#1 American Animal Hospital Association recommended insulin for dogs

Management of Canine and Feline Diabetes Mellitus

vetsulin®
(porcine insulin zinc suspension)

with you for life

vetsulin®
(porcine insulin zinc suspension)
with you for life

With you for life... effective management of diabetes with Vetsulin® (porcine insulin zinc suspension)

The goals in managing diabetes mellitus are to minimize the clinical signs of diabetes, the risk of hypoglycemia, and the development of long-term complications. Accomplishing these goals requires that pet parents understand all aspects of diabetes care and management.

Highly purified porcine insulin

As an intermediate-acting lente insulin, Vetsulin® has an aqueous suspension of 40 IU/mL of highly purified porcine insulin, consisting of 35% amorphous and 65% crystalline zinc insulin.

Vetsulin® is the only FDA-approved insulin with an identical amino acid structure as canine insulin compared with products that are similar to human recombinant insulin.

- Unlike human insulin, porcine insulin has the same amino acid sequence as canine insulin, making it less likely for dogs to develop anti-insulin antibodies[1]

Not only is the efficacy of Vetsulin® proven in clinical trials, Vetsulin® also offers veterinary practitioners the added security and confidence that comes from nearly 30 years of successful use by veterinarians worldwide (under the brand names Vetsulin® and Caninsulin®).

	Vetsulin® (porcine insulin zinc suspension)	ProZinc® (protamine zinc recombinant human insulin)	Neutral Protamine Hagedorn (NPH; Humulin N, Novulin N)
First FDA-approved insulin for veterinary use	**YES**	No	No
Matches canine insulin, minimizing risk of anti-insulin antibodies[1]	**YES**	No	No
More accurate dosing with 40 IU/mL[2]	**YES**	**YES**	No
Dispensed by veterinary clinic for quality control	**YES**	**YES**	No
Live support from veterinary professionals	**YES**	**YES**	No
Once-daily dosing for dogs	**YES**	**YES**	No
Available in insulin pen (VetPen®)	**YES**	No	No
Quickest onset of action for veterinary insulin	**YES**	No	No
Pet Diabetes Tracker app	**YES**	No	No
Most economical veterinary-approved insulin	**YES**	No	No

Nearly 30 years
helping vets safely control diabetes.

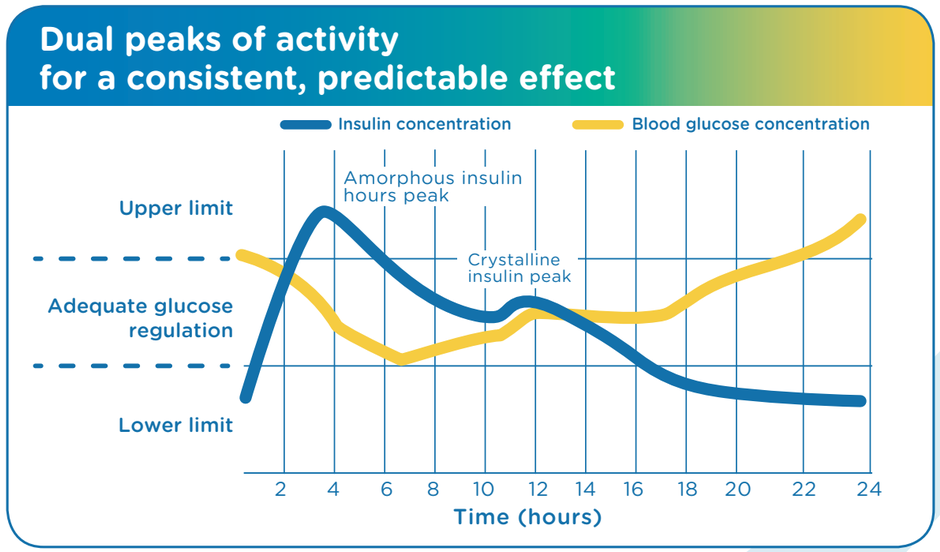
Vetsulin® is registered in over
30 other countries as Caninsulin®.

