedated and awake patients.

I_2P Doppler Probe (Product Code: 9090-7016)
24-hour oral/nasal Doppler probe for anesthetized, sedated and awake patients.

Critical Care Probes

I_2C Doppler Probe (Product Code: 9090-7017)
72-hour oral/nasal Doppler probe for anesthetized, sedated and awake patients.

EDP240 Doppler Probe (Product Code: 9070-7006)
10-day oral/nasal Doppler probe for patients under anesthesia or full sedation.

When fluid management really matters, think Doppler

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