

Newly-diagnosed Diabetes - "Walking Wounded" Clinical Guidelines

"Walking Wounded" diabetes

- Child walks into hospital
- Dehydration minimal
- Intravenous fluids not required

Typical Biochemistry

- pH > 7.3
- cH < 50 nmol/l
- bicarbonate > 15 mmol/l

Daily Insulin Dosage Requirements

- Basal insulin - background insulin requirement
- Bolus insulin - meal-time insulin requirement
- Correction - of ketosis and hyperglycaemia

Walking Wounded Insulin Dosing

1. Initial insulin doses

At time of diagnosis

- Basal insulin (Levemir) 0.2 Units/kg/dose - at diagnosis, *whatever* blood glucose (BG) result and whatever the time
- Bolus insulin (Novorapid) 0.1 Units/kg/dose - if BG > 14 mmol/l (preferably before or immediately after a meal)

2. Regular daily insulin doses

Five daily doses **Start with Insulin Total Daily Dose = 0.7 Units/kg body weight/day**

- Basal insulin (Levemir) 0.2 Units/kg/dose - 0800 (Before Breakfast) } Omit *first* mealtime basal insulin (Levemir) dose if
Twice daily 0.2 Units/kg/dose - 1700 (Before Dinner) } Levemir dose at diagnosis given in preceding 7 hours
- Bolus insulin (Novorapid) 0.1 Units/kg/dose - 0800 (Before Breakfast) } Usually given immediately *before* meals, however
Three times daily 0.1 Units/kg/dose - 1200 (Before Lunch) } Novorapid (NR) may be delayed until immediately
0.1 Units/kg/dose - 1700 (Before Dinner) } *after* meals in the very young or if oral intake uncertain

3. Ketosis correction

Additional insulin **Required** to clear significant ketosis

- Bolus insulin (Novorapid) 0.1 Units/kg/dose - 4 hourly from 2200-0500 } IF Ketonuria moderate (++) , large (+++ or ++++) or
4-hourly as required 0.05 Units/kg/dose - *added* to meal NR boluses } Ketonaemia >1 mmol/l, **AND** BG > 14 mmol/l

4. Hyperglycaemia correction

Additional insulin **Considered** if BG > 20 mmol/l (to more rapidly achieve normoglycaemia)

- Bolus insulin (Novorapid) 0.1 Units/kg/dose - 4 hourly from 2200-0500 } IF BG > 20 mmol/l **AND** no Novorapid given in past 3 hours
0.05 Units/kg/dose - *added* to meal bolus } **AND** ketonuria nil, trace, small or ketonaemia <1 mmol/l
If possible add to meal-time bolus to avoid extra injections

- Please prescribe regular insulin doses for **first 24 hours** at time of diagnosis. Dose modification according to blood glucose & ketosis results may be made later.
- Each insulin dose should be prescribed as "Once Only" medication, and **doses regularly adjusted** until blood glucose results are consistently 4-8 mmol/l.

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Investigations HISS Order Set "/NEWDIA" requests the following (from total 10 ml blood)

Tube type	Cap colour	Volume	Investigation	Department
• Lithium heparin	orange	2 ml	Electrolytes, Urea, Bicarbonate Venous blood gas Osmolality	Biochem
• Fluoride oxalate	yellow	2 ml	Thyroid Function Tests	Biochem
• Clotted blood	clear/white	1 ml	Venous Glucose	Biochem
		2 ml	Antibodies - Adrenal	Biochem
			- TPO	
			- TTG	
		2 ml	z.NDS - stored serum	Biochem
• EDTA	pink	0.5 ml	HbA1c	Biochem
		0.5 ml	FBC	Haem

Notes

- Please consider prescribing regular Before Breakfast Novorapid & Levemir doses the preceding evening (these doses may be modified later according to blood glucose and ketosis results)
- Test capillary Blood Glucose (BG) every 4 hours after diagnosis (pre-prandial & 4-hourly overnight)
- *Pre*-prandial BG results are mostly influenced by *basal* insulin doses (Levemir)
- If BG < 4 mmol/l overnight or before breakfast, consider reducing 1700 Levemir dose
- If BG < 4 mmol/l before lunch or dinner, consider reducing 0800 Levemir dose
- *Post*-prandial BG results (90 mins after meals) are mainly influenced by *bolus* Insulin doses and indicate effectiveness of Novorapid boluses in dealing with meal-time carbohydrate intake
- If child under 5 years of age, consider
 - *post*-prandial boluses (allows Novorapid omission if food refused/no carbs eaten)
 - 0.5 unit dose increments ("Junior" pens deliver 0.5 unit increments, with 1 unit/dose minimum)
 - Using words as well as numbers when prescribing insulin doses improves clarity of intended dose
 - *Single* daily breakfast basal insulin dose (i.e. no 1700 dose if nocturnal hypoglycaemia persists)
- **Always** write "Units" instead of "U" or "IU" to avoid dosage errors
- Understanding insulin onsets, peaks, and durations of action aids appropriate prescription:

	Bolus insulin Rapid-acting analog (Novorapid)	Basal insulin Slow-acting analog (Levemir)	Biphasic insulin 30% sol/70% isophane (Mixtard 30)	Infusion insulin Soluble human insulin (Actrapid/HumulinS)
• Onset	5-10 minutes	3-4 hours	30-40 minutes	~ Immediate
• Peak	30-60 minutes	No significant peak	90 mins <i>and</i> 3-4 hours	Nil (constant infusion)
• Duration	2-3 hours	12-24 hours	8-12+ hours	~ 30 mins once stopped

