

**All Medical Records**

Client: **B6**  
Address: **B6**

Patient: **B6**  
Breed: Doberman Pinscher  
DOB: **B6**

Species: Canine  
Sex: Male

Home Phone: **B6**  
Work Phone: ( ) - -  
Cell Phone: ( ) - -

**Referring Information**

**B6**

Client: **B6**  
Patient: **B6**

**Initial Complaint:**

Emergency

**SOAP Text Apr 5 2017 12:55PM - Clinician, Unassigned FHSA**

4/5/2017 12:56:09 PM NEW VISIT (ER)

Doctor: **B6**  
Student: **B6**  
Presenting complaint: **B6**

Referral visit? No

Diagnostics completed prior to visit: n/a

**HISTORY:**

Signalment: 7 yo male intact doberman pinscher

Current history: Owner heard patient yelp out Sunday morning. Owner noticed that patient was very timid, he didnt want to run or jump. Owner took patient to RDVM on Sunday where they diagnosed neck pain and prescribed pain medication (tramadol and gabapentin). Patient has been receiving pain meds since discharge and doing fine until Tuesday. On Tuesday patient yelped again at one point and seems painful again. The owner is not able to associate the yelping with any certain movement or event. Patient was not interested in his food starting yesterday.

Prior medical history: No major history; owner mentioned that patient has an enlarged prostate

**B6**

Diet: Dry kibble 2cups BID; some table scraps

Vaccination status/flea & tick preventative use: UTD vaccines; no flea, tick. On heartgard.

Travel history: No

**EXAM:**

S: **B6**  
O:

Client: **B6**  
Patient:

BCS: **B6**

Hydration: **B6**

**B6**

ASSESSMENT:

A1: **B6**  
A2:

PLAN:

P1: **B6**  
P2:  
P3:  
P4:  
P5:  
P6:

Diagnostics completed: **B6**

Diagnostics pending:

Client communication: **B6**

DVM summary:

**B6**

Deposit & estimate status:

Resuscitation code (if admitting to ICU):

SOAP approved (DVM to sign): **B6**

4/5/2017 3:48:11 PM: **B6**  
4/5/2017 3:48:11 PM:

4/5/2017 3:51:02 PM

Prescribed: **B6** - FHSA (10)

Instructions - give 1 tablet by mouth every 12 hours WITH FOOD for 5 days - Expires: 4/5/2018 No Refills

Client: **B6**  
Patient: **B6**

**Initial Complaint:**

Emergency

SOAP Text Dec 31 2018 12:26PM - **B6**

**B6** 9yo MC Doberman, presenting for Cardio consult for recent DCM diagnosis

History: referral for cardiology consult. increased respiratory effort and rate on Friday night (12/28), saw **B6** who owner reports saw fluid in chest, started on cardio meds for DCM. Patient has been doing much better since starting medications.

Current medications: **B6**  
**B6**  
(received all meds this morning)

Diet: Orijen grain free

No major previous medical history

**Subjective:**

**B6**

C/V: II/VI systolic murmur, tachycardic with irregular rhythm

**B6**

**Assessment:**

- A1: DCM - r/o genetic vs. diet induced
- A2: CHF - r/o secondary to A1
- A3: Atrial fibrillation - secondary to A1

Plan:

Client:  
Patient:

**B6**

CARDIO CONSULT/CHEST RADIOGRAPH FINDINGS:

Echocardiogram reveals DCM with marked LA enlargement, active CHF, and atrial fibrillation with fast ventricular rate. Since the patient is a Doberman we are more inclined to believe that the origin of the DCM is genetic although the patient is on a grain free diet which could potentially contribute to the markedly decreased systolic function. The patient was officially enrolled in Dr. Freeman's study today and blood was pulled for all of the required test. Chest radiographs revealed persistence of the previously diagnosed CHF and the ventricular rate is still relatively fast.

**B6**

also be started and the patient should be switched diet. Recheck BW including a digoxin level (especially since the current dose is still on the higher end) and ECG is recommended in 7-10 days. Recheck echocardiogram in 3 months or sooner if the patient develops clinical signs consistent with worsening heart disease such as increased RR/RE, cough, exercise intolerance, or syncope.

Medications:

**B6**

Taurine supplementation - 1000mg PO BID  
Diet change - sent home with multiple samples

Recheck exam/BW and EKG in 7-10 days with Cardio

**B6**

VMD

**Disposition/Recommendations**

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Client:  
Patient:

**B6**

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Client: **B6**  
 Patient: **B6**



**Foster Hospital for Small Animals**

55 Willard Street  
 North Grafton, MA 01536  
 (508) 839-5395

Client: **B6**  
 Veterinarian:  
 Patient ID: **B6**  
 Visit ID:

Patient:	<b>B6</b>
Species:	Canine
Breed:	Doberman Pinscher
Sex:	Male
Age:	<b>B6</b> Years Old

**Lab Results Report**

**Nova Full Panel-ICU**      **4/5/2017 3:37:25 PM**      **Accession ID: B6**

Test	Results	Reference Range	Units
SO2%	<b>B6</b>	94 - 100	%
HCT (POC)		38 - 48	%
HB (POC)		12.6 - 16	g/dL
NA (POC)		140 - 154	mmol/L
K (POC)		3.6 - 4.8	mmol/L
CL(POC)		109 - 120	mmol/L
CA (ionized)		1.17 - 1.38	mmol/L
MG (POC)		0.1 - 0.4	mmol/L
GLUCOSE (POC)		80 - 120	mg/dL
LACTATE		0 - 2	mmol/L
BUN (POC)		12 - 28	mg/dL
CREAT (POC)		0.2 - 2.1	mg/dL
TCO2 (POC)		0 - 0	mmol/L
nCA		0 - 0	mmol/L
nMG		0 - 0	mmol/L
GAP		0 - 0	mmol/L
CA/MG		0 - 0	mol/mol
BEeef		0 - 0	mmol/L
BEb		0 - 0	mmol/L
A		0 - 0	mmHg
NOVA SAMPLE	0 - 0		



Client: **B6**  
Patient:

FiO2	<b>B6</b>	0 - 0	%
PCO2		36 - 44	mmHg
PO2		80 - 100	mmHg
PH		7.337 - 7.467	
PCO2		36 - 44	mmHg
PO2		80 - 100	mmHg
HCO3		18 - 24	mmol/L

**Nova Full Panel-ICU**      **4/5/2017 3:48:12 PM**      **Accession ID: B6**

Test	Results	Reference Range	Units
TS (FHSA)	<b>B6</b>	0 - 0	g/dl
PCV **		0 - 0	%
TS (FHSA)		0 - 0	g/dl



7/28

**B6**

Printed Tuesday, January 01, 2019

**Vitals Results**

4/5/2017 3:51:11 PM	Heart Rate (/min)	<b>B6</b>
4/5/2017 3:51:12 PM	Respiratory Rate	
4/5/2017 3:51:13 PM	Temperature (F)	
4/5/2017 3:51:14 PM	Weight (kg)	

**Patient History**

04/05/2017 12:53 PM	UserForm	<b>B6</b>
04/05/2017 02:00 PM	UserForm	
04/05/2017 03:34 PM	Purchase	
04/05/2017 03:34 PM	Treatment	
04/05/2017 03:37 PM	Purchase	
04/05/2017 03:42 PM	UserForm	
04/05/2017 03:48 PM	Labwork	
04/05/2017 03:51 PM	Vitals	
04/05/2017 03:51 PM	Vitals	
04/05/2017 03:51 PM	Vitals	
04/05/2017 03:51 PM	Vitals	
04/05/2017 03:56 PM	Prescription	
04/05/2017 03:58 PM	Purchase	
04/05/2017 04:04 PM	Purchase	
12/31/2018 12:38 PM	UserForm	
12/31/2018 03:48 PM	Purchase	
12/31/2018 03:48 PM	Purchase	
12/31/2018 03:55 PM	UserForm	

Client:  
Patient:

**B6**

**Patient History**

12/31/2018 04:07 PM	Treatment
12/31/2018 04:07 PM	Purchase
12/31/2018 04:13 PM	Treatment
12/31/2018 05:01 PM	Prescription
12/31/2018 05:04 PM	Prescription
12/31/2018 05:05 PM	Purchase
12/31/2018 05:14 PM	Deleted Reason
12/31/2018 05:16 PM	Purchase
01/01/2019 05:31 AM	UserForm
01/01/2019 05:36 AM	Email

**B6**





**B6**

**B6**

Male

Genie Dobberman Prescher Black/Tan

Patient ID: **B6**

## STANDARD CONSENT FORM

I am the owner, or agent for the owner, of the above described animal and have the authority to execute consent. I hereby authorize the Cummings School of Veterinary Medicine at Tufts University (herein after Cummings School) to prescribe for treatment of said animal according to the following terms and conditions.

Cummings School and its officers, agents, and employees will provide such veterinary medical care as they deem reasonable and appropriate under the circumstances.

Cummings School and its officers, agents, and employees will use all reasonable care in the treatment of the above mentioned animal, but will not be liable for any loss or accident that may occur or any disease that may develop as a result of the care and treatment provided.

I understand that the above identified animal may be treated by Cummings School students under the supervision and assistance of Cummings School staff members.

In executing this form, I hereby expressly acknowledge that risks, benefits and alternative forms of treatment have been explained to me. I understand said explanation, and I consent to treatment. Should any additional treatments or diagnostics be required during the continued care of my animal, I understand that I will be given the opportunity to discuss and consent to these additional procedures. I understand that further or additional treatment may be required without an opportunity for discussion and consideration by me, in the case of the development of any life-threatening emergency during the continued care of my animal and I expressly consent to all such reasonable treatment as required. I realize and understand that results cannot be guaranteed.

If any equipment is left with the animal, it will be accepted with the understanding that Cummings School assumes no responsibility for any loss of equipment that may occur.

I agree to pick up the animal when notified that it is ready for release.

In the event the animal is not picked up, and if ten (10) days have expired since a registered letter was sent to the address given above, notifying me to call for the animal, the animal may be sold or otherwise disposed of in a humane manner and the proceeds applied to the charges incurred in caring and treating the animal. Failure to remove said animal will not and does not relieve me from obligation for the costs of services rendered.

I hereby grant to the Cummings School of Veterinary Medicine at Tufts University, its officers and employees (collectively referred to herein as Cummings School), and its agents and assigns (the Grantors) the irrevocable rights to photograph / videotape the operation or procedure to be performed, including appropriate and otherwise use such photographs and images for, and in connection with, a Grantor's medical, scientific, educational, and publicity purposes, by any means, methods and media (print and electronic) now known or, in the future, developed that the Grantor deems appropriate (provided that such photographs and images may not be used in for-profit commercials, unless such commercials are publicizing educational programs at Cummings School). As medical and surgical treatment necessitates the removal of tissue, cells, fluids or body parts of my animal, I authorize the Grantors to dispose of or use these tissues, cells, fluids or body parts for scientific and educational purposes.

I understand that a FINANCE CHARGE will be applied to all accounts unpaid after 30 days. The FINANCE CHARGE is computed on a monthly rate of 1.25% per month, which is an annual percentage rate of 16% applied to the average daily balance outstanding, with a minimum fee of \$5.00.

I do further agree that should any payment, or the full amount of the sum stated above, become overdue more than 20 days from the above-approved upon time of payment or payments, the entire balance shall be considered in default and become due and payable. I further agree to be responsible for any or all collection agency and/or attorney fees necessary to collect the full amount.

I do further agree to comply with hours of visitation in conjunction with our Hospital's policy.

I have read, understand, and agree to accept the terms and conditions herein.

Owner's name: **B6** Date: **B6**

Owner's address: **B6**

**B6**

Date:

If the individual admitting the animal is someone other than the legal owner, please complete the portion below.

The owner of the animal **B6** has granted me authority to obtain medical treatment and to bind the owner to pay the veterinary medical services provided at Cummings School pursuant to the terms and conditions described above.

Authorized Agent - Please Print

Agent's Signature

Street Address

Date

Town/City

State

Zip



Cummings School of  
Veterinary Medicine

*Healing Animals. Helping Humans. Transforming Global Health.*

**B6**

**B6**

~~Male~~

~~Cancer: Unknown/Prostate: Black/Tan~~

**B6**

~~Primary Clinician:~~

**B6**

~~Cage Location: Waiting room~~

~~Owner:~~

**B6**

**B6**

L				CRANIAL NERVES				R			
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	6 Olfactory	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	6 Optic Nerve Following	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	6 Trochlear	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	6 Trigeminal Sensory (V1 + V2)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	6 Trigeminal Motor (V3 + V4)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	6 Abducens	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	6 Vestibulo Cochlear	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	6 Glossopharyngeal	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	6 Vagus	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	6 Accessory	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	6 Spinal	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**CRANIAL NERVES**

L				PROPRIOCEPTION				R			
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	8 Dorsal	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

				front legs					
				4 Hopping hind legs					
				4 Bone hopping right					
				4 Bone hopping left					
				4 Crunching feet					
				4 Crunching feet					
				4 Digging after					
				4 Extreme protrud throat					
				4 Wheel lowerer wheel					
				4 Wheel lowerer lower(wheel extended)					
				4 Flaring wheel					
				4 Flaring handle					

**Common/HC animal**

				L	REFLEXES & TONE					R	
					4 Extreme corgi wheel (C7-T6)						
					4 Triceps (C7-T6)						
					4 Withstand (C5-T6)						
					4 Machine						
					4 Hind Legs						
					4 Thigh corolla (L7-18)						
					4 Handle (L4-16)						
					4 Withstand (C7-16)						
					4 Machine						
					4 Pinch (L8-10)						
					4 Bulky vertical after						
					4 And upstructure						

(24/25)

<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7	<input type="checkbox"/> 8	<input type="checkbox"/> 9		
					4 Paraspina (Distal)						
					Cut off						
					<input type="checkbox"/> Present	Crossed Sensory motor afferent					
					<input type="checkbox"/> Present	Motor efferent					
					<input type="checkbox"/> Present	Sphincter/erector motor phrenic nerve					

**Comments: normal**

				<b>I.</b>	<b>SENSORY FUNCTION</b>									
				<input type="checkbox"/> N/A	Pain perception									
<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
					<b>Performance sensory motor</b>									
<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4

**Comments:**

**PALPATION:**

- Pain
  - 1. no obvious pain elicited on direct palpation; patient hesitant for passive movement of neck in all directions (suspect mostly behavioral); when patient does a full body shake, he tends to hunch himself slightly in the neck
- Muscle atrophy
  - 1. none appreciated

**COMMENTS:**

**LOCALIZATION:** suggestive of mild cervical myelopathy

**DIFFERENTIALS:** Whiplash vs. FOD vs. complex vs. inflammatory vs. infectious vs. trauma

**RECOMMENDED APPROACH:**

# B6

Neurologist: B6 DMH (Intern, Neurology) and B6 DMH, DACVM (Neurology)

0 absent 1 decreased 2 normal 3 increased 4 marked increase



# Cummings Veterinary Medical Center

AT TUFTS UNIVERSITY

Foster Hospital for Small Animals  
55 Willard Street  
North Grafton, MA 01536  
Telephone: (508) 833-5395  
Fax: (508) 833-8739  
<http://vetmed.tufts.edu/>

Emergency & Critical Care: Latham (508) 887-4345

**Patient**

**Name:**

B6

**Signalment:**

B6 7 years Old Black/Tan Male  
Doberman Pinscher

**Owner**

**Name:**

B6

**Address:**

**Patient ID:**

B6

**Emergency Clinician:**

B6

ITW/IMed (Emergency and Critical Care Resident)

**Consulting Clinician:**

**ER Supervisor:**

B6

## Discharge Instructions

Admit Date: 4/5/2017 12:52:11 PM

Check Out Date: 4/5/2017

**Case Summary**

**Diagnosis:**

L

B6

B6

**B6**

**Medications:**

**Continue:**

1. **B6** as prescribed previously.

**New medications:**

**B6**

**B6**

**Case:** **B6**

**Diagnosis:** **B6**

**Discharge instructions:**

**Radiology Request & Report**

**Patient**

Name: B6  
Species: Canine  
Breed/Tan: Male Doberman  
Preacher  
Birthdate: B6

**Owner**

Name: B6  
Address: B6

Patient ID: B6  
Date of request: B6

Attending Clinician: B6 MD (Intern) B6 Student:

Date of exam: 12/31/18

Patient Location: Ward/Cage: Exam room 13

Weight (kg) 43.60

- Inpatient  
 Outpatient Time:  
 Waiting  
 Emergency

**Sedation**

- IMAG  
 OMAG  
 1/2 dose OMAG  
 Dex/Domitor/Butorphanol  
 Anesthesia to sedate/anesthetize

Examination Desired: 1 lateral radiograph (can do standing)

Presenting Complaint and Clinical Questions you wish to answer:  
Emergency - r/o CHF

Pertinent History: DCM, had echocardiogram today.

Findings:

Conclusions:

Radiologist:

Primary:

Reviewing:

Dates:

Reported:

Finalized:

# Cummings Veterinary Medical Center

AT TUFTS UNIVERSITY  
Cardiology Liaison: 508-887-4696

B6

Patient ID: B6  
B6  
B6  
Case: Dobberman Pinscher  
Years Old: Male  
Black/Tan  
Breed: B6  
Weight (kg): 43.60

## Cardiology Consultation ENROLLED IN DOM STUDY

Date: 12/31/2018

Weight: Weight (kg) 43.60

Requesting Clinician: B6 VMD (Intern) B6

Attending Cardiologist:

John F. Rush DVM, MS, DACVIM (Cardiology), DACVECC

B6

Cardiology Resident:

B6

Thoracic radiographs available for review?

- Yes - in SS  
 Yes - in PACS  
 No

Patient location: Exam room

Presenting complaint and important concurrent diseases: referral for cardiology consult. Increased respiratory effort and rate on Friday night (12/28). saw Boston Road who owner reports saw fluid in chest, started on cardio meds for DCM. Patient has been doing much better since starting medications.

Current medications and doses: B6

B6

At-home diet: (name, form, amount, frequency) Orijen dry dog food

Key indication for consultation: (murmur, arrhythmia, needs fluids, etc.) arrhythmia, DCM

Questions to be answered: any changes to medications/treatment plan moving forward

Is your consult time-sensitive? (e.g., anesthesia today, owner waiting, trying to get biopsy today)

- Yes (explain):
- No

**\*STOP - remainder of form to be filled out by Cardiology\***

**Physical Examination**

Heart rate: 184  
MM Color and CRT: Pink, <2sec

Respiratory rate: Panting  
BCS (1-9): 7-8

**Muscle condition:**

- Normal
- Mild muscle loss
- Moderate cachexia
- Marked cachexia

**Cardiovascular Physical Exam**

**Murmur Grade:**

- None
- I/VI
- II/VI
- III/VI
- IV/VI
- V/VI
- VI/VI

Murmur location/description: Left apical systolic

**Jugular vein:**

- Bottom 1/3 of the neck
- Middle 1/3 of the neck
- Top 2/3 of the neck
- 1/2 way up the neck

**Arterial pulses:**

- Weak
- Fair
- Good
- Strong
- Bounding
- Pulse deficits
- Pulsus paradoxus
- Other (describe):

**Arrhythmia: Irregularly Irregular**

- None
- Sinus arrhythmia
- Premature beats
- Bradycardia
- Tachycardia

**Gallop:**

- Yes
- No
- Intermittent
- Pronounced
- Other:

**Pulmonary assessments:**

- Tupressic
- Mild dyspnea (for a Dobie)
- Marked dyspnea
- Normal BV sounds
- Pulmonary Crackles
- Wheezes
- Upper airway stridor
- Other auscultatory findings

**Abdominal exam:**

- Normal
- Hepatomegaly
- Abdominal distension
- Mild ascites

**B6**

**Mitral inflow: Atrial fibrillation**

- Summated
- Normal
- Delayed relaxation
- Pseudonormal
- Restrictive

**B6**

**Assessment and recommendations:**

Echocardiogram reveals DCM with marked LA enlargement, active CHF, and atrial fibrillation with fast ventricular rate. Since the patient is a Doberman we are more inclined to believe that the origin of the DCM is genetic although the patient is on a grain free diet which could potentially contribute to the markedly decreased systolic function. The patient was officially enrolled in Dr. Freeman's study today and blood was pulled for all of the required test. Chest radiographs revealed persistence of the previously diagnosed CHF and the ventricular rate is still relatively fast. Recommend making the

**B6**

Recheck BW including a digoxin level (especially since the current dose is still on the higher end) and ECG is recommended in 7-10 days. Recheck echocardiogram in 3 months or sooner if the patient develops clinical signs consistent with worsening heart disease such as increased RR/RI, cough, exercise intolerance, or syncope.

**Final Diagnosis:**

- DCM with marked reduced contractile function and acute CHF r/o genetic vs. diet related
- Atrial fibrillation with fast ventricular rate

**Heart Failure Classification Score:**

**TSACH Classification:**

- |                             |  |
|-----------------------------|--|
| <input type="checkbox"/> Ia | <input checked="" type="checkbox"/> IIIa |
| <input type="checkbox"/> Ib | <input type="checkbox"/> IIIb            |
| <input type="checkbox"/> II |  |

**ACC/AHA CHF Classification:**

- |                             |                                       |
|-----------------------------|---------------------------------------|
| <input type="checkbox"/> A  | <input checked="" type="checkbox"/> C |
| <input type="checkbox"/> B1 | <input type="checkbox"/> D            |
| <input type="checkbox"/> B2 |                                       |

**Discharge Instructions**

**Patient:**

**Name:** B6

**Species:** Canine

**Breed:** Black/Tan Male Doberman Pinscher

**Birthdate:** B6

**Owner:**

**Name:** B6

**Address:** B6

**Patient ID:** B6

**Admit Date:** 12/31/2018 11:21:39 AM

**Discharge Date:** 1/1/2019

**Diagnosis:** Dilated cardiomyopathy (DCM) with congestive heart failure

**Case summary:**

B6 has been diagnosed with a primary heart muscle disease called dilated cardiomyopathy (DCM). This disease is more common in large and giant breed dogs and is characterized by thinning of the walls of the heart, reduced cardiac pump function, and enlargement of the upper chambers of the heart. Many dogs with DCM will also have significant arrhythmias which can be life-threatening and also require medical management. The heart enlargement has now progressed to the point of congestive heart failure, meaning that fluid is backing up into the lungs. Unfortunately this is a progressive disease and we cannot reverse the changes to the heart muscle, however we can use cardiac medications and some changes to the diet to make your dog comfortable and have him breathing easier.

**Monitoring at home:**

**B6**

**Medications:**

**B6**



**B6**

**B6**

**Dry Food Options:**

Royal Canin Early Cardiac (veterinary diet)

Royal Canin Bloat

Purina Pro Plan Adult Weight Management

Purina Pro Plan Bright Mind Adult Small Breed Formula

**Canned Food Options:**

Hill's Science Diet Adult Beef and Turkey Entree

Hill's Science Diet Adult 1-6 Healthy Cuisine Baked Chicken, Carrot, and Spinach Stew

Royal Canin Mature B+

We have also sent you home with Taurine for oral supplementation. Please give 1000mg by mouth twice daily.

**Carrier Recommendations:**

For the first 7 to 10 days after starting medications for heart failure we recommend very limited activity. Leash walking only is ideal, and short walks to start. Once the heart failure is better controlled, then slightly longer walks are acceptable. However, if you find that **B6** is lagging behind or needs to stop on a walk then this was too long a walk and shorter walks are advised in the future. Repeat (low- or strenuous high energy activities (pup play ball chasing, running fast off leash, etc.) are generally not advised at this stage of heart failure.

**Recheck Visits:**

A recheck visit is recommended in 7-10 days for recheck bloodwork and electrocardiogram. At this visit we will check your dog's breathing effort and heart function, do a blood test to recheck kidney values, and probably recheck a blood pressure. A recheck echocardiogram is recommended in 3-4 months.

Thank you for trusting us with **B6** care. Please contact our Cardiology liaison at (408) 887-4629 or email us at [cardiovet@tufts.edu](mailto:cardiovet@tufts.edu) for scheduling and non-emergent questions or concerns.

Please visit our HeartSmart website for more information:

<http://vet.tufts.edu/heart-smart/>

---

**Prescription Drug Disclaimers:**

For the safety and well-being of our patients, your pet must have had an examination by one of our veterinarians within the past year in order to obtain prescription medications.

**Ordering Food:**

Please check with your primary veterinarian to purchase the recommended diet(s). If you wish to purchase your food from us, please call 7-10 days in advance (408-887-4629) to ensure the food is in stock. Alternatively, veterinary diets can be ordered from online retailers with a prescription/veterinary approval.

**Clinical Trials:**

Clinical trials are studies in which our veterinary doctors work with you and your pet to investigate a specific disease process or a promising new test or treatment. Please see our website: [vet.tufts.edu/press/clinical-trials](http://vet.tufts.edu/press/clinical-trials)

---

Case: **B6**

Owner: **B6**

Discharge Instructions:



Cummings School of  
Veterinary Medicine

Healing Animals. Helping Humans. Transforming Global Health.

Forster Hospital for Small Animals  
55 Willard Street  
North Grafton, MA 01526  
Telephone (508) 829-5399  
Fax (508) 829-8739  
<http://vetmed.tufts.edu/>

**B6**

**B6**

Male

**B6**

Doberman Pinscher

Black/Tan

**B6**

**B6**

Dear **B6**

**B6** presented for possible right-sided neck pain. **B6** was inconsistent on ER and Neurology examinations. No significant limb neurological problems were identified. NOVA was normal. D/c carprofen, diclofenac tromadol, continue gabapen, recheck approx 2 weeks.

If you have any questions, or concerns, please contact us at 508-827-1988.

Thank you,

**B6** (Emergency and Critical Care Resident)

**Cummings**  
**Veterinary Medical Center**  
AT TUFTS UNIVERSITY

Forster Hospital for Small Animals  
55 Willard Street  
North Grafton, MA 01526  
Telephone (NOR) 829-5295  
Fax (NOR) 829-7951  
<http://vetmed.tufts.edu/>

**B6**

**B6**

Main

**B6**

Debra Ann Pletcher

Black/Tan

**B6**

1/1/2019

Dear **B6**

Thank you for referring **B6** with their pet **B6**. Please see attached client discharge instructions.

If you have any questions, or concerns, please contact us at 508-827-1981.

Thank you,

**B6**

VMD (Intern - **B6**)

---

**From:** Jones, Jennifer L </O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=0F6CA12EAA9348959A4CBB1E829AF244-JENNIFER.JO>  
**To:** Reimschuessel, Renate  
**CC:** Peloquin, Sarah  
**Sent:** 6/13/2019 2:35:36 PM  
**Subject:** RE: FDA consumer report - CC-156319 [B6]

Thank you!

Jennifer Jones, DVM  
Veterinary Medical Officer  
Tel: 240-402-5421



**From:** Reimschuessel, Renate  
**Sent:** Thursday, June 13, 2019 10:31 AM  
**To:** Jones, Jennifer L <Jennifer.Jones@fda.hhs.gov>  
**Cc:** Peloquin, Sarah <Sarah.Peloquin@fda.hhs.gov>  
**Subject:** FW: FDA consumer report - CC-156319 [B6]

06-13-2019 – RR called in response to owner's call. The dog has been on grain free diets since being a puppy. Was fed 5 earth born and Natural balance sweet potato in the past. Has no clinical signs now, but was in congestive heart failure at diagnosis. Has been on a heart monitor, has had an echo and will be obtaining 6-month echo in next few weeks.

Owner also volunteered that she would want necropsy done and said she would contact Josh Stern and wanted protocol for the procedure. I suggested Vet-LIRN contact her vet with the info if needed.  
**RR requested records and diet history (to be written by owner) to be sent via email.**  
Provided Vet-LIRN procedures for owners.

Renate Reimschuessel V.M.D. Ph.D. Director Vet-LIRN  
*Phone 1-240-402-5404*  
*Fax 301-210-4685*  
<http://www.fda.gov/AnimalVeterinary/ScienceResearch/ucm247334.htm>

**From:** Reimschuessel, Renate  
**Sent:** Thursday, June 13, 2019 10:29 AM  
**To:** [B6]  
**Subject:** FDA consumer report - CC-156319 [B6]

Dear Ms. [B6]

Thank you for submitting your consumer complaint to FDA. I'm sorry to hear about [B6] heart condition. As we discussed this morning, as part of FDA's investigation we'd like to request:

- **Full Medical Records**
  - Please contact your veterinarians and ask them to email (preferred) or fax (301-210-4685) a copy of [B6] **entire** medical history (not just this event) and the cardiologist evaluations, echos and radiographs.

- **Diet history**

- Please provide me [B6] diet history – including his main diet over the years and also any treats and snacks that may be periodically given.

I attached a copy of our Vet-LIRN network procedures. The procedures describe how Vet-LIRN operates and how owners help with our case investigations. With respect to a possible postmortem evaluation, thank you so much for your willingness to participate if [B6] were to pass. We can work with your veterinarian and provide the protocols that we are currently following.

Please respond to this email to confirm that you received it.

Sincerely,

Renate Reimschuessel

Renate Reimschuessel V.M.D. Ph.D.

Director: Vet-LIRN

*(Veterinary Laboratory Investigation and Response Network)*

Center For Veterinary Medicine, FDA,

8401 Muirkirk Road, Laurel, MD 20708

Phone 1-240-402-5404 Fax 301-210-4685

EMAIL : [renate.reimschuessel@fda.hhs.gov](mailto:renate.reimschuessel@fda.hhs.gov)

Vet-LIRN

<http://www.fda.gov/AnimalVeterinary/ScienceResearch/ucm247334.htm>

Phish-Pharm

<http://www.fda.gov/AnimalVeterinary/ScienceResearch/ToolsResources/Phish-Pharm/default.htm>

Aquaculture

<http://www.fda.gov/AnimalVeterinary/ScienceResearch/ResearchAreas/ucm130892.htm>

06-13-2019 – RR called in response to owner's call. The dog has been on grain free diets since being a puppy. Was fed 5 earth born and Natural balance sweet potato in the past.

Has no clinical signs now, but was in congestive heart failure at diagnosis.

Has been on a heart monitor, has had an echo and will be obtaining 6-month echo in next few weeks.

Owner also volunteered that she would want necropsy done and said she would contact Josh Stern and wanted protocol for the procedure. I suggested Vet-LIRN contact her vet with the info if needed.

**RR requested records and diet history (to be written by owner) to be sent via email.**

Provided Vet-LIRN procedures for owners.

---

**From:** Reimschuessel, Renate </O=FDA/OU=FIRST ADMINISTRATIVE GROUP/CN=RECIPIENTS/CN=RREIMSCH>  
**To:** Carey, Lauren; Jones, Jennifer L; Rotstein, David; Ceric, Olgica; Palmer, Lee Anne; Queen, Jackie L  
**CC:** Nemser, Sarah  
**Sent:** 4/3/2017 11:22:23 AM  
**Subject:** RE: Nature's Variety Instinct Limited Ingredient diet Lamb Meal & Peas Formula: [B6]  
[B6] EON-308715

[B5]

I agree this case is a NFA – but I'm wondering [B5]

[B5]

Something to look at during our strategic planning.

Renate Reimschuessel V.M.D. Ph.D. Vet-LIRN  
*Phone 1-240-402-5404*  
Fax 301-210-4685  
<http://www.fda.gov/AnimalVeterinary/ScienceResearch/ucm247334.htm>

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**From:** Carey, Lauren  
**Sent:** Monday, April 03, 2017 7:06 AM  
**To:** Jones, Jennifer L; Rotstein, David; Ceric, Olgica; Palmer, Lee Anne; Queen, Jackie L; Reimschuessel, Renate  
**Subject:** RE: Nature's Variety Instinct Limited Ingredient diet Lamb Meal & Peas Formula: [B6] - EON-308715

Interesting! Thanks Jen

---

**From:** Jones, Jennifer L  
**Sent:** Monday, April 03, 2017 7:05 AM  
**To:** Rotstein, David; Carey, Lauren; Ceric, Olgica; Palmer, Lee Anne; Queen, Jackie L; Reimschuessel, Renate  
**Subject:** RE: Nature's Variety Instinct Limited Ingredient diet Lamb Meal & Peas Formula: [B6] - EON-308715

Just found an article for this: <http://www.vetmed.ucdavis.edu/vmb/labs/aal/pdfs/Torres.pdf>

“Taurine (Tau) deficiencies have been associated with the feeding of commercial lamb-meal and rice diets to dogs. We hypothesized that the poor digestibility of some lamb-meals may limit sulphur amino acids availability for Tau synthesis and/or increase of Tau degradation in the gut. Urinary Tau increased by 54% when methionine (Met) was supplemented to Diet A (lamb-based diet), supporting the suggestion of a low bioavailability of sulphur amino acids and/or an increased fecal loss of Tau in dogs consuming Diet A.”

Very interesting report, but I'd agree-NFA. Likely [B5]

[B5]

Jennifer Jones, DVM  
Veterinary Medical Officer





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**From:** Rotstein, David  
**Sent:** Monday, April 03, 2017 7:02 AM  
**To:** Carey, Lauren; Ceric, Olgica; Jones, Jennifer L; Palmer, Lee Anne; Queen, Jackie L; Reimschuessel, Renate  
**Subject:** RE: Nature's Variety Instinct Limited Ingredient diet Lamb Meal & Peas Formula: [B6] - EON-308715

Lauren,

I think NFA.

[B5]

[B5]

David Rotstein, DVM, MPVM, Dipl. ACVP  
CVM Vet-LIRN Liaison  
CVM OSC/DC/CERT  
7519 Standish Place, RM 120  
240-402-5613 (Office) (NEW NUMBER)  
[B6] (BB)



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**From:** Carey, Lauren  
**Sent:** Monday, April 03, 2017 6:55 AM  
**To:** Ceric, Olgica; Jones, Jennifer L; Palmer, Lee Anne; Queen, Jackie L; Reimschuessel, Renate; Rotstein, David  
**Subject:** FW: Nature's Variety Instinct Limited Ingredient diet Lamb Meal & Peas Formula: [B6] - EON-308715

8.5yo Golden Retriever diagnosed with cardiac disease: valvular disease, decreased contractility, CHF. Taurine blood levels very low - cardiologist worried there is a relation to food.

Food is raw ("naturally preserved") so I worry more about bacteria around the dog's diseased valves, but any desire to follow-up for taurine, etc.?

---

**From:** PFR Event [<mailto:pfreventcreation@fda.hhs.gov>]  
**Sent:** Thursday, March 30, 2017 3:56 PM  
**To:** Cleary, Michael \*; HQ Pet Food Report Notification: [B6]  
**Subject:** Nature's Variety Instinct Limited Ingredient diet Lamb Meal & Peas Formula: [B6] - EON-308715

A PFR Report has been received and PFR Event [EON-308715] has been created in the EON System.

A "PDF" report by name "1064844-report.pdf" is attached to this email notification for your reference.

Below is the summary of the report:

**EON Key:** EON-308715

**ICSR #:** 1064844

**EON Title:** PFR Event created for Nature's Variety Instinct Limited Ingredient diet Lamb Meal & Peas Formula; 1064844

<b>AE Date</b>	03/09/2017	<b>Number Fed/Exposed</b>	1
<b>Best By Date</b>		<b>Number Reacted</b>	1
<b>Animal Species</b>	Dog	<b>Outcome to Date</b>	Stable
<b>Breed</b>	Retriever - Golden		
<b>Age</b>	8.5 Years		
<b>District Involved</b>	PFR-New England DO		

**Product information**

**Individual Case Safety Report Number:** 1064844

**Product Group:** Pet Food

**Product Name:** Nature's Variety Instinct Limited Ingredient diet Lamb Meal & Peas Formula

**Description:** Presented to local veterinarian for gagging cough. Regular veterinarian concerned about new heart murmur and large heart on ultrasound and referred to Emergency and Cardiology services at **B6**.

Cardiac workup showed degenerative valvular disease, but also very depressed cardiac contractility and early congestive heart failure. Taurine level (plasma) was checked to rule out taurine deficiency as cause of depressed cardiac contractility and level was extremely low **B6** nmol/mL (normal is 60-120 nmol/mL; critical is < 40 nmol/mL). Concerned that diet may not have sufficient precursors to taurine.

**Submission Type:** Initial

**Report Type:** Adverse Event (a symptom, reaction or disease associated with the product)

**Outcome of reaction/event at the time of last observation:** Stable

**Number of Animals Treated With Product:** 1

**Number of Animals Reacted With Product:** 1

<b>Product Name</b>	<b>Lot Number or ID</b>	<b>Best By Date</b>
Nature's Variety Instinct Limited Ingredient diet Lamb Meal & Peas Formula		

**Sender information**

**B6**

USA

**Owner information**

**B6**

To view this PFR Event, please click the link below:

<https://eon.fda.gov/eon//browse/EON-308715>

To view the PFR Event Report, please click the link below:

<https://eon.fda.gov/eon//EventCustomDetailsAction!viewReport.jspx?decorator=none&e=0&issueType=12&issueId=323753>

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Failure to adhere to the above provisions could result in removal from the approved distribution list. If you think you received this email in error, please send an email to [FDAREportableFoods@fda.hhs.gov](mailto:FDAREportableFoods@fda.hhs.gov) immediately.

**From:** Rotstein, David </O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=0A3B17EBFCF14A6CB8E94F322906BADD-DROTSTEI>  
**To:** Carey, Lauren; Ceric, Olgica; Glover, Mark; Jones, Jennifer L; Nemser, Sarah; Palmer, Lee Anne; Peloquin, Sarah; Queen, Jackie L; Rotstein, David  
**Sent:** 6/19/2019 12:49:35 PM  
**Subject:** FW: Acana Free Run Poultry dry: Lisa Freeman - EON-390790  
**Attachments:** 2069328-report.pdf; Acana Free Run Poultry dry: Lisa Freeman - EON-374786; 2069328-attachments.zip

David Rotstein, DVM, MPVM, Dipl. ACVP  
CVM Vet-LIRN Liaison  
CVM OSC/DC/CERRT  
7519 Standish Place  
B6 (BB)



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**From:** Related PFR Event <pfrsignificantactivitycreation@fda.hhs.gov>  
**Sent:** Tuesday, June 18, 2019 12:57 PM  
**To:** Rotstein, David <David.Rotstein@fda.hhs.gov>; B6 Cleary, Michael \* <Michael.Cleary@fda.hhs.gov>; HQ Pet Food Report Notification <HQPetFoodReportNotification@fda.hhs.gov>  
**Subject:** Acana Free Run Poultry dry: Lisa Freeman - EON-390790

A PFR Report has been received and Related PFR Event [EON-390790] has been created in the EON System.

A "PDF" report by name "2069328-report.pdf" is attached to this email notification for your reference. Please note that all documents received in the report are compressed into a zip file by name "2069328-attachments.zip" and is attached to this email notification.

Below is the summary of the report:

**EON Key:** EON-390790  
**ICSR #:** 2069328  
**EON Title:** Related PFR Event created for Acana Free Run Poultry dry; 2069328

<b>AE Date</b>	08/20/2018	<b>Number Fed/Exposed</b>	2
<b>Best By Date</b>		<b>Number Reacted</b>	2

<b>Animal Species</b>	Dog	<b>Outcome to Date</b>	Recovered Completely
<b>Breed</b>	Doberman Pinscher		
<b>Age</b>	10 Years		
<b>District Involved</b>	PFR-New England DO		

**Product information**

**Individual Case Safety Report Number:** 2069328

**Product Group:** Pet Food

**Product Name:** Acana Free Run Poultry dry

**Description:** Housemate was diagnosed with DCM ([B6]- previously reported) [B6] was asymptomatic but eating same diet (Acana) so was screened 8/20/18 - reduced contractile function. Owner changed diet to Pro Plan Weight Management dry. No improvement on 12/12/18 echo. Will recheck in 3 months WB taurine [B6]

**Submission Type:** Followup

**Report Type:** Adverse Event (a symptom, reaction or disease associated with the product)

**Outcome of reaction/event at the time of last observation:** Recovered Completely

**Number of Animals Treated With Product:** 2

**Number of Animals Reacted With Product:** 2

Product Name	Lot Number or ID	Best By Date
Acana Free Run Poultry dry		

This report is linked to:

**Initial EON Event Key:** EON-374786

**Initial ICSR:** 2060599

**Sender information**

Lisa Freeman  
 200 Westboro Rd  
 North Grafton, MA 01536  
 USA

**Owner information**

[B6] USA

To view this Related PFR Event, please click the link below:

<https://eon.fda.gov/eon//browse/EON-390790>

To view the Related PFR Event Report, please click the link below:

<https://eon.fda.gov/eon//EventCustomDetailsAction!viewReport.jspa?decorator=none&e=0&issueType=10100&issuelid=408062&parentIssueTypelid=12>

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**All Medical Records**

Client: **B6**  
Address: **B6**

Patient: **B6**  
Breed: Pit Bull  
DOB: **B6**

Species: Canine  
Sex: Male  
(Neutered)

Home Phone: **B6**  
Work Phone: ( ) -  
Cell Phone: **B6**

**B6**

**Referring Information**

**B6**

Client: **B6**  
Patient:

**Initial Complaint:**

Scanned Record

**Initial Complaint:**

Cardiology New - will be here at 1:30 PM

SOAPText Jan 3 2019 1:03PM - **B6**

**Disposition/Recommendations**

Client:  
Patient:

**B6**

---

---



Client: **B6**  
Patient:

**Cummings**  
**Veterinary Medical Center**  
AT TUFTS UNIVERSITY

**Foster Hospital for Small Animals**

55 Willard Street  
North Grafton, MA 01536  
(508) 839-5395

Client: **B6**  
Veterinarian:  
Patient ID: **B6**  
Visit ID:

Patient:	<b>B6</b>
Species:	Canine
Breed:	Pit Bull
Sex:	Male (Neutered)
Age:	<b>B6</b> Years Old

**Lab Results Report**

**Accession ID:**

Test	Results	Reference Range	Units
------	---------	-----------------	-------



3/95

**B6**

Printed Tuesday, March 26, 2019

Client: **B6**  
Patient: **B6**

**B6** History 9/2018-12/29/18

# INVOICE

**B6**

FOR: **B6**

Printed: 12-31-18 at 2:26p  
Date: 12-29-18  
Account: 10080  
Invoice: 106408

Date	For	Qty	Description	Price	Discount	Net Price
------	-----	-----	-------------	-------	----------	-----------

12-29-18	<b>B6</b>	1	Office Call - Brief Exam Eating/drinking: C/S/V/D: Meds/suppl: FT/HWP: Indoor/outdoor (cats): Major medical hx: Concerns:			<b>B6</b>
----------	-----------	---	--	--	--	-----------

**B6**

Heart- NMA, irregularly irregular rhythm, femoral pulses deficits

**B6**

Assessment -

**B6**

Ddx - DCM, atrial fibrillation, PSVT

Plan -

**B6**

O reports intermittent, more frequent syncopal episodes recently. Sometimes

Client: **B6**  
Patient: **B6**

**B6** History 9/2018-12/29/18

fainting, but other times appears nauseated and unstable. Strongly recommended referral to cardiologist for complete work up including ECHO, ECG, BP, proBNP and complete thoracic radiograph series. VHS = 10.5 based on prior radiograph taken in hospital

12-29-18 1 Ultrasound - In House

**B6**

Old balance	Charges	Payments	New balance
			<b>B6</b>

A minimum Service Charge of \$5.00 per month in addition to a 1.5% monthly finance charge will be applied to all balances after 30 days.

