through the identification of hemodynamically relevant coronary artery stenosis.

Original article Gebker R *et al.* (2008) Diagnostic performance of myocardial perfusion MR at 3 T in patients with coronary artery disease. *Radiology* **247:** 57–63

Periconceptional smoking increases the risk of septal heart defects

The body of evidence linking fetal exposure to tobacco smoke to an increased risk of structural birth defects is substantial. Now, Malik *et al.* have conducted a population-based case–control study to obtain a better understanding of the associations between specific subtypes of congenital heart disease (CHD) and maternal smoking.

Overall, 3,067 women who gave birth to singleton infants with nonsyndromic CHD and 3,947 women who gave birth to singleton infants without birth defects were enrolled in the study. Among the infants with nonsyndromic CHD, 40.1% had septal heart defects. Analyses stratified by CHD subtype identified a significant association between the risk of giving birth to an infant with a septal heart defect and periconceptional smoking. In comparison with women who did not smoke during this period, the risk of giving birth to an infant with a septal defect was 1.44 times higher among women who reported light periconceptional smoking (1–14 cigarettes per day) and 2.06 times higher among women who reported the heaviest levels of periconceptional smoking (at least 25 cigarettes a day), independent of maternal age, folic acid intake and ethnicity. In addition, the heaviest level of maternal smoking was associated with an increased risk of right-sided obstructive heart defects, particularly pulmonary valve stenosis (odds ratio 2.31, 95% CI 1.11–4.83). No association was found between maternal exposure to environmental tobacco smoke and risk of CHD.

These results strongly support the goals of the US Public Health Service, which hopes to achieve smoking abstinence in 98% of pregnant women by 2010.

Original article Malik S *et al.* (2008) Maternal smoking and congenital heart defects. *Pediatrics* **121:** e810–e816

Feasibility of screening for congenital heart disease in newborns

Congenital heart disease (CHD) is a cause of substantial infant mortality, but the condition can be difficult to diagnose in newborns. Schultz *et al.* investigated the feasibility of screening for this disease in a retrospective study of newborns with critical CHD who were admitted to the Children's Hospital of Philadelphia, PA.

Of the 490 infants who were analyzed (age <30 days), 40 experienced significant physiologic compromise (SPC; cardiac arrest, severe metabolic acidosis, seizures, or secondary organ dysfunction) that was attributable to undiagnosed CHD; 33 of these incidents were classed as potentially preventable by screening (defined as occurring after 12 h of life). The authors estimate that the incidence of preventable SPC lies between 1 in 15,000 and 1 in 26,000 live births; this incidence is similar to that of diseases, such as phenylketonuria and galactosemia, for which routine screening is available in most US states. More than 90% of the incidents of SPC occurred in infants with aortic arch obstruction. SPC was less severe in the newborns who were diagnosed with CHD prenatally than in those who were diagnosed after birth.

The authors suggest that the incidence of SPC in newborns with undiagnosed CHD lends support to a strategy of screening for the disease within the first 12 h of life and of improved prenatal screening. Particular attention should be paid to the detection of aortic arch obstruction.

Original article Schultz AH *et al.* (2008) Epidemiologic features of the presentation of critical congenital heart disease: implications for screening. *Pediatrics* **121:** 751–757