

Post-Discharge Health Resource Use in Pediatric Survivors of Prolonged Mechanical Ventilation for Acute Respiratory Disease

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Abstract: We aimed to identify characteristics associated with post-discharge health resource use in children without medical complexity who survived an episode of prolonged mechanical ventilation for respiratory disease. We hypothesized that longer durations of mechanical ventilation, non-complex chronic conditions, and severe acute respiratory distress syndrome (ARDS) would be associated with readmission or an Emergency Department (ED) visit. In this retrospective cohort, we evaluated children without a complex chronic condition who survived a respiratory illness that required > 3 days of mechanical ventilation and who had insurance eligibility within the Colorado All Payers Claims Database. We used insurance claims to characterize health resource use and multivariable logistic regression to identify characteristics associated with readmission or an ED visit. We evaluated 82 children, median age 12.8 months (interquartile range 4.0-24.1), 20 (24%) with a non-complex chronic condition and 62 (76%) without any chronic conditions. Bronchiolitis (60%) and pneumonia/aspiration pneumonitis (17%) were the most common etiologies of respiratory failure and 47 (57%) patients had severe ARDS. During the post-discharge year, 46 (56%) patients had an ED visit or readmission including 16/18 (89%) readmissions for respiratory illness. Forty (49%) patients had > 2 outpatient pulmonary visits and 45 (55%) filled a pulmonary medication prescription. In analyses controlling for age, illness severity and durations of mechanical ventilation and ARDS, severe ARDS was predictive of ED visit or readmission (OR 5.53 [95% CI: 1.79, 19.09]). Children who survive prolonged mechanical ventilation for respiratory disease experience high rates of postdischarge health resource use, particularly those surviving severe ARDS.