

# Management of Canine and Feline Diabetes Mellitus



**vetsulin**<sup>®</sup>  
(porcine insulin zinc  
suspension)  
with you for life

## Managing Canine and Feline Diabetes

### With you for life... convenient 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 dog owners understand all aspects of diabetes management.

### Highly purified porcine insulin

Vetsulin® is an aqueous suspension of 40 IU/mL of highly purified porcine insulin, consisting of 35% amorphous and 65% crystalline zinc 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.<sup>1</sup>

Not only is the efficacy of Vetsulin® proven in clinical trials, Vetsulin® also offers veterinary practitioners the added security and confidence that comes from over 25 years of successful use by veterinarians worldwide (under the brand names Vetsulin® and Caninsulin®).



## Vetsulin<sup>®</sup> benefits over human insulin for dogs

	Vetsulin <sup>®</sup>	NPH*
First FDA-approved insulin for veterinary use	<b>YES</b>	No
Matches canine insulin, minimizing risk of anti-insulin antibodies <sup>1</sup>	<b>YES</b>	No
More accurate dosing with 40 IU/mL <sup>2</sup>	<b>YES</b>	No
Dispensed by the veterinary clinic for quality control	<b>YES</b>	No
Live support from diabetes professionals	<b>YES</b>	No

**Over 25 years**  
helping vets safely control diabetes.

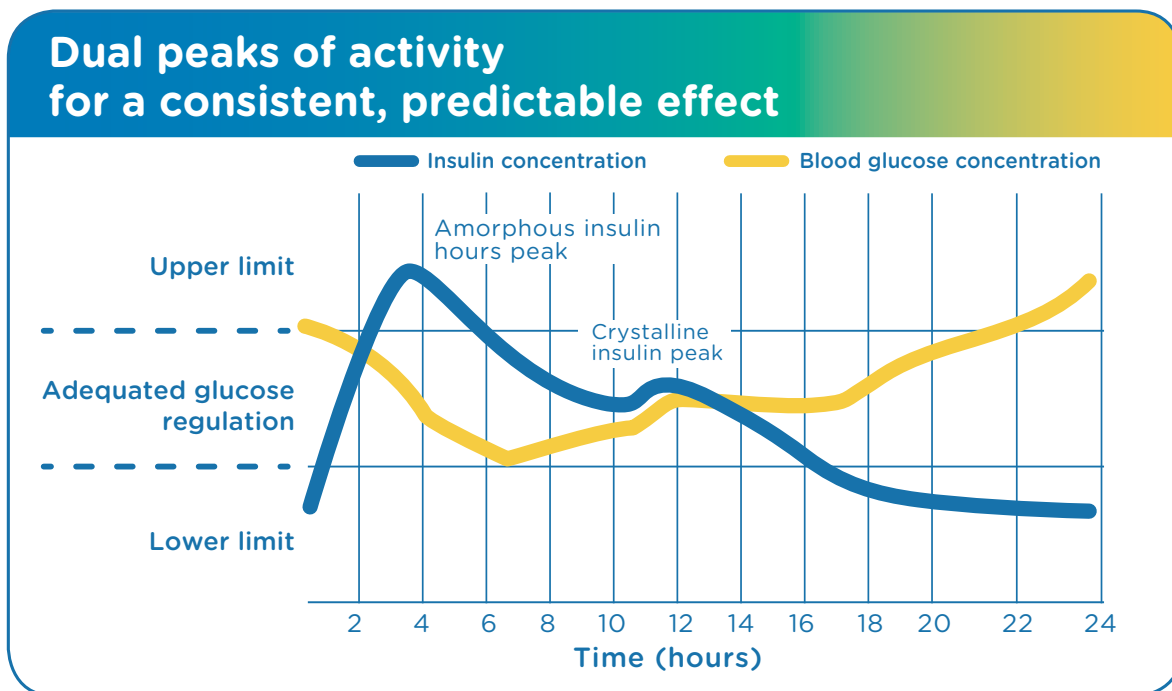
Vetsulin<sup>®</sup> is registered in over  
30 other countries as Caninsulin<sup>®</sup>.

\*NPH insulin, or neutral protamine Hagedorn, is marketed under several different trade names.

