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## COMMENTARY

# Bronchopulmonary dysplasia: the challenges for primary care

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Over the last 40 years there has been enormous progress in the care of children born prematurely. The first systematic description of bronchopulmonary dysplasia (BPD) – a syndrome of chronic lung damage in premature babies receiving mechanical ventilation and high concentrations of oxygen – was published in 1967; the mean gestation was 34 weeks, the mean birthweight 2.2kg, and the mortality was 67%. Improvements in neonatal care, including better methods of ventilation and the use of

exogenous surfactant in the treatment of hyaline membrane disease, have resulted in the survival of infants of progressively lower birthweight so that now the majority of infants affected by BPD were born weighing less than 1kg.<sup>1</sup> The pattern of pathological changes has evolved, with fewer changes in airway epithelium and less fibroproliferative change, but prominent impairment of alveolar and vascular development. This “new” pattern of BPD may occur in infants who have needed relatively

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little ventilatory support.<sup>2</sup> Infants with BPD may have protracted oxygen dependence. Diffuse abnormality of chest radiographs is common but correlates poorly with the degree of lung function abnormality.

This review article by Hayes *et al.*<sup>3</sup> summarises the evidence of continuing abnormalities in lung function affecting infants with BPD surviving into childhood and adulthood. At all ages studied, lung function abnormalities – including reductions in FEV<sub>1</sub> and expiratory flow, and increased rates of bronchial hyperreactivity and airway obstruction – were more prevalent in children and young adults who had had BPD than in children born at term or children born prematurely who had not developed BPD.

What are the implications of these findings for clinicians in primary care? Children discharged from premature baby units who remain oxygen dependent usually receive continued supervision in the community from specialist community paediatric nursing services together with easy access to hospital paediatric teams, but primary care clinicians need to be fully aware of the situation and involved in sharing care. The practicalities of caring for a premature infant both before and after discharge from hospital can put enormous strain on parents and siblings, and their health and emotional needs must be remembered.

Knowledge of the child when well facilitates clinical assessment of intercurrent illness. Clinical deterioration may occur in the context of acute infections or due to the development of reactive airway disease or pulmonary hypertension. Infants with BPD are at high risk of re-admission to hospital with respiratory complications in the first two years of life, especially in the context of RSV infection. The prophylactic use of monoclonal antibody to RSV (palivizumab) has been advocated, and may be cost-effective.<sup>4</sup> Thresholds for face-to-face clinical assessment of respiratory illness – including pulse oximetry – and for hospital admission need to be lower in children with BPD.

In addition, it is important that primary care clinical record summaries should include important perinatal details, including the weight and gestation at birth of infants born prematurely. A diagnosis of BPD should be separately recorded. Completion of routine immunisations is important.

In later childhood and adult life primary care clinicians should be aware of the perinatal history and of the increased likelihood of respiratory disorders. Spirometry with reversibility testing

should be performed in those with overt recurrent respiratory symptoms,<sup>5</sup> and referral should be considered if there has been no recent specialist respiratory assessment. Influenza immunisation should be offered. If asthma is diagnosed it should be managed according to recognised guidelines. Avoidance of tobacco smoking is very important, and every effort should be made to achieve smoking cessation in patients with a history of BPD who do smoke.

It is recognised that assessment of the effects of management practices in the neonatal respiratory care of premature infants should preferably include determination of clinical and physiological outcomes in the medium to long term, but there are no comprehensive follow-up studies into adult life. In an earlier review, Kinsella and colleagues argued that, "More research is needed to determine the long-term respiratory course of premature neonates, with or without severe BPD, and their relative contribution to the growing adult population with chronic obstructive pulmonary disease."<sup>1</sup> Better recording of basic neonatal histories in primary care would help facilitate such enquiries as well as improving the care of individuals.

#### Conflict of interests

None.

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