

**ANNEX I**  
**SUMMARY OF PRODUCT CHARACTERISTICS**

## 1. NAME OF THE MEDICINAL PRODUCT

Levemir Penfill 100 units/ml solution for injection in cartridge.  
Levemir FlexPen 100 units/ml solution for injection in pre-filled pen.  
Levemir InnoLet 100 units/ml solution for injection in pre-filled pen.  
Levemir FlexTouch 100 units/ml solution for injection in pre-filled pen.

## 2. QUALITATIVE AND QUANTITATIVE COMPOSITION

### Levemir Penfill

1 ml of the solution contains 100 units insulin detemir\* (equivalent to 14.2 mg). 1 cartridge contains 3 ml equivalent to 300 units.

### Levemir FlexPen/Levemir InnoLet/Levemir FlexTouch

1 ml of the solution contains 100 units insulin detemir\* (equivalent to 14.2 mg). 1 pre-filled pen contains 3 ml equivalent to 300 units.

\*Insulin detemir is produced in *Saccharomyces cerevisiae* by recombinant DNA technology.

For the full list of excipients, see section 6.1.

## 3. PHARMACEUTICAL FORM

Solution for injection.

The solution is clear, colourless and aqueous.

## 4. CLINICAL PARTICULARS

### 4.1 Therapeutic indications

Levemir is indicated for treatment of diabetes mellitus in adults, adolescents and children aged 1 year and above.

### 4.2 Posology and method of administration

#### Posology

The potency of insulin analogues, including insulin detemir, is expressed in units, whereas the potency of human insulin is expressed in international units. 1 unit insulin detemir corresponds to 1 international unit of human insulin.

Levemir can be used alone as the basal insulin or in combination with bolus insulin. It can also be used in combination with oral antidiabetic medicinal products and/or GLP-1 receptor agonists.

When Levemir is used in combination with oral antidiabetic medicinal products or when added to GLP-1 receptor agonists it is recommended to use Levemir once daily, initially at a dose of 0.1–0.2 units/kg or of 10 units **in adult patients**. The dose of Levemir should be titrated based on the individual patient's needs.

When a GLP-1 receptor agonist is added to Levemir, it is recommended to reduce the dose of Levemir by 20% to minimise the risk of hypoglycaemia. Subsequently, dosage should be adjusted individually.

For individual dose adjustments, the following two titration guidelines are recommended **for adults**:

**Adult type 2 diabetes titration guideline:**

Average pre-breakfast SMPG*	Levemir dose adjustment
>10.0 mmol/l (180 mg/dl)	+8 units
9.1–10.0 mmol/l (163–180 mg/dl)	+6 units
8.1–9.0 mmol/l (145–162 mg/dl)	+4 units
7.1–8.0 mmol/l (127–144 mg/dl)	+2 units
6.1–7.0 mmol/l (109–126 mg/dl)	+2 units
4.1–6.0 mmol/l (73–108 mg/dl)	No change in dose (target)
If one SMPG measurement	
3.1–4.0 mmol/l (56–72 mg/dl)	-2 units
<3.1 mmol/l (<56 mg/dl)	-4 units

\*Self-Monitored Plasma Glucose

**Adult type 2 diabetes simple self-titration guideline:**

Average pre-breakfast SMPG*	Levemir dose adjustment
>6.1 mmol/l (>110 mg/dl)	+3 units
4.4–6.1 mmol/l (80–110 mg/dl)	No change in dose (target)
<4.4 mmol/l (<80 mg/dl)	-3 units

\*Self-Monitored Plasma Glucose

When Levemir is used as part of a basal-bolus insulin regimen, Levemir should be administered once or twice daily depending on patients' needs. The dose of Levemir should be adjusted individually.

Adjustment of dose may be necessary if patients undertake increased physical activity, change their usual diet or during concomitant illness.

When adjusting dose in order to improve glucose control, patients should be advised to be aware of signs of hypoglycaemia.

**Special populations***Elderly (≥65 years old)*

Levemir can be used in elderly patients. In elderly patients, glucose monitoring should be intensified and the Levemir dose adjusted on an individual basis.

*Renal and hepatic impairment*

Renal or hepatic impairment may reduce the patient's insulin requirements.

In patients with renal or hepatic impairment, glucose monitoring should be intensified and the Levemir dose adjusted on an individual basis.

*Paediatric population*

Levemir can be used in adolescents and children from the age of 1 year (see section 5.1). When changing basal insulin to Levemir, dose reduction of basal and bolus insulin needs to be considered on an individual basis, in order to minimise the risk of hypoglycaemia (see section 4.4).

In children and adolescents, glucose monitoring should be intensified and the Levemir dose adjusted on an individual basis.

The safety and efficacy of Levemir in children below the age of 1 year have not been established. No data are available.

**Transfer from other insulin medicinal products**

When transferring from other intermediate or long-acting insulin medicinal products, adjustment of the dose and timing of administration may be necessary (see section 4.4).

Close glucose monitoring is recommended during the transfer and in the initial weeks thereafter (see section 4.4).

Concomitant antidiabetic treatment may need to be adjusted (dose and/or timing of oral antidiabetic medicinal products or concurrent short/rapid-acting insulin medicinal products).

### **Method of administration**

Levemir is a long-acting insulin analogue used as a basal insulin. Levemir is for subcutaneous administration only. Levemir must not be administered intravenously, as it may result in severe hypoglycaemia. Intramuscular administration should also be avoided. Levemir is not to be used in insulin infusion pumps.

Levemir is administered subcutaneously by injection in the abdominal wall, the thigh, the upper arm, the deltoid region or the gluteal region. Injection sites should always be rotated within the same region in order to reduce the risk of lipodystrophy and cutaneous amyloidosis (see sections 4.4 and 4.8). The duration of action will vary according to the dose, injection site, blood flow, temperature and level of physical activity. The injection can be given at any time during the day, but at the same time each day. For patients who require twice daily dosing to optimise blood glucose control, the evening dose can be administered in the evening or at bedtime.

For detailed user instructions, please refer to the package leaflet.

#### Levemir Penfill

##### *Administration with an insulin delivery system*

Levemir Penfill is designed to be used with Novo Nordisk insulin delivery systems and NovoFine or NovoTwist needles. Levemir Penfill is only suitable for subcutaneous injections from a reusable pen. If administration by syringe is necessary, a vial should be used.

#### Levemir FlexPen

##### *Administration with FlexPen*

Levemir FlexPen is a pre-filled pen (colour-coded) designed to be used with NovoFine or NovoTwist disposable needles up to a length of 8 mm. FlexPen delivers 1–60 units in increments of 1 unit. Levemir FlexPen is only suitable for subcutaneous injections. If administration by syringe is necessary, a vial should be used.

#### Levemir InnoLet

##### *Administration with InnoLet*

Levemir InnoLet is a pre-filled pen designed to be used with NovoFine or NovoTwist disposable needles up to a length of 8 mm. InnoLet delivers 1–50 units in increments of 1 unit. Levemir InnoLet is only suitable for subcutaneous injections. If administration by syringe is necessary, a vial should be used.

#### Levemir FlexTouch

##### *Administration with FlexTouch*

Levemir FlexTouch is a pre-filled pen (colour-coded) designed to be used with NovoFine or NovoTwist disposable needles up to a length of 8 mm. FlexTouch delivers 1–80 units in increments of 1 unit. Levemir FlexTouch is only suitable for subcutaneous injections. If administration by syringe is necessary, a vial should be used.

### **4.3 Contraindications**

Hypersensitivity to the active substance or to any of the excipients (see section 6.1).

### **4.4 Special warnings and precautions for use**

Before travelling between different time zones, the patient should seek the doctor's advice since this may mean that the patient has to take the insulin and meals at different times.

### **Hyperglycaemia**

Inadequate dosing or discontinuation of treatment, especially in type 1 diabetes, may lead to hyperglycaemia and diabetic ketoacidosis. Usually the first symptoms of hyperglycaemia develop gradually over a period of hours or days. They include thirst, increased frequency of urination, nausea, vomiting, drowsiness, flushed dry skin, dry mouth, loss of appetite as well as acetone odour of breath. In type 1 diabetes, untreated hyperglycaemic events eventually lead to diabetic ketoacidosis, which is potentially lethal.

### **Hypoglycaemia**

Omission of a meal or unplanned, strenuous physical exercise may lead to hypoglycaemia. In children, care should be taken to match insulin doses (especially in basal-bolus regimens) with food intake and physical activities in order to minimise the risk of hypoglycaemia.

Hypoglycaemia may occur if the insulin dose is too high in relation to the insulin requirement. In case of hypoglycaemia or if hypoglycaemia is suspected, Levemir must not be injected. After stabilisation of the patient's blood glucose, adjustment of the dose should be considered (see sections 4.8 and 4.9).

Patients whose blood glucose control is greatly improved, e.g. by intensified insulin therapy, may experience a change in their usual warning symptoms of hypoglycaemia, and should be advised accordingly. Usual warning symptoms may disappear in patients with longstanding diabetes.

Concomitant illness, especially infections and feverish conditions, usually increases the patient's insulin requirements. Concomitant diseases in the kidney, liver or affecting the adrenal, pituitary or thyroid gland can require changes in insulin dose.

When patients are transferred between different types of insulin medicinal products, the early warning symptoms of hypoglycaemia may change or become less pronounced than those experienced with their previous insulin.

### **Transfer from other insulin medicinal products**

Transferring a patient to another type or brand of insulin should be done under strict medical supervision. Changes in strength, brand (manufacturer), type, origin (animal insulin, human insulin or insulin analogue) and/or method of manufacture (recombinant DNA versus animal source insulin) may result in the need for a change in dose. Patients transferred to Levemir from another type of insulin may require a change in dose from that used with their usual insulin medicinal products. If an adjustment is needed, it may occur with the first dose or during the first few weeks or months.

### **Injection site reactions**

As with any insulin therapy, injection site reactions may occur and include pain, redness, hives, inflammation, bruising, swelling and itching. Continuous rotation of the injection site within a given area may help to reduce or prevent these reactions. Reactions usually resolve in a few days to a few weeks. On rare occasions, injection site reactions may require discontinuation of Levemir.

### **Skin and subcutaneous tissue disorders**

Patients must be instructed to perform continuous rotation of the injection site to reduce the risk of developing lipodystrophy and cutaneous amyloidosis. There is a potential risk of delayed insulin absorption and worsened glycaemic control following insulin injections at sites with these reactions. A sudden change in the injection site to an unaffected area has been reported to result in hypoglycaemia. Blood glucose monitoring is recommended after the change in the injection site from an affected to an

unaffected area, and dose adjustment of antidiabetic medications may be considered.

### **Hypoalbuminaemia**

There are limited data in patients with severe hypoalbuminaemia. Careful monitoring is recommended in these patients.

### **Combination of Levemir with pioglitazone**

Cases of cardiac failure have been reported when pioglitazone was used in combination with insulin, especially in patients with risk factors for development of cardiac heart failure. This should be kept in mind if treatment with the combination of pioglitazone and Levemir is considered. If the combination is used, patients should be observed for signs and symptoms of heart failure, weight gain and oedema. Pioglitazone should be discontinued if any deterioration in cardiac symptoms occurs.

### **Avoidance of accidental mix-ups/medication errors**

Patients must be instructed to always check the insulin label before each injection to avoid accidental mix-ups between Levemir and other insulin products.

### **Traceability**

In order to improve the traceability of biological medicinal products, the name and the batch number of the administered product should be clearly recorded.

## **4.5 Interaction with other medicinal products and other forms of interaction**

A number of medicinal products are known to interact with the glucose metabolism.

The following substances may reduce the patient's insulin requirements:

Oral antidiabetic medicinal products, GLP-1 receptor agonists, monoamine oxidase inhibitors (MAOI), beta-blockers, angiotensin converting enzyme (ACE) inhibitors, salicylates, anabolic steroids and sulphonamides.

The following substances may increase the patient's insulin requirements:

Oral contraceptives, thiazides, glucocorticoids, thyroid hormones, sympathomimetics, growth hormone and danazol.

Beta-blockers may mask the symptoms of hypoglycaemia.

Octreotide/lanreotide may either increase or decrease the insulin requirement.

Alcohol may intensify or reduce the hypoglycaemic effect of insulin.

## **4.6 Fertility, pregnancy and lactation**

### **Pregnancy**

The use of Levemir in pregnant women with diabetes has been investigated in a clinical trial and in a prospective non-interventional post-authorisation safety study (see section 5.1). Post-marketing data in pregnant women using Levemir, with more than 4,500 pregnancy outcomes do not indicate any increased risk of malformative or fetoneonatal toxicity. Treatment with Levemir can be considered during pregnancy, if clinically needed.

In general, intensified blood glucose control and monitoring of pregnant women with diabetes are recommended throughout pregnancy and when contemplating pregnancy. Insulin requirements usually fall in the first trimester and increase subsequently during the second and third trimester. After

delivery, insulin requirements normally return rapidly to pre-pregnancy values.

### **Breast-feeding**

It is unknown whether insulin detemir is excreted in human milk. No metabolic effects of ingested insulin detemir on the breast-fed newborn/infant are anticipated since insulin detemir, as a peptide, is digested into amino acids in the human gastrointestinal tract.

Breast-feeding women may require adjustments in insulin dose and diet.

### **Fertility**

Animal studies do not indicate harmful effects with respect to fertility.

## **4.7 Effects on ability to drive and use machines**

The patient's ability to concentrate and react may be impaired as a result of hypoglycaemia. This may constitute a risk in situations where these abilities are of special importance (e.g. driving a car or operating machinery).

Patients should be advised to take precautions to avoid hypoglycaemia while driving. This is particularly important in those who have reduced or absent awareness of the warning signs of hypoglycaemia or have frequent episodes of hypoglycaemia. The advisability of driving should be considered in these circumstances.

## **4.8 Undesirable effects**

### **Summary of the safety profile**

Adverse reactions observed in patients using Levemir are mainly due to the pharmacologic effect of insulin. The overall percentage of treated patients expected to experience adverse reactions is estimated to be 12%.

The most frequently reported adverse reaction during treatment is hypoglycaemia, please see section 4.8, Description of selected adverse reactions.

From clinical investigations, it is known that major hypoglycaemia, defined as requirement for third party intervention, occurs in approximately 6% of the patients treated with Levemir.

Injection site reactions are seen more frequently during treatment with Levemir than with human insulin products. These reactions include pain, redness, hives, inflammation, bruising, swelling and itching at the injection site. Most of the injection site reactions are minor and of a transitory nature, i.e. they normally disappear during continued treatment in a few days to a few weeks.

At the beginning of the insulin treatment, refraction anomalies and oedema may occur; these reactions are usually of transitory nature. Fast improvement in blood glucose control may be associated with acute painful neuropathy, which is usually reversible. Intensification of insulin therapy with abrupt improvement in glycaemic control may be associated with temporary worsening of diabetic retinopathy, while long-term improved glycaemic control decreases the risk of progression of diabetic retinopathy.

### **Tabulated list of adverse reactions**

Adverse reactions listed below are based on clinical trial data and classified according to MedDRA frequency and System Organ Class. Frequency categories are defined according to the following convention: Very common ( $\geq 1/10$ ); common ( $\geq 1/100$  to  $< 1/10$ ); uncommon ( $\geq 1/1,000$  to  $< 1/100$ ); rare ( $\geq 1/10,000$  to  $< 1/1,000$ ); very rare ( $< 1/10,000$ ); not known (cannot be estimated from the available data).

Immune system disorders	Uncommon – Allergic reactions, potentially allergic reactions, urticaria, rash, eruptions*
	Very rare – Anaphylactic reactions*
Metabolism and nutrition disorders	Very common – Hypoglycaemia*
Nervous system disorders	Rare – Peripheral neuropathy (painful neuropathy)
Eye disorders	Uncommon – Refraction disorders
	Uncommon – Diabetic retinopathy
Skin and subcutaneous tissue disorders	Uncommon – Lipodystrophy*
	Not known – Cutaneous amyloidosis*†
General disorders and administration site conditions	Common – Injection site reactions
	Uncommon – Oedema

\* see section 4.8, Description of selected adverse reactions.

† ADR from postmarketing sources.

### **Description of selected adverse reactions**

#### *Allergic reactions, potentially allergic reactions, urticaria, rash, eruptions*

Allergic reactions, potentially allergic reactions, urticaria, rash and eruptions are uncommon when Levemir is used in basal-bolus regimen. However, when used in combination with oral antidiabetic medicinal products, three clinical studies have shown a frequency of common (2.2% of allergic reactions and potentially allergic reactions have been observed).

#### *Anaphylactic reactions*

The occurrence of generalised hypersensitivity reactions (including generalised skin rash, itching, sweating, gastrointestinal upset, angioneurotic oedema, difficulties in breathing, palpitation and reduction in blood pressure) is very rare but can potentially be life threatening.

#### *Hypoglycaemia*

The most frequently reported adverse reaction is hypoglycaemia. It may occur if the insulin dose is too high in relation to the insulin requirement. Severe hypoglycaemia may lead to unconsciousness and/or convulsions and may result in temporary or permanent impairment of brain function or even death. The symptoms of hypoglycaemia usually occur suddenly. They may include cold sweats, cool pale skin, fatigue, nervousness or tremor, anxiousness, unusual tiredness or weakness, confusion, difficulty in concentrating, drowsiness, excessive hunger, vision changes, headache, nausea and palpitation.

#### *Skin and subcutaneous tissue disorders*

Lipodystrophy (including lipohypertrophy, lipoatrophy) and cutaneous amyloidosis may occur at the injection site and delay local insulin absorption. Continuous rotation of the injection site within the given injection area may help to reduce or prevent these reactions (see section 4.4).

### **Paediatric population**

Based on post-marketing sources and clinical trials, the frequency, type and severity of adverse reactions observed in the paediatric population do not indicate any differences to the broader experience in the general diabetes population.



## Other special populations

Based on post-marketing sources and clinical trials, the frequency, type and severity of adverse reactions observed in elderly patients and in patients with renal or hepatic impairment do not indicate any differences to the broader experience in the general population.

## Reporting of suspected adverse reactions

Reporting suspected adverse reactions after authorisation of the medicinal product is important. It allows continued monitoring of the benefit/risk balance of the medicinal product. Healthcare professionals are asked to report any suspected adverse reactions via [the national reporting system listed in Appendix V](#).

## 4.9 Overdose

A specific overdose for insulin cannot be defined, however, hypoglycaemia may develop over sequential stages if too high doses relative to the patient's requirement are administered:

- Mild hypoglycaemic episodes can be treated by oral administration of glucose or sugary products. It is therefore recommended that the diabetic patient always carries sugar-containing products.
- Severe hypoglycaemic episodes, where the patient has become unconscious, can be treated with glucagon (0.5 to 1 mg) given intramuscularly or subcutaneously by a trained person, or with glucose given intravenously by a healthcare professional. Glucose must be given intravenously, if the patient does not respond to glucagon within 10 to 15 minutes. Upon regaining consciousness, administration of oral carbohydrates is recommended for the patient in order to prevent a relapse.

## 5. PHARMACOLOGICAL PROPERTIES

### 5.1 Pharmacodynamic properties

Pharmacotherapeutic group: Drugs used in diabetes. Insulins and analogues for injection, long-acting: ATC code: A10AE05.

