

UPDATED: Safe use of IV magnesium sulfate heptahydrate pre-mixed solutions in maternity services



N SAFETY NOTICE 011/26

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| Issue date: | 14 May 2026 |
| Content reviewed by: | Medication Safety Expert Advisory Committee ACI Maternity and Neonatal Network CEC Maternity and Neonatal Safety Program Ministry of Health Healthy Families and Communities Medication Shortage Assessment and Management team |
| Distributed to: | Chief Executives, Directors of Clinical Governance |
| KEY MESSAGE: | The use of separate pre-mixed magnesium sulfate heptahydrate solutions for the initial loading dose and the subsequent maintenance infusion is recommended. Due to the availability of IV magnesium sulfate heptahydrate pre-mixed solutions in multiple concentrations, care must be taken due to the increased risk of product selection errors during prescribing, dispensing/supply and administration. Incorrect product selection or administration may result in under- or over- dosing, posing a risk of harm to both the pregnant woman and the fetus. |
| ACTION REQUIRED BY: | Chief Executives, Directors of Clinical Governance |
| REQUIRED ACTION: | <ol style="list-style-type: none"> 1. Distribute this Safety Notice to all relevant clinicians and clinical departments where IV magnesium sulfate heptahydrate pre-mixed solutions are stored, prescribed and administered. 2. Undertake a local risk assessment and incorporate the below recommendations within this Safety Notice. 3. Ensure a system is in place to document actions taken in response to this Safety Notice. 4. Report any incidents or near-misses associated with the use of magnesium sulfate heptahydrate in maternity services into the local incident management system, for example, ims+. |
| We recommend you also inform: | <p>Directors, Managers and Staff of:</p> <ul style="list-style-type: none"> • Maternity Services • Emergency Departments • Anaesthetics Departments • Critical Care Units • Nursing/Midwifery Services • Medical Services • Pharmacy Services • NSW Ambulance <p>Drug and Therapeutics Committees</p> <p>All other relevant clinicians and clinical departments where magnesium sulfate heptahydrate pre-mixed solutions are prescribed, stored and used.</p> |
| Website: | https://www.health.nsw.gov.au/sabs/Pages/default.aspx http://internal.health.nsw.gov.au/quality/sabs/index.html |
| Review date: | May 2027 |

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What has been updated since SN:044/23?

This Safety Notice replaces SN:044/23 – *UPDATED: Safe use of magnesium sulfate heptahydrate in maternity services* which has now been **rescinded**. This update aligns with the release of the Agency for Clinical Innovation (ACI) [Hypertension in Pregnancy: Clinical Practice Guide](#) and:

- reinforces the recommendation to use separate pre-mixed magnesium sulfate heptahydrate solutions for loading and maintenance doses
- articulates the risk of product selection error due to the availability of pre-mixed magnesium sulfate heptahydrate solutions in multiple concentrations and ensuring that local risk mitigation strategies are employed.

Situation

There has been a change to the recommended IV magnesium sulfate heptahydrate pre-mixed solutions in the recently released Agency for Clinical Innovation (ACI) [Hypertension in Pregnancy: Clinical Practice Guide](#). The updated guidance recommends the use of separate pre-mixed magnesium sulfate heptahydrate solutions for the initial loading dose and the subsequent maintenance infusion (consistent with previous advice in SN:044/23, which is now **rescinded** following changes to the recommended pre-mixed solutions and product availability).

The NSW Health Guideline *Management of Threatened Preterm Labour* ([GL2022_006](#)) is currently being updated to align with these recommendations.

Background

IV magnesium sulfate heptahydrate infusions are used in maternity services for:

- management of hypertensive disorders of pregnancy
- fetal neuroprotection in pre-term labour.

Indications for the use of IV magnesium sulfate heptahydrate pre-mixed solutions outside of maternity services are **not** addressed within this Safety Notice.

The recently released ACI [Hypertension in Pregnancy: Clinical Practice Guide](#) recommends the use of separate magnesium sulfate heptahydrate pre-mixed solutions when administering the initial loading dose and the subsequent maintenance infusion. For example:

- **Loading dose:** magnesium sulfate heptahydrate **4 g in 100 mL** IV pre-mixed solution.
- **Maintenance infusion:** magnesium sulfate heptahydrate **8 g in 100 mL** IV pre-mixed solution.

Both products are included on the [NSW Medicines Formulary](#) with restrictions (see [Appendix A](#)).

Assessment

The use of separate pre-mixed magnesium sulfate heptahydrate solutions for loading and maintenance doses, consistent with the ACI [Hypertension in Pregnancy: Clinical Practice Guide](#) and previous recommendations in SN:044/23 (now rescinded), is intended to support safer administration practices in maternity services.

The practice of using the same infusion solution for both loading and maintenance dosing of magnesium sulfate relies on the administering clinician manually changing the infusion rate following completion of the loading dose. This may increase the risk of inadvertent under- or over- dosing, which can result in serious maternal harm, including respiratory depression, cardiac arrest, and associated fetal harm.

