



Practice sting Dosing error when switching insulin

This Practice Sting is particularly relevant for **pharmacists, pharmacy technicians, and people administering insulin**.

When using insulin products, always pay attention to the number of units displayed in the dose window.

Incidents

1. A patient urgently required insulin degludec (Tresiba). The pharmacy only had pens containing 100 units/mL available, whereas the patient was accustomed to using 200 units/mL. At dispensing, the patient was instructed to inject double the number of units.
2. The medication administration record stated that another patient should receive 75 units of insulin degludec 200 units/mL. Only a 100 units/mL pen was available. Due to an error, the nurse administered 150 units.

Recommendations

For pharmacists and pharmacy technicians

Instruct patients to rely on the number of units shown in the dose window when switching between insulin products with the same name but different strengths.

For nurses

When using insulin pens, always base dosing on the number of units displayed in the dose window.

Analysis

Several insulin products are available in more than one strength. This can cause confusion when patients switch between strengths. However, insulin pens are designed to show the number of insulin units to be injected in the dose window. Patients can therefore administer the same number of units they are accustomed to.

If a patient uses large doses of insulin, the injection volume with the lower-strength formulation may be too large. In that case, the required number of units should be divided over two injections.

In December 2024, the Netherlands Pharmacovigilance Centre for Medication Incidents (VMI) received a similar report involving Humalog. The following insulins are available in multiple strengths:

- Insulin degludec (Tresiba) 100 and 200 units/mL
- Insulin lispro (Humalog, Lyumjev) 100 and 200 units/mL

For all of these pens, the number of units to be injected is displayed in the dose window. Therefore, no dose adjustment is required when switching between different strengths.

Insulin glargine is also available in two strengths, but under different brand names. Abasaglar and Lantus contain 100 units/mL, while Toujeo contains 300 units/mL. When switching between different strengths of insulin glargine, **dose adjustment is required** (*Pharmacotherapy Compass*). When switching from 100 units/mL to 300 units/mL, an increase in the number of units by 10–18% may be required to achieve a comparable effect. When switching from 300 units/mL to 100 units/mL, the number of units should be reduced by 20% to prevent hypoglycaemia. Close monitoring of blood glucose levels is essential during the first weeks after switching.