#### Mechanism of action and pharmacodynamic effects

Levemir is a soluble, long-acting insulin analogue with a prolonged duration of effect used as a basal insulin.

The blood glucose lowering effect of Levemir is due to the facilitated uptake of glucose following binding of insulin to receptors on muscle and fat cells and to the simultaneous inhibition of glucose output from the liver.

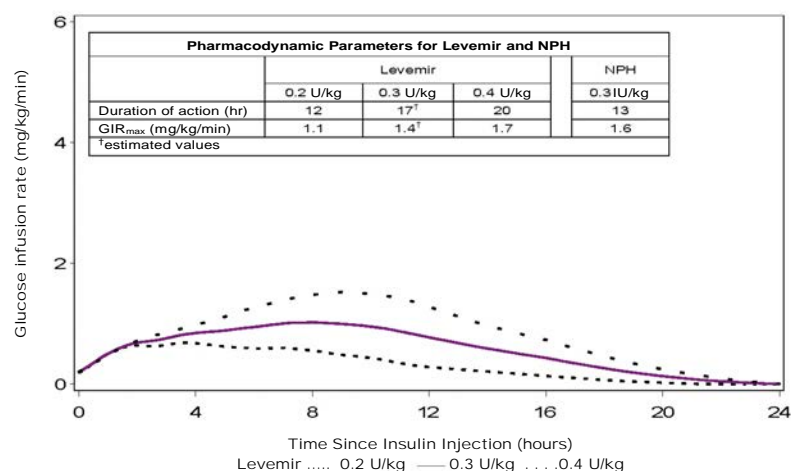
The time action profile of Levemir is statistically significantly less variable and therefore more predictable than for NPH (Neutral Protamine Hagedorn) insulin as seen from the within-subject Coefficients of Variation (CV) for the total and maximum pharmacodynamic effect in Table 1.

**Table 1. Within-subject variability of the time action profile of Levemir and NPH insulin**

Pharmacodynamic Endpoint	Levemir CV (%)	NPH insulin CV (%)
AUC <sub>GIR,0-24h</sub> *	27	68
GIR <sub>max</sub> **	23	46

\*Area under the curve \*\* Glucose Infusion Rate p-value <0.001 for all comparisons with Levemir

The prolonged action of Levemir is mediated by the strong self-association of insulin detemir molecules at the injection site and albumin binding via the fatty acid side-chain. Insulin detemir is distributed more slowly to peripheral target tissues compared to NPH insulin. These combined mechanisms of protraction provide a more reproducible absorption and action profile of insulin detemir compared to NPH insulin.



**Figure 1. Activity profiles of Levemir in patients with type 1 diabetes**

The duration of action is up to 24 hours depending on dose providing an opportunity for once or twice daily administration. If administered twice daily, steady state will occur after 2–3 dose administrations. For doses in the interval of 0.2–0.4 units/kg (U/kg), Levemir exerts more than 50% of its maximum effect from 3–4 hours and up to approximately 14 hours after dose administration.

Dose proportionality in pharmacodynamic response (maximum effect, duration of action, total effect) is observed after subcutaneous administration.

Lower day-to-day variability in FPG was demonstrated during treatment with Levemir compared to NPH in long-term clinical trials.

Studies in patients with type 2 diabetes treated with basal insulin in combination with oral antidiabetic medicinal products demonstrated that glycaemic control (HbA<sub>1c</sub>) with Levemir is comparable to NPH insulin and insulin glargine and associated with less weight gain, see Table 2 below. In the study versus insulin glargine, Levemir was allowed to be administered once or twice daily whereas insulin glargine was to be administered once a day, 55% of the Levemir treated patients completed the 52 weeks of treatment on the twice daily regimen.

**Table 2. Change in body weight after insulin treatment**

Study duration	Levemir once daily	Levemir twice daily	NPH insulin	Insulin glargine
20 weeks	+0.7 kg		+1.6 kg	
26 weeks		+1.2 kg	+2.8 kg	
52 weeks	+2.3 kg	+3.7 kg		+4.0 kg

In trials investigating the use of oral antidiabetic medicinal products, combination therapy with Levemir resulted in a 61–65% lower risk of minor nocturnal hypoglycaemia compared to NPH insulin.

An open-label randomised clinical trial in patients with type 2 diabetes not reaching target with oral antidiabetic medicinal products was conducted. The trial started with a 12-week run-in period with liraglutide+metformin, where 61% reached an HbA<sub>1c</sub> <7%. The 39% of patients not achieving target

were randomised to have Levemir once-daily added or continue on liraglutide+metformin for 52 weeks. Addition of Levemir provided a further reduction of HbA<sub>1c</sub> from 7.6% to 7.1% after 52 weeks. There were no major hypoglycaemic episodes. A major hypoglycaemic episode is defined as an episode where the subject was not able to treat him/herself and if glucagon or i.v. glucose was needed. See Table 3.

**Table 3. Clinical trial data - Levemir add-on to liraglutide+metformin**

	Study week	Randomised Levemir + liraglutide + metformin n=160	Randomised liraglutide + metformin n=149	P-value
Mean change in HbA <sub>1c</sub> from baseline (%)	0–26 weeks	-0.51	0.02	<0.0001
	0–52 weeks	-0.50	0.01	<0.0001
Proportions of patients achieving HbA <sub>1c</sub> <7% targets (%)	0–26 weeks	43.1	16.8	<0.0001
	0–52 weeks	51.9	21.5	<0.0001
Change in body weight from baseline (kg)	0–26 weeks	-0.16	-0.95	0.0283
	0–52 weeks	-0.05	-1.02	0.0416
Minor hypoglycaemic episodes (per patient year)	0–26 weeks	0.286	0.029	0.0037
	0–52 weeks	0.228	0.034	0.0011

A 26-week, double blind, randomised clinical trial was conducted to investigate the efficacy and safety of adding liraglutide (1.8 mg) vs. placebo in patients with type 2 diabetes inadequately controlled on basal insulin with or without metformin. The insulin dose was reduced by 20% for patients with baseline HbA<sub>1c</sub> ≤8.0% in order to minimise the risk of hypoglycaemia. Subsequently, patients were allowed to up-titrate their insulin dose to no higher than the pre-randomisation dose. Levemir was the basal insulin product for 33% (n=147) of the patients (97.3% using metformin). In these patients, addition of liraglutide resulted in a greater decline in HbA<sub>1c</sub> compared to addition of placebo (to 6.93% vs. to 8.24%), a greater decline in fasting plasma glucose (to 7.20 mmol/l vs. to 8.13 mmol/l), and a greater decline in body weight (-3.47 kg vs. -0.43 kg). Baseline values for these parameters were similar in the two groups. Observed rates of minor hypoglycaemic episodes were similar and no severe hypoglycaemic episodes were observed in either group.

In long-term trials in patients with type 1 diabetes receiving a basal-bolus insulin therapy, fasting plasma glucose was improved with Levemir compared with NPH insulin. Glycaemic control (HbA<sub>1c</sub>) with Levemir was comparable to NPH insulin, with a lower risk of nocturnal hypoglycaemia and no associated weight gain.

In clinical trials using basal bolus insulin therapy, the overall rates of hypoglycaemia with Levemir and NPH insulin were similar. Analyses of nocturnal hypoglycaemia in patients with type 1 diabetes showed a significantly lower risk of minor nocturnal hypoglycaemia (able to self-treat and confirmed by capillary blood glucose less than 2.8 mmol/l or 3.1 mmol/l if expressed as plasma glucose) than with NPH insulin, whereas no difference was seen in type 2 diabetes.

Antibody development has been observed with the use of Levemir. However, this does not appear to have any impact on glycaemic control.

### Pregnancy

In a prospective non-interventional post-authorisation safety study, pregnant women with type 1 or type 2 diabetes exposed to Levemir (n=727, 680 liveborn infants) or other basal insulins (n=730, 668 liveborn infants) were monitored for pregnancy outcomes.

No statistically significant difference was observed between Levemir and other basal insulins for the components of the malformation endpoint (induced abortion due to major congenital malformations, major congenital malformations or minor congenital malformations). The results from the study

indicated that Levemir is not associated with an excess risk of adverse pregnancy outcomes, when compared to other basal insulins, in women with pre-existing diabetes.

Levemir has been studied in an open-label randomised controlled clinical trial, in which pregnant women with type 1 diabetes (n=310) were treated with a basal-bolus treatment regimen with Levemir (n=152) or NPH insulin (n=158) as basal insulin, both in combination with NovoRapid.

Levemir was non-inferior to NPH insulin as measured by HbA<sub>1c</sub> at gestational week (GW) 36, and the reduction in mean HbA<sub>1c</sub> through pregnancy was similar.

### **Paediatric population**

The efficacy and safety of Levemir has been studied for up to 12 months, in three randomised controlled clinical trials in adolescents and children (n=1,045 in total); the trials included in total 167 children aged 1–5 years. The trials demonstrated that glycaemic control (HbA<sub>1c</sub>) with Levemir is comparable to NPH insulin and insulin degludec when given as basal-bolus therapy, using a non-inferiority margin of 0.4%. In the trial comparing Levemir vs. insulin degludec, the rate of hyperglycaemic episodes with ketosis was significantly higher for Levemir, 1.09 and 0.68 episodes per patient-year of exposure, respectively. Less weight gain (SD score, weight corrected for gender and age) was observed with Levemir than with NPH insulin.

The trial including children above 2 years was extended for an additional 12 months (total of 24 months treatment data) to assess antibody formation after long-term treatment with Levemir. After an increase in insulin antibodies during the first year, the insulin antibodies decreased during the second year to a level slightly higher than pre-trial level. Results indicate that antibody development had no negative effect on glycaemic control and Levemir dose.

Efficacy and safety data for adolescent patients with type 2 diabetes mellitus have been extrapolated from data for children, adolescent and adult patients with type 1 diabetes mellitus and adult patients with type 2 diabetes mellitus. Results support the use of Levemir in adolescent patients with type 2 diabetes mellitus.

## **5.2 Pharmacokinetic properties**

### **Absorption**

Maximum serum concentration is reached between 6 and 8 hours after administration. When administered twice daily, steady state serum concentrations are reached after 2–3 dose administrations. Within-patient variation in absorption is lower for Levemir than for other basal insulin preparations. The absolute bioavailability of insulin detemir when administered subcutaneous is approximately 60%.

### **Distribution**

An apparent volume of distribution for Levemir (approximately 0.1 l/kg) indicates that a high fraction of insulin detemir is circulating in the blood.

The results of the *in vitro* and *in vivo* protein binding studies suggest that there is no clinically relevant interaction between insulin detemir and fatty acids or other protein bound medicinal products.

### **Biotransformation**

Degradation of insulin detemir is similar to that of human insulin; all metabolites formed are inactive.

### **Elimination**

The terminal half-life after subcutaneous administration is determined by the rate of absorption from the subcutaneous tissue. The terminal half-life is between 5 and 7 hours depending on the dose.

## Linearity

Dose proportionality in serum concentrations (maximum concentration, extent of absorption) is observed after subcutaneous administration in the therapeutic dose range.

No pharmacokinetic or pharmacodynamic interactions were observed between liraglutide and Levemir when administering a single dose of Levemir 0.5 units/kg with liraglutide 1.8 mg at steady state in patients with type 2 diabetes.

## Special populations

### *Elderly (≥65 years old)*

There was no clinically relevant difference in pharmacokinetics of Levemir between elderly and young patients.

### *Renal and hepatic impairment*

There was no clinically relevant difference in pharmacokinetics of Levemir between patients with renal or hepatic impairment and healthy subjects. As the pharmacokinetics of Levemir has not been studied extensively in these populations, it is advised to monitor plasma glucose closely in these populations.

### *Gender*

There are no clinically relevant differences between genders in pharmacokinetic properties of Levemir.

### *Paediatric population*

The pharmacokinetic properties of Levemir were investigated in young children (1–5 years), children (6–12 years) and adolescents (13–17 years) and compared to adults with type 1 diabetes. There were no clinically relevant differences in pharmacokinetic properties between young children, children, adolescents and adults.

## 5.3 Preclinical safety data

Non-clinical data reveal no special hazard for humans based on conventional studies of safety pharmacology, repeated dose toxicity, genotoxicity and toxicity to reproduction and development. Receptor affinity data and *in vitro* mitogenicity tests revealed no evidence of an increased mitogenic potential compared to human insulin.

## 6. PHARMACEUTICAL PARTICULARS

### 6.1 List of excipients

Glycerol  
Phenol  
Metacresol  
Zinc acetate  
Disodium phosphate dihydrate  
Sodium chloride  
Hydrochloric acid (for pH adjustment)  
Sodium hydroxide (for pH adjustment)  
Water for injections

### 6.2 Incompatibilities

Substances added to Levemir may cause degradation of insulin detemir, e.g. if the medicinal product contains thiols or sulphites. Levemir should not be added to infusion fluids.

This medicinal product must not be mixed with other medicinal products.

### **6.3 Shelf life**

Before opening: 30 months.

During use or when carried as a spare: The product can be stored for a maximum of 6 weeks.

### **6.4 Special precautions for storage**

For storage conditions of the medicinal product, see section 6.3.

Before opening: Store in a refrigerator (2°C–8°C). Keep away from the cooling element. Do not freeze.

#### Levemir Penfill

During use or when carried as a spare: Store below 30°C. Do not refrigerate. Do not freeze. Keep the cartridge in the outer carton in order to protect it from light.

#### Levemir FlexPen/Levemir FlexTouch

During use or when carried as a spare: Store below 30°C. Can be stored in a refrigerator (2°C–8°C). Do not freeze.

Keep the pen cap on the pen in order to protect it from light.

#### Levemir InnoLet

During use or when carried as a spare: Store below 30°C. Do not refrigerate. Do not freeze. Keep the pen cap on the pen in order to protect it from light.

### **6.5 Nature and contents of container**

#### Levemir Penfill

3 ml solution in cartridge (type 1 glass) with a plunger (bromobutyl) and a rubber closure (bromobutyl/polyisoprene).

Pack sizes of 1, 5 and 10 cartridges. Not all pack sizes may be marketed.

#### Levemir FlexPen

3 ml solution in cartridge (type 1 glass) with a plunger (bromobutyl) and a rubber closure (bromobutyl/polyisoprene) contained in a pre-filled multidose disposable pen made of polypropylene.

Pack sizes of 1 (with or without needles), 5 (without needles) and 10 (without needles) pre-filled pens. Not all pack sizes may be marketed.

#### Levemir InnoLet

3 ml solution in cartridge (type 1 glass) with a plunger (bromobutyl) and a rubber closure (bromobutyl/polyisoprene) contained in a pre-filled multidose disposable pen made of polypropylene.

Pack sizes of 1, 5 and 10 pre-filled pens. Not all pack sizes may be marketed.

#### Levemir FlexTouch

3 ml solution in cartridge (type 1 glass) with a plunger (bromobutyl) and a rubber closure (bromobutyl/polyisoprene) contained in a pre-filled multidose disposable pen made of polypropylene.

Pack sizes of 1 (with or without needles), 5 (without needles) or a multipack with 2 x 5 (without needles) pre-filled pens of 3 ml. Not all pack sizes may be marketed.

### **6.6 Special precautions for disposal and other handling**

Do not use this medicinal product if you notice that the solution is not clear, colourless and aqueous.

Levemir which has been frozen must not be used.

The patient should be advised to discard the needle after each injection.

Any unused medicinal product or waste material should be disposed of in accordance with local requirements.

Needles, cartridges and pre-filled pens must not be shared.

The cartridge must not be refilled.

## **7. MARKETING AUTHORISATION HOLDER**

Novo Nordisk A/S, Novo Allé, DK-2880 Bagsværd, Denmark

## **8. MARKETING AUTHORISATION NUMBERS**

### Levemir Penfill

EU/1/04/278/001

EU/1/04/278/002

EU/1/04/278/003

### Levemir FlexPen

EU/1/04/278/004

EU/1/04/278/005

EU/1/04/278/006

EU/1/04/278/010

EU/1/04/278/011

### Levemir InnoLet

EU/1/04/278/007

EU/1/04/278/008

EU/1/04/278/009

### Levemir FlexTouch

EU/1/04/278/012

EU/1/04/278/013

EU/1/04/278/014

EU/1/04/278/015

EU/1/04/278/016

## **9. DATE OF FIRST AUTHORISATION/RENEWAL OF THE AUTHORISATION**

Date of first authorisation: 01 June 2004

Date of last renewal: 16 April 2009

## **10. DATE OF REVISION OF THE TEXT**

Detailed information on this medicinal product is available on the website of the European Medicines Agency <http://www.ema.europa.eu>.



## **ANNEX II**

- A. MANUFACTURERS OF THE BIOLOGICAL ACTIVE SUBSTANCE AND MANUFACTURERS RESPONSIBLE FOR BATCH RELEASE**
- B. CONDITIONS OR RESTRICTIONS REGARDING SUPPLY AND USE**
- C. OTHER CONDITIONS AND REQUIREMENTS OF THE MARKETING AUTHORISATION**
- D. CONDITIONS OR RESTRICTIONS WITH REGARD TO THE SAFE AND EFFECTIVE USE OF THE MEDICINAL PRODUCT**

## **A MANUFACTURERS OF THE BIOLOGICAL ACTIVE SUBSTANCE AND MANUFACTURERS RESPONSIBLE FOR BATCH RELEASE**

### Name and address of the manufacturers of the biological active substance

Novo Nordisk A/S  
Novo Allé  
DK-2880 Bagsværd  
Denmark

Novo Nordisk A/S  
Hallas Allé  
DK-4400 Kalundborg  
Denmark

### Name and address of the manufacturers responsible for batch release

#### **Levemir InnoLet and FlexTouch**

Novo Nordisk A/S  
Novo Allé  
DK-2880 Bagsværd  
Denmark

#### **Levemir Penfill and FlexPen**

Novo Nordisk A/S  
Novo Allé  
DK-2880 Bagsværd  
Denmark

Novo Nordisk Production SAS  
45, Avenue d'Orléans  
F-28000 Chartres  
France

The printed package leaflet of the medicinal product must state the name and address of the manufacturer responsible for the release of the concerned batch.

## **B CONDITIONS OR RESTRICTIONS REGARDING SUPPLY AND USE**

Medicinal product subject to medical prescription.

## **C OTHER CONDITIONS AND REQUIREMENTS OF THE MARKETING AUTHORISATION**

- **Periodic safety update reports (PSURs)**

The requirements for submission of PSURs for this medicinal product are set out in the list of Union reference dates (EURD list) provided for under Article 107c(7) of Directive 2001/83/EC and any subsequent updates published on the European medicines web-portal.

## **D CONDITIONS OR RESTRICTIONS WITH REGARD TO THE SAFE AND EFFECTIVE USE OF THE MEDICINAL PRODUCT**

- **Risk management plan (RMP)**

The marketing authorisation holder (MAH) shall perform the required pharmacovigilance activities and interventions detailed in the agreed RMP presented in Module 1.8.2 of the marketing authorisation and any agreed subsequent updates of the RMP.

