



CLINICAL GUIDELINE

Nutrition: Volume and Nutritional Requirements

Scope (Staff):	Nursing and Medical Staff
Scope (Area):	NICU KEMH, NICU PCH, NETS WA

This document should be read in conjunction with this [DISCLAIMER](#)

All infants admitted to the NICU need to receive adequate fluid volumes and nutrition to promote optimal hydration and growth.

Fluids are usually started at 60ml/kg/day for term infants and 80 mL/kg/day for preterm infants on day 1. Increments are progressively increased at 20 mL/kg/day (assuming no abnormal weight loss or gain or need for fluid restriction or fluid increase). Fluids are increased to a target of 150-170 mL/kg/day.

Infants with significant hypoxic ischaemic encephalopathy may require fluid restriction 40-50ml/kg/day but need to ensure appropriate glucose delivery to achieve PGL>3.5.

Intravenous Glucose Solutions		TPN	Oral Feeds
Glucose 5%	< 27 weeks	Refer to Parenteral Nutrition (PN) guideline	*GASTRIC TUBE FEEDS (EBM / PDHM/formula)
Glucose 7.5% 1/5 N/S	≥ 27-34 weeks		
Glucose 10%	> 34 weeks		*BREAST / BOTTLE (EBM / formula)

*Also refer to [Enteral Feeding: Initiation and Progression](#)

Insensible fluid losses in extremely preterm infants can be enormous especially under a radiant warmer and such infants may need in excess of 200 mL/kg/day. The use of a closed incubator and high humidity (> 80%) will reduce this problem. These infants need frequent electrolyte and osmolality estimations (8-12 hourly) in the first few postnatal days.

Fluid requirements often change (use of phototherapy, presence of patent ductus arteriosus etc.) and must be carefully assessed. Likewise sodium requirements depend on the infant's clinical state, degree of renal wasting and sodium supplied in other infusions/drugs.

Where there are abnormal fluid losses (gastroschisis, gastric or drain losses or diarrhoea) an adequate volume with similar composition must be replaced in addition to the given solution.

Management

- Fluids are calculated on the infant's birth weight until the birth weight has been reached. At certain times a predicted weight may be used instead of the current weight e.g. Oedema, PDA, failure to thrive.
- Fluid requirements are re-calculated each shift to ensure the volume being given is the same as the volume ordered.
- The weight is multiplied by the mL/kg/day in order to give the volume required for the 24 hour period. The total fluid requirement for the day is then divided by the number of feeds per day, or if on intravenous therapy it is divided by 24 to give the hourly rate of the infusion.

Example: Weight = 2.135 kg

The daily fluid requirement = 120 mL/kg/day

$2.135 \times 120 = 256$ mL (total volume required in 24 hours)

256 mL divided by 8 (i.e. three hourly feeds, 8 feeds per day)

$2.135 \times 120 = 256$ divided by 8 = 32 mL three hourly, **or**

256 mL divided by 24 (hourly rate for intravenous infusion)

$2.135 \times 120 = 256$ divided by 24 = 10.7 mL per hour

The 24 hour volume totals to be tallied each day and, together with output totals, adjustments are made in accordance with weight and age.

- Totalling of daily input and output is generally done at midnight. Infusions not included in the daily total are lipids and blood product transfusions.

Phototherapy/Radiant Warmers

Infants under phototherapy lights or on radiant warmers are prone to increased insensible water loss. In the omnibed incubator with newer technology, insensible water losses are not as significant as in other older incubators. An extra 10-20 mL/kg/day may be added to their daily fluid requirements if required.

Related CAHS internal policies, procedures and guidelines
Neonatology Guidelines <ul style="list-style-type: none"> • Parenteral Nutrition (PN) • Enteral Feeding: Initiation and Progression

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