



Prince Sultan Military Medical City

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Medical City Wide Policy & Procedure	Dept: Hospital Directorate	Policy No: 1-1-8062-05-027 Version No: 03
Title: Handling of Concentrated Electrolytes		JCI Code: IPSG
Supersedes: 1-1-8062-05-027 Version No: 02; 12 March 2017	Copy No:	Page 1 of 4

1. PURPOSE

- 1.1. To promote standardized labelling, safe storage, handling, administration and monitoring of concentrated electrolytes to prevent inadvertent administration.
- 1.2. To identify clinical care areas that are permitted to store concentrated electrolytes as clinically necessary.

2. APPLICABILITY

Pharmaceutical Services Department, Nursing Department, and all Medical Staff, and Clinical Services at PSMMC.

3. RESPONSIBILITIES

It is the responsibility of the Pharmaceutical Care Services, in conjunction with Nursing Services and Medical Services to ensure implementation of this policy.

4. POLICY

- 4.1. Concentrated electrolyte **MUST** be handled appropriately in the process of storage, ordering, preparation, dispensing and administration.
- 4.2. Storage of concentrated electrolytes will be restricted to the pharmaceutical services department. Exceptions to this policy include an allowance for storage of concentrated electrolytes in specific patient care units identified as clinically necessary with Justifications (Appendix A)
- 4.3. Concentrated electrolytes that are stored in patient care units must be clearly labeled with appropriate warning and stored in a manner that restricts access **only** for qualified and trained individuals to promote safe use.
- 4.4. Standardized auxiliary labels **must be used** for concentrated electrolytes stating (**Must be Diluted Prior to Use**).
- 4.5. The following concentrated electrolyte solutions will be stored and mixed in the Pharmacy Department except in specific patient care units identified as clinically necessary:
 - 4.5.1. Potassium chloride 2 mmol/mL concentration.
 - 4.5.2. Potassium phosphate 3 mmol/mL concentration.
 - 4.5.3. Potassium Acetate 2 mmol/mL concentration.
 - 4.5.4. Sodium chloride greater than 0.9% concentration.
 - 4.5.5. Magnesium sulfate 50% or greater.



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5. DEFINITION OF TERMS

- 5.1. Concentrated **Electrolytes** are High Alert Medications that must first be diluted prior to parenteral administration, to ensure patient safety.
- 5.2. **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 are clearly more devastating to patients.
- 5.3. **Independent Double Checking** is the procedure in which two (2) healthcare professionals separately check (alone and apart from each other, then compare results) each component of prescribing, transcribing, dispensing and verifying the medication before administering to the patient.
- 5.4. **Medication Segregation:** Medications are stored in separate bins and are spaced out on shelves (not to follow alphabetical sequence for storage)

6. PROCEDURES

- 6.1. Concentrated electrolyte solutions for intravenous use will be available in the pharmacy department only, with the exemptions of clinical areas permitted with justifications. (Appendix A)
- 6.2. All concentrated electrolytes shall be stored in **RED bin**, and must be identified by **two auxiliary labels**.
 - 6.2.1. For medications that cannot physically fit in red bins, a mechanism will be used to physically segregate the medications and clearly identify them as '**High Alert Medication / Concentrated Electrolytes**'.
 - 6.2.2. In an event of unavailability of the **RED bin**, a storage bin or shelf must be identified by auxiliary labels.

(Refer to High Alert Medications policy & procedure (HWPP 1-1-8062-05-020))

- 6.3. All orders for parenteral concentrated electrolytes must include the amount of concentrated electrolyte in **mmol**.
- 6.4. All orders of concentrated electrolytes will follow approved guidelines published in the PSMMC Formulary Manual, and approved neonates, paediatrics and adults electrolyte replacement therapy protocols.



