

**College of Emergency Medicine**  
**Guideline on Antidote Availability for Emergency Departments (May 2008)**  
**Appendix 1. Stock levels & storage recommendations**

**Doses and Clinical Advice on the Administration of Antidotes**

TOXBASE and/or the BNF should be consulted for further advice on doses and indications for antidote administration and, if necessary, the National Poisons Information Service (NPIS) should be telephoned for more patient-specific advice. Contact details for NPIS are available on TOXBASE.

**Stock Levels**

The recommended stocking levels are based on the amount of antidote generally required to initiate treatment for a 70kg adult patient in the ED and to continue treatment for the first 24 hours. Individual departments should determine the amount of each antidote they stock based on the epidemiology of poisoning presentations to their department.

Drug	Indication	Presentation <sup>1</sup>	Recommended stock (see above)	Special storage conditions
<b>The following drugs should be immediately available in the ED or any area where poisoned patients are initially treated</b>				
Acetylcysteine	Paracetamol	200mg/mL, 10mL ampoule	11 ampoules	
Activated charcoal	Many oral poisons	50g pack	7 packs	
Alpha-blocker e.g. phentolamine (1) OR phenoxybenzamine (2)	Digital ischaemia related to injection of epinephrine (adrenaline)	(1) 10mg/mL, 1mL ampoule	(1) 1 ampoule	
	Resistant hypertension caused by sympathomimetic drugs of abuse, MAOIs, clonidine	(1) 10mg/mL, 1mL ampoule (2) 50mg/mL, 2mL ampoule	(1) 1 ampoule (2) 1 ampoule	
Atropine (in DoH pods for major incidents involving nerve agents)	Bradycardia Organophosphate or carbamate insecticides	600mcg/mL, 1mL ampoule	5 ampoules (Note, much higher doses required in OP poisoning: see TOXBASE for further advice)	
Calcium chloride	Calcium channel blockers	10mL ampoule	6 ampoules	
Calcium gluconate	Calcium channel blockers (NB Ca chloride preferred, higher ionised calcium content)	10mL ampoule	12 ampoules	
	Hydrofluoric acid	10mL ampoule	3 ampoules	
Calcium gluconate gel <sup>2</sup>	Hydrofluoric acid	25g pack	1 pack	
Dicobalt edetate (in DoH pods for major incident) OR Hydroxocobalamin (Cyanokit® only suitable product) <sup>3</sup> OR Sodium nitrite and Sodium thiosulphate	Cyanide	15mg/mL, 20mL ampoule	2 ampoules	
		5g pack (Cyanokit®)	2 packs	
		3% (30mg/mL), 10mL ampoule	1 ampoule	
		50% (500mg/mL), 20mL ampoule	2 ampoules	

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Drug	Indication	Presentation <sup>1</sup>	Recommended stock (see above)	Special storage conditions
Diazepam OR Lorazepam	Convulsions; agitation	5mg/mL, 2mL ampoule	4 ampoules	
		4mg/mL, 1mL ampoule	4 ampoules	
Flumazenil	Reversal of iatrogenic over-sedation with benzodiazepines. Use with caution in patients with benzodiazepine poisoning, particularly in mixed drug overdoses; contraindicated in mixed TCA/ benzodiazepine overdose.	100mcg/mL, 5mL ampoule	4 ampoules	
Glucagon	Beta-adrenoreceptor blockers. Other indications e.g. CCB/TCA OD seek poisons information centre advice	1mg vial	Variable, possibly 50 vials	Store in a fridge (can store at room temperature but reduced shelf life must be marked)
Glyceryl trinitrate OR Isosorbide dinitrate	Hypertension	1mg/mL, 50mL ampoule	6 ampoules	
		1mg/mL (0.1%), 10mL ampoule	24 ampoules	
Methylthioninium chloride (methylene blue)	Methaemoglobinaemia	1% (10mg/mL), 10mL ampoule	3 ampoules	
Naloxone	Opioids	400mcg/1mL, 1mL ampoule	25 ampoules	
Procyclidine injection	Dystonic reactions	5mg/mL, 2mL ampoule	1 ampoule	
Sodium bicarbonate 8.4%	TCAs & class Ia & Ic antiarrhythmic drugs	200mL polyfusor	3 polyfusors	
<b>The following drugs should be available within 1 hour (i.e. within the hospital)</b>				
Calcium folinate	Methotrexate (MTX)	3mg/mL, 1mL ampoule	240 ampoules	Store in a fridge & protect from light.
	Methanol, formic acid	3mg/mL, 1mL ampoule	93 ampoules	
Cyproheptadine	Serotonin syndrome	4mg tablet	8 tablets	
Dantrolene	Neuroleptic malignant syndrome (NMS)	20mg vial	35 ampoules	