NPH insulin, or neutral protamine Hagedorn, is marketed under several different trade names.
ProZinc® is a registered trademark of Boehringer Ingelheim Animal Health USA Inc.

vetsulin®
(porcine insulin zinc suspension)
with you for life

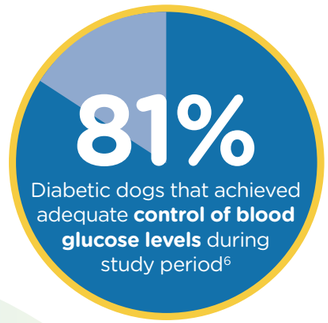
Benefits of Vetsulin®:

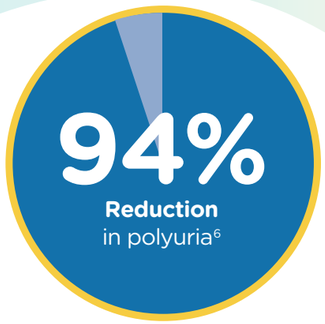
- **Quick onset of activity—**Amorphous insulin fraction has a quick onset of activity, with a peak of about 4 hours[3]
- **Sustained effect—**Crystalline insulin fraction is slowly absorbed, causing activity to peak at 11 hours post-injection[3]
- **Duration of activity—**14 to 24 hours[4,5]

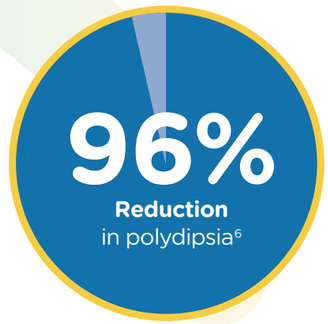


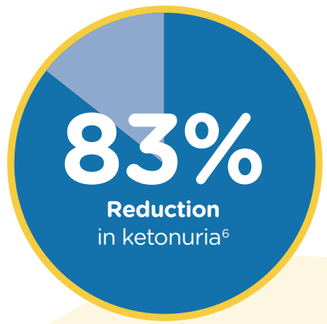
- Approximately one-third of dogs may be adequately regulated with once-daily dosing[4,5]

Effectively controls blood glucose levels and reduces clinical signs of diabetes in dogs[6]







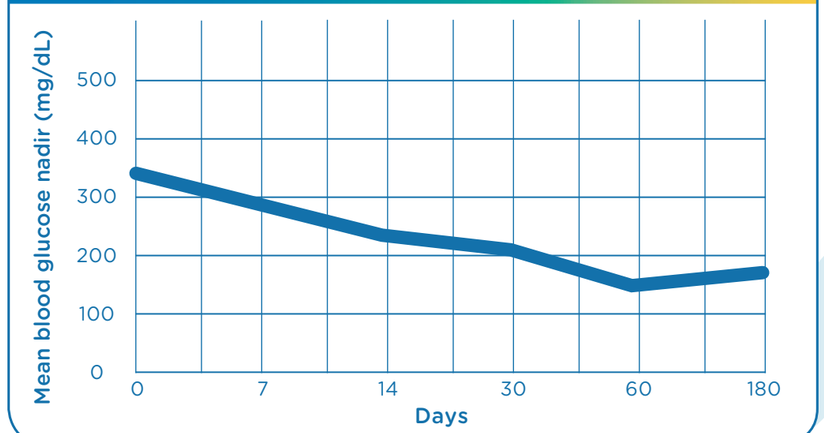


vetsulin®
(porcine insulin zinc suspension)
with you for life

Vetsulin® offers a predictable onset and duration of effect in cats:

- Peak activity occurs between 1.5 and 8 hours post-injection[6,7]
- Duration of activity up to 12 hours[6,7]
- May help minimize the risk of hypoglycemia versus longer-acting insulin that is administered twice daily

