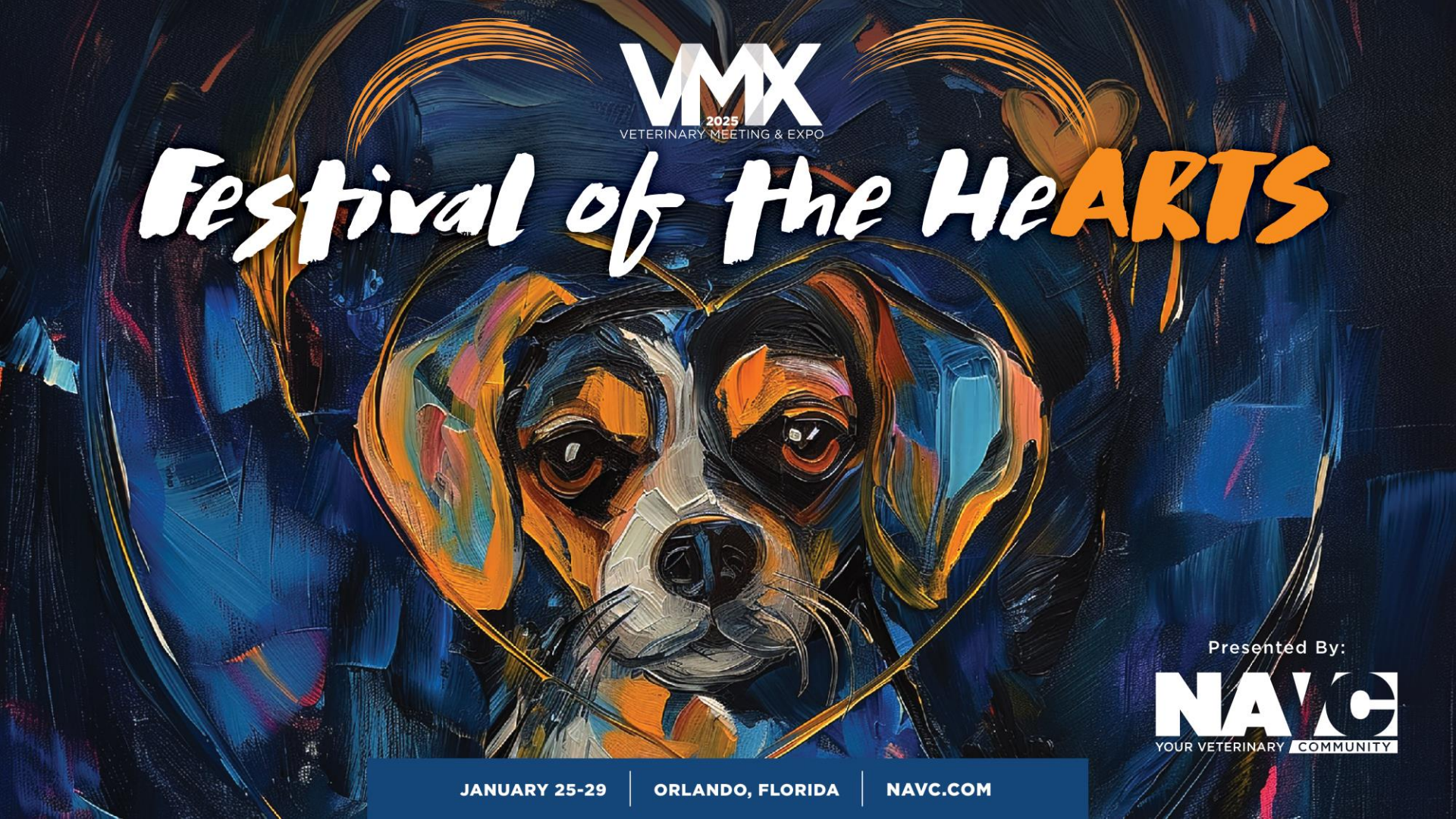
