FEEL BETTER, MY BEST FRIEND!

Spike the Dog Has Diabetes
For more information go to www.vetsulin.com
Spike the dog and Sugar the cat are best friends. They do everything together! They eat, drink, sleep, play, and run around the house. It’s fun because they have each other.

One day, Spike didn’t want to play with Sugar. He only wanted to take a nap. The next day, it was the same.

“What’s wrong, Spike?” asked Sugar. “Why do you sleep so much?” “Why are you so thirsty all of the time?” “Why do you have to go to the bathroom so much?”

Spike was confused. Why didn’t he feel good anymore?

His owner noticed these signs, too, and took him to visit Dr. Furry the veterinarian.
Dr. Furry told Spike he needed a blood test and a urine test to see what was wrong, to see if Spike had a disease called diabetes.

“What’s diabetes?” asked Spike.

“Diabetes is a disease in which your body does not properly process food for use as energy. Most of the food we eat is turned into glucose, or sugar, for our bodies to use for energy,” said Dr. Furry.

Spike’s owner didn’t realize he had diabetes because the signs weren’t obvious.

But, once Spike started getting treated with a medicine called Vetsulin®, he felt so much better.

Spike’s owner gives him the medicine and tests his sugar levels, just like humans that have diabetes. Spike can still live a happy and healthy life with diabetes—and spend time with his best friend Sugar!
FULL PRESCRIBING INFORMATION
**vetsulin®** (porcine insulin zinc suspension) NADA 141-236, Approved by FDA

**CAUTION**
Federal law restricts this drug to use by or on the order of a licensed veterinarian.

**DESCRIPTION**
vetsulin® is a sterile aqueous zinc suspension of purified porcine insulin. Each mL contains:

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Amount</th>
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</thead>
<tbody>
<tr>
<td>purified porcine insulin (35% amorphous and 65% crystalline)</td>
<td>40 IU</td>
</tr>
<tr>
<td>Zinc (as chloride)</td>
<td>0.08 mg</td>
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<tr>
<td>Sodium acetate trihydrate</td>
<td>1.36 mg</td>
</tr>
<tr>
<td>Sodium chloride</td>
<td>7.0 mg</td>
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<tr>
<td>Methylparaben (preservative)</td>
<td>3.0 mg</td>
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</tbody>
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**pH** is adjusted with hydrochloric acid and/or sodium hydroxide.

**INDICATION**
vetsulin® (porcine insulin zinc suspension) is indicated for the reduction of hyperglycemia and hyperglycemia-associated clinical signs in dogs and cats with diabetes mellitus.

**DOSAGE AND ADMINISTRATION**

**FOR SUBCUTANEOUS INJECTION IN DOGS AND CATS ONLY**

**Vials:** USE OF A SYRINGE OTHER THAN A U-40 SYRINGE WILL RESULT IN INCORRECT DOSING.

Shake the vial thoroughly until a homogeneous, uniformly milky suspension is obtained. Foam on the surface of the suspension formed during shaking should be allowed to disperse before the product is used and, if required, the product should be gently mixed to maintain a homogeneous, uniformly milky suspension before use. Clumps or white particles can form in insulin suspensions: do not use the product if visible clumps or white particles persist after shaking.

The detailed instructions for use provided with VetPen™ should be strictly followed.

The injection should be administered subcutaneously, 2 to 5 cm (3/4 to 2 in) from the dorsal midline, varying from behind the scapulae to the mid-lumbar region and alternating sides.

Always provide the Owner Information Sheet with each prescription.

**Dogs**

The initial recommended vetsulin® dose is 0.5 IU insulin/kg body weight. Initially, this dose should be given once daily concurrently with, or right after a meal.

Twice daily therapy should be initiated if the duration of insulin action is determined to be inadequate. If twice daily treatment is initiated, the twice daily doses each be 25% less than the once daily dose required to attain an acceptable nadir. For example, if a dog receiving 20 units of vetsulin® once daily has an acceptable nadir but inadequate duration of activity, the vetsulin® dose should be changed to 15 units twice daily.

The veterinarian should re-evaluate the dog at appropriate intervals and adjust the dose based on clinical signs, urinalysis results, and glucose curve values until adequate glycemic control has been attained. Further adjustments in dosage may be necessary with changes in the dog’s diet, body weight, or concomitant medication, or if the dog develops concurrent infection, inflammation, neoplasia, or an additional endocrine or other medical disorder.

**Cats**

The initial recommended dose in cats is 1 to 2 IU per injection. The injections should be given twice daily at approximately 12 hour intervals. For the fed twice daily protocol, the dose should be given concurrently with the food, right after each meal. For cats fed ad libitum, no change in feeding schedule is needed.

