



Patient Safety Alert

Restricted use of open systems for injectable medication

7 September 2016

Alert reference number: NHS/PSA/D/2016/008

Alert stage: Three - Directive

In 2007 the National Patient Safety Agency (NPSA) issued the alert [Promoting safer use of injectable medications](#).¹ This stipulated that injectable medicines must be drawn directly from their original ampoule or container into syringes, and then either administered immediately or, if they are not for immediate use, the syringe is labelled and checked before later use.

The 2007 alert was issued in response to errors that occurred when injectable medication was decanted into an 'open system' before administration. 'Open systems' include gallipots or other types of open container such as moulded plastic procedure trays. This practice risks one medication being confused with another, and medication intended for injection being confused with other substances, such as skin antiseptics, that are routinely contained in gallipots or other open containers. Additionally, an 'open system' can become contaminated by bacteria.²

Despite the NPSA alert, the use of 'open systems' continued in some organisations and specialities. Reports suggest this typically occurred during procedures where repeated injections may be required, such as for the use of anaesthetic and anticoagulant agents.

In May 2015 NHS England issued a further Warning Alert, [Risk of death or severe harm due to inadvertent injection of skin preparation solution](#).³ This alert was issued following an incident in which a gallipot containing a skin antiseptic was mistaken for one containing an injectable medication, resulting in injection of the skin antiseptic and subsequent amputation of the limb.

While steps like removing skin preparation solutions before beginning the procedure may provide a partial barrier to such errors, a far stronger barrier is a complete stop to the practice of using 'open systems' for injectable medications.

At the time of the 2015 Warning Alert we were unable to provide absolute clarity on this message as feedback suggested that the use of an 'open system' may be necessary in some circumstances. [The British Society of Interventional Radiology \(BSIR\)](#), supported by the Royal College of Radiologists, has now done this by stating that an 'open system' should only be used for embolization procedures in which embolic agents need to be mixed and prepared openly during a procedure. Its statement also advises on the safe management of this exceptional use of an 'open system'.⁴

We are not aware of any other clinical reason in any setting for the use of an 'open system' during invasive procedures. Due to the risk posed by unidentifiable solutions in 'open systems' we consider their use for injectable medicines to be an indefensible practice, with the single exception of the embolization procedures described above.

Actions

Who: All organisations providing NHS-funded care where there is potential for an 'open system' to be used for injectable medication

When: To begin immediately and be completed no later than 7 June 2017



1 Revise policies and protocols and establish systems of audit and observation to ensure an 'open system' is not used in the future as a container for injectable medication - with the exception only of embolization procedures involving embolic agents that need to be prepared openly.⁴



2 If embolization procedures involving embolic agents that need to be prepared openly take place in your organisation, ensure a specific protocol or procedure is developed for undertaking this as safely as possible using the advice from BSIR⁴ and the NatSSIPs Resource Alert.⁵



3 Circulate this alert or key messages to all relevant staff.



4 Share any learning from local investigations and any locally developed good practice resources by emailing:
patientsafety.enquiries@nhs.uk

See page 2 for technical notes and references

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Technical notes

NRLS search dates and terms

This alert builds on the previous NHS England Patient Safety Warning Alert – [Risk of death or severe harm due to inadvertent injection of skin preparation solution](#).³

References

1. National Patient Safety Agency. Promoting safer use of injectable medicines. Patient Safety Alert 20, 2007; (March 28). www.npsa.nhs.uk/EasySiteWeb/GatewayLink.aspx?allid=2269 (accessed 8 August 2016)
2. Andersson BM, Lidgren L, Schalén C, Steen A. Contamination of irrigation solutions in an operating theatre. *Infect Control* 1984;5(7):339-341
3. NHS England. Patient Safety Alert – Risk of death or severe harm due to inadvertent injection of skin preparation solution. www.england.nhs.uk/2015/05/psa-skin-prep-solution/ (accessed 8 August 2016)
4. British Society for Interventional Radiology. www.bsir-qi.org/site_media/editor-uploads/injectables%20advice%20080216SC.pdf (accessed 8 August 2016)
5. NHS England. Patient Safety Alert – Supporting the introduction of the National Safety Standards for Invasive Procedures. www.england.nhs.uk/patientsafety/2015/09/14/psa-natssips/ (accessed 8 August 2016).

Stakeholder engagement

- Surgical Services Patient Safety Expert Group
- Patient Safety Steering Group
- Safe Anesthesia Liaison Group (SALG)
- Medication Safety Officers Network

For details of the membership of the NHS Improvement patient safety expert groups and steering group see www.england.nhs.uk/ourwork/patientsafety/patient-safety-groups/, and see www.rcoa.ac.uk/salg/who-we-are for details of SALG membership.