

Preventing harm from phenol in medical imaging

Key messages

- Patient deaths have been associated with the inadvertent administration of concentrated phenol in medical imaging settings in Australia and overseas.
- Concentrated 80% phenol should only be used in health service organisations for the purpose of podiatric nail surgery.
- Appropriate arrangements should be made for storage of concentrated 80% phenol for podiatric nail surgery. For other purposes, concentrated phenol 80% should only be stored with pharmacy services where appropriate dilutions can be prepared, should they be required.
- Concentrated phenol 80% should be removed from clinical settings, such as medical imaging, to reduce the risk of harm to patients.
- If phenol is to be used as a sclerosant, it must be pre-prepared to an appropriate dilution and in a ready-for-use presentation.
- Alternatives to phenol for use as a sclerosant are readily available and do not require dilution, for instance dehydrated alcohol BP (ethanol 100%).
- Local policies, procedures and guidelines should specify which sclerosant is to be used for procedures and include instructions for use.

Purpose

This fact sheet provides guidance on the storage and management of concentrated 80% phenol in Australian clinical settings, other than podiatry.

Out of scope

This guidance does not provide clinical guidance for using or storing:

- Medicines, and biologicals and other chemicals in medical imaging
- Phenol in a podiatry setting.

What is phenol?

Phenol is a caustic compound used for its antimicrobial, anaesthetic, and antipruritic properties.¹ It is rapidly absorbed into the body through all routes causing local and systemic toxic effects, such as severe tissue injury and skin burns.² Concentrated 80% phenol is a Schedule 6 poison.

Use of phenol in podiatric settings

Phenol is used in podiatric nail surgery. Concentrated phenol, applied topically using an applicator, may be required for the management of ingrown toenail, where the nail matrix is destroyed via chemical ablation.²

Use of phenol in medical imaging settings

A sterile solution of 5 to 10% phenol in glycerol is occasionally used for celiac plexus splanchnic nerve block, guided by contrast media, to assist pain management. The use of phenol in this way as an irritating solution, or sclerosant, is a complex procedure undertaken by an interventional radiologist.

A lack of available pre-prepared and ready-for-use formulations of diluted phenol has previously led to the preparation of dilutions from concentrated 80% phenol in medical imaging settings. This carries a risk of inadvertent intravenous administration of the poison to patients that may result in death, and a risk to those preparing the dilution due to the non-sterile and hazardous nature of concentrated phenol.^{1,3} As such, concentrated 80% phenol should only be stored within pharmacy services where appropriate dilutions can be prepared and issued for use in medical imaging, if required.

There are alternatives to the use of phenol as a sclerosant in conjunction with contrast media in Australia. These alternatives, such as sterile formulations of dehydrated alcohol BP (ethanol 100%), are readily available and do not require dilution.

Safe use of medicines and other chemicals in medical imaging settings

Standardised processes govern the safe prescribing, supply, administration and monitoring of medicines in accordance with the [National Safety and Quality Health Service \(NSQHS\) Medication Safety Standard](#)⁴ and the [Diagnostic Imaging Accreditation Scheme \(DIAS\) Standards](#).⁵

The prescription, safe and secure storage, handling, supply, administration and disposal of medicines, or biologicals may all be undertaken within medical imaging facilities. However, pharmacy services or external compounding manufacturing services have specific and standardised competencies to compound medicines such as sterile products for injection or hazardous medicines with significant safety risks. For more information, refer to the Therapeutic Goods Administration's [Understanding good manufacturing practice \(GMP\) for compounded medicines](#) and the Pharmacy Board of Australia [Guidelines on compounding of medicines](#).⁵

References

1. National Health Service [NHS]: National Patient Safety Alert: NatPSA/2021/008/NHSPS - [Elimination of bottles of liquefied phenol 80%](#)
2. Bryant A, Knox A. Ingrown toenails: the role of the GP. Australian Family Physician. Volume 44, Issue 3, March 2015
3. Safe Work Australia: [Exposure Standard Documentation – Phenol](#)
4. Australian Commission on Safety and Quality in Health Care [Medication Safety Standard](#).
5. [Diagnostic Imaging Accreditation Scheme Standards](#).
6. Pharmacy Board of Australia [Guidelines on compounding of medicines](#).

For more information

For more information, please visit: www.safetyandquality.gov.au/standards/diagnostic-imaging or contact mail@safetyandquality.gov.au

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