# STANDING ORDER FOR THE ADMINISTRATION OF INTRAVENOUS POTASSIUM CHLORIDE IN INTENSIVE CARE UNIT (ICU)

## Cross references

<table>
<thead>
<tr>
<th>Cross references</th>
<th>Details</th>
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<tbody>
<tr>
<td>NSW Health Medication Handling in NSW Public Hospitals PD2013_043</td>
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<tr>
<td>Hyperkalaemia – Monitoring and Treatment Guidelines CLIN 176</td>
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<tr>
<td>Intravenous Potassium, Storage, Prescribing, Preparation and Administration CLIN 116</td>
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## 1. Accreditation requirements/employees this applies to

Permanent and temporary Registered Nurses working in the Intensive Care Unit who have completed the medication workbook

## 2. Risk rating

Medium

## 3. Indications

- Treatment and prevention of hypokalemia

## 4. Description and Presentation

- Potassium Chloride (KCl) ten (10) millimoles (mmols)
- Ampoules contain 10mmol/10mL (0.75g/10mL) potassium chloride concentration

## 5. Contraindications

- Patients with Acute Kidney Injury (AKI)
- Patients with Chronic Kidney Injury (CKI)
- Hyperkalemia
- Hyperadrenalism (Cushing’s Syndrome)
- Severe burns
- pH < 7.2 or >7.6
- Active Diabetic Ketoacidosis (DKA)
- Renal replacement therapy, CRRT, PiRRT or HD
- Rules section 6.2 and patients results, section 6.3 are breached

## 6. Process

### 6.1 DESCRIPTION

- Potassium is an electrolyte essential for healthy cellular function, particularly muscle cells.
- Potassium chloride is the most commonly prescribed potassium salt, but potassium may also be prescribed IV as other salts e.g. potassium dihydrogen phosphate, potassium acetate

### 6.2 RULE

- Ten (10) millimoles (mmols) Potassium (K+) salt must always be given by continuous infusion in a burette of a minimum of 40mLs compatible fluid via an infusion pump in **OVER ONE HOUR VIA A CENTRAL LINE ONLY**
- Potassium must never be given by bolus injection
- If the patient is oliguric with urinary output < 0.5mLs/kg/hr, do not give Potassium unless authorised by Medical Officer
- If potassium K+ is less than (<) 3.9, check contraindications and patient results then initiate standing order.
- If Potassium K+ is < 3.0 check contraindications and patient results then initiate the standing order for K+ <3.0. A Medical Officer must be notified.
- If replacement is administered Potassium can be measured initially hourly in a patient with levels < 3.0 - 3.9, especially if urine output is high
- Notify MO if potassium replacement is ongoing after 4 hours or chloride levels are increasing
- An additive label must be affixed to the burette when potassium is **added to** infusion fluid
- Heart and arterial pressure monitoring of the patient is mandatory
- Always consider the validity of the laboratory values and arterial sample analysis prior to initiating replacement therapy.
- Consider other drugs the patient may be receiving and interactions see Section 6.4
6.3 STANDING ORDER ACCORDING TO PATIENT RESULTS

Dosing parameters
- Check patients’ most recent (within 24 hours) serum creatinine (Cr) concentration.
  - Serum Cr less than 100 micromoles (umols).
  - Repeated doses of 10mmol of KCL can be given if urine output remains >0.5ml/kg/hr and monitored K levels on Arterial Blood Gas (ABG) remain less than 4.0mmol
  - When serum K is < 3.0, twenty (20) millimoles (mmols) of Potassium Chloride can be given by continuous infusion in a burette via an infusion pump in a minimum of 80mLs of compatible fluid over 1 hour **VIA A CENTRAL LINE ONLY** Notify Medical Officer

See appendix A

6.4 DRUG INTERACTIONS
- Drugs in the following categories are associated with an increase in potassium levels
  - ACE inhibitors
  - Potassium sparing diuretics
  - Beta –adrenergic agents
  - Non steroidal anti-inflammatory
  - Heparin
  - Thiazide diuretics
- Drugs that can decrease serum potassium are:
  - Insulin
  - Sodium Bicarbonate
  - Salbutamol nebulisers
- Care must be used in patients receiving digoxin if a heart block is present as potassium supplements can increase heart block.

6.5 DOCUMENTATION
- The administering RN must record the administration on the medication order and second R/N name and designation must be annotated. The second RN must be an “in charge” or senior member of staff, CNS, NE, CNE or CNC.
- Potassium Chloride given within the boundaries of this standing order must be signed by a Medical Officer within 24 hours.

