NHS
Bristol, North Somerset and South Gloucestershire
Integrated Care Board

Potassium Permanganate – TOPICAL/CUTANEOUS SOLUTION – SAFE PRESCRIBING, DISPENSING, STORAGE, PREPARATION & USE, and WASTE DISPOSAL

1. Aim

This document aims to provide guidance for BNSSG Integrated Care System (ICS) on the safe prescribing, dispensing, storage, preparation and use, and waste disposal of potassium permanganate topical /cutaneous solution in line with local and national advice from the British Association of Dermatologists (BAD) and the National Patient Safety Alert (NPSA).

2. Background

Potassium permanganate is routinely used in the NHS as dilute solution to treat weeping and blistering skin conditions, such as acute weeping /infected eczema and leg ulcers. It is not licensed as a medicine. Supplied in concentrated forms, either as a 'tablet' or a solution, it requires dilution before it is used as a soak or in the bath. These concentrated forms resemble an oral tablet or juice drink and if ingested are highly toxic; causing rapid swelling and bleeding of the lips and tongue, gross oropharyngeal oedema, local tissue necrosis, stridor, and gastrointestinal ulceration. Ingestion can be fatal due to gastrointestinal haemorrhage, acute respiratory distress syndrome and/or multiorgan failure. Even dilute solutions can be toxic if swallowed[1]. Potassium permanganate has been the subject of several NPSA safety alerts and as such is currently TLS blue on the BNSSG Formulary. This document has been produced for use in BNSSG ICS to ensure the safest way to use potassium permanganate.

3. Actions required

Actions required from the NPSA Alert include:

- Ensure procedures/guidelines for use of potassium permanganate align with all BAD recommendations, including:
  - In **Primary Care** clinicians to ensure that:
    - Patients are **not on repeat** prescriptions for potassium permanganate;
    - Prescriptions **include clear instructions to dilute before use**;
    - Dispensing label includes the warning '**HARMFUL IF SWALLOWED**' **(N.B. prescribers will need to add this additional safety wording to the prescription as this will not be added to the prescription automatically)**
  - In **Secondary Care** clinicians to ensure that:
    - remove all stock supply (except for use within outpatient departments) and supply on a named patient basis only

- potassium permanganate is prescribed as 'potassium permanganate 0.01% topical solution' and the dispensing label must include the warning 'HARMFUL IF SWALLOWED'
- potassium permanganate is not stored with medicines for oral/internal use, including the ward drug trolley; dilution should occur away from the patient, and neither the concentrated form nor the diluted form, should be left near the patient.

➢ In **All Settings** that:

- Prescriptions are **only issued by an appropriate prescriber** (see BAD Guidance for more detail)
- If potassium permanganate is to be used in a patient's home a **Risk Assessment (see Appendix 1) MUST** be undertaken before prescribing;
- All patients **MUST** be supplied with a patient information leaflet.

Full detailed information can be found in Appendix 2.

Appendix 1 - Risk Assessment

(For use of potassium permanganate in patient's own home)

If a patient needs to receive potassium permanganate treatment in their own home, then a risk assessment **MUST** be undertaken by the most appropriate healthcare professional to ensure they can store and use potassium permanganate concentrate safely. Hospital or GP practice staff may need to liaise with community nursing colleagues to ensure treatment can be managed. **This should be done either at the time of discharge from secondary care, on initiation in primary care, or when a repeat prescription is requested** by a clinician who meets the criteria for prescribing potassium permanganate concentrate.

- The outcome of the risk assessment should be documented clearly in the patient's clinical records and/ or the discharge summary and clinic letter.

- Whilst the same principles apply to patients living in care homes (with the care home staff undertaking the carer role if the patient cannot self-manage) there are additional requirements before prescribing, to ensure these safety requirements have been communicated to the care home managers and can be supported by them.

POTASSIUM PERMANGANATE RISK ASSESSMENT **Patient Name:_____ Patient Date of Birth: _____**	**YES/NO (If 'No' refer to section below)**
Is the patient able to self-manage, or can the carer undertake, potassium permanganate soaks?	
The patient/ carer can, and will, store potassium permanganate concentrate safely in the patient's home, out of reach of children or vulnerable adults, and separately to other oral medication	
The patient has the cognitive ability and visual acuity to self-manage and prepare the dilution, with no risk of inadvertent swallowing of potassium permanganate concentrate by patient, a family member or a regular visitor to the patient's home.	
The patient, or carer, can dispose of the diluted solution safely and return any excess potassium permanganate concentrate to their local pharmacy.	

If 'No' to any of the questions above, comment in box:

If the patient cannot self-manage (or no carer), but can store safely:

- Hospital staff and GP practice staff will need to liaise with community nursing colleagues or carer support to ensure continuity of treatment.