The veterinarian should re-evaluate the cat at appropriate intervals and adjust the dose based on clinical signs, urinalysis results, and glucose curve values until adequate glycemic control has been attained. Further adjustments in dosage may be necessary with changes in the cat’s diet, body weight, or concomitant medication, or if the cat develops concurrent infection, inflammation, neoplasia, or an additional endocrine or other medical disorder.

**CONTRAINdications**
Dogs and cats known to have a systemic allergy to pork or pork products should not be treated with vetsulin®. vetsulin® is contraindicated during periods of hypoglycemia.

**WARNINGS**

**User Safety:** For use in animals only. Keep out of the reach of children. Avoid contact with eyes. In case of contact, immediately flush eyes with copious amounts of water for 15 minutes. Accidental injection may cause chemical hypoglycemia. In case of accidental injection, seek medical attention immediately. Exposure to product may induce a local or systemic allergic reaction in sensitized individuals.

**Animal Safety:** Owners should be advised to observe for signs of hypoglycemia (see Owner Information Sheet). Use of this product even at established doses, has been associated with hypoglycemia. An animal with signs of hypoglycemia should be treated immediately. Glucose should be given orally or intravenously as directed by clinical signs. Insulin should be temporarily withheld and, subsequently, the dosage should be adjusted, if indicated. Any change in insulin should be made cautiously and only under a veterinarian’s supervision. Changes in insulin strength, manufacture, type, species (animal, human) or method of manufacture (DNA versus animal-source insulin) may result in the need for a change in dosage. Appropriately designed tests should be performed to rule out endocrinopathies in pets that are difficult to regulate (e.g., hyperadrenocorticism in dogs and hyperthyroidism in cats).

**PRECAUTIONs**

Animals presenting with severe ketoadiposis, anorexia, lethargy, and/or vomiting should be stabilized with short-acting insulin and appropriate supportive therapy until their condition is stabilized. As with all insulin products, careful patient monitoring for hypoglycemia and hyperglycemia are essential to attain and maintain adequate glycemic control and prevent associated complications. Overdose can result in profound hypoglycemia and death. Progestogens, certain endocrinopathies, and glucocorticoids can have an antagonistic effect on insulin activity. Intact bitches should be ovariohysterectomized. Progestogen and glucocorticoid use should be avoided.

**Drug Interactions:**

In the US clinical effectiveness studies, dogs and cats received various medications while being treated with vetsulin® including antimicrobials, antivirals, anti-fungals, antibactericides, anesthetics, anesthesics, anti-inflammatory agents, corticosteroids (cats), NSAIDs, thyroid hormone supplementation, hyperthyroid medication (methimazole), internal and external parasites, anti-emetics, dermatological topical treatments and oral supplements, ophthalmic preparations containing antimicrobials and antinflammatorys, and various vaccines. No medication interactions were reported. This drug was not studied in dogs receiving corticosteroids.

**Reproductive Safety:** The safety and effectiveness of vetsulin® in breeding, pregnant, and lactating dogs and cats has not been evaluated.

**Use in puppies and kittens:** The safety and effectiveness of vetsulin® in puppies and kittens has not been evaluated.

**ADVERSE REACTIONS**

**Dogs**

In the field effectiveness and safety study, 86 dogs were treated with vetsulin®. Sixty-two dogs were included in the assessment of safety. Hypoglycemia (defined as blood glucose < 50 mg/dL) with or without associated clinical signs occurred in 35.5% (22/62) of the dogs at various times during the study. Clinical signs of hypoglycemia were generally mild in nature (described as weakness, lethargy, stumbling, falling down, and/or collapse). Disorientation and collapse were reported less frequently and occurred in 16.1% (10/62) of the dogs. Two dogs had a seizure and one dog died during the seizure. Although never confirmed, the presumptive diagnosis was hypoglycemia-induced seizures. In the rest of the dogs, hypoglycemia resolved with appropriate therapy and adjustments in insulin dosage. Seven owners reported the following observations about the injection site or surrounding tissues: swelling, painful, sore, and a blub under the skin.

**The following clinical observations occurred in the field study following treatment with vetsulin® and may be directly attributed to the drug or may be secondary to the presumptive diagnosis or other underlying conditions in the dogs: hematuria, vomiting, diarrhea, pancreatitis, non-specific hepatopathy/pancreatitis, development of cataracts, and urinary tract infections.**

In a 21-day field safety and effectiveness study, 40 dogs, already well controlled on veterinary administered vetsulin® using a VetPen™ insulin pen loaded with a pre-filled 2.7 mL vetsulin® cartridge and 29 gauge/12 mm pen needles. All dogs enrolled in the study were evaluated for safety. Loss due to diabetic state (2 dogs), severe or moderate hypoglycemia (2 dogs), vomiting (1 dog) and/or weight loss was reported in 10 dogs, 3 of which were withdrawn from the study. Four dogs’ loss of control resolved after dose adjustment while still using the insulin pen. For the remaining 3 dogs, the loss of diabetic control was reported at the end of the study and outcome was not documented. Two dogs had injection site reactions: edema in one dog and two instances of crusting in another. Poor appetite and weight loss was reported in one dog.