7. Keywords
Potassium Chloride, standing order,

8. Functional Group
ICU

9. External references

10. Consumer Advisor Group (CAG) approval of patient information brochure (or related material)
N/A

11. Implementation and Evaluation plan
Including education, training, clinical notes audit, knowledge evaluation audit etc
In-service
SGSHHS intranet page
12. Knowledge evaluation

<table>
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<tr>
<th>Question</th>
<th>Answer</th>
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<tr>
<td>Q1. What is the maximum amount of Potassium Chloride that can be administered until a Medical Officer reviews the patient?</td>
<td>A: 40mmols</td>
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</table>
| Q2. This standing order is not to be used for what patient types. | - Patients with Acute Kidney Injury (AKI)  
- Patients with Chronic Kidney Injury (CKI)  
- Hyperkaleamia  
- Hyperadrenalism (Cushings Syndrome)  
- Severe burns  
- pH < 7.2 or >7.6  
- Active Diabetic Ketoacidosis (DKA)  
- Renal replacement therapy, CRRT, PiRRT or HD  
- Patients who breach the rules and test results |
| Q3. Where and how must the RN document administration of Potassium Chloride? | A: In patients medication chart including annotation of second RN name and designation.  
Audit of patient’s notes to determine frequency of policy – standing order use  
Medical Officers satisfaction survey |

13. Who is responsible

<table>
<thead>
<tr>
<th>Role</th>
<th>Name</th>
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<tbody>
<tr>
<td>Medical Director of Intensive Care Unit</td>
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<tr>
<td>Nurse Manager of Intensive Care Unit</td>
<td></td>
</tr>
<tr>
<td>Approval for (Insert Clinical Business Rule Title)</td>
<td>* N/A where appropriate</td>
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<td>--------------------------------------------------</td>
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<tr>
<td>*Nursing/Midwifery Co-Director</td>
<td>Julie Cosgrove NCD, December 2013</td>
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<tr>
<td>*Medical Co-Director approval</td>
<td>Dr Kush Deshpande</td>
</tr>
<tr>
<td>*Drug and Therapeutics Committee (SGH)</td>
<td>A/Prof: Winston Liauw December 2013</td>
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| Executive Sponsor                                | Dawn Fowler CGM December 2013 |

| Contributors to standing order development       | e.g. CNC, Medical Officers (names and position title/specialty) |

<table>
<thead>
<tr>
<th>Revision and approval history</th>
<th>Date</th>
<th>Revision number</th>
<th>Author (Position)</th>
<th>Revision due</th>
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<tbody>
<tr>
<td>December 2013</td>
<td>0</td>
<td>Sarah Jones CNC ICU</td>
<td>Dr Kush Deshpande ICU Staff Specialist</td>
<td>December 2014</td>
</tr>
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<tr>
<th>Director of Operations Ratification</th>
<th>Name</th>
<th>Signature</th>
<th>Date</th>
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Appendix 1

**Clinical Business Rule SGSHHS CLIN_ICU**

**St George/Sutherland Hospitals And Health Services (SGSHHS)**

**NSW Health**
**South Eastern Sydney Local Health District**

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**K⁺ 3.0 - 3.9 or K⁺ < 3.0**

**Serum Creatinine < 100 and is urine output > 0.5mls/kg/hr ?**

**NO**

**NOTIFY MEDICAL OFFICER**

**YES**

**K⁺ < 3.0**

- Give 20mmol KCl in burette via infusion pump in at least 50mls compatible fluid over 1 hr. via CVC.
- AND
- Notify Medical Officer

**K⁺ < 3.9**

- Give 10mmol KCl in burette over 1hr in at least 40mls compatible fluid via CVC
- Repeat doses of KCl to be given if u/o >0.5ml/kg/hr and K⁺ level on ABG <4.0mmol

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**Important Notes**

- Always check contraindications, rules and results prior to initiating standing order.
- Additive label must be fixed to burette when KCl added.
- Heart and arterial pressure monitoring is mandatory.
- Consider the validity of laboratory values and arterial sampling prior to initiating K⁺ replacement.
- The administering RN must record KCl administration in pt medications and annotated by either ‘in Charge’, CNS, CNE, NE, CNC, NUM
- Medical Officer must sign standing order within 24 hours.