## Proven Efficacy in Dogs with Diabetes

### Benefits of Vetsulin<sup>®</sup>:

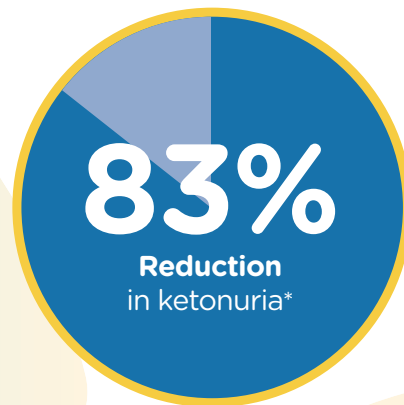
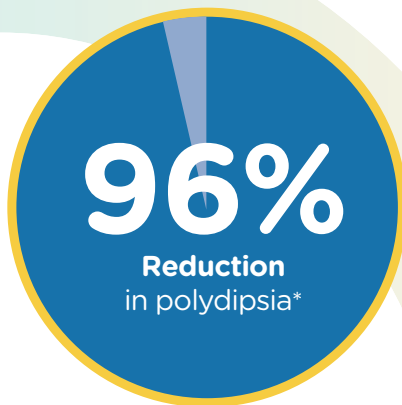
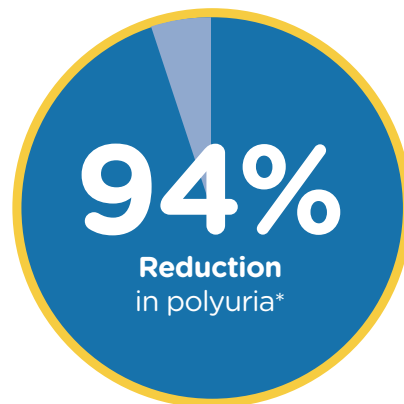
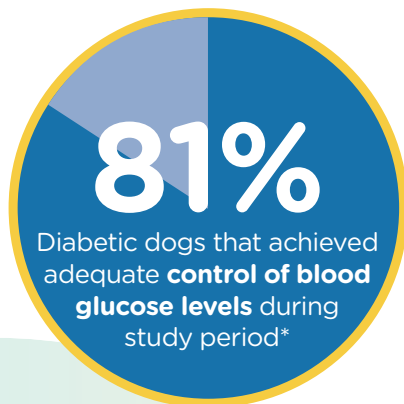
- **Quick onset of activity**—Amorphous insulin fraction activity peaks at about 4 hours post-injection and lasts 8 hours<sup>3</sup>
- **Sustained effect**—Crystalline insulin fraction is slowly absorbed, causing activity to peak at 11 hours post-injection<sup>3</sup>
- **Duration of activity**—14 to 24 hours<sup>4,5</sup>



Approximately one-third of dogs may be adequately regulated with once-daily dosing.<sup>4,5</sup>



Effectively controls blood glucose levels and reduces clinical signs of diabetes.\*



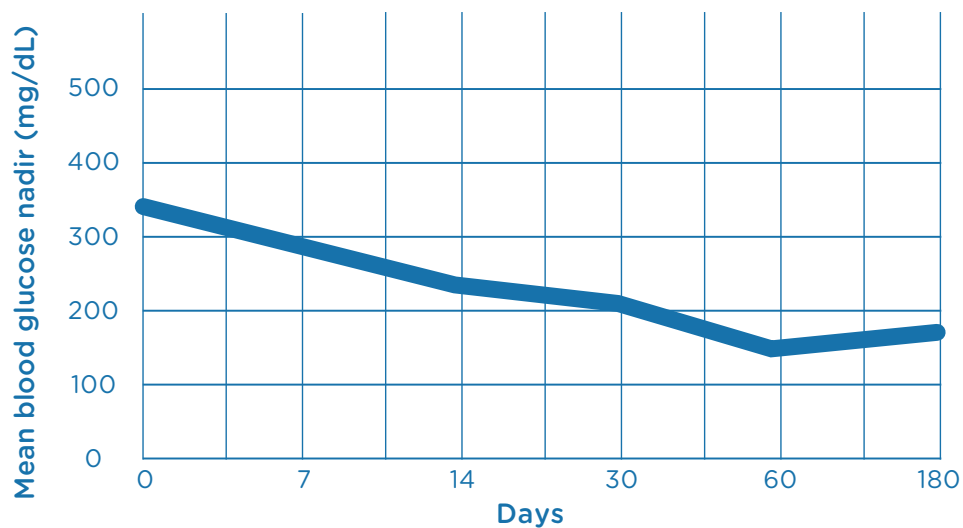
\* Vetsulin® (porcine insulin zinc suspension) [Freedom of Information Summary]. Millsboro, DE: Intervet Inc.; 2008.

