

Vetsulin[®] CurveKit[™]

Glucose curve workpad • How-to instructions • Interpretation guidelines



Unparalleled support for managing canine and feline diabetes—
only from Intervet/Schering-Plough Animal Health.

How to chart your patients' glucose curves.

Once the patient has been on Vetsulin® (porcine insulin zinc suspension) for 5–7 days for dogs, or 2–4 weeks for cats, admit the patient either

1. First thing in the morning before eating and receiving Vetsulin, or
2. Right after the patient eats and receives Vetsulin at home.

After admitting the patient, it's important that the patient follow the same routine as it does at home. Provide the same food and exercise on the same schedule it's accustomed to.

Blood sampling:

Measure blood glucose every 2 hours. Ideally, continue for 12 hours if insulin is administered BID or for 24 hours for canine SID insulin administration.

Chart:

Plot the blood glucose concentrations against time to create the blood glucose curve. Ideally, the nadir, or lowest blood glucose level after administering insulin, should be 100–125 mg/dL in dogs and 120–200 mg/dL in cats. Once you have established the nadir, then determine the duration of activity. This is the time between insulin injection and when blood glucose becomes >200–250 mg/dL for dogs or >350 mg/dL for cats after the nadir. For dogs starting with SID dosing, if the blood glucose is above 250 mg/dL by 12 hours after injection, then the dog will need twice-daily insulin injections.

At the end of the testing period, compare the curve to the interpretation charts on the next page to aid in developing your treatment plan.

Note:

A 24-hour curve may be the only way to accurately diagnose Somogyi overswing. Sampling can be done at the marginal vein of the ear, or for dogs, on the mouth mucosa (just flip up the lip) to minimize stress.

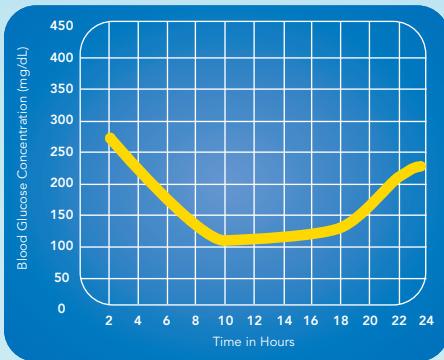


Interpreting serial glucose curves.

Serial glucose curves are a useful tool in the initial stabilization and monitoring of the diabetic dog and cat, giving the most accurate assessment on which to base changes in insulin therapy. They are vital in investigating the unstable diabetic patient.

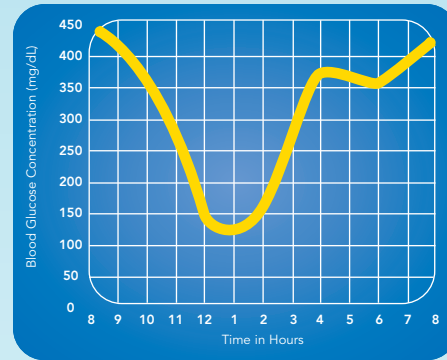
These charts show the curves you would expect to find in the stable diabetic dog and cat, as well as the four main problem scenarios. The charts for the four problem scenarios are plotted against a 24-hour timeline but can be easily adapted to a 12-hour BID dosing timeline.

Ideal Blood Glucose Curve: SID Dosing (Insulin given at time=0)



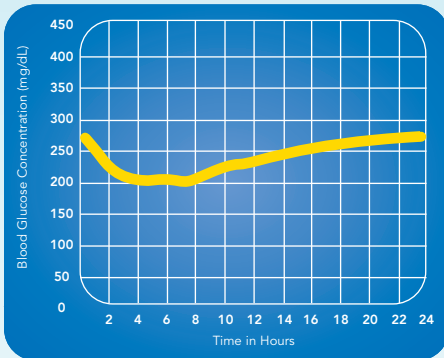
- The renal threshold in the dog is 180–220 mg/dL and in the cat is 200–280 mg/dL.
- A stable diabetic dog maintains a blood glucose range of 100–250 mg/dL for most of a 24-hour period, while a stable diabetic cat maintains a blood glucose range of 120–350 mg/dL.

Ideal Blood Glucose Curve: 12-hour BID Dosing in the Cat (Insulin given at 8:00 am)



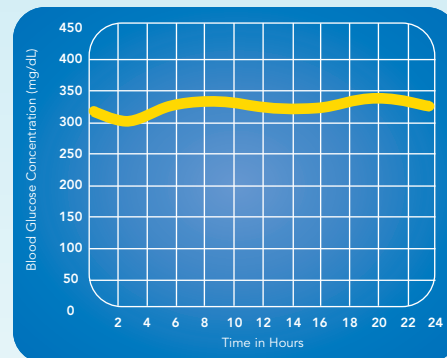
- Ideally, the cat's blood glucose levels should be between 120 and 350 mg/dL for the majority of the day.

