

NCCU CLINICAL GUIDELINES
SECTION: 6

NUTRITION: ENTERAL AND PARENTERAL

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Enteral feeds
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Neonatology Clinical Guidelines
King Edward Memorial/Princess Margaret Hospitals
Perth Western Australia
Authorisation & review by
Neonatal Coordinating Group

ENTERAL FEEDING (BOLUS, CMF, BOTTLE)

1. INTERMITTENT GASTRIC TUBE FEEDS (BOLUS)

Provide enteral nutrition to stable neonates that are:

- Too immature to suck feeds
- Unable to take adequate nutrition to grow

Intermittent feeds have been shown to induce cyclical bursts of entero-insular hormones. These hormones stimulate gut growth, mucosal development, increase gut motility, and influence pancreatic endocrine secretion and hepatic metabolism.

Feed 2, 3 or 4 hourly depending on diagnosis, weight, gestational age. See volume and nutritional requirements.

PROCEDURE

- Position yourself so the infant is facing towards you during the feed so you can act promptly in the event of vomiting or distress.
- Infants <35 weeks gestation should be fed in a side-lying or prone position
- Infants >35 weeks gestation should be fed in a side-lying position unless prone positioning is indicated for medical reasons.

2. CONTINUOUS MILK FEEDS (CMF)

Provide enteral nutrition to neonates with:

- Signs of intolerance with intermittent/bolus feeds.
- Respiratory compromise exacerbated by bolus feeds.
- Persistent hypoglycaemia.

EQUIPMENT

- Enteral system Luer lock syringe 30mL/50mL
- Mixing cannula
- Syringe pump
- Long extension (change daily)
- Label

PROCEDURE

1. Collect 4 hourly volume of milk, ensure the syringe is labelled correctly and double checked and signed if giving expressed breast milk.
2. Attach syringe to long extension tubing and prime line first to prevent air being pumped into the stomach.

3. Aspirate gastric tube and test to ensure correct placement. Connect to NGT/OGT and label the extension line with the time and date to be changed.
4. Set calculated rate on pump and commence infusion.
5. Document type of milk and volume delivered on the observation chart.
6. If using a **Kangaroo Pump** see [Kangaroo Pump](#) instructions.

3. RESCHEDULING OF FEEDS

The progression towards demand feeding is achieved by increasing the time between feeds according to the neonate's size, condition and tolerance of feeds.

- Multiple changes to feeds should be made simultaneously. Therefore if the feed is increasing in volume, achieve this before changing time interval.
- Document and report any large residuals or vomiting, indicating feed intolerance.

CMF TO 2 HOURLY FEEDS

Neonates being graded from hourly CMF to 2 hourly bolus feeds: turn CMF off for a period of one hour before commencing the first bolus feed.

An example of rescheduling from CMF 5mL/hr to 10mLs/2hrly bolus feed:

TIME	feed off 1 hour	start time	1hr later	1hr later	1hr later	1hr later	1hr later	1hr later	1hr later	1hr later	1hr later	1hr later	1hr later
5ML/HR	0 mL	5 mL	5 mL	4 mL	6 mL	3 mL	7 mL	2 mL	8 mL	1 mL	9 mL	0 mL	10mL

2 HOURLY TO 3 HOURLY FEEDS

The slow progression from 2 - 3 hourly feeds may suit neonates who have had previous attempts at rescheduling of feeds and have failed to tolerate it.

Calculate the volume of a 2 ½ hour feed and give this volume every 2 ½ hours for two feeds.
E.g. 2 hr volume + 3 hr volume, divided by 2 = 2 ½ hr volume feed.

$$\frac{20 + 30}{2} = 25 \text{ mL every } 2 \frac{1}{2} \text{ hrs}$$

Then calculate, and give 3 hourly feed.

An example of rescheduling from 20mls/2hrly to 30mls/3hrly:

TIME	Start time	2 ½ hrs later	2 ½ hrs later	3 hours later
20MLS / 2HRLY	20 mL	25 mL	25 mL	30 mL

4. BOTTLE FEEDING (FOR BREASTFEEDING SEE SECTION 8)

From 32 – 34 weeks onwards, the rooting reflex is quite active and nutritive sucking begins with a stable rhythm. To progress to full suck feeds the infant has to have sufficient neurodevelopment to regulate a rhythmic suck-swallow-breathe pattern with cardiorespiratory stability.

At 34 – 36 weeks most infants will have developed awake/sleep patterns and be capable of managing nutritive sucking with a coordinated pattern. Between 36 – 40 weeks healthy infants will maintain satisfactory growth with full oral feeding by demand.

FEEDING POSITION

Position is important and depends on the infants muscle tone. The head must be in alignment with the trunk and all limbs must be contained (wrapped) or supported.

Preterm infants especially cannot always cope with the cradled semi-recumbent posture of the term infants and may cope better if supported in a semi-upright position. Careful attention to correct alignment is paramount.

Some infants with CLD or other complex problems benefit from an elevated side-lying position. Oxygen dependent infants may need an increase in their O₂ requirements until they develop a coordinated rhythm.

If the infant loses interest in sucking or uses a non-nutritive (chomping) action and is not showing signs of stress or fatigue, it may be helpful to support the infant's lower jaw near the base of the tongue to improve jaw stability. It may also be helpful to move the teat in the mouth – **this only needs to be done occasionally, briefly and gently**. Excessive manipulation of the teat is likely to be distressing and over stimulating resulting in 'shut-down'.

TEAT SIZE / SHAPE

Try not to switch between different teats, try for at least 24hrs to assess progress. Start with a slow-flow teat. Preterm infants initially have an uncoordinated suck-swallow-breath technique and tend to suck vigorously and not pause long enough to breathe which can result in apnoea, desaturation and bradycardia. Pacing the feed and tilting the bottle so no milk is in the teat or removing the teat from their mouth will allow them to recover. For ongoing problems involve a feeding specialist/team.

SIGNS OF STRESS OR FATIGUE

Can occur before, during or after a feed and include the following:

- Limpness
- Gagging
- Squirming
- Desaturation
- Rapid / laboured or irregular breathing and bradycardia.

If any of these signs are present, stop the feed and wait for the infant to regain their stability. Try positioning the infant upright (may be wind related). If after recommencing the feed the infant shows signs of stress again, complete the feed by the gastric tube.