Vetsulin reduced all major diabetes indicators to within normal range.[7,8]



Efficacy study results

By day 60:

- 75% of cats had a mean blood glucose nadir <300 mg/dL[8]
- 72% of cats had a mean blood glucose nadir <200 mg/dL[8]
- The mean blood glucose nadir of all cats was 145.7 mg/dL[8]
- Mean fructosamine concentration was significantly reduced (P<0.001)[8]

Remission rates in cats are similar for lente insulin (Vetsulin®) and insulin glargine when[9]:

Diet is controlled
Insulin management is started early in the course of the disease
Good glycemic control is achieved and maintained

With you for life... convenient management of diabetes

Administration and Storage

- Prior to use, vials of Vetsulin® should be **shaken** thoroughly until a homogeneous, uniformly milky suspension is obtained
- Vetsulin® contents should be used within 42 days after the vial is first punctured
- Store in an upright position under refrigeration at 2° to 8° C (36° to 46° F). Do not freeze. Protect from light

Dosing

- Injection using only a U-40 insulin syringe
- Initial recommended dose in dogs is 0.5 IU insulin/kg body weight given once daily
- Initial recommended dose in cats is 1 to 2 IU per injection given twice daily
- 40 IU/mL concentration for more accurate dosing in small dogs and cats
- 0.5 mL and 1.0 mL 40 IU/mL syringes available

Resources

- Merck Animal Health's Veterinary Consultation Service team has been helping vets manage even the most challenging pet diabetes cases for over 15 years
- Pet Diabetes Tracker app available for pet parents and veterinary support
- Multitude of support information and educational tools available on vetsulin.com

See pages 9-10 for full Prescribing Information.

vetsulin®
(porcine insulin zinc suspension)

WITH YOU FOR LIFE

The first FDA-approved insulin for dogs and cats

The First to Offer a Choice:
• 10mL vial
• 2.7mL cartridge for use with VetPen®

- Multidose vial offers convenience for pet owners

VetPen®

- The first and only insulin pen designed exclusively for pets with diabetes and with pet parents in mind
- A reassuring option for pet parents of newly diagnosed pets or those nervous or afraid of traditional syringes

Available in two sizes:

- 8 IU VetPen® with dosing increments of 0.5 IU*
- 16 IU VetPen® with dosing increments of 1 IU

*Able to pinpoint doses down to 0.5 units.

349016 R3

vetsulin®
(porcine insulin zinc suspension)

