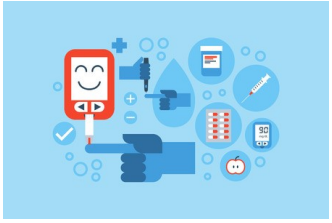
NORTHERN IRELAND
MEDICINES MANAGEMENT

HSC Health and Social Care Board

Insulin Safety Supplement

Nov 2020

Insulin Safety in Primary Care



Insulin is one of the top five high risk medicines. In the UK, 20-30% of patients with diabetes are treated with insulin. There has been an increase in insulin users in line with the increasing numbers of patients living with type 2 diabetes. Complexity of regimens has increased. There are now over 25 insulin products, many with differing actions but similar sounding names, and several new high strength insulin products have now been marketed. The proportion of patients using insulin pumps has also increased. Adverse incidents involving insulin can have serious consequences and recently even resulted in a fatality.

The Regional Serious Adverse Incident Review group has undertaken a thematic review of reported adverse incidents relating to the prescribing, dispensing, administration and monitoring of insulin across Northern Ireland Health and Social Care Services. The aim was to identify the types of incidents occurring, any common contributory factors and identify additional measures that could be considered to improve practice and make the management of insulin safer. A significant number of these adverse incidents pertained to primary care. The most common recent adverse incidents involving insulin in primary care in Northern Ireland can be categorised as follows:

RIGHT DEVICE but WRONG INSULIN

Example 1: A patient who had been prescribed **Novomix 30 FlexPen®** was dispensed **Novorapid FlexPen®** and was hospitalised with hypoglycaemia (hypo). Another patient for whom the same mistake was made, suffered tiredness and increased hypos for two months before asking the practice nurse, at the end of a routine clinic, if her insulin had been changed.

Example 2: A patient who was prescribed **Humalog Mix25 KwikPen®** was dispensed **Humalog KwikPen®**.

Example 3: A patient was dispensed **Apidra Solostar®** (short-acting insulin) by her community pharmacist instead of her usual **Lantus Solostar®** (long-acting insulin). The patient was already using a short-acting insulin before meals. Blood glucose monitoring strips were not prescribed within the previous year and there was no record of a medication review on the GP system within the previous two years. The error was not detected until the patient became unwell and was admitted to hospital with diabetic ketoacidosis.

WRONG DEVICE but RIGHT INSULIN

Example: Novorapid FlexPens® were recommended by the diabetes clinic but the patient received **Novorapid® cartridges**.

'Wrong device' incidents are more likely to be noticed by the patient/carer, but have led to problems with patient not getting insulin in a timely fashion.

Action:

- **CHECK THAT BOTH THE DEVICE AND THE TYPE OF INSULIN ARE CORRECT BEFORE PRESCRIBING, DISPENSING OR ADMINISTERING.**
- **Then get someone else to check.** Where possible a second member of staff should be used to check the type, device and dose of insulin prior to administration or dispensing **in all settings, including care homes and community pharmacy**. All staff involved in a second check of insulin should know their role and responsibility.

Patient Involvement

Patients with diabetes are usually experts in their insulin management and are an invaluable resource in confirming their usual expected insulin type, device, dose and administration times. In several of the reports of the wrong insulin type and / or dose being prescribed, dispensed or administered, it appears that staff did not involve the patient or carer.

Example: A dispensing error was made where **Novorapid®** was dispensed instead of **Novomix®**. The delivery driver for the community pharmacy was given the insulin in a sealed paper bag from the pharmacy fridge. This was delivered to the patient, without any confirmation with the patient that it was what he was expecting. The patient noticed the insulin was different but continued to administer it, thinking the doctor had changed it. The patient was hospitalized with hypoglycaemia.

Action:

- Patients should be involved where possible in checks of the type, device and dose of insulin.
- The patient should be asked to look at the insulin and confirm that it is the product that they are expecting.
- Delivery personnel for community pharmacies should be made aware of insulin deliveries and know to confirm the product with the patient/carer, where possible.
- The use of clear plastic bags by community pharmacy for dispensing insulin should be considered to facilitate the patient/carer check.

Dosage Instructions for Insulin

Insulin doses depend on many factors, e.g. they may depend on the patient's carbohydrate intake or acute illness. Many patients living with diabetes, who are on insulin, will receive dosing recommendations from secondary care, but the insulin is actually prescribed in primary care.

There was an adverse incident reported where a patient with diabetes received an insufficient dose of insulin in hospital, resulting in hyperglycaemia. Prior to the hospital admission, district nursing had been administering insulin to the patient in his own home. The patient was unaware of what dose of insulin he had been receiving, so the GP records (via ECR) were used to inform the insulin dose. A fixed dose of insulin was recorded on the GP clinical system, which was not the most recent dose. Hospital staff prescribed this old, insufficient insulin dose, which resulted in the patient becoming hyperglycaemic.

Action:

- As insulin doses can fluctuate rapidly depending on patients' conditions and food intake, prescribers should NOT prescribe specific unit doses on the GP clinical system.
- Instructions such as 'dose as directed' should be used to prompt carers and health professionals to seek an appropriate source of information to accurately obtain the current insulin dose, e.g. the district nurse if s/he been most recent to administer it .
- The Diabetes Pathway on Electronic Care Record (ECR) may have a record of the insulin dose, but take care to ensure it is current.
- Patients should be involved where possible in checks of the type, device and dose of insulin.
- If in doubt, contact the Diabetes Team (secondary or primary care) for the dose.