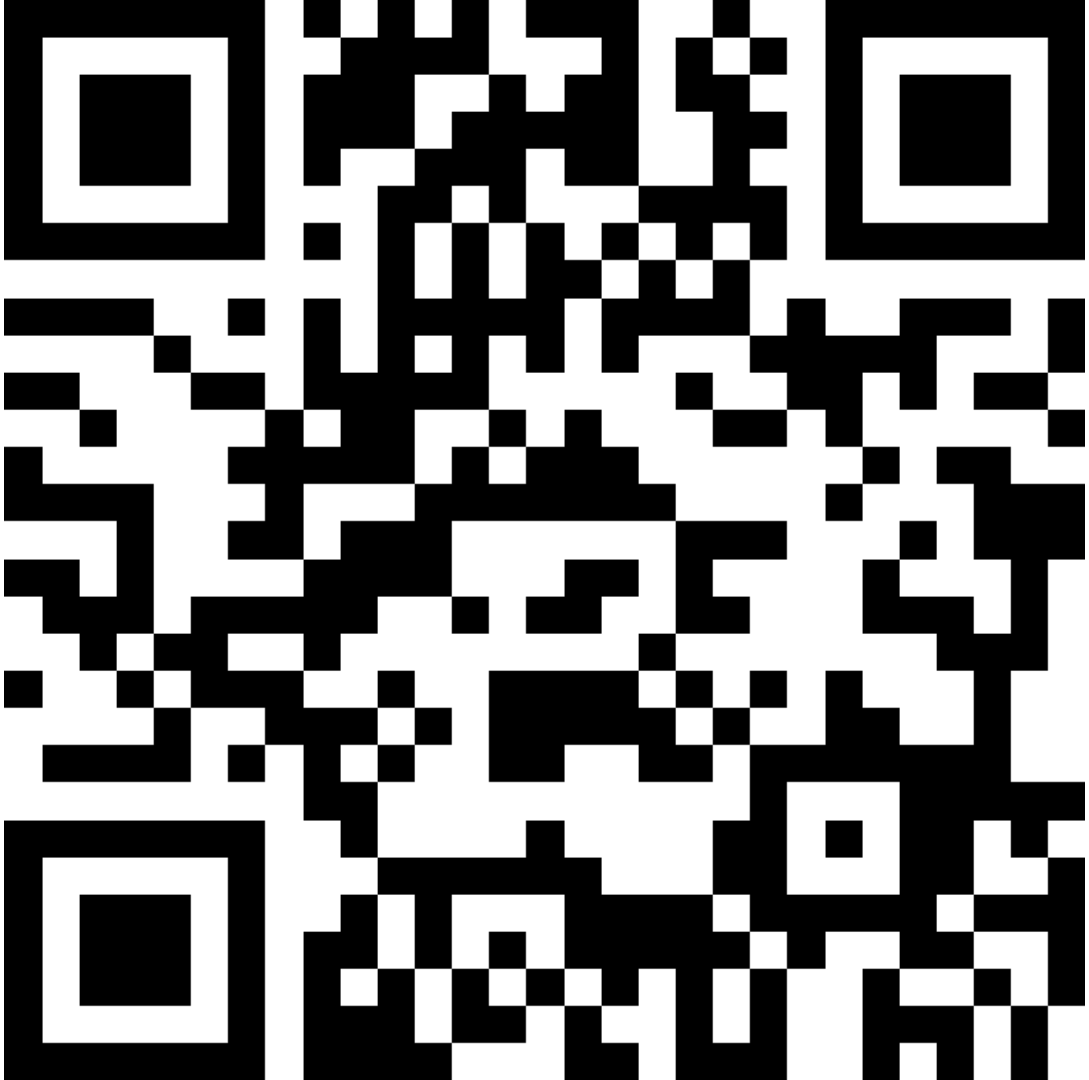

