Preface

This is our 18th annual International Workshop on Surfactant Replacement and it is a pleasure to note the advances in neonatal respiratory care that have taken place since our first meeting in 1986. Now, there is no doubt that surfactant replacement therapy improves clinical outcome of very preterm newborns with neonatal respiratory distress syndrome (RDS). The time of administration, the dose and the composition of the surfactant preparation have all been studied to determine the optimal use and effectiveness of this therapy. Prophylactic and early surfactant replacement therapy compared to later administration in established RDS improves survival, reduces the incidence of air leak and of chronic lung disease (CLD) or death. The combination of early administration of surfactant with prophylactic use of nasal continuous positive airway pressure (CPAP) decreases the need for mechanical ventilation in very preterm infants but has not yet been shown to have a major effect on long-term neonatal morbidity. The potential target area for surfactant therapy has expanded to include meconium aspiration syndrome, acute respiratory distress syndrome (ARDS), pneumonia and bronchiolitis. Animal data and limited experience in humans also suggest the possible use of surfactant in asthma and otitis media. However, surfactant therapy is less effective in all these disorders than it is in RDS. The common underlying reason for poor clinical response could be inactivation of surfactant caused by leakage of plasma proteins into the alveoli. Nonetheless, addition of polymers to exogenous surfactants affects surfactant function in ways that offer hope for improving treatment of diseases where surfactant inactivation plays a role. The recognition of the functions of each of the four surfactant proteins using transgenic

animal models has shown their importance for both host defence and surfactant function. Newer surfactant products, containing recombinant or synthetic proteins, may be available in the future for treatment of a wide range of neonatal lung disorders. Gene expression of surfactant proteins has been investigated with respect to various conditions such as inflammation, distension and stretch of the lungs both prenatally and postnatally.

The 18th Workshop reported on several of the topics listed above, on the interaction between newer modes of respiratory support and surfactant therapy, and on new methods of surfactant delivery. With improved survival following widespread and effective use of surfactant in the neonatal period, the number of infants developing CLD has increased. CLD today has been termed ‘new BPD’ to reflect its origins from inflammation, oxidative stress and disordered lung development rather than ventilatory lung trauma when bronchopulmonary dysplasia (BPD) was first described by Northway and colleagues 36 years ago. To understand the causes of arrest in lung development, more research is needed on the genetic control of this process and this was covered by several speakers at the Workshop. The use of corticosteroids, especially dexamethasone, to treat CLD has benefits as regards improved pulmonary function but risks of damage to the developing central nervous system. Inhaled nitric oxide (INO) has been postulated as a means of preventing CLD and some randomised trials are currently under way. However, use of INO in preterm infants with lung disease has been disappointing although it appears to have a role in treating term or near term infants who have hypoxic respiratory failure, reducing the need for extracorporeal membrane oxygenation (ECMO).

The 6th Nils W. Svenningsen Memorial Lecture was given by Colin Morley from Melbourne, Australia who discussed the resuscitation of very preterm babies showing that our current standard procedures could be harmful and should be modified. The setting for the 18th Workshop was the beautiful city of Prague, capital of the Czech Republic. The historic core of Prague is a monumental record of the city's 1,000-year development, and was named an Urban Memorial Reservation for its historic,

cultural, architectural and urban merits which include almost 2,000 cultural monuments. In 1992, Prague was entered into the UNESCO World Cultural Heritage List.

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