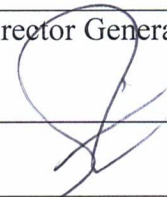


Directorate of Pharmaceutical Care and Medical Stores

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Guideline for High Alert Medications

Chapter One

1.Introduction

High Alert medications: are a group of medications that can carry a greater risk of causing serious harm if any error occurs hence requires extra safety measures during prescribing, dispensing and administration and storage e.g., narrow therapeutic index medications.

2.Purpose

The purposes of this guideline are to:

- 2.1 Reduce the risk of medications errors associated with high alert medications.
- 2.2 Promote safe and standardized practices across all stages of the high alert medications handling including prescribing, handling, dispensing and storage in the hospital (wards, operation theaters, pharmacies, and stores).
- 2.3 Enhance awareness and education among healthcare professionals.

3.Scope

This guideline of DGKH applies to all health care professionals engaged in handling high-alert medications including pharmacists, assistant pharmacists & nurses.

4.Definition

High Alert medications: They are a group of medications that typically can cause a serious harm to the patient (including permanent injury, disability or death) if used in error.

Chapter Two

5. Structure

This guideline of DGKH designed to assist health pharmacists, assistant pharmacists & nurses in managing high alert medications according to following instructions:

5.1 Managing high alert medications:

- a.High-Alert medications should have a clear RED colored HIGH ALERT label on their medication trays.
- b.All high alert medications must be checked and double checked by two staff before dispensing or administering to the patient.
- c.Any changes of the brand, color or format of the high alert medication should be informed to the user on the spot.

5.2 Storage:

- a. High-Alert medications should be stored according to the manufacturer label to avoid damage.
- b. High-Alert medications should be stored separately to avoid look-Alike or sound Alike, and different strengths available.
- c. Tall-man lettering should be used to highlight the difference in the medication name (e.g.,: *DOPamine* and *DOBUTamine*).
- d. All containers and trays used for storing the high alert medication should be labeled “High-Alert” medication.

5.3 Prescribing:

- a. All High Alert medications should be prescribed through the AL Shifaa-system to eliminate illegible handwriting and misinterpretation of verbal orders.
- b. Abbreviations should not be used upon prescribing High-Alert medications.
- c. The dose, route and rate of infusion for the High-Alert medications should be specified upon prescribing.
- d. Verbal or telephone order of high-Alert medications is not allowed

5.4 Dispensing & preparation:

- a. High-Alert medications must be double checked by two staff before dispensing.
- b. Upon receiving High-Alert medications in wards must be double checked by nurses and pharmacist.

5.5 Nursing Part if they want to audit

a. Administration:

- i. Patients’ name and hospital number, Medication’s name and strength, dose, route, rate and expiry should be bedside checked by two health care provider before administration.
- ii. Label the distal ends of all access lines to distinguish IV from epidural lines.
- iii. Ensure full concentration and no sourced of distraction upon administration to patients. Return all unused or remaining High-Alert medications to the pharmacy when no longer used.

b. Monitoring:

- i. Closely monitor vital signs. Laboratory results, with close inspection of patient before and after administration of the High-Alert Medications.

Chapter Three

6. Responsibilities

6.1 Pharmacist and pharmacist technicians shall:

6.1.1 Ensure safe storage, labeling, preparations and dispensing practices.

6.1.2 Maintain and update the high-alert medication list.

6.2 Nursing In-charge shall

6.2.1 Ensure that all nurses are aware and adhere to the guideline

6.3 Nursing staff shall:

6.3.1 Adhere to this guideline.

6.3.2 Follow the approval procedures for the safe handling and administration of the high-alert medications.

Chapter Four

7. Document history and version control table

Version	Description	Name of authors	Review Date
1	Initial Release	Ms. Yasmeen Al Maimani	2029
2	Version two		

8. Related Documents

Medication Orders Review Policy	(MOH-DGMS-PH-18).
Management of Adverse Drug Reaction	(MOH-DGMS-PH-33).
Medication Error Reporting Policy	(MOH-DGMS-PH-34)
Look-Alike/Sound-Alike Medications policy	(MOH-DGMS-PH-36).
Medication Orders Review Policy	(MOH-DGMS-PH-18).

9.References:

- Albert Health Services (2015). Management high alert medications, Albert health Services.
- Department of Health, WA–Australia (2014).High Alert Medication Policy.
- Institute for Safe Medication Practices (ISMP) (2017).High-Alert Medications in Community/ Ambulatory Settings.
- Joint Commission (1999) high-Alert medication and patient safety.
- MOH Pharmaceutical (2019). High Alert Medications.
- Pharmaceutical Services Division, OH, Malaysia (2011).Guideline On Safe Use of High Alert Medications, MOH Malaysia.

