



NCCU CLINICAL GUIDELINES  
SECTION: 6

NUTRITION: ENTERAL AND PARENTERAL

Section: 6 Nutrition: Enteral & Parenteral  
Volume and nutritional requirements  
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## VOLUME AND NUTRITIONAL REQUIREMENTS

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

Fluids are usually started at 60 - 80mL/kg/day in the new-born:

INTRAVENOUS GLUCOSE SOLUTIONS		TPN	
Glucose 5%	<27weeks	<a href="#">See TPN</a>	GASTRIC TUBE FEEDS (EBM / formula)
Glucose 7.5% 1/5 N/S	≥27 - 34weeks		
Glucose 10%	>34weeks		BREAST / BOTTLE (EBM / formula)

Increments are progressively increased at 20mL/kg/day (assuming no abnormal weight loss or gain or need for fluid restriction or fluid increase). Fluids are increased to a target of 150-170mL/kg/day.

Insensible fluid losses in extremely preterm infants can be enormous especially under a radiant warmer and such infants may need in excess of 200mL/kg/day. The use of a closed incubator and high humidity (>80%) will reduce this problem. These infants need frequent electrolyte and osmolality estimations (8-12hrly) 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  
 $2.135 \times 120 = 256\text{mL}$  (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. See fluid balance for further guidance.

### **PHOTOTHERAPY/RADIANT WARMERS**

Infants under phototherapy lights or on radiant warmers are prone to increased insensible water loss. Therefore an extra 10-20mL/kg /day may be added to their daily fluid requirements.