

❑ Emergence of resistant pneumococci

Streptococcus pneumoniae (pneumococcus) is a leading cause of otitis, sinusitis, pneumonia, and meningitis worldwide. Treatment of the most serious type of pneumococcal infection, invasive pneumococcal disease (IPD), is complicated by antimicrobial resistance. Widespread introduction in 2000 of heptavalent pneumococcal conjugate vaccine (PCV7) against serotypes 4, 6B, 9V, 14, 18C, 19F, and 23F resulted in a decline in antimicrobial-nonsusceptible IPD in the United States. However, development of antimicrobial resistance in serotypes not covered by PCV7 is a growing concern. In Massachusetts during 2001-2006, IPD surveillance identified an increased number of cases in children caused by pneumococcal serotypes (most notably 19A) not covered by PCV7 and an associated increase in antimicrobial resistance among these isolates. *MMWR.Morb Mortal Wkly Rep* 2007; 56:1077-1080.

Comments: The findings indicated that, despite increases in incidence of antimicrobial-non-susceptible IPD, overall rates of IPD remained stable during 2001-2006. In addition, persons with IPD caused by antimicrobial-nonsusceptible *S. pneumoniae* had clinical outcomes comparable to persons with IPD caused by antimicrobial-susceptible serotypes. Although PCV7 is effective in preventing IPD, these results confirm that anti-microbial resistance among serotypes not covered by PCV7 remains a concern.

❑ Preventing childhood obesity

This study assessed the long term effects of obesity prevention programme in schools in Southwest England. The intervention was conducted over one school year, with four sessions of focused education promoting a healthy diet and discouraging the consumption of carbonated drinks. The main outcome measures were anthropometric measures of height, weight, and waist circumference. Body mass index (BMI) were converted to z scores (SD scores) and to centile values with growth reference curves.

Waist circumference was also converted to z scores. At three years after baseline the age and sex specific BMI z scores (SD scores) had increased in the control group by 0.10 (SD 0.53) but decreased in the intervention group by -0.01 (SD 0.58), with a mean difference of 0.10 (95% confidence interval -0.00 to 0.21, $P = 0.06$). The prevalence of overweight increased in both the intervention and control group at three years and the significant difference between the groups seen at 12 months was no longer evident. *BMJ* 2007; 335 (7623):762. Epub 2007 Oct 8.

Comments: These longitudinal results show that after a simple year long intervention the difference in prevalence of overweight in children seen at 12 months was not sustained at three years.

❑ Motor problems in children with congenital heart disease.

This study explored the extent and type of motor problems in children with complex congenital heart disease (CHD) compared with school children without any documented heart failure. One hundred twenty children aged 7 to 12 years with complex CHD and 387 healthy schoolchildren in the same age range (control group) were studied. All children with CHD were surgically treated with multiple corrections within the first year of life. The main outcome measures studied were grip strength, quadriceps muscle strength, and balance. Compared with the control group, children with CHD had a risk of having any degree of impaired motor competence of 5.8 (95% confidence interval, 3.8-8.8). The risk for having severe motor problems was 11.0 (95% confidence interval, 5.4-22.5). There were highly significant differences between the groups for manual dexterity, ball skills, grip strength, quadriceps muscle strength, and static and dynamic balance ($P < 0.001$). *Arch Pediatr Adolesc Med* 2007; 161: 945-950.

Comments: Children with CHD have a risk of severe motor problems 11-fold that of schoolchildren without any known heart failure. This suggests that primary health care providers should screen the

motor competence in children with CHD at an early age to initiate therapeutic actions for children who show incipient motor problems. Optimal rehabilitative, social, and environmental support may improve the children's motor competence and prevent future health problems.

❑ **Estimating head circumference by pediatric imaging**

Head circumference (HC) is an important developmental measure used both clinically and in research. This study describes a method to estimate HC from imaging studies when a direct HC-tape measurement cannot be secured. Unlike former approaches, the model takes into account the fact that growth is nonlinear, and that HC growth rates are sexually dimorphic. A model was first established based on published data to represent the normative HC growth curves for males and females. Then, using magnetic resonance (MR) studies of 90 subjects (birth to 18 years), a linear method to estimate HC was adapted to take into account the nonlinear and sex-specific HC normative growth curves. The accuracy of this model was tested prospectively by comparing the estimated HC with HC measurements from twelve computed tomography (CT) studies using the perimeter tracing of oblique slices that correspond to the plane at which a clinical HC-tape measurement is secured. *Acad Radiol* 2007; 14: 1102-1107.

Comments: HC can be calculated indirectly from imaging studies. The model is highly predictive of HC-tape measurements and provides the physician or scientist with a very reliable method to secure HC when it is not feasible to secure the HC-tape measurement.