Insufficient Insulin Dose (Insulin administered at time=0)



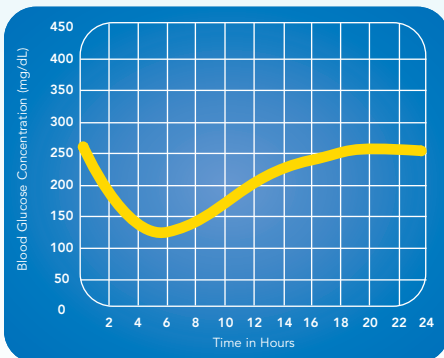
Action: In general, increase Vetsulin dose in 10% increments in dogs. Note that insufficient insulin dose can be difficult to determine in diabetic cats due to stress-induced hyperglycemia, but if the cat's clinical signs have not resolved, the nadir is >200 mg/dL and Somogyi overswing has been ruled out, increase the dose in 1 IU increments.

Insulin Resistance (Insulin administered at time=0)



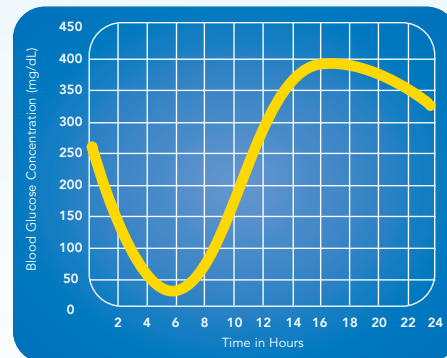
Action: Investigate cause, eg, Cushing's disease, hyperprogesteronism, antibody production, owner issues, injection issues, or use of the wrong type of syringe (see Diagnostic Tests to Consider for the Evaluation of Insulin Resistance in Diabetic Dogs and Cats on center pocket of this folder). Consideration should be given to Somogyi overswing, which can present as persistent hyperglycemia for a few days following the hypoglycemic event.

Rapid Metabolism of Insulin (Insulin administered at time=0)



Action: Decrease SID dose by 25% and administer insulin twice daily or change to longer acting preparation.

Insulin-induced Hyperglycemia or Somogyi Overswing (Insulin administered at time=0)



Action: For dogs, decrease dose by 50% or more. You may need to go back to the starting dose if the current dose is higher than 2.2 IU/kg. For cats, decrease dose by 50% or return to starting dose of 1 IU BID, whichever is lower.

Causes of insulin resistance.

Some causes of insulin resistance are obvious and can be detected immediately. However, identification of many other causes of insulin resistance may require an extensive round of diagnostic tests (see table). Several concurrent disorders can affect insulin status in dogs and cats and interfere with the effectiveness of insulin therapy.

Diagnostic Tests to Consider for the Evaluation of Insulin Resistance in Diabetic Dogs and Cats¹

- CBC, serum biochemistry panel, urinalysis
- Bacterial culture of the urine
- Serum lipase and amylase (pancreatitis)
- Serum trypsin-like immunoreactivity (exocrine pancreatic insufficiency, pancreatitis)
- Adrenocortical function tests
 - ACTH stimulation test (hyperadrenocorticism)
 - Low-dose dexamethasone suppression test (hyperadrenocorticism)
- Thyroid function tests
 - Baseline serum total and free T4 (hypothyroidism or hyperthyroidism)
 - Endogenous TSH (hypothyroidism)
 - TSH stim test (hypothyroidism)
 - TRH stim test (hypothyroidism or hyperthyroidism)
 - T3 suppression test (hyperthyroidism)
- Serum progesterone concentration (diestrus in intact female dog)
- Plasma growth hormone or serum insulin-like growth factor I concentration (acromegaly)
- Serum insulin concentration 24 hours after discontinuation of insulin therapy (insulin antibodies)
- Serum triglyceride concentration (hyperlipidemia)
- Abdominal ultrasonography (adrenomegaly, adrenal mass, pancreatitis, pancreatic mass)
- Thoracic radiography (cardiomegaly, neoplasia)
- MRI (pituitary mass)

Reference:

1. Feldman EC, Nelson RW. Canine diabetes mellitus. In: Feldman EC, Nelson RW. *Canine and Feline Endocrinology and Reproduction*. 3rd ed. St. Louis, MO: Saunders; 2004:526.



Questions? We're here for you.

For support and answers from Intervet/Schering-Plough diabetes professionals, call 877.783.4840. Or visit us online at www.vetsulin.com.

Worksheet Goes Here

vetsulin[®]

(porcine insulin zinc suspension)

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