



Medusa – The Injectable Medicines Guide

Consensus List High Risk Injectable Medicines

Version 2 (November 2013)

Wrongly prepared high-risk injectable medication: Death or severe harm as a result of a wrongly prepared high-risk injectable medication is a Never Event

The never events list 2010-11. Policy framework for use in the NHS

The attached consensus list of High Risk Injectable Medicines has been elaborated using the NPSA's risk assessment tool ⁽¹⁾. This list is intended to assist NHS Trusts to identify their own high risk injectable medicines list for the purposes of the never event policy.

Only injectable medicines and regimens routinely used in the adult setting, and for the intravenous route of administration, have been assessed. Use of injectables in paediatric and neonatal regimens, and other parenteral routes of administration are not included in the assessment.

Ready-to-use presentations for high risk drugs have been made available in the UK following NPSA20 alert. Those are highlighted to facilitate NHS Trust can assess its use in order to reduce risks.

⁽¹⁾ NPSA High Risk Medication Risk Assessment Tool, 2007, available at <http://www.nrls.npsa.nhs.uk/EasySiteWeb/getresource.axd?AssetID=60097&type=full&servicetype=Attachment>

Limitations

This is not intended to represent a comprehensive list of all potential high risk injectables and does not obviate the need for assessment of local practice,

This guidance is intended to assist NHS Trusts to generate their own high risk injectable medicines list for the purposes of implementing the never event policy. Pharmacists are advised to ensure that local risk assessments have been undertaken for the products and miscellaneous groups listed below (if relevant) and any discrepancies in scoring are reviewed. In this exercise assessment was restricted to routine administration methods for intravenous injections used in the adult setting. These were identified by reviewing risk assessments compiled by Medusa, UCLH, Imperial, Oxford Radcliffe Hospitals and Guys & St Thomas NHS Foundation Trusts and the Pharmaceutical Press, with additional suggestions from members of the working group. The assigned risk levels were agreed through consensus of group members (listed below). Use of injectable medicines in paediatric and neonatal regimens, and by parenteral routes of administration other than IV are not included in the assessment, although the group has included suggested areas of practice in which additional local assessment may be warranted. Where relevant, the availability of commercially available ready-to-use products is highlighted as a means of reducing risk. Additionally aseptic preparation in pharmacy CIVAS services or as a “special” from an alternative provider should be considered as a method of reducing the risk associated with preparing high-risk products in clinical areas. In addition, therapeutic alternatives to high risk products may be considered as a method of reducing risk in some clinical settings.

Updates

This list supersedes the consensus list high risk injectable medicines published in December 2011, which was an update on “Examples of risk assessments of injectable medicine products prepared in clinical areas” published by the Joint NHS pharmacy technical services groups in 2007.

It is intended that this guidance and the associated list will be updated at least annually, but more frequently if significant developments need to be addressed more urgently.

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High Risk Injectable Medicines

Drug name	Form	Bag (B) / Syringe (S) / Infusor (I)	Therapeutic risk	Use of concentrate	Complex calculation	Complex preparation	Reconstitute vial	Part/multiple container	Use of infusion pump/driver	Non standard infusion set	Total Risk Factors	NPSA20 score	Availability of ready-to-use products in UK
Abatacept	IV infusion	B	Y	Y		Y	Y	Y		Y	6	High	
Abciximab	IV infusion	B/S	Y	Y	Y	Y		Y	Y		6	High	
Adrenaline	IV infusion	S	Y	Y	Y	Y		Y	Y		6	High	
Alteplase	IV infusion	B	Y	Y	Y		Y	Y	Y		6	High	
Amiodarone hydrochloride	IV infusion	B/S	Y	Y	Y	Y		Y	Y		6	High	YES (500mL infusion bag)
Amphotericin liposomal (AmBisome®)	IV infusion	B	Y	Y	Y	Y	Y	Y	Y		7	High	
Amphotericin (Fungizone®)	IV infusion	B	Y	Y	Y	Y	Y	Y	Y		7	High	
Amphotericin lipid complex (Abelcet®)	IV infusion	S	Y	Y	Y	Y		Y	Y		6	High	
Anti-thymocyte immunoglobulin (rabbit)	IV infusion	B	Y	Y		Y	Y	Y	Y	Y	7	High	
Asparaginase	IV infusion	B	Y	Y	Y		Y	Y	Y		7	High	
Belatacept	IV infusion	B	Y	Y		Y	Y	Y		Y	6	High	
Ciclosporin	IV infusion	B	Y	Y	Y	Y		Y	Y		6	High	
Clonazepam	IV infusion	B	Y	Y	Y			Y	Y	Y	6	High	
Clonidine hydrochloride	IV infusion	S	Y	Y	Y	Y		Y	Y		6	High	YES (pre-filled syringes)
Co-trimoxazole	IV infusion	B	Y	Y	Y	Y		Y	Y		6	High	
Danaparoid	IV infusion	S	Y	Y	Y	Y		Y	Y		6	High	
Desferrioxamine mesilate	IV infusion	B/I		Y	Y	Y	Y	Y	Y		6	High	
Diamorphine hydrochloride	IV infusion	S	Y	Y	Y	Y	Y	Y	Y		7	High	YES (pre-filled syringes)
Diazepam emulsion	IV infusion	B	Y	Y	Y			Y	Y	Y	6	High	
Diazepam solution	IV infusion	B	Y	Y	Y			Y	Y	Y	6	High	
Digoxin-specific antibody fragments	IV infusion	B	Y	Y		Y	Y	Y	Y	Y	7	High	
Dinoprostone	IV infusion	S	Y	Y	Y	Y		Y	Y		6	High	
Disopyramide	IV infusion	B	Y	Y	Y	Y		Y	Y		6	High	
Dried prothombin complex (Beriplex)	IV infusion	B		Y	Y	Y	Y	Y	Y		6	High	
Epoprostenol	IV infusion	S	Y	Y	Y	Y	Y	Y	Y	Y	8	High	