Approved by FDA under NADA # 141-236

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: purified porcine insulin 40 IU
(35% amorphous and 65% crystalline)
Zinc (as chloride) 0.08 mg
Sodium acetate trihydrate 1.36 mg
Sodium chloride 7.0 mg
Methylparaben (preservative) 1.0 mg
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 thoroughly.
Cartridges: VETSULIN® CARTRIDGES SHOULD BE USED EXCLUSIVELY WITH VETPEN® AND 29G/12 MM PEN NEEDLES. Prior to loading vetsulin® cartridges, shake the cartridge until a homogeneous, uniformly milky suspension is obtained. 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 two doses should 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 cats fed twice daily, the injections should be given concurrently with, or 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 clinical 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 dictated 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, manufacturer, type, species (animal, human) or method of manufacture (rDNA versus animal-source insulin) may result in the need for a change in dosage.
Appropriate diagnostic 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 ketoacidosis, 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. Overdosage 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, antifungals, antihistamines, analgesics, anesthetics/tranquilizers, diuretics, bronchodilators, corticosteroids (cats), NSAIDs, thyroid hormone supplementation, hyperthyroid medication (methimazole), internal and external parasiticides, anti-emetics, dermatological topical treatments and oral supplements, ophthalmic preparations containing antimicrobials and antiinflammatories, 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, 66 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 depression). 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 recorded the following observations about the injection site on the home monitoring forms: swollen, painful, sore, and a bleb 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 diabetic state 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 vetsulin®, were 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 of diabetic control 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.
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 associated with clinical signs described 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. Polyneuropathy was reported in 4 cats. Two injection site reactions were reported: one as a mildly thickened subcutaneous tissue reaction and the second 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, diarrhea, decreased appetite/anorexia, pancreatitis, dermal events, respiratory disease, urinary tract disorder, renal disease, dehydration, weight loss, polydipsia, polyuria, behavioral change, and ocular discharge/conjunctivitis. In a smaller 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: foul odor to stool, diarrhea, dull coat, rapid, shallow breathing, stiff gate in rear, gallop rhythm, and pruritus with alopecia.
During the 1998–2007 period, the following adverse events in 50 cats treated with porcine insulin zinc suspension were reported to Intervet International and Intervet Inc: Death, seizures, lack of effectiveness/dysregulation, hypoglycemia, allergic or skin reaction, lethargy, vomiting/diarrhea, injection pain, hyperthermia, nystagmus, PU/PD, and abnormal behavior.
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 gauge/12 mm pen needles. Loss of diabetic control was reported in three cats all of which resolved after dose adjustment while still using the insulin pen. Hypoglycemia was reported in one cat. The cat recovered with supportive care and dose adjustment.
To report suspected adverse drug experiences, call Merck at 1-800-224-5318.
For additional information about adverse drug experience reporting for animal drugs, contact FDA at 1-888-FDA-VETS, or http://www.fda.gov/AnimalVeterinary/SafetyHealth

GENERAL PHARMACOLOGY
vetsulin® is a mixture of amorphous and crystalline insulin resulting in immediate and prolonged insulin activity. In dogs, vetsulin® may show two peaks of activity. In a laboratory study, 12 healthy adult Beagles were administered vetsulin® at a dose of 0.5 IU/kg. The onset of activity varied from 0.5 to 2 hours; the time to peak activity varied from 1 to 10 hours; and the duration of activity varied from 10 to 24 hours. In diabetic dogs, vetsulin® has two peaks of activity following subcutaneous administration (the first occurs at 2 to 6 hours and the second at 8 to 14 hours). The duration of activity varies between 14 and 24 hours.
In cats, vetsulin® has a single peak of activity. In a laboratory study, 12 healthy adult cats were administered vetsulin® at a dose of 0.5 IU/kg. The onset of activity varied from 0.5 to 2 hours; the time to peak activity varied from 2 to 6 hours; and the duration of activity varied from 8 to 24 hours. In diabetic cats, the peak activity following subcutaneous administration of vetsulin® occurs between 1.5 and 8 hours, and the duration of activity varies between 8 and 12 hours.
The peak(s) of activity, duration of activity, and dose required to adequately control diabetic signs vary between individuals and may vary in the same individual from day to day. The time ranges should only be considered as initial guidelines.

