Haemolytic uraemic syndrome not associated with a diarrhoeal prodrome or with the Shiga-like toxin (D⁻HUS) has a poorer prognosis and may be familial. Among D⁻HUS patients with low serum concentrations of the third component of complement (C3) between 13% and 30% have a mutation in the factor H gene (*HF1*). (Factor H is a protein that inhibits the alternative pathway of complement.) Now researchers in Italy (*Lancet* 2003;**362**:1542–7, see also commentary, ibid: 1514–15) have found a mutation of the membrane cofactor protein gene (*MCP*) in two of 25 patients with D⁻HUS, abnormal complement profile, and no *HF1* mutation. The two patients were a 21-year-old woman who had had seven episodes of HUS from the age of 16 months and needed chronic haemodialysis and her 16-year-old brother who had had two episodes of HUS at the age of 9 years. Their father, who was clinically unaffected, was a carrier of the same mutation, suggesting autosomal dominant inheritance with variable penetrance. MCP is highly expressed in the kidney and important in the regulation of glomerular C3 activation. A *MCP* mutation has now been described in four of 55 families screened because of D⁻HUS.

We all start off life as chimeras because maternal cells pass into the fetus, creating a state of microchimerism. Transplantation studies have shown that donor cells are capable of differentiating into somatic tissue cells. Now researchers in Seattle (*Lancet* 2003;**362**:1617–23, see also commentary, ibid: 1596–7) have shown that some of the heart muscle cells of boys are female (XX) and therefore of maternal origin. When they studied postmortem heart tissue from four boys with neonatal lupus syndrome they found maternal cells in all of 15 sections examined, up to 2% of cells being maternal. Heart tissue from four boys who had died as neonates from non-autoimmune disease showed up to 0.1% of maternal cells in two of eight sections examined. The maternal cells in neonatal lupus syndrome could be the target of immune responses or they could represent an attempt at repair of heart damage.

In children with attention-deficit hyperactivity disorder (ADHD) imaging studies have shown small reductions in total brain volume and in the volumes of the right frontal lobe and the caudate nucleus. Now US workers using high-resolution MRI and surface-based computational image analytic techniques (*Lancet* 2003;**362**:1699–707) have demonstrated cortical abnormalities in the frontal, temporal, and parietal lobes. They studied 27 children and adolescents with ADHD and 46 controls. They found reduced volume in both dorsal prefrontal cortices and in both anterior temporal cortices in ADHD. There were also increases in grey matter in both posterior temporal and inferior parietal cortices. Abnormalities in these association cortices could explain some of the features of ADHD.

In Chicago (*New England Journal of Medicine* 2003;**349**:2099–107, see also editorial, ibid: 2157–9) 207 preterm infants on mechanical ventilation for respiratory distress syndrome were randomly assigned to 7 days of inhaled nitric oxide or oxygen placebo. Mortality was 15.2% (nitric oxide) vs 22.5% (placebo) and survival with chronic lung disease 33.3% vs 41.2%. Intraventricular haemorrhage and periventricular leukomalacia occurred at a similar frequency in the two groups but they were often less severe in the nitric oxide group. The editorialist advises against this prophylactic use of nitric oxide until more data is available from trials currently in progress.

In drought prone areas of Ethiopia the grass pea, *Lathyrus sativus*, is the only food plant that is drought resistant and people become reliant on it in the absence of other cereals from food aid. Grass pea contains the neurotoxin β-N-oxalyl-L-α,β-diaminopropionic acid (β-ODAP), the cause of the irreversible spastic paraparesis (neurolathyrism) that occurs in epidemics during periods of drought and famine. In a period of 5 years and 4 months (1995–2000) in one district with a population of 165 000 there were 2035 new cases of neurolathyrism (*Lancet* 2003;**362**:1808–10, see also commentary, ibid: 1775–6). The incidence varied inversely with the amount of cereal food aid distributed each month. In a case-control study of 170 cases and 818 controls, 101 cases (59.4%) were under 20 years of age and 13 (7.6%) under 10 years. Neurolathyrism was associated with eating roasted or boiled grass pea or the raw unripe seeds, particularly without cereals (wheat and maize) from food aid. Cereals need to reach people in neurolathyrism-prone areas before they are forced to rely on eating grass pea as their only food.

Abnormalities of the insulin-like growth receptor I gene (*IGF-IR*) may cause severe growth retardation before and after birth. Forty-two children in America and 50 in Germany were studied (*New England Journal of Medicine* 2003;**349**:2211–22; see also perspective article, ibid: 2184–6). All had intrauterine and postnatal growth retardation. Three *IGF-IR* mutations were found, two in a girl in the American cohort and one in a boy in the German cohort. Both children had poor IGF-IR function in cultured fibroblasts.

Researchers in London (*Lancet* 2003; **362**:1877–82) have described with enthusiasm their use of MRI alongside fluoroscopy for cardiac catheterisation in 16 patients with congenital heart disease (13 aged 18 years or under, down to 1 year). In a catheterisation laboratory that combined both MRI and X-rays, MRI was safe and practical, provided better soft tissue imaging and better physiological information, and reduced radiation exposure.

Waiting times for heart transplantation for children (excepting infants) are shorter than for adults. Mechanical circulatory support for children with end-stage heart disease might, therefore, keep them alive long enough to allow transplantation. At two UK transplant centres during the years 1998–2002, 22 children (mean age 5.7 years) with end-stage cardiomyopathy received mechanical support while awaiting transplantation (*Lancet* 2003;**362**: 1967–70; see also commentary, ibid: 1948–9). Thirteen had extracorporeal membrane oxygenation of whom twelve received a transplant and survived to hospital discharge. Nine had a paracorporeal ventricular assist device and six of them received a transplant and five survived to hospital discharge. There was one late death in each group. With urgent listing the median waiting time for a donor heart was 7.5 days (range 1.5–22 days).

Some studies have suggested that living near power lines during pregnancy might increase the risk of certain congenital malformations. Data from Norway (*Occup Environ Med* 2004;**61**:174–6) have not supported the suggestion. The nested case-control study included 465 cases (with central nervous system, cardiac, respiratory system, or oesophageal defects or clubfoot) and 930 controls. No significant association was found between any of these defects and maternal residence close to power lines during pregnancy.