



## Implementation of Cycled Lighting in NICU

### Problem Statement

Preterm infants are exposed to continuous artificial lighting in the Neonatal Intensive Care Unit (NICU), which differs significantly from the protected, low-light intrauterine environment. Evidence suggests that inappropriate light exposure may disrupt circadian rhythm development and negatively impact physiologic stability and growth. The current lighting environment and lack of staff compliance in our NICU does not consistently support developmentally appropriate cycled lighting practices for neonates 32 weeks or greater corrected gestational age (CGA).

### Project Scope

This project will standardize and implement a cycled lighting policy for infants 32 weeks or greater CGA in the NICU by clearly defining daytime 7am to 7pm and nighttime 7pm to 7am light exposure expectations. The project includes staff education, environmental modifications, reminder signage, and compliance monitoring through observational audits.

### Project Goal

To establish and implement a NICU Cycled Lighting Policy and improve staff compliance to 90% by standardizing developmentally appropriate day-night light exposure practices for infants 32 weeks or greater CGA within 6 months from project start.

### Baseline Performance

Staff will be assessed after implementation of NICU Cycled Lighting Policy for compliance and barriers to compliance through observational audits and interviewing of staff as a baseline.

### Step 1:

Finalize and implement NICU Cycled Lighting Policy.

### Step 2:

Assess baseline developmentally appropriate cycled lighting compliance of staff through observational audits.

### Step 3:

Assess for barriers to compliance of staff for developmentally appropriate cycled lighting practice through observational audits and interviewing staff.

### Step 7:

Monitor compliance weekly through observational audits, and provide education to staff as needed, to achieve 90% compliance in 6 months.

### Step 4:

Assess for environmental barriers, such as lack of window coverings, that expose neonates 32 weeks or greater to inappropriate light.

### Step 5:

Modify environment to allow developmentally appropriate cycled lighting practice.

### Step 6:

Educate staff to increase compliance for developmentally appropriate cycled lighting practice and remind staff signage should be used at bedside when cycled lighting is implemented.

### Financial Impact

Cycled lighting in the NICU may improve growth and weight gain, reduce cortisol, enhance respiratory stability, and promote longer sleep, potentially reducing length of stay and shortening the duration of oxygen therapy.

### Interventions and Next Steps

The NICU will be finalizing then implementing a Cycled Lighting Policy, assessing baseline staff compliance, assessing environmental factors contributing to inappropriate exposure to light, educating staff and re-educating as needed, and monitoring for staff compliance to achieve 90% in 6 months from project start.

### Outcomes

Cycled Lighting Outcomes in the NICU are to be determined once project is completed.

### Learnings

Cycled Lighting Learnings in the NICU are to be determined once project is completed.

### Team Members

- Kelly Hedrick, BSN, RN, RNC-NIC, CBS
- Kelly Putney, BSN, RN, RNC-NIC
- Kerry Blake, MS, BSN, RNC-NIC, CBS
- Lori Blackburn, BSN, RN
- Rachel Hefner, OT