EFFECTIVENESS
Dogs
A total of 66 client-owned dogs were enrolled in and 53 completed the effectiveness and safety field study. The dogs completing the study included 22 breeds of purebred and various mixed breed dogs ranging in age from 4.8 to 14 years, and ranging in weight from 4.2 to 51.3 kg. Of the dogs completing the study, 25 were spayed females and 28 were male (21 neutered and 7 intact).
Dogs were started on vetsulin® at a dose of 1 IU/kg plus a body weight-dependent dose supplement once daily. The initial treatment time to reach acceptable glycemic control (Dose determination period) ranged from 5 to 151 days. Dogs were evaluated for treatment effectiveness three times at 30-day intervals (Study Period). The blood glucose curve means and mean nadirs were compared pre- and post-treatment to assess effectiveness. Glycemic control was considered adequate if an acceptable blood glucose curve was achieved (reduction in hyperglycemia and a nadir of 60 - 160 mg/dL), clinical signs of hyperglycemia (polyuria, polydipsia, and ketonuria) were improved, and hypoglycemia (blood glucose < 50 mg/dL) was avoided. The blood glucose curve mean was reduced from 370 mg/dL pre-treatment to 151 mg/dL, 185 mg/dL, and 184 mg/dL at the three treatment period evaluations. The blood glucose mean nadir was reduced from 315 mg/dL pre-treatment to 93 mg/dL, 120 mg/dL, and 119 mg/dL at the three treatment period evaluations. Sixty days after an adequate vetsulin® dose was initially established, 94%, 96% and 83% of study dogs experienced a reduction in polyuria, polydipsia, and ketonuria, respectively. Investigators reported adequate glycemic control an average of 81% of the time during the Study Period.
In a 21-day field safety and effectiveness study, 40 dogs, 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 gauge/12 mm pen needles. Thirty-eight of 40 dogs were evaluated for effectiveness. Thirty-seven of the 38 owners (97.4 %) said they were able to learn how to use the pen. Thirty-five of the 38 owners (92.1 %) said the pen was well tolerated by the dogs. For 34 of the 38 dogs (89.5%), the investigators said that the diabetes was not negatively affected by the use of the pen.
Cats
A total of 85 client-owned cats (53 males and 25 females—all neutered) of various breeds were enrolled in a 60 day field effectiveness and safety study with continued use up to Day 180. Seven cats were removed from the study prior to the Day 7 evaluation. The remaining cats ranged in age from 3 to 17.5 years and in weight from 1.9 to 10.8 kg. Seventy-two cats completed the study to Day 60 and 66 cats completed to Day 180. The cats were started on vetsulin® at an initial dose of 1 to 2 IU insulin twice daily. Scheduled evaluations occurred at Days 7, 14, 30, 60, and 180. Dose adjustments were allowed at and between the evaluations. Effectiveness was based on blood glucose curve mean, blood glucose nadir and improvement in clinical signs. Blood glucose curve means decreased from 394 mg/dL on Day 0 to 217 mg/dL on Day 60. The mean blood glucose nadir decreased from 343 mg/dL on Day 0 to 146 mg/dL on Day 60. Fourteen client-owned cats (10 males and 4 females—all neutered) of various breeds were enrolled in a 60 day effectiveness and safety field study. The cats ranged in age from 5 to 14 years and in weight from 3.40 to 6.97 kg. Twelve cats completed the study. The cats were started on vetsulin® at an initial dose of 1 to 2 IU insulin twice daily. Scheduled evaluations occurred at Days 7, 14, 30, and 60. Dose adjustments were allowed at and between the evaluations. The blood glucose curve means decreased from 354 mg/dL on Day 0 to 162 mg/dL on Day 60. The mean blood glucose nadir decreased from 321 mg/dL on Day 0 to 99 mg/dL on Day 60.
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 gauge/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 cats (97.2%), 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 vial. 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 42 days of first puncture.
Additional information about vetsulin®, VetPen®, and diabetes mellitus can be found at www.vetsulin.com
Distributed by: Intervet Inc. (d/b/a Merck Animal Health)
Madison, NJ 07940
Porcine insulin (active ingred.) made in France. Formulated in Germany.
Rev. 02/2019

MERCK Animal Health

vetsulin®
(porcine insulin zinc suspension)

Owner Information Sheet
vetsulin® Injectable Insulin (porcine insulin zinc suspension)
vetsulin® for reduction of hyperglycemia and hyperglycemia-associated clinical signs in dogs and cats with diabetes mellitus
Generic name: U-40 Purified Porcine Insulin Zinc Suspension

This summary contains important information about vetsulin®. You should read this information before you start giving your pet vetsulin® and review it each time your prescription is refilled. This sheet is provided only as a summary and does not take the place of instructions from your veterinarian. Talk to your veterinarian if you do not understand this information or if you want to know more about vetsulin®.