Patient	Total charges
	<b>B6</b>

**B6**

**Doctor's Instructions**

Office Call - Brief Exam

Our Regular Business Hours are Mon, Tues, Wed and Fri 9am-5pm, Thurs 9am-7pm and Sat 9am-12pm

In Case of an Emergency After Hours:

**B6** in collaboration with **B6**. Keep **B6** **B6** provide shared coverage for local emergencies from 5pm-10pm Mon-Fri. Please call our office at **B6** and you will be directed to the appropriate hospital providing coverage at that time.

In order to ensure the most comprehensive care for your pet, all overnight, weekend and holiday emergencies are referred to the closest fully staffed 24 hour emergent facilities by all of the **B6** area animal hospitals.

**B6** is located in **B6** is located in **B6**  
**B6**

Client: **B6**  
Patient: **B6**

**B6** History 9/2018-12/29/18

PET OWNER'S COPY

**B6**

**B6**

**Certificate of Rabies Vaccination**



RSA 436-10II, REQUIRES THE FOLLOWING OWNER STATEMENT.

I, **B6** SWEAR

THAT TO MY KNOWLEDGE THIS DOG HAS NOT BITTEN ANYONE WITHIN 10 DAYS.

This is to certify that this date 3/17/2018, a dog (cat)  
(ferret) (wolf)

belonging to **B6**

mailing address **B6**

and residing in **B6**

was vaccinated with Boehringer Ingelheim Rabvac 3 killed virus  
brand type

serial no. 1215388A rabies vaccine.

Breed P. Bull mix Age 4 yrs Sex NM

Weight 76.6# Tag No. \_\_\_\_\_

Animal's Name **B6**

Markings of animal \_\_\_\_\_

Re-vaccination Due

Date 3/17/2018 **B6**  
Veterinarian

Retain this certificate. A charge for replacement may be made.

The Veterinarian signing this certificate is licensed by the State of \_\_\_\_\_ and has the approval of the Department of Agriculture for the issuance of Health Certificates and Rabies Vaccinations. **B6**

Client: **B6**  
Patient: **B6**

**B6** History 9/2018-12/29/18

# INVOICE

**B6**

FOR: **B6**

Printed: 12-31-18 at 2:44p  
Date: 12-29-18  
Account: 10080  
Invoice: 106408

Date	For	Qty	Description	Price	Discount	Net Price
12-29-18	<b>B6</b>	1	Office Call - Brief Exam			<b>B6</b>

Eating/drinking:  
C/S/V/D:  
Meds/suppl:  
FT/HWP:  
Indoor/outdoor (cats):  
Major medical hx:  
Concerns:

**B6**

Heart- NMA, irregularly irregular rhythm, femoral pulses deficits

**B6**

Assessment -  
**B6**

Ddx - DCM, atrial fibrillation, PSVT

Plan -

**B6**

O reports intermittent, more frequent syncopal episodes recently. Sometimes

Client: **B6**  
Patient: **B6**

**B6** History 9/2018-12/29/18

**B6**

Patient Chart

Printed: 12-31-18 at 2:30p

CLIENT INFORMATION

Name  
Address **B6**

Significant Other **B6**

PATIENT INFORMATION

Name	<b>B6</b>	Species	Canine
Sex	Male, Neutered	Breed	American Pit Bull
Birthday	<b>B6</b>	Age	7y
ID		Rabies	6696
Color	Tan & White	Weight	74.20 lbs
Reminded	03-08-18	Codes	

⚠ 03-22-18 11:23a: CAUTION!! **B6** excellent handler

Reminders for: **B6** Last done

**B6**

HEALTH HISTORY SUMMARY

Date	Diagnosis
------	-----------

12-20-12	<b>B6</b>
----------	-----------

**B6** weight history (in lbs)  
**B6**

MEDICAL HISTORY

Date	By	Code	Description	Qty (Variance)	Photo
------	----	------	-------------	----------------	-------

09-20-18	<b>B6</b>	1DOC1	Doctors' Instructions		
----------	-----------	-------	-----------------------	--	--

**B6** did very well for his x-ray.

**B6**

Client: **B6**  
Patient: **B6**

**B6** History 9/2018-12/29/18

Patient Chart for: **B6**  
Date: 12-31-18, Time: 2:30p

Client: **B6** Page: 2

Date	By	Code	Description	Qty (Variance)	Photo
------	----	------	-------------	----------------	-------

**B6**

09-20-18	<b>B6</b>	1RADL1	Radiology 1 view Lateral chest - on inspiration - heart size within normal, lungs show some fibrosis - no sign of pneumonia, etc		
----------	-----------	--------	---	--	--

10C Office Call Exam  
Eating/drinking: yes  
C/S/V/D: coughing - sometimes to the point where he collapses  
Meds/suppl:  
FT/HWP:  
Indoor/outdoor (cats):  
Major medical hx:

**B6**

Heart- NMA, NSR, femoral pulses are strong and synchronous - just very fast

**B6**

Age: 7y

(Additional history not shown)

Client: **B6**  
Patient: **B6**

**B6**

3/17/18 3 year Rabies Cert

PET OWNER'S COPY

**B6**

**B6**

Certificate of Rabies Vaccination

RSA 436.1011 REQUIRES THE FOLLOWING OWNER STATEMENT.

I, **B6** SWEAR  
THAT TO MY KNOWLEDGE THIS DOG HAS NOT BITTEN ANYONE WITHIN 10 DAYS.

This is to certify that this date 3/17/18, a (dog) (cat)  
(ferret) (wolf)  
belonging to **B6**  
mailing address **B6**  
and residing in **B6**  
was vaccinated with Rabvac 3 KV  
serial no. 4150443A brand type rabies vaccine,  
Breed Pitbull mix Age 7yr Sex NM  
Weight 80 lbs Tag No **B6**  
Animal's Name **B6**

Markings of animal tan & white

Re-vaccination Due  
Date 3/17/21 **B6**

Retain this certificate. A charge for rep made.

The Veterinarian signing this certificate is licensed by the State of **B6** and has the approval of the Department of Agriculture for the issuance of Health Certificates and Rabies Vaccinations.

**B6**



Client: **B6**  
 Patient: **B6**

diet history 1/3/19

**CARDIOLOGY DIET HISTORY FORM**  
 Please answer the following questions about your pet

Pet's name: **B6** Owner's name: **B6** Today's date: 1/3/19

1. How would you assess your pet's appetite? (mark the point on the line below that best represents your pet's appetite)  
 Example: Poor \_\_\_\_\_ | \_\_\_\_\_ Excellent  
 Poor \_\_\_\_\_ | \_\_\_\_\_ Excellent

2. Have you noticed a change in your pet's appetite over the last 1-2 weeks? (check all that apply)  
 Eats about the same amount as usual     Eats less than usual     Eats more than usual  
 Seems to prefer different foods than usual     Other seems more hesitant to eat but once encouraged, he eats his meal. Elevating his bowl has helped.

3. Over the last few weeks, has your pet (check one)  
 Lost weight     Gained weight     Stayed about the same weight     Don't know

4. Please list below ALL pet foods, people food, treats, snack, dental chews, rawhides, and any other food item that your pet currently eats. Please include the brand, specific product, and flavor so we know exactly what you pet is eating.

Examples are shown in the table – please provide enough detail that we could go to the store and buy the exact same food.

Food (include specific product and flavor)	Form	Amount	How often?	Fed since
Nutro Grain Free Chicken, Lentil, & Sweet Potato Adult	dry	1 1/2 cup	2x/day	Jan 2018
85% lean hamburger	microwaved	3 oz	1x/week	Jan 2015
Pupperoni original beef flavor	treat	1/2	1x/day	Aug 2015
Rawhide	treat	6 inch twist	1x/week	Dec 2015
4Health adult kibble (alternating proteins - lamb, fish)	dry	1 1/4 C	Twice daily	12/18
<u>WITHEASILL + QUARTO OR SALMON + POTATO ADULT</u>				

\*Any additional diet information can be listed on the back of this sheet

5. Do you give any dietary supplements to your pet (for example: vitamins, glucosamine, fatty acids, or any other supplements)?  Yes  No If yes, please list which ones and give brands and amounts:

	Brand/Concentration	Amount per day
Taurine	<input type="checkbox"/> Yes <input type="checkbox"/> No	_____
Carnitine	<input type="checkbox"/> Yes <input type="checkbox"/> No	_____
Antioxidants	<input type="checkbox"/> Yes <input type="checkbox"/> No	_____
Multivitamin	<input type="checkbox"/> Yes <input type="checkbox"/> No	_____
Fish oil	<input type="checkbox"/> Yes <input type="checkbox"/> No	_____
Coenzyme Q10	<input type="checkbox"/> Yes <input type="checkbox"/> No	_____
Other (please list): Example: Vitamin C	Nature's Bounty	500 mg tablets - 1 per day
<u>Supern powder</u>		<u>1 tsp twice daily</u>
<u>cod oil - 4 drops BID</u>		<u>(just for flavor)</u>

6. How do you administer pills to your pet?  
 I do not give any medications  
 I put them directly in my pet's mouth without food  
 I put them in my pet's dog/cat food - canned food  
 I put them in a Pill Pocket or similar product  
 I put them in foods (list foods): \_\_\_\_\_

Client:  
Patient:

**B6**

diet history 1/3/19

---

Has been eating 4health grain free (alternating proteins) for multiple years, just recently switched to regular kibble (w/grain)

has ~~use~~ been fed a very wide variety of canned food, only used to give medications -  
about 2 tablespoons twice daily

- pedigree
- pure balance
- 4 health

Client: **B6**  
Patient:

RDVM: **B6** vet hospital records

**B6**

Patient Chart

Printed: 01-02-19 at 5:09p

CLIENT INFORMATION

Name Address **B6**

Significant Other **B6**

PATIENT INFORMATION

Name	<b>B6</b>	Species	Canine
Sex	Male, Neutered	Breed	American Pit Bull
Birthday	<b>B6</b>	Age	7y
ID		Rabies	6696
Color	Tan & White	Weight	74.20 lbs
Reminded	03-08-18	Codes	

⚠ 03-22-18 11:23a: CAUTION!! **B6** excellent handler

**B6**

Date	Diagnosis
12-20-12	<b>B6</b>

Horton's weight history (in lbs)

03-22-18	74.20
12-15-17	73.40

MEDICAL HISTORY

Date	By	Code	Description	Qty (Variance)	Photo
01-02-19	<b>B6</b>	<b>B6</b>	NOTES Notes 01-02-19 at 4:40p: emailed chart to liaisons@tufts.edu		

**B6**

12-29-18 **B6** 1HUL Ultrasound - In House

Client: **B6**  
Patient:

RDVM: **B6** records

Patient Chart for: **B6**  
Date: 01-02-19, Time: 5:09p

Client: **B6** Page: 2

Date	By	Code	Description	Qty (Variance)	Photo
------	----	------	-------------	----------------	-------

Decreased contractility  
No pleural or pericardial effusion  
Left ventricle appears subjectively dilated with decreased fractional shortening  
Irregular rhythm audible and noted on u/s  
Needs cardio consult with specialist ASAP

12-29-18	<b>B6</b>	10CB	Office Call - Brief Exam		
----------	-----------	------	--------------------------	--	--

Eating/drinking:  
C/S/M/D:  
Meds/suppl:  
FT/HWP:  
Indoor/outdoor (cats):  
Major medical hx:

**B6**

Heart-NMA, irregularly irregular rhythm, femoral pulses deficits

**B6**

Assessment -

**B6**

Ddx - DCM, atrial fibrillation, PSVT

Plan -

**B6**

O reports intermittent, more frequent syncopal episodes recently. Sometimes fainting, but other times appears nauseated and unstable. Strongly recommended referral to cardiologist for complete work up including ECHO, ECG, BP, proBNP and complete thoracic radiograph series. VHS = 10.5 based on prior radiograph taken in hospital

12-29-18	<b>B6</b>	MSIT	Patient check-in		
	<b>B6</b>		12-29-18 at 11:01a: urgent- check heart- having a episode. Having a tough time hearing HR		

Age: 7y

Client: **B6**  
Patient: **B6**

RDVM: **B6** t hospital records

Patient Chart for **B6**  
Date: 01-02-19, Time: 5:09p

Client: **B6** Page: 3

Date	By	Code	Description	Qty (Variance)	Photo
12-18-18					
12-18-18					
12-13-18					
12-05-18					
09-20-18					

**B6**

1RADL1 Radiology 1 view  
Lateral chest - on inspiration - heart size within normal, lungs show some fibrosis - no sign of pneumonia, etc

1OC Office Call Exam  
Eating/drinking: yes  
C/S/M/D: coughing - sometimes to the point where he collapses  
Meds/suppl:  
FT/HWP:

Client: **B6**  
Patient: **B6**

RDVM **B6** hospital records

Patient Chart for **B6**  
Date: 01-02-19, Time: 5:09p

Client: **B6** Page: 4

Date	By	Code	Description	Qty (Variance)	Photo
------	----	------	-------------	----------------	-------

Indoor/outdoor (cats)  
Major medical hx:  
Concerns:

**B6**

Heart-NMA, NSR, femoral pulses are strong and synchronous - just very fast

**B6**

09-20-18	<b>B6</b>	<b>B6</b>	VISIT Patient check-in		
	<b>B6</b>		09-19-18 at 4:53p: Chest x-ray, HWT - O will have him wait in car and will let us know they are here.		
	<b>B6</b>		may help us take rad		

Age: 7y

09-19-18					
07-13-18					
07-09-18					

**B6**

07-09-18	<b>B6</b>	MHRX	DECLINED:	<b>B6</b>
	<b>B6</b>			

Client: **B6**  
Patient: **B6**

RDVM **B6** hospital records

Patient Chart for **B6**  
Date: 01-02-19, Time: 5:09p

Client: **B6** Page: 5

Date By Code Description Qty (Variance) Photo

05-04-18			<b>B6</b>		
05-04-18					
03-26-18	<b>B6</b>	SCAN	<b>B6</b>		
03-26-18		CC	Client Communication		
03-26-18					
03-23-18			<b>B6</b>		
03-22-18					
03-22-18					

Test Result IDXREQ IDEXX LabREXX Requisition #33342114-2164  
Flag Normal Range Measure  
Low High

Client: **B6**  
Patient:

RDVM: **B6**

Patient Chart for **B6**  
Date: 01-02-19, Time: 5:09p

Client: **ss** Page: 6

Date	By	Code	Description	Qty (Variance)	Photo
CHEM 27 w/ SDMA 03-22-18 8:38a					
			ALP	5 160	U/L
			ALT	18 121	U/L
			AST	16 55	U/L
			CREATINE KINASE	10 200	U/L
			GGT	0 13	U/L
			AMYLASE	337 1469	U/L
			LIPASE	138 755	U/L
			ALBUMIN	2.7 3.9	g/dL
			TOTAL PROTEIN	6.5 7.5	g/dL
			GLOBULIN	2.4 4.0	g/dL
			TOTAL BILIRUBIN	0.0 0.3	mg/dL
			BILIRUBIN CONJUG	0.0 0.1	mg/dL
			BUN	9 31	mg/dL
	<b>B6</b>	<b>H</b>	CREATININE	0.5 1.5	mg/dL
			CHOLESTEROL	131 345	mg/dL
			GLUCOSE	63 114	mg/dL
			CALCIUM	8.4 11.8	mg/dL
			PHOSPHORUS	2.5 6.1	mg/dL
			TCO2 (BICARBONA	13 27	mmo/L
			CHLORIDE	108 119	mmo/L
			POTASSIUM	4.0 5.4	mmo/L
			SODIUM	142 152	mmo/L
			ALB/GLOB RATIO	0.7 1.5	
			BUN/CREATININE R		
			BILIRUBIN UNCONJ	0.0 0.2	mg/dL
			NA/K RATIO	28 37	
			HEMOLYSIS INDEX		

**B6**

Index of N, 1+, 2+ exhibits no significant effect on chemistry values.

RESULTS MAY BE AFFECTED BY THE PRESENCE OF HEMOLYSIS.

LIPEMIA INDEX **B6**

Index of N, 1+, 2+ exhibits no significant effect on chemistry values

ANION GAP **B6** 11 26 mmo/L  
SDMA **B6** 0 14 ug/dL

**B6**

SDMA IS WITHIN THE REFERENCE INTERVAL AND CREATININE IS INCREASED. This combination of

**B6**

Test	Result	Flag	Normal Range		Measure
			Low	High	
T4 03-22-18 8:38a	<b>B6</b>		1.0	4.0	ug/dL

Interpretive ranges  
<1.0 Low  
1.0-4.0 Normal  
>4.0 High  
2.1-5.4 Therapeutic

**B6**

**B6**



Client: **B6**  
 Patient: **B6**

RDVM: **B6** hospital records

Patient Chart for: **B6**  
 Date: 01-02-19, Time: 5:09p

Client: **B6** Page: 7

Date By Code Description Qty (Variance) Photo

**B6**

Test	Result	Flag	Normal Range		Measure	
			Low	High		
<b>CBC STANDARD 03-22-18 8:38a</b>						
WBC	<b>B6</b>		4.9	17.6	K/uL	
RBC			5.39	8.70	M/uL	
HGB			13.4	20.7	g/dL	
HCT			38.3	56.5	%	
MCV			69	76	fL	
MCH			21.9	26.1	pg	
MCHC			32.6	39.2	g/dL	
% RETICULOCYTE					%	
RETICULOCYTE				10	110	K/uL
% NEUTROPHIL					%	
% LYMPHOCYTE				%		
% MONOCYTE				%		
% EOSINOPHIL				%		
% BASOPHIL				%		
PLATELET			143	448	K/uL	
NEUTROPHIL			2940	12670	/uL	
LYMPHOCYTE		L	<b>1060</b>	<b>4950</b>	/uL	
MONOCYTE			130	1150	/uL	
EOSINOPHIL			70	1490	/uL	
BASOPHIL			0	100	/uL	
<b>AUTOMATED CBC</b>						

**B6**

Test	Result	Flag	Normal Range		Measure
			Low	High	
<b>UPC IF INDICATED 03-22-18 8:38a</b>					
UPC IF INDICATED					
A urine protein-to-creatinine ratio (UPC) was not indicated because there was either a negative SSA protein or an active urine sediment (presence of gross hematuria, >100 RBC/hpf, >5 WBC/hpf or bacteria).					

Test	Result	Flag	Normal Range		Measure
			Low	High	
<b>URINALYSIS 03-22-18 8:38a</b>					
COLLECTION METHOD	<b>B6</b>				
COLOR					
CLARITY					
SPECIFIC GRAVITY					
GLUCOSE					
BILIRUBIN					
KETONES					
BLOOD					
PH					
PROTEIN					

Protein test is performed and confirmed by the sulfosalicylic acid test.

WBC	<b>B6</b>	0	5	HPF
-----	-----------	---	---	-----

Client:  
Patient:

**B6**

RDVM:

**B6**

hospital records

Patient Chart for: **B6**  
Date: 01-02-19, Time: 5:09p

Client: **B6** Page: 8

Date	By	Code	Description	Qty (Variance)	Photo
			RBC BACTERIA EPI CELL MUCUS CASTS CRYSTALS UROBLINOGEN	HPF	
		<b>B6</b>			
			<u>Test</u>	<u>Result</u>	<u>Flag</u>
				<u>Normal Range</u>	<u>Measure</u>
				<u>Low</u>	<u>High</u>

NOTE FROM IDEXX 03-22-18 8:38a

NOTE

Sample submitted in non-IDEXX glass tube: IDEXX no longer supports the use of glass collection tubes in order to minimize safety concerns. Plastic collection tubes can be ordered at no charge online at [order.idexx.com](http://order.idexx.com) or through the Inside Sales Center at 888-79-IDEXX using product number 98-0003497-00.

03-22-18

**B6**

1SPR Senior Profile w/Reflex UA #26639999  
1DOCI Doctors' Instructions

Today we have checked **B6** over for a specific medical condition. His physical exam is normal aside from **B6** from previous **B6**. I am submitting some labwork to screen for underlying conditions that would be contributing to his new anxiety.

**B6**

Please call if any questions or concerns regarding the findings on the physical exam.

10C Office Call Exam

Eating/drinking: Normal Blue Buffalo

C/S/V/D: No

Meds/suppl:

**B6**

FT/HWP:

Indoor/outdoor (cats):

Major medical hx: bilateral TTA ~1 yo, aggression/reactivity as a puppy

Concerns: Extreme progressive anxiety when left alone.

**B6**

Client: **B6**  
Patient: **B6**

RDVM: **B6** hospital records

Patient Chart for: **B6**  
Date: 01-02-19, Time: 5:09p

Client: **B6** Page: 9

Date	By	Code	Description	Qty (Variance)	Photo
			<b>B6</b> Heart: NMA, NSR, femora: pulses are strong and synchronous		
			<b>B6</b>		
03-22-18	<b>B6</b>	VISIT	Patient check-in HLD: 03-20-18 at 2:56p: extreme anxiety meds not helping		
			<b>B6</b>		
03-17-18	<b>B6</b>	1RD3-3	Rabies Defensor 3 - 3 yr.		
03-05-18	<b>B6</b>	MHRX	<b>B6</b>		
			<b>B6</b>		
03-05-18	<b>B6</b>	CC	Client Communication		
			<b>B6</b>		

Client: **B6**  
Patient: **B6**

RDVM **B6** hospital records

Patient Chart for **B6**  
Date: 01-02-19, Time: 5:09p

Client: **B6** Page: 10

Date	By	Code	Description	Qty (Variance)	Photo
02-19-18	<b>B6</b>	CC	Client Communication		
			<b>B6</b> 02-19-18 at 12:32p. O just needs enough to get her through until she can get some from <b>B6</b>		

02-19-18  
12-26-17  
12-15-17

# B6

MHRX	<b>B6</b>
------	-----------

# B6

12-15-17 **B6** NOTES **B6**

12-15-17 **B6** 10C Office Call Exam

# B6

Heart/Lungs-No murmur or arrhythmia heard; HR 90

Client: **B6**  
Patient: **B6**

RDVM **B6** hospital records

Patient Chart for **B6**  
Date: 01-02-19, Time: 5:09p

Client: **B6** Page: 11

Date	By	Code	Description	Qty (Variance)	Photo
12-16-17					
12-04-17					
03-27-15	<b>B6</b>	PHARM	Pharmacy Refills		
03-17-15					
02-07-15					
11-26-14					
11-20-14					
11-20-14					
02-13-14					

Client: **B6**  
Patient: **B6**

RDVM **B6** hospital records

Patient Chart for **B6**  
Date: 01-02-19, Time: 5:09p

Client: **B6** Page: 12

Date	By	Code	Description	Qty (Variance)	Photo
------	----	------	-------------	----------------	-------

02-06-14			<b>B6</b>		
----------	--	--	-----------	--	--

03-19-13	<b>B6</b>	CC	Client Communication		
02-19-13			<b>B6</b>		
02-16-13			<b>B6</b>		

**B6** CC Client Communication  
02-18-13 at 4:31p: **B6** is concerned that **B6** improved -

01-17-13	<b>B6</b>	NOTES	Scan of history form Mass Referral Attachments\10080\ <b>B6</b> \01172013092825988.pdf		
----------	-----------	-------	---	--	--

01-09-13			<b>B6</b>		
01-09-13			<b>B6</b>		
12-26-12			<b>B6</b>		

Today, **B6** has been given a physical exam. Everything was within normal limits.

**B6** was given booster vaccines according to specific needs and lifestyle.

Recommendations from today's examination:  
Keep up the good work.

Please call if any questions or concerns regarding the findings on the physical exam.

**B6**

Client: **B6**  
Patient: **B6**

RDVM **B6** hospital records

Patient Chart for **B6**  
Date: 01-02-19, Time: 5:09p

Client: **B6** Page: 13

Date	By	Code	Description	Qty (Variance)	Photo
12-20-12	<b>B6</b>	V&T	Patient check-in		
12-11-12			<b>B6</b>		
12-07-12			<b>B6</b>		
12-07-12			<b>B6</b>		
12-06-12			<b>B6</b>		
11-30-12			<b>B6</b>		
11-09-12			<b>B6</b>		
11-09-12	<b>B6</b>	CC	Client Communication		
			<b>B6</b> 11-09-12 at 8:51a		
10-29-12			<b>B6</b>		
10-29-12	<b>B6</b>	CC	Client Communication		
10-29-12			<b>B6</b>		

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**From:** Darcy Adin <dbadin@ncsu.edu>  
**To:** Jones, Jennifer L  
**CC:** [REDACTED] [REDACTED]  
**Sent:** 1/25/2019 10:01:01 PM  
**Subject:** Sample?

Hi Jen,

I hope you are doing well - not sure how the partial government shutdown is impacting your area specifically?

[REDACTED] was able to collect fresh frozen myocardium from one of our presumed diet induced DCM cases and we are wondering if we should hang on to this in a -80 freezer or send you the sample for testing? This is an almost 2yr MI Yorkie mix that was diagnosed in April 2018 and was eating Castor and Pollux Organic GF Small Breed. The owners tried to change the diet to a grain based Royal canin diet but because of lack of interest he was changed to Primal (raw and grain free). He represented in September 2018 for CHF and was then changed to Fromm Adult Gold Small breed, grain-based supplemented with boiled chicken and rice. Progressive disease was noted at each exam echocardiographically with no improvement in systolic function. His whole blood taurine was [REDACTED] but he was still supplemented with taurine.

Thanks for your thoughts!  
Take care  
Darcy



---

**From:** [redacted] **B6**  
**To:** Jones, Jennifer L  
**CC:** Darcy Adin; [redacted] **B6**  
**Sent:** 1/30/2019 5:37:03 PM  
**Subject:** Re: Sample?

Dear Jennifer

So glad to hear from you, that you are no longer [redacted] **B6** and lastly that you are interested in the tissue we collected.

The final necropsy report may take a few weeks. I will have [redacted] **B6** submit the complaint this week.

Would you like us to wait to send the sample until we get the final postmortem report? The sample is sitting at -80 C right now.

Please make the box to:  
NC State University College of Veterinary Medicine  
Attn: [redacted] **B6**  
1060 William Moore Dr.  
Raleigh, NC 27607

Thanks so much  
[redacted] **B6**

On Wed, Jan 30, 2019 at 11:37 AM Jones, Jennifer L <[Jennifer.Jones@fda.hhs.gov](mailto:Jennifer.Jones@fda.hhs.gov)> wrote:

Hi Darcy,

Thank you for the kind words. Yes, [redacted] **B6** I apologize for the delay.

We are definitely interested in the case. We'd just need a complaint submitted through the Safety Reporting Portal found here: <https://www.safetyreporting.hhs.gov/>

After you submit the report, please send me the ICSR number (confirmation of report submission). We can send you a box to collect the tissue. Was there also a full necropsy report with medical records you could share as well? Those can be attached to the report you submit.

Please let me know if you have questions.

Thank you again for your help,

Jen

Jennifer Jones, DVM  
Veterinary Medical Officer  
Tel: 240-402-5421

-----Original Message-----

From: Darcy Adin <[dbadin@ncsu.edu](mailto:dbadin@ncsu.edu)>  
Sent: Friday, January 25, 2019 5:01 PM  
To: Jones, Jennifer L <[Jennifer.Jones@fda.hhs.gov](mailto:Jennifer.Jones@fda.hhs.gov)>  
Cc: [redacted] **B6**  
Subject: Sample?

Hi Jen,

I hope you are doing well - not sure how the partial government shutdown is impacting your area specifically?

[B6] was able to collect fresh frozen myocardium from one of our presumed diet induced DCM cases and we are wondering if we should hang on to this in a -80 freezer or send you the sample for testing? This is an almost 2yr MI Yorkie mix that was diagnosed in April 2018 and was eating Castor and Pollux Organic GF Small Breed. The owners tried to change the diet to a grain based Royal canin diet but because of lack of interest he was changed to Primal (raw and grain free). He represented in September 2018 for CHF and was then changed to Fromm Adult Gold Small breed, grain-based supplemented with boiled chicken and rice. Progressive disease was noted at each exam echocardiographically with no improvement in systolic function. His whole blood taurine was [B6] but he was still supplemented with taurine.

Thanks for your thoughts!

Take care

Darcy

--

**B6**

B6

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<b>Patient ID:</b>	B6	<b>Exam:</b>	THORAX CARDIAC DV   710
<b>Pet Name:</b>		<b>Acc#:</b>	B6
<b>Surname:</b>		<b>Exam Date:</b>	B6
<b>DOB:</b>		<b>Status:</b>	FINAL
<b>Species:</b>	CANINE	<b>Clinician:</b>	B6
<b>Secondary Acc#:</b>		<b>Affiliation:</b>	
<b>Breed:</b>	YORKSHIRE TERRIER	<b>2nd Clinician:</b>	
<b>Gender:</b>	MALE		

**History:**  
B6 6:07 AM resp distress, DCM B6

**Assessment:**

- Severe generalized cardiomegaly with left atrial and auricular enlargement, mild pulmonary venous congestion, and bilateral asymmetric severe interstitial to alveolar pulmonary pattern. Consistent with left-sided congestive heart failure associated with history of dilated cardiomyopathy.
- Hepatomegaly. Considerations include vacuolar change, congestion, hepatitis, or neoplasia.

**Report:**

Three-view thoracic radiographs dated B6 are available for interpretation. The study is compared to examinations on 9/17/2018 and prior.

There is similar severe generalized cardiomegaly with increased dimension in three orthogonal planes and specific focal bulging in the region of the left atrium and auricle. The right caudal lobar vein is mildly enlarged and the remainder of the pulmonary vessels are poorly defined. A severe bilateral asymmetric interstitial to alveolar pulmonary pattern is present within the cranioventral, perihilar, and caudodorsal lung more severely affecting the right side. The pleural space is normal. No mediastinal abnormalities are identified.

The hepatic silhouette extends caudal to the costal arch and beyond the collimated field of view. The included osseous structures are normal.

B6

<b>Transcribed By:</b>	B6
<b>Transcribed Date:</b>	
<b>Interpreting Radiologist:</b>	B6
<b>Finalized Date:</b>	01/29/2019
<b>Dx Code:</b>	

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B6

<b>Patient ID:</b>	B6	<b>Exam:</b>	THORAX CARDIAC DV   710
<b>Pet Name:</b>		<b>Acc#:</b>	B6
<b>Surname:</b>		<b>Exam Date:</b>	09/17/2018
<b>DOB:</b>		<b>Status:</b>	FINAL
<b>Species:</b>	CANINE	<b>Clinician:</b>	
<b>Secondary Acc#:</b>		<b>Affiliation:</b>	B6
<b>Breed:</b>	YORKSHIRE TERRIER	<b>2nd Clinician:</b>	
<b>Gender:</b>	MALE		

**History:**  
 09/17/2018 10:53 AM Dilated cardiomyopathy - suspect dietary induced, Congestive heart failure (4/1/18, recurrence 9/8/18), Chronic intermittent diarrhea (B6)

**Assessment:**  
 1. Similar marked cardiomegaly and left atrial enlargement with perihilar and right caudal lung lobe unstructured interstitial pattern; consistent with dilated cardiomyopathy and left-sided congestive heart failure.

**Report:**  
 Three-view thoracic radiographs dated 9/17/18 are available and are compared to 9/9/18 and prior.  
 The previously described marked cardiomegaly and left atrial and left auricular enlargement is similar to prior. There is mild distention of the cranial lobar pulmonary veins relative to their corresponding arteries. An unstructured interstitial pattern is present in the perihilar region and within the right caudal lung lobe. There is no evidence of intrathoracic lymphadenopathy. The pleural space is normal.  
 The cranial abdominal structures are normal. No musculoskeletal abnormalities are identified.

B6

<b>Transcribed By:</b>	B6
<b>Transcribed Date:</b>	09/17/2018
<b>Interpreting Radiologist:</b>	B6
<b>Finalized Date:</b>	09/18/2018
<b>Dx Code:</b>	

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Status: Final

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B6

<b>Patient ID:</b>	B6	<b>Exam:</b>	THORAX CARDIAC DV   710
<b>Pet Name:</b>		<b>Acc#:</b>	B6
<b>Surname:</b>		<b>Exam Date:</b>	09/09/2018
<b>DOB:</b>		<b>Status:</b>	FINAL
<b>Species:</b>	CANINE	<b>Clinician:</b>	B6
<b>Secondary Acc#:</b>		<b>Affiliation:</b>	
<b>Breed:</b>	YORKSHIRE TERRIER	<b>2nd Clinician:</b>	
<b>Gender:</b>	MALE		

**History:**  
 09/09/2018 8:47 AM severe DCM, CHF in April 2018 and recurrence 9/8/2018. Has received B6 over the course of past 24 hours.

**Assessment:**  
 1. Similar cardiomegaly and pulmonary venous distention, with marked improvement in prior unstructured interstitial pulmonary pattern consistent with response to furosemide therapy.

**Report:**  
 Orthogonal projections of the thorax dated 9/9/2018 are compared to the most recent study dated 9/8/2018. The prior described generalized cardiomegaly with left atrial enlargement and pulmonary venous distension is similar. The previous caudodorsal and perihilar unstructured interstitial pattern is improved consistent with furosemide treatment. There remains a mild perihilar unstructured interstitial pulmonary pattern. The liver remains mildly enlarged. The remainder of the abdomen, and included musculoskeletal structures, are normal.

B6

<b>Transcribed By:</b>	B6
<b>Transcribed Date:</b>	09/10/2018
<b>Interpreting Radiologist:</b>	B6
<b>Finalized Date:</b>	09/12/2018
<b>Dx Code:</b>	

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## Radiology Report:

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Patient ID:  
 Pet Name:  
 Surname:  
 DOB:  
 Species:  
 Secondary Acc#:  
 Breed:

B6

CANINE  
 YORKSHIRE TERRIER

Gender: MALE

Exam:  
 Acc#:  
 Exam Date:  
 Status:  
 Clinician:  
 Affiliation:  
 2nd Clinician:

THORAX CARDIAC DV | 710

B6  
 09/08/2018  
 FINAL

B6

### History:

09/08/2018 9:10 AM increased resp effort: B6

### Assessment:

1. Progressive generalized cardiomegaly with severe left sided enlargement, progressive pulmonary venous distention with unstructured interstitial pulmonary pattern; consistent with progression of prior reported dilated cardiomyopathy with evidence of cardiac decompensation with pulmonary edema.

### Report:

Orthogonal projections of the thorax (4 images) dated 9/8/2018 are compared to the most recent study 4/16/2018.

The previously described generalized cardiomegaly and left atrial enlargement is progressive. There is increased dorsal tracheal deviation and caudodorsal soft tissue bulging in the lateral projection, and progressive soft tissue bulging at the 2-3 o'clock position in the dorsoventral projection, consistent with left auricular enlargement. The cardiac silhouette is also larger in the cranial-caudal direction in the lateral projections. The pulmonary lobar veins remain distended as compared to the corresponding arteries. There is a moderate unstructured interstitial pattern within the caudodorsal lung fields and perihilar region, most noticeable within the right caudal lung lobe. The stomach is moderately distended with gas and heterogeneous soft tissue opaque material. The liver is mildly enlarged extending caudal to the costal margin. The included musculoskeletal structures are normal.

B6

Transcribed By: B6  
 Transcribed Date: 09/10/2018  
 Interpreting Radiologist: B6  
 Finalized Date: 09/11/2018  
 Dx Code:

B6

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Accession #: B6

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Status: Final

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B6

Patient ID:  
 Pet Name:  
 Surname:  
 DOB:  
 Species: CANINE  
 Secondary Acc#:  
 Breed: YORKSHIRE TERRIER  
 Gender: MALE

B6

Exam: THORAX 3 VIEW VD | 700  
 Acc#: B6  
 Exam Date: 04/16/2018  
 Status: FINAL  
 Clinician: B6  
 Affiliation:  
 2nd Clinician:

**History:**  
 04/16/2018 10:35 AM DCM; CHF B6

**Assessment:**  
 1. Similar generalized cardiomegaly with left atrial and left auricular enlargement, with mild caudal lobar venous distention, and right caudodorsal unstructured interstitial pattern- consistent with reported dilated cardiomyopathy; given the reported clinical improvement, the unstructured interstitial pattern may represent mild subclinical residual edema or may represent chronic pulmonary changes secondary to prior insult.

**Report:**  
 The study is comprised of 3 orthogonal projections of the thorax dated 4/16/2018, this compared prior study dated 4/2/2018.

The previously described generalized cardiomegaly with left atrial and auricular enlargement is similar. There is mild left caudal lobar venous distention. There is a mild unstructured interstitial pattern within the dorsal aspect of the right caudal lung lobe. There are no abnormalities within the pleural space. There is no evidence of intrathoracic lymphadenopathy. The stomach is moderately distended with amorphous heterogeneous soft tissue opacity material that contains mineral opacity foci.

B6

Transcribed By: B6  
 Transcribed Date: 04/16/2018  
 Interpreting Radiologist: B6  
 Finalized Date: 04/16/2018  
 Dx Code:

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Status: Final

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B6

<b>Patient ID:</b>	B6	<b>Exam:</b>	THORAX CARDIAC DV   710
<b>Pet Name:</b>		<b>Acc#:</b>	B6
<b>Surname:</b>		<b>Exam Date:</b>	B6
<b>DOB:</b>		<b>Status:</b>	FINAL
<b>Species:</b>	CANTINE	<b>Clinician:</b>	B6
<b>Secondary Acc#:</b>		<b>Affiliation:</b>	
<b>Breed:</b>	YORKSHIRE TERRIER	<b>2nd Clinician:</b>	
<b>Gender:</b>	MALE		

#### History:

B6 8:11 AM DCM, CHF B6

#### Assessment:

1. Moderate cardiomegaly and left auricular enlargement with resolution of the prior caudodorsal unstructured interstitial pattern, compatible with positive response to treatment for dilated cardiomyopathy and left-sided congestive heart failure.

#### Report:

Three-view thoracic radiographs dated B6 are available for interpretation. The study is compared to radiographs acquired by the referring veterinarian prior.

The cardiac silhouette is moderately enlarged characterized by widening of the cardiac silhouette with concurrent dorsal displacement of the intrathoracic trachea and carina. A soft tissue opacity bulge is present at the 2-3 o'clock position of the cardiac silhouette in the dorsoventral projection in the region of the left auricle. The pulmonary lobar vasculature is normal in size with no evidence of venous distention. The prior caudodorsal unstructured interstitial pattern is resolved in the current study and the pulmonary parenchyma is normal. No abnormalities are identified in the pleural space or mediastinum.

Cranial abdominal serosal contrast is adequate. The stomach is mildly distended with heterogeneous soft tissue opacity compatible with ingesta.

B6

<b>Transcribed By:</b>	B6
<b>Transcribed Date:</b>	
<b>Interpreting Radiologist:</b>	B6
<b>Finalized Date:</b>	04/04/2018
<b>Dx Code:</b>	

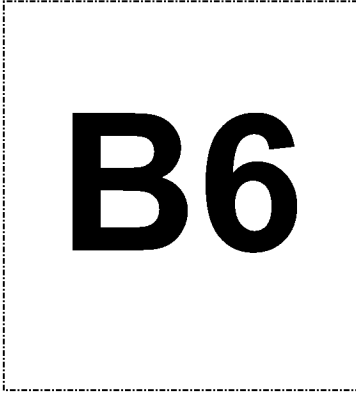
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**From:** [REDACTED] B6  
**To:** Peloquin, Sarah  
**Sent:** [REDACTED] B6 5:41:39 PM  
**Subject:** Re[4]: 800.267-FDA Case Investigation for [REDACTED] B6 (cc-297)

Great, Thanks.