An updated RMP should be submitted:

- At the request of the European Medicines Agency
- Whenever the risk management system is modified, especially as the results of new information being received that may lead to a significant change to the benefit/risk profile or as the result of an important (pharmacovigilance or risk minimisation) milestone being reached.

**ANNEX III**  
**LABELLING AND PACKAGE LEAFLET**

## **A. LABELLING**

**PARTICULARS TO APPEAR ON THE OUTER PACKAGING**

**OUTER CARTON (CARTRIDGE. Penfill)**

**1. NAME OF THE MEDICINAL PRODUCT**

Levemir 100 units/ml  
Solution for injection in cartridge  
insulin detemir

**2. STATEMENT OF ACTIVE SUBSTANCE**

1 ml solution contains 100 units insulin detemir (equivalent to 14.2 mg). 1 cartridge contains 3 ml equivalent to 300 units,

**3. LIST OF EXCIPIENTS**

glycerol, phenol, metacresol, zinc acetate, disodium phosphate dihydrate, sodium chloride, hydrochloric acid/sodium hydroxide for pH adjustment and water for injections

**4. PHARMACEUTICAL FORM AND CONTENTS**

Solution for injection in cartridge. Penfill.

1 x 3 ml cartridge  
5 x 3 ml cartridges  
10 x 3 ml cartridges

**5. METHOD AND ROUTE OF ADMINISTRATION**

Read the package leaflet before use  
Subcutaneous use

**6. SPECIAL WARNING THAT THE MEDICINAL PRODUCT MUST BE STORED OUT OF THE SIGHT AND REACH OF CHILDREN**

Keep out of the sight and reach of children

**7. OTHER SPECIAL WARNINGS, IF NECESSARY**

Use only solution if water clear, colourless and aqueous  
For use by one person only

**8. EXPIRY DATE**

EXP  
During use: Use within 6 weeks

**9. SPECIAL STORAGE CONDITIONS**

Before opening: Store in a refrigerator (2°C to 8°C)  
During use: Do not refrigerate. Store below 30°C  
Do not freeze  
Keep the cartridge in the outer carton in order to protect it from light

**10. SPECIAL PRECAUTIONS FOR DISPOSAL OF UNUSED MEDICINAL PRODUCTS OR WASTE MATERIALS DERIVED FROM SUCH MEDICINAL PRODUCTS, IF APPROPRIATE**

Discard the needle after each injection

**11. NAME AND ADDRESS OF THE MARKETING AUTHORISATION HOLDER**

Novo Nordisk A/S, Novo Allé, DK-2880 Bagsværd, Denmark

**12. MARKETING AUTHORISATION NUMBERS**

EU/1/04/278/001 1 cartridge of 3 ml  
EU/1/04/278/002 5 cartridges of 3 ml  
EU/1/04/278/003 10 cartridges of 3 ml

**13. BATCH NUMBER**

Batch

**14. GENERAL CLASSIFICATION FOR SUPPLY**

Medicinal product subject to medical prescription

**15. INSTRUCTIONS ON USE****16. INFORMATION IN BRAILLE**

Levemir Penfill

**17. UNIQUE IDENTIFIER – 2D BARCODE**

2D barcode carrying the unique identifier included.

**18. UNIQUE IDENTIFIER – HUMAN READABLE DATA**

PC  
SN  
NN

**MINIMUM PARTICULARS TO APPEAR ON SMALL IMMEDIATE PACKAGING UNITS**

**LABEL (CARTRIDGE. Penfill)**

**1. NAME OF THE MEDICINAL PRODUCT AND ROUTE OF ADMINISTRATION**

Levemir 100 units/ml  
Solution for injection  
insulin detemir  
SC use

**2. METHOD OF ADMINISTRATION**

Penfill

**3. EXPIRY DATE**

EXP

**4. BATCH NUMBER**

Batch

**5. CONTENTS BY WEIGHT, BY VOLUME OR BY UNIT**

3 ml

**6. OTHER**

Novo Nordisk A/S



**PARTICULARS TO APPEAR ON THE OUTER PACKAGING**

**OUTER CARTON (PRE-FILLED PEN. FlexPen)**

**1. NAME OF THE MEDICINAL PRODUCT**

Levemir 100 units/ml  
Solution for injection in pre-filled pen  
insulin detemir

**2. STATEMENT OF ACTIVE SUBSTANCE**

1 ml solution contains 100 units insulin detemir (equivalent to 14.2 mg). 1 pre-filled pen contains 3 ml equivalent to 300 units,

**3. LIST OF EXCIPIENTS**

glycerol, phenol, metacresol, zinc acetate, disodium phosphate dihydrate, sodium chloride, hydrochloric acid/sodium hydroxide for pH adjustment and water for injections

**4. PHARMACEUTICAL FORM AND CONTENTS**

Solution for injection in pre-filled pen. FlexPen.

1 x 3 ml pre-filled pen  
5 x 3 ml pre-filled pens  
10 x 3 ml pre-filled pens  
1 x 3 ml pre-filled pen + 7 NovoFine needles  
1 x 3 ml pre-filled pen + 7 NovoTwist needles

**5. METHOD AND ROUTE OF ADMINISTRATION**

Needles are not included  
Read the package leaflet before use  
Subcutaneous use

**6. SPECIAL WARNING THAT THE MEDICINAL PRODUCT MUST BE STORED OUT OF THE SIGHT AND REACH OF CHILDREN**

Keep out of the sight and reach of children

**7. OTHER SPECIAL WARNINGS, IF NECESSARY**

Use only solution if water clear, colourless and aqueous  
For use by one person only  
Designed to be used with NovoFine or NovoTwist disposable needles up to a length of 8 mm

**8. EXPIRY DATE**

EXP

During use: Use within 6 weeks

#### **9. SPECIAL STORAGE CONDITIONS**

Before opening: Store in a refrigerator (2°C to 8°C)

During use: Store below 30°C. Can be stored in a refrigerator (2°C to 8°C)

Do not freeze

Keep the cap on in order to protect it from light

#### **10. SPECIAL PRECAUTIONS FOR DISPOSAL OF UNUSED MEDICINAL PRODUCTS OR WASTE MATERIALS DERIVED FROM SUCH MEDICINAL PRODUCTS, IF APPROPRIATE**

Discard the needle after each injection

#### **11. NAME AND ADDRESS OF THE MARKETING AUTHORISATION HOLDER**

Novo Nordisk A/S, Novo Allé, DK-2880 Bagsværd, Denmark

#### **12. MARKETING AUTHORISATION NUMBERS**

EU/1/04/278/004 1 pen of 3 ml

EU/1/04/278/005 5 pens of 3 ml

EU/1/04/278/006 10 pens of 3 ml

EU/1/04/278/010 1 pen of 3 ml and 7 NovoFine needles

EU/1/04/278/011 1 pen of 3 ml and 7 NovoTwist needles

#### **13. BATCH NUMBER**

Batch

#### **14. GENERAL CLASSIFICATION FOR SUPPLY**

Medicinal product subject to medical prescription

#### **15. INSTRUCTIONS ON USE**

#### **16. INFORMATION IN BRAILLE**

Levemir FlexPen

#### **17. UNIQUE IDENTIFIER – 2D BARCODE**

2D barcode carrying the unique identifier included.

**18. UNIQUE IDENTIFIER – HUMAN READABLE DATA**

PC  
SN  
NN

**MINIMUM PARTICULARS TO APPEAR ON SMALL IMMEDIATE PACKAGING UNITS**

**PEN LABEL (PRE-FILLED PEN. FlexPen)**

**1. NAME OF THE MEDICINAL PRODUCT AND ROUTE OF ADMINISTRATION**

Levemir 100 units/ml  
Solution for injection  
insulin detemir  
SC use

**2. METHOD OF ADMINISTRATION**

FlexPen

**3. EXPIRY DATE**

EXP

**4. BATCH NUMBER**

Batch

**5. CONTENTS BY WEIGHT, BY VOLUME OR BY UNIT**

3 ml

**6. OTHER**

Novo Nordisk A/S

**PARTICULARS TO APPEAR ON THE OUTER PACKAGING**

**OUTER CARTON (PRE-FILLED PEN. InnoLet)**

**1. NAME OF THE MEDICINAL PRODUCT**

Levemir 100 units/ml  
Solution for injection in pre-filled pen  
insulin detemir

**2. STATEMENT OF ACTIVE SUBSTANCE**

1 ml solution contains 100 units insulin detemir (equivalent to 14.2 mg). 1 pre-filled pen contains 3 ml equivalent to 300 units,

**3. LIST OF EXCIPIENTS**

glycerol, phenol, metacresol, zinc acetate, disodium phosphate dihydrate, sodium chloride, hydrochloric acid/sodium hydroxide for pH adjustment and water for injections

**4. PHARMACEUTICAL FORM AND CONTENTS**

Solution for injection in pre-filled pen. InnoLet.

1 x 3 ml pre-filled pen  
5 x 3 ml pre-filled pens  
10 x 3 ml pre-filled pens

**5. METHOD AND ROUTE OF ADMINISTRATION**

Needles are not included  
Read the package leaflet before use  
Subcutaneous use

**6. SPECIAL WARNING THAT THE MEDICINAL PRODUCT MUST BE STORED OUT OF THE SIGHT AND REACH OF CHILDREN**

Keep out of the sight and reach of children

**7. OTHER SPECIAL WARNINGS, IF NECESSARY**

Use only solution if water clear, colourless and aqueous  
For use by one person only  
Designed to be used with NovoFine or NovoTwist disposable needles up to a length of 8 mm

**8. EXPIRY DATE**

EXP

During use: Use within 6 weeks

#### **9. SPECIAL STORAGE CONDITIONS**

Before opening: Store in a refrigerator (2°C to 8°C)

During use: Do not refrigerate. Store below 30°C

Do not freeze

Keep the cap on in order to protect it from light

#### **10. SPECIAL PRECAUTIONS FOR DISPOSAL OF UNUSED MEDICINAL PRODUCTS OR WASTE MATERIALS DERIVED FROM SUCH MEDICINAL PRODUCTS, IF APPROPRIATE**

Discard the needle after each injection

#### **11. NAME AND ADDRESS OF THE MARKETING AUTHORISATION HOLDER**

Novo Nordisk A/S, Novo Allé, DK-2880 Bagsværd, Denmark

#### **12. MARKETING AUTHORISATION NUMBERS**

EU/1/04/278/007 1 pen of 3 ml

EU/1/04/278/008 5 pens of 3 ml

EU/1/04/278/009 10 pens of 3 ml

#### **13. BATCH NUMBER**

Batch

#### **14. GENERAL CLASSIFICATION FOR SUPPLY**

Medicinal product subject to medical prescription

#### **15. INSTRUCTIONS ON USE**

#### **16. INFORMATION IN BRAILLE**

Levemir InnoLet

#### **17. UNIQUE IDENTIFIER – 2D BARCODE**

2D barcode carrying the unique identifier included.

#### **18. UNIQUE IDENTIFIER – HUMAN READABLE DATA**

PC

SN  
NN

**MINIMUM PARTICULARS TO APPEAR ON SMALL IMMEDIATE PACKAGING UNITS**

**PEN LABEL (PRE-FILLED PEN. InnoLet)**

**1. NAME OF THE MEDICINAL PRODUCT AND ROUTE OF ADMINISTRATION**

Levemir 100 units/ml  
Solution for injection  
insulin detemir  
SC use

**2. METHOD OF ADMINISTRATION**

InnoLet

**3. EXPIRY DATE**

EXP

**4. BATCH NUMBER**

Batch

**5. CONTENTS BY WEIGHT, BY VOLUME OR BY UNIT**

3 ml

**6. OTHER**

Novo Nordisk A/S



**PARTICULARS TO APPEAR ON THE OUTER PACKAGING**

**OUTER CARTON (PRE-FILLED PEN. FlexTouch)**

**1. NAME OF THE MEDICINAL PRODUCT**

Levemir 100 units/ml  
Solution for injection in pre-filled pen  
insulin detemir

**2. STATEMENT OF ACTIVE SUBSTANCE**

1 ml solution contains 100 units insulin detemir (equivalent to 14.2 mg). 1 pre-filled pen contains 3 ml equivalent to 300 units,

**3. LIST OF EXCIPIENTS**

glycerol, phenol, metacresol, zinc acetate, disodium phosphate dihydrate, sodium chloride, hydrochloric acid/sodium hydroxide for pH adjustment and water for injections

**4. PHARMACEUTICAL FORM AND CONTENTS**

Solution for injection in pre-filled pen. FlexTouch.

1 x 3 ml pre-filled pen  
5 x 3 ml pre-filled pens  
2 x (5 x 3 ml) pre-filled pens  
1 x 3 ml pre-filled pen + 7 NovoFine needles  
1 x 3 ml pre-filled pen + 7 NovoTwist needles

**5. METHOD AND ROUTE OF ADMINISTRATION**

Needles are not included  
Read the package leaflet before use  
Subcutaneous use

**6. SPECIAL WARNING THAT THE MEDICINAL PRODUCT MUST BE STORED OUT OF THE SIGHT AND REACH OF CHILDREN**

Keep out of the sight and reach of children

**7. OTHER SPECIAL WARNINGS, IF NECESSARY**

Use only solution if water clear, colourless and aqueous  
For use by one person only  
Designed to be used with NovoFine or NovoTwist disposable needles up to a length of 8 mm

**8. EXPIRY DATE**

EXP

During use: Use within 6 weeks

#### **9. SPECIAL STORAGE CONDITIONS**

Before opening: Store in a refrigerator (2°C to 8°C)

During use: Store below 30°C. Can be stored in a refrigerator (2°C to 8°C)

Do not freeze

Keep the cap on in order to protect it from light

#### **10. SPECIAL PRECAUTIONS FOR DISPOSAL OF UNUSED MEDICINAL PRODUCTS OR WASTE MATERIALS DERIVED FROM SUCH MEDICINAL PRODUCTS, IF APPROPRIATE**

Discard the needle after each injection

#### **11. NAME AND ADDRESS OF THE MARKETING AUTHORISATION HOLDER**

Novo Nordisk A/S, Novo Allé, DK-2880 Bagsværd, Denmark

#### **12. MARKETING AUTHORISATION NUMBERS**

EU/1/04/278/012 1 pen of 3 ml

EU/1/04/278/013 5 pens of 3 ml

EU/1/04/278/014 5 pens of 3 ml. This is part of a multipack of 10 pens and not for sale as individual pens

EU/1/04/278/015 1 pen of 3 ml and 7 NovoFine needles

EU/1/04/278/016 1 pen of 3 ml and 7 NovoTwist needles

#### **13. BATCH NUMBER**

Batch

#### **14. GENERAL CLASSIFICATION FOR SUPPLY**

Medicinal product subject to medical prescription

#### **15. INSTRUCTIONS ON USE**

#### **16. INFORMATION IN BRAILLE**

Levemir FlexTouch

#### **17. UNIQUE IDENTIFIER – 2D BARCODE**

2D barcode carrying the unique identifier included.

**18. UNIQUE IDENTIFIER – HUMAN READABLE DATA**

PC  
SN  
NN

**PARTICULARS TO APPEAR ON THE OUTER PACKAGING**

**OUTER WRAPPER LABEL ON MULTIPACKS (FlexTouch)**

**1. NAME OF THE MEDICINAL PRODUCT**

Levemir 100 units/ml  
Solution for injection in pre-filled pen  
insulin detemir  
SC use

**2. STATEMENT OF ACTIVE SUBSTANCE**

1 ml solution contains 100 units insulin detemir (equivalent to 14.2 mg). 1 pre-filled pen contains 3 ml equivalent to 300 units,

**3. LIST OF EXCIPIENTS**

glycerol, phenol, metacresol, zinc acetate, disodium phosphate dihydrate, sodium chloride, hydrochloric acid/sodium hydroxide for pH adjustment and water for injections

**4. PHARMACEUTICAL FORM AND CONTENTS**

Solution for injection in pre-filled pen. FlexTouch.

2 x (5 x 3 ml). This is a multipack of 10 pre-filled pens and not for sale as individual pre-filled pens

**5. METHOD AND ROUTE OF ADMINISTRATION**

Needles are not included  
Read the package leaflet before use  
Subcutaneous use

**6. SPECIAL WARNING THAT THE MEDICINAL PRODUCT MUST BE STORED OUT OF THE SIGHT AND REACH OF CHILDREN**

Keep out of the sight and reach of children

**7. OTHER SPECIAL WARNINGS, IF NECESSARY**

Use only solution if water clear, colourless and aqueous  
For use by one person only  
Designed to be used with NovoFine or NovoTwist disposable needles up to a length of 8 mm

**8. EXPIRY DATE**

EXP

During use: Use within 6 weeks

**9. SPECIAL STORAGE CONDITIONS**

Before opening: Store in a refrigerator (2°C to 8°C)

During use: Store below 30°C. Can be stored in a refrigerator (2°C to 8°C)

Do not freeze

Keep the cap on in order to protect it from light

**10. SPECIAL PRECAUTIONS FOR DISPOSAL OF UNUSED MEDICINAL PRODUCTS OR WASTE MATERIALS DERIVED FROM SUCH MEDICINAL PRODUCTS, IF APPROPRIATE**

Discard the needle after each injection

**11. NAME AND ADDRESS OF THE MARKETING AUTHORISATION HOLDER**

Novo Nordisk A/S, Novo Allé, DK-2880 Bagsværd, Denmark

**12. MARKETING AUTHORISATION NUMBER**

EU/1/04/278/014

**13. BATCH NUMBER**

Batch

**14. GENERAL CLASSIFICATION FOR SUPPLY**

Medicinal product subject to medical prescription

**15. INSTRUCTIONS ON USE**

**16. INFORMATION IN BRAILLE**

Levemir FlexTouch

**17. UNIQUE IDENTIFIER – 2D BARCODE**

2D barcode carrying the unique identifier included.

**18. UNIQUE IDENTIFIER – HUMAN READABLE DATA**

PC  
SN

NN

**MINIMUM PARTICULARS TO APPEAR ON SMALL IMMEDIATE PACKAGING UNITS**

**PEN LABEL (PRE-FILLED PEN. FlexTouch)**

**1. NAME OF THE MEDICINAL PRODUCT AND ROUTE OF ADMINISTRATION**

Levemir 100 units/ml  
Solution for injection  
insulin detemir  
SC use

**2. METHOD OF ADMINISTRATION**

FlexTouch

**3. EXPIRY DATE**

EXP

**4. BATCH NUMBER**

Batch

**5. CONTENTS BY WEIGHT, BY VOLUME OR BY UNIT**

3 ml

**6. OTHER**

Novo Nordisk A/S

**B. PACKAGE LEAFLET**



## Package leaflet: Information for the user

### Levemir 100 units/ml solution for injection in cartridge insulin detemir

**Read all of this leaflet carefully before you start using this medicine because it contains important information for you.**

- Keep this leaflet. You may need to read it again.
- If you have any further questions, ask your doctor, nurse or pharmacist.
- This medicine has been prescribed for you only. Do not pass it on to others. It may harm them, even if their signs of illness are the same as yours.
- If you get any side effects, talk to your doctor, nurse or pharmacist. This includes any possible side effects not listed in this leaflet. See section 4.