What is vetsulin®?
vetsulin® is an aqueous suspension of porcine (pork) insulin. Insulin is a hormone produced by the pancreas (a large gland that lies near the stomach). This hormone is necessary for the body's correct use of food, especially sugar.

What is diabetes mellitus?
Diabetes mellitus (DM) occurs when a dog or a cat has inadequate levels of or an abnormal response to insulin. DM is common in middle age and older dogs and cats. Daily insulin injections are usually necessary to treat DM. vetsulin® may help your pet effectively use food, aid in maintaining an acceptable blood sugar (glucose) level, and reduce or eliminate clinical signs commonly seen with DM. Diabetes mellitus may cause some or all of these signs or changes:
- Excessive thirst (Polydipsia)
- Excessive urination (Polyuria)
- Excessive appetite (Polyphagia)
- Weight loss despite good appetite
- Glucose in the urine (Glycosuria)
- Ketones in the urine (Ketonuria)
- Cloudy eyes and vision loss (Diabetic cataracts: dogs)
- Weakness in back legs (Diabetic neuropathy: cats)

Untreated or improperly regulated diabetes may lead to changes in the acidity of the blood (diabetic ketoacidosis) with dehydration, vomiting, weakness, depression, coma, and death.

What kind of results can I expect when my pet is on vetsulin® for DM?
Although vetsulin® is not a cure for DM, it can help control or eliminate many of the complications associated with the disease (such as excessive thirst, urination, and weight loss) and prevent development of life threatening ketoacidosis.
- Response varies from animal to animal but can be quite dramatic.
- In most cases, improvement can be seen within a few days.
- In cats, treatment may lead to diabetes remission (insulin injections no longer required).
- If vetsulin® is discontinued or not given as directed, the signs of diabetes will likely return and life-threatening complications such as ketoacidosis may develop.

Who should not receive vetsulin®?
- Pets known to have a systemic allergy to pork or pork products.
- Pets that have stopped eating or have greatly decreased appetite (anorexia), are vomiting, show signs of extreme drowsiness or fatigue (lethargy) and/or show signs of severe ketoacidosis, should not receive vetsulin® until stabilized with appropriate supportive therapy.
- vetsulin® is for use in animals only. Keep out of reach of children. Seek medical attention immediately if accidental injection occurs.

What to tell/ask your veterinarian before using vetsulin®.
Talk to your veterinarian about:
- The signs of DM you have observed.
- What tests might be done before vetsulin® is prescribed.
- The importance of ovariohysterectomy (spaying), if your dog is an intact female.
- The importance of consistent daily injections, an appropriate and consistent diet, weight control, exercise, and home monitoring of your pet's condition.
- How often your pet may need to be examined by your veterinarian.
- The risks and benefits of using vetsulin®.

Tell your veterinarian if your pet has ever had the following medical problems
- Side effects when receiving other insulin products
- Digestive upset (vomiting and/or diarrhea)
- Liver disease
- Inflamed pancreas (Pancreatitis)
- Underactive thyroid (Hypothyroidism)
- Overactive thyroid (Hyperthyroidism)
- Cushing's Syndrome (Hyperadrenocorticism)
- Kidney disease

Tell your veterinarian about:
- Any medical problems or allergies that your pet has now or has had.
- All medicines that you are giving or plan to give your pet, including those you can get without a prescription.

What are the possible side effects that may occur during vetsulin® therapy?
The most common side effect experienced with vetsulin® therapy is hypoglycemia (low blood sugar). Hypoglycemia can be caused by:
- Giving too much insulin
- Missing or delaying food
- Change in food, diet, or amount fed
- Change (increase) in exercise
- Infection or illness
- Change in the body's need for insulin
- Diseases of the adrenal, pituitary, or thyroid gland, or progression of liver or kidney disease
- Interaction with other drugs (such as progestogen or glucocorticoids)

Signs of hypoglycemia may occur suddenly and can include
- Weakness
- Depression
- Behavioral changes
- Muscle twitching
- Anxiety
- Seizures
- Coma
- Death

What do I do in case my pet shows signs of hypoglycemia?
- **If your pet is unconscious or having a seizure, this is a medical emergency. Take your pet to your veterinarian immediately.**
- If your pet is conscious, rub approximately 1 tablespoon of corn syrup or honey on your pet's gums. When it is able to swallow, give corn syrup or honey by mouth until your pet is alert enough to eat. Feed its usual meal and contact your veterinarian.