"I may not have gone where I intended to go, but I think I have ended up where I needed to be." Hey Douglas Adams, we feel you

----- Original Message -----

**From:** "Peloquin, Sarah" <Sarah.Peloquin@fda.hhs.gov>  
**To:** [REDACTED] B6  
**Cc:** "Jones, Jennifer L" <Jennifer.Jones@fda.hhs.gov>  
**Sent:** [REDACTED] B6 1:31:26 PM  
**Subject:** RE: Re[2]: 800.267-FDA Case Investigation for [REDACTED] B6 (cc-297)

Hi [REDACTED] B6

Not a dumb question—yes, our preference is to collect all of the samples listed in the document if possible. We examine all of the tissues (both gross and histo) to look for patterns.

However, we understand that in practice, taking the time to obtain the samples is not always feasible. Or sometimes all tissues aren't available. So even if we aren't able to collect all of the tissues, the intact heart is still very useful. As a reminder, FDA will reimburse your hospital for your time performing the necropsy/sample collection.

I hope this clears some things up. I'm sorry for any confusion.

Thanks!  
Sarah

**Sarah Peloquin, DVM**  
Veterinary Medical Officer  
tel: 240-402-1218

**From:** [REDACTED] B6  
**Sent:** [REDACTED] B6 1:22 PM  
**To:** Peloquin, Sarah <Sarah.Peloquin@fda.hhs.gov>

Cc: Jones, Jennifer L <Jennifer.Jones@fda.hhs.gov>

Subject: Re[2]: 800.267-FDA Case Investigation for [REDACTED] (cc-297)

Sarah,

Thank you for sending the attachments. I had the first 2 however the rapid necropsy had been missing previously.

In looking through it, I realize that I had previously only sent the heart and liver in NBF.

I know this is a dumb question, but I need to be sure..... I assume that the FDA preference is to have all of the sampling listed under #6 and #7?

I want to be as helpful as possible and previously was told to only send the heart and liver.

[REDACTED]

"I may not have gone where I intended to go, but I think I have ended up where I needed to be." Hey Douglas Adams, we feel you

----- Original Message -----

From: "Pelouquin, Sarah" <Sarah.Pelouquin@fda.hhs.gov>

To: [REDACTED]

Cc: "Jones, Jennifer L" <Jennifer.Jones@fda.hhs.gov>

Sent: [REDACTED] 1:02:50 PM

Subject: RE: 800.267-FDA Case Investigation for [REDACTED] (cc-297)

Hi [REDACTED]

I've attached the rapid necropsy document—my apologies, I thought that you already had it. Some additional information is below:

For the necropsy, please collect the heart, **intact**, and place directly in formalin. The rapid necropsy document provides additional instructions about what samples to take and how to store them.

- After you complete the necropsy, we will send you 2 boxes to collect the samples (1 for fixed tissue, 1 for frozen tissue). The boxes will have prepaid shipping labels.
  - I'll need to know *the final weight of each sample set (e.g. weight of all fixed tissue in formalin, weight of all frozen tissue)* before we can ship the boxes to you.
  - You may place multiple fixed samples in the same jar, but please label accordingly.
  - The frozen samples must be placed in sealable bags or containers.
- After you receive the boxes, you'll reuse the boxes, package the tissues according to the instructions, affix the prepaid labels to the boxes, and call UPS for the pick-up.
  - *Please return ship the samples to us on a Monday-Wednesday only.*
- After the necropsy is performed, **please send me a copy of the invoice for the necropsy charge**, and our business office will call back with our VISA information to reimburse the hospital directly.

I've cc'd Dr. Jones to these emails to keep her in the loop.

Thank you very much for your help with these cases!

Sarah

**Sarah Peloquin, DVM**

Veterinary Medical Officer

tel: 240-402-1218

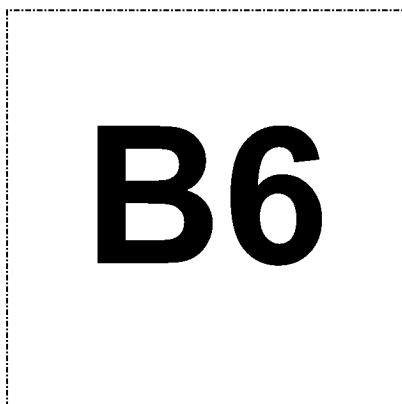
**From:** [REDACTED] **B6**  
**Sent:** [REDACTED] **B6** 12:50 PM  
**To:** Peloquin, Sarah <[Sarah.Peloquin@fda.hhs.gov](mailto:Sarah.Peloquin@fda.hhs.gov)>  
**Cc:** Jones, Jennifer L <[Jennifer.Jones@fda.hhs.gov](mailto:Jennifer.Jones@fda.hhs.gov)>  
**Subject:** Re: 800.267-FDA Case Investigation for [REDACTED] **B6** (cc-297)

Sarah,

Thank you for the assistance.

I am able to preserve the tissue however you would like. Frozen or formalin or both. In rereading the emails from [REDACTED] **B6** I see that there was mention of both. I am not sure that I have the rapid necropsy document. Perhaps you could send that to me again?

Thanks



"I may not have gone where I intended to go, but I think I have ended up where I needed to be." Hey Douglas Adams, we feel you

----- Original Message -----

**From:** "Peloquin, Sarah" <[Sarah.Peloquin@fda.hhs.gov](mailto:Sarah.Peloquin@fda.hhs.gov)>  
**To:** [REDACTED] **B6**  
**Cc:** "Jones, Jennifer L" <[Jennifer.Jones@fda.hhs.gov](mailto:Jennifer.Jones@fda.hhs.gov)>  
**Sent:** [REDACTED] **B6** 11:59:32 AM  
**Subject:** 800.267-FDA Case Investigation fo [REDACTED] **B6** (cc-297)

Good morning [REDACTED] **B6**

I'm filling in on the DCM case investigation for Dr. Jennifer Jones this week. Dr. Lisa Freeman informed me that [REDACTED] **B6** will be euthanized—I'm sorry to hear this. If you are willing, please collect the same samples from [REDACTED] **B6** as you did for [REDACTED] **B6** (i.e. intact heart in formalin; and if possible, fixed/frozen tissues as described in the rapid necropsy document).

Dr. Jones will return at the end of next week, and we will send you boxes then for shipment.

Please send me the approximate weights of the samples, as you did for [REDACTED] **B6**

Let me know if you have any additional questions.

Thank you!  
Dr. Sarah Peloquin

**Sarah K. Peloquin, DVM**  
*Veterinary Medical Officer*

U.S. Food & Drug Administration  
Center for Veterinary Medicine  
Veterinary Laboratory Investigation and Response Network (Vet-LIRN)  
tel: 240-402-1218  
fax: 301-210-4685  
e-mail: [sarah.peloquin@fda.hhs.gov](mailto:sarah.peloquin@fda.hhs.gov)



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[www.avg.com](http://www.avg.com)

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**From:** Jones, Jennifer L </O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=0F6CA12EAA9348959A4CBB1E829AF244-JENNIFER.JO>  
**To:** [REDACTED] **B6**  
**Sent:** 6/14/2019 1:10:14 PM  
**Subject:** RE: Re[2]: 800.267-cc-297-FDA Case Investigation for [REDACTED] **B6** (cc-297)

Absolutely. We will send a copy of the results as soon as they are read.

Jennifer Jones, DVM  
Veterinary Medical Officer  
Tel: 240-402-5421



**From:** [REDACTED] **B6**  
**Sent:** Friday, June 14, 2019 8:55 AM  
**To:** Jones, Jennifer L <Jennifer.Jones@fda.hhs.gov>  
**Subject:** Re[2]: 800.267-cc-297-FDA Case Investigation for [REDACTED] **B6** (cc-297)

Thank you Jennifer. I did receive an email from Jake.

Also, I believe that I read I should get a copy of the pathology results. Is this correct? I am interested in the results from [REDACTED] **B6**

Thank you again.  
I appreciate the work you all are doing for this.

[REDACTED] **B6**

[REDACTED] **B6**

"I may not have gone where I intended to go, but I think I have ended up where I needed to be." Hey Douglas Adams, we feel you

----- Original Message -----

**From:** "Jones, Jennifer L" <Jennifer.Jones@fda.hhs.gov>  
**To:** [REDACTED] **B6**  
**Cc:** "Peloquin, Sarah" <Sarah.Peloquin@fda.hhs.gov>; "Guag, Jake" <Jake.Guag@fda.hhs.gov>

Sent: 6/13/2019 11:01:47 AM

Subject: RE: 800.267-cc-297-FDA Case Investigation for [B6] (cc-297)

Thank you [B6]

We'll ship the box, and it should arrive before close of business Monday. Jake will send you a copy of the tracking when it ships.

Jennifer Jones, DVM  
Veterinary Medical Officer  
Tel: 240-402-5421



From: [B6]

Sent: Tuesday, June 11, 2019 9:22 AM

To: Peloquin, Sarah <Sarah.Peloquin@fda.hhs.gov>

Cc: Jones, Jennifer L <Jennifer.Jones@fda.hhs.gov>

Subject: Re: 800.267-FDA Case Investigation for [B6] (cc-297)

Good morning,

Weights for the samples from [B6] are as follows:

Frozen tissue is 6 ounces

Refrigerated samples (urine and small intestinal fluid) 2 ounces

Formalin fixed samples 2 pounds 6 ounces

Thank you

[B6]

[B6]

"I may not have gone where I intended to go, but I think I have ended up where I needed to be." Hey Douglas Adams, we feel you

----- Original Message -----

From: "Peloquin, Sarah" <Sarah.Peloquin@fda.hhs.gov>

To: [B6]

Cc: "Jones, Jennifer L" <Jennifer.Jones@fda.hhs.gov>

Sent: [B6] 11:59:32 AM

Subject: 800.267-FDA Case Investigation for [B6] (cc-297)

Good morning [B6]

I'm filling in on the DCM case investigation for Dr. Jennifer Jones this week. Dr. Lisa Freeman informed me that [B6] I'm sorry to hear this. If you are willing, please collect the same samples from [B6] as you did for [B6] (i.e. intact heart in formalin; and if possible, fixed/frozen tissues as described in the rapid necropsy document).

Dr. Jones will return at the end of next week, and we will send you boxes then for shipment.

Please send me the approximate weights of the samples, as you did for [B6]

Let me know if you have any additional questions.

Thank you!  
Dr. Sarah Peloquin

**Sarah K. Peloquin, DVM**  
*Veterinary Medical Officer*

U.S. Food & Drug Administration  
Center for Veterinary Medicine  
Veterinary Laboratory Investigation and Response Network (Vet-LIRN)  
tel: 240-402-1218  
fax: 301-210-4685  
e-mail: [sarah.peloquin@fda.hhs.gov](mailto:sarah.peloquin@fda.hhs.gov)



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[www.avg.com](http://www.avg.com)

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**From:** Jones, Jennifer L </O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=0F6CA12EAA9348959A4CBB1E829AF244-JENNIFER.JO>  
**To:** [REDACTED] Peloquin, Sarah  
**Sent:** 8/27/2019 11:40:16 AM  
**Subject:** RE: 800.267-cc-297-FDA Case Investigation for [REDACTED] (cc-297)

Thank you, [REDACTED] I'll submit this today, and someone from our business team should call your office in the next few business days with our VISA information.

Jennifer Jones, DVM  
Veterinary Medical Officer  
Tel: 240-402-5421



**From:** [REDACTED]  
**Sent:** Monday, August 26, 2019 6:16 PM  
**To:** Peloquin, Sarah <Sarah.Peloquin@fda.hhs.gov>  
**Cc:** Jones, Jennifer L <Jennifer.Jones@fda.hhs.gov>  
**Subject:** Re: 800.267-cc-297-FDA Case Investigation for [REDACTED] (cc-297)

Sarah,  
I have attached the invoice for [REDACTED] necropsy. Thank you for the reminder.

Best

[REDACTED]

**B6**

"I may not have gone where I intended to go, but I think I have ended up where I needed to be." Hey Douglas Adams, we feel you

----- Original Message -----

**From:** "Peloquin, Sarah" <Sarah.Peloquin@fda.hhs.gov>  
**To:** [REDACTED]  
**Cc:** "Jones, Jennifer L" <Jennifer.Jones@fda.hhs.gov>  
**Sent:** 8/15/2019 9:08:36 AM  
**Subject:** 800.267-cc-297-FDA Case Investigation for [REDACTED] (cc-297)



Good morning **B6**

Please send us the invoices for **B6** necropsies at your earliest convenience (by email or fax to 301-210-4685). We want to make sure we reimburse your hospital for these costs.

Thank you!  
Sarah

**Sarah Peloquin, DVM**  
Veterinary Medical Officer  
tel: 240-402-1218

**From:** Jones, Jennifer L  
**Sent:** Friday, June 14, 2019 9:10 AM  
**To:** **B6**  
**Subject:** RE: Re[2]: 800.267-cc-297-FDA Case Investigation for **B6** (cc-297)

Absolutely. We will send a copy of the results as soon as they are read.

Jennifer Jones, DVM  
Veterinary Medical Officer  
Tel: 240-402-5421



**From:** **B6**  
**Sent:** Friday, June 14, 2019 8:55 AM  
**To:** Jones, Jennifer L <Jennifer.Jones@fda.hhs.gov>  
**Subject:** Re[2]: 800.267-cc-297-FDA Case Investigation for **B6** (cc-297)

Thank you Jennifer. I did receive an email from Jake.

Also, I believe that I read I should get a copy of the pathology results. Is this correct? I am interested in the results from **B6**

Thank you again.  
I appreciate the work you all are doing for this.

**B6**

**B6**

"I may not have gone where I intended to go, but I think I have ended up where I needed to be." Hey Douglas Adams, we feel you

----- Original Message -----

From: "Jones, Jennifer L" <Jennifer.Jones@fda.hhs.gov>

To: [REDACTED] **B6**

Cc: "Peloquin, Sarah" <Sarah.Peloquin@fda.hhs.gov>; "Guag, Jake" <Jake.Guag@fda.hhs.gov>

Sent: 6/13/2019 11:01:47 AM

Subject: RE: 800.267-cc-297-FDA Case Investigation for [REDACTED] **B6** (cc-297)

Thank you [REDACTED] **B6**

We'll ship the box, and it should arrive before close of business Monday. Jake will send you a copy of the tracking when it ships.

Jennifer Jones, DVM  
Veterinary Medical Officer  
Tel: 240-402-5421



From: [REDACTED] **B6**

Sent: Tuesday, June 11, 2019 9:22 AM

To: Peloquin, Sarah <Sarah.Peloquin@fda.hhs.gov>

Cc: Jones, Jennifer L <Jennifer.Jones@fda.hhs.gov>

Subject: Re: 800.267-FDA Case Investigation for [REDACTED] **B6** (cc-297)

Good morning,

Weights for the samples from [REDACTED] **B6** are as follows:

Frozen tissue is 6 ounces

Refrigerated samples (urine and small intestinal fluid) 2 ounces

Formalin fixed samples 2 pounds 6 ounces

Thank you

[REDACTED] **B6**

**B6**

"I may not have gone where I intended to go, but I think I have ended up where I needed to be." Hey Douglas Adams, we feel you

----- Original Message -----

From: "Peloquin, Sarah" <Sarah.Peloquin@fda.hhs.gov>

To: [REDACTED] **B6**

Cc: "Jones, Jennifer L" <Jennifer.Jones@fda.hhs.gov>

Sent [REDACTED] **B6** 1:59:32 AM

Subject: 800.267-FDA Case Investigation for [REDACTED] **B6** (cc-297)

Good morning [REDACTED] **B6**

I'm filling in on the DCM case investigation for Dr. Jennifer Jones this week. Dr. Lisa Freeman informed me that [REDACTED] **B6** I'm sorry to hear this. If you are willing, please collect the same samples from [REDACTED] **B6** as you did for [REDACTED] **B6** (i.e. intact heart in formalin; and if possible, fixed/frozen tissues as described in the rapid necropsy document).

Dr. Jones will return at the end of next week, and we will send you boxes then for shipment.

Please send me the approximate weights of the samples, as you did for [REDACTED] **B6**

Let me know if you have any additional questions.

Thank you!  
Dr. Sarah Peloquin

**Sarah K. Peloquin, DVM**  
*Veterinary Medical Officer*

U.S. Food & Drug Administration  
Center for Veterinary Medicine  
Veterinary Laboratory Investigation and Response Network (Vet-LIRN)  
tel: 240-402-1218  
fax: 301-210-4685  
e-mail: [sarah.peloquin@fda.hhs.gov](mailto:sarah.peloquin@fda.hhs.gov)



---

This email has been checked for viruses by AVG antivirus software.  
[www.avg.com](http://www.avg.com)



Gastrointestinal Laboratory  
 Dr. J.M. Steiner  
 Department of Small Animal Clinical Sciences  
 Texas A&M University  
 4474 TAMU  
 College Station, TX 77843-4474



Website User ID: clinpath@tufts.edu

GI Lab Assigned Clinic ID: 11405

Dr. Freeman  
 Tufts University-Clinical Pathology Lab  
 Attn: B6  
 200 Westboro Road  
 North Grafton, MA 01536  
 USA

Phone: 508 887 4669  
 Fax: 9 508 839 7936  
 Animal Name: B6  
 Owner Name:  
 Species: Canine  
 Date Received: Mar 06, 2019

Tufts University-Clinical Pathology Lab  
 Tracking Number: B6

GI Lab Accession: B6

Test	Result	Reference Interval	Assay Date
Ultra-Sensitive Troponin I Fasting	B6	≤0.06	03/06/19

B6

Comments:

**GI Lab Contact Information**

Phone: (979) 862-2861  
 Fax: (979) 862-2864

Email: gilab@cvm.tamu.edu  
 vetmed.tamu.edu/gilab



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 College Station, TX 77843-4474



Website User ID: clinpath@tufts.edu

GI Lab Assigned Clinic ID: 11405

B6	<b>Phone:</b>	508 887 4669
Tufts University-Clinical Pathology Lab	<b>Fax:</b>	9 508 839 7936
Attn: <span style="border: 1px dashed black; padding: 2px;">B6</span>	<b>Animal Name:</b>	<b>B6</b>
200 Westboro Road	<b>Owner Name:</b>	
North Grafton, MA 01536	<b>Species:</b>	Canine
USA	<b>Date Received:</b>	Mar 06, 2019

<b>Tufts University-Clinical Pathology Lab</b>	<b>GI Lab Accession:</b>	<b>B6</b>
<b>Tracking Number:</b>		

Test	Result	Reference Interval	Assay Date
Ultra-Sensitive Troponin I Fasting	<b>B6</b>	≤0.06	03/06/19

B6

**Comments:**

---

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 Animal Name: **B6**  
 Owner Name:  
 Species: Canine  
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Tufts University-Clinical Pathology Lab  
 Tracking Number:

GI Lab Accession: **B6**

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B6

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 4474 TAMU  
 College Station, TX 77843-4474



Website User ID: Cardiovet@tufts.edu OR clinpath@tufts.edu

GI Lab Assigned Clinic ID: 11405

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Tufts University-Clinical Pathology Lab	<b>Fax:</b>	9 508 839 7936
Attn: <span style="border: 1px dashed black; padding: 2px;">B6</span>	<b>Animal Name:</b>	<b>B6</b>
200 Westboro Road	<b>Owner Name:</b>	
North Grafton, MA 01536	<b>Species:</b>	Canine
USA	<b>Date Received:</b>	Mar 06, 2019

Tufts University-Clinical Pathology Lab  
 Tracking Number:

GI Lab Accession: B6

<u>Test</u>	<u>Result</u>	<u>Reference Interval</u>	<u>Assay Date</u>
Ultra-Sensitive Troponin I Fasting	B6	≤0.06	03/06/19

B6

Comments:

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 Fax: 9 508 839 7936  
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 Owner Name:  
 Species: Canine  
 Date Received: Mar 06, 2019

Tufts University-Clinical Pathology Lab  
 Tracking Number:

GI Lab Accession:

Test	Result	Reference Interval	Assay Date
Ultra-Sensitive Troponin I Fasting	<input type="text" value="B6"/>	≤0.06	03/06/19

**B6**

Comments:

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4474 TAMU  
College Station, TX 77843-4474



**Important  
Notices:**

Internal Medicine Conference

**Join us for a unique continuing education event in Phuket, Thailand Oct 7th - 11th, 2019. For details see <http://texasimconference.tamu.edu>**

Ongoing studies

**Cobalamin Supplementation Study-** Dogs and cats with cobalamin deficiency with normal PLI, and either normal or low (consistent with EPI) TLI to compare the efficacy of oral vs parenteral cobalamin supplementation. Contact Dr. Chang at [chchang@cvm.tamu.edu](mailto:chchang@cvm.tamu.edu) for further information.

**Chronic Pancreatitis with Uncontrolled Diabetes Mellitus-** Seeking dogs with chronic pancreatitis and uncontrolled diabetes mellitus for enrollment into a drug trial (medication provided at no cost). Contact Dr. Sue Yee Lim at [slim@cvm.tamu.edu](mailto:slim@cvm.tamu.edu) or Dr. Sina Marsilio at [smarsilio@cvm.tamu.edu](mailto:smarsilio@cvm.tamu.edu)

**Dogs with Primary Hyperlipidemia-** Prescription diet naïve dogs newly diagnosed with primary hyperlipidemia are eligible to be enrolled in a dietary trial. Contact Dr. Lawrence at [ylawrence@cvm.tamu.edu](mailto:ylawrence@cvm.tamu.edu) for more information.

**Dogs with Chronic Pancreatitis-** Dogs with chronic pancreatitis (cPLI >400µg/L) and hypertriglyceridemia (>300 mg/dl) are eligible to be enrolled in a dietary trial. Contact Dr. Lawrence at [ylawrence@cvm.tamu.edu](mailto:ylawrence@cvm.tamu.edu)

**Chronic enteropathies in dogs-** Please fill out this brief form <http://tinyurl.com/ibd-enroll> to see if your patient qualifies.

**Feline Chronic Pancreatitis-** Cats with chronic pancreatitis for more than 2 weeks and fPLI >10 µg/L are eligible for enrollment into a treatment trial investigating the efficacy of prednisolone or cyclosporine. Please contact Dr. Yamkate for further information at [pyamkate@cvm.tamu.edu](mailto:pyamkate@cvm.tamu.edu).

We can not accept packages that are marked "Bill Receiver"

**Use our preprinted shipping labels to save on shipping. Call 979-862-2861 for assistance. The GI Lab is not here to accept packages on the weekend. Samples may be compromised if you ship for arrival on Saturday or Sunday or if shipped via US Mail.**

**GI Lab Contact Information**

Phone: (979) 862-2861  
Fax: (979) 862-2864

Email: [gilab@cvm.tamu.edu](mailto:gilab@cvm.tamu.edu)  
[vetmed.tamu.edu/gilab](mailto:vetmed.tamu.edu/gilab)

## **CARDIOLOGY SERVICE UPDATES: DOG FOOD & DILATED CARDIOMYOPATHY**

The Cardiology Service has developed this document in response to the alerts from the FDA. These alerts identify an associated risk for some grain-free diets containing certain ingredients (legumes like peas, pea components, lentils; white potatoes, sweet potatoes) and a diagnosis of dilated cardiomyopathy (DCM). The links provided throughout this document can be copied and pasted to obtain additional information.

FDA Alerts found here:

<https://www.fda.gov/AnimalVeterinary/NewsEvents/CVMUpdates/ucm613305.htm>

<https://www.fda.gov/AnimalVeterinary/ResourcesforYou/AnimalHealthLiteracy/ucm616279.htm>

### **What is Dilated Cardiomyopathy (DCM)?**

DCM is a heart muscle disorder that results in a weak pump function and heart chamber enlargement. In the early stages of this disease pets may appear totally healthy with no apparent clinical signs. Later in the course of this disease, dogs may have a heart murmur, an arrhythmia (irregular heart beat), collapse episodes, weakness or tiredness with exercise, and even trouble breathing from congestive heart failure. While there are some breeds of dogs (like Dobermans) that have a genetic predisposition to development of DCM, there are also nutritional factors that may result in this disease.

### **What should I do?**

If you are feeding a diet of concern based upon the FDA alert we recommend that you consult with your veterinarian or veterinary cardiologist. We provide 4 general points for guidance below:

1. An initial step is to **consider whether you are willing or interested in performing additional testing** to assess whether your pet is affected with DCM. If you believe your dog is at risk, showing any of the aforementioned clinical signs or would prefer to simply rule out any heart disease, we recommend that you first have your pet's taurine levels tested (both whole blood and plasma levels) as well as seek an echocardiogram by a board-certified veterinary cardiologist. Low taurine levels are associated with development of DCM in dogs and are sometimes a component of this current issue.

Information on taurine testing can be found here: <https://www.vetmed.ucdavis.edu/labs/amino-acid-laboratory>

2. At this time, **diet change is recommended when possible** and should be considered regardless of the results obtained from any testing. You can consult with your veterinarian in selecting a new diet that avoids the ingredients of concern listed by the FDA. When selecting this diet, we recommend that you choose a diet that is manufactured with rigorous quality control measures and research behind the formulation. A way to ensure that your diet meets these recommendations is to follow the following guidelines that were generated by a large number of the world's leading experts in veterinary nutrition.

Food selection guidelines found here:

<https://www.wsava.org/WSAVA/media/Arpita-and-Emma-editorial/Selecting-the-Best-Food-for-your-Pet.pdf>

3. If your pet is identified through testing to have a low blood taurine level or evidence of DCM by echocardiogram, we urge you to **report this information to the FDA**.

FDA reporting guidelines found here: <https://www.fda.gov/AnimalVeterinary/SafetyHealth/ReportaProblem/ucm182403.htm>

4. **Work with your veterinarian(s)** to determine the best course of action and medical treatments if indicated. In the case of a DCM diagnosis, diet change alone may not be sufficient and additional medications may be prescribed.

Please continue to monitor the FDA website and the UC Davis School of Veterinary Medicine Newsfeeds for updates and recommendations regarding this issue.

---

**From:** Guag, Jake </O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=E13AD3C7A7C5484C80E1D9CF9D1A15DE-JGUAG>  
**To:** Rotstein, David; Jones, Jennifer L  
**CC:** Peloquin, Sarah  
**Sent:** 5/22/2019 2:54:09 PM  
**Subject:** RE: Rapid necropsy for Vet-LIRN's Case Investigation into Canine Dilated Cardiomyopathy (DCM) 2018

Dave,  
Do you have a report for [B6] ? Jen [B6]

Jake

**From:** [B6]  
**Sent:** Wednesday, May 22, 2019 10:47 AM  
**To:** Guag, Jake <[Jake.Guag@fda.hhs.gov](mailto:Jake.Guag@fda.hhs.gov)>  
**Subject:** Rapid necropsy for Vet-LIRN's Case Investigation into Canine Dilated Cardiomyopathy (DCM) 2018

Good morning,

I recently submitted a pet food report via the FDA Safety Reporting Portal on a deceased patient named [B6] [B6] was a 4yo CM Boxer with severe DCM who had been eating a grain-free dog food for the last two years. Dr. Lisa Freeman (PI for on-going DCM study here at Tufts) would like to submit collected samples (heart) to the FDA for further analysis. The sample was promptly placed in 10% NBF approximately 30 minutes post mortem on [B6]. Would it be possible to have boxes sent to us for sample submission?

Thank you,

[B6]

Department of Clinical Sciences  
Cummings School of Veterinary Medicine at Tufts University  
200 Westboro Road  
North Grafton, MA 01536

[B6]

Fax: (508) 839-7922



**From:** Rotstein, David </O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=0A3B17EBFCF14A6CB8E94F322906BADD-DROTSTEI>  
**To:** Guag, Jake; Jones, Jennifer L  
**CC:** Peloquin, Sarah  
**Sent:** 5/22/2019 2:57:34 PM  
**Subject:** RE: Rapid necropsy for Vet-LIRN's Case Investigation into Canine Dilated Cardiomyopathy (DCM) 2018  
**Attachments:** Health Extension Grain Free Chicken and Turkey Dry Dog Food [B6] - EON-388261

I thought that I had forwarded this one on already-but here you go

David Rotstein, DVM, MPVM, Dipl. ACVP  
CVM Vet-LIRN Liaison  
CVM OSC/DC/CERT  
7519 Standish Place

[B6]



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**From:** Guag, Jake  
**Sent:** Wednesday, May 22, 2019 10:54 AM  
**To:** Rotstein, David <David.Rotstein@fda.hhs.gov>; Jones, Jennifer L <Jennifer.Jones@fda.hhs.gov>  
**Cc:** Peloquin, Sarah <Sarah.Peloquin@fda.hhs.gov>  
**Subject:** RE: Rapid necropsy for Vet-LIRN's Case Investigation into Canine Dilated Cardiomyopathy (DCM) 2018

Dave,  
Do you have a report for [B6]? Jen is [B6]

Jake

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**To:** Guag, Jake <Jake.Guag@fda.hhs.gov>  
**Subject:** Rapid necropsy for Vet-LIRN's Case Investigation into Canine Dilated Cardiomyopathy (DCM) 2018

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Thank you,

**B6**

B6

B6

8:48:46 AM

Tufts University  
Tufts Cummings School of Vet Med  
Cardiology

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**B6**

**B6**

**B6**

10:41:20 AM

Page 1 of 2

Tufts University  
Tufts Cummings School of Vet Med  
Cardiology

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**B6**

B6

B6

10:41:20 AM

Page 2 of 2

Tufts University  
Tufts Cummings School of Vet Med  
Cardiology

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**B6**

**B6**

**B6**

10:42:14 AM

Page 1 of 2

Tufts University  
Tufts Cummings School of Vet Med  
Cardiology

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**B6**

**B6**

**B6**

10:42:14 AM

Page 2 of 2

Tufts University  
Tufts Cummings School of Vet Med  
Cardiology

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**B6**

---

**From:** Guag, Jake </O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=E13AD3C7A7C5484C80E1D9CF9D1A15DE-JGUAG>  
**To:** Rotstein, David; Peloquin, Sarah; Jones, Jennifer L  
**Sent:** 5/22/2019 3:47:38 PM  
**Subject:** RE: Rapid necropsy for Vet-LIRN's Case Investigation into Canine Dilated Cardiomyopathy (DCM) 2018

Thanks!  
FYI. I emailed Jen will contact when she returns.  
Jake

**From:** Rotstein, David  
**Sent:** Wednesday, May 22, 2019 11:46 AM  
**To:** Peloquin, Sarah <Sarah.Peloquin@fda.hhs.gov>; Guag, Jake <Jake.Guag@fda.hhs.gov>; Jones, Jennifer L <Jennifer.Jones@fda.hhs.gov>  
**Subject:** RE: Rapid necropsy for Vet-LIRN's Case Investigation into Canine Dilated Cardiomyopathy (DCM) 2018

Fantastic!!!

---

**From:** Peloquin, Sarah <Sarah.Peloquin@fda.hhs.gov>  
**Date:** May 22, 2019 at 11:07:09 AM EDT  
**To:** Rotstein, David <David.Rotstein@fda.hhs.gov>, Guag, Jake <Jake.Guag@fda.hhs.gov>, Jones, Jennifer L <Jennifer.Jones@fda.hhs.gov>  
**Subject:** RE: Rapid necropsy for Vet-LIRN's Case Investigation into Canine Dilated Cardiomyopathy (DCM) 2018

Found it—I was looking for the owner's last name. Thanks!

**Sarah Peloquin, DVM**  
Veterinary Medical Officer  
tel: 240-402-1218

**From:** Rotstein, David  
**Sent:** Wednesday, May 22, 2019 10:58 AM  
**To:** Guag, Jake <Jake.Guag@fda.hhs.gov>; Jones, Jennifer L <Jennifer.Jones@fda.hhs.gov>  
**Cc:** Peloquin, Sarah <Sarah.Peloquin@fda.hhs.gov>  
**Subject:** RE: Rapid necropsy for Vet-LIRN's Case Investigation into Canine Dilated Cardiomyopathy (DCM) 2018

I thought that I had forwarded this one on already-but here you go

David Rotstein, DVM, MPVM, Dipl. ACVP  
CVM Vet-LIRN Liaison  
CVM OSC/DC/CERT  
7519 Standish Place

B6







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**From:** Guag, Jake  
**Sent:** Wednesday, May 22, 2019 10:54 AM  
**To:** Rotstein, David <[David.Rotstein@fda.hhs.gov](mailto:David.Rotstein@fda.hhs.gov)>; Jones, Jennifer L <[Jennifer.Jones@fda.hhs.gov](mailto:Jennifer.Jones@fda.hhs.gov)>  
**Cc:** Peloquin, Sarah <[Sarah.Peloquin@fda.hhs.gov](mailto:Sarah.Peloquin@fda.hhs.gov)>  
**Subject:** RE: Rapid necropsy for Vet-LIRN's Case Investigation into Canine Dilated Cardiomyopathy (DCM) 2018

Dave,  
Do you have a report for [B6]? Jen is [B6]

Jake

**From:** [B6]  
**Sent:** Wednesday, May 22, 2019 10:47 AM  
**To:** Guag, Jake <[Jake.Guag@fda.hhs.gov](mailto:Jake.Guag@fda.hhs.gov)>  
**Subject:** Rapid necropsy for Vet-LIRN's Case Investigation into Canine Dilated Cardiomyopathy (DCM) 2018

Good morning,

I recently submitted a pet food report via the FDA Safety Reporting Portal on a deceased patient named [B6] [B6] was a 4yo CM Boxer with severe DCM who had been eating a grain-free dog food for the last two years. Dr. Lisa Freeman (PI for on-going DCM study here at Tufts) would like to submit collected samples (heart) to the FDA for further analysis. The sample was promptly placed in 10% NBF approximately 30 minutes post mortem on [B6]. Would it be possible to have boxes sent to us for sample submission?

Thank you,

[B6]

---

**From:** [REDACTED] **B6**  
**To:** Jones, Jennifer L  
**Sent:** 5/30/2019 4:57:23 PM  
**Subject:** RE: Rapid necropsy for Vet-LIRN's Case Investigation into Canine Dilated Cardiomyopathy (DCM) 2018

Hi Jen,

I apologize for the delay in getting back to you. The container is a larger formalin container that is 6 inches tall and about 5.5 inches wide. The container is not a screw top so we were wondering if a more secure container could be sent as well. The weight of the container w/ with the sample and formalin is 1.23kg.

We also recently collected a heart sample from a feline who died of DCM (2yo CM DSH). I will be submitting the report shortly. We can send a portion of heart as well if you'd like. That container is a screw top and weighs 0.77kg and measures about 5 inches tall and 4.5 inches wide.

Thank you,

[REDACTED] **B6**

**From:** Jones, Jennifer L <Jennifer.Jones@fda.hhs.gov>  
**Sent:** Thursday, May 23, 2019 12:34 PM  
**To:** [REDACTED] **B6**  
**Cc:** Guag, Jake <Jake.Guag@fda.hhs.gov>; Peloquin, Sarah <Sarah.Peloquin@fda.hhs.gov>  
**Subject:** RE: Rapid necropsy for Vet-LIRN's Case Investigation into Canine Dilated Cardiomyopathy (DCM) 2018

Hi [REDACTED] **B6**

Thank you for the updates and collecting the samples. How large is the container and how much does it weigh? We will send you a box with a prepaid shipping label.

Thank you kindly,  
Jen

Jennifer Jones, DVM  
Veterinary Medical Officer  
Tel: 240-402-5421



**From:** [REDACTED] **B6**  
**Sent:** Wednesday, May 22, 2019 11:31 AM  
**To:** Guag, Jake <Jake.Guag@fda.hhs.gov>  
**Cc:** Jones, Jennifer L <Jennifer.Jones@fda.hhs.gov>  
**Subject:** RE: Rapid necropsy for Vet-LIRN's Case Investigation into Canine Dilated Cardiomyopathy (DCM) 2018

Hi Jake,

Yes, we can hold onto the samples until instructed otherwise.

Thank you,

[REDACTED] **B6**

**From:** Guag, Jake <Jake.Guag@fda.hhs.gov>

**Sent:** Wednesday, May 22, 2019 11:16 AM

**To:** [REDACTED] **B6**

**Cc:** Jones, Jennifer L <Jennifer.Jones@fda.hhs.gov>

**Subject:** RE: Rapid necropsy for Vet-LIRN's Case Investigation into Canine Dilated Cardiomyopathy (DCM) 2018

Dear [REDACTED] **B6**

Thank you for the contacting us. Could you please hold the samples?

Dr. Jones is a person in charge for the case and [REDACTED] **B6** She will contact you when she returns.

Thanks  
Jake

**From:** [REDACTED] **B6**

**Sent:** Wednesday, May 22, 2019 10:47 AM

**To:** Guag, Jake <Jake.Guag@fda.hhs.gov>

**Subject:** Rapid necropsy for Vet-LIRN's Case Investigation into Canine Dilated Cardiomyopathy (DCM) 2018

Good morning,

I recently submitted a pet food report via the FDA Safety Reporting Portal on a deceased patient named [REDACTED] **B6**

[REDACTED] **B6** was a 4yo CM Boxer with severe DCM who had been eating a grain-free dog food for the last two years. Dr. Lisa Freeman (PI for on-going DCM study here at Tufts) would like to submit collected samples (heart) to the FDA for further analysis. The sample was promptly placed in 10% NBF approximately 30 minutes post mortem on [REDACTED] **B6** Would it be possible to have boxes sent to us for sample submission?

Thank you,

**B6**

**From:** Jones, Jennifer L </O=FDA/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=JENNIFER.JONESAA8>  
**To:** Rotstein, David  
**Sent:** 1/3/2018 5:09:01 PM  
**Subject:** RE: california naturals---I can request the article---FDA says that we have access, but the link isn't working

**B5**

Jennifer Jones, DVM  
Veterinary Medical Officer  
Tel: 240-402-5421



**From:** Rotstein, David  
**Sent:** Wednesday, January 03, 2018 11:56 AM  
**To:** Jones, Jennifer L <Jennifer.Jones@fda.hhs.gov>  
**Subject:** RE: california naturals---I can request the article---FDA says that we have access, but the link isn't working

I just put in the request

**B5**

**B5**

Hope not—I eat lentils!

David Rotstein, DVM, MPVM, Dipl. ACVP  
CVM Vet-LIRN Liaison  
CVM OSC/DC/CERT  
7519 Standish Place  
240-506-6763 (BB)



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**From:** Jones, Jennifer L  
**Sent:** Wednesday, January 03, 2018 11:55 AM  
**To:** Rotstein, David <David.Rotstein@fda.hhs.gov>  
**Subject:** RE: california naturals---I can request the article---FDA says that we have access, but the link isn't working

Thanks, Dave!!

Jennifer Jones, DVM

Veterinary Medical Officer

Tel: 240-402-5421



**From:** Rotstein, David

**Sent:** Wednesday, January 03, 2018 11:50 AM

**To:** Jones, Jennifer L <[Jennifer.Jones@fda.hhs.gov](mailto:Jennifer.Jones@fda.hhs.gov)>

**Subject:** california naturals---I can request the article---FDA says that we have access, but the link isn't working



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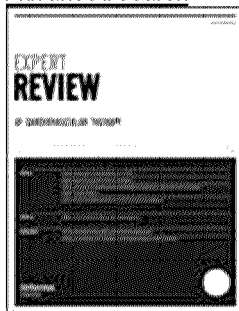
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**Theme: Heart failure - Review**

# **Nutritional and micronutrient determinants of idiopathic dilated cardiomyopathy: diagnostic and therapeutic implications**

**Victor Marinescu Department of Medicine,  
William Beaumont Hospital, Royal Oak, MI  
48073, USA. victor.marinescu@beaumont.edu;**

**Department of Medicine, William Beaumont  
Hospital, Royal Oak, MI 48073, USA.**

**victor.marinescu@beaumont.edu & Peter A  
McCullough St John Providence Health System,  
Providence Park Heart Institute, Novi, MI  
48374, USA; St John Providence Health System,  
Providence Park Heart Institute, Novi, MI  
48374, USA**

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**Pages 1161-1170**

**Published online: 10 Jan 2014**

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### **Abstract**

**Idiopathic dilated cardiomyopathy (IDCM) is the term used to describe a group of myocardial diseases of unknown cause whose common clinical presentation is heart failure. The prevalence of IDCM is estimated to be between 7 and 13% of patients with systolic heart failure. Throughout medical history, several nutrient-deficient states have been identified as the root cause of IDCMs, Keshan's disease being one such example, where selenium deficiency-induced heart failure is now well**

**documented. This raises the question of whether a micro- or macro-nutrient imbalance can provide the milieu for inefficient energy expenditure and cardiac metabolism in the context of IDCMs, either causing or exacerbating the condition. To date, there is insufficient evidence in the literature to support this theory, although numerous studies suggest a link between nutrient deficiencies, inefficient energy expenditure and subsequent heart failure. Given the unique metabolic needs of the failing heart, the role of micronutrient testing and supplementation in IDCMs warrants further well-designed studies.**

**Keywords:: heart failure, idiopathic dilated cardiomyopathy, macrominerals, metabolic cardiology, micronutrients, multinutrient supplementation, vitamins**

David Rotstein, DVM, MPVM, Dipl. ACVP  
CVM Vet-LIRN Liaison  
CVM OSC/DC/CERT  
7519 Standish Place  
240-506-6763 (BB)



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---

**From:** Jones, Jennifer L </O=FDA/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=JENNIFER.JONESAA8>  
**To:** Rotstein, David; Palmer, Lee Anne; Queen, Jackie L; Carey, Lauren  
**CC:** Ceric, Olgica; Nemser, Sarah; 'Reimschuessel, Renate (Renate.Reimschuessel@fda.hhs.gov)'  
**Sent:** 1/3/2018 7:31:44 PM  
**Subject:** RE: 800.218-Head's up-potential DCM case-Dr. Adin-NCSU-2 Schnauzers-EON-323515-323519  
**Attachments:** dog food concern; EON-323515-19; B6; case summary-1.3.2018.doc

Going to test the leftover food for B5 based on our discussion during the PFO meeting today. I asked the vet if any dogs tested (blood/tissue) for B5

Jennifer Jones, DVM  
Veterinary Medical Officer  
Tel: 240-402-5421



**From:** Rotstein, David  
**Sent:** Tuesday, August 22, 2017 8:39 AM  
**To:** Jones, Jennifer L <Jennifer.Jones@fda.hhs.gov>; Palmer, Lee Anne <LeeAnne.Palmer@fda.hhs.gov>; Reimschuessel, Renate <Renate.Reimschuessel@fda.hhs.gov>; Queen, Jackie L <Jackie.Queen@fda.hhs.gov>; Carey, Lauren <Lauren.Carey@fda.hhs.gov>  
**Cc:** Ceric, Olgica <Olgica.Ceric@fda.hhs.gov>  
**Subject:** RE: 800.218-Head's up-potential DCM case-Dr. Adin-NCSU-2 Schnauzers-EON-323515-323519

Agreed. Thanks Jen

David Rotstein, DVM, MPVM, Dipl. ACVP  
CVM Vet-LIRN Liaison  
CVM OSC/DC/CERT  
7519 Standish Place  
240-506-6763 (BB)



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---

**From:** Jones, Jennifer L  
**Sent:** Tuesday, August 22, 2017 8:37 AM  
**To:** Rotstein, David; Palmer, Lee Anne; Reimschuessel, Renate; Queen, Jackie L; Carey, Lauren  
**Cc:** Ceric, Olgica  
**Subject:** RE: 800.218-Head's up-potential DCM case-Dr. Adin-NCSU-2 Schnauzers-EON-323515-323519

BLUF: **Final Conclusion:** The cause of the two dogs' DCM is unclear. The bloodwork for these dogs

showed normal taurine and [B5] levels. Based on the dogs' blood taurine [B5] levels and the dry dog food test results, it is unlikely that [B5] taurine, [B5] caused the dogs' illness.

