



**NCCU CLINICAL GUIDELINES**  
**SECTION: 2**

## **RESPIRATORY PROBLEMS AND MANAGEMENT**

Section: 2 Respiratory problems and management  
Apnoea of prematurity  
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Neonatology Clinical Guidelines  
King Edward Memorial/Princess Margaret Hospitals  
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### **APNOEA OF PREMATURITY**

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#### **DEFINITION**

Absence of breathing in the premature infant for a period of >15 secs, associated with bradycardia and/or hypoxia.

It is important to manage the following additional factors which can either cause or accentuate apnoea:

- Systemic illness: Sepsis, hypoxemia, shock
- Obstructive respiratory problems: choanal atresia, macroglossia, micrognathia, tracheomalacia
- CVS disorders – PDA, CCF
- CNS: IVH/seizures, asphyxia, malformations
- Drugs – opiates, sedation
- Metabolic disturbances: hypoglycemia hypocalcemia, inborn error of metabolism
- Hypothermia, hyperthermia
- Post-general anesthesia
- Gastro-oesophageal reflux

#### **EPIDEMIOLOGY**

Recurrent prolonged apnoea and bradycardia occurs in most infants under 30 weeks, in about 50% of infants at 30-32 weeks gestation, and only about 10% of those at 34-36 weeks gestation. The more premature the infant the greater the possibility of apnoea occurring.

#### **MANAGEMENT**

There is no consensus with regard to when to initiate treatment for apnoea/bradycardia, but generally some form of treatment is usually required if the apnoeic events are:

- Frequent (4 or more per hour)
- Severe
- The infant is slow to respond

If acute respiratory disease is present then be cautious in prescribing caffeine as respiratory support is usually indicated in this situation.

### **Always:**

1. Address any underlying factor that may be aggravating apnoeic episodes.
2. Monitor infants with cardio-respiratory monitoring and oxygen saturation. See monitoring guidelines.
3. If infant does not self resolve an episode of apnoea/bradycardia gentle tactile stimulation maybe required. If response is slow or cyanosis present then bag and mask ventilation may be needed.
4. Caffeine is the pharmacological agent of choice. It has been shown to decrease apnoea and reduce the need for ventilatory support. It is a potent cardiac, respiratory and CNS stimulant. For dosage and side effects see NCCU Drug manual.
5. CPAP may be required if the baby remains unstable despite caffeine. Occasionally intubation and minimal supportive ventilation is required.

### **WHO TO TREAT?**

1. Infants <30 weeks gestation who are ventilated are generally prescribed caffeine when they are in the weaning phase of ventilation or prior to extubation. Caffeine has been shown to reduce post-extubation apnoea.
2. Infants <30 weeks gestation who are not ventilated will be prescribed caffeine if they are symptomatic.
3. Infants 30 – 34 weeks gestation will be prescribed caffeine **only** if they are symptomatic.

### **STOPPING CAFFEINE**

There are no trial data to support decisions to cease treatment. Apnoea of prematurity decreases with advancing age and can be expected to resolve by 37 weeks corrected gestational age (CGA). ELBW infants are the exception where apnoea may persist until 44 weeks CGA. Therefore:

1. Review all infants on maintenance caffeine therapy at least weekly with regard to ceasing caffeine.
2. Consider stopping caffeine in infants over 32 corrected weeks gestation, off respiratory support and with minimal symptoms.
3. Consider stopping caffeine in infants <32 weeks gestation who are not ventilated, and have no symptoms.
4. Continue to monitor infants for apnoea of prematurity for 5 days after caffeine ceased. See monitoring guidelines.

### **Caffeine levels**

In general caffeine levels are not done routinely. Consider measuring caffeine levels:

- To check therapeutic levels if there are ongoing symptoms
- If there is concern that caffeine levels may be too high (signs may include persistent tachycardia.)

## DISCHARGE AFTER CEASING CAFFEINE

Once the infant has ceased caffeine they remain monitored with an oximeter for a minimum of 5 days and for 48 hours after the last apnoea/bradycardia. If the infant is being discharged home from KEMH/PMH then a further period of 48 hours in hospital after monitoring has ceased is recommended.

A history of apnoea/bradycardia of prematurity does not increase the risk of SIDS in preterm, and we do not recommend discharge home with apnoea monitors.

## REFERENCES

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