#### What is in this leaflet

1. What Levemir is and what it is used for
2. What you need to know before you use Levemir
3. How to use Levemir
4. Possible side effects
5. How to store Levemir
6. Contents of the pack and other information

#### 1. What Levemir is and what it is used for

Levemir is a modern insulin (insulin analogue) with a long-acting effect. Modern insulin products are improved versions of human insulin.

Levemir is used to reduce the high blood sugar level in adults, adolescents and children aged 1 year and above with diabetes mellitus (diabetes). Diabetes is a disease where your body does not produce enough insulin to control the level of your blood sugar.

Levemir can be used with meal-related rapid acting insulin medicines. In treatment of type 2 diabetes mellitus, Levemir may also be used in combination with tablets for diabetes and/or with injectable anti-diabetic products, other than insulin.

Levemir has a long and steady blood-sugar-lowering action within 3 to 4 hours after injection. Levemir provides up to 24 hours of basal insulin coverage.

#### 2. What you need to know before you use Levemir

##### Do not use Levemir

- ▶ If you are allergic to insulin detemir or any of the other ingredients in this medicine, see section 6, Contents of the pack and other information.
- ▶ If you suspect hypoglycaemia (low blood sugar) is starting, see a) Summary of serious and very common side effects in section 4.
- ▶ In insulin infusion pumps.
- ▶ If the cartridge or the device containing the cartridge is dropped, damaged or crushed.
- ▶ If it has not been stored correctly or been frozen, see section 5, How to store Levemir.
- ▶ If the insulin does not appear water clear, colourless and aqueous.

If any of these applies, do not use Levemir. Talk to your doctor, nurse or pharmacist for advice.

#### Before using Levemir

- ▶ Check the label to make sure it is the right type of insulin.
- ▶ Always check the cartridge, including the rubber plunger at the bottom of the cartridge. Do not use it if any damage is seen or if the rubber plunger has been drawn above the white label band at the bottom of the cartridge. This could be the result of an insulin leakage. If you suspect that the cartridge is damaged, take it back to your supplier. See your pen manual for further instructions.
- ▶ Always use a new needle for each injection to prevent contamination.
- ▶ Needles and Levemir Penfill must not be shared.
- ▶ Levemir Penfill is only suitable for injecting under the skin using a reusable pen. Speak to your doctor if you need to inject your insulin by another method.

### **Warnings and precautions**

Some conditions and activities can affect your need for insulin. Consult your doctor:

- ▶ If you have trouble with your kidneys or liver, or with your adrenal, pituitary or thyroid glands.
- ▶ If you exercise more than usual or if you want to change your usual diet, as this may affect your blood sugar level.
- ▶ If you are ill, carry on taking your insulin and consult your doctor.
- ▶ If you are going abroad, travelling over time zones may affect your insulin needs and the timing of your injections.
- ▶ If you have very low albumin you need to carefully monitor your blood sugar level. Discuss this with your doctor.

### **Skin changes at the injection site**

The injection site should be rotated to help prevent changes to the fatty tissue under the skin, such as skin thickening, skin shrinking or lumps under the skin. The insulin may not work very well if you inject into a lumpy, shrunken or thickened area (see section 3, How to use Levemir). Tell your doctor if you notice any skin changes at the injection site. Tell your doctor if you are currently injecting into these affected areas before you start injecting in a different area. Your doctor may tell you to check your blood sugar more closely, and to adjust your insulin or your other antidiabetic medications dose.

### **Children and adolescents**

Levemir can be used in adolescents and children aged 1 year and above.

The safety and efficacy of Levemir in children below 1 year of age have not been established. No data are available.

### **Other medicines and Levemir**

Tell your doctor, nurse or pharmacist if you are taking, have recently taken or might take any other medicines.

Some medicines affect your blood sugar level and this may mean that your insulin dose has to change. Listed below are the most common medicines which may affect your insulin treatment.

Your blood sugar level may fall (hypoglycaemia) if you take:

- Other medicines for the treatment of diabetes
- Monoamine oxidase inhibitors (MAOI) (used to treat depression)
- Beta-blockers (used to treat high blood pressure)
- Angiotensin converting enzyme (ACE) inhibitors (used to treat certain heart conditions or high blood pressure)
- Salicylates (used to relieve pain and lower fever)
- Anabolic steroids (such as testosterone)
- Sulphonamides (used to treat infections).

Your blood sugar level may rise (hyperglycaemia) if you take:

- Oral contraceptives (birth control pills)
- Thiazides (used to treat high blood pressure or excessive fluid retention)
- Glucocorticoids (such as ‘cortisone’ used to treat inflammation)
- Thyroid hormones (used to treat thyroid gland disorders)
- Sympathomimetics (such as epinephrine [adrenaline], or salbutamol, terbutaline used to treat asthma)
- Growth hormone (medicine for stimulation of skeletal and somatic growth and pronounced influence on the body’s metabolic processes)
- Danazol (medicine acting on ovulation).

Octreotide and lanreotide (used for treatment of acromegaly, a rare hormonal disorder that usually occurs in middle-aged adults, caused by the pituitary gland producing excess growth hormone) may either increase or decrease your blood sugar level.

Beta-blockers (used to treat high blood pressure) may weaken or suppress entirely the first warning symptoms which help you to recognise low blood sugar.

Pioglitazone (tablets used for the treatment of type 2 diabetes)

Some patients with long-standing type 2 diabetes and heart disease or previous stroke who were treated with pioglitazone and insulin experienced the development of heart failure. Inform your doctor as soon as possible if you experience signs of heart failure such as unusual shortness of breath or rapid increase in weight or localised swelling (oedema).

If you have taken any of the medicines listed here, tell your doctor, nurse or pharmacist.

### **Drinking alcohol and taking Levemir**

- ▶ If you drink alcohol, your need for insulin may change as your blood sugar level may either rise or fall. Careful monitoring is recommended.

### **Pregnancy and breast-feeding**

- ▶ If you are pregnant, think you may be pregnant or are planning to have a baby, ask your doctor for advice before taking this medicine. Your insulin dose may need to be changed during pregnancy and after delivery. Careful control of your diabetes, particularly prevention of hypoglycaemia, is important for the health of your baby.
- ▶ If you are breast-feeding consult your doctor as you may require adjustments in your insulin doses.

Ask your doctor, nurse or pharmacist for advice before taking any medicine while pregnant or breast-feeding.

### **Driving and using machines**

- ▶ Please ask your doctor whether you can drive a car or operate a machine:
  - If you have frequent hypoglycaemia.
  - If you find it hard to recognise hypoglycaemia.

If your blood sugar is low or high, it might affect your concentration and ability to react and therefore also your ability to drive a car or operate a machine. Bear in mind that you could endanger yourself or others.

### **Important information about some of the ingredients in Levemir**

Levemir contains less than 1 mmol sodium (23 mg) per dose, i.e. Levemir is essentially ‘sodium-free’.

### **3. How to use Levemir**

#### **Dose and when to take your insulin**

Always use your insulin and adjust your dose exactly as your doctor has told you. Check with your doctor, nurse or pharmacist if you are not sure.

Levemir can be used with meal-related rapid acting insulin medicines.

In treatment of type 2 diabetes mellitus, Levemir may also be used in combination with tablets for diabetes and/or with injectable anti-diabetic products, other than insulin.

Do not change your insulin unless your doctor tells you to.

Your dose may have to be adjusted by your doctor if:

- your doctor has switched you from one type or brand of insulin to another, or
- your doctor has added another medicine for the treatment of diabetes, in addition to your Levemir treatment.

#### **Use in children and adolescents**

Levemir can be used in adolescents and children aged 1 year and above.

There is no experience with the use of Levemir in children below the age of 1 year.

#### **Use in special patient groups**

If you have reduced kidney or liver function, or if you are above 65 years of age, you need to check your blood sugar more regularly and discuss changes in your insulin dose with your doctor.

#### **How often to inject**

When Levemir is used in combination with tablets for diabetes and/or in combination with injectable anti-diabetic products, other than insulin, Levemir should be administered once a day. When Levemir is used as part of a basal-bolus insulin regimen Levemir should be administered once or twice daily depending on patients' needs. Dose of Levemir should be adjusted individually. The injection can be given at any time during the day, but at the same time each day. For patients who require twice daily dosing to optimise blood sugar control, the evening dose can be administered in the evening or at bedtime.

#### **How and where to inject**

Levemir is for injection under the skin (subcutaneously). You must never inject Levemir directly into a vein (intravenously) or muscle (intramuscularly). Levemir Penfill is only suitable for injecting under the skin using a reusable pen. Speak to your doctor if you need to inject your insulin by another method.

With each injection, change the injection site within the particular area of skin that you use. This may reduce the risk of developing lumps or skin pitting (see section 4, Possible side effects). The best places to give yourself an injection are: the front of your thighs, the front of your waist (abdomen), or the upper arm. You should always measure your blood sugar regularly.

- ▶ Do not refill the cartridge.
- ▶ Levemir Penfill cartridges are designed to be used with Novo Nordisk insulin delivery systems and NovoFine or NovoTwist needles.
- ▶ If you are treated with Levemir Penfill and another insulin Penfill cartridge, you should use two insulin delivery systems, one for each type of insulin.
- ▶ Always carry a spare Penfill cartridge in case the one in use is lost or damaged.

## How to inject Levemir

- ▶ Inject the insulin under your skin. Use the injection technique advised by your doctor or nurse and as described in your pen manual.
- ▶ Keep the needle under your skin for at least 6 seconds. Keep the push-button fully depressed until the needle has been withdrawn from the skin. This will ensure correct delivery and limit possible flow of blood into the needle or insulin reservoir.
- ▶ After each injection be sure to remove and discard the needle and store Levemir without the needle attached. Otherwise the liquid may leak out which can cause inaccurate dosing.

## If you take more insulin than you should

If you take too much insulin your blood sugar gets too low (hypoglycaemia). See a) Summary of serious and very common side effects in section 4.

## If you forget to take your insulin

If you forget to take your insulin your blood sugar may get too high (hyperglycaemia). See c) Effects from diabetes in section 4.

## If you stop taking your insulin

Do not stop taking your insulin without speaking with a doctor, who will tell you what needs to be done. This could lead to very high blood sugar (severe hyperglycaemia) and ketoacidosis. See c) Effects from diabetes in section 4.

If you have any further questions on the use of this medicine, ask your doctor or pharmacist.

## 4. Possible side effects

Like all medicines, this medicine can cause side effects, although not everybody gets them.

### a) Summary of serious and very common side effects

**Low blood sugar (hypoglycaemia)** is a very common side effect. It may affect more than 1 in 10 people.

#### Low blood sugar may occur if you:

- Inject too much insulin.
- Eat too little or miss a meal.
- Exercise more than usual.
- Drink alcohol (see section 2 Drinking alcohol and taking Levemir).

Signs of low blood sugar: Cold sweat; cool pale skin; headache; rapid heartbeat; feeling sick; feeling very hungry; temporary changes in vision; drowsiness; unusual tiredness and weakness; nervousness or tremor; feeling anxious; feeling confused; difficulty in concentrating.

Severe low blood sugar can lead to unconsciousness. If prolonged severe low blood sugar is not treated, it can cause brain damage (temporary or permanent) and even death. You may recover more quickly from unconsciousness with an injection of the hormone glucagon given by someone who knows how to use it. If you are given glucagon you will need glucose or a sugar snack as soon as you are conscious. If you do not respond to glucagon treatment, you will have to be treated in a hospital.

#### What to do if you experience low blood sugar:

- ▶ If you experience low blood sugar, eat glucose tablets or another high sugar snack (e.g. sweets, biscuits, fruit juice). Measure your blood sugar if possible and rest. Always carry glucose tablets or high sugar snacks with you, just in case.

- ▶ When the symptoms of low blood sugar have disappeared or when your blood sugar level is stabilised, continue insulin treatment as usual.
- ▶ If you have such low blood sugar that makes you pass out, if you have had the need for an injection of glucagon, or if you have experienced many incidents of low blood sugar, talk to a doctor. The amount or timing of insulin, food or exercise may need to be adjusted.

Tell relevant people that you have diabetes and what the consequences may be, including the risk of passing out (becoming unconscious) due to low blood sugar. Let them know that if you pass out, they must turn you on your side and get medical help straight away. They must not give you any food or drink because you may choke.

**Serious allergic reaction** to Levemir or one of its ingredients (called a systemic allergic reaction) is a very rare side effect but can potentially be life threatening. It may affect less than 1 in 10,000 people.

Seek medical advice immediately:

- If signs of allergy spread to other parts of your body.
- If you suddenly feel unwell, and you: start sweating; start being sick (vomiting); have difficulty in breathing; have a rapid heartbeat; feel dizzy.
- ▶ If you notice any of these signs, seek medical advice immediately.

**Skin changes at the injection site:** If you inject insulin at the same place, the fatty tissue may shrink (lipoatrophy) or thicken (lipohypertrophy) (may affect less than 1 in 100 people). Lumps under the skin may also be caused by build-up of a protein called amyloid (cutaneous amyloidosis; how often this occurs is not known). The insulin may not work very well if you inject into a lumpy, shrunken or thickened area. Change the injection site with each injection to help prevent these skin changes.

## b) List of other side effects

### Uncommon side effects

May affect less than 1 in 100 people.

Signs of allergy: Local allergic reactions (pain, redness, hives, inflammation, bruising, swelling and itching) at the injection site may occur. These usually disappear after a few weeks of taking your insulin. If they do not disappear, or if they spread throughout your body, talk to your doctor immediately. See also Serious allergic reaction above.

Vision problems: When you first start your insulin treatment, it may disturb your vision, but the disturbance is usually temporary.

Swollen joints: When you start taking insulin, water retention may cause swelling around your ankles and other joints. Normally this soon disappears. If not, contact your doctor.

Diabetic retinopathy (an eye disease related to diabetes which can lead to loss of vision): If you have diabetic retinopathy and your blood sugar level improves very fast, the retinopathy may get worse. Ask your doctor about this.

### Rare side effects

May affect less than 1 in 1,000 people.

Painful neuropathy (pain due to nerve damage): If your blood sugar level improves very fast, you may get nerve related pain, this is called acute painful neuropathy and is usually transient.

### Reporting of side effects

If you get any side effects, talk to your doctor, pharmacist or nurse. This includes any possible side effects not listed in this leaflet. You can also report side effects directly via [the national reporting system listed in Appendix V](#). By reporting side effects you can help provide more information on the safety of this medicine.

## c) Effects from diabetes

### High blood sugar (hyperglycaemia)

#### High blood sugar may occur if you:

- Have not injected enough insulin.
- Forget to take your insulin or stop taking insulin.
- Repeatedly take less insulin than you need.
- Get an infection and/or a fever.
- Eat more than usual.
- Exercise less than usual.

#### Warning signs of high blood sugar:

The warning signs appear gradually. They include: increased urination; feeling thirsty; losing your appetite; feeling sick (nausea or vomiting); feeling drowsy or tired; flushed; dry skin; dry mouth and a fruity (acetone) smell of the breath.

#### What to do if you experience high blood sugar:

- ▶ If you get any of above signs: test your blood sugar level, test your urine for ketones if you can, then seek medical advice immediately.
- ▶ These may be signs of a very serious condition called diabetic ketoacidosis (build-up of acid in the blood because the body is breaking down fat instead of sugar). If you do not treat it, this could lead to diabetic coma and eventually death.

## 5. How to store Levemir

Keep this medicine out of the sight and reach of children.

Do not use this medicine after the expiry date which is stated on the cartridge label and carton after 'EXP'. The expiry date refers to the last day of that month.

Always keep the cartridge in the outer carton when you are not using it in order to protect it from light. Levemir must be protected from excessive heat and light.

**Before opening:** Levemir Penfill that is not being used is to be stored in the refrigerator at 2°C to 8°C, away from the cooling element. Do not freeze.

**During use or when carried as a spare:** Levemir Penfill that is being used or carried as a spare should not be kept in the refrigerator. You can carry it with you and keep it at room temperature (below 30°C) for up to 6 weeks.

Do not throw away any medicines via wastewater or household waste. Ask your pharmacist how to throw away medicines you no longer use. These measures will help protect the environment.

## 6. Contents of the pack and other information

### What Levemir contains

- The active substance is insulin detemir. Each ml contains 100 units of insulin detemir. Each cartridge contains 300 units of insulin detemir in 3 ml solution for injection. 1 unit insulin detemir corresponds to 1 international unit of human insulin.
- The other ingredients are glycerol, phenol, metacresol, zinc acetate, disodium phosphate dihydrate, sodium chloride, hydrochloric acid, sodium hydroxide and water for injections.

### What Levemir looks like and contents of the pack

Levemir is presented as a solution for injection.

Pack sizes of 1, 5 and 10 cartridges of 3 ml. Not all pack sizes may be marketed.

### **Marketing Authorisation Holder and Manufacturer**

#### Marketing Authorisation Holder

Novo Nordisk A/S, Novo Allé, DK-2880 Bagsværd, Denmark

#### Manufacturer

The manufacturer can be identified by the batch number printed on the slip of the carton and on the label:

- If the second and third characters are S6, P5, K7, R7, VG, FG or ZF, the manufacturer is Novo Nordisk A/S, Novo Allé, DK-2880 Bagsværd, Denmark.
- If the second and third characters are H7 or T6, the manufacturer is Novo Nordisk Production SAS, 45 Avenue d'Orléans, F-28000 Chartres, France.

#### **This leaflet was last revised in**

#### **Other sources of information**

Detailed information on this medicine is available on the European Medicines Agency website:  
<http://www.ema.europa.eu>.



## Package leaflet: Information for the user

### Levemir 100 units/ml solution for injection in pre-filled pen insulin detemir

**Read all of this leaflet carefully before you start using this medicine because it contains important information for you.**

- Keep this leaflet. You may need to read it again.
- If you have any further questions, ask your doctor, nurse or pharmacist.
- This medicine has been prescribed for you only. Do not pass it on to others. It may harm them, even if their signs of illness are the same as yours.
- If you get any side effects, talk to your doctor, nurse or pharmacist. This includes any possible side effects not listed in this leaflet. See section 4.

#### What is in this leaflet

1. What Levemir is and what it is used for
2. What you need to know before you use Levemir
3. How to use Levemir
4. Possible side effects
5. How to store Levemir
6. Contents of the pack and other information

#### 1. What Levemir is and what it is used for

Levemir is a modern insulin (insulin analogue) with a long-acting effect. Modern insulin products are improved versions of human insulin.

Levemir is used to reduce the high blood sugar level in adults, adolescents and children aged 1 year and above with diabetes mellitus (diabetes). Diabetes is a disease where your body does not produce enough insulin to control the level of your blood sugar.

Levemir can be used with meal-related rapid acting insulin medicines. In treatment of type 2 diabetes mellitus, Levemir may also be used in combination with tablets for diabetes and/or with injectable anti-diabetic products, other than insulin.

Levemir has a long and steady blood-sugar-lowering action within 3 to 4 hours after injection. Levemir provides up to 24 hours of basal insulin coverage.