VMX
2025
VETERINARY MEETING & EXPO
Festival of the HeARTS
Presented By:
NAVC
YOUR VETERINARY COMMUNITY
JANUARY 25-29
ORLANDO, FLORIDA
NAVC.COM



# The collapsed DKA, cushingoid patient: and other confusing endocrine comorbidities.

Patty Lathan, VMD, MS, DACVIM
Louisiana State University

Bill Saxon, DVM, DACVIM, DACVECC
IDEXX

VMX 2025 VETERINARY MEETING & EXPO

# Patty Lathan
# Conflict of Interest Disclosure

**I have financial interest, arrangement or affiliation with:**

| | |
|---|---|
| **Idexx, Boehringer Ingelheim, Scout Bio:** | **Consultant, honoraria** |
| **Merck Animal Health, Dechra Pharmaceuticals:** | **Honoraria** |

VMX 2025 VETERINARY MEETING & EXPO

# Bill Saxon
# Conflict of Interest Disclosure:

**Full-time IDEXX Employee**

VMX 2025 VETERINARY MEETING & EXPO

# You’re on clinics and in walks…

**Picture the most flat-out dog you’ve seen recently…**

# Everyone's favorite combo:

- Acute (or acute on chronic) pancreatitis
- Diabetic ketoacidosis
- High ALP.  Cushing's syndrome, too?

Where would *you* start?

# The plan:

- Forget about Cushing's syndrome for now (unless on tx)
- Basic principles of emergency stabilization
  - LRS good initial fluid choice (has buffer and calcium)
  - QUATs: PCV/TS, BG, electrolytes, venous blood gases, lactate, iCa
  - CBC, biochemistries, UA (save samples of additional testing)
  - Resting cortisol if on trilostane
- Confirm pancreatitis within minutes
- Brace yourself/staff for DKA treatment

# In clinic diagnosis of pancreatitis.

- Snap cPL
  - Screening test: negative result rules OUT pancreatitis
  - Positive result *could* be pancreatitis – must confirm.

- Catalyst® pancreatic lipase
  - Excellent correlation with Spec cPL and cPLI (and Spec fPL, fPLI)
  - Undetectable in dogs with EPI (i.e., specific for *pancreatic* lipase)

# Simultaneous treatment for pancreatitis and DKA

- LRS: restore volume, hydration, keep up with ongoing losses, provide maintenance (avoid volume overload)
- Analgesia in *all*: buprenorphine, methadone, fentanyl…
- Maropitant 1 mg/kg SC q24h
- Regular insulin
- Other insulins, e.g., Lispro

# Do I have to use regular insulin CRI for DKA in dogs?

# Not necessarily…

# Insulin protocols for DKA in dogs

- Regular insulin CRI
  - Add 1-2 U/kg to 240 ml saline
  - BG >400 = 20 ml/h, 0% dextrose
  - BG 250-400 = 10 ml/h, 0% dextrose
  - BG 150-250 = 5 ml/h, 2.5% dextrose
  - BG 80-150 = 0 ml/h, 5.0% dextrose
  - BG <80 = 0 ml/h, 5.0% dextrose, bolus 1 mg/kg 50% dextrose
- Regular insulin intermittent IM injection
  - 0.25 U/kg q 1-2 h
- Lispro insulin?  Longer acting insulins (e.g., glargine)?

