

One step for medication safety



Insulin prescribing

Review the safety of insulin prescriptions – use the five elements to audit insulin prescribing

Background and evidence

National and international evidence suggests that insulin is frequently associated with adverse drug events. While often the events may not cause serious harm, they can cause patients distress and confusion, and impact on the confidence of patients in managing their diabetes.

Errors have been identified at all stages of the medication management process: prescribing, administration, dispensing and monitoring. While prescribing is not the only activity that can result in errors, it is unquestionable that lack of clarity at this stage can cause or contribute to errors at other stages of the medication management process.

Prescribing errors can be caused by poor handwriting, failure to communicate clearly and the use of inappropriate abbreviations.

An English and Welsh national audit of over 14,000 inpatients with diabetes in England and Wales showed prescribing errors in 19.5 percent of cases.¹

Many confusions are reported in the literature as leading to insulin prescribing errors. Some of the most common confusions follow:

- U as the abbreviation for units – U read as 0 leading to a 10 times overdose (for example 80 units given instead of 8 units). U has also been mistaken for 4 and 6.
- Difficulty reading the numerical dose due to the figures or an instruction not being written clearly. For example, one patient was receiving 48 units instead of 4–8 units.
- Use of trailing zeros can also cause confusion leading to overdoses of 10x or 100x, for example, 4.0units being interpreted as 40units.
- Use of a / to separate doses. For example 10/5units meaning 10 units in the morning and 5 units in the evening can be interpreted as 15 units or even 105 units.
- IU as an abbreviation when I is read as 1. For example 41 units given instead of 4 units when prescribed as 4IU.
- Electronic prescribing errors when choosing the insulin to prescribe from the large number of products available, or because of confusion between the look-alike, sound-alike brand names.
- Mixing up units with mLs. This is more likely to occur when the units are written as u or iu. There is a risk of this type of error where small volume syringes (eg, 1mL) are used for administration instead of an insulin syringe.
- Misreading the name of the insulin product on the chart or product item. There are many different insulin products that come in varying strengths and with different delivery devices. Many products have look-alike or sound-alike names, for example, Humalog®, Humalog® Mix and Humulin.
- Prescribing a dosage form of insulin that is incompatible with the administration device the patient uses.

¹ Lamont T, Cousins D, et al. 2010. Safer administration of insulin: summary of a safety report from the National Patient Safety Agency. *BMJ* 341: c5269.

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The activity:

To test the clarity of insulin prescriptions and to promote patient safety, the Health Quality & Safety Commission's Medication Safety team is asking hospitals to check five elements of insulin prescriptions.

This simple insulin prescription data collection tool checks these five elements and evaluates the current situation for 10 prescriptions.

DHB:		Ward/Unit:												
Review of prescribing		Prescription												
Does each insulin prescription incorporate these five elements?	eg	1	2	3	4	5	6	7	8	9	10	Total Y	Total Y / Total checked x 100	
Date of prescription	N													%
Prescriber's signature and registration number (or electronic signature)	Y													%
Both the word insulin in full (unless it is prescribed on an insulin chart) and the brand name	Y													%
The word units written in full	N													%
Dosage form (ie, pen/cartridge/vial)	N													%
Total Yes														%

Reviewing your results

Have particular elements been completed more poorly than others?

Where does your hospital or team need to focus to improve the clarity of insulin prescriptions?

Improving the clarity of insulin prescriptions

How will you know if a change is an improvement? After raising awareness of this issue locally or within your team you could periodically repeat this insulin prescription bundle to measure whether or not there has been an improvement.

With thanks to the Patient Safety First Campaign for permission to use the one step approach