#### 2. What you need to know before you use Levemir

##### Do not use Levemir

- ▶ If you are allergic to insulin detemir or any of the other ingredients in this medicine, see section 6, Contents of the pack and other information.
- ▶ If you suspect hypoglycaemia (low blood sugar) is starting, see a) Summary of serious and very common side effects in section 4.
- ▶ In insulin infusion pumps.
- ▶ If FlexPen is dropped, damaged or crushed.
- ▶ If it has not been stored correctly or been frozen, see section 5, How to store Levemir.
- ▶ If the insulin does not appear water clear, colourless and aqueous.

If any of these applies, do not use Levemir. Talk to your doctor, nurse or pharmacist for advice.

#### Before using Levemir

- ▶ Check the label to make sure it is the right type of insulin.
- ▶ Always use a new needle for each injection to prevent contamination.
- ▶ Needles and Levemir FlexPen must not be shared.
- ▶ Levemir FlexPen is only suitable for injecting under the skin. Speak to your doctor if you need to inject your insulin by another method.

### **Warnings and precautions**

Some conditions and activities can affect your need for insulin. Consult your doctor:

- ▶ If you have trouble with your kidneys or liver, or with your adrenal, pituitary or thyroid glands.
- ▶ If you exercise more than usual or if you want to change your usual diet, as this may affect your blood sugar level.
- ▶ If you are ill, carry on taking your insulin and consult your doctor.
- ▶ If you are going abroad, travelling over time zones may affect your insulin needs and the timing of your injections.
- ▶ If you have very low albumin you need to carefully monitor your blood sugar level. Discuss this with your doctor.

### **Skin changes at the injection site**

The injection site should be rotated to help prevent changes to the fatty tissue under the skin, such as skin thickening, skin shrinking or lumps under the skin. The insulin may not work very well if you inject into a lumpy, shrunken or thickened area (see section 3, How to use Levemir). Tell your doctor if you notice any skin changes at the injection site. Tell your doctor if you are currently injecting into these affected areas before you start injecting in a different area. Your doctor may tell you to check your blood sugar more closely, and to adjust your insulin or your other antidiabetic medications dose.

### **Children and adolescents**

Levemir can be used in adolescents and children aged 1 year and above.

The safety and efficacy of Levemir in children below 1 year of age have not been established. No data are available.

### **Other medicines and Levemir**

Tell your doctor, nurse or pharmacist if you are taking, have recently taken or might take any other medicines.

Some medicines affect your blood sugar level and this may mean that your insulin dose has to change. Listed below are the most common medicines which may affect your insulin treatment.

#### Your blood sugar level may fall (hypoglycaemia) if you take:

- Other medicines for the treatment of diabetes
- Monoamine oxidase inhibitors (MAOI) (used to treat depression)
- Beta-blockers (used to treat high blood pressure)
- Angiotensin converting enzyme (ACE) inhibitors (used to treat certain heart conditions or high blood pressure)
- Salicylates (used to relieve pain and lower fever)
- Anabolic steroids (such as testosterone)
- Sulphonamides (used to treat infections).

#### Your blood sugar level may rise (hyperglycaemia) if you take:

- Oral contraceptives (birth control pills)
- Thiazides (used to treat high blood pressure or excessive fluid retention)
- Glucocorticoids (such as 'cortisone' used to treat inflammation)
- Thyroid hormones (used to treat thyroid gland disorders)

- Sympathomimetics (such as epinephrine [adrenaline], or salbutamol, terbutaline used to treat asthma)
- Growth hormone (medicine for stimulation of skeletal and somatic growth and pronounced influence on the body's metabolic processes)
- Danazol (medicine acting on ovulation).

Octreotide and lanreotide (used for treatment of acromegaly, a rare hormonal disorder that usually occurs in middle-aged adults, caused by the pituitary gland producing excess growth hormone) may either increase or decrease your blood sugar level.

Beta-blockers (used to treat high blood pressure) may weaken or suppress entirely the first warning symptoms which help you to recognise low blood sugar.

#### Pioglitazone (tablets used for the treatment of type 2 diabetes)

Some patients with long-standing type 2 diabetes and heart disease or previous stroke who were treated with pioglitazone and insulin experienced the development of heart failure. Inform your doctor as soon as possible if you experience signs of heart failure such as unusual shortness of breath or rapid increase in weight or localised swelling (oedema).

If you have taken any of the medicines listed here, tell your doctor, nurse or pharmacist.

#### **Drinking alcohol and taking Levemir**

- ▶ If you drink alcohol, your need for insulin may change as your blood sugar level may either rise or fall. Careful monitoring is recommended.

#### **Pregnancy and breast-feeding**

- ▶ If you are pregnant, think you may be pregnant or are planning to have a baby, ask your doctor for advice before taking this medicine. Your insulin dose may need to be changed during pregnancy and after delivery. Careful control of your diabetes, particularly prevention of hypoglycaemia, is important for the health of your baby.
- ▶ If you are breast-feeding consult your doctor as you may require adjustments in your insulin doses.

Ask your doctor, nurse or pharmacist for advice before taking any medicine while pregnant or breast-feeding.

#### **Driving and using machines**

- ▶ Please ask your doctor whether you can drive a car or operate a machine:
  - If you have frequent hypoglycaemia.
  - If you find it hard to recognise hypoglycaemia.

If your blood sugar is low or high, it might affect your concentration and ability to react and therefore also your ability to drive a car or operate a machine. Bear in mind that you could endanger yourself or others.

#### **Important information about some of the ingredients in Levemir**

Levemir contains less than 1 mmol sodium (23 mg) per dose, i.e. Levemir is essentially 'sodium-free'.

### **3. How to use Levemir**

#### **Dose and when to take your insulin**

Always use your insulin and adjust your dose exactly as your doctor has told you. Check with your

doctor, nurse or pharmacist if you are not sure.

Levemir can be used with meal-related rapid acting insulin medicines.

In treatment of type 2 diabetes mellitus, Levemir may also be used in combination with tablets for diabetes and/or with injectable anti-diabetic products, other than insulin.

Do not change your insulin unless your doctor tells you to.

Your dose may have to be adjusted by your doctor if:

- your doctor has switched you from one type or brand of insulin to another, or
- your doctor has added another medicine for the treatment of diabetes, in addition to your Levemir treatment.

### **Use in children and adolescents**

Levemir can be used in adolescents and children aged 1 year and above.

There is no experience with the use of Levemir in children below the age of 1 year.

### **Use in special patient groups**

If you have reduced kidney or liver function, or if you are above 65 years of age, you need to check your blood sugar more regularly and discuss changes in your insulin dose with your doctor.

### **How often to inject**

When Levemir is used in combination with tablets for diabetes and/or in combination with injectable anti-diabetic products, other than insulin, Levemir should be administered once a day. When Levemir is used as part of a basal-bolus insulin regimen Levemir should be administered once or twice daily depending on patients' needs. Dose of Levemir should be adjusted individually. The injection can be given at any time during the day, but at the same time each day. For patients who require twice daily dosing to optimise blood sugar control, the evening dose can be administered in the evening or at bedtime.

### **How and where to inject**

Levemir is for injection under the skin (subcutaneously). You must never inject Levemir directly into a vein (intravenously) or muscle (intramuscularly). Levemir FlexPen is only suitable for injecting under the skin. Speak to your doctor if you need to inject your insulin by another method.

With each injection, change the injection site within the particular area of skin that you use. This may reduce the risk of developing lumps or skin pitting (see section 4, Possible side effects). The best places to give yourself an injection are: the front of your thighs, the front of your waist (abdomen), or the upper arm. You should always measure your blood sugar regularly.

### **How to handle Levemir FlexPen**

Levemir FlexPen is a pre-filled, colour-coded, disposable pen containing insulin detemir.

Read carefully the instructions for use included in this package leaflet. You must use the pen as described in the Instructions for use.

Always ensure you use the correct pen before you inject your insulin.

### **If you take more insulin than you should**

If you take too much insulin your blood sugar gets too low (hypoglycaemia). See a) Summary of serious and very common side effects in section 4.

## **If you forget to take your insulin**

If you forget to take your insulin your blood sugar may get too high (hyperglycaemia). See c) Effects from diabetes in section 4.

## **If you stop taking your insulin**

Do not stop taking your insulin without speaking with a doctor, who will tell you what needs to be done. This could lead to very high blood sugar (severe hyperglycaemia) and ketoacidosis. See c) Effects from diabetes in section 4.

If you have any further questions on the use of this medicine, ask your doctor or pharmacist.

## **4. Possible side effects**

Like all medicines, this medicine can cause side effects, although not everybody gets them.

### **a) Summary of serious and very common side effects**

**Low blood sugar (hypoglycaemia)** is a very common side effect. It may affect more than 1 in 10 people.

#### Low blood sugar may occur if you:

- Inject too much insulin.
- Eat too little or miss a meal.
- Exercise more than usual.
- Drink alcohol (see section 2 Drinking alcohol and taking Levemir).

Signs of low blood sugar: Cold sweat; cool pale skin; headache; rapid heartbeat; feeling sick; feeling very hungry; temporary changes in vision; drowsiness; unusual tiredness and weakness; nervousness or tremor; feeling anxious; feeling confused; difficulty in concentrating.

Severe low blood sugar can lead to unconsciousness. If prolonged severe low blood sugar is not treated, it can cause brain damage (temporary or permanent) and even death. You may recover more quickly from unconsciousness with an injection of the hormone glucagon given by someone who knows how to use it. If you are given glucagon you will need glucose or a sugar snack as soon as you are conscious. If you do not respond to glucagon treatment, you will have to be treated in a hospital.

#### What to do if you experience low blood sugar:

- ▶ If you experience low blood sugar, eat glucose tablets or another high sugar snack (e.g. sweets, biscuits, fruit juice). Measure your blood sugar if possible and rest. Always carry glucose tablets or high sugar snacks with you, just in case.
- ▶ When the symptoms of low blood sugar have disappeared or when your blood sugar level is stabilised, continue insulin treatment as usual.
- ▶ If you have such low blood sugar that makes you pass out, if you have had the need for an injection of glucagon, or if you have experienced many incidents of low blood sugar, talk to a doctor. The amount or timing of insulin, food or exercise may need to be adjusted.

Tell relevant people that you have diabetes and what the consequences may be, including the risk of passing out (becoming unconscious) due to low blood sugar. Let them know that if you pass out, they must turn you on your side and get medical help straight away. They must not give you any food or drink because you may choke.

**Serious allergic reaction** to Levemir or one of its ingredients (called a systemic allergic reaction) is a very rare side effect but can potentially be life threatening. It may affect less than 1 in 10,000 people.

Seek medical advice immediately:

- If signs of allergy spread to other parts of your body.
- If you suddenly feel unwell, and you: start sweating; start being sick (vomiting); have difficulty in breathing; have a rapid heartbeat; feel dizzy.
- ▶ If you notice any of these signs, seek medical advice immediately.

**Skin changes at the injection site:** If you inject insulin at the same place, the fatty tissue may shrink (lipoatrophy) or thicken (lipohypertrophy) (may affect less than 1 in 100 people). Lumps under the skin may also be caused by build-up of a protein called amyloid (cutaneous amyloidosis; how often this occurs is not known). The insulin may not work very well if you inject into a lumpy, shrunken or thickened area. Change the injection site with each injection to help prevent these skin changes.

## b) List of other side effects

### Uncommon side effects

May affect less than 1 in 100 people.

Signs of allergy: Local allergic reactions (pain, redness, hives, inflammation, bruising, swelling and itching) at the injection site may occur. These usually disappear after a few weeks of taking your insulin. If they do not disappear, or if they spread throughout your body, talk to your doctor immediately. See also Serious allergic reaction above.

Vision problems: When you first start your insulin treatment, it may disturb your vision, but the disturbance is usually temporary.

Swollen joints: When you start taking insulin, water retention may cause swelling around your ankles and other joints. Normally this soon disappears. If not, contact your doctor.

Diabetic retinopathy (an eye disease related to diabetes which can lead to loss of vision): If you have diabetic retinopathy and your blood sugar level improves very fast, the retinopathy may get worse. Ask your doctor about this.

### Rare side effects

May affect less than 1 in 1,000 people.

Painful neuropathy (pain due to nerve damage): If your blood sugar level improves very fast, you may get nerve related pain, this is called acute painful neuropathy and is usually transient.

### Reporting of side effects

If you get any side effects, talk to your doctor, pharmacist or nurse. This includes any possible side effects not listed in this leaflet. You can also report side effects directly via the national reporting system listed in Appendix V. By reporting side effects you can help provide more information on the safety of this medicine.

## c) Effects from diabetes

### High blood sugar (hyperglycaemia)

High blood sugar may occur if you:

- Have not injected enough insulin.
- Forget to take your insulin or stop taking insulin.
- Repeatedly take less insulin than you need.
- Get an infection and/or a fever.
- Eat more than usual.
- Exercise less than usual.

### Warning signs of high blood sugar:

The warning signs appear gradually. They include: increased urination; feeling thirsty; losing your appetite; feeling sick (nausea or vomiting); feeling drowsy or tired; flushed; dry skin; dry mouth and a fruity (acetone) smell of the breath.

### What to do if you experience high blood sugar:

- ▶ If you get any of above signs: test your blood sugar level, test your urine for ketones if you can, then seek medical advice immediately.
- ▶ These may be signs of a very serious condition called diabetic ketoacidosis (build-up of acid in the blood because the body is breaking down fat instead of sugar). If you do not treat it, this could lead to diabetic coma and eventually death.

## **5. How to store Levemir**

Keep this medicine out of the sight and reach of children.

Do not use this medicine after the expiry date which is stated on the FlexPen label and carton after 'EXP'. The expiry date refers to the last day of that month.

Always keep the pen cap on your FlexPen when you are not using it in order to protect it from light. Levemir must be protected from excessive heat and light.

**Before opening:** Levemir FlexPen that is not being used is to be stored in the refrigerator at 2°C to 8°C, away from the cooling element. Do not freeze.

**During use or when carried as a spare:** You can carry your Levemir FlexPen with you and keep it at a temperature below 30°C or in a refrigerator (2°C to 8°C) for up to 6 weeks. If refrigerated, keep away from the cooling element. Do not freeze.

Do not throw away any medicines via wastewater or household waste. Ask your pharmacist how to throw away medicines you no longer use. These measures will help protect the environment.

## **6. Contents of the pack and other information**

### **What Levemir contains**

- The active substance is insulin detemir. Each ml contains 100 units of insulin detemir. Each pre-filled pen contains 300 units of insulin detemir in 3 ml solution for injection. 1 unit insulin detemir corresponds to 1 international unit of human insulin.
- The other ingredients are glycerol, phenol, metacresol, zinc acetate, disodium phosphate dihydrate, sodium chloride, hydrochloric acid, sodium hydroxide and water for injections.

### **What Levemir looks like and contents of the pack**

Levemir is presented as a solution for injection.

Pack sizes of 1 (with or without needles), 5 (without needles) and 10 (without needles) pre-filled pens of 3 ml. Not all pack sizes may be marketed.

### **Marketing Authorisation Holder and Manufacturer**

#### Marketing Authorisation Holder

Novo Nordisk A/S, Novo Allé, DK-2880 Bagsværd, Denmark

#### Manufacturer

The manufacturer can be identified by the batch number printed on the slip of the carton and on the label:

- If the second and third characters are S6, P5, K7, R7, VG, FG or ZF, the manufacturer is Novo Nordisk A/S, Novo Allé, DK-2880 Bagsværd, Denmark.
- If the second and third characters are H7 or T6, the manufacturer is Novo Nordisk Production SAS, 45 Avenue d'Orléans, F-28000 Chartres, France.

**Now turn over for information on how to use your FlexPen.**

**This leaflet was last revised in**

**Other sources of information**

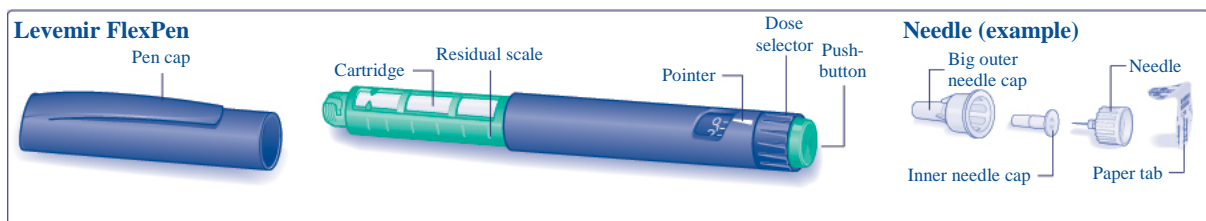
Detailed information on this medicine is available on the European Medicines Agency website:  
<http://www.ema.europa.eu>.



## Instructions on how to use LEVEMIR solution for injection in a FlexPen

**Read the following instructions carefully before using your FlexPen.** If you do not follow the instructions carefully, you may get too little or too much insulin, which can lead to too high or too low blood sugar level.

Your FlexPen is a pre-filled dial-a-dose insulin pen. You can select doses from 1 to 60 units in increments of 1 unit. FlexPen is designed to be used with NovoFine or NovoTwist disposable needles up to a length of 8 mm. As a precautionary measure, always carry a spare insulin delivery device in case your FlexPen in use is lost or damaged.



### Caring for your pen

Your FlexPen must be handled with care.

If it is dropped, damaged or crushed, there is a risk of insulin leakage. This may cause inaccurate dosing, which can lead to too high or too low blood sugar level.

You can clean the exterior of your FlexPen by wiping it with a medicinal swab. Do not soak it, wash or lubricate it as it may damage the pen.

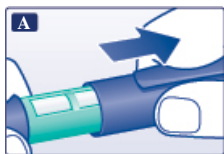
Do not refill your FlexPen.

### Preparing your Levemir FlexPen

**Check the name and coloured label of your pen to make sure that it contains the correct type of insulin.** This is especially important if you take more than one type of insulin. If you take the wrong type of insulin, your blood sugar level may get too high or too low.

**A**

Pull off the pen cap.



**B**

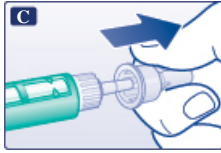
Remove the paper tab from a new disposable needle.

Screw the needle straight and tightly onto your FlexPen.



**C**

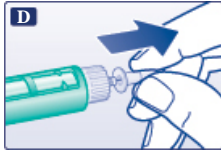
Pull off the big outer needle cap and keep it for later.



#### D

Pull off the inner needle cap and dispose of it.

Never try to put the inner needle cap back on the needle. You may stick yourself with the needle.



⚠ Always use a new needle for each injection. This reduces the risk of contamination, infection, leakage of insulin, blocked needles and inaccurate dosing.

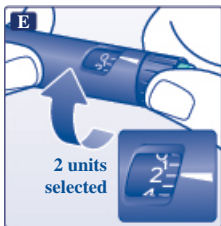
⚠ Be careful not to bend or damage the needle before use.

#### Checking the insulin flow

**Prior to each injection small amounts of air may collect in the cartridge during normal use. To avoid injection of air and ensure proper dosing:**

#### E

Turn the dose selector to select 2 units.



#### F

Hold your FlexPen with the needle pointing upwards and tap the cartridge gently with your finger a few times to make any air bubbles collect at the top of the cartridge.



#### G

Keeping the needle upwards, press the push-button all the way in. The dose selector returns to 0.

