ISMP's List of High-Alert Medications

High-alert medications are drugs that bear a heightened risk of causing significant patient harm when they are used in error. Although mistakes may or may not be more common with these drugs, the consequences of an error with these medications are clearly more devastating to patients. We hope you will use this list to determine which medications require special safeguards to reduce the risk of errors.

This may include strategies like limiting access to these medications, using auxiliary labels and automated alerts, standardizing the ordering, preparation, and administration of these products, and employing automated or independent double checks when necessary. (Note: manual independent double checks are not always the optimal error reduction strategy and may not be practical for all of the medications on the list).

### Classes/ Categories of Medications

- adrenergic agonists, IV (e.g., epinephrine)
- adrenergic antagonists, IV (e.g., propranolol)
- anesthetic agents, general, inhaled and IV (e.g., propofol)
- cardioplegic solutions
- chemotherapeutic agents, parenteral and oral
- dextrose, hypertonic, 20% or greater
- dialysis solutions, peritoneal and hemodialysis
- epidural or intrathecal medications
- glycoprotein IIb/IIIa inhibitors (e.g., eptifibatide)
- hypoglycemics, oral
- inotropic medications, IV (e.g., digoxin, milrinone)
- liposomal forms of drugs (e.g., liposomal amphotericin B)
- moderate sedation agents, IV (e.g., midazolam)
- moderate sedation agents, oral, for children (e.g., chloral hydrate)
- narcotics/opiates, IV and oral (including liquid concentrates, immediate- and sustained-release formulations)
- neuromuscular blocking agents (e.g., succinylcholine)
- radiographic agents, IV
- thrombolytics/fibrinolytics, IV (e.g., tenecteplase)
- total parenteral nutrition solutions

### Specific Medications

- amiodarone, IV
- colchicine injection
- heparin, low molecular weight, injection
- heparin, unfractionated, IV
- insulin, subcutaneous and IV
- lidocaine, IV
- magnesium sulfate injection
- methotrexate, oral, non-oncologic use
- nesiritide
- nitroprusside sodium for injection
- potassium chloride for injection concentrate
- potassium phosphates injection
- sodium chloride injection, hypertonic (more than 0.9% concentration)
- warfarin

### Background

Based on error reports submitted to the USP-ISMP Medication Errors Reporting Program and reports of harmful errors in the literature, ISMP created a list of potential high-alert medications. During August and September, 2003, more than 350 practitioners responded to an ISMP survey designed to identify which of these medications were most frequently considered high alert by individuals and organizations. Further, to assure relevance and completeness, the clinical staff at ISMP, members of our advisory board, and safety experts throughout the US were asked to review the potential list. This list of drugs and drug categories reflects the collective thinking of all who provided input.

Permission is granted to reproduce material for internal newsletters or communications with proper attribution. Other reproduction is prohibited without written permission. Unless noted, reports were received through the USP-ISMP Medication Errors Reporting Program (MERP). Report actual and potential medication errors to the MERP via the web at www.ismp.org or by calling 1-800-FAIL-SAFE. ISMP guarantees confidentiality of information received and respects reporters' wishes as to the level of detail included in publication.