Due to the availability of pre-mixed magnesium sulfate heptahydrate solutions in multiple concentrations, care must be taken due to the increased risk of product selection errors during prescribing, dispensing, and administration, particularly where products may have similar presentations and bag volumes.



Recommendations

Ensure clinicians involved in the prescribing, dispensing and administration of IV magnesium sulfate heptahydrate in maternity services are aware of:

- the recommendation to use separate pre-mixed magnesium sulfate heptahydrate solutions for loading and maintenance doses
- the risk of product selection error, and ensure that local risk mitigation strategies are employed.

Prescribing and Electronic Medication Management (eMM) systems configurations

- Avoid verbal orders where possible. In emergency situations, use 'closed loop' communication to verify all relevant patient and medicine information prior to administration.
- Use standardised naming conventions/order sentences within eMM systems that include dose, volume and indication to differentiate between presentations.
- Consider implementing additional safety features available within eMM systems such as the use of prescribing and/or administration alerts to notify clinicians of the availability of different concentrations of IV magnesium sulfate heptahydrate pre-mixed solutions, associated indications and risk of product selection errors.

Storage, distribution and dispensing

Consider strategies as outlined in [Safety Information SI:015/25 – UPDATED: Safe management of look-alike, sound-alike medicines in NSW Health facilities](#) to reduce medication errors including:

- Physically separating the different concentrations of IV magnesium sulfate heptahydrate pre-mixed solutions in storage areas by using shelf dividers or positioning in separate drawers or shelves.
- Use additional warning labels on shelving and medicine packaging to alert to the potential risk of product selection error involving IV magnesium sulfate heptahydrate (for example, 'PLEASE CHECK CAREFULLY – medicine with a similar name or appearance, confirm concentration and indication').
- Ensure IV magnesium sulfate heptahydrate pre-mixed solutions are stored in their original packaging (over-pouch) until immediately prior to dispensing and administration.
- Utilise barcode scanning to conduct checks when restocking imprest areas and automated storage systems, and during the dispensing process in the Pharmacy Department.

Administration

- Ensure clinicians adhere to policy regarding safe and accurate medication administration, including the 5 Rights (right patient, right drug, right dose, right time and right route) as outlined in the NSW Health Policy Directive *Medication Handling* ([PD2022_032](#)).
- Ensure clinicians are familiar with the correct dosing requirements for IV magnesium sulfate heptahydrate in hypertension in pregnancy and fetal neuroprotection, including:
 - The appropriate dose and volume for a loading dose versus a maintenance infusion. For example, the 4 g in 100 mL IV pre-mixed solution should be used for the 4 g loading dose and the 8 g in 100 mL IV pre-mixed solution should be used for the maintenance infusion.
 - The correct infusion rates for each stage of therapy.




Governance and education

- Where local policies, protocols, and clinical guidelines exist, ensure alignment with the recommended intravenous (IV) magnesium sulfate heptahydrate pre-mixed solutions in the ACI [Hypertension in Pregnancy: Clinical Practice Guide](#).

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- Provide targeted education and communication to maternity, emergency, intensive care, anaesthetic, and pharmacy staff, with a focus on:
 - changes to available magnesium sulfate heptahydrate presentations
 - safe prescribing, storage, preparation, and administration practices.
- Ensure oversight by Drug and Therapeutics Committees (DTC) of the safe implementation of the ACI [Hypertension in Pregnancy: Clinical Practice Guide](#) and recommended IV magnesium sulfate heptahydrate pre-mixed solutions.

APPENDIX A. Comparison of available IV magnesium sulfate heptahydrate pre-mixed solutions

| | Magnesium sulfate heptahydrate 4 g in 100 mL (Baxter) pre-mixed solution | Magnesium sulfate heptahydrate 8 g in 100 mL (Baxter) pre-mixed solution |
|-------------------------------------|---|---|
| Active ingredient and concentration | Magnesium sulfate heptahydrate 4 g in 100 mL | Magnesium sulfate heptahydrate 8 g in 100 mL |
| Registration status | Registered medicine ARTG ID 410016 | Not registered Schedule 5A medicine |
| Indication | Management of hypertensive disorders of pregnancy and fetal neuroprotection | |
| NSW Medicines Formulary status* | RESTRICTED – For use in accordance with the: <ul style="list-style-type: none"> • ACI Hypertension in Pregnancy: Clinical Practice Guide • NSW Health Guideline Management of Threatened Preterm Labour (GL2022_006) | |
| Route of administration | Intravenous (IV) infusion | |
| Associated clinical guidance | <ul style="list-style-type: none"> • ACI Hypertension in Pregnancy: Clinical Practice Guide • NSW Health Guideline Management of Threatened Preterm Labour (GL2022_006) | |
| Presentation | <ul style="list-style-type: none"> • IV infusion bag in silver over-pouch • Black text on labelling • Ready-to-use, single-use pre-mixed solution | <ul style="list-style-type: none"> • IV infusion bag in clear over-pouch • Green text on labelling • Ready-to-use, single-use pre-mixed solution |
| Product images (supplied by Baxter) |  <p>Image of product within silver over-pouch</p>  <p>Image of product with over-pouch removed</p> |  |

*Current at the time of publication.