A drop of insulin should appear at the needle tip. If not, change the needle and repeat the procedure no more than 6 times.

If a drop of insulin still does not appear, the pen is defective, and you must use a new one.



- ⚠ Always make sure that a drop appears at the needle tip before you inject. This makes sure that the insulin flows. If no drop appears, you will not inject any insulin, even though the dose selector may move. This may indicate a blocked or damaged needle.
- ⚠ Always check the flow before you inject. If you do not check the flow, you may get too little insulin or no insulin at all. This may lead to too high blood sugar level.

### Selecting your dose

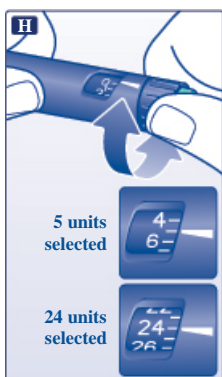
**Check that the dose selector is set at 0.**

#### H

Turn the dose selector to select the number of units you need to inject.

The dose can be corrected either up or down by turning the dose selector in either direction until the correct dose lines up with the pointer. When turning the dose selector be careful not to push the push-button as insulin will come out.

You cannot select a dose larger than the number of units left in the cartridge.



- ⚠ Always use the dose selector and the pointer to see how many units you have selected before injecting the insulin.
- ⚠ Do not count the pen clicks. If you select and inject the wrong dose, your blood sugar level may get too high or too low. Do not use the residual scale, it only shows approximately how much insulin is left in your pen.

### Making the injection

**Insert the needle into your skin. Use the injection technique shown by your doctor or nurse.**

#### I

Inject the dose by pressing the push-button all the way in until 0 lines up with the pointer. Be careful only to push the push-button when injecting.

Turning the dose selector will not inject insulin.

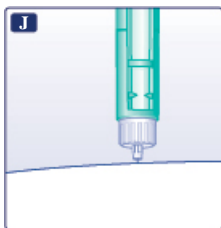


**J**

Keep the push-button fully depressed and let the needle remain under the skin for at least 6 seconds. This will make sure you get the full dose.

Withdraw the needle from the skin then release the pressure on the push-button.

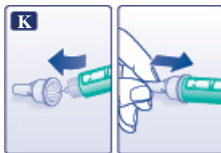
Always make sure that the dose selector returns to 0 after the injection. If the dose selector stops before it returns to 0, the full dose has not been delivered, which may result in too high blood sugar level.



**K**

Lead the needle into the big outer needle cap without touching it. When the needle is covered, carefully push the big outer needle cap completely on and then unscrew the needle.

Dispose of it carefully and put the pen cap back on your FlexPen.



- ⚠ Always remove the needle after each injection and store your FlexPen without the needle attached. This reduces the risk of contamination, infection, leakage of insulin, blocked needles and inaccurate dosing.

### **Further important information**

- ⚠ Caregivers must be very careful when handling used needles – to reduce the risk of needle sticks and cross-infection.
- ⚠ Dispose of your used FlexPen carefully without the needle attached.
- ⚠ Never share your pen or your needles with other people. It might lead to cross-infection.
- ⚠ Never share your pen with other people. Your medicine might be harmful to their health.
- ⚠ Always keep your pen and needles out of sight and reach of others, especially children.

## Package leaflet: Information for the user

### Levemir 100 units/ml solution for injection in pre-filled pen insulin detemir

**Read all of this leaflet carefully before you start using this medicine because it contains important information for you.**

- Keep this leaflet. You may need to read it again.
- If you have any further questions, ask your doctor, nurse or pharmacist.
- This medicine has been prescribed for you only. Do not pass it on to others. It may harm them, even if their signs of illness are the same as yours.
- If you get any side effects, talk to your doctor, nurse or pharmacist. This includes any possible side effects not listed in this leaflet. See section 4.

#### What is in this leaflet

1. What Levemir is and what it is used for
2. What you need to know before you use Levemir
3. How to use Levemir
4. Possible side effects
5. How to store Levemir
6. Contents of the pack and other information

#### 1. What Levemir is and what it is used for

Levemir is a modern insulin (insulin analogue) with a long-acting effect. Modern insulin products are improved versions of human insulin.

Levemir is used to reduce the high blood sugar level in adults, adolescents and children aged 1 year and above with diabetes mellitus (diabetes). Diabetes is a disease where your body does not produce enough insulin to control the level of your blood sugar.

Levemir can be used with meal-related rapid acting insulin medicines. In treatment of type 2 diabetes mellitus, Levemir may also be used in combination with tablets for diabetes and/or with injectable anti-diabetic products, other than insulin.

Levemir has a long and steady blood-sugar-lowering action within 3 to 4 hours after injection. Levemir provides up to 24 hours of basal insulin coverage.

#### 2. What you need to know before you use Levemir

##### Do not use Levemir

- ▶ If you are allergic to insulin detemir or any of the other ingredients in this medicine, see section 6, Contents of the pack and other information.
- ▶ If you suspect hypoglycaemia (low blood sugar) is starting, see a) Summary of serious and very common side effects in section 4.
- ▶ In insulin infusion pumps.
- ▶ If InnoLet is dropped, damaged or crushed.
- ▶ If it has not been stored correctly or been frozen, see section 5, How to store Levemir.
- ▶ If the insulin does not appear water clear, colourless and aqueous.

If any of these applies, do not use Levemir. Talk to your doctor, nurse or pharmacist for advice.

#### Before using Levemir

- ▶ Check the label to make sure it is the right type of insulin.
- ▶ Always use a new needle for each injection to prevent contamination.
- ▶ Needles and Levemir InnoLet must not be shared.
- ▶ Levemir InnoLet is only suitable for injecting under the skin. Speak to your doctor if you need to inject your insulin by another method.

### **Warnings and precautions**

Some conditions and activities can affect your need for insulin. Consult your doctor:

- ▶ If you have trouble with your kidneys or liver, or with your adrenal, pituitary or thyroid glands.
- ▶ If you exercise more than usual or if you want to change your usual diet, as this may affect your blood sugar level.
- ▶ If you are ill, carry on taking your insulin and consult your doctor.
- ▶ If you are going abroad, travelling over time zones may affect your insulin needs and the timing of your injections.
- ▶ If you have very low albumin you need to carefully monitor your blood sugar level. Discuss this with your doctor.

### **Skin changes at the injection site**

The injection site should be rotated to help prevent changes to the fatty tissue under the skin, such as skin thickening, skin shrinking or lumps under the skin. The insulin may not work very well if you inject into a lumpy, shrunken or thickened area (see section 3, How to use Levemir). Tell your doctor if you notice any skin changes at the injection site. Tell your doctor if you are currently injecting into these affected areas before you start injecting in a different area. Your doctor may tell you to check your blood sugar more closely, and to adjust your insulin or your other antidiabetic medications dose.

### **Children and adolescents**

Levemir can be used in adolescents and children aged 1 year and above.

The safety and efficacy of Levemir in children below 1 year of age have not been established. No data are available.

### **Other medicines and Levemir**

Tell your doctor, nurse or pharmacist if you are taking, have recently taken or might take any other medicines.

Some medicines affect your blood sugar level and this may mean that your insulin dose has to change. Listed below are the most common medicines which may affect your insulin treatment.

#### Your blood sugar level may fall (hypoglycaemia) if you take:

- Other medicines for the treatment of diabetes
- Monoamine oxidase inhibitors (MAOI) (used to treat depression)
- Beta-blockers (used to treat high blood pressure)
- Angiotensin converting enzyme (ACE) inhibitors (used to treat certain heart conditions or high blood pressure)
- Salicylates (used to relieve pain and lower fever)
- Anabolic steroids (such as testosterone)
- Sulphonamides (used to treat infections).

#### Your blood sugar level may rise (hyperglycaemia) if you take:

- Oral contraceptives (birth control pills)
- Thiazides (used to treat high blood pressure or excessive fluid retention)
- Glucocorticoids (such as 'cortisone' used to treat inflammation)
- Thyroid hormones (used to treat thyroid gland disorders)

- Sympathomimetics (such as epinephrine [adrenaline], or salbutamol, terbutaline used to treat asthma)
- Growth hormone (medicine for stimulation of skeletal and somatic growth and pronounced influence on the body's metabolic processes)
- Danazol (medicine acting on ovulation).

Octreotide and lanreotide (used for treatment of acromegaly, a rare hormonal disorder that usually occurs in middle-aged adults, caused by the pituitary gland producing excess growth hormone) may either increase or decrease your blood sugar level.

Beta-blockers (used to treat high blood pressure) may weaken or suppress entirely the first warning symptoms which help you to recognise low blood sugar.

#### Pioglitazone (tablets used for the treatment of type 2 diabetes)

Some patients with long-standing type 2 diabetes and heart disease or previous stroke who were treated with pioglitazone and insulin experienced the development of heart failure. Inform your doctor as soon as possible if you experience signs of heart failure such as unusual shortness of breath or rapid increase in weight or localised swelling (oedema).

If you have taken any of the medicines listed here, tell your doctor, nurse or pharmacist.

#### **Drinking alcohol and taking Levemir**

- ▶ If you drink alcohol, your need for insulin may change as your blood sugar level may either rise or fall. Careful monitoring is recommended.

#### **Pregnancy and breast-feeding**

- ▶ If you are pregnant, think you may be pregnant or are planning to have a baby, ask your doctor for advice before taking this medicine. Your insulin dose may need to be changed during pregnancy and after delivery. Careful control of your diabetes, particularly prevention of hypoglycaemia, is important for the health of your baby.
- ▶ If you are breast-feeding consult your doctor as you may require adjustments in your insulin doses.

Ask your doctor, nurse or pharmacist for advice before taking any medicine while pregnant or breast-feeding.

#### **Driving and using machines**

- ▶ Please ask your doctor whether you can drive a car or operate a machine:
  - If you have frequent hypoglycaemia.
  - If you find it hard to recognise hypoglycaemia.

If your blood sugar is low or high, it might affect your concentration and ability to react and therefore also your ability to drive a car or operate a machine. Bear in mind that you could endanger yourself or others.

#### **Important information about some of the ingredients in Levemir**

Levemir contains less than 1 mmol sodium (23 mg) per dose, i.e. Levemir is essentially 'sodium-free'.

### **3. How to use Levemir**

#### **Dose and when to take your insulin**

Always use your insulin and adjust your dose exactly as your doctor has told you. Check with your

doctor, nurse or pharmacist if you are not sure.

Levemir can be used with meal-related rapid acting insulin medicines.

In treatment of type 2 diabetes mellitus, Levemir may also be used in combination with tablets for diabetes and/or with injectable anti-diabetic products, other than insulin.

Do not change your insulin unless your doctor tells you to.

Your dose may have to be adjusted by your doctor if:

- your doctor has switched you from one type or brand of insulin to another, or
- your doctor has added another medicine for the treatment of diabetes, in addition to your Levemir treatment.

### **Use in children and adolescents**

Levemir can be used in adolescents and children aged 1 year and above.

There is no experience with the use of Levemir in children below the age of 1 year.

### **Use in special patient groups**

If you have reduced kidney or liver function, or if you are above 65 years of age, you need to check your blood sugar more regularly and discuss changes in your insulin dose with your doctor.

### **How often to inject**

When Levemir is used in combination with tablets for diabetes and/or in combination with injectable anti-diabetic products, other than insulin, Levemir should be administered once a day. When Levemir is used as part of a basal-bolus insulin regimen Levemir should be administered once or twice daily depending on patients' needs. Dose of Levemir should be adjusted individually. The injection can be given at any time during the day, but at the same time each day. For patients who require twice daily dosing to optimise blood sugar control, the evening dose can be administered in the evening or at bedtime.

### **How and where to inject**

Levemir is for injection under the skin (subcutaneously). You must never inject Levemir directly into a vein (intravenously) or muscle (intramuscularly). Levemir InnoLet is only suitable for injecting under the skin. Speak to your doctor if you need to inject your insulin by another method.

With each injection, change the injection site within the particular area of skin that you use. This may reduce the risk of developing lumps or skin pitting (see section 4, Possible side effects). The best places to give yourself an injection are: the front of your thighs, the front of your waist (abdomen), or the upper arm. You should always measure your blood sugar regularly.

### **How to handle Levemir InnoLet**

Levemir InnoLet is a pre-filled disposable pen containing insulin detemir.

Read carefully the instructions for use included in this package leaflet. You must use the pen as described in the Instructions for use.

Always ensure you use the correct pen before you inject your insulin.

### **If you take more insulin than you should**

If you take too much insulin your blood sugar gets too low (hypoglycaemia). See a) Summary of serious and very common side effects in section 4.



## **If you forget to take your insulin**

If you forget to take your insulin your blood sugar may get too high (hyperglycaemia). See c) Effects from diabetes in section 4.

## **If you stop taking your insulin**

Do not stop taking your insulin without speaking with a doctor, who will tell you what needs to be done. This could lead to very high blood sugar (severe hyperglycaemia) and ketoacidosis. See c) Effects from diabetes in section 4.

If you have any further questions on the use of this medicine, ask your doctor or pharmacist.

## **4. Possible side effects**

Like all medicines, this medicine can cause side effects, although not everybody gets them.

### **a) Summary of serious and very common side effects**

**Low blood sugar (hypoglycaemia)** is a very common side effect. It may affect more than 1 in 10 people.

#### Low blood sugar may occur if you:

- Inject too much insulin.
- Eat too little or miss a meal.
- Exercise more than usual.
- Drink alcohol (see section 2 Drinking alcohol and taking Levemir).

Signs of low blood sugar: Cold sweat; cool pale skin; headache; rapid heartbeat; feeling sick; feeling very hungry; temporary changes in vision; drowsiness; unusual tiredness and weakness; nervousness or tremor; feeling anxious; feeling confused; difficulty in concentrating.

Severe low blood sugar can lead to unconsciousness. If prolonged severe low blood sugar is not treated, it can cause brain damage (temporary or permanent) and even death. You may recover more quickly from unconsciousness with an injection of the hormone glucagon given by someone who knows how to use it. If you are given glucagon you will need glucose or a sugar snack as soon as you are conscious. If you do not respond to glucagon treatment, you will have to be treated in a hospital.

#### What to do if you experience low blood sugar:

- ▶ If you experience low blood sugar, eat glucose tablets or another high sugar snack (e.g. sweets, biscuits, fruit juice). Measure your blood sugar if possible and rest. Always carry glucose tablets or high sugar snacks with you, just in case.
- ▶ When the symptoms of low blood sugar have disappeared or when your blood sugar level is stabilised, continue insulin treatment as usual.
- ▶ If you have such low blood sugar that makes you pass out, if you have had the need for an injection of glucagon, or if you have experienced many incidents of low blood sugar, talk to a doctor. The amount or timing of insulin, food or exercise may need to be adjusted.

Tell relevant people that you have diabetes and what the consequences may be, including the risk of passing out (becoming unconscious) due to low blood sugar. Let them know that if you pass out, they must turn you on your side and get medical help straight away. They must not give you any food or drink because you may choke.

**Serious allergic reaction** to Levemir or one of its ingredients (called a systemic allergic reaction) is a very rare side effect but can potentially be life threatening. It may affect less than 1 in 10,000 people.

Seek medical advice immediately:

- If signs of allergy spread to other parts of your body.
- If you suddenly feel unwell, and you: start sweating; start being sick (vomiting); have difficulty in breathing; have a rapid heartbeat; feel dizzy.
- ▶ If you notice any of these signs, seek medical advice immediately.

**Skin changes at the injection site:** If you inject insulin at the same place, the fatty tissue may shrink (lipoatrophy) or thicken (lipohypertrophy) (may affect less than 1 in 100 people). Lumps under the skin may also be caused by build-up of a protein called amyloid (cutaneous amyloidosis; how often this occurs is not known). The insulin may not work very well if you inject into a lumpy, shrunken or thickened area. Change the injection site with each injection to help prevent these skin changes.

## **b) List of other side effects**

### **Uncommon side effects**

May affect less than 1 in 100 people.

Signs of allergy: Local allergic reactions (pain, redness, hives, inflammation, bruising, swelling and itching) at the injection site may occur. These usually disappear after a few weeks of taking your insulin. If they do not disappear, or if they spread throughout your body, talk to your doctor immediately. See also Serious allergic reaction above.

Vision problems: When you first start your insulin treatment, it may disturb your vision, but the disturbance is usually temporary.

Swollen joints: When you start taking insulin, water retention may cause swelling around your ankles and other joints. Normally this soon disappears. If not, contact your doctor.

Diabetic retinopathy (an eye disease related to diabetes which can lead to loss of vision): If you have diabetic retinopathy and your blood sugar level improves very fast, the retinopathy may get worse. Ask your doctor about this.

### **Rare side effects**

May affect less than 1 in 1,000 people.

Painful neuropathy (pain due to nerve damage): If your blood sugar level improves very fast, you may get nerve related pain, this is called acute painful neuropathy and is usually transient.

### **Reporting of side effects**

If you get any side effects, talk to your doctor, pharmacist or nurse. This includes any possible side effects not listed in this leaflet. You can also report side effects directly via [the national reporting system listed in Appendix V](#). By reporting side effects you can help provide more information on the safety of this medicine.

## **c) Effects from diabetes**

### **High blood sugar (hyperglycaemia)**

High blood sugar may occur if you:

- Have not injected enough insulin.
- Forget to take your insulin or stop taking insulin.
- Repeatedly take less insulin than you need.
- Get an infection and/or a fever.
- Eat more than usual.
- Exercise less than usual.

Warning signs of high blood sugar:

The warning signs appear gradually. They include: increased urination; feeling thirsty; losing your appetite; feeling sick (nausea or vomiting); feeling drowsy or tired; flushed; dry skin; dry mouth and a fruity (acetone) smell of the breath.

What to do if you experience high blood sugar:

- ▶ If you get any of above signs: test your blood sugar level, test your urine for ketones if you can, then seek medical advice immediately.
- ▶ These may be signs of a very serious condition called diabetic ketoacidosis (build-up of acid in the blood because the body is breaking down fat instead of sugar). If you do not treat it, this could lead to diabetic coma and eventually death.

## **5. How to store Levemir**

Keep this medicine out of the sight and reach of children.

Do not use this medicine after the expiry date which is stated on the InnoLet label and carton after 'EXP'. The expiry date refers to the last day of that month.

Always keep the pen cap on your InnoLet when you are not using it in order to protect it from light. Levemir must be protected from excessive heat and light.

**Before opening:** Levemir InnoLet that is not being used is to be stored in the refrigerator at 2°C to 8°C, away from the cooling element. Do not freeze.

**During use or when carried as a spare:** Levemir InnoLet that is being used or carried as a spare should not be kept in the refrigerator. You can carry it with you and keep it at room temperature (below 30°C) for up to 6 weeks.

Do not throw away any medicines via wastewater or household waste. Ask your pharmacist how to throw away medicines you no longer use. These measures will help protect the environment.

## **6. Contents of the pack and other information**

### **What Levemir contains**

- The active substance is insulin detemir. Each ml contains 100 units of insulin detemir. Each pre-filled pen contains 300 units of insulin detemir in 3 ml solution for injection. 1 unit insulin detemir corresponds to 1 international unit of human insulin.
- The other ingredients are glycerol, phenol, metacresol, zinc acetate, disodium phosphate dihydrate, sodium chloride, hydrochloric acid, sodium hydroxide and water for injections.