## Predictable onset and duration of effect (feline)

Vetsulin<sup>®</sup> offers a predictable onset and duration of effect in cats:

- Intermediate-acting lente insulin
- Peak activity occurs between 1.5 and 8 hours post-injection<sup>6</sup>
- Duration of activity up to 12 hours<sup>6</sup>
- 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.<sup>7,8</sup>**





## Efficacy Study Results

### By day 60:

- 75% of cats had a mean blood glucose nadir <300 mg/dL<sup>7</sup>
- 72% of cats had a mean blood glucose nadir <200 mg/dL<sup>7</sup>
- The mean blood glucose nadir of all cats was 145.7 mg/dL<sup>7</sup>
- Mean fructosamine concentration was significantly reduced ( $P<0.001$ )<sup>7</sup>



### Remission rates in cats are similar for lente insulin (Vetsulin<sup>®</sup>) and insulin glargine when<sup>7</sup>:

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
  - The in-use stability is confirmed when stored at 25°C (77°F)/60% relative humidity<sup>7</sup>

### Dosing

- Dosage for dogs: 0.5 IU insulin/kg body weight
- Starting dose of 1 to 2 IU per cat per injection
- 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

- Consultation services with a pet diabetes professional
- Pet Diabetes Tracker app available for pet owner and veterinary support
- Multitude of support information available on [www.vetsulin.com](http://www.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 insulin pen designed exclusively for pets with diabetes
- A reassuring option for owners of newly diagnosed pets

# 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:

purified porcine insulin (35% amorphous and 65% crystalline)	40 IU
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](http://www.vetsulin.com)

Distributed by: Intervet Inc (d/b/a Merck Animal Health), Madison, NJ 07940

Made in Germany

04/18

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Intervet Inc. d/b/a Merck Animal Health, Madison, NJ 07940



## The FIRST veterinary insulin approved for **BOTH DOGS AND CATS.**<sup>7</sup>

- Reliable efficacy
- Easy to dose
- Low risk of anti-insulin antibodies<sup>9</sup>
- Predictable efficacy in cats and comparable remission rates to glargine<sup>10</sup>

### Take advantage of useful pet diabetes management and support tools for your clinic and pet parents:

- [www.vetsulin.com](http://www.vetsulin.com)
- [www.usa.petdiabetesmonth.com](http://www.usa.petdiabetesmonth.com)
- Training Videos
- Glucose Curve Worksheets
- Pet Diabetes Tracker App
- Sugar & Spike



**For general information and pet diabetes management tools, please visit [www.vetsulin.com](http://www.vetsulin.com)**

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.

**References:** **1.** Davison LJ, Ristic JM, Herrtage ME, et al. Anti-insulin antibodies in dogs with naturally occurring diabetes mellitus. *Vet Immunol Immunopathol.* 2003;91(1):53–60. **2.** Borin-Crivellenti S, Bonagura JD, Gilor G. Comparison of Precision and Accuracy of U100 and U40 Insulin Syringes. *J Vet Intern Med.* 2014;28:1029. **3.** Graham PA, Nash AS, McKellar QA. Pharmacokinetics of a porcine insulin zinc suspension in diabetic dogs. *J Small Anim Pract.* 1997;38(10):434–438. **4.** Monroe WE, Laxton D, Fallin EA, et al. Efficacy and safety of a purified porcine insulin zinc suspension for managing diabetes mellitus in dogs. *J Vet Intern Med.* 2005;19:675–682. **5.** Horn B, Mitten RW. Evaluation of an insulin zinc suspension for control of naturally occurring diabetes mellitus in dogs. *Aust Vet J.* 2000;78(12):831–834. **6.** Martin GJ, Rand JS. Pharmacology of a 40 IU/ml porcine lente insulin preparation in diabetic cats: findings during the first week and after 5 or 9 weeks of therapy. *J Feline Med Surg.* 2001;3(1):23–30. **7.** Vetsulin® (porcine insulin zinc suspension) [Freedom of Information Summary]. Millsboro, DE: Intervet Inc.; 2008. **8.** Data on file, Merck Animal Health. Feldman EC. Diabetes remission in cats: which insulin is best? *Compend Contin Educ Vet.* 2009;31(7 Suppl A). **9.** Davison LJ, Walding B, Herrtage ME, Catchpole B. Anti-insulin antibodies in diabetic dogs before and after treatment with different insulin preparations. *J Vet Intern Med.* 2008;22:1317-1325. **10.** Feldman EC. Diabetes remission in cats: which insulin is best? *Compend Contin Educ Vet.* 2009;31(7 Suppl A).