Other side effects that can be seen include loss of effectiveness and local or systemic allergic reactions. It is important to contact your veterinarian immediately if you think your pet has a medical problem or side effect from vetsulin® therapy. In particular, please contact your veterinarian if your pet shows any of the following:
- Excessive water consumption for more than 3 days
- Excess urination (including need to urinate at night for a pet that usually sleeps through the night or inappropriate urination in the house)
- Reduced or loss of appetite
- Weakness, seizures, or severe mental depression
- Behavioral change, muscle twitching, or anxiety
- Constipation, vomiting, or diarrhea
- Signs of a bladder infection (small, frequent urinations, straining, blood in the urine)
- Swelling of the head or neck

What else can I do to keep my pet's blood sugar stable?
- Your pet's diet should be consistent and appropriate. A nutritionally complete pet food should be fed in consistent amounts at the same times each day or, at the discretion of your veterinarian, be available continuously.
- "Treats" and changes in diet should generally be avoided unless recommended by your veterinarian.
- Your veterinarian will advise you on how much and when to feed your pet based on the response to vetsulin®.
- Your pet's exercise should remain consistent. Consult with your veterinarian if you expect a major change in activity.
- Develop a schedule with your veterinarian for regular evaluations of your pet's diabetes.

Can vetsulin® be used with other medications?
Progestogen (such as megestrol) and glucocorticoids (such as cortisone, prednisone, dexamethasone, triamcinolone) should be avoided during vetsulin® therapy. Progestogen, glucocorticoids, and certain endocrine diseases may counter the effect of insulin. Other medications may also interfere with your pet's response to insulin. Tell your veterinarian about all the medicines you have given your pet in the past, and any medicines that you are planning to give with vetsulin®. This should include other medicines that you can get without a prescription. Your veterinarian may want to check that all of your pet's medications can be given together.

What do I do in case my pet receives more than the prescribed amount of vetsulin®?
If your pet is given too much vetsulin®, severe (life-threatening) hypoglycemia (low blood sugar) can result. Contact your veterinarian immediately. If your veterinarian is not available, seek other veterinary advice at once. Your pet may need to be hospitalized for observation or treatment.

What do I do if my pet receives less than the prescribed dose, or I miss an injection?
- A missed or inadequate dose may cause temporary recurrence of signs (such as excess thirst and urination) but is not life threatening.
- Contact your veterinarian as soon as possible for advice on your pet's next dose.
- If you cannot reach your veterinarian and your pet is eating and acting normal, give your pet the usual dose at the next regularly scheduled injection time.

How to give vetsulin® to your pet
Doses of insulin are measured in units. U-40 insulin contains 40 units/mL (1 mL = 1 cc). vetsulin® is available in vials for use with U-40 syringes or in cartridges for use with the VetPen™ injection device. If you are using vials, refer to the section below. If you are using cartridges, refer to the VetPen™ instructions for use provided with the VetPen™.
Use vetsulin® with U-40 syringes only. Use of a syringe other than a U-40 syringe will result in incorrect dosing. A licensed veterinarian must prescribe vetsulin® for your pet, and it should be administered according to your veterinarian's instructions. Your veterinarian will determine the amount of insulin needed (based on the weight of your pet, clinical signs such as water consumption, and laboratory results), instruct you on proper storage and handling, show you how to draw the insulin from the bottle, and instruct you on how to administer the injection. Once you can do this correctly, your veterinarian will provide you with everything you need to care for your pet at home. vetsulin® should be administered with a U-40 insulin syringe according to the following instructions:

Preparing the Dose:
- Wash your hands
- Remove the vetsulin® bottle from the refrigerator and 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. If you see large particles floating in the suspension after thoroughly shaking, do not use the product and contact your veterinarian.
- Carefully remove the cap from the needle.
- Using a U-40 insulin syringe, pull the plunger back to draw air into the syringe to equal the vetsulin® dose.
- Insert the syringe needle into the bottle and inject the air into the bottle.
- Turn the bottle and syringe upside down. Making sure the tip of the needle is in the vetsulin®, withdraw the correct dose into the syringe.
- Before removing the needle from the bottle, check the syringe for any air bubbles. If bubbles are present, hold the syringe straight up and tap its side until the bubbles float to the top. Push them out with the plunger and withdraw the correct dose.
- Remove the needle from the bottle, being careful to not inject yourself.

Giving the injection:
- Injections should be given just under the skin (subcutaneously) 2-5cm (3/4-2 inches) from the midline of the back (middle of your pet's back running from tail to head), varying from just behind the shoulder blade to slightly in front of the hipbone.
- The injection site should be alternated between your pet's left and right side.
- Using your free hand, pinch up a fold of skin, insert the needle into the center of the fold as instructed by your veterinarian, and push the plunger in as far as it will go.
- Pull the needle out being careful to not inject yourself.
- Dispose of the syringe in an appropriate manner (sharps/ biohazard disposal).

How do I store vetsulin®?
vetsulin® should be stored in an upright position under refrigeration (2-8 Degrees Celsius / 36-46 Degrees Fahrenheit). Once loaded with a cartridge, the VetPen™ can be stored on its side under refrigeration.
Do not freeze. Protect from light. **Use contents within 42 days of first vial puncture.**

What else should I know about vetsulin®?
This sheet provides a summary of information about vetsulin®. If you have any questions or concerns about vetsulin® or DM, talk to your veterinarian.
As with all prescribed medicines, vetsulin® should only be given to the pet for which it was prescribed and for the condition for which it was prescribed.
It is important that your veterinarian periodically evaluate your pet's response to vetsulin® at regular checkups that include blood glucose monitoring. Your veterinarian will best determine if your pet is responding as expected.
Additional information about vetsulin® and DM can be found at www.vetsulin.com

Distributed by: Intervet Inc. (d/b/a Merck Animal Health) • Madison, NJ 07940 • Porcine insulin (active ingred.) made in France. Formulated in Germany.

2 Giralda Farms, Madison, NJ 07940 • Customer Service 1-800-521-5767

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MERCK Animal Health

vetsulin®
(porcine insulin zinc suspension)
with you for life

The FIRST veterinary insulin FDA-approved for **BOTH** DOGS AND CATS[6]

- Significant glycemic control[7,8]
- Extended duration of action[3-5]
- Offers a choice in administration (vial or insulin pen)
- Low risk of anti-insulin antibodies[1]
- Improvement in clinical signs[7,8]
- Predictable efficacy in cats and comparable remission rates to glargine[9]

Support tools for your clinic and pet parents

- vetsulin.com
- usa.petdiabetesmonth.com
- Insulin Administration Guides
- Glucose Curve Worksheets
- Pet Diabetes Tracker App
- Sugar & Spike Educational Videos

Technical Services: 1-800-224-5318 (Monday – Friday, 9:00 am – 7:00 pm EST)
Customer Service: 1-800-521-5767 (Monday – Friday, 9:00 am – 6:00 pm EST)

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. Overdosage 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.

VetPen® User Safety Warning: 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 at least 15 minutes. Accidental injection may cause clinical hypoglycemia. In case of accidental injection, seek medical attention immediately. Exposure to the product may induce a local or systemic allergic reaction in sensitized individuals.

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