Central Administration for Pharmaceutical Care
General Administration of Drug Utilization and Pharmacy Practice

National Egyptian High Alert Medication List 2025

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High Alert Medication List

Definition

High alert medications are drugs that carry a significant risk of causing serious harm to patients if used incorrectly. While mistakes with these medications may not occur more frequently than with others, the consequences of errors can be particularly severe. Therefore, these medications require special precautions to minimize the risk of errors.

Strategies for reducing errors

- Standardize the storage, ordering, preparation, and administration of these medications.
- Improve access to information about high alert medications.
- Limit access to these medications to reduce the risk of errors.
- Utilize auxiliary labels to provide important warnings and instructions.
- Employ clinical decision support tools and automated alerts.
- Use redundancies, such as automated or independent double checks, when necessary.

Disclaimer

This list serves as guidance and outlines the minimum requirements for handling high-risk medications. Each healthcare facility may expand upon it by including additional items that reflect specific risk factors relevant to their practice.

High Alert Medication List in Acute Care

	Medication	Dosage Form and Strength
1	**Adrenergic agonists IV**	
	Examples	
	Epinephrine	**IV: 1 mg/ml**
	Norepinephrine	**IV: 8 mg norepinephrine tartrate/ 4 ml**
	Ephedrine	**Parenteral: SC, IV, or IM**
2	**Adrenergic antagonists IV**	
	Examples	
	Propranolol	**IV: 1 mg/ml**
	Metoprolol tartrate	**IV: 1 mg /ml**
	Labetalol hydrochloride	**IV: 5 mg/ml**
3	**Anesthetic agents (Inhaled and IV)**	
	Examples	
	Propofol	**IV: 10 mg/ml; 20 mg /ml**
	Ketamine	**IV: 50 mg /ml**
	Thiopental	**IV: 0.5 gm, 1 gm**
	Halothane	**Volatile liquid for inhalation 100%**
	Isoflurane	**Inhalational solution 100%**
	Sevoflurane	**Inhalational liquid 100%**
4	**Antiarrhythmic, IV**	
	Examples	
	Lidocaine	**IV: 2%**
	Amiodarone	**IV: 50 mg/ml**
	Flecainide acetate	**IV: 150 mg / 15 ml**
	Verapamil	**IV: 5 mg / 2 ml**
5	**Antiarrhythmic oral**	
	Propafenone	**Film-coated tablets: 150 mg; 300 mg**
6	**Antithrombotic agents**	
	Anticoagulants	
	Examples	
	Warfarin	**Tablets: 1 mg; 2mg; 3 mg; 5 mg**
	Unfractionated heparin	**Parenteral: SC or IV** **Heparin calcium 12000 I.U.; Heparin sodium 5000 I.U.**

	Low molecular weight heparin	
	Examples	
	Enoxaparin	**Parenteral:** **20 mg/0.2 ml SC** **40 mg/0.4 ml SC** **60 mg/0.6 ml SC or IV** **80 mg/0.8 ml SC or IV**
	Nadroparin	**Parenteral: SC** **2580 I.U./0.3 ml** **5700 I.U./0.6 ml** **7600 I.U./0.8 ml**
	Tinzaparin	**Parenteral: SC** **3500 I.U./0.35 ml** **4500 I.U. /0.45 ml** **10000 I.U./0.5 ml** **14000 I.U./0.7 ml** **18000 I.U/0.9 ml**
	Direct oral anticoagulants and factor Xa inhibitors	
	Examples	
	Dabigatran	**Capsules: 75 mg; 110 mg; 150 mg**
	Rivaroxaban	**Tablets: 2.5 mg; 10 mg; 15 mg; 20 mg**
	Apixaban	**Tablets: 2.5 mg; 5 mg**
	Edoxaban	**Tablets: 15 mg; 30 mg; 60 mg**
	Fondaparinux	**Parenteral: IV, SC: 2.5 mg / 0.5 ml;** **Parenteral: SC: 7.5 mg /0.6 ml**
	Direct thrombin inhibitors	
	Examples	
	Argatroban	**IV: 250 mg / 2.5 ml; 100 mg/ml**
	Bivalirudin	**IV: 250 mg**
	Recombinant Hirudin	**Parenteral: SC: 15 mg/ml**
	Glycoprotein IIb/IIIa inhibitors	
	Examples	
	Tirofiban	**IV: 0.05 mg/ml; 0.25 mg /ml**
	Thrombolytics	
	Examples	
	Streptokinase	**IV: 1.5 million I.U.**
	Alteplase	**IV: 50 mg**
7	**Cardioplegic solutions (magnesium chloride + potassium chloride) injection**	
8	**Chemotherapeutic agents, parenteral and oral**	
9	**Dextrose, hypertonic, 20% or greater**	
	Examples	
	Dextrose	**IV: 25%; 50%**
10	**Dialysis solutions**	
	Examples	
	Hemodialysis solutions injection	**Any preparation**