Fentanyl	IV infusion	S	Y	Y	Y	Y		Y	Y		6	High	
Foscarnet	IV infusion	B	Y	Y	Y	Y		Y	Y		6	High	
Glucagon (beta-blocker overdose)	IV infusion	S	Y	Y	Y		Y	Y	Y		6	High	
Hydralazine hydrochloride	IV infusion	B/S	Y	Y	Y	Y	Y	Y	Y		7	High	
Imiglucerase	IV infusion	B		Y	Y	Y	Y	Y	Y	Y	7	High	
Infliximab	IV infusion	B	Y	Y		Y	Y	Y	Y	Y	7	High	
Insulin, soluble	IV infusion	S	Y	Y	Y	Y		Y	Y		6	High	YES (pre-filled syringes)
Iron dextran (Cosmofer)	IV infusion	B	Y	Y	Y	Y		Y	Y		6	High	
Magnesium sulphate (eclampsia)	IV infusion	S	Y	Y	Y	Y		Y	Y		6	High	YES (vials)
Micafungin	IV infusion	B	Y	Y			Y	Y	Y	Y	6	High	
Mifamurtide	IV infusion	B	Y	Y	Y	Y	Y	Y	Y		7	High	
Milrinone	IV infusion	S	Y	Y	Y	Y		Y	Y		6	High	YES (pre-filled syringes)
Mycophenolate mofetil	IV infusion	B	Y	Y	Y	Y	Y	Y	Y		7	High	
Noradrenaline	IV infusion	S	Y	Y	Y	Y		Y	Y		6	High	YES (pre-filled syringes and vials)
Pentamidine	IV infusion	B	Y	Y		Y	Y	Y	Y		6	High	
Phenytoin sodium	IV infusion (if diluted)	B	Y	Y	Y			Y	Y	Y	6	High	
Remifentanyl	IV infusion	S	Y	Y	Y	Y	Y	Y	Y		7	High	
Sodium nitroprusside (unlicensed)	IV infusion	S	Y	Y	Y		Y		Y	Y	6	High	
Tacrolimus	IV infusion	B	Y	Y	Y	Y		Y	Y		6	High	
Thiopental sodium	IV infusion	S	Y	Y	Y		Y	Y	Y		6	High	
Trastuzumab	IV infusion	B	Y	Y		Y	Y	Y	Y		6	High	
Vancomycin	IV infusion	B	Y	Y	Y		Y	Y	Y		6	High	
Vecuronium bromide	IV infusion	S	Y	Y	Y		Y	Y	Y		6	High	

In addition to the specific high risk injectable medicines listed above, seven categories of miscellaneous groups with a high risk baseline have been identified. The risk level for each of those is to be determined locally.

Miscellaneous groups with a high risk baseline:

1. **PN infusions.** All additions to PN infusions
2. **Cardioplegia Solutions.** All preparations
3. **Epidural injections and infusions.** All preparations
4. **Intra-ocular injections** . All preparations
5. **Intrathecal injections/infusions.** All preparations
6. **Potassium chloride.** All infusions and injections containing more than 40mmol of potassium per litre
7. **Anaesthetic agents.** All preparations when used by non-specialist staff and/or when used in clinical areas in which appropriate resuscitation and life support facilities are not available