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- 6.5. Concentrated electrolytes (e.g., Magnesium Sulfate) required for cardiopulmonary resuscitation (CPR), will be:
 - 6.5.1. Stocked in the sealed Medications Tray and in the secured Crash Cart.
 - 6.5.2. The sealed Medications Tray is labeled on the **inside** in areas where concentrated electrolytes are stored, with an auxiliary label stating, '**Concentrated Electrolytes Must be Diluted Prior to Use**'.
 - 6.5.3. Stock of concentrated electrolytes will be replenished after use or when near to expiry date.
- 6.6. **Storage and labelling of concentrated electrolytes in authorized patient care areas:**
 - 6.6.1. Concentrated electrolytes will be stored and kept in Automated Dispensing Cabinets (ADC-Pyxis)/ or locked Cabinet.
 - 6.6.2. Authorized clinical areas that stock concentrated electrolytes must use standard medication labels, '**High Alert Medication / Concentrated Electrolyte**', and separate the stock from other medications in **RED bins**.
 - 6.6.3. Concentrated electrolytes stored inside the ADC-Pyxis with specific bins/containers not in red colored bins, a mechanism will be used to physically segregate the medications and clearly identify them as '**High Alert Medication / Concentrated Electrolytes**'.
- 6.7. The preparation process of concentrated electrolytes shall be independently double checked by second trained and qualified individual.
- 6.8. An infusion pump whereas available is used to administered electrolytes solutions.

7. REFERENCES

- 7.1. Joint Commission International Accreditation Standards for Hospitals 7th edition - 2021 International Patient Safety Goal (IPSG.3.2).
- 7.2. Institute of Safe Medication Practices (ISMP) www.ismp.org (accessed 23.04.14)
- 7.3. Control of Concentrated Electrolytes – WHO, <http://www.who.int/patientsafety/solutions/patientsafety/PS-Solution5.pdf> (accessed 13.04.14)

8. APPENDICES

- 8.1. Appendix A - Concentrated Electrolytes Locations and Justifications List (PSMMC)



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9. ORIGINATING DEPARTMENT/S

9.1. Pharmaceutical Services Department

Compiled by: Pharmaceutical Services Department	Signature:	Date: 12.1.2021
Reviewed by: • International Patient Safety Goals (IPSG) Team	Signature:	Date: 15/1/2021
• Medication Management and Use (MMU) Team	Signature:	Date: 21.1.2020
• Nursing Department	Signature:	Date: 25/1/2020
Reviewed by: Dr. Samir Mohammed Bawazir Director, Continuous Quality Improvement & Patient Safety (CQI&PS)	Signature:	Date: 28.1.2021
Authorized by: Brig. Gen. Dr. Bander Al Harbi Director of Pharmaceutical Services Department	Signature:	Date: 31/1/2020
Authorized by: Dr. Amr Momtaz Jad Director of Medical Administration	Signature:	Date: 3-2-2021
Authorized by: Dr. Hisham Ayoub Executive Director for Health Affairs Chairman, Senior Medical Management Team (SMMT)	Signature:	Date: 10.2.2021
Approved by: Maj. Gen. Dr. Saud Othman Al Shlash General Executive Director of Prince Sultan Military Medical City	Signature:	Date: 16/2/2021
Date Reviewed	28 January 2021	Date of Next Review
		15 February 2024

Appendix A: Concentrated Electrolytes Locations and Justifications List (PSMMC)

Intensive Care Unit:

Concentrated Electrolyte Name	Quantity		Justification
	Authorized Clinical Area	Pyxis	
Sodium Chloride for IV or Inhalation 3% Injection	05SA (NICU) 05SB (NICU-HDU)	3	<ul style="list-style-type: none"> Intracranial Pressure
	PICU (0A16) PICU (0031)	5	

Operating room:

Concentrated electrolyte name	Quantity		Justification
	Authorized Clinical Area	Non-Pyxis	
Sodium Chloride for IV or Inhalation 3% / 4ml Injection	Main Theatre (B5)	5	<ul style="list-style-type: none"> Intracranial Pressure
	Day Case Unit (B5)	3	
	Neurosurgery Theatre (B5)	3	
	Operating Room (B4)	3	
	Operating Room (B2)	5	

Labour and delivery:

Concentrated electrolyte name	Quantity		Justification
	Authorized Clinical Area	Pyxis	
Magnesium Sulphate (50%) 500mg/1mL Injection	4SA-Labour Room 4SB-Obstetric Assessment Unit	100	<ul style="list-style-type: none"> Preeclampsia
	6S (Antenatal Ward)	30	
	OBS & GYNE Theater (B4)	10	

Emergency department:

Concentrated electrolyte name	Quantity		Justification
	Authorized Clinical Area	Non-Pyxis	
Magnesium Sulphate (50%) 500mg/1mL Injection	EDGA-Resuscitation Area ED1A-Adult Critical Care	10	<ul style="list-style-type: none"> Preeclampsia