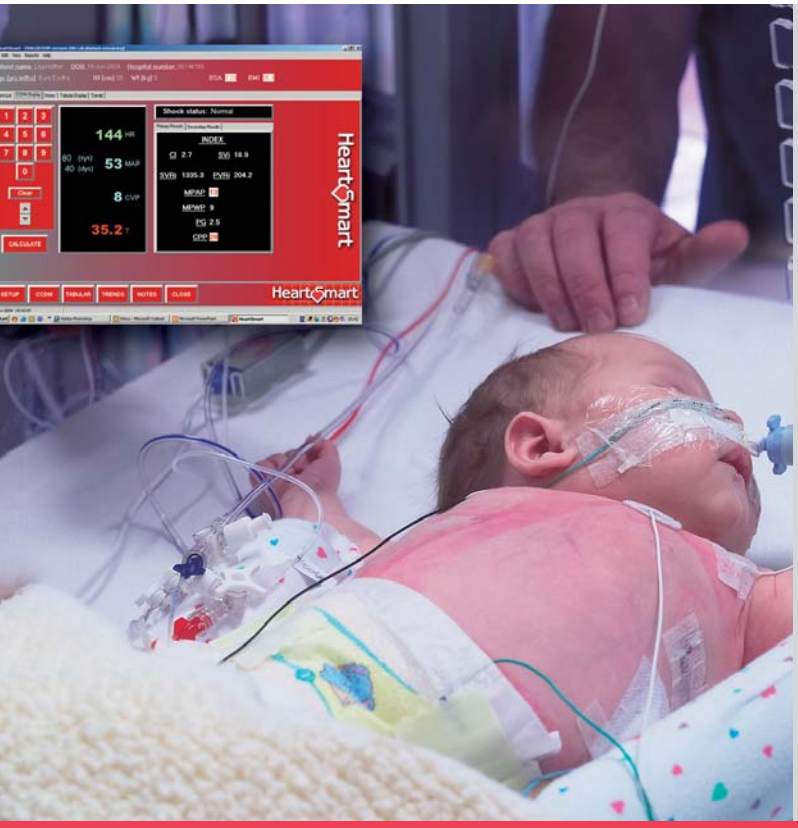
APC Cardiovascular

HeartSmart

The Art of Making Haemodynamic Monitoring Simple



"Using HeartSmart® to optimise blood flow, improves surgical outcomes with outstanding cost savings and aids quicker recovery"

Dr Kenneth Warring-Davies
Cardiovascular Physiologist
HeartSmart®'s Inventor

The HeartSmart® system is dynamic, responding to rapid changes occurring during surgery, easy to use, being as simple as placing a central venous pressure catheter.

HeartSmart® has enormous potential to improve outcomes in major surgery with a reduction in post-operative complications, shorter stays in hospital. HeartSmart® can contribute to a real improvement in delivering healthcare with clinical excellence and potentially outstanding cost savings.

HeartSmart® is developed on well established laws of cardiovascular physiology, using physiological parameters of heart rate, central venous pressure, blood pressure and core body temperature.

HeartSmart® is an entirely NEW software program for estimating cardiac functions developed during the past thirty years.

The physiological components required to regulate cardiac output are contractility, heart rate, preload and afterload. These components are in the HeartSmart® software.

Benefits to

- **The Patient**

  Less invasive, less risks of complications and less stressful with shorter lengths (LOS) of hospitalisation.

- **Medical & Nursing Staff**

  Easy to perform, displaying continuous real time information. A preferable system when compared to existing technologies that may only give limited information.

- **Hospital Fund Holding Managers**

  Reduced costs by savings in labour and time of medical and nursing staff, reducing the time a patient spends in hospital. One hospital is reported saving £1.1 million pounds by way of optimising blood flow in 128 adults during surgery using haemodynamic monitoring.

Optimisations of Blood Flow

Heartsmart® trending capabilities allow the anaesthetist or medical staff to optimise the haemodynamic status to maximum effect.

HeartSmart® is not just reserved for the critically ill patient, it can be used in any situation where a patient would have a CVP catheter in situ in medical or surgical cases.

One such category of patients are those who are scheduled to undergo general surgery. The anaesthetist can catheterise the patient prior to induction. With HeartSmart® the anaesthetist can calculate oxygen supply and demand prior to the commencement of surgery. The anaesthetist can confidently assess the overall cardiac function(s) prior to induction.

This valuable aid will reduce the incidence of post–operative complications as well as assisting in the assessment and prognosis of the patient.

The learning curve of this procedure is usually half a day, and can be taught to paramedics, nurses and medical practitioners, who will then be able to perform the procedure confidently within hours.

When HeartSmart® is used to optimise blood flow, surgical outcomes are improved and quicker recovery times help to reduce costs in financially challenged hospitals.

