



# Patient Safety Alert

## Stage One: Warning

*Risk of death or severe harm due to inadvertent injection of skin preparation solution*

26 May 2015

Alert reference number: NHS/PSA/W/2015/005

Alert stage: One - Warning

The potential for inadvertent injection of solutions intended for topical use has been identified in the UK [1] and internationally [2]. Past errors usually occurred because skin cleansing antiseptic solutions and medication intended for injection had been placed proximally in 'open systems' such as gallipots. An Alert was issued in England in 2007 [3] stipulating that injections must be drawn up from the source bottle or ampoule directly into syringes that are labelled and checked prior to administration and that 'open systems' should never be used to contain medication prior to injection. This advice was intended not only to reduce the risk of skin preparation being injected inadvertently, but also to minimise the risk of the wrong injectable medication being selected. The particular risk of inadvertent injection of skin preparation was subsequently reinforced in 2010 [4].

However, errors are still being reported where open systems have been used. NHS England has identified three incidents involving inadvertent injection of skin antiseptic solutions since 2012, and one additional near miss. Two incidents involved severe harm from confusion between 2% Chlorhexidine and x-ray contrast media in circumstances where both substances were in unlabelled gallipots (one during a lower limb angiogram and resulting in leg amputation, and one during a pacemaker insertion resulting in cardiac arrest and resuscitation). The third incident involved a patient undertaking renal dialysis with assistance from healthcare staff; the line was flushed with Chlorhexidine from a gallipot instead of the intended saline solution and the patient became unwell but apparently recovered. The near miss also involved Chlorhexidine and x-ray contrast medium, and occurred despite the skin preparation being on a separate trolley.

The settings where these incidents occurred suggest that the practice of preparing medication intended for injection using gallipots may have persisted in some areas carrying out specific interventional procedures. We are working with relevant royal colleges and specialist professional organisations to understand the reasons for this, and to understand if any additional advice is required for specific procedures.

In the interim, organisations need to identify if the use of injectable medication in open systems has persisted in their organisations, and take all appropriate local actions to improve safety, including ensuring that any skin preparation solutions are removed from the environment before an invasive procedure begins.

## Actions

### Who:

All organisations providing NHS-funded care where skin preparation agents are used prior to an invasive procedure.

### When:

As soon as possible but no later than 7 July 2015.

- 1** Identify if invasive procedures involving injection alongside skin preparation are taking place in circumstances where unintended injection of skin preparation solution has or could occur.
- 2** Consider if immediate action needs to be taken locally, and ensure that an action plan to reduce the risk of incidents occurring is underway if required.
- 3** Circulate this alert to all relevant staff.
- 4** Share any information on areas of clinical practice where use of open systems for injection appears to have persisted (and why), any learning from local investigations, and any locally developed good practice resources by emailing: [patient.safetyenquiries@nhs.net](mailto:patient.safetyenquiries@nhs.net)

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## Technical notes

### NRLS search dates and terms

A search was performed on 23/03/2015 of the National Reporting and Learning System (NRLS) for reported medication patient safety incidents occurring between 31/12/2011 and 31/12/2014 inclusive containing the terms 'chlorhexidine' or 'chlorohexidine'. 322 incidents contained these keywords. All death, severe, moderate and low harm incidents (60) were reviewed and a search of no harm incidents (262) was undertaken with additional key terms. Four relevant incidents were identified in total and are described in the text of the Alert.

The review process also identified the importance of organisations promptly updating their incident reports to the NRLS when investigation identifies that an adverse outcome initially believed to be a rare but known complication is found to have resulted from error, and correctly reporting the severity of the outcome of incidents

### Stakeholder engagement

NHS England Surgical Safety Patient Safety Expert Group  
NHS England Medical Patient Safety Expert Group  
NHS England Patient Safety Steering Group  
Confidential Reporting System for Surgery (CORESS) <http://www.coress.org.uk/>  
The Royal College of Radiologists <https://www.rcr.ac.uk/>  
British Society of Interventional Radiology <http://www.bsir.org/>  
The Renal Association <http://www.renal.org/>

### References

- [1] The Association of Anaesthetists of Great Britain and Ireland. AAGBI Safety Guideline. Skin antisepsis for central neuraxial blockade. 2014;(September) [http://www.aagbi.org/sites/default/files/skin%20antisepsis%20for%20central%20neuraxial%20blockade\\_0.pdf](http://www.aagbi.org/sites/default/files/skin%20antisepsis%20for%20central%20neuraxial%20blockade_0.pdf)
- [2] Institute of Safe Medication Practice. Risk of tragic error continues in operating rooms. ISMP Bulletin 2004;4(12). <http://ismp-canada.org/download/safetyBulletins/ISMPCSB2004-12.pdf> (accessed 14 April 2015)
- [3] 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](http://www.npsa.nhs.uk/EasySiteWeb/GatewayLink.aspx?allid=2269) (accessed 14 April 2015)
- [4] National Patient Safety Agency. Injectable medicines in theatres. Signal 1162, 2010;(February) <http://www.nrls.npsa.nhs.uk/resources/?entryid45=66753> (accessed 14 April 2015)

### Notes

An 'official' classification has been added to all patient safety alerts issued since May 2015 as part of NHS England's overall adoption of the new government classification scheme for corporate information. NHS England has adopted the government classification scheme as it is an expectation from Department of Health for all arm's length bodies (ALBs) to comply.