**In cats,**

Two dogs were excluded from the study because they were treated concomitantly with insulin and another antidiabetic agent. Adverse reactions occurred in 96% of cats (17/18). The most common reactions were vomiting (22.2% [4/18]), collapse (16.7% [3/18]), weight loss (11.1% [2/18]), and diarrhea (11.1% [2/18]). Minor adverse events reported included secondary infections (11.1% [2/18]), weight loss (5.6% [1/18]), and constipation (5.6% [1/18]).
Cats

In a field effectiveness and safety study, safety data was reported for 78 cats receiving vetsulin®. Hypoglycemia (defined as blood glucose < 50 mg/dL) was reported in 61 cats (88 total incidences). Fifteen of the occurrences (involving 13 cats) were described with mixed breed dogs ranging signs as lethargy, diarrhea, decreased appetite/anorexia, vomiting, and hypothermia. One cat had seizures following accidental overdosing by the owner and again during the subsequent dose adjustment period. The cat responded to supportive therapy and had no further hypoglycemic episodes. In all cases of hypoglycemia, the clinical signs resolved following symptomatic treatment and/or dose adjustment. In a second case, hypoglycemia was reported: one as a mildly thickened subcutaneous tissue reaction and the other as a mild bruising.

Polyneuropathy was reported in 4 cats. Two injection site reactions were noted in the cats; one as a mildly thickened subcutaneous tissue reaction and the other as a mild bruising. Three cats were reported: one as a mildly thickened subcutaneous tissue reaction and the other as a mild bruising.

The following clinical observations occurred in the field study following treatment with vetsulin® and may be directly attributed to the drug or may be secondary to the diabetic state or other underlying conditions in the cats: vomiting, lethargy, decreased appetite/anorexia, pancreatitis, dermatal events, respiratory disease, urinary tract disorders, renal disease, dermatitis, weight loss, polyuria, polydipsia, polyphagia, behavioral change, and ocular discharge/conjunctivitis. In a small field effectiveness and safety study, 14 cats were treated with vetsulin®. Hypoglycemia was reported in 6 cats (8 total occurrences). Lethargy not associated with hypoglycemia was reported in 4 cats (6 total occurrences). The following clinical observations occurred in the field study following treatment with vetsulin® and may be directly attributed to the drug or may be secondary to the diabetic state or other underlying conditions in the cats: vomiting, lethargy, decreased appetite/anorexia, pancreatitis, dermatal events, respiratory disease, urinary tract disorders, renal disease, dermatitis, weight loss, polyuria, polydipsia, polyphagia, behavioral change, and ocular discharge/conjunctivitis. In a small field effectiveness and safety study, 14 cats were treated with vetsulin®. Hypoglycemia was reported in 6 cats (8 total occurrences). Lethargy not associated with hypoglycemia was reported in 4 cats (6 total occurrences).

In a 21-day field safety and effectiveness study, 36 cats, already well controlled on vetsulin®, were administered vetsulin® using a VetPen™ insulin pen loaded with a pre-filled 2.7 mL vetsulin® cartridge and 29/12 mm pen needles. Thirty-six owners (100%) said they were able to learn how to use the pen. Thirty-four owners (94.4%) said the pen was well tolerated by the cats. For thirty-five of the 38 owners (91.9%), the investigators said that the diabetes was not negatively affected by the use of the pen.

HOW SUPPLIED

vetsulin® is supplied as a sterile injectable suspension in multidose vials containing 10 mL of 40 IU/mL porcine insulin zinc suspension or in multidose cartridges containing 2.7 mL of 40 IU/mL porcine insulin zinc suspension. Vials are supplied in cartons of one, 10 mL vials. Cartridges are supplied in cartons of 10, 2.7 mL cartridges.

STORAGE CONDITIONS

Store in an upright position under refrigeration at 2°C to 8°C (36°F to 46°F). Do not freeze. Protect from light. The loaded VetPen™ can be stored on its side.

Use contents within 2 days of first puncture.

Additional information about vetsulin®, VetPen™, and diabetes mellitus is available at www.vetsulin.com

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**Vetsulin® (porcine insulin zinc suspension) important safety information**

Vetsulin should not be used in dogs or cats known to have a systemic allergy to pork or pork products. Vetsulin is contraindicated during periods of hypoglycemia. Keep out of reach of children. As with all insulin products, careful patient monitoring for hypoglycemia and hyperglycemia is essential to attain and maintain adequate glycemic control and prevent associated complications. Overdose can result in profound hypoglycemia and death. The safety and effectiveness of Vetsulin in puppies and kittens, breeding, pregnant, and lactating dogs and cats has not been evaluated. See package insert for full information regarding contraindications, warnings, and precautions.

*Vetsulin is known as Caninsulin outside of the US.*

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