If deemed unsafe to store/ impaired cognition and/ or vision:

Potassium permanganate **MUST NOT** be prescribed:

- liaise with GP practice and/ or community nursing to communicate the identified risks and agree appropriate personally tailored care where possible, to ensure safe continuity of treatment (e.g. providing a locked cupboard accessible to home care staff, or to provide treatment at another location) or provide an alternative treatment option for the patient.

Risk Assessment Completed by: …… **Signature:** ……. **Date:** …….

Patient/Carer/Representative Agreement:

I _____(Patient/Carer/Representatives name) understand the information given to me and agree to safely store and handle potassium permanganate in the way described above.

Signature: …….. **Date: …….**

Appendix 2 - Summary of prescribing, dispensing, storage, preparation and use and waste disposal of potassium permanganate topical/cutaneous solution as part of a treatment plan

Please note that providers should also refer to their own internal potassium permanganate policies.

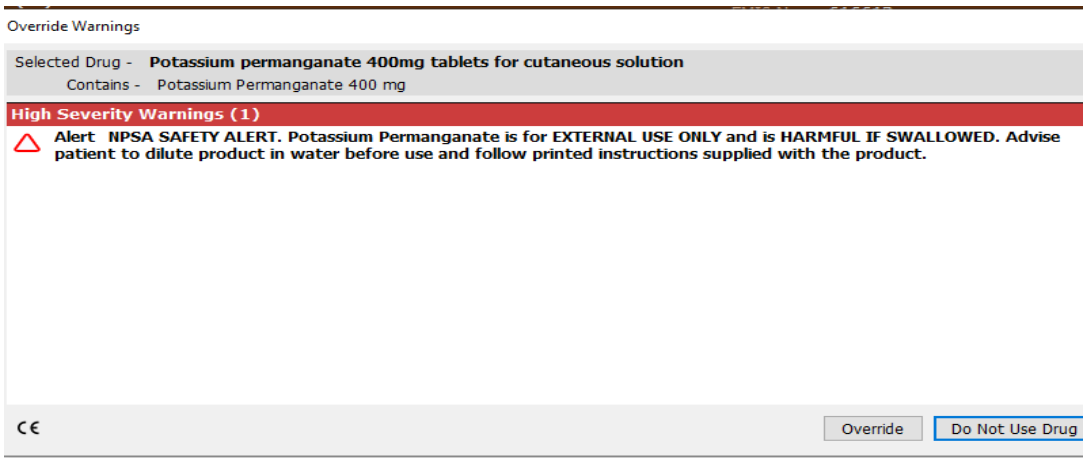
PRESCRIBING	**In Primary and Secondary Care** • A specific patient information leaflet (PIL) should be supplied to all patients, e.g., BAD 'How to use potassium permanganate soaks' PIL https://www.bad.org.uk/pils/potassium-permanganate-solution-soaks/ • A '**Potassium Permanganate Risk Assessment' (Appendix 1)** must be completed by the prescriber if potassium permanganate is to be prescribed for application in a patient's home. • The patient (and their family/ carers) must be told that the concentrate, or the diluted solution, **MUST NEVER** be swallowed. • The outcome of the Potassium Permanganate Risk Assessment should be documented clearly in the patient's clinical records. • Potassium permanganate concentrate must be prescribed as 30 'tablets', to ensure original pack dispensing.[2] **Primary Care** • Potassium permanganate concentrate should always be prescribed for a named patient by a primary care prescriber, experienced in the treatment of dermatological conditions and use of potassium permanganate. • It should always be prescribed as an **acute** prescription; it should never be added to the repeat prescription section of the patient's record. • Potassium permanganate concentrate must be prescribed as '**Potassium permanganate 400 mg (milligram) tablets for cutaneous solution'*** with clear instructions that the concentrated form **must be diluted** in water as directed to obtain a 0.01% or more dilute solution, to use the diluted solution as a soak, and that it is '**HARMFUL IF SWALLOWED'**. **Whilst the 400 mg 'tablets' for cutaneous solution are used routinely, other preparations may be available through specialist suppliers.* • The duration of treatment (or review date) should be added to the prescription. Example prescription for Potassium Permanganate: **Primary Care**