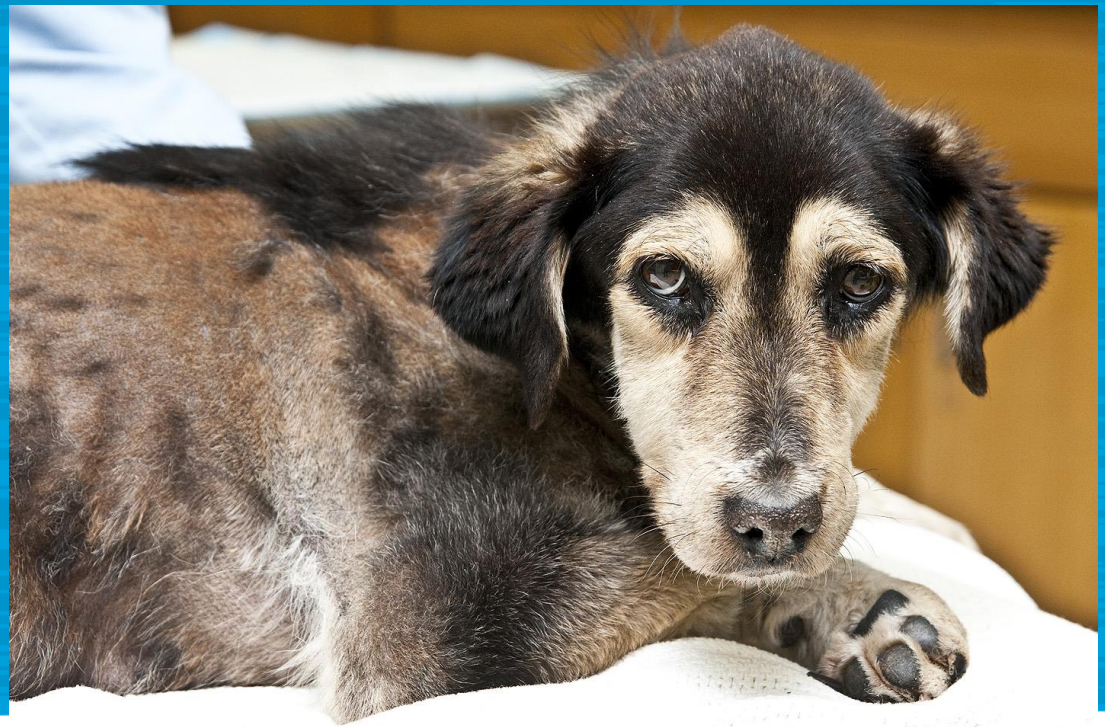
# Additional treatment:

- Enteral nutrition within 48 h *of onset of signs* for pancreatitis
- Panoquel® 0.4 mg/kg IV SID x 3 d, over 15-60 sec
- Monitor potassium and phosphorus, add to fluids prn
  - Monitor PCV/TS
- Bicarb rarely necessary

# Crisis over. I still think this dog has Cushing's syndrome.  How can I prove it?

# This is tricky but we have some tips…

# Suspect HAC in a Diabetic



# Tip #1:
# No need to rush.
# Cushing's testing can and should wait.

# Diagnosing Cushing's in known diabetic

- Cushing's most common cause of insulin resistance in dogs
- Suspect when
  - Lack of response to or short duration of insulin
  - PU/PD (USG <1.020) despite decent glucose regulation
  - Hypertriglyceridemia
  - Panting, derm changes, pot belly, hepatomegaly…

# Testing for Cushing's in known diabetic

- Wait ≈2-4 wk after start of DM treatment
  - False positives if screen for Cushing's at time of DM dx (stress)
- When weight loss stops (i.e., DM control adequate'ish)
- LDDST if dog stable
- ACTH stim more specific – fewer false positives
  - Consider positive with post-ACTH cortisol >?

# How much do I lower insulin dose when I start trilostane?

# You don’t.

# Treating newly-diagnosed HAC in a diabetic

- Trilostane, 1-1.5 mg/kg PO BID WITH FOOD
  - No insulin dose decrease needed, usually
- Monitor with ACTH stimulation testing or pre-pill cortisol (if you have experience here)
  - 2 weeks after starting trilostane
  - 1 month later
  - 3 months later
- Focus on control of HAC before fine-tuning insulin
  - CLINICAL SIGNS/CLINICAL CONTROL
  - FreeStyle Libre may allow more rapid insulin dose adjustments

