

## Epidmiologic multicenter study on mechanical ventilation management in children with Acute Lung Injury

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### Synopsis:

Primary objective: Describe invasive and non-invasive mechanical ventilation in pediatric cases of ALI.

Secondary objective: Describe current prevalence, etiologies and management of ALI and ARDS in children under 18 years of age.

Hypothesis: There is an important variability in the observed practice pattern of mechanical ventilation in pediatric cases of ALI

Background: In the absence of consensus and established guidelines for mechanical ventilation in children with ALI/ARDS, we believe that the daily clinical practice in intensive care units is subject to great variation according to the experience, comfort and knowledge of the attending intensivist. Creating large multi-center trials in the pediatric ALI population is fraught with difficulties, in addition to the obvious financial ones. Only 17 to 35% of children admitted in a PICU are mechanically ventilated for more than 12 to 24 hours, and only 10% have a diagnosis of ALI or ARDS. Furthermore, mortality is lower than in adults: 27.3% of the patients with ALI and 31.4% of those with ARDS. As studies evaluating a specific point in the therapeutic strategy are difficult to undertake and costly for all the above-mentioned reasons, a different strategy is needed to evaluate and study mechanical ventilation strategies in pediatric patients. Therefore, studies describing the current state of practice on mechanically ventilated children with ALI/ARDS are the first step to better characterize mechanical ventilation strategies, outcome and treatment in children with ALI/ARDS.

We plan to conduct a cross-sectional epidemiologic study in a large panel of PICUs in Europe and America to assess mechanical ventilation and treatment strategies used for children on invasive or non-invasive mechanical ventilation for ALI. This large pediatric epidemiologic study will give data on the prevalence of ALI and ARDS, on current mechanical ventilation strategies and treatments used in this specific disease (including high frequency oscillatory ventilation, surfactant, nitric oxide, prone position and hemofiltration).