10. Annex

10.1 Appendix (1): List of High-Alert Medications approved in the Ministry of Health

Classes/ Categories of Medications Available formulations in the MOH	Available formulations in the MOH
Adrenergic agonists, IV: Adrenaline (IV and SC)	Adrenaline (1:1000) 1mg/ml 1ml (IM/SC) (IV following dilution) Adrenaline 1:10,000 10ml. 1mg/10ml. preloaded syringe
Noradrenaline acid tartarate	Noradrenaline acid tartarate 2 mg/ml (equivalent to noradrenaline base 1 mg/ml), 2 - 4 ml ampoule
Phenylephrine	Phenylephrine 1% 1 ml
Isoproterenol hydrochloride	Isoproterenol hydrochloride injection 0.2 mg/ ml
Adrenergic antagonists, IV: Labetalol hydrochloride	Labetalol hydrochloride I/V 5mg/ml 20ml.
Metoprolol	Metoprolol 1mg/ml IV
Propranolol	Propranolol hydrochloride 1mg/ml 1ml.
Phentolamine mesilate	Phentolamine mesilate 10mg/ml, 1ml.
Antiarrhythmics, IV: Verapamil hydrochloride	Verapamil hydrochloride 2.5 mg/ ml. 2ml.
Antiretroviral agents	All formulations
Antithrombotic agents: 1. Anticoagulants: Warfarin	Warfarin sodium 1mg tab Warfarin sodium 2mg tab Warfarin sodium 5mg tab
Unfractionated heparin	Heparin 1000 IU/ml 5ml Heparin 25000 IU/ml 5ml Heparin 5000 IU/ml 5ml,
LMW heparin	Heparin Low Molecular Weight (Enoxaparin, Dalteparin or Tinzaparin) 20,000-30,000 I.U. Multidose Heparin Low Molecular Weight (Enoxaparin, Dalteparin or Tinzaparin) 18,000 I.U Heparin Low Molecular Weight (Enoxaparin or Dalteparin) 4,000 - 5,500 I.U

	Heparin Low Molecular Weight, Enoxaparin 6,000 I.U Heparin Low Molecular Weight, Enoxaparin 8,000 I.U or Dalteparin 10,000 I.U.
2. Factor Xa inhibitors: Fondaparinux	Fondaparinux sodium 5 mg/ml, 0.5 ml (2.5 mg) prefilled syringe
3. Direct thrombin inhibitors: Argatroban	Argatroban 100mg/ml, 2.5ml
Dabigatran etexilate	Dabigatran etexilate 110 mg
4. Thrombolytic: Alteplase	Alteplase 50mg
Reteplase	Reteplase 10 units 1.16 gm / ml powder for reconstitution pack of 2 vials with diluent
Cardiologic solutions	All formulations
Chemotherapeutic agents, parenteral and oral	All formulations
Dextrose, hypertonic, 20% or greater	All formulations
Dialysis solutions (peritoneal, hemodialysis)	All formulations
Epidural or intrathecal medications	All formulations
Hypoglycemic, oral	All formulations
Immunosuppressant agents	All formulations
Inotropic medications, IV: Digoxin, oral and IV	Digoxin 0.25 mg/ml 2ml, Digoxin 0.25mg tab Digoxin 0.0625mg tab
Milrinone	Milrinone lactate 1 mg/ml, 10 ml
Dobutamine	Dobutamine hydrochloride 250 mg per vial or amp
Dopamine	Dopamine hydrochloride 40mg/ml 5ml.
Insulin, SC and IV	All formulations
Liposomal forms of drugs	Amphotericin (50mg.) 50000 IU (liposome coated) Amphotericin b 100 mg (lipid complex) Amphotericin b (sod deoxycholate complex) 50 mg. Amphotericin lozenges 10mg.
Moderate sedation agents, IV: Midazolam	Midazolam 5mg/ml. 3ml.
Moderate sedation agents, oral. For children: Chloral hydrate syrup	Chloral hydrate 500 mg/5ml, 200 ml. Chloral hydrate elixir 150 ml 143.3mg/5 ml
Midazolam	Midazolam 2.5mg/ml.100ml
Narcotics/ opioids, oral, IV and transdermal	Narcotics/ opioids, oral, IV and transdermal
Neuromuscular blocking agents	Rocuronium 10 mg/ ml, 5 ml Injection

Parenteral nutrition preparations	Parenteral nutrition preparations
Pregnancy category X drugs	All formulations
Radio contrast agents, IV	Radio contrast agents, IV
Sterile water for injection, inhalation and irrigation	Sterile water for injection, inhalation and irrigation
Sodium chloride for injection, hypertonic, greater than 0.9% concentration	All formulations
Carbamazepine	Carbamazepine CR 100 mg tab, Carbamazepine CR 200 mg tab, Carbamazepine CR 400 mg tab, Carbamazepine 100mg tab, Carbamazepine 200mg tab, Carbamazepine liquid 100 mg/ 5 ml. (2%) 100 ml.
Iron dextran, parental	Iron dextran injection 20ml, Iron dextran injection 5ml.
Magnesium sulphate	Magnesium sulphate (50 %) 1 gm - 2 ml Magnesium sulphate (50 %) 5 gm - 10 ml. Magnesium sulphate (50 %) 2.5 gm- 5 ml.
Metformin	Metformin Hcl. 500mg. tab
Methotrexate oral	Methotrexate 2.5mg tab, Methotrexate suspension
Oxytocin	Oxytocin synthetic 10 IU Oxytocin 5IU/ml Ergometrine maleate 500 mcg/ml, 1 ml.
Potassium phosphate injection	Potassium phosphate USP 5 -10 ml.
Potassium chloride for injection	Potassium chloride 15% 10ml
Promethazine IV	Promethazine hydrochloride 25mg/ml 1ml. Promethazine hydrochloride 50 mg, 1-2 ml.
Propylthiouracil	Propylthiouracil 50 mg tab