	Peritoneal dialysis solutions injection	**Any preparation**
11	**Epidural and intrathecal medications**	
	Examples	
	Bupivacaine hydrochloride	**Epidural injection: 5 mg/ml**
	Ropivacaine hydrochloride	**Epidural Injection: 5 mg/ml**
	Cytarabine	**Intrathecal injection: 20 mg/ml; 100 mg/ml**
	Methotrexate	**For intrathecal injection: 25 mg/ml; 100 mg/ml**
	Hydrocortisone	**For intrathecal injection: 100 mg**
12	**Inotropic medications, IV**	
	Examples	
	Digoxin	**IV: 0.25 mg/ml**
	Milrinone	**IV: 1 mg/ml**
	Dobutamine	**IV: 50 mg/ml; 12.5 mg/ml**
	Dopamine	**IV: 200 mg / 5 ml**
13	**Insulin, subcutaneous and IV**	
14	**Liposomal forms of drugs (e.g., liposomal amphotericin B) and conventional counterparts (e.g., amphotericin B deoxycholate)**	
15	**Moderate sedation agents, IV**	
	Examples	
	Dexmedetomidine	**IV: 4 mcg/ml; 100 mcg/ml**
	Midazolam	**IV: 5 mg /ml**
	Diazepam	**IV: 5 mg/ml**
16	**Moderate and minimal sedation agents, oral, for children**	
	Examples	
	Ketamine [using the parenteral form]	**Parenteral: 50 mg/ml**
17	**Opioids, including: IV oral (including liquid concentrates, immediate- and sustained-release formulations) transdermal**	
	Morphine sulfate	**IV: 10 mg/ml; 20 mg /ml** **Film-coated tablets: 20 mg**
	Pethidine	**IV: 50 mg /ml**
	Fentanyl	**IV: 0.05 mg /ml** **Patch: 25 mcg/hr; 50 mcg/hr; 75 mcg/hr; 100 mcg/hr** **Sublingual tablets: 100 mcg; 200 mcg**
	Nalbuphine	**IV: 10 mg/ml; 20 mg /ml**
	Oxycodone	**Oral tablets of any strength**
	Tramadol	**Capsules and tablets: 50 mg; 100 mg; 150 mg; 200 mg** **IV: 100 mg / 2 ml**
18	**Neuromuscular blocking agents**	
	Examples	
	Succinylcholine chloride	**IV, IM: 20 mg /ml**
	Rocuronium bromide	**IV: 10 mg /ml**

	Vecuronium	**IV: 10 mg**
	Pancuronium	**IV: 2 mg/ml**
	Atracurium besilate	**IV: 10 mg/ml**
	Cisatracurium	**IV: 2 mg/ml**
19	**Parenteral nutrition preparations**	
20	**Sodium chloride for injection, hypertonic, greater than 0.9% concentration**	
	Examples	
	Sodium chloride	**Solution for IV infusion: 3%**
21	**Sterile water for injection, inhalation, and irrigation (excluding pour bottles) in containers of 100 ml or more**	
22	**Antidiabetic medications**	
	Oral sulfonylureas alone or in combination	
	Oral SGLT2 inhibitors alone or in combination	
	GLP-1 medications	
23	**Vaccines**	
24	**Antidotes**	
	Naloxone	**Parenteral: SC, IV, or IM**
	Acetylcysteine	**IV when used as an antidote ONLY for acetaminophen overdose**
25	**Radiographic contrast media**	
26	**Electrolytes**	
	Calcium chloride	**IV**
	Calcium gluconate	**IV**
	Magnesium sulfate	**IV injection 10%**
	Potassium chloride for injection concentrate	**IV: 0.746 gm/L; 500 mg/5 ml, 1.5 g/100 ml, 15 g/100 ml, 3 g/100 ml**
27	**Specific medications**	
	Sodium bicarbonate	**IV: 8.4%**
	Oxytocin	**IV: 5 I.U./ml; 10 I.U./ml**
	Tranexamic acid	**IV: 500 mg/ 5 ml**
	Misoprostol	**Tablets: 200 mcg**
	Nitroglycerin	**Solution for IV infusion**
	Phentolamine mesylate	**Parenteral: IV, IM**
	Zoledronic acid	**Solution for IV infusion**

High Alert Medication List in Community/Ambulatory Care Settings

Ambulatory care sites such as long-term care facilities, long-term acute care facilities, dialysis facilities, ambulatory surgery centers, and the pharmacies that provide services to them.