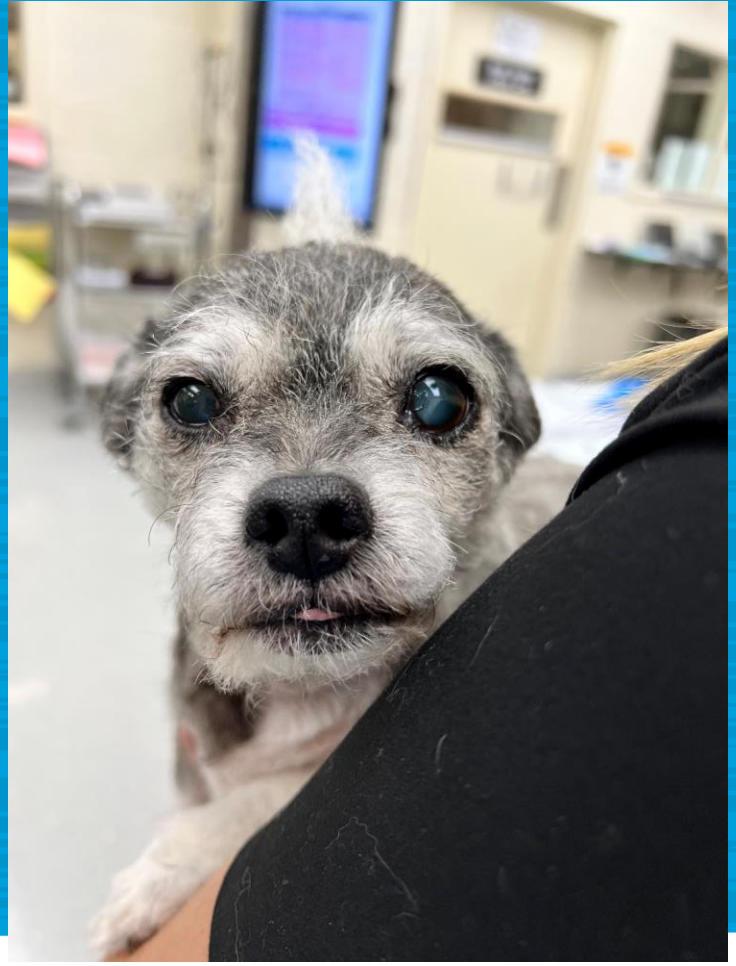
# Flipping the script.

# You’re treating a dog for Cushing’s syndrome. Something’s not right.

# Could it also be a diabetic?

# Suspect DM in a known Cushingoin when:

- PU/PD persists despite cortisol suggesting HAC controlled
- Weight loss
- Blood glucose trending up or mildly increased
- Fructosamine increased
- Check UA in dogs with HAC when signs don’t fit



VMX 2025
VETERINARY MEETING & EXPO

**Diabetes mellitus causes weight loss.**

**Cushing’s syndrome does not.**

# Treatment: DM in Known Cushingoid

- Vetsulin®, NPH BID
  - Err towards high end of starting range
  - Basal insulin may help decrease glycemic variability
    - Degludec or glargine U-300
- Split trilostane to BID dosing if currently SID
  - Same DAILY dose
  - Example: 60 mg SID = 30 mg BID
- Monitor as usual
  - CLINICAL SIGNS, weight, glucose monitoring
  - Cortisol/stims for HAC
- Try not to micromanage DM—focus on clinical signs!

# DKA in Known Cushingoid

- Acute anorexia, vomiting, dehydration, collapse…
- Check cortisol (+ chem, ideally) first to rule out adrenal crisis
- UA, chem, CBC, pancreatic-specific lipase
- Check for ketones
  - Urine  ASAP – even few drops for dipstick
  - If no urine use serum from HCT tube on ketone pad of urine dipstick

# Thank you!

VMX 2025 VETERINARY MEETING & EXPO