### **What Levemir looks like and contents of the pack**

Levemir is presented as a solution for injection.

Pack sizes of 1, 5 and 10 pre-filled pens of 3 ml. Not all pack sizes may be marketed.

### **Marketing Authorisation Holder and Manufacturer**

Novo Nordisk A/S, Novo Allé, DK-2880 Bagsværd, Denmark

**Now turn over for information on how to use your InnoLet.**

**This leaflet was last revised in**

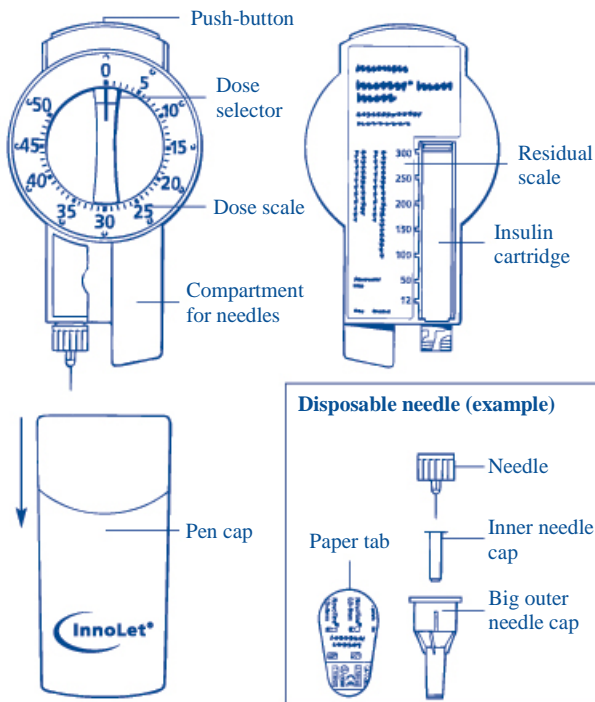
**Other sources of information**

Detailed information on this medicine is available on the European Medicines Agency website:  
<http://www.ema.europa.eu>.

## Instructions on how to use LEVEMIR solution for injection in InnoLet

**Read the instructions carefully before using your InnoLet.** If you do not follow the instructions carefully, you may get too little or too much insulin, which can lead to too high or too low blood sugar level.

Your InnoLet is a simple, compact pre-filled pen able to deliver 1 to 50 units in increments of 1 unit. InnoLet is designed to be used with NovoFine or NovoTwist disposable needles up to a length of 8 mm. As a precautionary measure, always carry a spare insulin delivery device in case your InnoLet in use is lost or damaged.

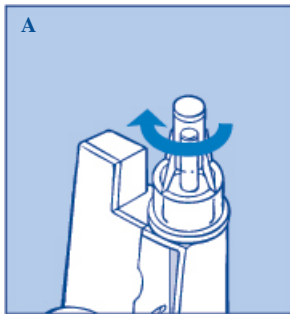


### Getting started

**Check the name and coloured label** of your InnoLet to make sure that it contains the correct type of insulin. This is especially important if you take more than one type of insulin. If you take the wrong type of insulin, your blood sugar level may get too high or too low. Take off the pen cap.

### Attaching the needle

- **Always use a new needle** for each injection. This reduces the risk of contamination, infection, leakage of insulin, blocked needles and inaccurate dosing.
- Be careful not to bend or damage the needle before use.
- **Remove the paper tab** from a new disposable needle.
- **Screw the needle straight and tightly** onto your InnoLet (picture A).
- **Pull off the big outer needle cap and the inner needle cap.** You may want to store the big outer needle cap in the compartment. Never try to put the inner needle cap back on the needle. You may stick yourself with the needle.



### Priming to expel air prior to each injection

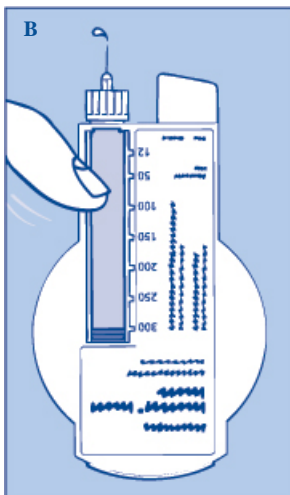
Small amounts of air may collect in the needle and cartridge during normal use.

To avoid injection of air and ensure proper dosing:

- **Dial 2 units** by turning the dose selector clockwise.
- **Hold InnoLet with the needle upwards and tap the cartridge gently** with your finger a few times (picture B) to make any air bubbles collect at the top of the cartridge.
- **Keeping the needle upwards, press the push-button** and the dose selector returns to 0.
- **Always make sure that a drop appears at the needle tip** before injection (picture B). This makes sure the insulin flows. If not, change the needle and repeat the procedure no more than 6 times.

**If a drop of insulin still does not appear, the device is defective and must not be used.**

- If no drop appears, you will not inject any insulin, even though the dose selector may move. This may indicate a blocked or damaged needle.
- Always prime InnoLet before you inject. If you do not prime InnoLet, you may get too little insulin or no insulin at all. This may lead to too high blood sugar level.



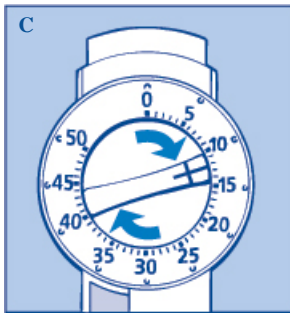
### Setting the dose

- **Always check that the push-button is fully depressed and the dose selector is set to 0.**
- **Dial the number of units required** by turning the dose selector clockwise (picture C).
- **You will hear a click for every single unit dialled.** The dose can be corrected by turning the dial either way. Make sure not to turn the dial or correct the dose when the needle is inserted in the skin. This may lead to inaccurate dosing that can make your blood sugar level too high or too low.

Always use the dose scale and the dose selector to see how many units you have selected before

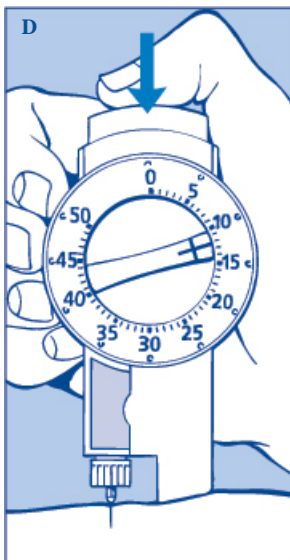
injecting the insulin. Do not count the pen clicks. If you select and inject the wrong dose, your blood sugar level may get too high or too low. Do not use the residual scale, it only shows approximately how much insulin is left in your pen.

You cannot set a dose larger than the number of units remaining in the cartridge.



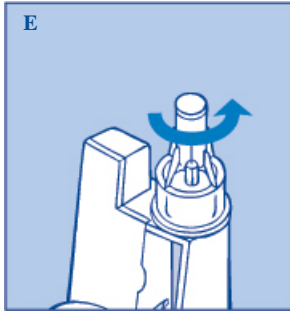
### Injecting the insulin

- **Insert the needle into your skin.** Use the injection technique advised by your doctor.
- **Deliver the dose by pressing the push-button fully down** (picture D). You will hear clicks as the dose selector returns to 0.
- **After the injection, the needle should remain under the skin for at least 6 seconds** to ensure that the full dose has been delivered.
- **Make sure not to block the dose selector while injecting,** as the dose selector must be allowed to return to 0 when you press the push-button. Always make sure that the dose selector returns to 0 after the injection. If the dose selector stops before it returns to 0, the full dose has not been delivered, which may result in too high blood sugar level.
- Discard the needle after each injection.



### Removing the needle

- **Replace the big outer needle cap and unscrew the needle** (picture E). **Dispose of it carefully.**
- Put the pen cap back on your InnoLet to protect the insulin from light.



Always use a new needle for each injection. Always remove and discard the needle after each injection and store your InnoLet without the needle attached. This reduces the risk of contamination, infection, leakage of insulin, blocked needles and inaccurate dosing.

### **Further important information**

Caregivers must be very careful when handling used needles – to reduce the risk of needle sticks and cross-infection

Dispose of your used InnoLet carefully without the needle attached.

Never share your pen or your needles with other people. It might lead to cross-infection.

Never share your pen with other people. Your medicine might be harmful to their health.

Always keep your InnoLet and needles out of sight and reach of others, especially children.

### **Caring for your pen**

Your InnoLet is designed to work accurately and safely. It must be handled with care. If it is dropped, damaged or crushed, there is a risk of insulin leakage. This may cause inaccurate dosing, which can lead to too high or too low blood sugar level.

You can clean your InnoLet by wiping it with a medicinal swab. Do not soak, wash or lubricate it. This may damage the mechanism and may cause inaccurate dosing, which can lead to too high or too low blood sugar level.

Do not refill your InnoLet.



## Package leaflet: Information for the user

### Levemir 100 units/ml solution for injection in pre-filled pen insulin detemir

**Read all of this leaflet carefully before you start using this medicine because it contains important information for you.**

- Keep this leaflet. You may need to read it again.
- If you have any further questions, ask your doctor, nurse or pharmacist.
- This medicine has been prescribed for you only. Do not pass it on to others. It may harm them, even if their signs of illness are the same as yours.
- If you get any side effects, talk to your doctor, nurse or pharmacist. This includes any possible side effects not listed in this leaflet. See section 4.

#### What is in this leaflet

1. What Levemir is and what it is used for
2. What you need to know before you use Levemir
3. How to use Levemir
4. Possible side effects
5. How to store Levemir
6. Contents of the pack and other information

#### 1. What Levemir is and what it is used for

Levemir is a modern insulin (insulin analogue) with a long-acting effect. Modern insulin products are improved versions of human insulin.

Levemir is used to reduce the high blood sugar level in adults, adolescents and children aged 1 year and above with diabetes mellitus (diabetes). Diabetes is a disease where your body does not produce enough insulin to control the level of your blood sugar.

Levemir can be used with meal-related rapid acting insulin medicines. In treatment of type 2 diabetes mellitus, Levemir may also be used in combination with tablets for diabetes and/or with injectable anti-diabetic products, other than insulin.

Levemir has a long and steady blood-sugar-lowering action within 3 to 4 hours after injection. Levemir provides up to 24 hours of basal insulin coverage.

#### 2. What you need to know before you use Levemir

##### Do not use Levemir

- ▶ If you are allergic to insulin detemir or any of the other ingredients in this medicine, see section 6, Contents of the pack and other information.
- ▶ If you suspect hypoglycaemia (low blood sugar) is starting, see a) Summary of serious and very common side effects in section 4.
- ▶ In insulin infusion pumps.
- ▶ If FlexTouch is dropped, damaged or crushed.
- ▶ If it has not been stored correctly or been frozen, see section 5, How to store Levemir.
- ▶ If the insulin does not appear water clear, colourless and aqueous.

If any of these applies, do not use Levemir. Talk to your doctor, nurse or pharmacist for advice.

##### Before using Levemir

- ▶ Check the label to make sure it is the right type of insulin.
- ▶ Always use a new needle for each injection to prevent contamination.
- ▶ Needles and Levemir FlexTouch must not be shared.
- ▶ Levemir FlexTouch is only suitable for injecting under the skin. Speak to your doctor if you need to inject your insulin by another method.

### **Warnings and precautions**

Some conditions and activities can affect your need for insulin. Consult your doctor:

- ▶ If you have trouble with your kidneys or liver, or with your adrenal, pituitary or thyroid glands.
- ▶ If you exercise more than usual or if you want to change your usual diet, as this may affect your blood sugar level.
- ▶ If you are ill, carry on taking your insulin and consult your doctor.
- ▶ If you are going abroad, travelling over time zones may affect your insulin needs and the timing of your injections.
- ▶ If you have very low albumin you need to carefully monitor your blood sugar level. Discuss this with your doctor.

### **Skin changes at the injection site**

The injection site should be rotated to help prevent changes to the fatty tissue under the skin, such as skin thickening, skin shrinking or lumps under the skin. The insulin may not work very well if you inject into a lumpy, shrunken or thickened area (see section 3, How to use Levemir). Tell your doctor if you notice any skin changes at the injection site. Tell your doctor if you are currently injecting into these affected areas before you start injecting in a different area. Your doctor may tell you to check your blood sugar more closely, and to adjust your insulin or your other antidiabetic medications dose.

### **Children and adolescents**

Levemir can be used in adolescents and children aged 1 year and above.

The safety and efficacy of Levemir in children below 1 year of age have not been established. No data are available.

### **Other medicines and Levemir**

Tell your doctor, nurse or pharmacist if you are taking, have recently taken or might take any other medicines.

Some medicines affect your blood sugar level and this may mean that your insulin dose has to change. Listed below are the most common medicines which may affect your insulin treatment.

#### Your blood sugar level may fall (hypoglycaemia) if you take:

- Other medicines for the treatment of diabetes
- Monoamine oxidase inhibitors (MAOI) (used to treat depression)
- Beta-blockers (used to treat high blood pressure)
- Angiotensin converting enzyme (ACE) inhibitors (used to treat certain heart conditions or high blood pressure)
- Salicylates (used to relieve pain and lower fever)
- Anabolic steroids (such as testosterone)
- Sulphonamides (used to treat infections).

#### Your blood sugar level may rise (hyperglycaemia) if you take:

- Oral contraceptives (birth control pills)
- Thiazides (used to treat high blood pressure or excessive fluid retention)
- Glucocorticoids (such as 'cortisone' used to treat inflammation)
- Thyroid hormones (used to treat thyroid gland disorders)

- Sympathomimetics (such as epinephrine [adrenaline], or salbutamol, terbutaline used to treat asthma)
- Growth hormone (medicine for stimulation of skeletal and somatic growth and pronounced influence on the body's metabolic processes)
- Danazol (medicine acting on ovulation).

Octreotide and lanreotide (used for treatment of acromegaly, a rare hormonal disorder that usually occurs in middle-aged adults, caused by the pituitary gland producing excess growth hormone) may either increase or decrease your blood sugar level.

Beta-blockers (used to treat high blood pressure) may weaken or suppress entirely the first warning symptoms which help you to recognise low blood sugar.

#### Pioglitazone (tablets used for the treatment of type 2 diabetes)

Some patients with long-standing type 2 diabetes and heart disease or previous stroke who were treated with pioglitazone and insulin experienced the development of heart failure. Inform your doctor as soon as possible if you experience signs of heart failure such as unusual shortness of breath or rapid increase in weight or localised swelling (oedema).

If you have taken any of the medicines listed here, tell your doctor, nurse or pharmacist.

#### **Drinking alcohol and taking Levemir**

- ▶ If you drink alcohol, your need for insulin may change as your blood sugar level may either rise or fall. Careful monitoring is recommended.

#### **Pregnancy and breast-feeding**

- ▶ If you are pregnant, think you may be pregnant or are planning to have a baby, ask your doctor for advice before taking this medicine. Your insulin dose may need to be changed during pregnancy and after delivery. Careful control of your diabetes, particularly prevention of hypoglycaemia, is important for the health of your baby.
- ▶ If you are breast-feeding consult your doctor as you may require adjustments in your insulin doses.

Ask your doctor, nurse or pharmacist for advice before taking any medicine while pregnant or breast-feeding.

#### **Driving and using machines**

- ▶ Please ask your doctor whether you can drive a car or operate a machine:
  - If you have frequent hypoglycaemia.
  - If you find it hard to recognise hypoglycaemia.

If your blood sugar is low or high, it might affect your concentration and ability to react and therefore also your ability to drive a car or operate a machine. Bear in mind that you could endanger yourself or others.

#### **Important information about some of the ingredients in Levemir**

Levemir contains less than 1 mmol sodium (23 mg) per dose, i.e. Levemir is essentially 'sodium-free'.

### **3. How to use Levemir**

#### **Dose and when to take your insulin**

Always use your insulin and adjust your dose exactly as your doctor has told you. Check with your

doctor, nurse or pharmacist if you are not sure.

Levemir can be used with meal-related rapid acting insulin medicines.

In treatment of type 2 diabetes mellitus, Levemir may also be used in combination with tablets for diabetes and/or with injectable anti-diabetic products, other than insulin.

Do not change your insulin unless your doctor tells you to.

Your dose may have to be adjusted by your doctor if:

- your doctor has switched you from one type or brand of insulin to another, or
- your doctor has added another medicine for the treatment of diabetes, in addition to your Levemir treatment.

### **Use in children and adolescents**

Levemir can be used in adolescents and children aged 1 year and above.

There is no experience with the use of Levemir in children below the age of 1 year.

### **Use in special patient groups**

If you have reduced kidney or liver function, or if you are above 65 years of age, you need to check your blood sugar more regularly and discuss changes in your insulin dose with your doctor.

### **How often to inject**

When Levemir is used in combination with tablets for diabetes and/or in combination with injectable anti-diabetic products, other than insulin, Levemir should be administered once a day. When Levemir is used as part of a basal-bolus insulin regimen Levemir should be administered once or twice daily depending on patients' needs. Dose of Levemir should be adjusted individually. The injection can be given at any time during the day, but at the same time each day. For patients who require twice daily dosing to optimise blood sugar control, the evening dose can be administered in the evening or at bedtime.

### **How and where to inject**

Levemir is for injection under the skin (subcutaneously). You must never inject Levemir directly into a vein (intravenously) or muscle (intramuscularly). Levemir FlexTouch is only suitable for injecting under the skin. Speak to your doctor if you need to inject your insulin by another method.

With each injection, change the injection site within the particular area of skin that you use. This may reduce the risk of developing lumps or skin pitting (see section 4, Possible side effects). The best places to give yourself an injection are: the front of your thighs, the front of your waist (abdomen), or the upper arm. You should always measure your blood sugar regularly.

### **How to handle Levemir FlexTouch**

Levemir FlexTouch is a pre-filled, colour-coded, disposable pen containing insulin detemir.

Read carefully the instructions for use included in this package leaflet. You must use the pen as described in the Instructions for use.

Always ensure you use the correct pen before you inject your insulin.

### **If you take more insulin than you should**

If you take too much insulin your blood sugar gets too low (hypoglycaemia). See a) Summary of serious and very common side effects in section 4.

## **If you forget to take your insulin**

If you forget to take your insulin your blood sugar may get too high (hyperglycaemia). See c) Effects from diabetes in section 4.

## **If you stop taking your insulin**

Do not stop taking your insulin without speaking with a doctor, who will tell you what needs to be done. This could lead to very high blood sugar (severe hyperglycaemia) and ketoacidosis. See c) Effects from diabetes in section 4.

If you have any further questions on the use of this medicine, ask your doctor or pharmacist.

## **4. Possible side effects**

Like all medicines, this medicine can cause side effects, although not everybody gets them.

### **a) Summary of serious and very common side effects**

**Low blood sugar (hypoglycaemia)** is a very common side effect. It may affect more than 1 in 10 people.

#### Low blood sugar may occur if you:

- Inject too much insulin.
- Eat too little or miss a meal.
- Exercise more than usual.
- Drink alcohol (see section 2 Drinking alcohol and taking Levemir).

