DOCTORS FOSTER and SMITH PHARMACY

Patient Information Sheet

PO Box 100, Rhinelander WI 54501
For questions or to consult with a pharmacist, call 1-800-447-3021 Mon-Fri from 9am-6pm CST and Sat from 9am-1pm CST. If you have an emergency situation, please contact your local veterinarian immediately.

Insulin

(Humulin, Vetsulin, ProZInc, Lantus, Glargine)

Common Drug Name
Insulin

Common Brand Names
Humulin N and Humulin R, Vetsulin (porcine zinc insulin), ProZinc (protamine zinc insulin), Lantus (glargine)

Storage
Insulin comes in a glass vial with a rubber stopper. Some types need to be refrigerated, and others do not. Follow the manufacturer's recommendations. Do not use the insulin beyond its expiration date. Lantus is a clear liquid; the other insulins are cloudy when gently mixed.

Uses
Insulin is used for the treatment of diabetes mellitus.

Insulin Concentrations
The concentration of insulin is measured in units. Insulin is available in concentrations of 40, 100, and 500 units/ml (U/ml).

Insulin Syringes
There are corresponding syringes to use for the measurement of the three concentrations of insulin. If using insulin with 40 U/ml, you must measure and administer it with a U-40 syringe; using a U-100 or U-500 syringe would result in the wrong amount of insulin being given, with perhaps a fatal outcome. There may be several types of U-40 syringes available, manufactured to deliver low or high amounts. Find out from your veterinarian (or pharmacist) what syringes are best for you to use with the concentration and amount your pet is receiving.

Insulin syringes are marked in units, and may also be marked in milliliters. Be sure to use the unit scale.

An insulin syringe has 4 basic parts: the barrel, plunger, needle, and needle guard.

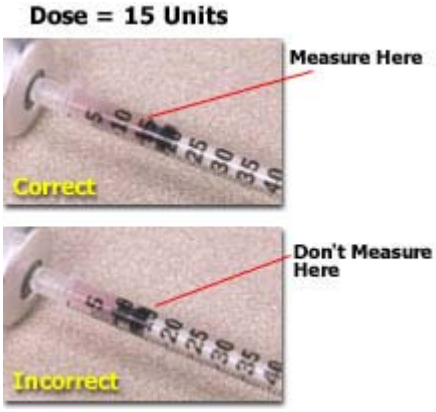
Many brands of syringes have the needle permanently attached to the syringe barrel so it cannot be removed.

Measuring a Dose
1. Prior to removing a dose of insulin from the vial, mix the contents by gently rolling the vial between the palms of your hands. DO NOT SHAKE INSULIN as that will cause air bubbles to form, and it will be more difficult to get an accurate measurement. ***NOTE:*** We have used a colored solution instead of insulin to better illustrate the steps.

2. Hold the vial stopper-side-down, remove the needle guard from the insulin syringe, and insert the needle of the syringe into the vial through the rubber stopper.

3. Pull back on the plunger of the syringe to draw the insulin into the syringe once, then inject it back into the bottle. Redraw the proper dose back into the syringe. This is helpful in accurately dosing, as insulin may stick to the inside of the plastic syringe or an air bubble may be present in the syringe. If any air enters the syringe, you can also expel that back into the vial by keeping the vial upside down, and the needle of the syringe pointing up.

4. Recheck that you have withdrawn the proper amount of insulin. (See example below for the correct measurement of 15 units). Remove the syringe from the vial and replace the needle guard. You are now ready to give the insulin.



Giving the Injection
To acquaint yourself with what giving an insulin injection may feel like, it is often recommended to practice by injecting water from an insulin syringe into an orange.

To be sure your pet gets her insulin, and does not receive extra doses (from other members of the family who may not know the insulin was given), record the time of each insulin injection on a designated calendar.

When giving your pet an insulin injection, you may, at first, want someone to help you hold and/or distract the pet while you are giving the injection. Usually pets do better if they are not held tightly. Scratching a pet on the head, getting her attention with a toy, or placing an enticing treat (very small piece of cooked chicken) near her nose may help focus her attention away from the injection. The needle is extremely thin, and the injection almost painless.

Remove the needle guard from the filled syringe. If you are right-handed, hold the syringe in your right hand. With your left hand, pick up fold of skin along your pet's shoulders (use a different site every time). Some veterinarians recommend giving the injections under the skin on the sides of the chest and abdomen, since it may be better absorbed from these sites.

Push the needle through the skin at about a 45º angle. Be careful not to push the needle through the entire fold of skin and out the other side, or accidentally into your finger.

