

**NCCU CLINICAL GUIDELINES**  
**SECTION: 18**

**FAMILY AND DEVELOPMENTAL CARE**

Section 18: Family and Developmental Care  
Environmental noise, light and noxious stimuli reduction  
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## **ENVIRONMENTAL NOISE, LIGHT AND NOXIOUS STIMULI REDUCTION**

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### **NOISE**

Although the human cochlea and peripheral sensory end organs are developed by 24 weeks gestation, neurologically, the preterm infant is not well developed to handle extrauterine stimuli. The negative impacts of unwanted sound on the health of the infants can include somatic effects (e.g. desaturation and bradycardic episodes), brain development (undesirable physiological and behavioural effects) and speech and hearing problems.

The current recommended ambient (background) noise levels in an intensive care unit should not exceed 45-50dB. In an average home, the quiet background sound level equates to about 40dB, whereas two or three people having a normal conversation in an office would produce a sound level of 60dB. There are many sources of sound, generally categorised into 2 groups; sound generated from staff or equipment and building generated sound.

### **STRATEGIES AND MEASURES TO REDUCE NOISE**

- Use incubator padded covers to reduce environmental noise.
- Open and close doors of incubators carefully and quietly.
- Turn suction off at the wall after use.
- Prevent water build up in CPAP and humidity circuits.
- Respond quickly to silence alarms and set alarms volumes of monitoring devices to lowest tone. As a guide:
  - Bedside monitoring device, set at level 90
  - Pulse oximeter, set at level 1
  - Ventilator (Drager), set at level 1.
- Respect and ensure a daily quiet time period between 1200hrs-1500hrs. Utilise the quiet time period for skin-to-skin kangaroo care. General housekeeping activities to be avoided in this time period. Avoid playing radio's in ICU.
- Avoid talking over the top of the incubator, leaning on/against incubator or tapping fingers on incubators.
- Avoid placing hard items on incubators as it is magnified inside. E.g. bottles, charts.

### **LIGHTING**

Essential minimum lighting is to remain switched on at all times to maintain a safe level for accurate clinical observation. Utilise down-lights and overhead lights when extra lighting is required. Consider eye pads if extra lighting is required for extended periods of time if not able to use an incubator cover.

### **OTHER NOXIOUS STIMULI**

- Discourage the use of strong fragrances
- Minimise painful procedures and provide appropriate pain relief measures including comfort measures.

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## REFERENCES

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Merenstein GB, Gardner SL. Handbook of Neonatal Intensive Care 6<sup>th</sup> Edition. Mosby Elsevier. USA. 2006

Boxwell G. Neonatal Intensive Care Nursing 2<sup>nd</sup> Edition. Routledge UK. 2010

[Australasian Health Facility Guidelines 2013](#)