Signs of low blood sugar: Cold sweat; cool pale skin; headache; rapid heartbeat; feeling sick; feeling very hungry; temporary changes in vision; drowsiness; unusual tiredness and weakness; nervousness or tremor; feeling anxious; feeling confused; difficulty in concentrating.

Severe low blood sugar can lead to unconsciousness. If prolonged severe low blood sugar is not treated, it can cause brain damage (temporary or permanent) and even death. You may recover more quickly from unconsciousness with an injection of the hormone glucagon given by someone who knows how to use it. If you are given glucagon you will need glucose or a sugar snack as soon as you are conscious. If you do not respond to glucagon treatment, you will have to be treated in a hospital.

#### What to do if you experience low blood sugar:

- ▶ If you experience low blood sugar, eat glucose tablets or another high sugar snack (e.g. sweets, biscuits, fruit juice). Measure your blood sugar if possible and rest. Always carry glucose tablets or high sugar snacks with you, just in case.
- ▶ When the symptoms of low blood sugar have disappeared or when your blood sugar level is stabilised, continue insulin treatment as usual.
- ▶ If you have such low blood sugar that makes you pass out, if you have had the need for an injection of glucagon, or if you have experienced many incidents of low blood sugar, talk to a doctor. The amount or timing of insulin, food or exercise may need to be adjusted.

Tell relevant people that you have diabetes and what the consequences may be, including the risk of passing out (becoming unconscious) due to low blood sugar. Let them know that if you pass out, they must turn you on your side and get medical help straight away. They must not give you any food or drink because you may choke.

**Serious allergic reaction** to Levemir or one of its ingredients (called a systemic allergic reaction) is a very rare side effect but can potentially be life threatening. It may affect less than 1 in 10,000 people.

Seek medical advice immediately:

- If signs of allergy spread to other parts of your body.
- If you suddenly feel unwell, and you: start sweating; start being sick (vomiting); have difficulty in breathing; have a rapid heartbeat; feel dizzy.
- ▶ If you notice any of these signs, seek medical advice immediately.

**Skin changes at the injection site:** If you inject insulin at the same place, the fatty tissue may shrink (lipoatrophy) or thicken (lipohypertrophy) (may affect less than 1 in 100 people). Lumps under the skin may also be caused by build-up of a protein called amyloid (cutaneous amyloidosis; how often this occurs is not known). The insulin may not work very well if you inject into a lumpy, shrunken or thickened area. Change the injection site with each injection to help prevent these skin changes.

## **b) List of other side effects**

### **Uncommon side effects**

May affect less than 1 in 100 people.

Signs of allergy: Local allergic reactions (pain, redness, hives, inflammation, bruising, swelling and itching) at the injection site may occur. These usually disappear after a few weeks of taking your insulin. If they do not disappear, or if they spread throughout your body, talk to your doctor immediately. See also Serious allergic reaction above.

Vision problems: When you first start your insulin treatment, it may disturb your vision, but the disturbance is usually temporary.

Swollen joints: When you start taking insulin, water retention may cause swelling around your ankles and other joints. Normally this soon disappears. If not, contact your doctor.

Diabetic retinopathy (an eye disease related to diabetes which can lead to loss of vision): If you have diabetic retinopathy and your blood sugar level improves very fast, the retinopathy may get worse. Ask your doctor about this.

### **Rare side effects**

May affect less than 1 in 1,000 people.

Painful neuropathy (pain due to nerve damage): If your blood sugar level improves very fast, you may get nerve related pain, this is called acute painful neuropathy and is usually transient.

### **Reporting of side effects**

If you get any side effects, talk to your doctor, pharmacist or nurse. This includes any possible side effects not listed in this leaflet. You can also report side effects directly via the national reporting system listed in Appendix V. By reporting side effects you can help provide more information on the safety of this medicine.

## **c) Effects from diabetes**

### **High blood sugar (hyperglycaemia)**

High blood sugar may occur if you:

- Have not injected enough insulin.
- Forget to take your insulin or stop taking insulin.
- Repeatedly take less insulin than you need.
- Get an infection and/or a fever.
- Eat more than usual.
- Exercise less than usual.

### Warning signs of high blood sugar:

The warning signs appear gradually. They include: increased urination; feeling thirsty; losing your appetite; feeling sick (nausea or vomiting); feeling drowsy or tired; flushed; dry skin; dry mouth and a fruity (acetone) smell of the breath.

### What to do if you experience high blood sugar:

- ▶ If you get any of above signs: test your blood sugar level, test your urine for ketones if you can, then seek medical advice immediately.
- ▶ These may be signs of a very serious condition called diabetic ketoacidosis (build-up of acid in the blood because the body is breaking down fat instead of sugar). If you do not treat it, this could lead to diabetic coma and eventually death.

## **5. How to store Levemir**

Keep this medicine out of the sight and reach of children.

Do not use this medicine after the expiry date which is stated on the FlexTouch label and carton after 'EXP'. The expiry date refers to the last day of that month.

Always keep the pen cap on your FlexTouch when you are not using it in order to protect it from light. Levemir must be protected from excessive heat and light.

**Before opening:** Levemir FlexTouch that is not being used is to be stored in the refrigerator at 2°C to 8°C, away from the cooling element. Do not freeze.

**During use or when carried as a spare:** You can carry your Levemir FlexTouch with you and keep it at a temperature below 30°C or in a refrigerator (2°C to 8°C) for up to 6 weeks. If refrigerated, keep away from the cooling element. Do not freeze.

Do not throw away any medicines via wastewater or household waste. Ask your pharmacist how to throw away medicines you no longer use. These measures will help protect the environment.

## **6. Contents of the pack and other information**

### **What Levemir contains**

- The active substance is insulin detemir. Each ml contains 100 units of insulin detemir. Each pre-filled pen contains 300 units of insulin detemir in 3 ml solution for injection. 1 unit insulin detemir corresponds to 1 international unit of human insulin.
- The other ingredients are glycerol, phenol, metacresol, zinc acetate, disodium phosphate dihydrate, sodium chloride, hydrochloric acid, sodium hydroxide and water for injections.

### **What Levemir looks like and contents of the pack**

Levemir is presented as a solution for injection.

Pack sizes of 1 (with or without needles), 5 (without needles) or a multipack with 2 x 5 (without needles) pre-filled pens of 3 ml. Not all pack sizes may be marketed.

### **Marketing Authorisation Holder and Manufacturer**

Novo Nordisk A/S, Novo Allé, DK-2880 Bagsværd, Denmark

**Now turn over for information on how to use your FlexTouch.**

**This leaflet was last revised in**

**Other sources of information**

Detailed information on this medicine is available on the European Medicines Agency website:  
<http://www.ema.europa.eu>.



## Instructions on how to use Levemir 100 units/ml solution for injection in pre-filled pen (FlexTouch)

**Please read these instructions carefully before using your FlexTouch pre-filled pen.** If you do not follow the instructions carefully, you may get too little or too much insulin, which can lead to too high or too low blood sugar level.

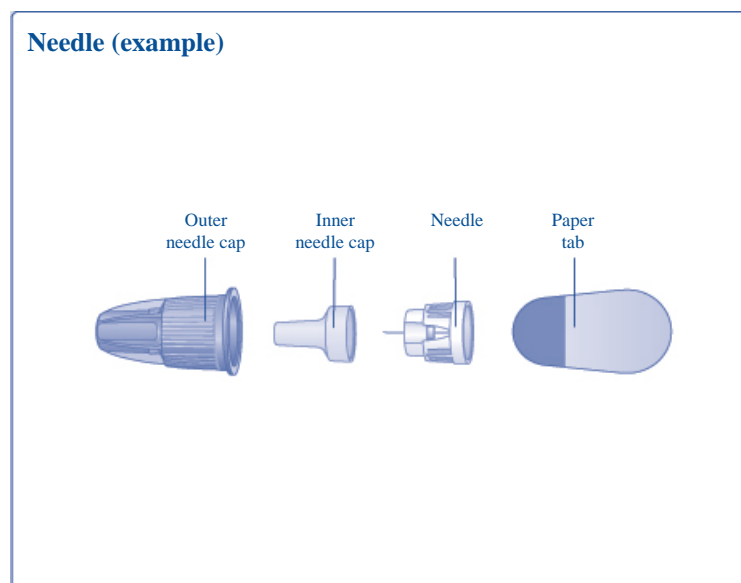
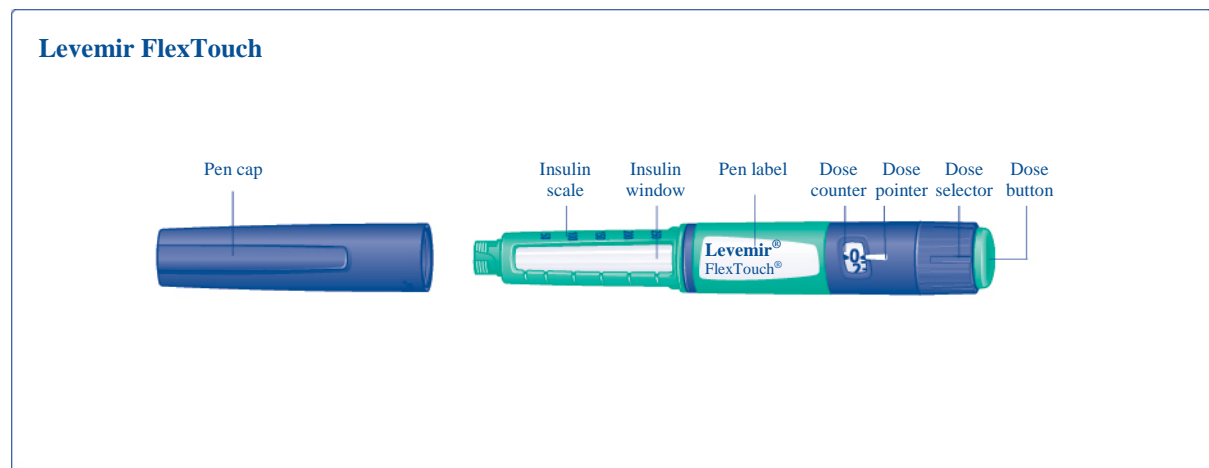
**Do not use the pen without proper training** from your doctor or nurse.

Start by checking your pen **to make sure that it contains Levemir 100 units/ml**, then look at the illustrations to the right to get to know the different parts of your pen and needle.

**If you are blind or have poor eyesight and cannot read the dose counter on the pen, do not use this pen without help.** Get help from a person with good eyesight who is trained to use the FlexTouch pre-filled pen.

Your Levemir FlexTouch pen is a pre-filled insulin pen Levemir FlexTouch contains 300 units of insulin and delivers doses from 1 to 80 units, in increments of 1 unit.

Levemir FlexTouch is designed to be used with **NovoFine or NovoTwist** single-use disposable needles up to a length of 8 mm.

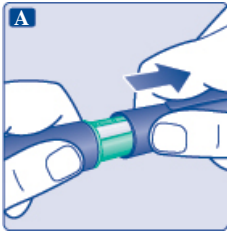


### Preparing your Levemir FlexTouch pen

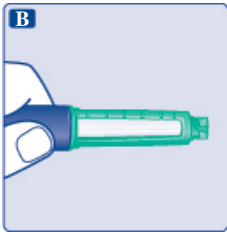
**Check the name and coloured label on your Levemir FlexTouch pen to make sure that it contains the type of insulin you need.** This is especially important if you take more than one type of

insulin. If you take a wrong type of insulin, your blood sugar level may get too high or too low.

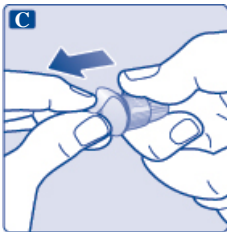
- A.** Pull off the pen cap.



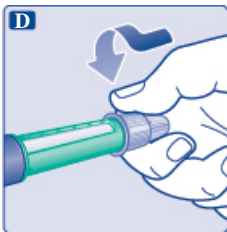
- B.** Check that the insulin in your pen is clear and colourless.  
Look through the insulin window. If the insulin looks cloudy, do not use the pen.



- C.** Take a new disposable needle and tear off the paper tab.



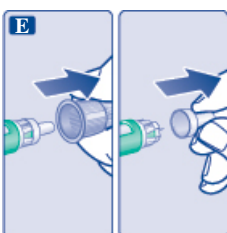
- D.** Screw the needle straight onto the pen. Make sure the needle is on tight.



- E.** Pull off the outer needle cap and save it. You will need it after the injection, to correctly remove the needle from the pen.

Pull off the inner needle cap and throw it away. If you try to put it back on, you may accidentally stick yourself with the needle.

A drop of insulin may appear at the needle tip. This is normal.

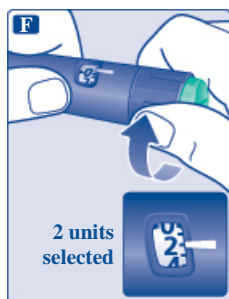


- ⚠ **Always use a new needle for each injection.** This reduces the risk of contamination, infection, leakage of insulin, blocked needles and inaccurate dosing.
- ⚠ **Never use a bent or damaged needle.**

### Checking the insulin flow

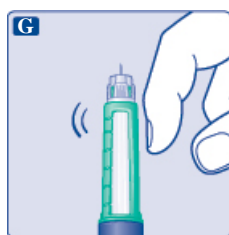
**Make sure that you receive your full dose by always checking the insulin flow before you select and inject your dose.**

- F.** Turn the dose selector to select 2 units.



- G.** Hold the pen with the needle pointing up.

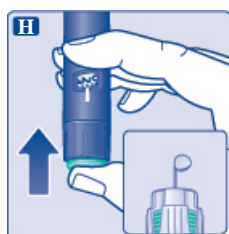
Tap the top of the pen a few times to let any air bubbles rise to the top.



- H.** Press the dose button with your thumb until the dose counter returns to 0. The 0 must line up with the dose pointer. A drop of insulin will appear at the needle tip.

If no drop appears, repeat steps **F** to **H** up to 6 times. If no drop appears after these new attempts, change the needle and repeat steps **F** to **H** once more.

Do not use the pen if a drop of insulin still does not appear.



- ⚠ **Always make sure that a drop appears** at the needle tip before you inject. This makes sure that the insulin flows. If no drop appears, you will **not** inject any insulin, even though the dose counter may move. This may indicate a blocked or damaged needle.
- ⚠ **Always check the flow before you inject.** If you do not check the flow, you may get too little insulin or no insulin at all. This may lead to too high blood sugar level.

## Selecting your dose

Use the dose selector on your Levemir FlexTouch pen to select your dose. You can select up to 80 units per dose.

- I. Select the dose you need. You can turn the dose selector forwards or backwards. Stop when the right number of units lines up with the dose pointer.

The dose selector clicks differently when turned forwards, backwards or past the number of units left.

When the pen contains less than 80 units, the dose counter stops at the number of units left.



- ⚠ Always use the dose counter and the dose pointer to see how many units you have selected before injecting the insulin.

Do not count the pen clicks. If you select and inject the wrong dose, your blood sugar level may get too high or too low.

Do not use the insulin scale, it only shows approximately how much insulin is left in your pen.

- ℹ How much insulin is left?

The **insulin scale** shows you **approximately** how much insulin is left in your pen.



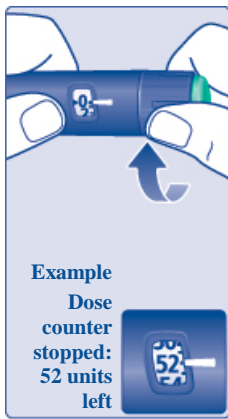
**To see precisely how much insulin is left** use the dose counter:

Turn the dose selector until the **dose counter stops**. If it shows 80, **at least 80** units are left in your pen.

If it shows **less than 80**, the number shown is the number of units left in your pen.

Turn the dose selector back until the dose counter shows 0.

If you need more insulin than the units left in your pen, you can split your dose between two pens.



- i** Be very careful to calculate correctly if splitting your dose. If in doubt, take the full dose with a new pen. If you split the dose wrong, you will inject too little or too much insulin, which can lead to too high or too low blood sugar level.

### Injecting your dose

**Make sure that you receive your full dose by using the right injection technique.**

- J.** Insert the needle into your skin as your doctor or nurse has shown you. Make sure you can see the dose counter. Do not touch the dose counter with your fingers. This could interrupt the injection.

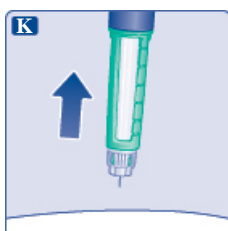
Press the dose button until the dose counter returns to 0. The 0 must line up with the dose pointer. You may then hear or feel a click.

- i** After the dose counter has returned to 0, leave the needle under the skin for **at least 6 seconds** to make sure that you get your full dose.



- K.** Remove the needle from the skin.

After that, you may see a drop of insulin at the needle tip. This is normal and has no effect on the dose you just received.

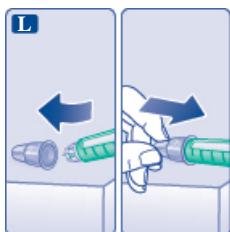


- ❗ **Always dispose of the needle after each injection.** This reduces the risk of contamination, infection, leakage of insulin, blocked needles and inaccurate dosing. If the needle is blocked, you will **not** inject any insulin.

- L. Lead the needle tip into the outer needle cap on a flat surface. Do not touch the needle or the cap.

Once the needle is covered, carefully push the outer needle cap completely on and then unscrew the needle. Dispose of it carefully, and put the pen cap back on after every use.

When the pen is empty, throw it away without a needle on as instructed by your doctor, nurse, pharmacist or local authorities.



- ❗ **Always watch the dose counter to know how many units you inject.** The dose counter will show the exact number of units. Do not count the pen clicks. Hold the dose button down until the dose counter returns to 0 after the injection. If the dose counter stops before it returns to 0, the full dose has not been delivered, which may result in too high blood sugar level.
- ❗ Never try to put the inner needle cap back on the needle. You may stick yourself with the needle.
- ❗ **Always remove the needle after each injection** and store your pen without the needle attached. This reduces the risk of contamination, infection, leakage of insulin, blocked needles and inaccurate dosing.

### Caring for your pen

Treat your pen with care. Rough handling or misuse may cause inaccurate dosing, which can lead to too high or too low blood sugar level.

- **Do not leave the pen in a car** or other place where it can get too hot or too cold.
- **Do not expose your pen to dust, dirt or liquid.**
- **Do not wash, soak or lubricate your pen.** If necessary, clean it with mild detergent on a moistened cloth.
- **Do not drop your pen** or knock it against hard surfaces. If you drop it or suspect a problem, attach a new needle and check the insulin flow before you inject.
- **Do not try to refill your pen.** Once empty, it must be disposed of.
- **Do not try to repair your pen** or pull it apart.
- ❗ Important information
- **Always keep your pen with you.**

- **Always carry an extra pen and new needles** with you, in case of loss or damaged.
- Always keep your pen and needles **out of sight and reach of others**, especially children.
- **Never share** your pen or your needles with other people. It might lead to cross-infection.
- **Never share** your pen with other people. Your medicine might be harmful to their health.
- Caregivers must **be very careful when handling used needles** – to reduce the risk of needle injury and cross-infection.