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The study was conducted in 91 newborns and children with a gestational age of 37 weeks or more who were born at Fukuoka University Hospital and had respiratory conditions that required ventilation support for at least 12 hours in the neonatal intensive care unit (NICU). The age range of the cohort was 9 days to 18 months. The study was approved by the institutional review board of Fukuoka University Hospital. The study population included healthy term newborns and children and those with underlying medical conditions such as congenital heart disease or chronic lung disease. The study design was prospective observational, and the outcomes were evaluated using clinical and laboratory data. The primary outcome was the incidence of respiratory distress syndrome (RDS) defined by the American Academy of Pediatrics. The secondary outcomes included the duration of mechanical ventilation, the duration of hospitalization, and the rate of complications such as sepsis and acute respiratory distress syndrome (ARDS). The data were analyzed using descriptive statistics and the chi-square test for categorical variables. The results showed a significant association between the use of surfactant and the incidence of RDS, with a lower incidence in the surfactant group. The study concluded that the use of surfactant for the treatment of RDS in newborns and children is effective and can improve clinical outcomes.