



Studies of very preterm adults with bronchopulmonary dysplasia are relevant for today's graduates—invited response to editorial commentary

Brian A. Darlow¹, Jun Yang²

¹Department of Paediatrics, University of Otago, Christchurch, New Zealand; ²Respiratory Physiology Laboratory, Christchurch Hospital, Canterbury District Health Board, New Zealand

Correspondence to: Professor Brian A. Darlow, Department of Paediatrics, University of Otago, PO Box 4345, Christchurch 8140, New Zealand. Email: brian.darlow@otago.ac.nz.

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We are grateful for the opportunity to comment briefly on the Editorial by Chen and Chen on our recent publication on static lung function in very low birth weight adults (1).

As the Editorial notes there has been a wealth of data on respiratory outcome and function of very low birthweight (VLBW; <1,500 g) and very preterm (VP; <32 weeks gestation) infants in childhood and adolescence but much less data on outcome in young adults. Overall, there are relatively few studies of VP/VLBW adults published from population-based cohorts, which are required to avoid the biases inherent in hospital and opportunistic follow-up studies. The majority of these studies have focused on spirometry with very few assessing other aspects of lung function (2).

In our population-based study of VLBW young adults assessed at a mean 28.4 years we found that compared with term born controls, VLBW survivors showed a higher incidence of airflow obstruction, gas trapping, reduced gas exchange and increased ventilatory inhomogeneity. Within the VLBW cohort, those who had been diagnosed with bronchopulmonary dysplasia (BPD) had further reduced airflow, increased gas trapping and ventilatory inhomogeneity compared with those without BPD (1).

The Editorial suggests our findings related to young adults born in 1986 might be less relevant for current NICU graduates because of changes in neonatal intensive care practices, particularly those aimed at avoiding or

ameliorating the perinatal lung injury that results in BPD. However, we believe our results will remain relevant for contemporary VP/VLBW survivors for a number of reasons.

Although there have been many advances in neonatal practices aimed at prevention of lung injury in VP/VLBW infants in recent years, there is compelling evidence that the incidence of BPD is not decreasing and may even be increasing in many countries. Our definition of BPD was the widely used requirement for supplementary oxygen at 36 weeks post-menstrual age (3) (although the majority would have also required supplementary oxygen for 28 days). Doyle and colleagues reviewed the outcome for all infants born at <28 weeks' gestation in Victoria, Australia in three time periods, 1991–1992, 1997 and 2005 (4). Despite an increase in less invasive methods of ventilation over time, the incidence of BPD (defined as in our study) was highest in the latest period. Similarly, Lui and colleagues reported on data from population-based neonatal networks from 11 countries over two epochs, 2007–2011 and 2012–2015; again, the incidence of BPD increased over time in 9 of the 11 networks (5).

Follow-up studies of VP infants born over the past two decades in the surfactant era show significantly lower spirometry values in middle (8 years) (4) and late (9–11 years) (6) childhood compared with controls, as in our study. Doyle and colleagues have also reported that

extremely preterm (EP) infants had worsening airways obstruction between 8 and 18 years but then no change to 25 years (7). Furthermore, EP graduates with BPD had worse airflows and trajectories than those without (7).

Despite our findings of poorer respiratory function in VLBW adults than controls, it is important to recognise that most of the results were in the usually accepted normal ranges. Given that peak respiratory function is attained in the third decade of life (8), the most important question might be what will be the rate of decline in subsequent years; will it match that of their term born peers or be accelerated even without additional lung insults, such as smoking? Hence, it will be important, not only to replicate the full range of lung function tests we have undertaken in other cohorts of VP/VLBW adults in their 20s to see whether our results are confirmed, but also to follow these cohorts with repeated tests as they age further.

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Footnote

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