**B5**

**Final Conclusion:** The cause of the two dogs' DCM is unclear. The bloodwork for these dogs showed normal taurine and [B5] levels. Based on the dogs' blood taurine [B5] levels and the dry dog food test results, it is unlikely that [B5] taurine, or [B5] caused the dogs' illness.

Jennifer Jones, DVM  
Veterinary Medical Officer



---

**From:** Jones, Jennifer L  
**Sent:** Monday, August 07, 2017 7:02 AM  
**To:** Rotstein, David; Palmer, Lee Anne; Reimschuessel, Renate; Queen, Jackie L; Carey, Lauren  
**Cc:** Ceric, Olgica  
**Subject:** RE: 800.218-Head's up-potential DCM case-Dr. Adin-NCSU-2 Schnauzers-EON-323515-323519

FYI-Taurine [B5] still pending, but [B5] negative.

Jennifer Jones, DVM  
Veterinary Medical Officer



---

**From:** Jones, Jennifer L  
**Sent:** Thursday, July 27, 2017 7:25 AM  
**To:** Rotstein, David; Palmer, Lee Anne; Reimschuessel, Renate; Queen, Jackie L; Carey, Lauren  
**Cc:** Ceric, Olgica  
**Subject:** RE: Head's up-potential DCM case-Dr. Adin-NCSU-2 Schnauzers-EON-323515-323519

We received the food and plan to test for [B5] The vet also mentioned two items of interest:  
1. She's treated 2 other dogs in last 2 weeks with DCM/CHF and being fed California Natural food. That brings us to 4 DCM dogs recently eating this food.

a. We can consider taurine and other types of testing?

[B5]

Thoughts from the group?

Jennifer Jones, DVM  
Veterinary Medical Officer



---

**From:** Jones, Jennifer L  
**Sent:** Tuesday, July 18, 2017 8:18 AM  
**To:** Rotstein, David; Palmer, Lee Anne; Reimschuessel, Renate; Queen, Jackie L; Carey, Lauren  
**Cc:** Ceric, Olgica  
**Subject:** RE: Head's up-potential DCM case-Dr. Adin-NCSU-2 Schnauzers-EON-323515-323519

Ok, thanks, Dave. I'll check with the vet if seafood fed and will plan to test open product fo

[B5]

Jennifer Jones, DVM  
Veterinary Medical Officer



---

**From:** Rotstein, David  
**Sent:** Thursday, July 13, 2017 2:54 PM  
**To:** Jones, Jennifer L; Palmer, Lee Anne; Reimschuessel, Renate; Queen, Jackie L; Carey, Lauren  
**Cc:** Ceric, Olgica  
**Subject:** RE: Head's up-potential DCM case-Dr. Adin-NCSU-2 Schnauzers-EON-323515-323519

I think testing is worth pursuing.

[B5]

I was thinking of the [B5] and was thinking of [B5]

This would highly unlikely, but wanted to put it out there.

David Rotstein, DVM, MPVM, Dipl.ACVP

CVM Vet-LIRN Liaison  
CVM OSC/DC/CERT  
7519 Standish Place

**B6**

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---

**From:** Jones, Jennifer L <[Jennifer.Jones@fda.hhs.gov](mailto:Jennifer.Jones@fda.hhs.gov)>  
**Date:** July 13, 2017 at 2:44:24 PM EDT  
**To:** Palmer, Lee Anne <[LeeAnne.Palmer@fda.hhs.gov](mailto:LeeAnne.Palmer@fda.hhs.gov)>, Rotstein, David <[David.Rotstein@fda.hhs.gov](mailto:David.Rotstein@fda.hhs.gov)>, Reimschuessel, Renate <[Renate.Reimschuessel@fda.hhs.gov](mailto:Renate.Reimschuessel@fda.hhs.gov)>, Queen, Jackie L <[Jackie.Queen@fda.hhs.gov](mailto:Jackie.Queen@fda.hhs.gov)>, Carey, Lauren <[Lauren.Carey@fda.hhs.gov](mailto:Lauren.Carey@fda.hhs.gov)>  
**Cc:** Ceric, Olgica <[Olgica.Ceric@fda.hhs.gov](mailto:Olgica.Ceric@fda.hhs.gov)>  
**Subject:** RE: Head's up-potential DCM case-Dr. Adin-NCSU-2 Schnauzers-EON-323515-323519

We could test for **B5** in food, what does the group think? Any additional testing? Is it worth testing the **B5**

Medical Record Review:

Louie:

Presenting complaint

**B6**

**B6**

PE

**B6**

**B6**

Labwork:

**B6**

**B6**

# B6

Rads: B6

B6 cardiomegaly, severe diffuse mixed interstitial to alveolar pattern most severe caudo-dorsally, hepatomegaly, dec abdominal serosal contrast

B6 severe generalized cardiomegaly with biventricular heart failure, improved vs rDVM rads

B6 worsening cardiogenic pulmonary edema, cannot exclude lung induced injury +/- pneumonia

B6 post ultrafiltration, improved cardiogenic edema, hypovolemia, residual interstitial to patchy alveolar

B6 improved CHF with possible concern for bronchopneumonia, suspected hiatal hernia  
B6 markedly progressive alveolar pattern with significantly worse cardiogenic edema

tFAST 2/2: severe cardiomegaly with ventricular hypocontractility

Echo 2/2: dcm vs. myocarditis vs pacing induce vs. other (severely dilated & hypocontractile left & right ventricles, severely dilated left and right atria)

**Necropsy:** Lung-severe diffuse alveolar injury with marked fibrin deposition (hyaline) and marked alveolar histiocytosis and multifocal type II pneumocyte hyperplasia; mod to marked diffuse pulmonary edema; mild cardiomegaly with mild mitral valve endocardiosis and mild left ventricular hypertrophy and left atrial dilation; thorax with mild pleural effusion; Suspect primary non-cardiogenic etiology but if clinical cardiac dysfunction then functional cardiac abnormalities cannot be ruled out

Prior MHx

B6

B6

B6

Presented 6/22/2017:

B6

B6

B6

ECG: left ventricular enlargement suggested

B6

B6

Rads: left sided congestive heart failure

B6

B6

moderate left sided cardiomegaly without heart failure, moderate hepatomegaly

Echo: mitral valve endocardiosis with left atrial enlargement and heart failure, decreased left ventricular systolic function, suspected DCM

B5

# B5

Jennifer Jones, DVM  
Veterinary Medical Officer



---

**From:** Rotstein, David  
**Sent:** Tuesday, July 11, 2017 12:44 PM  
**To:** Jones, Jennifer L; Reimschuessel, Renate; Palmer, Lee Anne; Carey, Lauren; Queen, Jackie L  
**Cc:** Ceric, Olgica  
**Subject:** RE: Head's up-potential DCM case-Dr. Adin-NCSU-2 Schnauzers

Jen,

**B5**

so I don't think that could be ruled out.

I do like the exploration of other causes.

d.

David Rotstein, DVM, MPVM, Dipl. ACVP  
CVM Vet-LIRN Liaison  
CVM OSC/DC/CERT  
7519 Standish Place, RM 120  
**240-402-5613** (Office) (NEW NUMBER)  
**240-506-6763** (BB)



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---

**From:** Jones, Jennifer L  
**Sent:** Tuesday, July 11, 2017 12:41 PM  
**To:** Reimschuessel, Renate; Rotstein, David; Palmer, Lee Anne; Carey, Lauren; Queen, Jackie L  
**Cc:** Ceric, Olgica  
**Subject:** RE: Head's up-potential DCM case-Dr. Adin-NCSU-2 Schnauzers

Yes, and also, vet talked to MARS who said there was no corn in this food... but that doesn't rule out treats.

# B5

Jennifer Jones, DVM  
Veterinary Medical Officer



---

**From:** Reimschuessel, Renate  
**Sent:** Tuesday, July 11, 2017 11:51 AM  
**To:** Jones, Jennifer L; Rotstein, David; Palmer, Lee Anne; Carey, Lauren; Queen, Jackie L  
**Cc:** Ceric, Olgica  
**Subject:** RE: Head's up-potential DCM case-Dr. Adin-NCSU-2 Schnauzers

Davis may be able to screen for B5

Renate Reimschuessel V.M.D. Ph.D. Vet-LIRN  
**Phone 1- 240-402-5404**  
Fax 301-210-4685  
<http://www.fda.gov/AnimalVeterinary/ScienceResearch/ucm247334.htm>

---

**From:** Jones, Jennifer L  
**Sent:** Tuesday, July 11, 2017 11:38 AM  
**To:** Rotstein, David; Palmer, Lee Anne; Carey, Lauren; Queen, Jackie L  
**Cc:** Ceric, Olgica; Reimschuessel, Renate  
**Subject:** Head's up-potential DCM case-Dr. Adin-NCSU-2 Schnauzers

Vet will submit PFR online à  
2 dogs-unrelated miniature schnauzers

Dog 1: 2 yr à presented 2/2017 with fulminant CHF à severe DCM on echo, taurine/carnitine normal, infectious disease testing negative, died on the ventilator, necropsy done-myocardial changes were subtle but could be similar to moldy corn toxicity in pigs à plasma, urine, serum, and myocardial tissue available

Dog 2: 7 yr, had a syncopal episode ~2/2017 but presented to vet for progressive frequency of syncopal episodes à 6/2017 for CHF, diagnosed with DCM similar to housemate, nearly same image on Echo, taurine/carnitine normal, infectious disease testing negative, they have changed the diet (Hill's) and dog is responding to treatment; plasma, urine, and serum available

Dogs were eating California Naturals (different bag than from 2/2017) and treats (Milo's Kitchen); Vet has samples of food and treats

**Jennifer L. A. Jones, DVM**  
Veterinary Medical Officer  
U.S. Food & Drug Administration  
Center for Veterinary Medicine  
Office of Research  
Veterinary Laboratory Investigation and Response Network (Vet-LIRN)  
8401 Muirkirk Road, G704  
Laurel, Maryland 20708  
new tel: 240-402-5421



fax: 301-210-4685

e-mail: [jennifer.jones@fda.hhs.gov](mailto:jennifer.jones@fda.hhs.gov)

Web: <http://www.fda.gov/AnimalVeterinary/ScienceResearch/ucm247334.htm>



---

**From:** Jones, Jennifer L </O=FDA/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=JENNIFER.JONESAA8>  
**To:** Rotstein, David; Palmer, Lee Anne; Queen, Jackie L; Carey, Lauren  
**CC:** Ceric, Olgica; Nemser, Sarah; Reimschuessel, Renate  
**Sent:** 1/3/2018 8:07:33 PM  
**Subject:** RE: 800.218-Head's up-potential DCM case-Dr. Adin-NCSU-2 Schnauzers-EON-323515-323519

Thanks, Dave.

When I send for [B5] testing, those will be on the panel too J

Jennifer Jones, DVM  
Veterinary Medical Officer  
Tel: 240-402-5421



**From:** Rotstein, David  
**Sent:** Wednesday, January 03, 2018 3:00 PM  
**To:** Jones, Jennifer L <Jennifer.Jones@fda.hhs.gov>; Palmer, Lee Anne <LeeAnne.Palmer@fda.hhs.gov>; Queen, Jackie L <Jackie.Queen@fda.hhs.gov>; Carey, Lauren <Lauren.Carey@fda.hhs.gov>  
**Cc:** Ceric, Olgica <Olgica.Ceric@fda.hhs.gov>; Nemser, Sarah <Sarah.Nemser@fda.hhs.gov>; Reimschuessel, Renate <Renate.Reimschuessel@fda.hhs.gov>  
**Subject:** RE: 800.218-Head's up-potential DCM case-Dr. Adin-NCSU-2 Schnauzers-EON-323515-323519

Please see the attached article.

I don't want to suggest a fishing expedition-but [B5] may be worth looking into.

David Rotstein, DVM, MPVM, Dipl. ACVP  
CVM Vet-LIRN Liaison  
CVM OSC/DC/CERT  
7519 Standish Place  
240-506-6763 (BB)



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**From:** Jones, Jennifer L  
**Sent:** Wednesday, January 03, 2018 2:32 PM  
**To:** Rotstein, David <David.Rotstein@fda.hhs.gov>; Palmer, Lee Anne <LeeAnne.Palmer@fda.hhs.gov>; Queen, Jackie L <Jackie.Queen@fda.hhs.gov>; Carey, Lauren <Lauren.Carey@fda.hhs.gov>  
**Cc:** Ceric, Olgica <Olgica.Ceric@fda.hhs.gov>; Nemser, Sarah <Sarah.Nemser@fda.hhs.gov>; Reimschuessel, Renate <Renate.Reimschuessel@fda.hhs.gov>  
**Subject:** RE: 800.218-Head's up-potential DCM case-Dr. Adin-NCSU-2 Schnauzers-EON-323515-323519

Going to test the leftover food for [B5] based on our discussion during the PFO meeting today. I asked the vet if any dogs tested (blood/tissue) for [B5]

Jennifer Jones, DVM  
Veterinary Medical Officer  
Tel: 240-402-5421



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**Sent:** Tuesday, August 22, 2017 8:39 AM  
**To:** Jones, Jennifer L <[Jennifer.Jones@fda.hhs.gov](mailto:Jennifer.Jones@fda.hhs.gov)>; Palmer, Lee Anne <[LeeAnne.Palmer@fda.hhs.gov](mailto:LeeAnne.Palmer@fda.hhs.gov)>; Reimschuessel, Renate <[Renate.Reimschuessel@fda.hhs.gov](mailto:Renate.Reimschuessel@fda.hhs.gov)>; Queen, Jackie L <[Jackie.Queen@fda.hhs.gov](mailto:Jackie.Queen@fda.hhs.gov)>; Carey, Lauren <[Lauren.Carey@fda.hhs.gov](mailto:Lauren.Carey@fda.hhs.gov)>  
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**Subject:** RE: 800.218-Head's up-potential DCM case-Dr. Adin-NCSU-2 Schnauzers-EON-323515-323519

Agreed. Thanks Jen

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**Subject:** RE: 800.218-Head's up-potential DCM case-Dr. Adin-NCSU-2 Schnauzers-EON-323515-323519

BLUF: **Final Conclusion:** The cause of the two dogs' DCM is unclear. The bloodwork for these dogs showed normal taurine and [B5] levels. Based on the dogs' blood taurine [B5] levels and the dry dog food test results, it is unlikely that [B5] taurine, or [B5] caused the dogs' illness.

**B5**

**B5**

**B5**

**Final Conclusion:** The cause of the two dogs' DCM is unclear. The bloodwork for these dogs showed normal taurine and [B5] levels. Based on the dogs' blood taurine, [B5] levels and the dry dog food test results, it is unlikely that [B5] taurine, or [B5] caused the dogs' illness.

Jennifer Jones, DVM  
Veterinary Medical Officer



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**Cc:** Ceric, Olgica  
**Subject:** RE: 800.218-Head's up-potential DCM case-Dr. Adin-NCSU-2 Schnauzers-EON-323515-323519

FYI-Taurine [B5] still pending, but [B5] negative.

Jennifer Jones, DVM  
Veterinary Medical Officer



---

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**Sent:** Thursday, July 27, 2017 7:25 AM  
**To:** Rotstein, David; Palmer, Lee Anne; Reimschuessel, Renate; Queen, Jackie L; Carey, Lauren  
**Cc:** Ceric, Olgica

**Subject:** RE: Head's up-potential DCM case-Dr. Adin-NCSU-2 Schnauzers-EON-323515-323519

We received the food and plan to test for [B5] The vet also mentioned two items of interest:

1. She's treated 2 other dogs in last 2 weeks with DCM/CHF and being fed California Natural food. That brings us to 4 DCM dogs recently eating this food.
  - a. We can consider taurine and other types of testing?

[B5]

Thoughts from the group?

Jennifer Jones, DVM  
Veterinary Medical Officer



---

**From:** Jones, Jennifer L

**Sent:** Tuesday, July 18, 2017 8:18 AM

**To:** Rotstein, David; Palmer, Lee Anne; Reimschuessel, Renate; Queen, Jackie L; Carey, Lauren

**Cc:** Ceric, Olgica

**Subject:** RE: Head's up-potential DCM case-Dr. Adin-NCSU-2 Schnauzers-EON-323515-323519

Ok, thanks, Dave. I'll check [B5]

[B5]

Jennifer Jones, DVM  
Veterinary Medical Officer



---

**From:** Rotstein, David

**Sent:** Thursday, July 13, 2017 2:54 PM

**To:** Jones, Jennifer L; Palmer, Lee Anne; Reimschuessel, Renate; Queen, Jackie L; Carey, Lauren

**Cc:** Ceric, Olgica

**Subject:** RE: Head's up-potential DCM case-Dr. Adin-NCSU-2 Schnauzers-EON-323515-323519

I think testing is worth pursuing. Oddball question, [B5]

[B5]

I was thinking of the [B5] and was thinking of [B5]

[B5]

[B5]

This would highly unlikely, but wanted to put it out there.

David Rotstein, DVM, MPVM, Dipl.ACVP  
CVM Vet-LIRN Liaison  
CVM OSC/DC/CERT  
7519 Standish Place  
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**From:** Jones, Jennifer L <[Jennifer.Jones@fda.hhs.gov](mailto:Jennifer.Jones@fda.hhs.gov)>

**Date:** July 13, 2017 at 2:44:24 PM EDT

**To:** Palmer, Lee Anne <[LeeAnne.Palmer@fda.hhs.gov](mailto:LeeAnne.Palmer@fda.hhs.gov)>, Rotstein, David <[David.Rotstein@fda.hhs.gov](mailto:David.Rotstein@fda.hhs.gov)>, Reimschuessel, Renate <[Renate.Reimschuessel@fda.hhs.gov](mailto:Renate.Reimschuessel@fda.hhs.gov)>, Queen, Jackie L <[Jackie.Queen@fda.hhs.gov](mailto:Jackie.Queen@fda.hhs.gov)>, Carey, Lauren <[Lauren.Carey@fda.hhs.gov](mailto:Lauren.Carey@fda.hhs.gov)>

**Cc:** Ceric, Olgica <[Olgica.Ceric@fda.hhs.gov](mailto:Olgica.Ceric@fda.hhs.gov)>

**Subject:** RE: Head's up-potential DCM case-Dr. Adin-NCSU-2 Schnauzers-EON-323515-323519

We could test for B5 in food, what does the group think? Any additional testing? Is it worth testing the B5

Medical Record Review:

B6

Presenting complaint

B6

**B6**

PE

B6

B6

**B6**

# B6

Rads: **B6**

**B6** cardiomegaly, severe diffuse mixed interstitial to alveolar pattern most severe caudo-dorsally, hepatomegaly, dec abdominal serosal contrast

**B6** severe generalized cardiomegaly with biventricular heart failure, improved vs rDVM rads  
**B6** worsening cardiogenic pulmonary edema, cannot exclude lung induced injury +/- pneumonia

**B6** post ultrafiltration, improved cardiogenic edema, hypovolemia, residual interstitial to patchy alveolar

**B6** improved CHF with possible concern for bronchopneumonia, suspected hiatal hernia  
**B6** markedly progressive alveolar pattern with significantly worse cardiogenic edema

tFAST **B6** severe cardiomegaly with ventricular hypocontractility

Echo **B6** dcm vs. myocarditis vs pacing induce vs. other (severely dilated & hypocontractile left & right ventricles, severely dilated left and right atria)

**Necropsy:** Lung-severe diffuse alveolar injury with marked fibrin deposition (hyaline) and marked alveolar histiocytosis and multifocal type II pneumocyte hyperplasia; mod to marked diffuse pulmonary edema; mild cardiomegaly with mild mitral valve endocardiosis and mild left ventricular hypertrophy and left atrial dilation; thorax with mild pleural effusion; Suspect primary non-cardiogenic etiology but if clinical cardiac dysfunction then functional cardiac abnormalities cannot be ruled out

Prior MHx: **B6**  
**B6**

**B6**  
Presented: **B6**  
**B6**

**B6**

**B6**

**B6**

**Labs:**

**B6**

**ECG:** left ventricular enlargement suggested

**B6**

**Rads:** left sided congestive heart failure

**B6** **B6** moderate left sided cardiomegaly without heart failure, moderate hepatomegaly

**Echo:** mitral valve endocardiosis with left atrial enlargement and heart failure, decreased left ventricular systolic function, suspected DCM

**B5**

**B5**

Jennifer Jones, DVM  
Veterinary Medical Officer





**From:** Rotstein, David  
**Sent:** Tuesday, July 11, 2017 12:44 PM  
**To:** Jones, Jennifer L; Reimschuessel, Renate; Palmer, Lee Anne; Carey, Lauren; Queen, Jackie L  
**Cc:** Ceric, Olgica  
**Subject:** RE: Head's up-potential DCM case-Dr. Adin-NCSU-2 Schnauzers

Jen,

**B5** so I don't think that could be ruled out.

I do like the exploration of other causes.

d.

David Rotstein, DVM, MPVM, Dipl. ACVP  
 CVM Vet-LIRN Liaison  
 CVM OSC/DC/CERT  
 7519 Standish Place, RM 120  
**240-402-5613** (Office) (NEW NUMBER)  
**240-506-6763** (BB)



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**From:** Jones, Jennifer L  
**Sent:** Tuesday, July 11, 2017 12:41 PM  
**To:** Reimschuessel, Renate; Rotstein, David; Palmer, Lee Anne; Carey, Lauren; Queen, Jackie L  
**Cc:** Ceric, Olgica  
**Subject:** RE: Head's up-potential DCM case-Dr. Adin-NCSU-2 Schnauzers

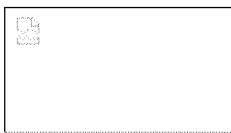
Yes, and also, vet talked to MARS who said there was no corn in this food...but that doesn't rule out treats.

I'm not sure with normal **B5** and taurine levels if we should suspect issues with those as well.

**B5**

**B5**

Jennifer Jones, DVM  
 Veterinary Medical Officer



---

**From:** Reimschuessel, Renate  
**Sent:** Tuesday, July 11, 2017 11:51 AM  
**To:** Jones, Jennifer L; Rotstein, David; Palmer, Lee Anne; Carey, Lauren; Queen, Jackie L  
**Cc:** Ceric, Olgica  
**Subject:** RE: Head's up-potential DCM case-Dr. Adin-NCSU-2 Schnauzers

Davis may be able to screen for B5

Renate Reimschuessel V.M.D. Ph.D. Vet-LIRN  
**Phone 1- 240-402-5404**  
Fax 301-210-4685  
<http://www.fda.gov/AnimalVeterinary/ScienceResearch/ucm247334.htm>

---

**From:** Jones, Jennifer L  
**Sent:** Tuesday, July 11, 2017 11:38 AM  
**To:** Rotstein, David; Palmer, Lee Anne; Carey, Lauren; Queen, Jackie L  
**Cc:** Ceric, Olgica; Reimschuessel, Renate  
**Subject:** Head's up-potential DCM case-Dr. Adin-NCSU-2 Schnauzers

Vet will submit PFR online à  
2 dogs-unrelated miniature schnauzers

Dog 1: 2 yr à presented 2/2017 with fulminant CHFà severe DCM on echo, taurine/carnitine normal, infectious disease testing negative, died on the ventilator, necropsy done-myocardial changes were subtle but could be similar to moldy corn toxicity in pigsà plasma, urine, serum, and myocardial tissue available

Dog 2: 7 yr, had a syncopal episode ~2/2017 but presented to vet for progressive frequency of syncopal episodesà 6/2017 for CHF, diagnosed with DCM similar to housemate, nearly same image on Echo, taurine/carnitine normal, infectious disease testing negative, they have changed the diet (Hill's) and dog is responding to treatment; plasma, urine, and serum available

Dogs were eating California Naturals (different bag than from 2/2017) and treats (Milo's Kitchen); Vet has samples of food and treats

**Jennifer L. A. Jones, DVM**  
Veterinary Medical Officer  
U.S. Food & Drug Administration  
Center for Veterinary Medicine  
Office of Research  
Veterinary Laboratory Investigation and Response Network (Vet-LIRN)  
8401 Muirkirk Road, G704  
Laurel, Maryland 20708  
new tel: 240-402-5421  
fax: 301-210-4685  
e-mail: [jennifer.jones@fda.hhs.gov](mailto:jennifer.jones@fda.hhs.gov)  
Web: <http://www.fda.gov/AnimalVeterinary/ScienceResearch/ucm247334.htm>





---

**From:** Rotstein, David </O=FDA/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=DAVID.ROTSTEIN>  
**To:** Jones, Jennifer L; Palmer, Lee Anne; Queen, Jackie L; Carey, Lauren  
**CC:** Ceric, Olgica; Nemser, Sarah; Reimschuessel, Renate  
**Sent:** 1/3/2018 8:08:15 PM  
**Subject:** RE: 800.218-Head's up-potential DCM case-Dr. Adin-NCSU-2 Schnauzers-EON-323515-323519

Wonderful!!!

David Rotstein, DVM, MPVM, Dipl. ACVP  
CVM Vet-LIRN Liaison  
CVM OSC/DC/CERT  
7519 Standish Place  
240-506-6763 (BB)



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Thanks, Dave.  
When I send for **B5** testing, those will be on the panel too J

Jennifer Jones, DVM  
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Agreed. Thanks Jen

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**B5**

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Jennifer Jones, DVM  
Veterinary Medical Officer



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FYI-Taurine [B5] still pending, but [B5] negative.

Jennifer Jones, DVM  
Veterinary Medical Officer



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  - a. We can consider taurine and other types of testing?

[B5]

Thoughts from the group?

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Veterinary Medical Officer



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**Subject:** RE: Head's up-potential DCM case-Dr. Adin-NCSU-2 Schnauzers-EON-323515-323519

Ok, thanks, Dave. I'll check

[B5]

Jennifer Jones, DVM  
Veterinary Medical Officer



---

**From:** Rotstein, David  
**Sent:** Thursday, July 13, 2017 2:54 PM  
**To:** Jones, Jennifer L; Palmer, Lee Anne; Reimschuessel, Renate; Queen, Jackie L; Carey, Lauren  
**Cc:** Ceric, Olgica  
**Subject:** RE: Head's up-potential DCM case-Dr. Adin-NCSU-2 Schnauzers-EON-323515-323519

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B5

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B5

and was thinking of

B5

This would highly unlikely, but wanted to put it out there.

David Rotstein, DVM, MPVM, Dipl.ACVP  
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7519 Standish Place  
240-506-6763 (BB)

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---

**From:** Jones, Jennifer L <[Jennifer.Jones@fda.hhs.gov](mailto:Jennifer.Jones@fda.hhs.gov)>  
**Date:** July 13, 2017 at 2:44:24 PM EDT  
**To:** Palmer, Lee Anne <[LeeAnne.Palmer@fda.hhs.gov](mailto:LeeAnne.Palmer@fda.hhs.gov)>, Rotstein, David <[David.Rotstein@fda.hhs.gov](mailto:David.Rotstein@fda.hhs.gov)>, Reimschuessel, Renate <[Renate.Reimschuessel@fda.hhs.gov](mailto:Renate.Reimschuessel@fda.hhs.gov)>, Queen, Jackie L <[Jackie.Queen@fda.hhs.gov](mailto:Jackie.Queen@fda.hhs.gov)>, Carey, Lauren <[Lauren.Carey@fda.hhs.gov](mailto:Lauren.Carey@fda.hhs.gov)>  
**Cc:** Ceric, Olgica <[Olgica.Ceric@fda.hhs.gov](mailto:Olgica.Ceric@fda.hhs.gov)>  
**Subject:** RE: Head's up-potential DCM case-Dr. Adin-NCSU-2 Schnauzers-EON-323515-323519

We could test for

B5

in food, what does the group think? Any additional testing? Is it worth testing the

B5

Medical Record Review:

B6

Presenting complaint

B6

B6



**B6**

PE

**B5**

**B6**

**B6**

Rads

**B6**

**B6** cardiomegaly, severe diffuse mixed interstitial to alveolar pattern most severe caudo-dorsally, hepatomegaly, dec abdominal serosal contrast

**B6** severe generalized cardiomegaly with biventricular heart failure, improved vs rDVM rads

**B6** worsening cardiogenic pulmonary edema, cannot exclude lung induced injury +/- pneumonia

**B6** post ultrafiltration, improved cardiogenic edema, hypovolemia, residual interstitial to patchy alveolar

**B6** improved CHF with possible concern for bronchopneumonia, suspected hiatal hernia  
**B6** markedly progressive alveolar pattern with significantly worse cardiogenic edema

**tFAST B6**: severe cardiomegaly with ventricular hypocontractility

**Echo B6** dcm vs. myocarditis vs pacing induce vs. other (severely dilated & hypocontractile left & right ventricles, severely dilated left and right atria)

**Necropsy:** Lung-severe diffuse alveolar injury with marked fibrin deposition (hyaline) and marked alveolar histiocytosis and multifocal type II pneumocyte hyperplasia; mod to marked diffuse pulmonary edema; mild cardiomegaly with mild mitral valve endocardiosis and mild left ventricular hypertrophy and left atrial dilation; thorax with mild pleural effusion; Suspect primary non-cardiogenic etiology but if clinical cardiac dysfunction then functional cardiac abnormalities cannot be ruled out

**Prior MHx:** **B6**

**B6**

**Presented:** **B6**

**B6**

**Labs:** **B6**

**ECG:** left ventricular enlargement suggested

**B6**

**B6**

**B6** Rads: left sided congestive heart failure

**B6** moderate left sided cardiomegaly without heart failure, moderate hepatomegaly

**B6** Echo: mitral valve endocardiosis with left atrial enlargement and heart failure, decreased left ventricular systolic function, suspected DCM

**B5**

Jennifer Jones, DVM  
Veterinary Medical Officer



---

**From:** Rotstein, David  
**Sent:** Tuesday, July 11, 2017 12:44 PM  
**To:** Jones, Jennifer L; Reimschuessel, Renate; Palmer, Lee Anne; Carey, Lauren; Queen, Jackie L  
**Cc:** Ceric, Olgica  
**Subject:** RE: Head's up-potential DCM case-Dr. Adin-NCSU-2 Schnauzers

Jen,

**B5**

so I don't think that could be ruled out.

I do like the exploration of other causes.

d.

David Rotstein, DVM, MPVM, Dipl. ACVP  
CVM Vet-LIRN Liaison  
CVM OSC/DC/CERT  
7519 Standish Place, RM 120  
**240-402-5613** (Office) (NEW NUMBER)  
**240-506-6763** (BB)



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**From:** Jones, Jennifer L  
**Sent:** Tuesday, July 11, 2017 12:41 PM  
**To:** Reimschuessel, Renate; Rotstein, David; Palmer, Lee Anne; Carey, Lauren; Queen, Jackie L  
**Cc:** Ceric, Olgica  
**Subject:** RE: Head's up-potential DCM case-Dr. Adin-NCSU-2 Schnauzers

Yes, and also, vet talked to MARS who said there was no corn in this food...but that doesn't rule out treats.

I'm not sure with normal B5 and taurine levels if we should suspect issues with those as well.

B5 B5

Jennifer Jones, DVM  
 Veterinary Medical Officer



**From:** Reimschuessel, Renate  
**Sent:** Tuesday, July 11, 2017 11:51 AM  
**To:** Jones, Jennifer L; Rotstein, David; Palmer, Lee Anne; Carey, Lauren; Queen, Jackie L  
**Cc:** Ceric, Olgica  
**Subject:** RE: Head's up-potential DCM case-Dr. Adin-NCSU-2 Schnauzers

Davis may be able to screen for B5

Renate Reimschuessel V.M.D. Ph.D. Vet-LIRN  
**Phone 1- 240-402-5404**  
 Fax 301-210-4685  
<http://www.fda.gov/AnimalVeterinary/ScienceResearch/ucm247334.htm>

**From:** Jones, Jennifer L  
**Sent:** Tuesday, July 11, 2017 11:38 AM  
**To:** Rotstein, David; Palmer, Lee Anne; Carey, Lauren; Queen, Jackie L  
**Cc:** Ceric, Olgica; Reimschuessel, Renate  
**Subject:** Head's up-potential DCM case-Dr. Adin-NCSU-2 Schnauzers

Vet will submit PFR online à  
 2 dogs-unrelated miniature schnauzers

Dog 1: 2 yr à presented 2/2017 with fulminant CHFà severe DCM on echo, taurine/carnitine normal, infectious disease testing negative, died on the ventilator, necropsy done-myocardial changes were subtle but could be similar to moldy corn toxicity in pigsà plasma, urine, serum, and myocardial tissue available

Dog 2: 7 yr, had a syncopal episode ~2/2017 but presented to vet for progressive frequency of syncopal episodesà 6/2017 for CHF, diagnosed with DCM similar to housemate, nearly same image on Echo, taurine/carnitine normal, infectious disease testing negative, they have changed the diet (Hill's) and dog is responding to treatment; plasma, urine, and serum available

Dogs were eating California Naturals (different bag than from 2/2017) and treats (Milo's Kitchen); Vet has samples of food and treats

**Jennifer L. A. Jones, DVM**

Veterinary Medical Officer  
U.S. Food & Drug Administration  
Center for Veterinary Medicine  
Office of Research  
Veterinary Laboratory Investigation and Response Network (Vet-LIRN)  
8401 Muirkirk Road, G704  
Laurel, Maryland 20708  
new tel: 240-402-5421  
fax: 301-210-4685  
e-mail: [jennifer.jones@fda.hhs.gov](mailto:jennifer.jones@fda.hhs.gov)  
Web: <http://www.fda.gov/AnimalVeterinary/ScienceResearch/ucm247334.htm>



---

**From:** Jones, Jennifer L </O=FDA/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=JENNIFER.JONESAA8>  
**To:** Rotstein, David; Palmer, Lee Anne; Queen, Jackie L; Carey, Lauren  
**CC:** Ceric, Olgica; Nemser, Sarah; Reimschuessel, Renate  
**Sent:** 1/11/2018 2:36:21 PM  
**Subject:** RE: 800.218-Head's up-potential DCM case-Dr. Adin-NCSU-2 Schnauzers-EON-323515-323519  
**Attachments:** EON-323515-19-[B6]-case summary-1.11.2018.doc

FYI-

JJ-Vet emailed-“ As additional information, one of our cardiologist colleagues in [B6] posted a question about this association today on our list serve. She has seen 4 cases of DCM in dogs eating kangaroo and lentil (I assume CN but not sure) in the last year - 2 were housemates but related.”

Jennifer Jones, DVM  
Veterinary Medical Officer  
Tel: 240-402-5421



**From:** Jones, Jennifer L  
**Sent:** Wednesday, January 03, 2018 2:32 PM  
**To:** Rotstein, David <David.Rotstein@fda.hhs.gov>; Palmer, Lee Anne <LeeAnne.Palmer@fda.hhs.gov>; Queen, Jackie L <Jackie.Queen@fda.hhs.gov>; Carey, Lauren <Lauren.Carey@fda.hhs.gov>  
**Cc:** Ceric, Olgica <Olgica.Ceric@fda.hhs.gov>; Nemser, Sarah <Sarah.Nemser@fda.hhs.gov>; 'Reimschuessel, Renate (Renate.Reimschuessel@fda.hhs.gov)' <Renate.Reimschuessel@fda.hhs.gov>  
**Subject:** RE: 800.218-Head's up-potential DCM case-Dr. Adin-NCSU-2 Schnauzers-EON-323515-323519

Going to test the leftover food for [B5] based on our discussion during the PFO meeting today. I asked the vet if any dogs tested (blood/tissue) for [B5]

Jennifer Jones, DVM  
Veterinary Medical Officer  
Tel: 240-402-5421



**From:** Rotstein, David  
**Sent:** Tuesday, August 22, 2017 8:39 AM  
**To:** Jones, Jennifer L <Jennifer.Jones@fda.hhs.gov>; Palmer, Lee Anne <LeeAnne.Palmer@fda.hhs.gov>; Reimschuessel, Renate <Renate.Reimschuessel@fda.hhs.gov>; Queen, Jackie L <Jackie.Queen@fda.hhs.gov>; Carey, Lauren <Lauren.Carey@fda.hhs.gov>  
**Cc:** Ceric, Olgica <Olgica.Ceric@fda.hhs.gov>  
**Subject:** RE: 800.218-Head's up-potential DCM case-Dr. Adin-NCSU-2 Schnauzers-EON-323515-323519

Agreed. Thanks Jen

David Rotstein, DVM, MPVM, Dipl. ACVP  
CVM Vet-LIRN Liaison  
CVM OSC/DC/CERT

7519 Standish Place  
240-506-6763 (BB)



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---

**From:** Jones, Jennifer L  
**Sent:** Tuesday, August 22, 2017 8:37 AM  
**To:** Rotstein, David; Palmer, Lee Anne; Reimschuessel, Renate; Queen, Jackie L; Carey, Lauren  
**Cc:** Ceric, Olgica  
**Subject:** RE: 800.218-Head's up-potential DCM case-Dr. Adin-NCSU-2 Schnauzers-EON-323515-323519

BLUF: **Final Conclusion:** The cause of the two dogs' DCM is unclear. The bloodwork for these dogs showed normal taurine and [B5] levels. Based on the dogs' blood taurine [B5] levels and the dry dog food test results, it is unlikely that [B5] taurine, or [B5] caused the dogs' illness.

**B5**

**B5**

**Final Conclusion:** The cause of the two dogs' DCM is unclear. The bloodwork for these dogs showed normal taurine and [B5] levels. Based on the dogs' blood taurine/[B5] levels and the dry dog food test results, it is unlikely that [B5] taurine, or [B5] caused the dogs' illness.

Jennifer Jones, DVM  
Veterinary Medical Officer



---

**From:** Jones, Jennifer L  
**Sent:** Monday, August 07, 2017 7:02 AM  
**To:** Rotstein, David; Palmer, Lee Anne; Reimschuessel, Renate; Queen, Jackie L; Carey, Lauren  
**Cc:** Ceric, Olgica  
**Subject:** RE: 800.218-Head's up-potential DCM case-Dr. Adin-NCSU-2 Schnauzers-EON-323515-323519

FYI-Taurine [B5] still pending, but [B5] negative.

Jennifer Jones, DVM  
Veterinary Medical Officer



---

**From:** Jones, Jennifer L  
**Sent:** Thursday, July 27, 2017 7:25 AM  
**To:** Rotstein, David; Palmer, Lee Anne; Reimschuessel, Renate; Queen, Jackie L; Carey, Lauren  
**Cc:** Ceric, Olgica  
**Subject:** RE: Head's up-potential DCM case-Dr. Adin-NCSU-2 Schnauzers-EON-323515-323519

We received the food and plan to test for [B5]. The vet also mentioned two items of interest:

1. She's treated 2 other dogs in last 2 weeks with DCM/CHF and being fed California Natural food. That brings us to 4 DCM dogs recently eating this food.
  - a. We can consider taurine and other types of testing?

[B5]

Thoughts from the group?

Jennifer Jones, DVM  
Veterinary Medical Officer



---

**From:** Jones, Jennifer L  
**Sent:** Tuesday, July 18, 2017 8:18 AM  
**To:** Rotstein, David; Palmer, Lee Anne; Reimschuessel, Renate; Queen, Jackie L; Carey, Lauren  
**Cc:** Ceric, Olgica  
**Subject:** RE: Head's up-potential DCM case-Dr. Adin-NCSU-2 Schnauzers-EON-323515-323519



Ok, thanks, Dave. I'll check

B5

Jennifer Jones, DVM  
Veterinary Medical Officer



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**From:** Rotstein, David  
**Sent:** Thursday, July 13, 2017 2:54 PM  
**To:** Jones, Jennifer L; Palmer, Lee Anne; Reimschuessel, Renate; Queen, Jackie L; Carey, Lauren  
**Cc:** Ceric, Olgica  
**Subject:** RE: Head's up-potential DCM case-Dr. Adin-NCSU-2 Schnauzers-EON-323515-323519

I think testing is worth pursuing. Oddball question,

B5

I was thinking of the

B5

and was thinking of

B5

This would highly unlikely, but wanted to put it out there.

