Fatigue and Tiredness in Hospitalized Children: Does Environment Matter?
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Background
• Patients in the hospital setting frequently complain of sleep and rest disturbances due to ambient noise, light, and temperature.
• Sleep is imperative for any patient to heal and restore energy. Sound, light and temperature in the hospital environment can negatively impact patient outcome, particularly sleep.
• Hospitalized children & families are particularly vulnerable to a disruptive hospital environment.

Purpose
• Establish feasibility of collecting detailed environmental data for a continuous period of 48 hours.
• Collect data to describe ambient light, sound, temperature, and room entities in a non-intensive pediatric environment.
• Assess patient hospital experience through measurement of activity, sleep report, symptom report.
• Describe the relationship between environmental factors and patient experience.

Methods and Design
• Prospective cohort study of children ages 7-18 years newly admitted to hospital with anticipated LOS >22 hours.
• Environmental monitors record noise (dBA), light (lux), and temperature (degrees F) at the bedside. Wrist Actigraph records activity and light exposure for 48 hours.
• Participants complete electronic self-report measures on sleep and symptoms at enrollment and before noon each day for up to seven days.

Preliminary Results

Average doorway events by hour of day/patient

• The majority of daytime sound readings are 40-50 decibels.
• The majority of nighttime sound readings are 50-60 decibels.

Light (lux) distribution by hour of day

• The majority of nighttime light readings are at or near zero lux.
• Daytime readings are between 30 and 100 lux.

Actigraphy sample data

Implications for Nursing Research and Practice

• A hospital environment that supports healing is vital to optimal outcomes for ill children.
• This project will yield patient data on symptoms, sleep and activity in the context of detailed objective environmental data to better characterize the relationship between the environment and the patient experience.
• The work of this diverse research team will provide a sustained foundation to ultimately support data driven interventions aimed at improving outcomes in the pediatric inpatient setting.
• The results from this study will help shape patient care interventions aimed at improving patient outcome by coordinating patient need and the physical care environment.

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