

Sleep Disruption and Delirium in Critically Ill Children  
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Grant Report

**Aim/Purpose/Objective:** The purpose of this observational, repeated measures pilot study was to develop a measurement framework that illustrates the relationship between modifiable characteristics of the PICU environment (e.g., light and sound exposure, caregiving patterns), sleep disruption, and delirium in young, critically ill children.

**Sample:** 10 critically ill children 1 to 4 years of age.

**Setting:** Medical, surgical, and cardiothoracic pediatric intensive care units in a large, Midwestern children's hospital.

**Methodology:** Quantitative, Observational, Descriptive

Ten children 1-4 years old were recruited within 48 hours of PICU admission and followed until PICU discharge. A light meter, dosimeter, and video camera were placed at bedside. Caregiving was quantified through video using Noldus Observer. Sleep was measured via actigraphy. Twice daily Cornell Assessment of Pediatric Delirium screening was conducted.

**Results:** The PICU was disruptive to sleep, with inadequate daytime light, frequent loud sounds, and frequent caregiving. Children exhibited fragmented, short sleep episodes. Care frequency and duration were associated with sleep disruption. At night, children with delirium had more arousals per sleep hour and fewer minutes of sleep per sleep episode.

**Conclusions:** Short PICU stay decreased data collection duration. Delirium prevalence was high. The PICU environment was characterized by low light, excessive sound, and frequent caregiving. Children exhibited highly fragmented sleep, and children with delirium had more arousals and shorter sleep episodes. Clinician caregiving was associated with both sleep disruption and delirium.

**Implications:** This study adds to growing body of evidence suggesting sleep disruption is associated with delirium in the PICU. Study results will inform future, large-scale work and nurse-driven sleep promotion interventions.

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