David Rotstein, DVM, MPVM, Dipl.ACVP  
CVM Vet-LIRN Liaison  
CVM OSC/DC/CERT  
7519 Standish Place  
240-506-6763 (BB)

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---

**From:** Jones, Jennifer L <[Jennifer.Jones@fda.hhs.gov](mailto:Jennifer.Jones@fda.hhs.gov)>  
**Date:** July 13, 2017 at 2:44:24 PM EDT  
**To:** Palmer, Lee Anne <[LeeAnne.Palmer@fda.hhs.gov](mailto:LeeAnne.Palmer@fda.hhs.gov)>, Rotstein, David <[David.Rotstein@fda.hhs.gov](mailto:David.Rotstein@fda.hhs.gov)>, Reimschuessel, Renate <[Renate.Reimschuessel@fda.hhs.gov](mailto:Renate.Reimschuessel@fda.hhs.gov)>, Queen, Jackie L <[Jackie.Queen@fda.hhs.gov](mailto:Jackie.Queen@fda.hhs.gov)>, Carey, Lauren <[Lauren.Carey@fda.hhs.gov](mailto:Lauren.Carey@fda.hhs.gov)>  
**Cc:** Ceric, Olgica <[Olgica.Ceric@fda.hhs.gov](mailto:Olgica.Ceric@fda.hhs.gov)>  
**Subject:** RE: Head's up-potential DCM case-Dr. Adin-NCSU-2 Schnauzers-EON-323515-323519

We could test for

B5

in food, what does the group think? Any additional testing? Is it worth testing the

B5

Medical Record Review:

B6

Presenting complaint

B6

**B6**

Labwork:

**B6**

**B6**

**ECG:** suspected atrial tachycardia

**Rads** **B6** concern for aspiration pneumonia

**B6** cardiomegaly, severe diffuse mixed interstitial to alveolar pattern most severe caudo-dorsally, hepatomegaly, dec abdominal serosal contrast

**B6** severe generalized cardiomegaly with biventricular heart failure, improved vs rDVM rads  
**B6** worsening cardiogenic pulmonary edema, cannot exclude lung induced injury  
+/- pneumonia

**B6** post ultrafiltration, improved cardiogenic edema, hypovolemia, residual interstitial to patchy alveolar

**B6** improved CHF with possible concern for bronchopneumonia, suspected hiatal hernia  
**B6** markedly progressive alveolar pattern with significantly worse cardiogenic edema

**tFAST** **B6** severe cardiomegaly with ventricular hypocontractility

**Echo** **B6** dcm vs. myocarditis vs pacing induce vs. other (severely dilated & hypocontractile left & right ventricles, severely dilated left and right atria)

**Necropsy:** Lung-severe diffuse alveolar injury with marked fibrin deposition (hyaline) and marked alveolar histiocytosis and multifocal type II pneumocyte hyperplasia; mod to marked diffuse pulmonary edema; mild cardiomegaly with mild mitral valve endocardiosis and mild left ventricular hypertrophy and left atrial dilation; thorax with mild pleural effusion; Suspect primary non-cardiogenic etiology but if clinical cardiac dysfunction then functional cardiac abnormalities cannot be ruled out

**Prior MHx:** **B6**  
**B6**

**B6**

**Presented** **B6**  
**B6**

**6/22** **B6**

**B6**

**Labs:** **B6**

**ECG:** left ventricular enlargement suggested

**B6**

**B6**

**B6 Rads:** left sided congestive heart failure

**B6** moderate left sided cardiomegaly without heart failure, moderate hepatomegaly

**B6 Echo:** mitral valve endocardiosis with left atrial enlargement and heart failure, decreased left ventricular systolic function, suspected DCM

**B5**

**B5**

Jennifer Jones, DVM  
Veterinary Medical Officer



---

**From:** Rotstein, David  
**Sent:** Tuesday, July 11, 2017 12:44 PM  
**To:** Jones, Jennifer L; Reimschuessel, Renate; Palmer, Lee Anne; Carey, Lauren; Queen, Jackie L  
**Cc:** Ceric, Olgica  
**Subject:** RE: Head's up-potential DCM case-Dr. Adin-NCSU-2 Schnauzers

Jen,

**B5**

so I don't think that could be ruled out.

I do like the exploration of other causes.

d.

David Rotstein, DVM, MPVM, Dipl. ACVP  
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CVM OSC/DC/CERT  
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**Cc:** Ceric, Olgica  
**Subject:** RE: Head's up-potential DCM case-Dr. Adin-NCSU-2 Schnauzers

Yes, and also, vet talked to MARS who said there was no corn in this food...but that doesn't rule out treats.

I'm not sure with normal B5 and taurine levels if we should suspect issues with those as well.

**B5**

**B5**

Jennifer Jones, DVM  
Veterinary Medical Officer



---

**From:** Reimschuessel, Renate  
**Sent:** Tuesday, July 11, 2017 11:51 AM  
**To:** Jones, Jennifer L; Rotstein, David; Palmer, Lee Anne; Carey, Lauren; Queen, Jackie L  
**Cc:** Ceric, Olgica  
**Subject:** RE: Head's up-potential DCM case-Dr. Adin-NCSU-2 Schnauzers

Davis may be able to screen for B5

Renate Reimschuessel V.M.D. Ph.D. Vet-LIRN  
**Phone 1- 240-402-5404**  
Fax 301-210-4685  
<http://www.fda.gov/AnimalVeterinary/ScienceResearch/ucm247334.htm>

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**Sent:** Tuesday, July 11, 2017 11:38 AM  
**To:** Rotstein, David; Palmer, Lee Anne; Carey, Lauren; Queen, Jackie L  
**Cc:** Ceric, Olgica; Reimschuessel, Renate  
**Subject:** Head's up-potential DCM case-Dr. Adin-NCSU-2 Schnauzers

Vet will submit PFR online à

## 2 dogs-unrelated miniature schnauzers

Dog 1: 2 yr à presented 2/2017 with fulminant CHFà severe DCM on echo, taurine/carnitine normal, infectious disease testing negative, died on the ventilator, necropsy done-myocardial changes were subtle but could be similar to moldy corn toxicity in pigsà plasma, urine, serum, and myocardial tissue available

Dog 2: 7 yr, had a syncopal episode ~2/2017 but presented to vet for progressive frequency of syncopal episodesà 6/2017 for CHF, diagnosed with DCM similar to housemate, nearly same image on Echo, taurine/carnitine normal, infectious disease testing negative, they have changed the diet (Hill's) and dog is responding to treatment; plasma, urine, and serum available

Dogs were eating California Naturals (different bag than from 2/2017) and treats (Milo's Kitchen); Vet has samples of food and treats

### **Jennifer L. A. Jones, DVM**

Veterinary Medical Officer  
U.S. Food & Drug Administration  
Center for Veterinary Medicine  
Office of Research  
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8401 Muirkirk Road, G704  
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Web: <http://www.fda.gov/AnimalVeterinary/ScienceResearch/ucm247334.htm>



---

**From:** Jones, Jennifer L </o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=0f6ca12eaa9348959a4cbb1e829af244-Jennifer.Jo>  
**To:** 'Darcy Adin'  
**Sent:** 2/2/2018 11:58:34 AM  
**Subject:** RE: dog food concern

Good morning Darcy,  
What is the flavor (e.g. chicken and lentil, etc.) for the Fromm Grain free food you submitted?  
Thank you and have a nice weekend,  
Jen

Jennifer Jones, DVM  
Veterinary Medical Officer  
Tel: 240-402-5421



**From:** Jones, Jennifer L  
**Sent:** Tuesday, January 23, 2018 1:58 PM  
**To:** 'Darcy Adin' <dbadin@ncsu.edu>  
**Subject:** RE: dog food concern

Thank you, Darcy! I'll share this with my team working on the case.

With regards to your question, I don't have access to any sales information. If you find anything online, I'd be interested to read it.

Jennifer Jones, DVM  
Veterinary Medical Officer  
Tel: 240-402-5421



**From:** Darcy Adin [<mailto:dbadin@ncsu.edu>]  
**Sent:** Tuesday, January 23, 2018 1:53 PM  
**To:** Jones, Jennifer L <[Jennifer.Jones@fda.hhs.gov](mailto:Jennifer.Jones@fda.hhs.gov)>  
**Cc:** Ceric, Olgica <[Olgica.Ceric@fda.hhs.gov](mailto:Olgica.Ceric@fda.hhs.gov)>; Nemser, Sarah <[Sarah.Nemser@fda.hhs.gov](mailto:Sarah.Nemser@fda.hhs.gov)>  
**Subject:** Re: dog food concern

Thanks for chatting today Jennifer!

**B5**

**B5**

# B5

Do you have access to sales estimates for Grain free diets and California natural diets in particular? I am not able to find this on the web. All I can say is that CN does not come up as one of the "top" diets on websites that discuss Grain free benefits.

Thank you!  
Darcy

On Tue, Jan 23, 2018 at 8:49 AM, Darcy Adin <[dbadin@ncsu.edu](mailto:dbadin@ncsu.edu)> wrote:  
Hi Jennifer,

I wondered if I could speak with you sometime today about the diets and some data we have compiled? My office is [919-513-6032](tel:919-513-6032) and my cell is [B6] Alternatively, we could email - just let me know!

Take care  
Darcy

On Fri, Jan 12, 2018 at 8:01 AM, Jones, Jennifer L <[Jennifer.Jones@fda.hhs.gov](mailto:Jennifer.Jones@fda.hhs.gov)> wrote:  
Thank you, Darcy.

[B5]

B5

I'll forward the feed results when they are back.  
Have a nice weekend,  
Jen

Jennifer Jones, DVM  
Veterinary Medical Officer  
Tel: [240-402-5421](tel:240-402-5421)



**From:** Darcy Adin [<mailto:dbadin@ncsu.edu>]  
**Sent:** Wednesday, January 10, 2018 6:13 PM

**To:** Jones, Jennifer L <[Jennifer.Jones@fda.hhs.gov](mailto:Jennifer.Jones@fda.hhs.gov)>  
**Cc:** Ceric, Olgica <[Olgica.Ceric@fda.hhs.gov](mailto:Olgica.Ceric@fda.hhs.gov)>; Nemser, Sarah <[Sarah.Nemser@fda.hhs.gov](mailto:Sarah.Nemser@fda.hhs.gov)>  
**Subject:** Re: dog food concern

Thank you Jennifer - we will be on the lookout for it.

As additional information, one of our cardiologist colleagues in [B6] posted a question about this association today on our list serve. She has seen 4 cases of DCM in dogs eating kangaroo and lentil (I assume CN but not sure) in the last year - 2 were housemates but related.

Take care  
Darcy



On Jan 10, 2018, at 8:05 AM, Jones, Jennifer L <[Jennifer.Jones@fda.hhs.gov](mailto:Jennifer.Jones@fda.hhs.gov)> wrote:

Thank you, Darcy. We're sending the kit this week. It should arrive by close of business Friday.

Jennifer Jones, DVM  
Veterinary Medical Officer  
Tel: 240-402-5421  
<image001.png> <image006.png>

**From:** Darcy Adin [<mailto:dbadin@ncsu.edu>]  
**Sent:** Tuesday, January 09, 2018 11:27 AM  
**To:** Jones, Jennifer L <[Jennifer.Jones@fda.hhs.gov](mailto:Jennifer.Jones@fda.hhs.gov)>  
**Cc:** Ceric, Olgica <[Olgica.Ceric@fda.hhs.gov](mailto:Olgica.Ceric@fda.hhs.gov)>; Nemser, Sarah <[Sarah.Nemser@fda.hhs.gov](mailto:Sarah.Nemser@fda.hhs.gov)>  
**Subject:** Re: dog food concern

Hi Jennifer,

That is great! I've attached a picture of the food sample - the weight is 0.36 kg. We sent blood samples off from 2 dogs to test for B5 one was in the reference range and the other a bit high.

Thank you!  
Take care  
Darcy

On Tue, Jan 9, 2018 at 10:07 AM, Jones, Jennifer L <[Jennifer.Jones@fda.hhs.gov](mailto:Jennifer.Jones@fda.hhs.gov)> wrote:  
Good morning Darcy,

We'd like to collect some of the food from your current case (California Naturals Kangaroo). I'm going to send it with the archived sample of food from the B6 case. B5

**B5**

Please let me know the size/weight of the sample you have, and I'll send a box to collect it.

Thank you,  
Jen

Jennifer Jones, DVM  
Veterinary Medical Officer  
Tel: 240-402-5421  
<image001.png> <image003.png>

**From:** Darcy Adin [<mailto:dbadin@ncsu.edu>]  
**Sent:** Thursday, January 04, 2018 2:47 PM  
**To:** Jones, Jennifer L <[Jennifer.Jones@fda.hhs.gov](mailto:Jennifer.Jones@fda.hhs.gov)>  
**Cc:** Ceric, Olgica <[Olgica.Ceric@fda.hhs.gov](mailto:Olgica.Ceric@fda.hhs.gov)>; Nemser, Sarah <[Sarah.Nemser@fda.hhs.gov](mailto:Sarah.Nemser@fda.hhs.gov)>  
**Subject:** Re: dog food concern

I also have a food sample for our current inpatient (same food - California Naturals kangaroo and lentil)

**B5**

**B5**

On Thu, Jan 4, 2018 at 2:39 PM, Darcy Adin <[dbadin@ncsu.edu](mailto:dbadin@ncsu.edu)> wrote:

The myocardium is from **B6** Maybe we will wait to see what the blood levels show.

**B5**

Thanks!

Darcy

On Thu, Jan 4, 2018 at 2:14 PM, Jones, Jennifer L <[Jennifer.Jones@fda.hhs.gov](mailto:Jennifer.Jones@fda.hhs.gov)> wrote:

Thank you for the update. I'll let you know the **B5** concentration from **B6** food after the results are back.

The frozen myocardium, is it from the **B6** case?

Jennifer Jones, DVM

Veterinary Medical Officer

Tel: 240-402-5421

<[image001.png](#)> <[image004.png](#)>

**From:** Darcy Adin [<mailto:dbadin@ncsu.edu>]

**Sent:** Wednesday, January 03, 2018 3:10 PM

**To:** Jones, Jennifer L <[Jennifer.Jones@fda.hhs.gov](mailto:Jennifer.Jones@fda.hhs.gov)>

**Cc:** Ceric, Olgica <[Olgica.Ceric@fda.hhs.gov](mailto:Olgica.Ceric@fda.hhs.gov)>; Nemser, Sarah <[Sarah.Nemser@fda.hhs.gov](mailto:Sarah.Nemser@fda.hhs.gov)>

**Subject:** Re: dog food concern

Hi Jennifer,

Thank you! We have not tested for **B5** in any of the dogs. We have stored blood samples from several dogs and have an inpatient right now that we can submit blood from **B4** runs this). We will probably start with looking at blood samples from 2 dogs as a screening. We also have frozen myocardium from one dog - do you think this should also be evaluated?

Thank you!

Darcy

On Wed, Jan 3, 2018 at 2:30 PM, Jones, Jennifer L <[Jennifer.Jones@fda.hhs.gov](mailto:Jennifer.Jones@fda.hhs.gov)> wrote:

Good afternoon Darcy,

Happy New Year! Thank you for the additional information. I discussed the information you provided below and from the previous case **B6** Miniature Schnauzers-800.218) with my colleagues.

Based on our discussions, I will test some leftover food from the 800.218 case, for **B5** content. Have any of the dogs with DCM had blood or tissue **B5** levels tested?

Thank you kindly,

Jen

Jennifer Jones, DVM

Veterinary Medical Officer

Tel: [240-402-5421](tel:240-402-5421)

[<image001.png>](#) [<image005.png>](#)

**From:** Darcy Adin [<mailto:dbadin@ncsu.edu>]  
**Sent:** Wednesday, January 03, 2018 11:31 AM  
**To:** Jones, Jennifer L <[Jennifer.Jones@fda.hhs.gov](mailto:Jennifer.Jones@fda.hhs.gov)>  
**Subject:** dog food concern

Hi Dr. Jones,

I'm hoping that you recall our communications over the summer regarding food testing for unrelated housemate dogs that developed DCM. These dogs were eating California Naturals Kangaroo and Lentil diet and we were not able to identify a cause of the DCM, dietary or infectious or toxic.

I wanted to reach out again because we continue to see DCM in non-genetically predisposed breeds and it seems that this diet is a relatively common theme. We have been increasingly better about recording a diet history in dogs that are presented to cardiology or ER at our hospital with DCM in the last 6 months. Most of the dogs have been tested for taurine and carnitine deficiency and have been within the reference range. About half of them are alive and half died close to the time of diagnosis.

I also searched our records for this diet (knowing that recording of diet in the MR history has been spotty at best) and found another pair of unrelated housemate dogs eating California naturals kangaroo and lentil that were diagnosed with DCM 6 months apart.

We will continue to record the cases we see but since last june we have seen 7 dogs eating California Naturals diet (5 kangaroo and lentil) in addition to the pair of housemates from 2016 (so total of 9). We also have 4 dogs eating Acana (3/4 are dobermans though) and 1 each of 4Health and Iams - so maybe these are not necessarily related.

Have you had any other reports of such an association? If you have any other thoughts or testing suggestions, I would be all ears!

Thank you!  
Darcy

--

Darcy B. Adin, DVM, DACVIM (Cardiology)  
Clinical Assistant Professor of Cardiology  
North Carolina State University  
NC State Veterinary Hospital  
[1060 William Moore Drive](#)  
[Raleigh, NC 27607](#)  
[919-513-6032](tel:919-513-6032)

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Raleigh, NC 27607  
919-513-6032

---

**From:** Freeman, Lisa <Lisa.Freeman@tufts.edu>  
**To:** Jones, Jennifer L  
**Sent:** 2/24/2019 8:28:16 PM  
**Subject:** RE: [REDACTED] B6  
**Attachments:** rpt\_medical\_record\_preview small.pdf

Hi Jen  
Sorry for the delay – got very backed up with cases.

[REDACTED] B6 case number was

Your initial Pet Food Safety Report , Submitted by: Lisa Freeman, ID 238367, was successfully submitted on 7/9/2018 8:43:16 AM EST to the FDA, and it was issued an Individual Case Safety Report Number (ICSR) of 2051555.

I should have submitted all of his records before but am resending because you won't have had anything after July and it's not easy to separate  
Thanks  
Lisa

Lisa M. Freeman, DVM, PhD, DACVN  
Board Certified Veterinary Nutritionist™  
Professor  
Cummings School of Veterinary Medicine  
Friedman School of Nutrition Science and Policy  
Tufts Clinical and Translational Science Institute  
Tufts University  
[www.petfoodology.org](http://www.petfoodology.org)

**From:** Jones, Jennifer L <Jennifer.Jones@fda.hhs.gov>  
**Sent:** Monday, January 28, 2019 10:02 AM  
**To:** Freeman, Lisa <Lisa.Freeman@tufts.edu>  
**Subject:** RE: [REDACTED] B6

Thank you for the update, Lisa. I'm sorry to hear that he passed away. Can you please forward the records for his case?

Jennifer Jones, DVM  
Veterinary Medical Officer  
Tel: 240-402-5421



**From:** Freeman, Lisa <Lisa.Freeman@tufts.edu>  
**Sent:** Sunday, December 30, 2018 3:13 PM  
**To:** Jones, Jennifer L <Jennifer.Jones@fda.hhs.gov>  
**Subject:** [REDACTED] B6

Hi Jen  
Wanted to let you know that [REDACTED] B6 died unexpectedly [REDACTED] B6 Owner said he had been doing well and we were going to do a recheck in Feb.  
So sad ☹️  
Lisa

Lisa M. Freeman, DVM, PhD, DACVN

Board Certified Veterinary Nutritionist™  
Professor  
Cummings School of Veterinary Medicine  
Friedman School of Nutrition Science and Policy  
Tufts Clinical and Translational Science Institute  
Tufts University  
[www.petfoodology.org](http://www.petfoodology.org)

**All Medical Records**

Client:

**B6**

Address:

Home Phone: **B6**  
Work Phone: ( ) -  
Cell Phone: **B6**

Patient: **B6**

Breed: Boxer

DOB: **B6**

Species: Canine

Sex: Male  
(Neutered)

**B6**

**Referring Information**

---

**B6**

Client:

**B6**

Patient:

**Initial Complaint:**

---

**Initial Complaint:**

---



Client: B6  
Patient: B6

---

**Initial Complaint:**

---

**Initial Complaint:**

Cardiology recheck

SOAP Text Jun 25 2014 10:30AM - B6

---

**Initial Complaint:**

Cardiology 1-2 Week Recheck ONLY

---

**Initial Complaint:**

Recheck - B6

SOAP Text Dec 31 2014 11:24AM - B6

---

**Initial Complaint:**

Recheck - B6

---

**Initial Complaint:**

Emergency

SOAP Text Jul 1 2015 9:50AM - B6

---

7/1/2015 9:55:46 AM EXAM, GENERAL

History:

B6 NM Boxer, is presented to B6 for progressive swelling in the past 3 days on the left side of his neck reagrdind his pacemaker site.

The owners were away in a hotel over the weekend, brought B6 with them but left him in alone in the hotel room for no more than 4 hours at a time. The owner's haven't noticed any trauma, contact with other dogs or excessive scratching that could explain today's swelling. Monday afternoon, it was noted then B6 pacemaker was slightly loose and could move a little bit under the skin. The following day (Tuesday) a swelling was noted over the pacemaker and it slowly progressed. The owner has tried warm

Client: **B6**  
Patient: **B6**

packing and cold packed once, but no significant improvement was noted. Also, the edema progressed to **B6** ventral neck and is more prominent today.

Otherwise than for the swelling, **B6** has been doing fine back home. He is still active, bright and alert. No collapse or syncopal episodes noted, no v/d/c/s. However, he refused to eat this morning which is highly unusual for him.

Past Pertinent Medical History:

- 3rd degree AV block diagnosed in 2013. Pacemaker placed in October 2013.
- Cardio recheck and Pacemaker interrogation last week: no abnormalities noted.

**B6**

Current medications:

**B6**

Subjective (S)

- BAR friendly
- MM pink and moist, CRT <2sec
- Euhydrated, BCS 6/9

Objective (O)

**B6**

H/L: Grade I-II/VI systolic left heart base murmur, no arrhythmia noted. **B6** ECG showed good pacing function, HR 80-100. Normal bronchovesicular sounds bilaterally, no crackles or weezes. Eupneic.

**B6**

Assessment (A)

- A1: Firm swelling around pacemaker site- r/o hematoma vs. abscess vs. inflammation vs. edema
- A2: History of 3rd degree AV block, pacemaker placed 10/2013. Under controlled

Plan (P)

P1: Cardiology consult

Owner's communication:

The swelling over **B6** pacemaker is definitely abnormal and should not be there. Good news is that is pacemaker is still working based on the ER EKG. However, would like him to be seen by the Cardiology department. Gave an estimate of **B6** Owner agreed.

Addendum: **B6** was seen by the Cardiology department who applied a bandage on the swelling. So far, no diagnostic test has been done regarding the source of the swelling but the goal right now is to stop the progression of the swelling. Because **B6** temperature is in the higher high limit of normal and because he refused to eat this morning, we would like to perform blood test (CBC + Chem 21) and start him on an antibiotic course. The bandage needs to be changed every 3 days at home and **B6** should be recheck by the cardio department in two weeks. At that time, depending on the progression of the swelling, it will be decided if the antibiotic course needs to continue or not and further investigation can me make regarding the origin of the swelling. Plan: **B6**

**B6**

Client: **B6**  
Patient: **B6**

**B6**

SOAP completed by: **B6**  
SOAP reviewed by:

7/1/2015 10:57:11 AM

**B6**

7/1/2015 10:59:11 AM

Prescribed **B6** FHSA (1)

Instructions - Please apply 1/4 inch in both eyes three times a day for the next 5 to 7 days. - Expires: 6/30/2016 No Refills

**Initial Complaint:**

Recheck **B6**

**Initial Complaint:**

Recheck **B6**

**Initial Complaint:**

Recheck **B6** Only

SOAP Text Mar 14 2016 12:30PM **B6**

**Initial Complaint:**

Tech - Holter

**Initial Complaint:**

Recheck **B6** \*COMING IN AT 1PM\*

Client: [B6]  
Patient: [B6]

---

**Initial Complaint:**

Recheck: [B6]

---

SOAP Text Mar 17 2017 9:28AM [B6]

---

**Initial Complaint:**

Recheck: [B6]

---

**Initial Complaint:**

Recheck: [B6]

---

SOAP Text [B5] 11:35AM [B6]

---

**Initial Complaint:**

Emergency

SOAP Text [B6] 3:28PM [B6]

---

DOA. O elects cremation with return. Pacemaker removed by [B6]

ID

**Disposition/Recommendations**

---

Client:  
Patient:

**B6**

---

---

Client: **B6**  
 Patient:

**Cummings**  
**Veterinary Medical Center**  
 AT TUFTS UNIVERSITY

**Foster Hospital for Small Animals**

55 Willard Street  
 North Grafton, MA 01536  
 (508) 839-5395

Client: **B6**  
 Veterinarian:  
 Patient ID: **B6**  
 Visit ID:

Patient:	<b>B6</b>
Species:	Canine
Breed:	Boxer
Sex:	Male (Neutered)
Age:	<b>B6</b> Years Old

**Lab Results Report**

**Chemistry 21 (Cobas)**      **6/25/2014 12:22:00 PM**      **Accession ID: B6**

Test	Results	Reference Range	Units
GLUCOSE	<b>B6</b>	67 - 135	mg/dL
ALT		14 - 86	U/L
SODIUM		140 - 150	mEq/L
ALBUMIN		2.8 - 4	g/dL
I BILIRUBIN		0 - 0.2	mg/dL
A/G RATIO		0.7 - 1.6	
AST		9 - 54	U/L
POTASSIUM		3.7 - 5.4	mEq/L
NA/K		29 - 40	
GLOBULINS		2.3 - 4.2	g/dL
ALK PHOS		12 - 127	U/L
UREA		8 - 30	mg/dL
T. PROTEIN		5.5 - 7.8	g/dL
D.BILIRUBIN		0 - 0.1	mg/dL
CHLORIDE		106 - 116	mEq/L
T BILIRUBIN		0.1 - 0.3	mg/dL
PHOSPHORUS		2.6 - 7.2	mg/dL
CALCIUM2		9.4 - 11.3	mg/dL
CREATININE		0.6 - 2	mg/dL
OSMOLALITY (CALCULATED)		291 - 315	mmol/L
CHOLESTEROL	82 - 355	mg/dL	



7/213

**B6**

Printed Sunday, February 24, 2019

Client: **B6**  
 Patient: **B6**

**Chemistry 21 (Cobas)**      **6/25/2014 12:22:42 PM**      **Accession ID: B6**

Test	Results	Reference Range	Units
TS (FHSA)	<b>B6</b>	0 - 0	g/dl
PCV **		0 - 0	%
TS (FHSA)		0 - 0	g/dl

**Chemistry 21 (Cobas)**      **7/1/2015 10:37:00 AM**      **Accession ID: B6**

Test	Results	Reference Range	Units
HCT(ADVIA)	<b>B6</b>	39 - 55	%
RDW (ADVIA)		11.9 - 15.2	
PLT(ADVIA)		173 - 486	K/uL
MCHC(ADVIA)		31.9 - 34.3	g/dL
RBC(ADVIA)		5.8 - 8.5	M/uL
MPV (ADVIA)		8.29 - 13.2	fl
MCV(ADVIA)		64.5 - 77.5	fL
WBC (ADVIA)		4.4 - 15.1	K/uL
MCH(ADVIA)		21.3 - 25.9	pg
HGB(ADVIA)		13.3 - 20.5	g/dL

**Chemistry 21 (Cobas)**      **7/1/2015 10:37:00 AM**      **Accession ID: B6**

Test	Results	Reference Range	Units
SEGS (AB)ADVIA	<b>B6</b>	2.8 - 11.5	K/ul
POIKILOCYTOSIS		0 - 0	
LYMPHS%		7 - 47	%
MONOS (ABS)ADVIA		0.1 - 1.5	K/uL
SEGS%		43 - 86	%
LYMPHS (ABS)ADVIA		1 - 4.8	K/uL
MONOS%		1 - 15	%
WBC MORPHOLOGY		0 - 0	
No Morphologic Abnormalities			

**Chemistry 21 (Cobas)**      **7/1/2015 10:49:00 AM**      **Accession ID: B6**

Test	Results	Reference Range	Units
CALCIUM2	<b>B6</b>	9.4 - 11.3	mg/dL
ALBUMIN		2.8 - 4	g/dL
CHOLESTEROL		82 - 355	mg/dL
OSMOLALITY (CALCULATED)		291 - 315	mmol/L
CHLORIDE		106 - 116	mEq/L
ALK PHOS		12 - 127	U/L
POTASSIUM		3.7 - 5.4	mEq/L
NA/K		29 - 40	
T. PROTEIN		5.5 - 7.8	g/dL
A/G RATIO		0.7 - 1.6	



Client: **B6**  
 Patient: **B6**

ALT	<b>B6</b>	14 - 86	U/L
SODIUM		140 - 150	mEq/L
GLUCOSE		67 - 135	mg/dL
PHOSPHORUS		2.6 - 7.2	mg/dL
CREATININE		0.6 - 2	mg/dL
AST		9 - 54	U/L
GLOBULINS		2.3 - 4.2	g/dL
UREA		8 - 30	mg/dL
I BILIRUBIN		0 - 0.2	mg/dL
D.BILIRUBIN		0 - 0.1	mg/dL
T BILIRUBIN	0.1 - 0.3	mg/dL	

**Chemistry 21 (Cobas)**      **3/14/2016 12:32:11 PM**      **Accession ID: B6**

Test	Results	Reference Range	Units
WBC (ADVIA)	<b>B6</b>	4.4 - 15.1	K/uL
RBC(ADVIA)		5.8 - 8.5	M/uL
HGB(ADVIA)		13.3 - 20.5	g/dL
HCT(ADVIA)		39 - 55	%
MCV(ADVIA)		64.5 - 77.5	fL
MCH(ADVIA)		21.3 - 25.9	pg
MCHC(ADVIA)		31.9 - 34.3	g/dL
RDW (ADVIA)		11.9 - 15.2	
PLT(ADVIA)		173 - 486	K/uL
MPV (ADVIA)		8.29 - 13.2	fl
RETIC(ADVIA)		0.2 - 1.6	%
RETICS (ABS) ADVIA		14.7 - 113.7	K/uL

**Chemistry 21 (Cobas)**      **3/14/2016 12:32:25 PM**      **Accession ID: B6**

Test	Results	Reference Range	Units
GLUCOSE	<b>B6</b>	67 - 135	mg/dL
UREA		8 - 30	mg/dL
CREATININE		0.6 - 2	mg/dL
PHOSPHORUS		2.6 - 7.2	mg/dL
CALCIUM2		9.4 - 11.3	mg/dL
MAGNESIUM 2+		1.8 - 3	mEq/L
T. PROTEIN		5.5 - 7.8	g/dL
ALBUMIN		2.8 - 4	g/dL
GLOBULINS		2.3 - 4.2	g/dL
A/G RATIO		0.7 - 1.6	
SODIUM		140 - 150	mEq/L
CHLORIDE		106 - 116	mEq/L
POTASSIUM		3.7 - 5.4	mEq/L





Client: **B6**  
 Patient:

iCO2 (BICARB)	<b>B6</b>	14 - 28	mEq/L
AGAP		8 - 19	
NA/K		29 - 40	
T BILIRUBIN		0.1 - 0.3	mg/dL
ALK PHOS		12 - 127	U/L
GGT		0 - 10	U/L
ALT		14 - 86	U/L
AST		9 - 54	U/L
CK		22 - 422	U/L
CHOLESTEROL		82 - 355	mg/dL
TRIGLYCERIDES		30 - 338	mg/dl
AMYLASE		409 - 1250	U/L
OSMOLALITY (CALCULATED)		291 - 315	mmol/L

**Chemistry 21 (Cobas)**      **3/14/2016 12:32:09 PM**      **Accession ID: B6**

Test	Results	Reference Range	Units
SEGS%	<b>B6</b>	43 - 86	%
LYMPHS%		7 - 47	%
MONOS%		1 - 15	%
EOS%		0 - 16	%
SEGS (AB)ADVIA		2.8 - 11.5	K/uL
LYMPHS (ABS)ADVIA		1 - 4.8	K/uL
MONOS (ABS)ADVIA		0.1 - 1.5	K/uL
EOS (ABS)ADVIA		0 - 1.4	K/uL
WBC MORPHOLOGY		0 - 0	
Occasional reactive lymphocytes			
POIKILOCYTOSIS	1	0 - 0	

**Chemistry 21 (Cobas)**      **6/20/2018 11:37:12 AM**      **Accession ID: B6**

Test	Results	Reference Range	Units
WBC (ADVIA)	<b>B6</b>	4.4 - 15.1	K/uL
RBC(ADVIA)		5.8 - 8.5	M/uL
HGB(ADVIA)		13.3 - 20.5	g/dL
HCT(ADVIA)		39 - 55	%
MCV(ADVIA)		64.5 - 77.5	fL
MCH(ADVIA)		21.3 - 25.9	pg
MCHC(ADVIA)		31.9 - 34.3	g/dL
RDW (ADVIA)		11.9 - 15.2	
PLT(ADVIA)		173 - 486	K/uL
MPV (ADVIA)		8.29 - 13.2	fL
PLTCRT		0.129 - 0.403	%
RETIC(ADVIA)		0.2 - 1.6	%



10/213

**B6**

Printed Sunday, February 24, 2019

Client: **B6**  
 Patient: **B6**

RETICS (ABS) ADVIA **B6** 14.7 - 113.7 K/uL

**Chemistry 21 (Cobas)** 6/20/2018 11:37:28 AM Accession ID: **B6**

Test	Results	Reference Range	Units
GLUCOSE		67 - 135	mg/dL
UREA		8 - 30	mg/dL
CREATININE		0.6 - 2	mg/dL
PHOSPHORUS		2.6 - 7.2	mg/dL
CALCIUM2		9.4 - 11.3	mg/dL
MAGNESIUM 2+		1.8 - 3	mEq/L
T. PROTEIN		5.5 - 7.8	g/dL
ALBUMIN		2.8 - 4	g/dL
GLOBULINS		2.3 - 4.2	g/dL
A/G RATIO		0.7 - 1.6	
SODIUM		140 - 150	mEq/L
CHLORIDE		106 - 116	mEq/L
POTASSIUM		3.7 - 5.4	mEq/L
iCO2 (BICARB)		14 - 28	mEq/L
AGAP	<b>B6</b>	8 - 19	
NA/K		29 - 40	
T BILIRUBIN		0.1 - 0.3	mg/dL
D.BILIRUBIN		0 - 0.1	mg/dL
I BILIRUBIN		0 - 0.2	mg/dL
ALK PHOS		12 - 127	U/L
GGT		0 - 10	U/L
ALT		14 - 86	U/L
AST		9 - 54	U/L
CK		22 - 422	U/L
CHOLESTEROL		82 - 355	mg/dL
TRIGLYCERIDES		30 - 338	mg/dl
AMYLASE		409 - 1250	U/L
OSMOLALITY (CALCULATED)		291 - 315	mmol/L
COMMENTS (CHEMISTRY)	Slight lipemia	0 - 0	

**Chemistry 21 (Cobas)** 6/20/2018 11:37:11 AM Accession ID: **B6**

Test	Results	Reference Range	Units
SEGS%		43 - 86	%
LYMPHS%		7 - 47	%
MONOS%	<b>B6</b>	1 - 15	%
EOS%		0 - 16	%
NRBC		0 - 1	/100 WBC
SEGS (AB)ADVIA		2.8 - 11.5	K/uL

11/213 **B6**



Printed Sunday, February 24, 2019

Client:  
Patient:

**B6**

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LYMPHS (ABS)ADVIA		1 - 4.8	K/uL
MONOS (ABS)ADVIA		0.1 - 1.5	K/uL
EOS (ABS)ADVIA		0 - 1.4	K/uL
WBC MORPHOLOGY		0 - 0	
Occasional reactive lymphocytes			
CRENATION		0 - 0	
POIKILOCYTOSIS	Occasional	0 - 0	

---

**B6**



stringsoft

12/213

**B6**

Printed Sunday, February 24, 2019

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**From:** Freeman, Lisa <Lisa.Freeman@tufts.edu>  
**To:** Jones, Jennifer L  
**Sent:** 9/26/2018 9:27:10 PM  
**Subject:** DCM updates  
**Attachments:** [REDACTED] dcm and chf 9-24-18.pdf; diet history.pdf

Hi Jen

1. [REDACTED] This owner told me that he reported the case to you (4 yr old CM Miniature Schnauzer diagnosed in April). I'm attaching a copy of my nutrition report and the diet history
2. [REDACTED] (reported to FDA on 8/22/18). Owner just informed me that [REDACTED] was euthanized [REDACTED]. She said he had worsening heart failure, arrhythmias, and GI discomfort. She did get an amino acid profile from UC Davis within the last month and reported:

Whole blood taurine [REDACTED] (300-600)

Plasma taurine [REDACTED] (ref 77+/-2)

I believe all other amino acids in the plasma profile were within ref ranges, with the exception of L-cysteine, which was low: [REDACTED] (ref range 46+/-1)

Her primary care vet, Dr. [REDACTED] would have the full results if you'd like those. This was after he'd been on taurine supplementation for several months.

Best,  
Lisa

Lisa M. Freeman, DVM, PhD, DACVN  
Board Certified Veterinary Nutritionist™  
Professor  
Cummings School of Veterinary Medicine  
Friedman School of Nutrition Science and Policy  
Tufts Clinical and Translational Science Institute  
Tufts University  
[www.petfoodology.org](http://www.petfoodology.org)

---

**From:** Freeman, Lisa <Lisa.Freeman@tufts.edu>  
**To:** Jones, Jennifer L  
**Sent:** 2/24/2019 10:10:51 PM  
**Subject:** update - [B6]

Hi Jen

Plasma taurine was [B6] WB = [B6]  
Troponin = [B6]

Best,  
Lisa

Lisa M. Freeman, DVM, PhD, DACVN  
Board Certified Veterinary Nutritionist™  
Professor  
Cummings School of Veterinary Medicine  
Friedman School of Nutrition Science and Policy  
Tufts Clinical and Translational Science Institute  
Tufts University  
[www.petfoodology.org](http://www.petfoodology.org)



STERN CARDIAC GENETICS LABORATORY  
 JOSHUA A. STERN, DVM, PHD, DACVIM (CARDIOLOGY)  
 sterngenetics@ucdavis.edu; August 9, 2018

## FREQUENTLY REQUESTED INFORMATION REGARDING TAURINE & DILATED CARDIOMYOPATHY IN GOLDEN RETRIEVERS

**Taurine reference ranges for Golden Retrievers:** The Stern Lab suggests that the following clinical reference ranges be used for Golden Retrievers and be considered for other known taurine-sensitive breeds such as Newfoundlands or American Cocker Spaniels. This is primarily based on 3 observations :

1. Golden Retrievers with marginal taurine levels (defined below) have been diagnosed with dilated cardiomyopathy and have documented disease reversal after taurine supplementation and diet change.
2. Previously published work documents taurine sensitivity in Golden Retrievers.
3. The most recently published reference on normal blood taurine values shows higher levels than previously reported.

- Normal whole blood taurine: >250nmol/mL
- Normal plasma taurine: >70nmol/mL
- Marginal whole blood taurine: 200-250nmol/mL
- Marginal plasma taurine: 60-70nmol/mL
- Low whole Blood taurine: <200nmol/mL
- Low plasma taurine: <60nmol/mL

### References:

- Kramer GA, Kittleson MD, Fox PR, Lewis J, Pion PD. Plasma taurine concentrations with normal dogs and in dogs with heart disease. *J Vet Intern Med* 1995;9:253-258.
- Belanger MC, Ouellet M, Queney G, Moreau M. Taurine-deficient dilated cardiomyopathy in a family of golden retrievers. *J Am Anim Hosp Assoc* 2005;41:284-291.
- Kittleson MD, Keene B, Pion PD, Loyer CG, MUST Study Investigators. Results of the multicenter spaniel trial (MUST): taurine- and carnitine-responsive dilated cardiomyopathy in American Cocker Spaniels with decreased plasma taurine concentration. *J Vet Intern Med* 1197;11:204-211.
- Backus RC, Choen G, Pion PD, Good KL, Rogers QR, Fascetti AJ. Taurine deficiency in Newfoundlands fed commercially available complete and balanced diets. *J Am Vet Med Assoc* 2003;223:1130-1136.
- Fascetti AJ, Reed JR, Rogers QR, Backus RC. Taurine deficiency in dogs with dilated cardiomyopathy: 12 cases (1997-2001). *J Am Vet Med Assoc* 2003;223:1137-1141.
- Freeman LM, Michel KE, Brown DJ, Kaplan PM, Stamoulis ME, Rosenthal SL, Keene BW, Rush JE. Idiopathic dilated cardiomyopathy in Dalmatians: nine cases (1990-1995). *J Am Vet Med Assoc* 1996;209:1592-1596.
- Delaney SJ, Kass PH, Rogers QR, Fascetti AJ. Plasma and whole blood taurine in normal dogs of varying size fed commercially prepared food. *J Anim Physiol a Anim Nutr* 2003;87:236-244.