Pull back slightly on the syringe plunger to be sure the needle is not in a blood vessel (if it is, blood will enter the syringe as you pull back the plunger). If you see blood, pull out the syringe and start over. If no blood is seen, give the insulin by pushing the plunger all the way in with your thumb.

Withdraw the needle from the pet's skin, and replace the needle guard.

Reward your pet by scratching her head, giving her the very small piece of cooked chicken, and/or talking to her.

Record the time of the insulin injection on the designated calendar.

Place the needle and syringe in a puncture-resistant container. Follow your local regulations regarding disposal.

Determining the Dose

Always follow the dosage instructions provided by your veterinarian.

Doses vary considerably between animals. In some cases, insulin may need to be given twice a day; it may need to be given at higher doses to get the diabetes under control, then decreased; or doses may need to be increased over time.

If the pet does not receive the entire dose of insulin, (e.g., some leaked out of the injection site, the needle went through the entire fold of skin and the dose was injected into the air, etc.) do NOT, give more insulin. Wait to give more insulin until the next scheduled dose. Occasional missed doses are easily tolerated; overdoses can be fatal.

If you miss a dose by more than 2-3 hours, contact your veterinarian to determine if you should still give it. If it is almost time for the next dose, skip the one you missed and go back to the regular schedule. Do not give 2 doses at once.

This medication should only be given to the pet for whom it was prescribed

Possible Side Effects

Consult your veterinarian if you notice any of the side effects listed below.

May see hypoglycemia (low blood sugar level) with signs such as weakness, lethargy, shaking, seizures, or coma. Hypoglycemic cats may simply be inactive.

May also see hyperglycemia (too much sugar in the blood) where the body increases the blood sugar level. Signs may include increased thirst and urination, vomiting, change in gait, or weakness.

If your pet experiences an allergic reaction to the medication, signs may include facial swelling, hives, scratching, sudden onset of diarrhea, vomiting, shock, seizures, pale gums, cold limbs, or coma. If you observe any of these signs, contact your veterinarian immediately.

Precautions

Do not change the pet's food, feeding schedule, or exercise schedule once regulated for that food and schedule.
Avoid semi-moist food due to the high sugar content.

Do not use any insulin that has been frozen or exposed to direct heat or light.

Make sure you are always using the appropriate type of syringe for the type of insulin you have. Keep the packages the insulin and syringes come in so when it is time for a refill, you will be able to check to make sure you have received the correct insulin and syringes.

Dogs that are poorly regulated have a greater risk of developing cataracts.

Females should be spayed, as estrus will change insulin requirements.

Consult with your veterinarian regarding the physical examinations and laboratory testing necessary prior to and during treatment with insulin.

Drug, Food, and Test Interactions

Notify your veterinarian of any other medications, including vitamins and supplements, your pet is taking while your pet is receiving insulin.

Increased risk of low blood sugar may occur if used with anabolic steroids**,** beta-blockers, monoamine oxidase inhibitors, phenylbutazone, sulfinpyrasone, tetracycline, or salicylates like aspirin.

Increased risk of high blood sugar may occur if used with glucocorticoids, thyroid medications, dobutamine, epinephrine, estrogen/ progesterone combinations, or diuretics.

Hypoglycemic agents such as glipizide may help lower insulin requirements, as may chromium picolate.

Use care when starting treatment for thyroid disorders in a diabetic animal, as insulin needs may change.

Changes in potassium levels may occur when using insulin along with heart medications and/or diuretics.

Follow the feeding schedule described by your veterinarian. Usually, if the pet is on 1 injection a day, feed at least 2 meals: one at the time the insulin is administered and again at the time of day when the blood glucose is at its lowest level. If a pet receives 2 injections a day, generally feed at the time of each injection. If your pet does not eat, contact your veterinarian before giving the insulin.

Signs of Toxicity/Overdose

Low blood sugar (hypoglycemia): Signs include weakness, trembling, muscle twitching, behavior changes, seizures, unresponsiveness, coma, and death.

If the pet is given too much insulin or is showing signs of low blood sugar, contact your veterinarian and feed the pet a normal meal, a sugary food, or rub a small amount of sugar water or light karo syrup on the gums. Do not put anything in the mouth of an unresponsive pet.

Contact your veterinarian immediately if you inject the wrong amount of insulin or your pet experiences any of these signs.

If you know or suspect your pet has had an overdose, or if you observe any of these signs in your pet, contact your veterinarian immediately.

Keep this and all other medications out of the reach of children and pets.