



# Highlights from this issue

Ben J Stenson, *Edition Editor*

## PULSE OXIMETRY SCREENING

The use of pulse oximetry to screen newborn infants for the presence of critical congenital heart disease (CCHD) is now routine in many countries and is performed by more than 50% of UK neonatal services, but it is not yet routine policy in the United Kingdom. After screening was implemented in Birmingham Women's Hospital for the PulseOx study it was continued as routine practice and Amy Henderson and colleagues now report their experience with it from 2013 to 2019. There were 49 375 live births greater than 34 weeks gestation and 253 neonatal unit admissions because of a positive screen (0.5%). 247/253 (97.6%) of those admitted had a significant diagnosis requiring medical intervention, so very few healthy babies with transitional circulation were admitted. 26% of screen positive babies had an echocardiogram. Antenatal diagnosis of CCHD had increased from 49% to 75% and, with pulse oximetry screening, the proportion of CCHD identified by neonatal discharge was 99%. No baby on the postnatal ward presented with collapse because of cardiorespiratory or early-onset infective conditions. Gerard Martin discusses the effects of different screening algorithms (requirement for one or both of pre and post-ductal readings to be 95% or more, pre and post-ductal difference, age at screening, number of re-screens) on the performance of the test. He argues that the National Screening Committee (NSC) concerns with cost, insufficient evidence of improved outcomes and the potential harms of unnecessary investigations and admissions, longer hospital stay and parental anxiety, are dispelled and that perhaps it is time for the NSC to recommend its routine use in the UK. *See page F256 and F232*

## ANTENATAL CORTICOSTEROIDS AND NEURODEVELOPMENTAL OUTCOMES

Amir Aviram and colleagues performed a population-based retrospective study of infants who were born in the late preterm period (34–37 weeks) in Ontario in 2006–11. They used healthcare administrative databases to determine whether these infants had been evaluated outside routine screening in the 5 years after birth for suspected neurocognitive disorder, hearing impairment or visual assessment, and whether or not they had been exposed to antenatal corticosteroids (ACS) prior to 34 weeks. 25 668 infants met the inclusion criteria and 2689 (10.5%) of them had been exposed to ACS. After adjusting for differences in baseline characteristics between groups, ACS exposure was associated with

an increased risk of suspected neurocognitive disorder (adjusted HR (aHR) 1.12, 95% CI 1.05 to 1.20), audiometry testing (aHR 1.20, 95% CI 1.10 to 1.31) and visual testing (aHR 1.06, 95% CI 1.01 to 1.11). The authors argue that these data add to a growing number of observations that ACS may have unfavourable effects on long term developmental outcomes and that their use should be restricted to situations where the risk of preterm birth is high. Gordon Smith places the study in context with other evidence that there may be far reaching consequences for health and behavioural/higher centre function of perturbing the fetal hypothalamic–pituitary axis during the developmental stage. The benefits of ACS in terms of reduced morbidity and mortality for preterm infants are very clear at lower gestations and decline as gestation at birth increase. In one study the number of women who needed to be treated to prevent one death before discharge was six for births at 23 and 24 weeks' gestation, and this increased to 798 at 34 weeks. Particularly beyond 34 weeks, it is clear that more studies are required to ascertain the short-term and long-term effects of steroid administration in pregnancy. *See pages F250 and F230*

## MORE ON THE SEPSIS RISK CALCULATOR

The journal has previously published virtual comparisons from the UK of using the NICE guideline and the Kaiser Permanente sepsis risk calculator (SRC) for managing populations of infants at risk of early onset neonatal sepsis (EONS), estimating greatly reduced antibiotic use without missed sepsis cases using the SRC approach. In this issue, Nitin Goel and colleagues report a prospective study conducted in 10 neonatal units in Wales. All livebirths greater than 34 week's gestation over a 12 month period were included, where neonatal management was guided by a modified SRC algorithm with enhanced in-hospital surveillance, ongoing quality assurance, standardised staff training and parent education. Well infants without NICE sepsis risk factors received routine care. Infants with risk factors, who would have been recommended to receive observation or antibiotics by NICE, had the modified SRC algorithm and extended observation protocol applied. Asymptomatic infants with prior SRS <0.65 received in-hospital observation for 24 hours. The observation period extended to 36 hours for medium-risk asymptomatic infants. In comparison with infants managed using NICE guidelines alone in the preceding 15 months, neonatal antibiotic exposure decreased from

14.3% to 7.7%. All 19 infants with culture-positive sepsis in the postimplantation phase were identified and treated appropriately. There were no increases in sepsis-related neonatal unit admissions, disease morbidity and late readmissions. Three infants presented clinically during the extended clinical observation. *See page F303*

## SAFE EMERGENCY NEONATAL AIRWAY MANAGEMENT

Joyce O'Shea and colleagues review the literature on emergency neonatal airway management and discuss how to optimise intubation safety and success rates with the use of videolaryngoscopy and attention to the intubation environment. They argue that universal intubation competency for all paediatric and neonatal trainees and consultants may no longer be achievable, and that it places unachievable expectations on trainees and exposes infants to hazards of multiple intubation attempts and potential delay in effective resuscitation. They provide a detailed overview on the evidence for the use of laryngeal mask airways and argue for a formalisation of their role in neonatology. *See page F236*

## NEC OR SIP?

Janet Berrington and Nick Embleton used a detailed 10 year cohort of necrotising enterocolitis (NEC) and focal intestinal perforation (FIP) cases in preterm infants from a single centre to explore antecedent factors, presentation and potential NEC subclassifications. 785 infants had 144 episodes of NEC and 38 of FIP. FIP presented earlier than NEC, but ranges overlapped, and 30% of NEC presented before day 14. Antecedent events (other than feed volumes) and outcomes did not differ between NEC and FIP. Currently used diagnostic/discriminatory features performed poorly. Detailed review was required to discriminate between cases rather than simple definitions. Many discharge diagnoses in the electronic patient record (BadgerNet) were inaccurate, suggesting that use of routinely collected data in research studies may be inaccurate for these outcomes. Does it matter? The initial medical management of presentations with either pathology is similar. Nigel Hall argues that refinement of surgical management may depend on better distinction between the two and also other less common pathologies that may also be present. Given the overlap and the risk of misclassification it is important to consider both pathologies and not either in isolation when looking at outcome studies. *See pages F336 and F234*