### Plasma vs. whole blood taurine testing:

If at all possible, we recommend that paired (plasma and whole blood) taurine samples be submitted for analysis. A low value on either or both tests is clinically relevant. If your dog is diagnosed with DCM, submitting paired taurine samples (plasma and whole blood) is imperative. We recommend that the UC Davis Amino Acid Laboratory be used for taurine testing, as this is where the literature utilized for our reference ranges was generated. <https://www.vetmed.ucdavis.edu/labs/amino-acid-laboratory>. If a single test is submitted the Stern Lab recommends that whole blood be submitted preferentially. This is due to the false elevation of taurine levels that is possible in plasma samples due to sample handling issues. This is an area of some debate between clinicians and conflicting information on preference for plasma vs. whole blood exists. This underscores the value of paired sampling.

## **Clinical Recommendations for Golden Retrievers based on taurine levels:**

### If taurine levels test <200nmol/mL in whole blood or <60nmol/mL in plasma

- An echocardiogram by a board-certified veterinary cardiologist is indicated
- After echocardiogram has been completed, a diet change is recommended.
  - If DCM is diagnosed, this patient may need a variety of cardiac medications that would be prescribed by the attending cardiologist.
  - If DCM is diagnosed, prescribed supplementation with oral taurine and l-carnitine is recommended.
  - Reevaluation of taurine levels is warranted after three months of diet change and supplementation.
  - Cardiology reevaluation schedules will be recommended by the attending clinician pending echocardiographic findings.
  - Many Golden Retrievers with taurine-deficient DCM in our study showed slow and steady improvement over a period of 6-12 months.

### If taurine levels test 200 – 250nmol/mL in whole blood or 60-70nmol/mL in plasma

- An echocardiogram by a board-certified cardiologist is recommended.
- After echocardiogram has been completed, a diet change is recommended.
- We recognize that many dogs in this category may have normal echocardiograms and thus the value of screening should be carefully considered. If the dog is eating a diet that falls within the FDA warning or shares features with the diets identified in our study (see diets of concern section below), we encourage echocardiographic screening with greater enthusiasm.
- If an echocardiogram is not performed, a diet change is still recommended and a taurine level reevaluation after three months on the new diet should be considered.
- If DCM is diagnosed, this patient may need a variety of cardiac medications that would be prescribed by the attending cardiologist.
  - If DCM is diagnosed, prescribed supplementation with oral taurine and l-carnitine is recommended.
  - Reevaluation of taurine levels is warranted after three months of diet change and supplementation.
  - Cardiology reevaluation schedules will be recommended by the attending clinician pending echocardiographic findings.
  - Many Golden Retrievers with taurine-deficient DCM in our study showed slow and steady improvement over a period of 6-12 months.

### If taurine levels test >250nmol/mL in whole blood or >70nmol/mL in plasma

- Diet change is recommended if you are feeding a diet that falls within the FDA warning or shares features with the diets identified in our study (see diets of concern section below)
- If your pet shows any signs of cardiac disease (trouble breathing, exercise intolerance, fainting/collapse, coughing) we recommend your veterinarian evaluate your pet.

## **Diets of Concern & Choosing a diet**

The FDA alert called attention to several dietary ingredients that should be considered when evaluating whether your pet is at risk (for example legumes like peas and lentils, white or sweet potatoes). These findings were largely recapitulated in our current study of Golden Retrievers with low taurine levels and DCM. Our lab considers these ingredients to be of greatest concern when present within the first 5 listed ingredients on the dog food bag. Additionally, we noted a high percent of diets in our study were using protein sources other than chicken or beef and labeled as grain-free.

Points to consider when making a diet change:

- Choose a diet that does not contain the concerning components listed above
- Choose a diet that meets the WSAVA Global Nutrition Assessment Guidelines published as consensus by veterinary nutritionists from around the world:
  - <https://www.wsava.org/WSAVA/media/Arpita-and-Emma-editorial/Selecting-the-Best-Food-for-your-Pet.pdf>
- FDA alert found here:
  - <https://www.fda.gov/AnimalVeterinary/NewsEvents/CVMUpdates/ucm613305.htm>

## **Choosing a taurine or l-carnitine supplement:**

Selecting supplements should be performed based upon those that match their stated contents and are readily available for absorption. Luckily a previous publication tested multiple taurine and l-carnitine supplements. Based upon this publication our laboratory recommends the following supplements as those meeting our quality criteria. (Bragg et al. 2009 J Am Vet Med Assoc; 234(2))

### Tested taurine supplements that test within 5% of stated contents and if applicable disintegrated within 30 minutes

- Mega taurine caps by Twinlab (1000 capsule)
- Taurine by Swanson Health Products (500mg capsule)
- Taurine by NOW foods (500mg capsule)
- Taurine 500 by GNC (500mg tablet)

### Tested L-carnitine supplements that test within 5% of stated contents and if applicable disintegrated within 30 minutes

- L-carnitine 500 by Jarrow Formulas (500mg capsule)
- L-carnitine caps by Country Life (500mg capsule)
- Maxi L-carnitine by Solgar Vitamin and Herb (500mg tablet)
- L-carnitine by Puritan's Pride (500mg tablet)

The Stern lab does not recommend the empirical supplementation of taurine or l-carnitine to dogs without evidence of DCM and/or significant deficiency. If DCM is diagnosed we typically recommend dogs over 50lbs receive 1000mg of taurine every 12hrs and dogs under 50lbs receive 500mg of taurine every 12hours. We recommend L-carnitine at a dose of ~50mg/kg orally with food every 8hrs. Your veterinary cardiologist or family veterinarian should be consulted for prescribing the best dose for your dog.

## **Reporting to the FDA:**

Understanding the basis of this condition requires a great deal of research and investigation. Clients with affected dogs can contribute their data to help propel this research forward. You can report cases of taurine deficiency, dilated cardiomyopathy, sudden cardiac death, or any combination of these events to the FDA by following the information found here:

<https://www.fda.gov/animalveterinary/safetyhealth/reportaproblem/ucm182403.htm>

Additional questions or comments:

[sterngenetics@ucdavis.edu](mailto:sterngenetics@ucdavis.edu)

This document last updated: Aug. 20, 2018

Page 3 of 3



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**From:** Freeman, Lisa <Lisa.Freeman@tufts.edu>  
**To:** Jones, Jennifer L  
**Sent:** 2/24/2019 9:25:14 PM  
**Subject:** B6 files  
**Attachments:** rpt\_medical\_record\_preview smaller.pdf

Hi Jen  
This was too large to upload  
Thanks  
Lisa

Lisa M. Freeman, DVM, PhD, DACVN  
Board Certified Veterinary Nutritionist™  
Professor  
Cummings School of Veterinary Medicine  
Friedman School of Nutrition Science and Policy  
Tufts Clinical and Translational Science Institute  
Tufts University  
[www.petfoodology.org](http://www.petfoodology.org)

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**From:** Rotstein, David </O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=0A3B17EBFCF14A6CB8E94F322906BADD-DROTSTEI>  
**To:** Carey, Lauren; Ceric, Olgica; Glover, Mark; Jones, Jennifer L; Nemser, Sarah; Palmer, Lee Anne; Peloquin, Sarah; Queen, Jackie L; Rotstein, David  
**Sent:** 3/27/2019 11:07:28 AM  
**Subject:** DCM 3/27/2019 0630  
**Attachments:** 4Health whitefish and potato dry: Lisa Freeman - EON-376448; 4Health whitefish and potato dry: Lisa Freeman - EON-383414; Acana Singles Duck and Pear Formula Dry dog food: [B6] [B6] - EON-383424; Consumer Complaint Record Created in EON IMS (EON-383456); Rachel Ray's Chicken and Veggies: [B6] - EON-383378; Taste of the Wild High Prairie Puppy: [B6] - EON-383461; Taste of the Wild Venison & Legume diet: [B6] EON-383371

Note that 383371 is the PFR Lauren created for the reported that was submitted as a RFR (EON0383367)

4health (383414) is related to PFR 376448 (attached)

David Rotstein, DVM, MPVM, Dipl. ACVP  
CVM Vet-LIRN Liaison  
CVM OSC/DC/CERT  
7519 Standish Place  
240-506-6763 (BB)



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**Report Details - EON-383424**

ICSR:	2064656
Type Of Submission:	Initial
Report Version:	FPSR.FDA.PETF.V.V1
Type Of Report:	Adverse Event (a symptom, reaction or disease associated with the product)
Reporting Type:	Voluntary
Report Submission Date:	2019-03-26 15:39:34 EDT
Reporter is the Animal Owner:	Yes

<b>Reported Problem:</b>	<b>Problem Description:</b>	Both my dogs ( B6 8 years Labrador, and B6 15 year Labrador) lived on grain free food and treats for years. Lots of peas and legumes. Brands like Acana Lamb and Pear, Wet Noses grain free peas and carrots treats and later on NOW grain free large breed adult food. I thought B6 was doing great. She looked so healthy, but she developed enlarged heart and died at only 8 years old. My sweet girl is now gone. About 6 months ago?, I learned of the FDA warning and added in grain inclusive food along with her grain free as well as cooked meat, thinking this would help. So she was still on grain free 2/3rds with 1/3rd grain inclusive and cooked meat like chicken/beef. But at the emergency room, her heart enzymes were at B6 (should be under 900) and her diagnosis was Dilated Cardiomyopathy. B6 dog (Labrador), age 5, was then tested as he ate the same food and shows high enzymes test for heart issues. B6 so I know this was not a genetic defect for my other dog. No Vet detected any murmur when listening to her heart, and she loved to run. Those were all of my reasoning I did not fully believe the warning. This disease can stay hidden. Her heart compensated right up until the weekend of her death, when she did have tachycardia the weekend of her death. So terrible that this food is still on the market. I have now heard that Labrador and Golden Retrievers may be more at risk with this food. B6 vet was B6 https://www.B6 Her Emergency Vet was http://www.B6
	<b>Date Problem Started:</b>	03/16/2019
	<b>Concurrent Medical Problem:</b>	No
	<b>Outcome to Date:</b>	Died Naturally
	<b>Date of Death:</b>	B6

<b>Product Information:</b>	<b>Product Name:</b>	Now Fresh Grain Free Large Breed Adult Recipe Dry Dog food
	<b>Product Type:</b>	Pet Food
	<b>Lot Number:</b>	
	<b>Package Type:</b>	BAG
	<b>Package Size:</b>	25 Pound
	<b>Possess Unopened Product:</b>	No
	<b>Possess Opened Product:</b>	No
	<b>Storage Conditions:</b>	In Bag in cool room
	<b>Product Use Information:</b>	<b>Description:</b> This food was given to both of my dogs for about the last year. I switched from Acana Duck and Pear to a larger size grain free kibble for my large dog. Grain free kibble was fed to my dogs for many years.
		<b>Perceived Relatedness to Adverse Event:</b> Probably related
<b>Manufacturer /Distributor Information:</b>	<b>Name:</b>	B4
	<b>Type(s):</b>	
	<b>Address:</b>	

			<b>B4</b>
	<b>Contact:</b>	<b>Phone:</b>	<b>B4</b>
		<b>Web Address:</b>	
	<b>Possess One or More Labels from This Product:</b>	Yes	
<b>Purchase Location Information:</b>			
<b>Product Name:</b>	Wet Noses Grain Free pea and carrot dog treats Wet Noses Grain Free berry Blast dog treats		
<b>Product Type:</b>	Pet Food		
<b>Lot Number:</b>			
<b>Package Type:</b>	BOX		
<b>Package Size:</b>	14 Ounce		
<b>Possess Unopened Product:</b>	No		
<b>Possess Opened Product:</b>	No		
<b>Storage Conditions:</b>	in a cookie type jar		
<b>Product Use Information:</b>	<b>Description:</b>	This is grain free dog treats given to both of my dogs for many years. It is not just one box. It reflects that they were given grain free food and grain free treats for many years which correlates to the FDA warning of Grain free food for dogs	
	<b>Perceived Relatedness to Adverse Event:</b>	Definitely related	
<b>Manufacturer /Distributor Information:</b>			
<b>Purchase Location Information:</b>			
<b>Product Name:</b>	Acana Singles Duck and Pear Formula Dry dog food		
<b>Product Type:</b>	Pet Food		
<b>Lot Number:</b>			
<b>Package Type:</b>	BAG		
<b>Package Size:</b>	25 Pound		
<b>Possess Unopened Product:</b>	No		
<b>Possess Opened Product:</b>	No		
<b>Storage Conditions:</b>	in bag stored in cold area		
<b>Product Use Information:</b>	<b>Description:</b>	Grain Free Food for Dogs. This is Grain free dog food type that was fed for many years to both of my dogs. So I am unable to give detailed dates. It is not a one bag of dog food event. sorry.	
	<b>Time Interval between Product Use and Adverse Event:</b>	5 Years	
	<b>Product Use Stopped After the Onset of the Adverse Event:</b>	Yes	
	<b>Adverse Event Abate After Product Stop:</b>	No	

		<b>Product Use Started Again:</b>	No	
		<b>Perceived Relatedness to Adverse Event:</b>	Definitely related	
	<b>Manufacturer /Distributor Information:</b>	<b>Name:</b>	Champion Pet Foods	
		<b>Type(s):</b>	Manufacturer	
		<b>Address:</b>	11403-186 Street N EDMONTON, AB T5S 2W6 Canada Canada	
		<b>Contact:</b>		
		<b>Possess One or More Labels from This Product:</b>	Yes	
	<b>Purchase Location Information:</b>			
<b>Animal Information:</b>	<b>Name:</b>	<b>B6</b>		
	<b>Type Of Species:</b>	Dog		
	<b>Type Of Breed:</b>	Retriever - Labrador		
	<b>Gender:</b>	Female		
	<b>Reproductive Status:</b>	Neutered		
	<b>Weight:</b>	71 Pound		
	<b>Age:</b>	8 Years		
	<b>Assessment of Prior Health:</b>	Good		
	<b>Number of Animals Given the Product:</b>	2		
	<b>Number of Animals Reacted:</b>	2		
	<b>Owner Information:</b>			
	<b>Healthcare Professional Information:</b>	<b>Practice Name:</b>	<b>B6</b>	
		<b>Contact:</b>	<b>Name:</b>	<b>B6</b>
			<b>Phone:</b>	
			<b>Email:</b>	
		<b>Address:</b>	<b>B6</b>	
			United States	
		<b>Type of Veterinarian:</b>	Primary/regular veterinarian	
		<b>Date First Seen:</b>	01/09/2019	
		<b>Permission to Release Records to FDA:</b>	Yes	
<b>Practice Name:</b>		<b>B6</b>		
	<b>Contact:</b>	<b>Name:</b>	<b>B6</b>	
		<b>Phone:</b>		
<b>Email:</b>				
<b>Address:</b>	<b>B6</b>			
		United States		

Date First Seen: 03/16/2019

Permission to Release Records to FDA: Yes

Sender Information:

Name:

Address:

**B6**

United States

Contact:

Phone:

**B6**

Email:

Reporter Wants to Remain Anonymous: No

Permission To Contact Sender: Yes

Preferred Method Of Contact: Email

Reported to Other Parties: Other Store/Place of Purchase

Additional Documents:

**Report Details - EON-383378**

ICSR: 2064635  
 Type Of Submission: Initial  
 Report Version: FPSR.FDA.PETF.V.V1  
 Type Of Report: Adverse Event (a symptom, reaction or disease associated with the product)  
 Reporting Type: Voluntary  
 Report Submission Date: 2019-03-26 10:33:23 EDT

**Reported Problem:**  
**Problem Description:** On 11/14/2018, presented to pcDVM for on/off limping with unknown trauma and cardiomegaly was identified on the subsequent radiographs, as well as muffled heart sounds on auscultation; a cardiac consultation was recommended. At consult, a Grade V/VI heart murmur was ausculted with significantly muffled heart sounds on the left. She was diagnosed with severe tricuspid valve dysplasia, severe tricuspid insufficiency, severe right heart volume load, severe enlargement of the caudal vena cava and hepatic veins, and dilated, thin-walled, hypocontractile left ventricle consistent with left-sided DCM. An ECG showed sinus rhythm conducted with first-degree AV block and a Holter monitor was performed (normal). She was started on [redacted] B6 (following a Taurine level being drawn).  
**Date Problem Started:** 11/14/2018  
**Date of Recovery:** 03/13/2019  
**Concurrent Medical Problem:** No  
**Outcome to Date:** Better/Improved/Recovering

**Product Information:**  
**Product Name:** Rachel Ray's Chicken and Veggies  
**Product Type:** Pet Food  
**Lot Number:**  
**Package Type:** BAG  
**Purchase Date:** 11/20/2018  
**Product Use Information:**  
**Last Exposure Date:** 11/20/2018  
**Product Use Stopped After the Onset of the Adverse Event:** Yes  
**Adverse Event Abate After Product Stop:** Yes  
**Product Use Started Again:** No  
**Perceived Relatedness to Adverse Event:** Probably related  
**Manufacturer /Distributor Information:**  
**Purchase Location Information:**

**Animal Information:**  
**Name:** [redacted] B6  
**Type Of Species:** Dog  
**Type Of Breed:** Retriever - Labrador  
**Gender:** Female  
**Reproductive Status:** Neutered  
**Weight:** 25.2 Kilogram  
**Age:** 2 Years  
**Assessment of Prior Health:** Good

	Number of Animals Given the Product:	1														
	Number of Animals Reacted:	1														
	Owner Information:	<table border="1"> <tr> <td>Owner Information provided:</td> <td>Yes</td> </tr> <tr> <td>Contact:</td> <td> <table border="1"> <tr> <td>Name:</td> <td>B6</td> </tr> <tr> <td>Phone:</td> <td></td> </tr> <tr> <td>Email:</td> <td></td> </tr> </table> </td> </tr> <tr> <td>Address:</td> <td> <table border="1"> <tr> <td>B6</td> </tr> <tr> <td>United States</td> </tr> </table> </td> </tr> </table>	Owner Information provided:	Yes	Contact:	<table border="1"> <tr> <td>Name:</td> <td>B6</td> </tr> <tr> <td>Phone:</td> <td></td> </tr> <tr> <td>Email:</td> <td></td> </tr> </table>	Name:	B6	Phone:		Email:		Address:	<table border="1"> <tr> <td>B6</td> </tr> <tr> <td>United States</td> </tr> </table>	B6	United States
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	Healthcare Professional Information:	<table border="1"> <tr> <td>Practice Name:</td> <td>B6</td> </tr> <tr> <td>Contact:</td> <td> <table border="1"> <tr> <td>Name:</td> <td>B6</td> </tr> <tr> <td>Phone:</td> <td></td> </tr> <tr> <td>Email:</td> <td></td> </tr> </table> </td> </tr> <tr> <td>Address:</td> <td> <table border="1"> <tr> <td>B6</td> </tr> <tr> <td>United States</td> </tr> </table> </td> </tr> </table>	Practice Name:	B6	Contact:	<table border="1"> <tr> <td>Name:</td> <td>B6</td> </tr> <tr> <td>Phone:</td> <td></td> </tr> <tr> <td>Email:</td> <td></td> </tr> </table>	Name:	B6	Phone:		Email:		Address:	<table border="1"> <tr> <td>B6</td> </tr> <tr> <td>United States</td> </tr> </table>	B6	United States
Practice Name:	B6															
Contact:	<table border="1"> <tr> <td>Name:</td> <td>B6</td> </tr> <tr> <td>Phone:</td> <td></td> </tr> <tr> <td>Email:</td> <td></td> </tr> </table>	Name:	B6	Phone:		Email:										
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	Address:	<table border="1"> <tr> <td>B6</td> </tr> <tr> <td>United States</td> </tr> </table>	B6	United States												
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Phone:																
Email:	B6															
	Permission To Contact Sender:	Yes														
	Preferred Method Of Contact:	Email														
	Reported to Other Parties:	None														
Additional Documents:	Attachment:	B6 Medical Records.pdf														
	Description:	SOAPs, Client Communication, Labwork, Echo Reports, Holter monitor Report														
	Type:	Medical Records														



Report Details - EON-383461		
ICSR:	2064711	
Type Of Submission:	Initial	
Report Version:	FPSR.FDA.PETF.V.V1	
Type Of Report:	Adverse Event (a symptom, reaction or disease associated with the product)	
Reporting Type:	Voluntary	
Report Submission Date:	2019-03-27 01:41:45 EDT	
Reporter is the Animal Owner:	Yes	
Reported Problem:	<b>Problem Description:</b> Echocardiogram done by cardiologist 3/18/19 because of an enlarged heart found on x-rays done at our regular vet's office. Diagnosis by the cardiologist "early occult dilated cardiomyopathy, likely diet-related". His "contractility is just below normal range and his left ventricle measures mildly dilated. His left atrium is normal in size, therefore there is no concern for imminent heart failure. However, we recommend supplementing Taurine, switching to a non grain free diet and medicating with Vetmedin for the next 3 months. In 3 months time, some improvement in [B6] cardiac dimensions should be noted; it may take up to 6 months for full return to normal cardiac structure and function if [B6] shows improvement in 3 months, his overall prognosis will be good."	
	<b>Date Problem Started:</b> 03/11/2019	
	<b>Concurrent Medical Problem:</b> Yes	
	<b>Pre Existing Conditions:</b> [B6] which it totally unrelated to his DCM. He was neutered 1/29/19 and started coughing and was thought to have Kennel Cough - ongoing and getting worse so treated with antibiotics/cough tab. Did not get better, so at next appointment x-rays were done which diagnosed him with pneumonia possibly from aspirating during recovery from his neuter surgery. He was found to have an extremely enlarged heart on the x-rays, so we were referred to a cardiologist for an Echocardiogram, done on 3/18/19. If he hadn't got pneumonia, we may not have found the DCM so quickly. SECOND DOG not tested but considering it as he has eaten this same food for 2.5 years.	
	<b>Outcome to Date:</b> Stable	
Product Information:	<b>Product Name:</b> Taste of the Wild High Prairie Puppy	
	<b>Product Type:</b> Pet Food	
	<b>Lot Number:</b> Lot Number: THP1207 032S B0B 09:48 <b>Expiration Date:</b> 12/30/2019	
	<b>UPC:</b> 7419861114	
	<b>Package Type:</b> BAG	
	<b>Package Size:</b> 30 Pound	
	<b>Purchase Date:</b> 01/17/2019	
	<b>Number Purchased:</b> 1	
	<b>Possess Unopened Product:</b> No	
	<b>Possess Opened Product:</b> Yes	
	<b>Storage Conditions:</b> Before opening - stored in basement until needed to be opened. After opening - stored in air-tight dog food storage container.	
	<b>Product Use Information:</b>	<b>Description:</b> Fed dry as a meal 3-4 times a day.
		<b>First Exposure Date:</b> 01/23/2019
<b>Last Exposure Date:</b> 03/11/2019		
<b>Time Interval between Product Use and Adverse Event:</b> 7 Months		
<b>Product Use:</b> Yes		

Stopped After the Onset of the Adverse Event:	
Adverse Event Abate After Product Stop:	Unknown
Product Use Started Again:	No
Perceived Relatedness to Adverse Event:	Definitely related
Other Foods or Products Given to the Animal During This Time Period:	No

Manufacturer /Distributor Information:

Purchase Location Information:

Name:	Chewy.com
Address:	United States

**Animal Information:**

Name:	<b>B6</b>
Type Of Species:	Dog
Type Of Breed:	Beagle
Gender:	Male
Reproductive Status:	Neutered
Weight:	14 Pound
Age:	9 Months
Assessment of Prior Health:	Good
Number of Animals Given the Product:	2
Number of Animals Reacted:	1
Owner Information:	

Healthcare Professional Information:

Practice Name:	<b>B6</b>								
Contact:	<table border="1"> <tr> <td>Name:</td> <td><b>B6</b></td> </tr> <tr> <td>Phone:</td> <td></td> </tr> <tr> <td>Other Phone:</td> <td></td> </tr> <tr> <td>Email:</td> <td></td> </tr> </table>	Name:	<b>B6</b>	Phone:		Other Phone:		Email:	
Name:	<b>B6</b>								
Phone:									
Other Phone:									
Email:									
Address:	<table border="1"> <tr> <td><b>B6</b></td> </tr> <tr> <td>United States</td> </tr> </table>	<b>B6</b>	United States						
<b>B6</b>									
United States									
Type of Veterinarian:	Primary/regular veterinarian								
Date First Seen:	03/04/2019								
Permission to Release Records to FDA:	Yes								
Practice Name:	<b>B6</b>								
Contact:	<table border="1"> <tr> <td>Name:</td> <td><b>B6</b></td> </tr> <tr> <td>Phone:</td> <td></td> </tr> <tr> <td>Other Phone:</td> <td></td> </tr> <tr> <td>Email:</td> <td></td> </tr> </table>	Name:	<b>B6</b>	Phone:		Other Phone:		Email:	
Name:	<b>B6</b>								
Phone:									
Other Phone:									
Email:									

		<b>Address:</b>	<b>B6</b> United States	
		<b>Type of Veterinarian:</b>	Referred veterinarian	
		<b>Date First Seen:</b>	03/18/2019	
		<b>Permission to Release Records to FDA:</b>	Yes	
<b>Sender Information:</b>	<b>Name:</b>			
	<b>Address:</b>	<b>B6</b> United States		
	<b>Contact:</b>	<b>Phone:</b>		
		<b>Other Phone:</b>		<b>B6</b>
		<b>Email:</b>		
	<b>Permission To Contact Sender:</b>	Yes		
<b>Preferred Method Of Contact:</b>	Email			
<b>Reported to Other Parties:</b>	None			
<b>Additional Documents:</b>	<b>Attachment:</b>	<b>B6</b>	Echocardiogram diagnosis 3-18-19.jpg	
	<b>Description:</b>	Diagnosis and Assessment by the Cardiologist after performing an Echocardiogram o		
	<b>Type:</b>	Analysis	<b>B6</b>	

**Report Details - EON-383371**

**ICSR:** 2064630  
**Type Of Submission:** Initial  
**Report Version:** FPSR.FDA.PETF.V.V1  
**Type Of Report:** Adverse Event (a symptom, reaction or disease associated with the product)  
**Reporting Type:** Voluntary  
**Report Submission Date:** 2019-03-26 09:52:47 EDT

**Reported Problem:**  
**Problem Description:** Originally submitted as RFR EON-383367. CVM resubmitting as PFR. The patient has been eating a grain free diet, specifically the Taste of the Wild Venison & Legume diet for years. He presented on 3/6/19 and the owner reported a mild cough but he felt it was resolving and declined a work up at that time. He presented again on 3/12/19 since the cough had not resolved and we started a work up of the patient that included thoracic radiographs. The patient was/is in congestive heart failure with an enlarged heart. The pet's breed is not a common breed for DCM and with the dietary history of a high legume grain free diet I feel that this is dietary induced.  
**Date Problem Started:** 03/06/2019  
**Concurrent Medical Problem:** Unknown  
**Outcome to Date:** Unknown

**Product Information:**  
**Product Name:** Taste of the Wild Venison & Legume diet  
**Product Type:** Pet Food  
**Lot Number:**  
**Product Use Information:**  
**Manufacturer /Distributor Information:**  
**Purchase Location Information:**

**Animal Information:**  
**Name:**  
**Type Of Species:** Dog  
**Type Of Breed:** Unknown  
**Gender:** Male  
**Reproductive Status:** Unknown  
**Assessment of Prior Health:** Unknown  
**Number of Animals Reacted:** 1  
**Owner Information:**  
**Owner Information provided:** Yes  
**Contact:**  
**Name:** B6  
**Phone:**  
**Email:**  
**Address:** Unknown  
Unknown  
B6  
Unknown  
United States  
**Healthcare Professional Information:**

**Sender Information:**  
**Name:**  
**Address:** B6

**B6**

United States

Contact:

Phone:

**B6**

Email:

Reporter Wants to  
Remain Anonymous:

No

Permission To Contact  
Sender:

Yes

Preferred Method Of  
Contact:

Email

Additional Documents:

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**From:** Burkholder, William </O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=8D5FDA60A4814BD290D84BD28A2A9292-BBURKHOL>  
**To:** Carey, Lauren; Stamper, Carmela; Rotstein, David; Queen, Jackie L; Jones, Jennifer L; Atkinson, Krisztina Z; Palmer, Lee Anne  
**CC:** Norris, Anne; Glover, Mark; Conway, Charlotte  
**Sent:** 6/7/2018 2:49:06 PM  
**Subject:** Grain-Free Diet Effects

This is from Charlotte Conway who has contacts within the pet food formulation business:

"In follow-up to Dr. Freeman's article, I got a call from [REDACTED] this morning, so passing along his thoughts: too much [REDACTED]  
[REDACTED] B6  
[REDACTED] B5  
[REDACTED] B5 Passing along because I said I would."

Some things to think about.

Bill Burkholder

**From:** Jones, Jennifer L </o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=0f6ca12eaa9348959a4cbb1e829af244-Jennifer.Jo>  
**To:** Norris, Anne; Rotstein, David; Palmer, Lee Anne; Carey, Lauren; Queen, Jackie L  
**CC:** DeLancey, Siobhan; 'Reimschuessel, Renate (Renate.Reimschuessel@fda.hhs.gov)'; Ceric, Olgica; Nemser, Sarah  
**Sent:** 4/24/2018 4:30:56 PM  
**Subject:** RE: DCM/grain-free - checking in  
**Attachments:** DCM Cluster-Cardio Experts-case summary-4.24.2018.doc; DCM-Case Report Analysis-4.23.2018.xls; Tufts suspected diet dcm dogs 4-11-18 for fda.xls

JJ-I reviewed the list sent by Tufts and compiled it with the PFRs we've received for DCM.

**B5**

**B5**

I looked up the ingredients for each product listed and looked for common product commonalities.

BLUF: The most common ingredients were:

- Flaxseed/Flaxseed oil
- Peas/Pea fiber/Pea flour

On the phone call, one of the cardiologists mentioned a dog improved after Taurine supplementation and changing to a mainstream brand (Purina) grain free food; Purina Grain Free True Instinct contains pea starch; Flaxseed is a common ingredient to many other commonly brands that are not reporting DCM

Hypotheses if a pet food issue:

**B5**

Jennifer Jones, DVM  
Veterinary Medical Officer  
Tel: 240-402-5421



**From:** Norris, Anne  
**Sent:** Friday, April 20, 2018 12:53 PM  
**To:** Jones, Jennifer L <Jennifer.Jones@fda.hhs.gov>; Rotstein, David <David.Rotstein@fda.hhs.gov>

**Cc:** DeLancey, Siobhan <Siobhan.Delancey@fda.hhs.gov>

**Subject:** RE: DCM/grain-free - checking in

Agree wholeheartedly. Thanks for putting that call together, very interesting!

Anne

**From:** Jones, Jennifer L

**Sent:** Friday, April 20, 2018 12:42 PM

**To:** Norris, Anne <Anne.Norris@fda.hhs.gov>; Rotstein, David <David.Rotstein@fda.hhs.gov>

**Cc:** DeLancey, Siobhan <Siobhan.Delancey@fda.hhs.gov>

**Subject:** RE: DCM/grain-free - checking in

Anne and Siobhan,

Dave and I were talking after the call. We recommend:

**B5**

**B5**

What do you think?

Jen

Jennifer Jones, DVM

Veterinary Medical Officer

Tel: 240-402-5421



**From:** Norris, Anne

**Sent:** Monday, April 16, 2018 11:07 AM

**To:** Jones, Jennifer L <Jennifer.Jones@fda.hhs.gov>; Rotstein, David <David.Rotstein@fda.hhs.gov>

**Cc:** DeLancey, Siobhan <Siobhan.Delancey@fda.hhs.gov>

**Subject:** RE: DCM/grain-free - checking in

Following up on our discussion last week:

**B5**

**B5**

**B5**

Exploring alternatives, will keep you posted.

Thanks,

Anne

**From:** Jones, Jennifer L

**Sent:** Friday, April 13, 2018 6:37 AM

**To:** Norris, Anne <Anne.Norris@fda.hhs.gov>; Rotstein, David <David.Rotstein@fda.hhs.gov>

**Cc:** DeLancey, Siobhan <Siobhan.Delancey@fda.hhs.gov>

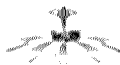
**Subject:** RE: DCM/grain-free - checking in

Thanks, Anne. I'll be in the office until 9am, then I'm on leave the rest of the day. I hope to catch you guys for a chat before then.

Jennifer Jones, DVM

Veterinary Medical Officer

Tel: 240-402-5421



**From:** Norris, Anne



**Sent:** Thursday, April 12, 2018 6:56 PM

**To:** Rotstein, David <[David.Rotstein@fda.hhs.gov](mailto:David.Rotstein@fda.hhs.gov)>; Jones, Jennifer L <[Jennifer.Jones@fda.hhs.gov](mailto:Jennifer.Jones@fda.hhs.gov)>

**Cc:** DeLancey, Siobhan <[Siobhan.Delancey@fda.hhs.gov](mailto:Siobhan.Delancey@fda.hhs.gov)>

**Subject:** Re: DCM/grain-free - checking in

Wow. What breeds? I'll send a cal invite for tomorrow AM to try to catch you while you're at Vet-LIRN with Jen.

---

**From:** Rotstein, David <[David.Rotstein@fda.hhs.gov](mailto:David.Rotstein@fda.hhs.gov)>

**Date:** April 12, 2018 at 5:59:56 PM EDT

**To:** Norris, Anne <[Anne.Norris@fda.hhs.gov](mailto:Anne.Norris@fda.hhs.gov)>, Jones, Jennifer L <[Jennifer.Jones@fda.hhs.gov](mailto:Jennifer.Jones@fda.hhs.gov)>

**Subject:** Re: DCM/grain-free - checking in

Anne

I'll be available. I'll be with VetLIRN in the morning.

This sounds great-thanks for moving it forward. We got two new complaints (same submitter) today.

---

**From:** Norris, Anne <[Anne.Norris@fda.hhs.gov](mailto:Anne.Norris@fda.hhs.gov)>

**Date:** April 12, 2018 at 5:36:50 PM EDT

**To:** Jones, Jennifer L <[Jennifer.Jones@fda.hhs.gov](mailto:Jennifer.Jones@fda.hhs.gov)>, Rotstein, David <[David.Rotstein@fda.hhs.gov](mailto:David.Rotstein@fda.hhs.gov)>

**Subject:** DCM/grain-free - checking in

Hi Jen and Dave,

**B5**

recently, I just talked with Dan McChesney for a while and he had a few ideas. If you have any availability tomorrow, perhaps we could discuss briefly?

**B5**

Thanks,  
Anne

**Anne Norris**

*Health Communications Specialist*

**Strategic Communications & Public Engagement Team**

**Office of Foods and Veterinary Medicine**

**U.S. Food & Drug Administration**

O: 240-402-0132

M: 240-704-0579

[Anne.Norris@fda.hhs.gov](mailto:Anne.Norris@fda.hhs.gov)



---

**From:** Freeman, Lisa <Lisa.Freeman@tufts.edu>  
**To:** Jones, Jennifer L  
**Sent:** 11/19/2018 10:03:04 PM  
**Subject:** FW: Taurine Result  
**Attachments:** Stern Lab Taurine Recommendations.pdf; T\_24730.pdf; T\_24731.pdf; UCD Diet and DCM Handout.pdf

Hi Jen

Updates on B6 and B6

Thanks,

Lisa

Lisa M. Freeman, DVM, PhD, DACVN  
Board Certified Veterinary Nutritionist™  
Professor  
Cummings School of Veterinary Medicine  
Friedman School of Nutrition Science and Policy  
Tufts Clinical and Translational Science Institute  
Tufts University  
[www.petfoodology.org](http://www.petfoodology.org)

**From:** Tufts Veterinary Cardiology Service  
**Sent:** Monday, November 19, 2018 2:42 PM  
**To:** Freeman, Lisa <lisa.freeman@tufts.edu>  
**Subject:** FW: Taurine Result

**Veterinary Cardiology Service**  
**Tufts University Cummings School of Veterinary Medicine**

**Please note:** This account is not monitored on weekends, holidays, or evenings (after 5pm). Please allow 24 - 48 business hours for a reply. For immediate service during business hours, please call the liaison office at 508-887-4696. If you need to speak with the Emergency Service, please call 508-839-5395.

Foster Hospital for Small Animals  
200 Westboro Road  
North Grafton, MA 01536  
<http://www.tufts.edu/vet/>  
508.887.4696 phone  
508.887.4363 fax

**From:** Amino Acid Lab <[ucd.aminoacid.lab@ucdavis.edu](mailto:ucd.aminoacid.lab@ucdavis.edu)>  
**Sent:** Monday, November 19, 2018 2:39 PM  
**To:** Clinical Pathology Lab <[clinpath@tufts.edu](mailto:clinpath@tufts.edu)>; Tufts Veterinary Cardiology Service <[cardiovet@tufts.edu](mailto:cardiovet@tufts.edu)>  
**Subject:** Taurine Result

Hello -

Thank you for using the Amino Acid Laboratory at UC Davis, School of Veterinary Medicine.

Please find attached the results for your patient. You will note that we are now using a new submission form. The new form requests some additional information that may be useful in interpreting your results. Please note, with the recent increase in the number of dogs screened for taurine deficiency, we are seeing some dogs with values within the lower reference ranges (or above the “no known risk for deficiency range”) yet are still exhibiting changes in cardiac function.

In addition to our new submission form, we have also attached 2 handouts developed by our cardiology service at UC Davis for your information. The first is a general handout on dilated cardiomyopathy in dogs. The second is a handout specifically focused on Golden Retrievers, a breed that has been over-represented in the association between grain-free diet consumption and dilated cardiomyopathy.

We hope your clinic finds this information helpful. Veterinarians are always welcome to contact our laboratory for assistance in evaluating your patient’s results.

Thank you -

The Amino Acid Laboratory  
Department of Molecular Biosciences  
School of Veterinary Medicine  
University of California, Davis

Phone: 530-752-5058

Email: [ucd.aminoacid.lab@ucdavis.edu](mailto:ucd.aminoacid.lab@ucdavis.edu)

**All Medical Records**

Client: [B6]  
Address: [B6]

Patient: [B6]  
Breed: English Bulldog  
DOB: [B6]

Species: Canine  
Sex: Female  
(Spayed)

Home Phone: [B6]  
Work Phone: ( ) -  
Cell Phone: [B6]

**Referring Information**

[B6]  
Client: [B6]  
Patient: [B6]

**Initial Complaint:**

Emergency

SOAP Text [B6] 9:31PM [B6]

**Subjective**

NEW VISIT (ER)

Doctor: [B6]  
Student: ---  
Presenting complaint: [B6]  
Referral visit? Yes  
Diagnostics completed prior to visit: [B6]

**HISTORY:**

Signalment: 8 yo SF English Bulldog

Current history:

Earlier this afternoon, found her laying and trembling with shallow and rapid breathing. Owner also noticed that she had a hacking non productive cough. Has not appreciated it before today. Went to rDVM where radiographs were performed. No history of heart or pulmonary disease. No recent vomiting or diarrhea. Has recently been doing well at home with no concerns.

Prior medical history: [B6] otherwise healthy

Current medications: [B6] once daily in PM, had tonight

Diet: Core Wellness, mix of wet and dry, grain free diet

Client:  
Patient:

**B6**

**B6**

C/V: no murmur or arrhythmia auscultated, difficult to appreciate over increased lung sounds, femoral pulses strong and synchronous

**B6**

ASSESSMENT:

A1: Dyspnea-- open for pneumonia vs CHF vs non cardiogenic pulmonary edema vs other

PLAN:

**B6**

Treatments:

**B6**

Diagnostics completed:

**B6**

Client: **B6**  
Patient: **B6**

Chemistry

**B6**

Client communication:

Confirmed history with owner. Discussed that no apparent murmur and significant structural changes on TFAST, but cannot rule out heart as underlying process. Also concern for pneumonia at this time. Recommended hospitalization for supportive care, O2, diagnostics, cardio consultation and repeat imaging as indicated. O ok with plan.

Deposit & estimate status: **B6**

Resuscitation code (if admitting to ICU) **B6**

SOAP approved (DVM to sign): **B6** DVM

SOAP Text Jan 16 2019 8:38AM - **B6**

SIGNALMENT: 8yo FS English Bulldog

PRESENTING COMPLAINT: dyspnea

HISTORY:

Presented on **B6** after O found her laying and trembling with shallow and rapid breathing. Owner also noticed that she had a hacking non productive cough. Has not appreciated it before today. Went to rDVM where radiographs were performed. No history of heart or pulmonary disease. No recent vomiting or diarrhea. Has recently been doing well at home with no concerns.

Prior medical history: **B6** otherwise healthy

Current medications: **B6** once daily in PM, had tonight

Diet: Core Wellness, mix of wet and dry, grain free diet

On presentation, P was dyspneic and tachycardic. rDVM rads unable to be assessed as CHF vs. pneumonia, so placed in O2 on Unasyn overnight with bloodwork pulled for CBC/Chem and nt-proBNP. Minimal improvement overnight with persistent tachycardia, but excellent appetite and good spirits.

