



Medication Safety Series: MSS 6

Insulins

ESSENTIAL INFORMATION

- *Insulin type(s) e.g., insulin lispro*
- *Insulin name(s) e.g., Lantus, Novorapid*
- *Device type(s) e.g., prefilled device, cartridge, vial, insulin pump*
- *Current dosage regime e.g., 6 units at breakfast, 8 units at lunchtime & teatime, 10 units at bedtime*
- *Who usually administers the insulin e.g. patient, district nurse, relative, carer*
- **For insulin pumps only:** *current basal rate, bolus doses, type of insulin pump, carbohydrate ratio and insulin sensitivity*

On Admission:

- Check NEWS, including blood glucose measurement and urine/serum ketones if blood glucose is >15 mmol/l
- Assess for any “red flag” symptoms of diabetic ketoacidosis (DKA) or hyperglycaemic hyperosmolar state (HHS) ensuring immediate transfer to acute hospital if present (see section 5.2 of Trust [Diabetes Management Guidelines](#))
- Confirm the **essential information** detailed above and document in the electronic patient record.
- Ensure that the insulin(s) is/are prescribed on the medication chart, referring the reader to the supplementary insulin chart.
- Ensure that the insulin(s) is/are clearly prescribed on the supplementary insulin chart.
- Ensure that the blood glucose monitoring section of the insulin chart is completed.
- For patients prescribed a “DAFNE” regime, establish the range of doses usually administered and evaluate the patient’s risk of self-harm behaviours, document & prescribe accordingly.
- Establish when the last dose of insulin was administered and prescribe a STAT dose where necessary.
- Ensure that there is adequate supply of insulin available for the patient. This may include using patients own drugs (PODs), arranging for a supply to be ordered or accessing emergency insulin ([Appendix 2](#)) if necessary. If vials are in use, ensure there is a sufficient supply of needles and syringes available to allow administration.
- Ensure that appropriate medication (Dextrose 40% oral gel & glucagon 1mg IM) is prescribed for the potential treatment of hypoglycaemia. These are available in the emergency drug bag.
- If you are unable to establish the insulin regime in a timely fashion or if the patient is at risk of self-harm, remember that the patient will still require insulin to prevent hyperglycaemia. This is particularly important in patients with type 1 diabetes. Advice on interim management of the patient must be sought **immediately** from a Diabetologist or Medical Registrar on call at the local acute hospital.

Safety & Pharmacy Checks during Admission:

- Ensure all regular doses of insulin have been administered. Insulin is a **critical medicine** and all omitted doses must be investigated and the prescriber informed immediately to enable appropriate and timely action to be taken.
- Ensure blood glucose levels (BMs) are being monitored and recorded at the frequency specified on the insulin chart and appropriate quality checks are undertaken on the monitoring device.
- **Monitor stock levels of insulin, and monitoring/administration equipment to ensure continuity of supplies and prevent interruption of treatment.**
- **Ensure insulin is appropriately stored and date of opening is recorded.**

On Discharge:

- If the insulin product or device has changed during admission, update the patient’s insulin passport (if available) or provide information about the new product.
- Ensure the discharge letter includes the **essential information** in addition to the most recent blood glucose (BM) results.
- Ensure the patient / person responsible for medication administration post discharge, is familiar with the insulin type and dosage and is able to use the device correctly.
- Ensure the patient has a supply of appropriate needles and any other equipment needed to administer insulin safely

Appendix 1– Insulin Products (See BNF for full details)

Approved name	Product name	Strength	Form	Device	
Short-acting insulins					
Soluble/Neutral insulin	Hypurin Porcine Neutral	100 units/ml	10 ml vial		
			3 ml cartridge	Autopen Classic	
	Actrapid	100 units/ml	10 ml vial		
	Humulin S	100 units/ml	10 ml vial		
			3 ml cartridge	HumaPen ¹	
Insuman Rapid	100 units/ml	3 ml cartridge	AllStar Pro, Autopen 24, JuniorSTAR		
		3.15 ml cartridge	Infustat		
Insulin aspart	NovoRapid	100 units/ml	10 ml vial		
			3 ml cartridge	NovoPen / NovoPen Echo	
			3 ml pre-filled device (1-60 units)	FlexPen	
			3 ml pre-filled device (1-80 units)	FlexTouch	
			1.6 ml cartridge	PumpCart	
	Fiasp	100 units/ml	10 ml vial		
			3 ml cartridge	NovoPen / NovoPen Echo	
			3 ml pre-filled device	FlexTouch	
Insulin glulisine	Apidra	100 units/ml	10 ml vial		
			3 ml cartridge	AllStar Pro, Autopen 24, JuniorSTAR	
			3 ml pre-filled device	SoloStar	
Insulin lispro	Humalog	100 units/ml	10 ml vial		
			3 ml cartridge	HumaPen ¹	
			3 ml pre-filled device	KwikPen/Junior KwikPen	
			200 units/ml	3 ml pre-filled device	Kwikpen
	Lyumjev	100 units/ml	10ml vial		
			100 units/ml	3ml prefilled device	KwikPen/Junior KwikPen
			200 units/ml	3ml prefilled device	Kwikpen
	Insulin Lispro Sanofi	100 units/ml	10ml vial		
			3 ml cartridge	AllStar Pro, JuniorSTAR	
3 ml pre-filled device			SoloStar		
Intermediate & long-acting insulins					
Insulin degludec	Tresiba	100 units/ml	3 ml cartridge	NovoPen / NovoPen Echo	
			3 ml pre-filled device (1-80 units)	FlexTouch	
		200 units/ml	3 ml pre-filled device (2-160 units)	FlexTouch	
Insulin degludec and liraglutide	Xultophy	100 units/ml insulin degludec, 3.6 mg/ml liraglutide	3 ml pre-filled device		
Insulin detemir	Levemir	100 units/ml	3 ml cartridge	NovoPen / NovoPen Echo	
			3 ml pre-filled device (1-60 units)	FlexPen	
			3 ml pre-filled device (1-50 units)	InnoLet	

