



NCCU CLINICAL GUIDELINES
SECTION: 18

FAMILY AND DEVELOPMENTAL CARE

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Environmental noxious stimuli reduction and management
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Neonatology Clinical Guidelines
King Edward Memorial/Princess Margaret Hospitals
Perth Western Australia

ENVIRONMENTAL NOXIOUS STIMULI REDUCTION AND MANAGEMENT

Noise reduction

Introduction

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 noise (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 an hourly Leq (equivalent sound level) 40-45dBA. 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, but, can generally be categorised into 2 groups: (a) operational – sound generated from staff or equipment, and (b) structural – building generated sound. Whilst the second category may be difficult for care-giving personnel to control, there are measures and strategies that can be taken to ensure that sound and noise generated from staff and equipment are minimised.

Strategies and measures to reduce noise:

- Talk and laugh quietly.
- Avoid talking over the top of the incubator.
- Do not operate radio in ICU.
- Do not place hard items on incubators as noise will be magnified inside, e.g., bottles, charts. Do not drum your fingers on the incubators.
- Cover top of incubators with padded covers to reduce environmental noise.
- Open and close doors of incubators carefully and quietly.
- Avoid leaning on/against incubator.
- Do not allow water build up in CPAP and humidity circuits.
- Turn suction off at the wall after use.
- Set alarms volumes of patient 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.

- Respond quickly to silence alarms.
- Ensure a daily quiet time period between 1200hrs-1500hrs.
During this period:
 - General housekeeping activities to be avoided.
 - Lighting to be kept to a minimum, utilise down-lights and overhead lights when extra lighting is required. However, essential lightings have been identified in each nursery and these are to remain switched on at all times.
- Include parental partnership to respect the quiet time period. Utilise the quiet time period for skin-skin kangaroo care.