SUBJECTIVE:

**B6**

C/V: tachycardic with no murmurs or arrhythmias on auscultation. fair pulse quality with pink injected mm and CRT  
1sec

**B6**

Client: **B6**  
Patient: **B6**

---

RECTAL: NP

**ASSESSMENT:**

A1: Dyspnea-- open for pneumonia vs CHF vs non cardiogenic pulmonary edema vs other

**PLAN:**

**B6**

**Diagnostics completed:**

**B6**

CXR: - Diffuse bronchial and interstitial pulmonary pattern may indicate concurrent chronic lower airway disease (allergic, infectious, or parasitic) and interstitial lung disease. Airway sampling can be considered.

- Mild cardiomegaly and left atrial enlargement without evidence of decompensation. Echocardiography can be considered (to evaluate mitral valve and to evaluate for pulmonary hypertension).

- Multifocal intervertebral disk disease and breed-associated vertebral anomalies.

- Moderate bilateral elbow and right stifle degenerative joint disease.

Cardio Consult: DCM, suspect early CHF - add pimobendan and **B6** q8

**Diagnostics pending:**

**B6**

Deposit & estimate status: **B6**

Resuscitation code (if admitting to ICU): **B6**

**B6** DVM (ECC Resident)

**SOAP Text Jan 17 2019 7:43AM - Clinician, Unassigned FHSA**

---

**HISTORY:**

**B6** is an 8.5 yo FS English Bulldog that presented on **B6** for sudden onset dyspnea. O found her laying and trembling with shallow and rapid breathing. Owner also noticed that she had a hacking non productive cough. Has not appreciated it before. Went to rDVM where radiographs were performed. No history of heart or pulmonary disease. No recent vomiting or diarrhea, has been doing well at home with no concerns. Was on Core Wellness dry and wet grain

Client: **B6**  
Patient: **B6**

free diet.

On presentation to ER, P was dyspneic and tachycardic. rDVM rads unable to be assessed as CHF vs. pneumonia, so placed in O2 on **B6** overnight with bloodwork pulled for CBC/Chem and nt-proBNP. Minimal improvement overnight on **B6** with persistent tachycardia, but excellent appetite and good spirits. Cardio consult was difficult to assess due to dyspnea and conformation, but showed DCM and suspect CHF.

Overnight, P had normal vitals, with RR 24-36 with no to mild effort in O2 cage. Walked well outside of O2 cage, but at 3:45am after a walk was trembling and anxious in the cage, was given trazodone and calmed after. Excellent appetite this morning. Has received 3 doses of **B6** so far since **B6**

**Subjective**

BAR, euhydrated, MM pink moist, CRT <2

**Objective**

**B6**

H/L: No murmur ausculted although very difficult auscultation due to the constant panting. No obvious arrhythmia either. Jugular pulse bottom 1/3 of the neck. Femoral pulses strong and synchronized with heart beat. Normal BVS bilateral

**B6**

**Diagnostics completed:**

**B6**

CXR: - Diffuse bronchial and interstitial pulmonary pattern may indicate concurrent chronic lower airway disease (allergic, infectious, or parasitic) and interstitial lung disease. Airway sampling can be considered.

- Mild cardiomegaly and left atrial enlargement without evidence of decompensation. Echocardiography can be considered (to evaluate mitral valve and to evaluate for pulmonary hypertension).

- Multifocal intervertebral disk disease and breed-associated vertebral anomalies.

- Moderate bilateral elbow and right stifle degenerative joint disease.

Cardio Consult: DCM, suspect early CHF - add pimobendan and Lasix q8

**Diagnostics pending:**

BNP



Client: **B6**  
Patient: **B6**

Troponin  
Taurine

**Assessment (A)**

A1: Dyspnea- suspect DCM and early CHF vs less likely pneumonia vs neoplasia

**Plan (P)**

**B6**

SOAP completed by: **B6** V19  
SOAP reviewed by: **B6** DVM

**Addendum:**

**B6**

SOAP Text Jan 18 2019 7:28AM - **B6**

**HISTORY:**

**B6** is an 8.5 yo FS English Bulldog that presented of **B6** for sudden onset dyspnea. O found her laying and trembling with shallow and rapid breathing. Owner also noticed that she had a hacking non productive cough. Has not appreciated it before. Went to rDVM where radiographs were performed. No history of heart or pulmonary disease. No recent vomiting or diarrhea, has been doing well at home with no concerns. Was on Core Wellness dry and wet grain free diet.

On presentation to ER, P was dyspneic and tachycardic. rDVM rads unable to be assessed as CHF vs. pneumonia, so placed in O2 on Unasyn overnight with bloodwork pulled for CBC/Chem and nt-proBNP. Minimal improvement overnight on 1/16 with persistent tachycardia, but excellent appetite and good spirits. Cardio consult was difficult to assess due to dyspnea and conformation, but showed DCM and suspect CHF.

Since yesterday P has been out of oxygen, increased **B6** to TID, and restarted **B6** Overnight, P had normal vitals, with RR 28-32 with no effort, but panting earlier in the night. Walks well outside, and still has excellent appetite.

**Subjective**

**B6**

Client: **B6**  
Patient:

**B6**

H/L: No murmur ausculted although very difficult auscultation due to the constant panting. No obvious arrhythmia either. Jugular pulse bottom 1/3 of the neck. Femoral pulses strong and synchronized with heart beat. Normal BVS bilateral

**B6**

CXR: - Diffuse bronchial and interstitial pulmonary pattern may indicate concurrent chronic lower airway disease (allergic, infectious, or parasitic) and interstitial lung disease. Airway sampling can be considered.  
- Mild cardiomegaly and left atrial enlargement without evidence of decompensation. Echocardiography can be considered (to evaluate mitral valve and to evaluate for pulmonary hypertension).  
- Multifocal intervertebral disk disease and breed-associated vertebral anomalies.  
- Moderate bilateral elbow and right stifle degenerative joint disease.

Cardio Consult: DCM, suspect early CHF - add **B6** q8

1/17

**B6**

**Diagnostics pending:**

Troponin  
Taurine

**Assessment (A)**

A1: DCM and suspect early CHF vs less likely pneumonia

**Plan (P)**

**B6**

Client: **B6**  
Patient:

---

SOAP completed by: **B6** M19  
SOAP reviewed by: **B6** DVM

Addendum:

**B6**

**Disposition/Recommendations**

---

Client:  
Patient:

**B6**

---

---

Client: **B6**  
 Patient: **B6**

**Cummings**  
**Veterinary Medical Center**  
 AT TUFTS UNIVERSITY

**Foster Hospital for Small Animals**

55 Willard Street  
 North Grafton, MA 01536  
 (508) 839-5395

Client: **B6**  
 Veterinarian:  
 Patient ID: **B6**  
 Visit ID:

Patient:	<b>B6</b>
Species:	Canine
Breed:	English Bulldog
Sex:	Female (Spayed)
Age:	<b>B6</b> Years Old

**Lab Results Report**

**CBC, Comprehensive, Sm Animal** **B6** 11:21:12 PM **Accession ID: B6**

Test	Results	Reference Range	Units
WBC (ADVIA)	<b>B6</b>	4.4 - 15.1	K/uL
RBC(ADVIA)		5.8 - 8.5	M/uL
HGB(ADVIA)		13.3 - 20.5	g/dL
HCT(ADVIA)		39 - 55	%
MCV(ADVIA)		64.5 - 77.5	fL
MCH(ADVIA)		21.3 - 25.9	pg
MCHC(ADVIA)		31.9 - 34.3	g/dL
RDW (ADVIA)		11.9 - 15.2	
PLT(ADVIA)		173 - 486	K/uL
MPV (ADVIA)		8.29 - 13.2	fl
PLTCRT		0.129 - 0.403	%
RETIC(ADVIA)		0.2 - 1.6	%
RETICS (ABS) ADVIA		14.7 - 113.7	K/uL

**CBC, Comprehensive, Sm Animal** **B6** 11:21:26 PM **Accession ID: B6**

Test	Results	Reference Range	Units
GLUCOSE	<b>B6</b>	67 - 135	mg/dL
UREA		8 - 30	mg/dL
CREATININE		0.6 - 2	mg/dL
PHOSPHORUS		2.6 - 7.2	mg/dL
CALCIUM2		9.4 - 11.3	mg/dL
MAGNESIUM 2+		1.8 - 3	mEq/L



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Client: **B6**  
 Patient: **B6**

T. PROTEIN		5.5 - 7.8	g/dL
ALBUMIN		2.8 - 4	g/dL
GLOBULINS		2.3 - 4.2	g/dL
A/G RATIO		0.7 - 1.6	
SODIUM		140 - 150	mEq/L
CHLORIDE		106 - 116	mEq/L
POTASSIUM		3.7 - 5.4	mEq/L
tCO2 (BICARB)		14 - 28	mEq/L
AGAP		8 - 19	
NA/K		29 - 40	
T BILIRUBIN		0.1 - 0.3	mg/dL
ALK PHOS		12 - 127	U/L
GGT		0 - 10	U/L
ALT		14 - 86	U/L
AST		9 - 54	U/L
CK		22 - 422	U/L
CHOLESTEROL		82 - 355	mg/dL
TRIGLYCERIDES		30 - 338	mg/dl
AMYLASE		409 - 1250	U/L
OSMOLALITY (CALCULATED)		291 - 315	mmol/L
COMMENTS (CHEMISTRY)		0 - 0	

**B6**

**CBC, Comprehensive, Sm Animal**    **B6** 11:21:08 PM    Accession ID: **B6**

Test	Results	Reference Range	Units
SEGS%		43 - 86	%
LYMPHS%		7 - 47	%
MONOS%		1 - 15	%
SEGS (AB)ADVIA		2.8 - 11.5	K/uL
LYMPHS (ABS)ADVIA		1 - 4.8	K/uL
MONOS (ABS)ADVIA		0.1 - 1.5	K/uL
WBC MORPHOLOGY		0 - 0	
Occasional reactive lymphocytes			
RBC MORPHOLOGY		0 - 0	
POIKILOCYTOSIS		0 - 0	

**B6**

**CBC, Comprehensive, Sm Animal**    **B6** 11:22:25 PM    Accession ID: **B6**

Test	Results	Reference Range	Units
SO2%		94 - 100	%
HCT (POC)		38 - 48	%
HB (POC)		12.6 - 16	g/dL
NA (POC)		140 - 154	mmol/L
K (POC)		3.6 - 4.8	mmol/L

**B6**



**B6**

Client: **B6**  
 Patient: **B6**

CL(POC)		109 - 120	mmol/L
CA (ionized)		1.17 - 1.38	mmol/L
MG (POC)		0.1 - 0.4	mmol/L
GLUCOSE (POC)		80 - 120	mg/dL
LACTATE		0 - 2	mmol/L
BUN (POC)		12 - 28	mg/dL
CREAT (POC)		0.2 - 2.1	mg/dL
TCO2 (POC)		0 - 0	mmol/L
nCA		0 - 0	mmol/L
nMG		0 - 0	mmol/L
GAP		0 - 0	mmol/L
CA/MG		0 - 0	mol/mol
BEecf		0 - 0	mmol/L
BEb		0 - 0	mmol/L
A		0 - 0	mmHg
NOVA SAMPLE		0 - 0	
FiO2		0 - 0	%
PCO2		36 - 44	mmHg
PO2		80 - 100	mmHg
PH		7.337 - 7.467	
PCO2		36 - 44	mmHg
PO2		80 - 100	mmHg
HCO3		18 - 24	mmol/L

**B6**

**CBC, Comprehensive, Sm Animal**    **B6**    1:28:40 PM    Accession ID: **B6**

Test	Results	Reference Range	Units
TS (FHSA)		0 - 0	g/dl
PCV **	<b>B6</b>	0 - 0	%
TS (FHSA)		0 - 0	g/dl

**CBC, Comprehensive, Sm Animal**    **B6**    1:43:18 PM    Accession ID: **B6**

Test	Results	Reference Range	Units
GLUCOSE		67 - 135	mg/dL
UREA		8 - 30	mg/dL
CREATININE		0.6 - 2	mg/dL
PHOSPHORUS		2.6 - 7.2	mg/dL
CALCIUM2	<b>B6</b>	9.4 - 11.3	mg/dL
T. PROTEIN		5.5 - 7.8	g/dL
ALBUMIN		2.8 - 4	g/dL
GLOBULINS		2.3 - 4.2	g/dL
A/G RATIO		0.7 - 1.6	
SODIUM		140 - 150	mEq/L



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Client: **B6**  
 Patient: **B6**

CHLORIDE	<b>B6</b>	106 - 116	mEq/L
POTASSIUM		3.7 - 5.4	mEq/L
NA/K		29 - 40	
T BILIRUBIN		0.1 - 0.3	mg/dL
ALK PHOS		12 - 127	U/L
ALT		14 - 86	U/L
AST		9 - 54	U/L
CHOLESTEROL		82 - 355	mg/dL
OSMOLALITY (CALCULATED)		291 - 315	mmol/L

**CBC, Comprehensive, Sm Animal**      **B6**      3:44:46 PM      Accession ID: **B6**

Test	Results	Reference Range	Units
TS (FHSA)	<b>B6</b>	0 - 0	g/dl
PCV **		0 - 0	%
TS (FHSA)		0 - 0	g/dl

**CBC, Comprehensive, Sm Animal**      **B6**      9:46:19 AM      Accession ID: **B6**

Test	Results	Reference Range	Units
GLUCOSE	<b>B6</b>	67 - 135	mg/dL
UREA		8 - 30	mg/dL
CREATININE		0.6 - 2	mg/dL
PHOSPHORUS		2.6 - 7.2	mg/dL
CALCIUM2		9.4 - 11.3	mg/dL
T. PROTEIN		5.5 - 7.8	g/dL
ALBUMIN		2.8 - 4	g/dL
GLOBULINS		2.3 - 4.2	g/dL
A/G RATIO		0.7 - 1.6	
SODIUM		140 - 150	mEq/L
CHLORIDE		106 - 116	mEq/L
POTASSIUM		3.7 - 5.4	mEq/L
NA/K		29 - 40	
T BILIRUBIN		0.1 - 0.3	mg/dL
ALK PHOS		12 - 127	U/L
ALT		14 - 86	U/L
AST		9 - 54	U/L
CHOLESTEROL		82 - 355	mg/dL
OSMOLALITY (CALCULATED)		291 - 315	mmol/L
COMMENTS (CHEMISTRY)		0 - 0	

**CBC, Comprehensive, Sm Animal**      **B6**      10:20:57 AM      Accession ID: **B6**

Test	Results	Reference Range	Units
TS (FHSA)	<b>B6</b>	0 - 0	g/dl
PCV **		0 - 0	%





Client: **B6**  
Patient:

TS (FHSA) **B6** 0 - 0 g/dl



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**B6**

Printed Monday, February 25, 2019

**Vitals Results**

5:41:14 PM	Heart Rate (/min)
5:41:15 PM	Respiratory Rate
5:41:16 PM	Temperature (F)
5:41:17 PM	Weight (kg)
11:17:43 PM	Heart Rate (/min)
11:17:51 PM	Respiratory Rate
11:22:41 PM	Notes
11:26:08 PM	FiO2 (%)
11:03:01 AM	Respiratory Rate
12:54:19 AM	Catheter Assessment
12:56:22 AM	Heart Rate (/min)
12:56:33 AM	FiO2 (%)
12:57:15 AM	Respiratory Rate
12:07:52 AM	Respiratory Rate
12:34:37 AM	Eliminations
12:35:59 AM	FiO2 (%)
12:37:34 AM	Temperature (F)
12:37:44 AM	Amount eaten
12:46:29 AM	Respiratory Rate
12:46:58 AM	Heart Rate (/min)
12:47:06 AM	Catheter Assessment
12:13:53 AM	Weight (kg)
12:14:50 AM	Respiratory Rate
12:10:38 AM	FiO2 (%)
12:10:33 AM	Catheter Assessment
12:10:43 AM	Heart Rate (/min)
12:10:52 AM	Respiratory Rate
12:25:07 PM	Lasix treatment note
12:10:13 PM	Respiratory Rate
12:10:22 PM	Eliminations
12:18:03 PM	Catheter Assessment
12:18:20 PM	FiO2 (%)
12:18:55 PM	Respiratory Rate

**B6**

**B6**

Client: **B6**  
Patient: **B6**

**Vitals Results**

3:20:08 PM	Heart Rate (/min)
4:46:44 PM	Amount eaten
5:41:52 PM	Respiratory Rate
7:04:34 PM	FiO2 (%)
7:04:58 PM	Catheter Assessment
7:06:54 PM	Heart Rate (/min)
7:07:03 PM	Temperature (F)
7:34:10 PM	Weight (kg)
7:34:17 PM	Eliminations
7:45:53 PM	Lasix treatment note
7:46:17 PM	Respiratory Rate
8:55:18 PM	Nursing note
8:55:56 PM	Eliminations
9:53:33 PM	Respiratory Rate
11:31:43 PM	Catheter Assessment
11:32:37 PM	Catheter Assessment
11:34:10 PM	Heart Rate (/min)
11:34:31 PM	Amount eaten
11:49:45 PM	FiO2 (%)
11:49:58 PM	Respiratory Rate
1:55:25 AM	Respiratory Rate
3:35:30 AM	Lasix treatment note
3:37:10 AM	Catheter Assessment
3:45:10 AM	Heart Rate (/min)
3:45:19 AM	Eliminations
3:53:42 AM	FiO2 (%)
3:53:53 AM	Respiratory Rate
4:55:04 AM	Nursing note
5:55:31 AM	Respiratory Rate
6:11:40 AM	Nursing note
7:19:26 AM	Respiratory Rate
7:19:52 AM	FiO2 (%)
7:20:14 AM	Temperature (F)
7:20:30 AM	Heart Rate (/min)
7:20:46 AM	Amount eaten
7:33:19 AM	Weight (kg)
7:33:27 AM	Eliminations
8:01:36 AM	Catheter Assessment
9:32:45 AM	Respiratory Rate

**B6**

**B6**

Client: **B6**  
Patient:

**Vitals Results**

11:16:45 AM	FiO2 (%)
12:41:34 PM	Catheter Assessment
12:41:43 PM	Respiratory Rate
12:42:33 PM	Heart Rate (/min)
12:42:50 PM	Lasix treatment note
1:52:56 PM	Heart Rate (/min)
3:03:09 PM	FiO2 (%)
3:03:22 PM	Respiratory Rate
3:40:13 PM	Respiratory Rate
3:55:45 PM	Eliminations
5:04:09 PM	Respiratory Rate
5:40:13 PM	Amount eaten
5:52:28 PM	Eliminations
5:54:07 PM	Respiratory Rate
5:54:57 PM	Heart Rate (/min)
5:55:05 PM	Catheter Assessment
6:52:18 PM	Respiratory Rate
7:17:27 PM	Eliminations
7:45:11 PM	Respiratory Rate
8:01:23 PM	Lasix treatment note
8:17:14 PM	Eliminations
8:54:56 PM	Respiratory Rate
9:32:19 PM	Heart Rate (/min)
9:32:26 PM	Catheter Assessment
9:32:35 PM	Eliminations
9:43:25 PM	Respiratory Rate
10:41:18 PM	Respiratory Rate
11:18:27 PM	Eliminations
11:18:49 PM	Weight (kg)
11:42:42 PM	Eliminations
11:53:16 PM	Respiratory Rate
12:52:00 AM	Respiratory Rate
1:22:40 AM	Heart Rate (/min)
1:22:46 AM	Catheter Assessment
1:45:25 AM	Respiratory Rate
2:53:51 AM	Respiratory Rate
3:34:16 AM	Lasix treatment note
3:34:45 AM	Respiratory Rate
3:43:47 AM	Eliminations
4:50:44 AM	Respiratory Rate
4:52:32 AM	Nursing note

**B6**

**B6**

Client: **B6**  
Patient:

**Vitals Results**

<b>B6</b>	5:25:32 AM	Catheter Assessment	<b>B6</b>
	5:27:43 AM	Heart Rate (/min)	
	5:27:50 AM	Respiratory Rate	
	5:28:01 AM	Amount eaten	
	6:42:00 AM	Respiratory Rate	
	7:25:45 AM	Respiratory Rate	
	7:26:00 AM	Weight (kg)	
	7:26:12 AM	Eliminations	
	8:56:03 AM	Respiratory Rate	
	9:47:19 AM	Respiratory Rate	
	9:50:04 AM	Catheter Assessment	
	9:50:22 AM	Heart Rate (/min)	
	11:05:09 AM	Respiratory Rate	
	12:00:28 PM	Respiratory Rate	
	12:00:44 PM	Eliminations	
	12:05:36 PM	Lasix treatment note	
	12:55:52 PM	Respiratory Rate	
	1:55:49 PM	Respiratory Rate	
	3:12:43 PM	Respiratory Rate	
	3:17:41 PM	Eliminations	
4:02:34 PM	Respiratory Rate		

**Patient History**

<b>B6</b>	06:41 PM	Vitals	<b>B6</b>
	06:41 PM	Vitals	
	06:41 PM	Vitals	
	06:41 PM	Vitals	
	07:50 PM	UserForm	
	09:52 PM	UserForm	
	11:17 PM	Treatment	
	11:17 PM	Vitals	
	11:17 PM	Treatment	
	11:17 PM	Vitals	
	11:19 PM	Treatment	
	11:21 PM	Purchase	
	11:21 PM	Purchase	
	11:21 PM	Purchase	
	11:21 PM	Purchase	
	11:21 PM	Purchase	
	11:21 PM	Purchase	
	11:22 PM	Purchase	
	11:22 PM	Purchase	
	11:22 PM	Vitals	

Client:  
Patient:

**B6**

**Patient History**

11:22 PM	Purchase
11:22 PM	Purchase
11:25 PM	Treatment
11:26 PM	Treatment
11:26 PM	Vitals
11:26 PM	Treatment
11:28 PM	Labwork
12:50 AM	Treatment
12:53 AM	Treatment
01:03 AM	Treatment
01:03 AM	Vitals
02:54 AM	Treatment
02:54 AM	Treatment
02:54 AM	Vitals
02:56 AM	Treatment
02:56 AM	Vitals
02:56 AM	Treatment
02:56 AM	Vitals
02:57 AM	Treatment
02:57 AM	Vitals
05:07 AM	Treatment
05:07 AM	Vitals
07:34 AM	Treatment
07:34 AM	Treatment
07:34 AM	Vitals
07:35 AM	Treatment
07:35 AM	Vitals
07:37 AM	Treatment
07:37 AM	Vitals
07:37 AM	Treatment
07:37 AM	Vitals
07:46 AM	Treatment
07:46 AM	Vitals
07:46 AM	Treatment
07:46 AM	Vitals
07:47 AM	Treatment
07:47 AM	Vitals
08:13 AM	UserForm
08:19 AM	Purchase
08:32 AM	UserForm
08:39 AM	Treatment

**B6**

**B6**

Client: **B6**  
Patient:

**Patient History**

08:45 AM	Prescription
08:48 AM	Prescription
09:13 AM	Treatment
09:13 AM	Vitals
09:14 AM	Treatment
09:14 AM	Vitals
09:34 AM	Purchase
09:35 AM	Treatment
11:03 AM	Treatment
11:03 AM	Vitals
11:03 AM	Treatment
11:03 AM	Treatment
11:03 AM	Vitals
11:03 AM	Treatment
11:03 AM	Vitals
11:03 AM	Treatment
11:03 AM	Vitals
11:03 AM	Treatment
11:03 AM	Vitals
11:05 AM	Purchase
11:39 AM	Treatment
11:41 AM	Treatment
12:50 PM	Vitals
<b>B6</b> 12:52 PM	Treatment
12:54 PM	Prescription
01:01 PM	Deleted Reason
01:10 PM	Treatment
01:10 PM	Vitals
01:10 PM	Treatment
01:10 PM	Vitals
01:10 PM	Treatment
03:14 PM	Treatment
03:17 PM	Treatment
03:18 PM	Treatment
03:18 PM	Vitals
03:18 PM	Treatment
03:18 PM	Vitals
03:18 PM	Treatment
03:18 PM	Vitals
03:18 PM	Treatment
03:18 PM	Vitals
03:20 PM	Treatment
03:20 PM	Vitals
04:14 PM	UserForm
04:46 PM	Treatment

**B6**

Client: **B6**  
Patient:

**Patient History**

04:46 PM Vitals  
05:14 PM Deleted Reason  
05:14 PM Deleted Reason  
05:15 PM Purchase  
05:15 PM Purchase  
05:41 PM Treatment  
05:41 PM Vitals  
07:04 PM Treatment  
07:04 PM Vitals  
07:04 PM Treatment  
07:04 PM Treatment  
07:04 PM Vitals  
07:06 PM Treatment  
07:06 PM Vitals  
07:07 PM Treatment  
07:07 PM Vitals  
07:34 PM Treatment  
07:34 PM Vitals  
07:34 PM Treatment  
07:34 PM Vitals  
07:45 PM Vitals  
07:46 PM Treatment  
07:46 PM Treatment  
07:46 PM Vitals  
08:31 PM Treatment  
08:55 PM Vitals  
08:55 PM Vitals  
09:53 PM Treatment  
09:53 PM Vitals  
11:07 PM Purchase  
11:07 PM Purchase  
11:21 PM Treatment  
11:31 PM Treatment  
11:31 PM Vitals  
11:32 PM Treatment  
11:32 PM Vitals  
11:34 PM Treatment  
11:34 PM Treatment  
11:34 PM Vitals  
11:34 PM Treatment  
11:34 PM Vitals  
11:49 PM Treatment  
11:49 PM Treatment

**B6**

**B6**

Client: **B6**  
Patient:

**Patient History**

	11:49 PM	Vitals	
	11:49 PM	Treatment	
	11:49 PM	Vitals	
	01:55 AM	Treatment	
	01:55 AM	Vitals	
	03:05 AM	Treatment	
	03:35 AM	Vitals	
	03:37 AM	Treatment	
	03:37 AM	Treatment	
	03:37 AM	Vitals	
	03:45 AM	Treatment	
	03:45 AM	Vitals	
	03:45 AM	Treatment	
	03:45 AM	Vitals	
	03:45 AM	Vitals	
	03:45 AM	Vitals	
	03:53 AM	Treatment	
	03:53 AM	Vitals	
	03:53 AM	Treatment	
	03:53 AM	Vitals	
	04:50 AM	Treatment	
	04:55 AM	Treatment	
<b>B6</b>	04:55 AM	Vitals	
	05:55 AM	Treatment	
	05:55 AM	Vitals	
	06:03 AM	Treatment	
	06:11 AM	Vitals	
	07:19 AM	Treatment	
	07:19 AM	Vitals	
	07:19 AM	Treatment	
	07:19 AM	Vitals	
	07:20 AM	Treatment	
	07:20 AM	Treatment	
	07:20 AM	Vitals	
	07:20 AM	Treatment	
	07:20 AM	Vitals	
	07:20 AM	Treatment	
	07:20 AM	Vitals	
	07:33 AM	Treatment	
	07:33 AM	Vitals	
	07:33 AM	Treatment	
	07:33 AM	Vitals	
	08:01 AM	Treatment	
	08:01 AM	Vitals	
	08:01 AM	Treatment	

**B6**



Client: **B6**  
Patient:

**Patient History**

	08:46 AM	Purchase	
	09:32 AM	Treatment	
	09:32 AM	Vitals	
	09:46 AM	Purchase	
	10:50 AM	Purchase	
	10:51 AM	Treatment	
	11:05 AM	Purchase	
	11:16 AM	Treatment	
	11:16 AM	Vitals	
	12:41 PM	Treatment	
	12:41 PM	Vitals	
	12:41 PM	Treatment	
	12:41 PM	Vitals	
	12:42 PM	Treatment	
	12:42 PM	Vitals	
	12:42 PM	Vitals	
	12:43 PM	Treatment	
	12:46 PM	Treatment	
	01:43 PM	Purchase	
	01:52 PM	Treatment	
	01:52 PM	Vitals	
	03:03 PM	Treatment	
<b>B6</b>	03:03 PM	Vitals	
	03:03 PM	Treatment	
	03:03 PM	Vitals	
	03:40 PM	Vitals	
	03:46 PM	Labwork	
	03:50 PM	Treatment	
	03:53 PM	Prescription	
	03:55 PM	Treatment	
	03:55 PM	Vitals	
	05:04 PM	Treatment	
	05:04 PM	Vitals	
	05:09 PM	Treatment	
	05:09 PM	Treatment	
	05:40 PM	Treatment	
	05:40 PM	Vitals	
	05:52 PM	Vitals	
	05:54 PM	Treatment	
	05:54 PM	Vitals	
	05:54 PM	Treatment	
	05:54 PM	Vitals	
	05:55 PM	Treatment	
	05:55 PM	Vitals	
	06:48 PM	Prescription	

**B6**

Client: **B6**  
Patient:

**Patient History**

<b>B6</b>	06:52 PM	Treatment
	06:52 PM	Vitals
	06:52 PM	Treatment
	07:17 PM	Vitals
	07:27 PM	Treatment
	07:45 PM	Treatment
	07:45 PM	Vitals
	08:01 PM	Vitals
	08:01 PM	Treatment
	08:17 PM	Vitals
	08:27 PM	Treatment
	08:54 PM	Treatment
	08:54 PM	Vitals
	09:13 PM	Treatment
	09:32 PM	Treatment
	09:32 PM	Vitals
	09:32 PM	Treatment
	09:32 PM	Vitals
	09:32 PM	Vitals
	09:43 PM	Treatment
	09:43 PM	Vitals
	10:41 PM	Treatment
	10:41 PM	Vitals
	11:07 PM	Purchase
	11:07 PM	Purchase
	11:18 PM	Treatment
	11:18 PM	Vitals
	11:18 PM	Vitals
	11:42 PM	Vitals
	11:53 PM	Treatment
	11:53 PM	Vitals
	12:52 AM	Treatment
	12:52 AM	Vitals
	01:21 AM	Treatment
	01:22 AM	Treatment
	01:22 AM	Vitals
	01:22 AM	Treatment
	01:22 AM	Vitals
	01:45 AM	Treatment
	01:45 AM	Vitals
02:53 AM	Treatment	
02:53 AM	Vitals	
03:34 AM	Vitals	
03:34 AM	Treatment	
03:34 AM	Treatment	
03:34 AM	Vitals	
03:34 AM	Treatment	

**B6**

Client:  
Patient:

**B6**

**Patient History**

03:35 AM	Treatment
03:43 AM	Treatment
03:43 AM	Vitals
04:50 AM	Treatment
04:50 AM	Vitals
04:52 AM	Vitals
05:25 AM	Treatment
05:25 AM	Vitals
05:25 AM	Treatment
05:27 AM	Treatment
05:27 AM	Vitals
05:27 AM	Treatment
05:27 AM	Vitals
05:28 AM	Treatment
05:28 AM	Vitals
06:41 AM	Treatment
06:42 AM	Vitals
07:25 AM	Treatment
07:25 AM	Vitals
07:26 AM	Treatment
07:26 AM	Vitals
07:26 AM	Treatment
07:26 AM	Vitals
07:26 AM	Vitals
08:56 AM	Treatment
08:56 AM	Vitals
09:31 AM	UserForm
09:39 AM	Purchase
09:47 AM	Treatment
09:47 AM	Vitals
09:50 AM	Treatment
09:50 AM	Vitals
09:50 AM	Treatment
09:50 AM	Vitals
09:50 AM	Treatment
10:21 AM	Labwork
11:05 AM	Purchase
11:05 AM	Treatment
11:05 AM	Vitals
11:25 AM	Treatment
11:25 AM	Treatment
11:48 AM	Purchase
11:48 AM	Treatment
12:00 PM	Treatment
12:00 PM	Vitals

**B6**

**B6**

Client:  
Patient:

**B6**

**Patient History**

**B6**

2:00 PM	Treatment
2:00 PM	Vitals
2:05 PM	Vitals
2:05 PM	Treatment
2:55 PM	Treatment
2:55 PM	Vitals
3:01 PM	Treatment
3:05 PM	Treatment
3:05 PM	Vitals
3:12 PM	Treatment
3:12 PM	Vitals
3:17 PM	Treatment
3:17 PM	Treatment
3:17 PM	Vitals
3:55 PM	Prescription
3:56 PM	Prescription
4:02 PM	Treatment
4:02 PM	Vitals
4:02 PM	Prescription
4:03 PM	Prescription
4:20 PM	Purchase
2:52 PM	Appointment

**B6**





**B6**

**B6**

Female (Spayed)

Canine English Bulldog Brown/White

Patient ID: **B6**

## STANDARD CONSENT FORM

---

I am the owner, or agent for the owner, of the above described animal and have the authority to execute consent. I hereby authorize the Cummings School of Veterinary Medicine at Tufts University (herein after Cummings School) to prescribe for treatment of said animal according to the following terms and conditions.

Cummings School and its officers, agents and employees will provide such veterinary medical care as they deem reasonable and appropriate under the circumstances.

Cummings School and its officers, agents, and employees will use all reasonable care in the treatment of the above mentioned animal, but will not be liable for any loss or accident that may occur or any disease that may develop as a result of the care and treatment provided.

I understand that the above identified animal may be treated by Cummings School students under the supervision and assistance of Cummings School staff members.

In executing this form, I hereby expressly acknowledge that risks, benefits and alternative forms of treatment have been explained to me. I understand said explanation, and I consent to treatment. Should any additional treatments or diagnostics be required during the continued care of my animal, I understand that I will be given the opportunity to discuss and consent to these additional procedures. I understand that further or additional treatment may be required without an opportunity for discussion and consideration by me, in the case of the development of any life-threatening emergency during the continued care of my animal and I expressly consent to all such reasonable treatment as required. I realize and understand that results cannot be guaranteed.

If any equipment is left with the animal, it will be accepted with the understanding that Cummings School assumes no responsibility for any loss of equipment that may occur.

I agree to pick up the animal when notified that it is ready for release.

In the event the animal is not picked up, and if ten (10) days have expired since a registered letter was sent to the address given above, notifying me to call for the animal, the animal may be sold or otherwise disposed of in a humane manner and the proceeds applied to the charges incurred in caring and treating the animal. Failure to remove said animal will not and does not relieve me from obligation for the costs of services rendered.

I hereby grant to the Cummings School of Veterinary Medicine at Tufts University, its officers and employees (collectively referred to herein as Cummings School), and its agents and assigns (the Grantees) the irrevocable rights to photograph / videotape the operation or procedure to be performed, including appropriate and otherwise use such photographs and images for, and in connection with, a Grantee's medical, scientific, educational, and publicity purposes, by any means, methods and media (print and electronic) now known or, in the future, developed that the Grantee deems appropriate (provided that such photographs and images may not be used in for-profit commercials, unless such commercials are publicizing educational programs at Cummings School). As medical and surgical treatment necessitates the removal of tissue, cells, fluids or body parts of my animal, I authorize the Grantees to dispose of or use these tissues, cells, fluids or body parts for scientific and educational purposes.

I understand that a FINANCE CHARGE will be applied to all accounts unpaid after 30 days. The FINANCE CHARGE is computed on a monthly rate of 1.33% per month, which is an annual percentage rate of 16% applied to the average daily balance outstanding, with a minimum fee of \$50.

I do further agree that should any payment, or the full amount of the sum stated above, become overdue more than 20 days from the above-agreed upon time of payment or payments, the entire balance shall be considered in default and become due and payable. I further agree to be responsible for any or all collection agency and/or attorney fees necessary to collect the full amount.

I do further agree to comply with hours of visitation in conjunction with our Hospital's policy.

I have read, understand, and agree to accept the terms and conditions herein.

Owner's name:

Date:

Owner's address:

Date: *[Signature]*

**If the individual admitting the animal is someone other than the legal owner, please complete the portion below:**

The owner of the animal,  has granted me authority to obtain medical treatment and to bind this owner to pay the veterinary medical services provided at Cummings School pursuant to the terms and conditions described above.

\_\_\_\_\_  
Authorized Agent - Please Print

\_\_\_\_\_  
Agent's Signature

\_\_\_\_\_  
Street Address

\_\_\_\_\_  
Date

\_\_\_\_\_  
Town/City                      State                      Zip



# Treatment Plan

Estimated Charges

**B6**

**B6**

*This estimate is based upon our preliminary examination. This is an estimate and is not the final bill. Every effort will be made to keep you informed of the current status of your bill throughout your animal's hospitalization. The final fee may vary considerably from this estimated cost.*

Patient	Description	Low Qty	Low Extended	HighQty	High Extended
<b>B6</b>	Estimate to include hospitalization, supportive care, bloodwork, imaging, cardiology consultation as indicated, medications, and other treatments or diagnostics as warranted	1.00	<b>B6</b>	1.00	<b>B6</b>

**B6**

Doctor of Record: **B6**

I understand that no guarantee of successful treatment is made. I certify that I have read and fully understand the authorization for medical and/or surgical treatment, the reason for why such medical and/or surgical treatment is considered necessary, as well as its advantages and possible complications, if any. I also assume financial responsibility for all charges incurred to this patient(s). I agree to pay 75% of the estimated cost at the time of admission. Additional deposits will be required if additional care or procedures are required. I further agree to pay the balance of the charges when this patient(s) is released.

Procedural billing is inclusive up to and including the estimated duration of hospitalization. There will be additional expenses if hospitalization extends beyond the specified duration.

I have read, understand, and agree to accept the conditions of this treatment plan.

Thank you for entrusting us with your pet's care.

High Total	<b>B6</b>
Low Total	
75% Deposit	

**B6**

**Radiology Request & Report**

**Patient**

Name: B6  
Species: Canine  
Brown/White Female (Spayed)  
English Bulldog  
Birthdate: B6

**Owner**

Name: B6  
Address: B6  
B6

Patient ID: B6  
Date of request: B6

Attending Clinician: B6 DVM (Emergency & Critical Care Resident)

Student:

Date of exam: B6

Patient Location: Ward/Cage: ICU 02

Weight (kg) 19.80

**Sedation**

- Inpatient
- Outpatient Time:
- Waiting
- Emergency

- BAG
- OBAG
- 1/2 dose OBAG
- Butorphanol
- Anesthesia to sedate/anesthetize

Examination Desired: 3-view thorax (prioritize VD/DV and L lat)

Presenting Complaint and Clinical Questions you wish to answer:  
Emergency

Pertinent History:  
acute onset dyspnea, no known hx - pneumonia vs CHF

**Findings:**

THORAX, THREE VIEWS:

The cardiac silhouette is mildly enlarged, characterized by increased height on the lateral view, with mild dorsal displacement of the carina. There is mild left atrial enlargement. The pulmonary vessels are normal. There is a patchy interstitial pattern throughout the pulmonary parenchyma with corresponding blurring of vessel margins. There is multifocally increased conspicuity of the bronchi, most apparent in the right cranial and middle lung lobes. The pleural space is normal. The mediastinum is widened and fat-filled consistent with breed. The included abdomen is unremarkable. There is multifocal intervertebral disk space narrowing with endplate sclerosis, multifocal vertebral anomalies, ventral spondylosis deformans. There is moderate bilateral elbow and right stifle degenerative joint disease.

**Conclusions:**

- Diffuse bronchial and interstitial pulmonary pattern may indicate concurrent chronic lower airway disease (allergic, infectious, or parasitic) and interstitial lung disease. Airway sampling can be considered.
- Mild cardiomegaly and left atrial enlargement without evidence of decompensation. Echocardiography can be considered (to evaluate mitral valve and to evaluate for pulmonary hypertension).
- Multifocal intervertebral disk disease and breed-associated vertebral anomalies.
- Moderate bilateral elbow and right stifle degenerative joint disease.

**Radiologists**

Primary: [ B6 ] DVM

Reviewing:

**Dates**

Reported: [ B6 ]

Finalized:

### Discharge Instructions

**Patient**

Name: B6

Species: Canine

Brown/White Female (Spayed) English

Bulldog

Birthdate: B6

**Owner**

Name: B6

Address: B6

Patient ID: B6

**Attending Cardiologist:**

John E. Rush DVM, MS, DACVIM (Cardiology), DACVECC

B6

**Cardiology Resident:**

B6

**Cardiology Technician:**

B6

Student: B6 V19

Admit Date: B6 7:49:24 PM

Discharge Date: B6

**Diagnoses:** Dilated cardiomyopathy (DCM) with congestive heart failure

**Diagnostic test results and findings:**

- o Chest radiograph (x-ray) findings: The heart is enlarged and there was suspected fluid in the lungs
- o Echocardiogram findings: All chambers of the heart are enlarged and there is decreased contractile function.
- o ECG findings: The ECG showed a normal sinus rhythm
- o Labwork findings: The kidney values are normal, but an indicator of heart damage was elevated (Nt-proBNP)

**Case summary:**

Thank you for bringing B6 to Tufts for evaluation of her heart disease. B6 originally presented to the Tufts ER on B6 for sudden onset of respiratory distress and a cough. B6 was stabilized with supplemental oxygen in the ICU and was given antibiotics and mild sedatives to keep her comfortable. X-rays of B6 chest showed a diffuse increased opacity in her lungs that was suspected to be fluid secondary to heart disease, but pneumonia could not be ruled out. A cardiology workup showed that B6 had enlargement of her heart chambers, and a blood test showed that one of the indicators of heart stretch was elevated, thus supporting the presence of heart disease.

B6 has been diagnosed with a primary heart muscle disease called dilated cardiomyopathy (DCM). This disease is more common in large and giant breed dogs and is characterized by thinning of the walls of the heart, reduced cardiac pump function, and enlargement of the upper chambers of the heart. Many dogs with DCM will also have significant arrhythmias

which can be life-threatening and also require medical management. The heart enlargement has now progressed to the point of congestive heart failure, meaning that fluid is backing up into the lungs or belly. Unfortunately this is a progressive disease and we cannot reverse the changes to the heart muscle, however we can use cardiac medications and some changes to the diet to make **B6** comfortable and have her breathing easier.