Approved name	Product name	Strength	Form	Device
Intermediate & long-acting insulins (continued)				
Insulin glargine ²	Lantus	100 units/ml	10 ml vial	
			3 ml cartridge	AllStar Pro, Autopen 24, JuniorSTAR
			3 ml pre-filled device	SoloStar
	Abasaglar	100 units/ml	3 ml cartridge	HumaPen ¹
			3 ml pre-filled device	KwikPen
	Semglee	100 units/ml	3 ml pre-filled device	
Toujeo ²	300 units/ml ²	1.5 ml pre-filled device	SoloStar	
		3 ml pre-filled device	DoubleStar	
Insulin glargine and lixisenatide	Suliqua	100 units/ml insulin; 33 micrograms/ml lixisenatide	3 ml pre-filled device	SoloStar
		100 units/ml insulin; 50 micrograms/ml lixisenatide	3 ml pre-filled device	SoloStar
Isophane insulin	Hypurin Porcine Isophane	100 units/ml	10 ml vial	
			3 ml cartridge	Autopen Classic
	Insulatard	100 units/ml	10 ml vial	
			3 ml cartridge	NovoPen / NovoPen Echo
			3 ml pre-filled device	InnoLet
	Humulin I	100 units/ml	10 ml vial	
			3 ml cartridge	HumaPen ¹
			3 ml pre-filled device	KwikPen
	Insuman Basal	100 units/ml	5 ml vial	
			3 ml cartridge	AllStar Pro, Autopen 24, JuniorSTAR
3 ml pre-filled device			SoloStar	
Biphasic insulins				
Biphasic insulin lispro	Humalog Mix25	100 units/ml	10 ml vial	
			3 ml cartridge	HumaPen ¹
			3 ml pre-filled device	KwikPen
	Humalog Mix50	100 units/ml	3 ml cartridge	HumaPen ¹
3 ml pre-filled device			KwikPen	
Biphasic insulin aspart	NovoMix 30	100 units/ml	3 ml cartridge	NovoPen / NovoPen Echo
			3 ml pre-filled device	FlexPen
Biphasic isophane insulin	Humulin M3	100 units/ml	10 ml vial	
			3 ml cartridge	HumaPen ¹
			3 ml pre-filled device	KwikPen
	Insuman Comb 15	100 units/ml	3 ml cartridge	AllStar Pro, Autopen 24, JuniorSTAR
			5 ml vial	
	Insuman Comb 25	100 units/ml	3 ml cartridge	AllStar Pro, Autopen 24, JuniorSTAR
			3 ml pre-filled device	SoloStar
	Insuman Comb 50	100 units/ml	3 ml cartridge	AllStar Pro, Autopen 24, JuniorSTAR
	Hypurin Porcine 30/70 Mix	100 units/ml	10 ml vial	
			3 ml cartridge	Autopen Classic

- all forms of HumaPen, i.e. Luxura HD, Savvio (Also Luxura & Memoir, no longer manufactured but may still be in use)
- Insulin glargine 100 units/ml and Toujeo are not bioequivalent and are not directly interchangeable, when switching between the two formulations, dose adjustment may be necessary to achieve target blood glucose levels as detailed in the [SPC](#).

[Appendix 2 - Location of emergency insulin](#)

(Insulin Aspart – Novorapid; Insulin Glargine – Lantus):

Site	Location
Cross Lane Hospital	Danby Ward
Foss Park Hospital	Minster Ward
Lanchester Road Hospital	Farnham Ward
Roseberry Park Hospital	Bransdale Ward
Sandwell Park Hospital	Westerdale North
West Park Hospital	Emergency Drug Fridge, Elm Ward