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	Other drug-related hyperpyrexia, seek poisons information centre advice	20mg vial	35 ampoules	
Desferrioxamine	Iron	500mg vial	12 vials	
Digoxin specific antibody fragments	Digoxin	38mg vial	10 vials	Store in a fridge
Fomepizole <sup>4</sup> <b>OR</b> Ethanol <sup>5</sup>	Ethylene glycol, methanol	5mg/mL, 20mL ampoule <b>OR</b> 1g/mL, 1.5mL vial	25 ampoules 2 vials	
		100% ethanol, 5mL ampoule (approx ≈ 4g)	60 ampoules	
Macrogol '3350' (polyethylene glycol) <b>Klean-Prep</b> <sup>®</sup>	Gut decontamination for agents not bound by activated charcoal e.g. iron, lithium, bodypackers	4 sachets (reconstituted with 4L water)	12 sachets	
Mesna	Cyclophosphamide	400mg tablet; 100mg/mL, 4 mL ampoule	Variable, liaise with oncology	
Octreotide	Sulphonylureas	50mcg/mL, 1mL ampoule	2 ampoules	Store in a fridge
Phytomenadione (Vitamin K)	Anticoagulants	10mg tablet; 10mg/mL, 1mL ampoule	2 tablets; 1 ampoule	
Pralidoxime chloride (at selected holding centres <sup>6</sup> only or in DoH pods for major incident)	Organophosphate insecticides	1g vial	14 vials	
Protamine sulphate	Heparin	10mg/mL, 5mL ampoule	1 ampoule	
Pyridoxine (high dose injection)	Isoniazid	100mg/1mL, 10mL ampoule	5 ampoules	
Sodium bicarbonate, hypertonic 8.4%	Urinary alkalinisation <b>(NB monitor for hypokalaemia)</b>	200mL polyfusor	Variable, up to 4 polyfusors	
isotonic 1.26% & 1.4%		500mL polyfusor	12 polyfusors	
Viper venom antiserum, European	European adder ( <i>Vipera berus</i> )	10ml ampoule	2 ampoules	Store in a fridge
Dosages of the remaining, rarely used drugs that are held supra-regionally are variable & depend on the patient's clinical condition. Treatment of heavy metal poisoning should be discussed with a poisons information centre and/or clinical toxicologist.				

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**Superscript notes from the table:**

- 1 Note other preparations may be available
- 2 Available from SAFA-IPS and Industrial Pharmaceutical Services
- 3 Unlicensed - granted licensing authorisation by the EMEA Sept 2007. Currently available via Orphan Europe or importers of unlicensed medicines
- 4 Currently available via importers of unlicensed medicines
- 5 Ethanol needs frequent blood assay, ensure laboratories provide an out of hours service & have sufficient reagent
- 6 Available from the selected holding centres listed on TOXBASE

**Most antidotes listed in the guidelines are readily available within the UK. Further information is given here for unlicensed products or those with special storage or usage requirements. TOXBASE also contains details for product supply.**

**Unlicensed Medicines or ‘Specials’**

These are exempt under Schedule 1 of the Medicines Act from the need for a marketing authorisation as they are used to fill a “special need” in response to an order from a prescriber for use in an individual patient, under that prescriber’s direct responsibility. Unlike licensed products, these may not have been assessed by the Licensing Authority against the criteria of safety, quality and efficacy.

A pharmacist in a hospital is allowed to procure a stock of ‘specials’ in order to meet an anticipated doctor’s prescription. There are various companies that import unlicensed medicines/‘specials’ into the UK. Specific records have to be kept by pharmacy for five years which include details of the product obtained, the prescriber and the patients to which the medicine is dispensed.

**‘Advanced supply’ of unlicensed medicines/specials**

As appropriate records must be kept, Chief Pharmacists and Trust Clinical Governance Committees should be involved in any decision to hold unlicensed products as an ‘advance supply’ in clinical areas (rather than in pharmacy). For any products held as such, that may be required for immediate use, retrospective collection of patient details must be undertaken and systems must be in place to ensure this is completed in a timely manner.

**Further Information:**

1. The supply of unlicensed relevant medicinal products for individual patients MHRA Guidance Note 14 Revised August 2006
2. Rarely Used Medicines Database. London, Eastern and South Eastern Specialist Pharmacy Services NHS Procurement <http://www.londonpharmacy.nhs.uk/Procurement/RUM/default.asp> [accessed 25.05.08]
3. United Kingdom Clinical Pharmacists Association Emergency Care Specialist Interest Group. <http://www.ukcpa.org/> [accessed 25.05.08]

For Review Jan 2011