

Next generation device for non-invasive assessment of cardiovascular status in babies and children

D Sharkey¹, J Crowe², D Morris², L Blaxter², B Hayes-Gill²

¹Academic Child Health, School of Medicine, ²Faculty of Engineering

The Clinical Rationale

In the UK, more than 17,000 children are admitted to intensive care annually. Early identification of those developing critical illness could reduce the associated morbidity and mortality as well as reduce admissions with timely treatment. However, identification of worsening cardiovascular state is challenging. Use of manual capillary refill time (CRT) is a useful measure to identify the sick child but it is prone to marked variability and bias.

Our Technological Solution

We have developed a patented, automated CRT device suitable for use in children. This small, optical device is attached non-invasively and is able to measure CRT continuously every few seconds. This allows clinical deterioration to be identified sooner as well as tracking the impact of treatment measures in an objective, standardised manner.

Benefits for Children

Non-invasive technologies developed specifically for children will allow those caring for them to better recognise clinical deterioration and act promptly. By intervening earlier with the correct management many children can have timely treatment potentially reducing the need for admission to an intensive care unit. These advances have the potential to alter the clinical outcome for the child and reduce death and disability.