❑ **Dogbite injuries in children**

Dog bites are a major cause of preventable traumatic injury in the paediatric population. This study aimed to determine the epidemiology of dog bite injuries in a group of South African children with a view to developing potential preventive strategies. A retrospective review was done of patients presenting with dog bite injuries to the trauma unit at the Red Cross War Memorial Children's Hospital in Cape Town over a 13.5-year period. Dog bites accounted for 1.5% of all trauma

unit presentations. Male children accounted for 68% of the patients. Children under 6 years of age were more likely to have sustained injuries to the head, face or neck, while children older than 6 years more commonly received injuries to the perineum, buttocks, legs or feet. Younger children were more likely to be attacked at home and older children outside the home. The most frequent injuries were superficial, and the majority of patients were treated with simple medication, dressing or suturing. There were no dog bite-related fatalities. *S Afr Med J* 2007; 97: 597-600.

Comments: The relationship between the geographical location of dog attacks on children and the age groups attacked suggests that strategies to prevent dog bites should target both parents supervising younger children at home, and older children who encounter dogs outside the home.

❑ **Management of type 2 diabetes**

Although type 1 diabetes historically has been more common in patients 8 to 19 years of age, type 2 diabetes is emerging as an important disease in this group. Type 2 diabetes accounts for 8 to 45 percent of new childhood diabetes. This article is an update from the National Diabetes Education Program on the management of type 2 diabetes in youth. High-risk youths older than 10 years have a body mass index greater than the 85th percentile for age and sex plus two additional risk factors (*i.e.*, family history, high-risk ethnicity, acanthosis nigricans, polycystic ovary syndrome, hypertension, or dyslipidemia). Reducing overweight and impaired glucose tolerance with increased physical activity and healthier eating habits may help prevent or delay the development of type 2 diabetes in high-risk youths. The American Academy of Pediatrics does not recommend population-based screening of high-risk youths; however, physicians should closely monitor these patients because early diagnosis may be beneficial. The American Diabetes Association recommends screening high-risk youths every two years with a fasting plasma glucose test. *Am Fam Physician* 2007; 76: 658-664.

Comments: Patients diagnosed with diabetes should receive self-management education, behavior interventions to promote healthy eating and physical

activity, appropriate therapy for hyperglycemia (usually metformin and insulin), and treatment of comorbidities.

❑ Air pollution and serum CRP concentration

Few biological markers that allow evaluation of the effects of air pollution on human health have been identified. This study evaluated the association of serum C-reactive protein (CRP) concentration in children with their respiratory symptoms and air pollution. Respiratory symptoms and serum concentrations of CRP were examined in 2,094 school children living in 3 communities with different concentrations of air pollutants in Japan in 2001. The relationships between serum CRP concentration and sex, age, respiratory symptoms, and various environmental factors were analyzed. Serum CRP concentration decreased with age, and was significantly higher both in children who were bottle-fed in infancy and whose mothers smoked. Children with wheeze had significantly higher serum CRP concentration than those without wheeze. After adjustment for potential confounding factors, increased serum CRP concentrations of the 90th percentile (1.4 mg/L) or above were significantly associated with atmospheric concentration of suspended particulate matter (SPM) and sulfur dioxide (SO₂). (J Epidemiol 2007; 17: 169-176).

Comments: Serum CRP concentration is related to wheezing and the degree of air pollution. Because the concentrations of air pollutants are highly correlated, it is difficult to elaborate on which pollutant has a stronger effect on serum CRP concentrations.

❑ Congenital vascular rings and respiratory distress

Congenital vascular rings may often cause unexplained respiratory symptoms in infants and young children. Few studies of vascular rings have been reported in China. The aim of this study was to describe the clinical presentation, diagnosis and

surgical management of infants and children with congenital vascular rings. Clinical histories, physical examinations, investigations, image studies and surgical interventions were retrospectively evaluated in 7 children (age range: 2 months-4 years, mean 7 months) with congenital vascular rings. Echocardiography and computed tomography (CT) with 3-dimensional (3D) reconstructions were performed in 6 patients. Esophagography, cardiac catheterization and angiography, and bronchoscopy were performed in 1, 1 and 4 children, respectively. Six of the 7 patients had respiratory symptoms, including recurrent cough, stridor and wheeze. Age at onset of symptoms ranged from 1 month to 11 months. Chest X-ray showed nothing important on the vascular rings, besides bronchitis and pneumonia. Contrast-enhanced CT diagnosed vascular rings in 6 patients. Four patients had double aortic arches, two had balanced arches and two were right arch dominant. One patient had a right aortic arch with left ligament and 1 patient had a pulmonary artery sling. Echocardiography failed to diagnose vascular rings in 2 patients. The esophagogram of 1 patient showed esophageal compression. Bronchoscopy of 4 patients showed compression of the distal trachea. Five of the 7 patients underwent surgical division of the vascular rings. Surgical observation confirmed the CT findings in each patient. Chin Med J 2007; 120: 1408-1412.

Comments: Patients, especially infants or young children, with recurrent respiratory symptoms such as chronic cough, stridor and wheeze, should be examined for the possible presence of congenital vascular rings. Contrast-enhanced CT can clearly show the anatomy of vascular rings. As a noninvasive technique, echocardiography is helpful for diagnosis. Early surgical management in symptomatic patients is effective.

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