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Apnoea Monitor for Neonates and Infants

Watching over the newborn with you

Peace of mind when you need it most

Clinical Considerations

Apnoea is a common problem in preterm babies; it may be caused by an underlying illness or most commonly due to idiopathic apnoea of prematurity (AoP). Incidence in pre-term infants is inversely related to gestation period and varies from around 10% in those born at over 34 weeks' gestation, over 50% at 31 weeks or less and the vast majority delivered at less than 29 weeks [1, 2]. Respiratory interruptions in term infants are almost always due to pathological causes.

Central and Obstructive apnoea account for around 40% and 10% of episodes respectively, with the other half of cases being Mixed apnoea [1, 2]. Central apnoea is caused by a decrease in stimulus to the diaphragm from the central nervous system; as a consequence respiratory effort ceases, resulting in an absence of chest wall movement. Obstructive apnoea is caused by occlusion of the airway; it is often due to instability of the pharynx, neck flexion or nasal obstruction, resulting in absence of airflow despite ongoing respiratory effort.

Mixed apnoea is found in approximately half of all interrupted respiratory events, with mixed aetiology; central deficit is usually preceded by airway obstruction, but occasionally arises first [2].

AoP typically arises 2-7 days after birth, with earlier onset indicative of other causes. Babies are at increased risk of developing central nervous system problems that may be associated with apnoea if they suffer from certain complications at birth, or a range of conditions thereafter [2, 3]. A few examples include:

- Birth trauma
- Acute or chronic pain
- Thermoregulation problems
- Maternal drug dependency
- Infections (e.g. sepsis)
- Neurological issues
- Cardiovascular complications
- Gastrointestinal problems

Family Centred Care

The causal factors leading to apnoea invoke additional stress for the newborn infant's development and much anxiety for the parents. It is important that they understand what is happening to their new baby; knowing how apnoea monitoring can contribute to improved outcomes helps reduce their concern.

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Detecting Apnoea

Infants at risk of respiratory failure may suffer apnoea unexpectedly and even with the most diligent care such episodes can easily go unnoticed. Whilst pulse oximetry will alert nursing staff to falling oxygen saturation, early detection of the cessation of breathing allows more timely intervention.

The consequences of prolonged respiratory pauses can be serious, or even catastrophic [2, 3, 4], so any reliable method of warning clinical staff of breathing problems can have significant value. In today's busy neonatal care environment, the reassurance obtained from monitoring for apnoea cannot be underestimated.

Simple, reliable and effective

The Delta Medical apnoea monitor is a simple yet reliable device that gives reassurance to the nursing staff in today's demanding healthcare environment. Developed using latest state-of-the-art technology, the microprocessor-based respiration monitor has features that can be adapted to individual needs. Early warning of problems with the patient's breathing ensures that appropriate intervention can be commenced immediately.

The portability of the instrument and mounting options make it ideal for use in the full range of hospital settings: NICU; maternity; and paediatric care. The monitor is simple to set up and operate, with disposable respiration sensor, and uses standard AA batteries.

Features & Benefits

Efficacy

- User selected apnoea delay period
- Audio and visual alarm indication
- Suitable for all areas of neonatal and paediatric care
- Soft and gentle sensor for delicate baby's skin
- Disposable sensor for infection control assurance
- Advanced design for sensitivity and reliability

Convenience

- Simple controls and clear indicators
- Easily portable for use in all areas
- Compact and lightweight
- Standard batteries
- Removable hanging strap
- Ergonomic design

Specifications:

Parameter	Specification
Power Input	4.5Vdc. 3 x AA (LR6) Batteries
Power Consumption	40mW (typ.)
Apnoea Alarm Interval	10, 15 or 20 sec (user selected)
Size	8.8 x 15.8 x 3.3cm (W x H x D)
Weight	0.3kg (inc. batteries)
Operating Temperature	+10°C to +40°C
Storage Temperature	-10°C to +55°C
Compliance	EN 60601-1, EN 60601-1-2, MDD 93/42/EEC

Notes:
These specifications may change without notice due to continuous product improvement.

References:

1 **Zhao, J., Gonzalez, F., Mu, D.** Apnea of prematurity: from cause to treatment. European J. Pediatrics, 2011.

2 **The Royal Children's Hospital , Melbourne.** Clinical Guidelines (Nursing): Apnoea (Neonatal). www.rch.org.au.

3 **Janvier, A., Khairy, M., et al.** Apnea is associated with neurodevelopmental impairment in very low birthweight infants. J. Perinatol, 2004.

4 **Pillekamp, F., Hermann, C., et al.** Factors influencing apnea and bradycardia of prematurity – implications for neurodevelopment. Neonatology, 2007.

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