There is no need for anaesthetist, surgeons or nurses to change their working practices nor are there any new equipment costs.

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Ease of Use

HeartSmart® does not require any change in Clinical or Nursing Practice, there are no complicated learning curves needed in order to competently use the software.

Continuous monitoring

Physicians and nursing staff are alerted immediately a clinical situation starts to develop. Alternatively, the anaesthetist or intensivist can see the effects of therapeutic treatment instantly, a dynamic response to:

- Fluid challenge or administration
- Adjustments of mechanical ventilators
- Medical and/or surgical procedures
- Change of drug regimes

Portability combined with simplicity is absolutely essential in dealing with any emergency

HeartSmart® can be used where the central venous pressure is being monitored with blood pressure, heart rate and core body temperature. When these four coordinates are computed the HeartSmart® system will INSTANTLY provide ALL the index values, cardiac index, pulmonary and systemic vascular resistance indexes with mean pulmonary artery and mean pulmonary artery occlusion (wedge) pressures, and all of the haemodynamic variables continuously. At a touch of a button all of the absolute haemodynamic values can be observed.

Clinical Trials

Clinical trials have observed the performance of the three major technologies verses HeartSmart® for estimating cardiac output/index on all the subjects partaking in this study. The outcomes showed that Heartsmart's performance matched all current techniques.

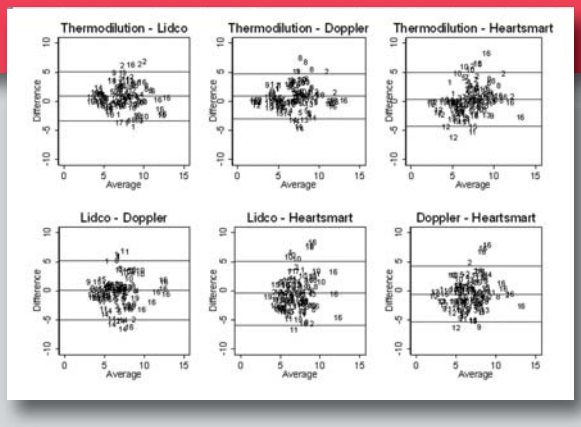
HeartSmart® and Doppler were able to track cardiac output in either direction. The mean difference between the Thermodilution method estimating Cardiac Output, for Doppler was 0.89 litres compared to HeartSmart® of 0.32 litres per minute.

HeartSmart's® most impressive performance is against right and left heart catheterisation on adults and children performed routinely by cardiologist. The mean pulmonary artery and pulmonary artery occlusion (wedge) pressures were obtained with accuracy of a few millimetres of mercury. Pulmonary artery catheterisation is not required for HeartSmart® to perform in real time.

The **Power of HeartSmart®** lays in it's **SIMPLICITY** of use and interpretation of the haemodynamic information being given.

The haemodynamic values delivered by HeartSmart® are estimates based upon the hearts performance, as a reflection of the physiological parameters functions that are involved in auto - regulation of the heart.

HeartSmart® assists you to make a more reliable haemodynamic assessment of the patient's clinical condition, putting the POWER BACK INTO YOUR HANDS improving your Art of Practicing Medicine.



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Assessing the fluid status in patients with pyrexia, vomiting or depressed conscious level is essential in neuro-surgery. HeartSmart® can guide therapy to improve cerebral blood flow + oxygen delivery.

The ideal method of measuring cardiac output would be non-invasive, continuous, accurate over the range of cardiovascular function encountered in intensive care.[1]
Anaesthesia and intensive care medicine

HeartSmart® can be downloaded onto any network, laptop or personal computer in the operating theatres OR, intensive care units ICU, accident and emergency A&E and wards.

1. Cardiac Output Measurement: Robin Berry, Jeremy A Langton
Bartlett RH, Alice in Intensiveland. Chest 1995; 108: 1129-39. 2001

Dr.B.Gallagher
Director of Anaesthesia Bradford Royal Infirmary

"The inventor has produced a formula (HeartSmart®) to measure cardiac output from non–invasive physiological measurements. He has compared his results with those invasive measurements derived on patients in our Intensive Care Unit with a great degree of accuracy".

Dr.J.Berridge
Consultant Cardiothoracic Anaesthetist
The Yorkshire Heart Centre Leeds

"Preliminary trials of this system (HeartSmart®) have proven very exciting. The system is dynamic, responding to rapid changes occurring during cardiac surgery, easy to use, being as simple as placing a central venous pressure catheter. In addition, during periods of stability the monitor appears as accurate a measure of cardiac output as standard thermodilution techniques".

Take up the CHALLENGE, try HeartSmart® before you buy!

Call us to order your downloaded evaluation copy of HeartSmart®.

Compare the haemodynamic data from HeartSmart® against the performance of other technologies in overall terms and benefits.

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