Interface Communication

There were several reports of poor communication at the primary / secondary care interface, particularly to district nursing teams where they weren't informed of a change to the patient's insulin treatment or that there was a delay in receiving the discharge information. There was also evidence of GPs not actioning communication received from secondary care or that it was incorrectly actioned, i.e. insulin transcribed wrongly. Within residential homes there were also reports of communication breakdowns between carers and district nursing teams concerning responsibility for administering insulin with patients receiving double doses of insulin.

Action:

- Ensure robust medicines reconciliation processes are in place. Take extra care when communicating insulin details at interfaces, especially with community nurse teams and carers.
- Ensure verbal communication is followed up with written instruction.
- Where possible ensure medicines support arrangements are documented on patient's records, e.g. insulin administered by district nursing.
- Endeavour to ensure only ONE single up to date medicines list and record of all administration is held for individual clients/service users in the community. Be aware of joint allied health care professionals involved in the care of your patient in the community.

Registered Establishments

A number of the administration errors within registered establishments related to the administration of a second dose of insulin within a short period of time. This occurred because either the first member of staff had omitted to sign the medication record or the second person omitted to check the record before they administered another dose.

Action:

- Take care to record all doses of insulin administered in care homes and to check recent doses before administration of another dose. The omission of a dose of insulin is a repeated theme in the review across all types of establishments and includes where a community nurse may be responsible for the administration of insulin to residents in a residential home.
- Ensure that, when insulin is prescribed, the patient receives their correct insulin dose at the correct times.
- Check if the person is able to manage their own insulin administration (appropriate documentation will be required to facilitate this).
- A separate insulin administration chart should be used per patient/resident, which highlights dose prescribed, dose administered, time given, blood glucose measurement and 2 signatures – body map or place to record, e.g. abdomen L, R, etc.

High Strength Insulins

In the last few years, high strength insulins have been introduced, which have concentrations greater than the previously standard strength of 100 units/mL. These new stronger insulins have been largely developed for people who require large doses of insulin to reduce the volume injected and the number of injections.

These are available either as a new medicinal product, e.g. insulin degludec (Tresiba®) or as a further presentation of an existing insulin, e.g. Insulin lispro (Humalog®).

The strengths of these new insulins are shown in the table:

Insulin	Brand name	Strengths available	Device
Insulin degludec	Tresiba®	100 units/mL	FlexTouch® prefilled pen; cartridge
		200 units/mL	FlexTouch® prefilled pen
Insulin lispro	Humalog®	100 units/mL	KwikPen® prefilled pen; vial; cartridge
		200 units/mL	KwikPen® prefilled pen
	Humalog Mix25®	100 units/mL	KwikPen® prefilled pen; vial; cartridge
	Humalog Mix50®	100 units/mL	KwikPen® prefilled pen; vial; cartridge
Insulin glargine	Lantus®	100 units/mL	SoloStar® prefilled pen; vial; cartridge
	Toujeo®	300 units/mL	SoloStar® prefilled pen
Regular human insulin	Humulin R (Unlicensed in UK but imported and used by some diabetes centres in the UK)	500 units/mL	KwikPen® prefilled pen; vial

Action:

- Remember there are higher strength insulins available.
- Always prescribe by BRAND.
- Doses must always be administered from higher strength prefilled insulin pens, and never attempt to withdraw a dose from these devices by any other means.
- If switching to a more concentrated insulin, make sure the **unit dose** shown in the window of the pre-filled pen is the correct **unit dose** (there is no need to do a dose conversion or to manually check the lower volume required as the pens are calibrated to give the correct number of units).
- Ensure that when insulin is prescribed that the patient receives their correct insulin dose at the correct times.

What Date is it??

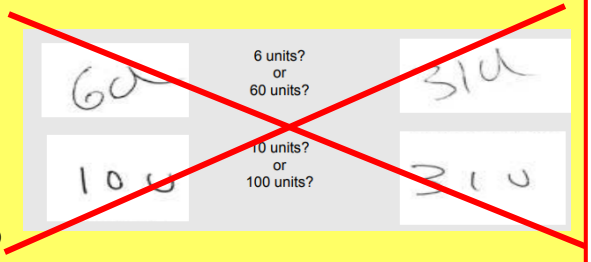
Since April this year, Diabetic Specialist Nurses have reported an apparent rise in the number of cases of expired insulin being administered in error. In some of the cases the expiry date had actually been recorded by the clinician who went on to administer the expired insulin.

Action:

- It is important to check the expiry date of insulin (and all other medicines) before administration.

Do Not Abbreviate Units: A Reminder

Several years ago, in response to adverse incidents, a warning was issued that the term "units" is used in all contexts for insulin; abbreviations such as "U" or "IU" must never be used. There have been no reported adverse incidents involving this mistake for years in Northern Ireland. The warning has obviously worked so this is just a small reminder.



Suggested Training Resources

- Safer insulin prescribing NICE Key Therapeutic Topic 16th January 2017
- Six steps to insulin safety, Primary Care Diabetes Society (registration required): https://www.diabetesonthenet.com/course/the-six-steps-to-insulin-safety/details
- NICPLD are facilitating a webinar for pharmacists on insulin safety on 18th November 2020 at 7.30 -9pm (click here to enrol) Following on from this, NICPLD will release a resource for other healthcare professionals too, outlining the key safety issues associated with insulin and strategies to optimise the safe use of these drugs in practice and this is anticipated in Spring 2021. A waiting list will be created if spaces fill up.

This newsletter has been produced for GPs and pharmacists by the Regional Pharmacy and Medicines Management Team.