See also IV fluid guidelines at www.rch.org.au/clinicalguide/cpg.cfm?doc_id=5203, contact email: trevor.duke@rch.org.au or mike.south@rch.org.au

Intravenous fluids

Hourly maintenance intravenous fluid requirements **[Resuscitation bolus (Normal saline): 10-20 ml/kg]**

Weight (kg)	4	6	8	10	12	14	16	20	30	40	50	60	70
ml/hr	16	24	32	40	44	48	52	60	70	80	90	100	100

Reminders

1. Check weight of patient
2. Check maintenance fluids infusion rate according to weight. Remember that the *maintenance* fluid volume will need to be reduced in many unwell children, especially children with meningitis, bronchiolitis, pneumonia, some surgical problems and many children with hyponatraemia.
3. Consider why the patient needs IV fluid. If a child is prescribed anything other than a 0.9% or 0.45% NaCl solution, ask why.
4. Check the written order
5. If in doubt about fluids please *ask*, call a paediatric registrar, a consultant or the ICU

Type of fluid	Comment See also Clinical Practice Guidelines Intravenous Fluids	Na+ (mmol/L)	Cl- (mmol/L)	K+ (mmol/L)	Lactate (mmol/L)	Ca++ (mmol/L)	Glucose (gram/L)
0.9% NaCl (Normal Saline)	Isotonic, contains no glucose Use for initial volume resuscitation, e.g. septic shock, trauma.	150	150	-	-	-	-
0.9% NaCl with 5% dextrose (Normal saline with glucose)	Use as maintenance fluid for suspected meningitis, acute neurological conditions, where IV fluids are used for gastroenteritis or when the serum sodium is low.	150	150				50
0.45% NaCl with 5% dextrose and KCl 20 mmol/l (1/2 Normal saline with glucose and potassium)	Use for mildly to moderately unwell children, where serum Na^+ and K^+ are normal.	75	75	20	-	-	50
0.45% NaCl with 5% dextrose (1/2 Normal saline with glucose and *no* potassium)	Use for mildly or moderately unwell children if serum K^+ is elevated.	75	75	-	-		50
Hartmann's solution	Isotonic, no glucose. Often used intra-operatively and post-operatively.	130	110	5	30	2	-
0.18% NaCl and 4% dextrose (4% and 1/5th normal saline)	Used in pre-term babies and neonates in NNU.	30	30	-	-		40
10% glucose in water Monitor blood glucose and serum sodium	Sometimes used for pre-term neonates, for treatment of hypoglycaemia and inherited metabolic disorders. Not a maintenance fluid. See hypoglycemic guidelines.	-	-	-	-	-	100
15% or 20% glucose in water Give only via a central line as a 1-2ml/kg bolus for hypoglycaemia. Monitor blood glucose	Hypertonic Used only for treatment of hypoglycaemia. Not a maintenance fluid. See hypoglycemic guidelines	-	-	-	-	-	150-200
25% or 50% glucose in water Never as an infusion (Only used in ICU and NNU at low vol eg. 1-2mls/hr via central line)	Very Hypertonic Not used on wards. Not a maintenance fluid. Given as a small bolus if hypoglycemic See hypoglycemic guidelines on intranet	-	-	-	-	-	250-500
Other fluids	Check carefully with drug dose book (formulary) and intranet guidelines						

Monitor

- Clinical signs of dehydration and over-hydration
- Weigh prior to commencement of IV therapy, then 6-8 hours after infusion commenced, then at least daily.
- Electrolytes and glucose should be measured before infusion and then at least daily (up to 4-6 hourly in very unwell children).

IV fluids do not provide adequate nutrition. Give oral or enteral feeds whenever you can.

1g glucose = 16.7kJ

See nutrition guidelines for recommended daily energy intake

Fluid orders should be checked and re-written daily