NHS
National Patient Safety Agency

Rapid Response Report

NPSA/2010/RRR013

From reporting to learning

16 June 2010

Safer administration of insulin

Issue

Errors in the administration of insulin by clinical staff are common. In certain cases they may be severe and can cause death. Two common errors have been identified:

- the inappropriate use of non-insulin (IV) syringes, which are marked in ml and not in insulin units;
- the use of abbreviations such as 'U' or 'IU' for units. When abbreviations are added to the intended dose, the dose may be misread, e.g. 10U is read as 100.

Some of these errors have resulted from insufficient training in the use of insulin by healthcare professionals.

Patient safety incidents

Between August 2003 and August 2009 the National Patient Safety Agency (NPSA) received 3,881 wrong dose incident reports involving insulin. These included one death and one severe harm incident due to 10-fold dosing errors from abbreviating the term 'Unit'. Three deaths and 17 other incidents between January 2005 and July 2009 were also reported where an intravenous syringe was used to measure and administer insulin.

For IMMEDIATE ACTION by all organisations in the NHS and independent sector. The deadline for ACTION COMPLETE is 16 December 2010.

An executive director, nominated by the chief executive, working with the chief/lead pharmacist and relevant medical/nursing staff should ensure that:

1. All regular and single insulin (bolus) doses are measured and administered using an insulin syringe or commercial insulin pen device. Intravenous syringes must never be used for insulin administration.
2. The term 'units' is used in all contexts. Abbreviations, such as 'U' or 'IU', are never used.
3. All clinical areas and community staff treating patients with insulin have adequate supplies of insulin syringes and subcutaneous needles, which staff can obtain at all times.
4. An insulin syringe must always be used to measure and prepare insulin for an intravenous infusion. Insulin infusions are administered in 50ml intravenous syringes or larger infusion bags. Consideration should be given to the supply and use of ready to administer infusion products e.g. prefilled syringes of fast acting insulin 50 units in 50ml sodium chloride 0.9%.
5. A training programme should be put in place for all healthcare staff (including medical staff) expected to prescribe, prepare and administer insulin. An e-learning programme is available from: www.diabetes.nhs.uk/safe_use_of_insulin
6. Policies and procedures for the preparation and administration of insulin and insulin infusions in clinical areas are reviewed to ensure compliance with the above.

Further information

Supporting information including detailed evidence of harm, use of unlicensed 500 unit per ml insulin products and compliance checklists are available at www.nrls.npsa.nhs.uk/alerts. Further queries should be directed to the NPSA medication safety team at rrr@npsa.nhs.uk; telephone 020 7927 9890. NHS Diabetes has produced additional information concerning the safe use of insulin available at www.diabetes.nhs.uk/safe_use_of_insulin

The NPSA has informed: NHS organisations, independent sector, commissioners, regulators and relevant professional bodies in England and Wales.

Gateway ref: 14410

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