	Medication	Dosage Form and Strength
1	**Antithrombotic agents, oral and parenteral**	
	Anticoagulants	
	Examples	
	Warfarin	**Tablets: 1 mg; 2mg; 3 mg; 5 mg**
	Unfractionated Heparin	**Parenteral: SC or IV** **Heparin calcium 12000 I.U.** **Heparin sodium 5000 I.U.**
	Low molecular weight heparin	
	Examples	
	Enoxaparin	**Parenteral:** **20 mg/0.2 ml SC** **40 mg/0.4 ml SC** **60 mg/0.6 ml SC or IV** **80 mg/0.8 ml SC or IV**
	Nadroparin	**Parenteral: SC** **2580 I.U./0.3 ml** **5700 I.U./0.6 ml** **7600 I.U./0.8 ml**
	Tinzaparin	**Parenteral: SC** **3500 I.U./0.35 ml** **4500 I.U./0.45 ml** **10000 I.U./0.5 ml** **14000 I.U./0.7 ml** **18000 I.U./0.9 ml**
	Direct oral anticoagulants and factor Xa inhibitors	
	Examples	
	Dabigatran	**Capsules: 75 mg; 110 mg; 150 mg**
	Rivaroxaban	**Tablets: 2.5 mg; 10 mg; 15 mg; 20 mg**
	Apixaban	**Tablets: 2.5 mg; 5 mg**
	Edoxaban	**Tablets: 15 mg; 30 mg; 60 mg**
	Fondaparinux	**Parenteral: IV, SC 2.5 mg / 0.5 ml** **Parenteral: SC:7.5 mg /0.6 ml**
	Direct thrombin inhibitors	
	Examples	
	Argatroban	**IV: 250 mg / 2.5 ml; 100 mg/ml**
	Bivalirudin	**IV: 250 mg**
	Recombinant Hirudin	**Parenteral: SC: 15 mg/ml**

2	Chemotherapeutic agents, excluding hormonal therapy	
3	Oral and parenteral chemotherapy (e.g., capecitabine, cyclophosphamide)	
4	Oral targeted therapy and immunotherapy (e.g., palbociclib, imatinib, bosutinib)	
5	Immunosuppressant agents, oral and parenteral	
	Examples	
	Azathioprine	Tablets: 25 mg; 50 mg; 75 mg; 100 mg
	Cyclosporine	Oral capsules: 25 mg; 50 mg; 100 mg
	Tacrolimus	Oral capsules: 0.5 mg; 1mg; 3 mg
	Mycophenolate mofetil	Tablets and capsules: 180 mg; 360 mg; 250 mg; 500 mg
	Sirolimus	Tablets: 1 mg
	Everolimus	Tablets: 0.25 mg; 0.75 mg; 1 mg; 5 mg
6	Insulins, all formulations and strengths	
7	Medications contraindicated during pregnancy (e.g., bosentan, isotretinoin)	
8	Moderate and minimal sedation agents, oral, for children	
	Examples	
	Ketamine [using the parenteral form]	50 mg/ml
9	Opioids, all routes of administration (e.g., oral, sublingual, parenteral, transdermal), including liquid concentrates, immediate- and sustained-release formulations, and combination products with another drug	
	Examples	
	Tramadol	Capsules and tablets: 50 mg; 100 mg; 150 mg; 200 mg IV: 100 mg / 2 ml
	Morphine sulfate	IV: 10 mg/ml; 20 mg /ml Film-coated tablets: 20 mg
	Pethidine	IV: 50 mg /ml
	Fentanyl	IV: 0.05 mg /ml Patch: 25 mcg/hr; 50 mcg/hr; 75 mcg/hr; 100 mcg/hr Sublingual tablets: 100 mcg; 200 mcg
	Nalbuphine	IV: 10 mg/ml; 20 mg /ml
	Oxycodone	Oral tablets and IV injection: any strength
10	Pediatric liquid medications that require measurement	
11	Antidiabetic medications	
	Oral sulfonylurea alone or in combination	

	Oral SGLT2 inhibitors alone or in combination	
	GLP-1 medications	
12	**Specific medications**	
	Carbamazepine	**Oral suspension: 100 mg / 5 ml** **Tablets: 200 mg; 400 mg**
	Epinephrine	**IM, SC: 1 mg/ml**
	Lamotrigine	**Tablets: 5 mg; 25 mg; 50 mg; 100 mg** **Extended-release tablets: 200 mg**
	Phenytoin	**Capsules: 50 mg; 100 mg** **Oral suspension: 30 mg / 5 ml** **Parenteral: IV, IM: 250 mg / 5 ml**
	Valproic acid	**Capsules: 150 mg; 300 mg** **Extended-release tablets: 250 mg; 500 mg** **Syrup: 250 mg / 5 ml** **IV: 500 mg / 5 ml**

List of Abbreviations

hr.	Hour
IM	Intramuscular
I.U.	International Unit
IV	Intravenous
GLP-1	Glucagon-Like Peptide-1
gm	Gram
gm/L	Gram per liter
mcg	Microgram
mcg/hr.	Microgram per hour
mcg/ml	Microgram per milliliter
mg	Milligram
mg/ml	Milligram per milliliter
SC	Subcutaneous
SGLT2	Sodium-Glucose Transporter 2

Resources

- https://www.ismp.org/recommendations/high-alert-medications-acute-list
- https://www.ismp.org/sites/default/files/attachments/2018-08/highAlert2018-Acute-Final.pdf
- https://www.pharmacy.gov.my/v2/sites/default/files/document-upload/guideline-safe-use-high-alert-medications-hams-2nd-edition_1.pdf
- https://www.ihi.org/Topics/HighAlertMedicationSafety/Pages/default.aspx
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- https://www.ismp.org/recommendations/high-alert-medications-community-ambulatory-list
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- https://www.ismp.org/recommendations/high-alert-medications-long-term-care-list
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