	Potassium Permanganate 400mg x 30 tablets for cutaneous solution Dilute 1 tablet as per instructions in at least 4 litres of warm, tap water – use as a soak or in the bath as directed. **HARMFUL IF SWALLOWED** **Secondary Care** • Potassium permanganate concentrate should always be prescribed for a **named patient** by an ***appropriate prescriber***. • Potassium permanganate concentrate must be clearly prescribed (either handwritten or via an electronic prescribing system) as '**potassium permanganate 0.01% topical solution**', the route should be clearly defined as topical/ for external use only and, on electronic prescribing systems, a warning should be added stating '**HARMFUL IF SWALLOWED'**.[2] • The duration of treatment (or review date) should be added to the prescription. Example prescription for potassium permanganate: **Secondary Care** **Potassium permanganate 0.01% topical solution** Use as a topical soak daily/ alternate days for ## days. Concentrated form must be diluted before use. **HARMFUL IF SWALLOWED** ***Discharge summary or outpatient clinic letter from secondary care should include:*** • A clearly defined duration of treatment (and whether potassium permanganate concentrate has been dispensed from secondary care) or review date with clear outline of when to continue/ stop. • Whether a GP needs to prescribe an additional supply (ideally, secondary care should supply the full course of treatment to avoid the need for any additional supply). • Outcome of risk assessment **(see 'Potassium Permanganate Risk assessment' in Appendix 1),** and any identified mitigating actions. • Arrangements made for administration of treatment if the patient is unable or unsafe to self-manage, e.g., referral to district nurses or community tissue viability nurses. The information outlined above should also be communicated clearly to the patient (and their family/ carers where appropriate).
DISPENSING	**Primary and Secondary Care** • Within pharmacy, potassium permanganate concentrate should either be stored within an automated dispensing system or with medicines intended for external use only; it **MUST NOT** be stored with medicines intended for oral/internal use.

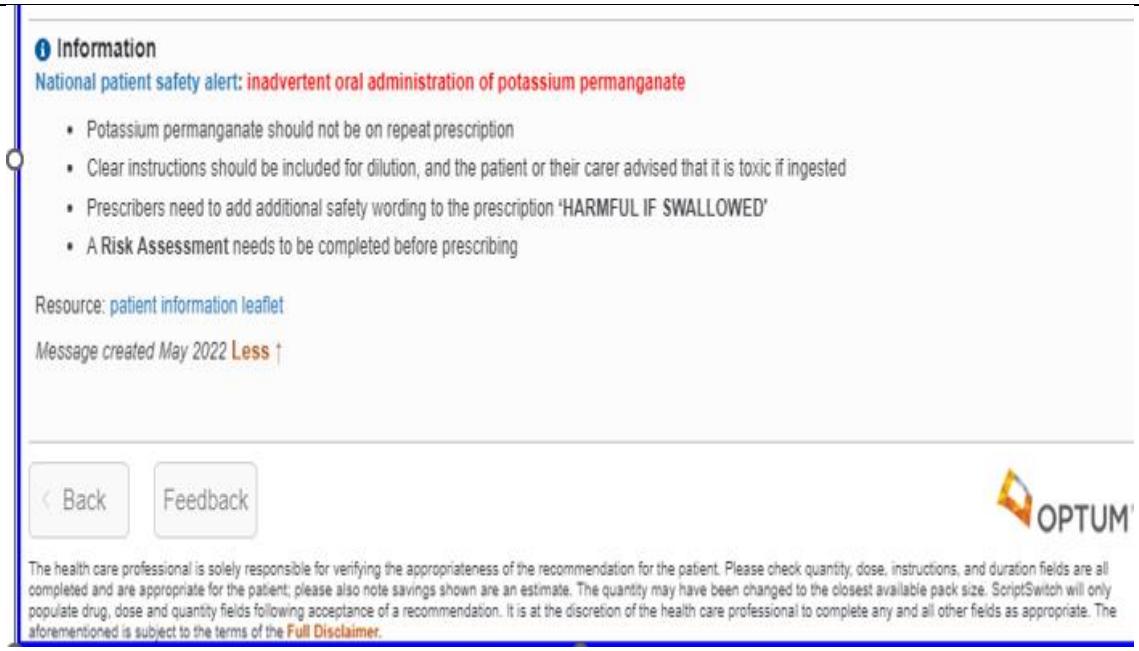
- Storage and use should comply with the Control of Substances Hazardous to Health (COSHH) regulations.
- Potassium permanganate concentrate should always be dispensed in its original container. The dispensing label must not cover or hide key information.
- Potassium permanganate concentrate should always be dispensed for named patient use. Outpatient setting is the only exception, where stock of potassium permanganate concentrate is permitted – see 'Storage' section below.
- The pharmacy system template for potassium permanganate concentrate should be updated to ensure it states:
    - **For External Use Only**
    - Potassium Permanganate 400 mg tablets for cutaneous solution*
      **Whilst the 400 mg 'tablets' for cutaneous solution are used routinely, other preparations may be available through specialist suppliers.*
    - The need for dilution and how to obtain the desired final concentration of 0.01%, e.g. dilute 1 tablet in 4 litres of warm, tap water.
    - **HARMFUL IF SWALLOWED**
    - Duration of treatment/stop date or review date

EMIS GP IT System and ScriptSwitch

Prior to issuing the prescription, on EMIS, the prescriber will see a high-level alert that reads as below, which they must override to issue the prescription for the patient.



