

# Highlights from this issue

Ben J Stenson, *Associate Editor*

## Nasal intermittent positive pressure ventilation

There is increasing use of non-invasive methods of respiratory support to help extremely preterm infants to be managed without endotracheal intubation and ventilation. In addition to nasal continuous positive airway pressure (CPAP), many units now use high flow nasal cannula oxygen therapy and various forms of nasal intermittent positive pressure ventilation (NIPPV). Despite their popularity there is little evidence that these modes of support offer advantages over CPAP in terms of important outcomes. Hopefully some of this uncertainty will be resolved by the large international randomised controlled trial of NIPPV that is in progress. Owen *et al* describe a mechanistic study of the effects of NIPPV on breathing and gas exchange. Non-synchronised ventilator generated NIPPV was delivered to preterm infants using a mechanical ventilator through Hudson prongs. Analysis of the traces showed that NIPPV pressure peaks were delivered during spontaneous inspiration 40% of the time, with 60% being delivered during expiration. It was difficult to discern any effect of the NIPPV on spontaneous breathing. During apnoea, 5% of NIPPV pressure peaks produced detectable lung inflation, with volumes approximately 26% of the spontaneous tidal volume. There is clearly a lot more work required to determine the role and optimal delivery of these techniques. **See page F422**

## Telemedicine for echocardiography

McCrossan *et al* report an evaluation of using telemedicine to facilitate expert

cardiologist support for fetal echocardiography scanning in district general hospitals remote from the referral centre. Excellent image quality and diagnostic reliability was obtained and there was high satisfaction among the sonographers. In an accompanying editorial, John Simpson discusses the complex issues in deciding the best way to offer a service, including the limitation of telemedicine as a method for communicating complex issues with families. This can mean that if a cardiac diagnosis is made, a face to face consultation may still be preferred even if it involves travelling. With the increasing evidence in support of postnatal screening for congenital heart disease with oxygen saturation measurements, expert cardiology services are likely to become increasingly pressured and some of these issues will be equally relevant. **See pages F394 and F392**

## Chest compressions

Guidelines for neonatal cardiopulmonary resuscitation (CPR) differ from those in older age groups with respect to the recommended ratio of chest compression to ventilation. Neonatal cardiac arrest is usually caused by profound hypoxia which will not be reversed without lung recruitment and ventilation, but frequent interruptions to compressions with a 3:1 ratio could prevent the establishment of the coronary perfusion pressure required to enable a return of spontaneous circulation. Solevåg *et al* compared compression to ventilation ratios of 3:1 and 15:2 in newborn piglets asphyxiated to asystole. They found no difference in return of spontaneous circulation. With both ratios, 9/11 animals responded. With both ratios, diastolic blood pressure

during CPR remained low and the recommended number of compressions of 90/min was not achieved. Further studies comparing longer series of uninterrupted compressions are required, ideally in a model that has not already adapted to extrauterine life, where the need to recruit the lungs is a part of the process. **See page F417**

## Breast milk for preterm infants

Substantial differences exist between regions of Europe in the proportion of all babies who are breast fed. Bonet *et al* looked at European regional variations in the proportion of very preterm infants who are breast fed at the time of discharge from hospital and the variation was startling, with rates among eight European regions varying between 19% and 70%. The variability remained after adjusting for infant and maternal characteristics. It is clearly possible to achieve high rates and the figures provide inspiration for change wherever rates are low. **See page F450**

## Heroin addiction in pregnancy

In England, approximately 46 500 female heroin addicts are receiving treatment, the vast majority of whom are of child-bearing age. Methadone treatment is widely prescribed for pregnant mothers to reduce some of the harms but there is an increasing concern about potential adverse effects on the developing brain of the unborn child. In a review article, Helen Mactier argues the need for large well-controlled studies to measure the long-term outcomes on the child of current treatment practices. **See page F457**