When the clinician overrides the EMIS safety message, there is also a ScriptSwitch message that will pop up on EMIS highlighting the NPSA alert to prescribers.

<table>
<tr><td></td><td> 

NOTE: Community pharmacists should ensure that patients purchasing potassium permanganate concentrate over the counter are aware that it is for external use only and potentially fatal if swallowed. Advice should be given on the safe storage of potassium permanganate concentrate in the patient's home, e.g. store separately from medicines intended for oral use and store out of reach of children or vulnerable adults.[2]</td></tr>
<tr><td>STORAGE IN CLINICAL AREAS (Inpatients, Outpatients and Nursing/care homes)</td><td>Inpatient areas:
Potassium permanganate concentrate
• Will only be supplied by pharmacy on a named patient basis.
• Should be stored with other medicines intended for external use; it MUST NOT be kept with medicines for oral/ internal use such as in the medicines' trolley or a patient's locker.
• No stock should be kept on any ward or in emergency stock cupboards

Outpatient areas:
Stock of potassium permanganate concentrate is permitted BUT
• It must be stored in a locked cupboard, with other medicines intended for external use
• It MUST NOT be kept with medicines for oral/ internal use and should only be accessible to appropriate prescribers, or members of staff working under their direct supervision.
• It must only be used to treat patients in clinic, and <u>not</u> supplied directly to patients.
• Storage and use should comply with Control of Substances Hazardous to Health (COSHH) regulations.
• Cupboards and closed storage units in which medicines are stored and/or the rooms that accommodate these must be lockable and locked when not being accessed.</td></tr>
<tr><td>PREPARATION AND USE</td><td>In secondary care:
• The diluted solution must be prepared away from the patient (e.g., in the treatment room) and the dilute solution should be taken to the patient for application and immediate use.
• Potassium permanganate (concentrate and diluted solution) should NEVER be left unattended near a patient.</td></tr>
</table>

	• Diluted solution should be prepared immediately before use and disposed of immediately after each treatment (if left, the solution will oxidise and turn brown after which it should not be used). • Contact with eyes and mucous membranes (inside of mouth, nose, ear, genitals, and anus) may cause irritation and should be avoided. • Can cause irritation or burns if the dilution is not adequate. • Disposable, protective gloves should be worn when handling potassium permanganate to avoid staining or irritation of the skin. Potassium permanganate is a dye and will stain clothing, fabrics, and ceramic basins. • Patients may apply petroleum jelly (for example Vaseline®) to the finger or toenails to prevent staining if they are going to be exposed to potassium permanganate solution. • Refer to specific product information for dilution instructions. • After the diluted solution is prepared, the potassium permanganate concentrate should be returned immediately to the safe storage location. ***In people's own homes:*** • If it has been identified that storage of potassium permanganate concentrate needs additional support **(see 'Potassium Permanganate Risk assessment' in Appendix 1),** community staff need to be aware of the agreed, safe approach to storage.
WASTE DISPOSAL	**Primary Care:** • in residential homes, the diluted solution should be disposed of via the household toilet – **NEVER** via surface water drainage, where it may mix with ground water and cause environmental damage. • if treatment is no longer required, the patient/ carer should be advised to return all supplies of potassium permanganate concentrate to their local community pharmacy, so it can be disposed of safely. **Secondary Care** • The dilute solution can be disposed of via wastewater (e.g., down a sink or toilet/ sluice) as per Trust Waste Policy • If the treatment is no longer required, or stock has expired, the remaining potassium permanganate concentrate should be returned to the hospital pharmacy for destruction or disposed of at ward/ departmental level as clinical/ pharmaceutical waste. *Internal provider waste policies should be followed where appropriate.

References

1. NPSA, 2022. *Inadvertent oral administration of potassium permanganate* [Online]. Available from: https://www.england.nhs.uk/publication/national-patient-safety-alert-inadvertent-oral-administration-of-potassium-permanganate/ [Accessed 16 August 2022]
2. British Association of Dermatologists, 2022. *Guidance on minimizing risk of harm from potassium permanganate soaks* [Online]. Available from: https://www.bad.org.uk/bad-and-nhs-england-nhs-improvement-guidance-on-the-safe-use-of-potassium-permanganate-soaks/ [Accessed 16 August 2022]
3. British Association of Dermatologists, 2022. *HOW TO USE POTASSIUM PERMANGANATE SOLUTION SOAKS* [Online]. Available from: https://www.bad.org.uk/bad-and-nhs-england-nhs-improvement-guidance-on-the-safe-use-of-potassium-permanganate-soaks/ [Accessed on 16 August 2022]
4. British National Formulary [Online]. Available from: https://bnf.nice.org.uk/drugs/potassium-permanganate/ [Accessed 16 September 2022]