**B6** has been breathing well outside of the oxygen cage, and her recheck examinations, echocardiograms, and chest x-rays have been stable. At this time we are happy with her condition, and are comfortable to send her home.

#### Monitoring at home:

- We would like you to monitor your dog's breathing rate and effort at home, ideally during sleep or at a time of rest. The doses of drugs will be adjusted based on the breathing rate and effort.
- In general, most dogs with heart failure that is well controlled have a breathing rate at rest of less than 35 to 40 breaths per minute. In addition, the breathing effort, noted by the amount of belly wall motion used for each breath, is fairly minimal if heart failure is controlled.
- An increase in breathing rate or effort will usually mean that you should give an extra dose of **B6** if difficulty breathing is not improved by within 30-60 minutes after giving extra **B6**, then we recommend that a recheck exam be scheduled and/or that your dog be evaluated by an emergency clinic.
- There are instructions for monitoring breathing, and a form to help keep track of breathing rate and drug doses, on the Tufts HeartSmart web site (<http://vet.tufts.edu/heartsmart/at-home-monitoring/>).
- We also want you to watch for weakness or collapse, a reduction in appetite, worsening cough, or distention of the belly as these findings indicate that we should do a recheck examination.
- If you have any concerns, please call or have your dog evaluated by a veterinarian. Our emergency clinic is open 24 hours/day.

#### Recommended Medications:

**B6**

NEXT DOSE DUE: Tonight with dinner

**B6**

## B6

### **Diet suggestions:**

Dogs with heart failure accumulate more fluid in their body if they eat large amounts of sodium (salt). Sodium can be found in all foods, but some foods are lower in sodium than others. Many pet treats, people foods, and supplements used to give pills often have more sodium than is desirable - a sheet that has suggestions for low sodium treats can be found on the HeartSmart web site (<http://vet.tufts.edu/heartsmart/diet/>)

Your dog's usual diet may also have more sodium than recommended - we want her to continue to eat her normal diet for the first 7 to 14 days so we can make sure she is tolerating medications well, but after that time we would recommend slowly introducing one of the lower sodium diets on the HeartSmart list (25% of the new diet and 75% old diet for 2-3 days, then 50/50, etc.). Hopefully you can find a diet on the list that your dog likes to eat.

The FDA is currently investigating an apparent association between diet and DCM. The exact cause is still unclear, but it appears to be associated with boutique diets and those containing exotic ingredient or are grain-free. Therefore, we are currently recommending that dogs do not eat these types of diets.

We recommend switching B6 to commercial diet made by a well-established company that is not grain-free and does not contain any exotic ingredients, such as kangaroo, duck, lamb, venison, lentils, peas, beans, buffalo, tapioca, barley, and chickpeas.

The FDA issued a statement regarding this issue

(<https://www.fda.gov/AnimalVeterinary/NewsEvents/CVMUpdates/ucm613305.htm>) and a recent article published by Dr. Lisa Freeman on the Cummings School's Petfoodology blog can further explain these findings (<http://vetnutrition.tufts.edu/2018/06/a-broken-heart-risk-of-heart-disease-in-boutique-or-grain-free-diets-and-exotic-ingredients/>).

Our nutritionists have compiled a list of dog foods that are good options for dogs with heart disease.

### **Dry Food Options:**

Royal Canin Early Cardiac (veterinary diet)  
Royal Canin Boxer  
Purina Pro Plan Adult Weight Management  
Purina Pro Plan Bright Mind Adult Small Breed Formula

### **Canned Food Options:**

Hill's Science Diet Adult Beef and Barley Entree  
Hill's Science Diet Adult 1-6 Healthy Cuisine Roasted Chicken, Carrot, and Spinach Stew  
Royal Canin Mature 8+

If your dog has special nutritional needs or requires a homecooked diet, we recommend you schedule an appointment with our nutritionists (508-887-4696).

### **Exercise Recommendations:**

For the first 7 to 10 days after starting medications for heart failure we recommend very limited activity. Leash walking only is ideal, and short walks to start. Once the heart failure is better controlled, then slightly longer walks are acceptable.

However, if you find that B6 is lagging behind or needs to stop on a walk then this was too long a walk and shorter walks are advised in the future. Repetitive or strenuous high energy activities (repetitive ball chasing, running fast off-leash, etc.) are generally not advised at this stage of heart failure.

### **Recheck Visits:**

A recheck visit is recommended in 1-2 weeks after any medication adjustments are made. At this visit we will check your dog's breathing effort and heart function, do a blood test to recheck kidney values, and probably recheck a blood pressure. A recheck echocardiogram is recommended in 3-4 months.

Thank you for entrusting us with B6 care, she is such a spirited girl! Please contact our Cardiology liaison at (508)-887-4696 or email us at [cardiovet@tufts.edu](mailto:cardiovet@tufts.edu) for scheduling and non-emergent questions or concerns.

Sincerely,

B6

Please visit our HeartSmart website for more information

<http://vet.tufts.edu/heartsmart/>

---

**Prescription Refill Disclaimer:**

*For the safety and well-being of our patients, your pet must have had an examination by one of our veterinarians within the past year in order to obtain prescription medications.*

**Ordering Food:**

*Please check with your primary veterinarian to purchase the recommended diet(s). If you wish to purchase your food from us, please call 7-10 days in advance (508-887-4629) to ensure the food is in stock. Alternatively, veterinary diets can be ordered from online retailers with a prescription/veterinary approval.*

**Clinical Trials:**

*Clinical trials are studies in which our veterinary doctors work with you and your pet to investigate a specific disease process or a promising new test or treatment. Please see our website: [vet.tufts.edu/cvmc/clinical-studies](http://vet.tufts.edu/cvmc/clinical-studies)*

---

Case: B6

Owner: B6

Discharge Instructions

**Radiology Request & Report**

**Patient**

Name: B6  
Species: Canine  
Brown/White Female (Spayed)  
English Bulldog  
Birthdate: B6

**Owner**

Name: B6  
Address: B6  
B6

Patient ID: B6  
Date of request: 1/18/2019

Attending Clinician: B6 DVM (Resident, Cardiology) Student: B6

Date of exam: 1/18/19

Patient Location: Ward/Cage: Cardio, ICU

Weight (kg) 19.60

**Sedation**

- Inpatient
- Outpatient Time:
- Waiting
- Emergency

- BAG
- OBAG
- 1/2 dose OBAG
- DexDomitor/Butorphanol
- Anesthesia to sedate/anesthetize

Examination Desired: 2 view CXR- DV and R lateral

**\*\*TECHS TO HANDLE ONLY\*\*- be careful due to dyspnea, do not stress further if dyspneic**

Presenting Complaint and Clinical Questions you wish to answer:

Recheck rads for CHF before discharge

Pertinent History:

DCM, suspected CHF on rads B6

**Findings:**

THORAX, THREE VIEWS: in comparison to previous exam dated B6

The cardiac silhouette is similarly mildly enlarged, characterized by increased height on the lateral view, with mild dorsal displacement of the carina. There is similar to mildly improved left atrial enlargement. The pulmonary vessels remain normal. The previously described diffuse patchy interstitial pattern is improved but not completely resolved and the bronchial component of the pulmonary pattern is no longer appreciated.

The pleural space is again normal. The mediastinum is widened and fat-filled consistent with breed. The included abdomen is unremarkable. There is multifocal intervertebral disk space narrowing with endplate



sclerosis, multifocal vertebral anomalies, ventral spondylosis deformans. There is unchanged moderate bilateral elbow and right stifle degenerative joint disease.

**Conclusions:**

- Improving interstitial pulmonary pattern is consistent with response to medical management.
- Unchanged mild cardiomegaly and similar to mildly improved left atrial enlargement.
- Unchanged multifocal intervertebral disk disease and breed-associated vertebral anomalies.
- Unchanged moderate bilateral elbow degenerative joint disease.

**Radiologists**

Primary: [ B6 ], VMD

Reviewing:

**Dates**

Reported: 1/18/19

Finalized:

# Cummings Veterinary Medical Center

AT TUFTS UNIVERSITY  
Cardiology Liaison: 508-887-4696

**B6**

Patient ID: **B6**

**B6** Canine

**B6** Years Old Female (Spayed) English  
Bulldog

Brown/White BW: Weight (kg) 19.80

## Cardiology Inpatient ENROLLED IN DCM STUDY

Date: **B6**

Weight: Weight (kg) 19.80

### Attending Cardiologist:

John E. Rush DVM, MS, DACVIM (Cardiology), DACVECC

**B6**

### Cardiology resident:

**B6**

### Thoracic radiographs available for review?

- Yes - in SS
- Yes - in PACS
- No

### Patient location:

ICU 02 5/6

### Presenting complaint and important concurrent diseases:

Presenting for new onset dyspnea, radiographs unintelligible between pneumonia and CHF. Persistent sinus tachycardia overnight

### Current medications and doses:

Unasyn

### At-home diet (name, form, amount, frequency)

Core Wellness grain-free wet + dry

### Key indication for consultation: (murmur, arrhythmia, needs fluids, etc.)

dyspnea, contiguous B-lines

### Questions to be answered:

fluid vs. lasix

### Is your consult time-sensitive? (e.g., anesthesia today, owner waiting, trying to get biopsy today)

- Yes (explain):

No

**\*STOP - remainder of form to be filled out by Cardiology\***

**Physical Examination**

**B6**

**Muscle condition:**

- |   |   |
|---|---|
| <input type="checkbox"/> Normal           | <input checked="" type="checkbox"/> Moderate cachexia |
| <input type="checkbox"/> Mild muscle loss | <input type="checkbox"/> Marked cachexia              |

**Cardiovascular Physical Exam**

**Murmur Grade: Very hard to listen due to the marked dyspnea and referred upper airway.**

- |  |                                |
|--|--------------------------------|
| <input checked="" type="checkbox"/> None | <input type="checkbox"/> IV/VI |
| <input type="checkbox"/> I/VI            | <input type="checkbox"/> V/VI  |
| <input type="checkbox"/> II/VI           | <input type="checkbox"/> VI/VI |
| <input type="checkbox"/> III/VI          |                                |

**Murmur location/description:**

**Jugular vein:**

- |  |  |
|--|--|
| <input checked="" type="checkbox"/> Bottom 1/3 of the neck | <input type="checkbox"/> Top 2/3 of the neck |
| <input type="checkbox"/> Middle 1/3 of the neck            | <input type="checkbox"/> 1/2 way up the neck |

**Arterial pulses: n/a**

- |                                 |  |
|---------------------------------|--|
| <input type="checkbox"/> Weak   | <input type="checkbox"/> Bounding          |
| <input type="checkbox"/> Fair   | <input type="checkbox"/> Pulse deficits    |
| <input type="checkbox"/> Good   | <input type="checkbox"/> Pulsus paradoxus  |
| <input type="checkbox"/> Strong | <input type="checkbox"/> Other (describe): |

**Arrhythmia:**

- |   |                                      |
|---|--------------------------------------|
| <input checked="" type="checkbox"/> None  | <input type="checkbox"/> Bradycardia |
| <input type="checkbox"/> Sinus arrhythmia | <input type="checkbox"/> Tachycardia |
| <input type="checkbox"/> Premature beats  |                                      |

**Gallop:**

- |  |                                     |
|--|-------------------------------------|
| <input type="checkbox"/> Yes           | <input type="checkbox"/> Pronounced |
| <input checked="" type="checkbox"/> No | <input type="checkbox"/> Other:     |
| <input type="checkbox"/> Intermittent  |                                     |

**Pulmonary assessments:**

- |  |   |
|--|---|
| <input type="checkbox"/> Eupneic                   | <input type="checkbox"/> Pulmonary Crackles           |
| <input type="checkbox"/> Mild dyspnea              | <input type="checkbox"/> Wheezes                      |
| <input checked="" type="checkbox"/> Marked dyspnea | <input type="checkbox"/> Upper airway stridor         |
| <input type="checkbox"/> Normal BV sounds          | <input type="checkbox"/> Other auscultatory findings: |

**Abdominal exam: n/a**

- Normal
- Hepatomegaly

- Abdominal distension
- Mild ascites

# B6

**Assessment and recommendations:**

Despite the poor quality of the echocardiogram pictures obtained today, we suspect the patient to have DCM with moderate to marked LA enlargement. The radiographs are very hard to interpret, typical for bulldog radiographs, but we suspect CHF to be one of the main differential despite the atypical pattern visualized. Treatment for HF should be initiated and improvement of the clinical condition would be a vote in favor for CHF. Antibiotic treatment should be continued since pneumonia cannot be completely rule out.  mg IV was given during the echocardiogram and we would recommend continuing with at least 2 mg/kg IV TID overnight.  mg PO BID should be started as well. The patient was enrolled in Dr. Freeman's study due to its current grain free diet and blood was pulled today for the study. The patient, once more stable, should be started on taurine at home as well. An NT-proBNP was pulled and will be very interesting in order to better assess the cardiovascular status of the patient since there is still some suspicions that the changes seen on radiographs are not all secondary to CHF. An  should be started long term as well. Chest radiographs could be repeated tomorrow after the

patient has received some **B6** An improvement of the interstitial pattern would confirm the suspected diagnosis of CHF versus no changes of the interstitial pattern would be more in favor of another disease process. A recheck echocardiogram should be repeated as well tomorrow once the patient is more stable in order to confirm today's findings. Bloodwork should be repeated tomorrow as well as 10-14 days after the start of the cardiac medications. Full recheck echocardiogram is recommended in 3 months or sooner if the patient develops clinical signs consistent with worsening heart disease.

**Addendum:**

Patient's NT-proBNP was **B6** A good improvement was noted with CHF treatment and recheck radiographs revealed improvement of the previously diagnosed interstitial pattern. The patient is scheduled to go home today with a recheck in 7-10 days.

**Final Diagnosis:**

- Suspected DCM with moderate to marked LA enlargement and suspected CHF

**Heart Failure Classification Score:**

**ISACHC Classification:**

- Ia
- Ib
- II
- IIIa
- IIIb

**ACVIM CHF Classification:**

- A
- B1
- B2
- C
- D

**M-Mode**

IVSd	<b>B6</b>	cm
LVIDd		cm
LVPWd		cm
IVSs		cm
LVIDs		cm
LVPWs		cm
EDV(Teich)		ml
ESV(Teich)		ml
EF(Teich)		%
%FS		%
SV(Teich)		ml

**M-Mode Normalized**

IVSdN	<b>B6</b>	{0.290 - 0.520}
LVIDdN		{1.350 - 1.730} !
LVPWdN		{0.330 - 0.530}
IVSsN		{0.430 - 0.710}
LVIDsN		{0.790 - 1.140} !
LVPWsN		{0.530 - 0.780}

**2D**

SA LA	<b>B6</b>	cm
-------	-----------	----

Ao Diam  
SA LA / Ao Diam  
IVSd  
LVIDd  
LVPWd  
EDV(Teich)  
IVSs  
LVIDs  
LVPWs  
ESV(Teich)  
EF(Teich)  
%FS  
SV(Teich)  
IVSd  
LVIDd  
EDV(Teich)  
LVPWd

B6

cm  
cm  
cm  
ml  
cm  
cm  
cm  
ml  
cm  
ml  
%  
%  
ml  
cm  
cm  
ml  
cm

**Notice of Patient Admit**

Date: B6 7:49:24 PM  
Referring Doctor: B6  
Client Name: B6  
Patient Name: B6

Case No: B6

---

Dear B6

Your patient presented to our Emergency service. Please make note of the following information to facilitate communication with our team.

The attending doctor is: B6

The reason for admission to the FHSA is: Dyspnea (pneumonia > CHF)

If you have any questions regarding this particular case, please call 508-887-4988 to reach the ICU Service. Information is updated daily, by noon.

Thank you for your referral to our Emergency Service.

**Cummings**  
**Veterinary Medical Center**  
AT TUFTS UNIVERSITY

Foster Hospital for Small Animals  
55 Willard Street  
North Grafton, MA 01536  
Telephone (508) 839-5395  
Fax (508) 839-7951  
<http://vetmed.tufts.edu/Chloe>

**B6**

**B6** Female (Spayed)  
Canine English Bulldog  
Brown/White  
**B6**

**Daily Update From the Cardiology Service**

Today's date: **B6**  
Dear Drs at **B6**

Thank you for referring patients to the Foster Hospital for Small Animals at the Cummings School of Tufts University.

Your patient **B6** was admitted and is being cared for by the Cardiology Service.

Today, **B6**

- is in stable condition
- is still in the oxygen cage
- is critically ill
- discharged from the hospital today

Today's treatments include:

- bloodwork planned/pending
- echocardiography - DCM and L-CHF
- cardiac catheter procedure planned
- ongoing treatment for CHF
- ongoing treatment for thrombosis
- ongoing treatment for arrhythmia

Additional plans:

Please allow 3-5 business days for reports to be finalized upon patient discharge.

Please call (508) 887-4696 before 5pm or email us at [cardiovet@tufts.edu](mailto:cardiovet@tufts.edu) if you have any questions.  
Thank you!

Attending Clinician: **B6** DVM (Resident, Cardiology)  
Faculty Clinician: John Rush DVM, DACVIM, DACVECC  
Senior student:





**Cummings**  
**Veterinary Medical Center**  
AT TUFTS UNIVERSITY

**B6**

Foster Hospital for Small Animals  
55 Willard Street  
North Grafton, MA 01536  
Telephone (508) 839-5395  
Fax (508) 839-7951  
<http://vetmed.tufts.edu/>

**B6** Female (Spayed)  
Canine English Bulldog  
Brown/White  
**B6**

1/21/2019

Dear **B6**

Thank you for referring **B6** with their pet **B6**

If you have any questions, or concerns, please contact us at 508-887-4988.

Thank you,

**B6** DVM (Resident, Cardiology)

Client: **B6**  
 Patient: **B6**

**Diet history 12/11/18**

**CARDIOLOGY DIET HISTORY FORM**

Please answer the following questions about your pet:

Pet's name: **B6** Owner's name: **B6** Today's date: **12/11/18**

1. How would you assess your pet's appetite? (mark the point on the line below that best represents your pet's appetite)



2. Have you noticed a change in your pet's appetite over the last 1-2 weeks? (check all that apply)

- Eats about the same amount as usual     Eats less than usual     Eats more than usual  
 Seems to prefer different foods than usual     Other: \_\_\_\_\_

3. Over the last few weeks, has your pet (check one)

- Lost weight     Gained weight     Stayed about the same weight     Don't know

4. Please list below ALL pet foods, people food, treats, snack, dental chews, rawcides, and any other food item that your pet currently eats. Please include the brand, specific product, and flavor so we know exactly what your pet is eating.

Examples are given in the table - please provide enough detail that we could go to the store and buy the exact same food.

Food (include specific product and flavor)	Form	Amount	How often?	Fed since
Agria Green Free Chicken, Lentil, & Sweet Potato Adult	dry	1 1/2 cup	daily	Jan 2018
80% lean hotdogger	microwaved	3 oz	1x/week	Jan 2018
Pupperoni doggie treat flavor	treat	8	daily	Aug 2018
Aspic	treat	1 each week	1x/week	May 2018
Don't see it? Call us + 811	dry	1 cup	1x/2w	2016
Other: <u>1/2 cup pet kibble</u>	dry	1/2 cup	1-2x/2w	

\*Any additional diet information can be listed on the back of this sheet.

5. Do you give any dietary supplements to your pet (for example: vitamins, glucosamine, fatty acids, or any other supplement)?  Yes  No. If yes, please list which ones and give brands and amounts.

	Brand/Concentration	Amount per day
Taurine	_____	1 g / 2x
Cartiline	_____	1/2 / 2x
Anticoagants	_____	_____
Multivitamin	_____	_____
Fish oil	_____	1 / 2x
Coenzyme Q10	_____	100 / 2x
Other (please list)	_____	_____
Example: Vitamin C	Nature's Bounty	200 mg tablets - 1 per day

6. How do you administer pills to your pet?  
 I do not give any medications  
 I put them directly in my pet's mouth without food  
 I put them in my pet's dog food  
 I put them in a Pill Pocket or similar product  
 I put them in foods (not foods)

Client: **B6**  
Patient:

**Vitals Results**

8:33:03 PM	Appropriate treatments completed prior to transfer
8:33:04 PM	Cage card transferred to new ward, scanned to new cage
8:33:05 PM	Cage set up in wards (note which ward)
8:33:06 PM	Fluids transferred to new ward
8:33:07 PM	Meds transferred to new ward
8:33:08 PM	ICU tech has rounded with ward tech prior to transfer
8:33:09 PM	Patient cleaned, catheters clean and patent
8:33:10 PM	Patient ID band is in place
8:42:20 PM	Quantify IV fluids (mls)
9:45:54 PM	Eliminations
10:58:29 PM	Respiratory Rate
11:21:35 PM	Heart Rate (/min)
1:00:02 AM	Quantify IV fluids (mls)
1:00:10 AM	Eliminations
5:30:18 AM	Quantify IV fluids (mls)
5:30:24 AM	Eliminations
6:18:24 AM	Respiratory Rate
6:22:14 AM	Heart Rate (/min)
9:17:23 AM	Weight (kg)
9:17:30 AM	Eliminations
9:49:47 AM	Notes
11:11:25 AM	Respiratory Rate
11:11:35 AM	Notes
11:11:49 AM	Heart Rate (/min)
11:12:49 AM	Eliminations
11:55:50 AM	Eliminations
1:27:55 PM	Quantify IV fluids (mls)
1:28:14 PM	Eliminations
1:28:45 PM	Notes
2:54:51 PM	Eliminations
3:32:30 PM	Notes
3:35:23 PM	Respiratory Rate
3:35:46 PM	Heart Rate (/min)
3:57:16 PM	Eliminations
5:08:54 PM	Quantify IV fluids (mls)
5:09:04 PM	Notes

**B6**

**B6**

Client: **B6**  
Patient:

**Vitals Results**

09:22 PM	Eliminations
11:58 PM	Amount eaten
15:55 PM	Eliminations
17:32:14 PM	Eliminations
18:01:22 PM	Heart Rate (/min)
18:01:30 PM	Notes
18:03:29 PM	Temperature (F)
18:03:36 PM	Respiratory Rate
18:34:44 PM	Nursing note
19:32:21 PM	Eliminations
19:32:32 PM	Notes
19:35:19 PM	Quantify IV fluids (mls)
19:39:59 PM	Amount eaten
1:10:42 PM	Notes
1:12:46 PM	Respiratory Rate
1:13:05 PM	Heart Rate (/min)
1:07:37 AM	Quantify IV fluids (mls)
1:08:57 AM	Eliminations
1:11:21 AM	Eliminations
1:13:02 AM	Amount eaten
1:34:40 AM	Notes
1:01:57 AM	Notes
1:03:40 AM	Respiratory Rate
1:04:50 AM	Heart Rate (/min)
1:49:58 AM	Eliminations
1:08:53 AM	Weight (kg)
1:09:02 AM	Eliminations
1:09:46 AM	Quantify IV fluids (mls)
1:13:10 AM	Amount eaten
1:37:49 AM	Notes
1:51:52 AM	Temperature (F)
1:52:15 AM	Notes
1:52:27 AM	Respiratory Rate
1:52:34 AM	Heart Rate (/min)
1:53:05 AM	Eliminations
1:17:23 AM	Notes
1:18:45 AM	Quantify IV fluids (mls)

**B6**

**B6**

Client: **B6**  
Patient:

**Vitals Results**

9:26:43 AM	Weight (kg)
9:27:31 AM	Eliminations
9:31:32 AM	Amount eaten
10:51:45 AM	Eliminations
11:19:18 AM	Notes
11:21:18 AM	Heart Rate (/min)
11:21:26 AM	Respiratory Rate
12:02:10 PM	Eliminations
1:27:19 PM	Eliminations
1:28:17 PM	Quantify IV fluids (mls)
1:28:53 PM	Notes
1:32:35 PM	Amount eaten
1:50:51 PM	Nursing note
3:10:50 PM	Notes
3:24:37 PM	Heart Rate (/min)
3:24:43 PM	Respiratory Rate
3:54:26 PM	Eliminations
5:27:08 PM	Quantify IV fluids (mls)
5:29:21 PM	Notes
5:31:27 PM	Amount eaten
7:43:47 PM	Amount eaten
7:49:25 PM	Temperature (F)
7:49:34 PM	Notes
7:53:14 PM	Respiratory Rate
7:53:21 PM	Heart Rate (/min)
7:53:48 PM	Eliminations
7:54:21 PM	Quantify IV fluids (mls)
9:32:20 PM	Notes
10:14:06 PM	Amount eaten
10:22:46 PM	EKG: Note rate and rhythm.
10:54:24 PM	Respiratory Rate
11:07:06 PM	Eliminations
11:07:22 PM	Notes
11:07:34 PM	Heart Rate (/min)
11:10:14 PM	Quantify IV fluids (mls)
11:26:54 PM	Eliminations

**B6**

**B6**

Client: **B6**  
Patient:

**Vitals Results**

1:31:45 AM	Notes
1:38:26 AM	Amount eaten
1:51:41 AM	Cage or Walk notes
3:48:25 AM	Weight (kg)
3:48:47 AM	Notes
3:50:37 AM	Quantify IV fluids (mls)
3:50:48 AM	Eliminations
3:56:41 AM	Respiratory Rate
3:57:01 AM	Heart Rate (/min)
5:08:13 AM	Notes
5:09:25 AM	Amount eaten
7:27:56 AM	Notes
7:33:58 AM	Eliminations
7:34:32 AM	Weight (kg)
7:50:20 AM	Heart Rate (/min)
7:50:28 AM	Respiratory Rate
7:50:38 AM	Temperature (F)
9:02:38 AM	Notes
9:10:44 AM	Amount eaten
9:44:23 AM	Nursing note
11:14:32 AM	Heart Rate (/min)
11:14:40 AM	Respiratory Rate
12:51:27 PM	Heart Rate (/min)
12:51:28 PM	Temperature (F)
12:51:29 PM	Respiratory Rate
12:51:30 PM	Weight (kg)
3:52:29 PM	Amount eaten
8:21:21 PM	Heart Rate (/min)
8:21:22 PM	Temperature (F)
8:21:23 PM	Respiratory Rate
8:21:24 PM	Weight (kg)
1:05:55 PM	Heart Rate (/min)
1:05:56 PM	Temperature (F)
1:05:57 PM	Respiratory Rate
1:05:58 PM	Weight (kg)
8:51:58 AM	Temperature (F)
8:52:06 AM	Respiratory Rate
8:52:13 AM	Heart Rate (/min)
8:59:16 AM	Weight (kg)

**B6**

**B6**

Client: **B6**  
Patient:

**Vitals Results**

11:19:14 AM	Heart Rate (/min)
11:19:15 AM	Temperature (F)
11:19:16 AM	Respiratory Rate
7 9:59:14 AM	Weight (kg)
1:10:48 AM	Weight (kg)
7:54:11 AM	Weight (kg)
7:57:36 AM	Interest in water
7:57:44 AM	Eliminations
8:19:19 AM	Temperature (F)
8:19:20 AM	Heart Rate (/min)
8:19:21 AM	Respiratory Rate
10:57:38 AM	Notes
11:12:14 AM	Cryoprecipitate (text)
11:12:15 AM	Donor ID (text)
11:12:16 AM	Dose and Time Frame Confirmed (boolean)
11:12:17 AM	Transfusion Form (boolean)
11:15:18 AM	Temperature (F)
11:15:25 AM	Heart Rate (/min)
11:15:31 AM	Respiratory Rate
11:15:39 AM	Mucous membranes
11:18:21 AM	Interest in water
12:13:20 PM	Temperature (F)
12:13:21 PM	Heart Rate (/min)
12:13:22 PM	Respiratory Rate
12:13:33 PM	Mucous membranes
1:58:37 PM	Cryoprecipitate (text)
1:58:37 PM	Cryoprecipitate (text)
1:58:38 PM	Donor ID (text)
1:58:38 PM	Donor ID (text)
3:19:48 PM	Temperature (F)
3:19:49 PM	Heart Rate (/min)
3:19:50 PM	Respiratory Rate
4:39:28 PM	Anesthesia Notes
5:21:35 PM	Catheter Assessment
5:35:40 PM	Bandage check
5:36:31 PM	Eliminations
5:37:03 PM	Pain assessment
5:56:06 PM	Temperature (F)
6:50:07 PM	Temperature (F)

**B6**

**B6**



Client: **B6**  
Patient:

**Vitals Results**

7:13:54 PM	Weight (kg)
7:14:04 PM	Temperature (F)
7:14:05 PM	Heart Rate (/min)
7:14:06 PM	Respiratory Rate
7:14:59 PM	Catheter Assessment
7:15:17 PM	Amount eaten
7:50:50 PM	Temperature (F)
9:35:37 PM	Bandage check
9:35:52 PM	Temperature (F)
9:36:08 PM	Pain assessment
9:37:01 PM	Eliminations
9:41:26 PM	Catheter Assessment
11:04:16 PM	Temperature (F)
11:04:17 PM	Heart Rate (/min)
11:04:18 PM	Respiratory Rate
11:48:31 PM	Eliminations
1:40:39 AM	Amount eaten
1:56:11 AM	Bandage check
1:56:35 AM	Catheter Assessment
1:56:46 AM	Temperature (F)
1:57:42 AM	Pain assessment
3:20:49 AM	Temperature (F)
3:20:50 AM	Heart Rate (/min)
3:20:51 AM	Respiratory Rate
3:27:51 AM	Eliminations
5:13:59 AM	Catheter Assessment
5:14:24 AM	Bandage check
5:14:52 AM	Pain assessment
7:20:19 AM	Eliminations
7:56:20 AM	Temperature (F)
7:56:21 AM	Heart Rate (/min)
7:56:22 AM	Respiratory Rate
8:02:40 AM	Catheter Assessment
8:02:57 AM	Amount eaten
8:48:54 AM	Bandage check
9:03:16 AM	Pain assessment
9:03:44 AM	Bandage check
9:04:01 AM	Catheter Assessment

**B6**

**B6**

Client: **B6**  
Patient:

**Vitals Results**

<b>B6</b>	9:13:32 AM	Weight (kg)	<b>B6</b>
	9:13:40 AM	Eliminations	
	10:07:21 AM	Nursing note	
	11:21:19 AM	Eliminations	
	11:25:23 AM	Temperature (F)	
	11:25:24 AM	Heart Rate (/min)	
	11:25:25 AM	Respiratory Rate	
	2:32:56 PM	Heart Rate (/min)	
	2:32:57 PM	Respiratory Rate	
	2:32:58 PM	Temperature (F)	
	2:32:59 PM	Weight (kg)	
	0:02:36 AM		
	8 10:40:25 AM	Weight (kg)	

**B6**

**B6**

**B6**

**B6**

**B6**

**B6**



Cummings  
Veterinary Medical Center  
AT TUFTS UNIVERSITY

Forster Hospital for Small Animals  
55 Willard Street  
North Grafton, MA 01526  
Telephone (508) 829-5295  
Fax (508) 829-7951  
<http://vetmed.tufts.edu/>

**B6**

**B6**

Female

Case# Doberman Pinscher  
Mark/Tan  
396332

12/29/2017

Dear

**B6**

Thank you for referring

**B6**

with their p

**B6**

If you have any questions, or concerns, please contact us at 508-829-4988.

Thank you,

**B6**

Cummings  
Veterinary Medical Center  
AT TUFTS UNIVERSITY

Forster Hospital for Small Animals  
25 Willard Street  
North Grafton, MA 01526  
Telephone (508) 829-5299  
Fax (508) 829-7951  
<http://vetmed.tufts.edu/>

**B6**

**B6**

Female  
Owner: Deborah Fischer  
Mark/Tan  
096332

**B6**

Dear Dr.

**B6**

Thank you for referring **B6** with their pet **B6**

**B6** presented to Tufts Chief Surgery Service for a laparoscopic spay. We tested her for vWF and it was 32% so we administered cryoprecipitate pool desmopressin prior to surgery. She stayed in our ICU overnight and did well and is being discharged today on **B6**

If you have any questions, or concerns, please contact us at 508-827-4988.

Thank you,

**B6**

(SAM Rotating Intern)  
A, DACVS

**Cummings**  
**Veterinary Medical Center**  
AT TUFTS UNIVERSITY

Forster Hospital for Small Animals  
55 Willard Street  
North Grafton, MA 01526  
Telephone (508) 829-5295  
Fax (508) 829-7951  
<http://vetmed.tufts.edu/>

**B6**

**B6** Female (Spayed)  
Case# Ocbremsin Pinner  
Mark/Tan  
396332

4/23/2018

Date **B6**

**B6**

If you have any questions or concerns, please contact us at 508-829-4988.

Thank you.

**B6**

Cummings  
Veterinary Medical Center  
AT TUFTS UNIVERSITY

**B6**

Forster Hospital for Small Animals  
55 Willard Street  
North Grafton, MA 01526  
Telephone (508) 829-5295  
Fax (508) 829-7951  
<http://vetmed.tufts.edu/>

**B6**

Female (Spayed)

Case# Doberman Pinscher  
Black/Tan  
396332

4/24/2018

Dear

**B6**

**B6**

bloodwork is attached for your records.

If you have any questions or concerns, please contact us at 508-832-4000.

Thank you,

**B6**

Cummings  
Veterinary Medical Center  
AT TUFTS UNIVERSITY

Forster Hospital for Small Animals  
55 Willard Street  
North Grafton, MA 01526  
Telephone (508) 829-5295  
Fax (508) 829-7951  
<http://vetmed.tufts.edu/>

**B6**

**B6**

Female (Spayed)

Case# Doberman Pinscher

Black/Tan

396332

5/9/2018

Dr. **B6**

Thank you for referring **B6** with their pet **B6**

If you have any questions, or concerns, please contact us at 508-827-1981.

Thank you,

John Rich DVM, DACVIM (Cardiology), DACVCC

Cummings  
Veterinary Medical Center  
AT TUFTS UNIVERSITY

Forster Hospital for Small Animals  
55 Willard Street  
North Grafton, MA 01526  
Telephone (508) 829-5295  
Fax (508) 829-7951  
<http://vetmed.tufts.edu/>

**B6**

**B6**

Female (Spayed)

Case: Unknown Pinner  
Black/Tan  
396332

6/9/2018

Dear **B6**

Thank you for referring **B6** with their pet **B6**

If you have any questions, or concerns, please contact us at 508-827-1981.

Thank you,

**B6**

**Cummings**  
**Veterinary Medical Center**  
AT TUFTS UNIVERSITY

Forster Hospital for Small Animals  
55 Willard Street  
North Grafton, MA 01526  
Telephone (508) 829-5295  
Fax (508) 829-7951  
<http://vetmed.tufts.edu/>

**B6**

**B6**

Female (Spayed)

Case# Doberman Pinscher  
Black/Tan  
396332

12/19/2018

Dear **B6**

Thank you for referring **B6** with their pet **B6**

If you have any questions, or concerns, please contact us at 508-829-1981.

Thank you,

**B6**

**Foster Hospital for Small Animals**

55 Willard Street  
North Grafton, MA 01536  
(508) 839-5395

**All Medical Records**

Client:

**B6**

Address:

Patient: **B6**

Breed: Golden Retriever

Species: Canine

DOB: **B6**

Sex: Female

Home Phone:

Work Phone:

Cell Phone:

**B6**

**Referring Information**

---

**B6**

Client:

**B6**

Patient:

**Initial Complaint:**

Scanned Record

---

**Initial Complaint:**

New - **B6** - DCM study

SOAP Text Jan 2 2019 11:10AM -

**B6**

---

**Initial Complaint:**

Drop Off Lab Sample

---

**Disposition/Recommendations**

---



Client:  
Patient:

**B6**

---

---

Client: **B6**  
Patient:

**Cummings**  
**Veterinary Medical Center**  
AT TUFTS UNIVERSITY

**Foster Hospital for Small Animals**

55 Willard Street  
North Grafton, MA 01536  
(508) 839-5395

Client:	<b>B6</b>
Veterinarian:	
Patient ID:	<b>B6</b>
Visit ID:	

Patient:	<b>B6</b>
Species:	Canine
Breed:	Golden Retriever
Sex:	Female
Age:	<b>B6</b> Years Old

**Lab Results Report**

Accession ID:			
Test	Results	Reference Range	Units



**B6**

Client:  
Patient:

**B6**

RDVM **B6** records

Clinical History for **B6**

Client: **B6**  
Breed: Golden Retriever  
Sex: Female  
Colour: white  
Age: **B6**  
Desexed: N  
Alive: Y

**B6**

13-Dec-2018

2155093 **B6**

Notes

Multiple emails with 3 options for cardiology consults in area and pet food labels (feeding trials vs formulation to meet set/cv guidelines - all stage diets vs maintenance, laurine supplementation is not going to fix) a protein free diet...

Notified that I have heard confirmation from Dr Freeman at Tufts that Tufts qualifies for a new study there - I gave permission to send Tufts Nutrition info her contact info and they will reach out directly to her to set up a visit. Her other dogs may also qualify for study based on **B6** results. Will **B6** and her other dogs) on normal diet until **B6** is evaluated there and they direct her to transition to new diet

I stated **B6** and several of her other dogs had normal echos when they were approx 1-1.2 yo. As she wanted to screen before considering breeding. She has all records with her in case Tufts would like to see baseline echo measurements. She collected all types of food she has fed in past year or so including dry/canned/treats and list of any people foods she feeds them even just as treats or snacks

-GP

07-Dec-2018

2155093 **B6**

Notes

See labwork results. CBC wnl. Chem wnl. HWT wnl. proBNP elevated at 1.395

Rec echo to no-DCM

PGIC - see results. I would like to pursue echo for dog here with full specialist (not specific to cardiology) but would have to delay until next semester. Can refer for outpatient echo for an state west/berkeley or southern cardiology. I would like to go to Tufts if not too pricey - will enquire about the satellite fee. Will also enquire about contacts for golden retriever study mentioned in Dr Freeman's journal article from 12-1 editor

-GP

04-Dec-2018

2155093 **B6**

Notes

**B6**

Examination Report Canine

Presenting For: recheck values from the summer

Weight:	Diet:	Medical History:	Vaccines given/noms:
Temp: 99.1 F	taste of the wild limit	Eating: yes	Durbin Location
HR: 72 bpm	grain-free	Drinking: yes	Distill
RR: 24 bpm	Anticim? 2 cups bid	Coughing: no	Rabies
MM bark/roast	Dental Grade 1-4	Snoring: no	Bordetella
CRT: +2	CSU Pain Scale 0-4	Vomiting: no	Lepto
Weight: 68 lbs	Flea Collar: neg	Diarrhea: no	Lyme
BGS: 3/0		Other: wnl	CDV

4DX - not done today

History/Owener Concerns: Rechecking labwork as rec'd by RRS this summer. Doing well. Only concern is that she gets things she shouldn't - chews on carpet, was eating soil with all the other dogs recently (rabbit droppings?), coprophagic. Wears a basket muzzle to prevent ingestion. Next heat cycle Sept? (I'm not sure) Would like to breed in future. 7 dogs at home. No further travel to Florida back planned.

Current Meds & Supplements: one

Client: **B6**  
Patient: **B6**

**RDVM B6 records**

Flea & Tick Prevention: *4-8 advants monthly year round*  
Heartworm Prevention: *Heartectin monthly year round*

**Physical Exam Attitude: BAR**

Hydration Status:  normal  Abnormal  Did Not Examine

Mouth:  
 Normal  
 Abnormal  
 Did Not Examine

Cardiovascular:  
 Normal (NBA MSP req)  
 Abnormal  
 Did Not Examine

Respiratory:  
 Normal  
 Abnormal  
 Did Not Examine

Eyes:  
 Normal  
 Abnormal  
 Did Not Examine

Respiratory:  
 Normal  
 Abnormal  
 Did Not Examine

Integument:  
 Normal  
 Abnormal  
 Did Not Examine

Ears:  
 Normal  
 Abnormal  
 Did Not Examine

Abdomen:  
 Normal  
 Abnormal  
 Did Not Examine

Neurologic:  
 Normal  
 Abnormal  
 Did Not Examine

Nose/Throat:  
 Normal  
 Abnormal  
 Did Not Examine

Urogenital:  
 Normal (check up 30 month)  
 Abnormal  
 Did Not Examine

Lymph Nodes:  
 Normal  
 Abnormal  
 Did Not Examine

Other: *verified microchip*

From Notes:

DOB: 3 yo Fl Eng GRF: age healthy *and fine diet its labwork abnormal was removed in 8/18 but low K and pt values are being rechecked in 11/18*

**Recommendations/Plan**

**B6**

**B6**

**Medis Dispensed:**

Tot: **B6**

Withhold: **B6** DVM

Qty	Product / Service	Amount	Start	Date
1.00	Bio Hazard Waste Disposal Fee	<b>B6</b>		18-Dec-2018 10:12 AM
1.00	Genex Young of Canada p/CDP (200000) Shipped CSD Chew 18 14W Ad		18-Dec-2018 10:12 AM	
1.00	Physical Exam / Office Visit - Bsp/Neuro		14-Dec-2018 10:13 AM	

**04-Dec-2018 - 10:13 AM**

patient: **B6**

Notes:  
Appointment report: consult to discuss blood work performed in August and going forward

**04-Sep-2018 - 10:13 AM**

patient: **B6**

Notes:  
Date and Time: 1:10 pm 9/4/18

**B6**

Client:  
Patient:

**B6**

RDVM **B6** records

Initials **B6**

04-Sep-2018 11:00 AM

#52697 **B6**

Notes  
Date and Time: 12:02 PM 9/4/18

Client Communication Notes

**B6**

**B6**

Initials **B6**

30-Aug-2018 01:05 PM

#52666

Notes  
Date and Time: 8/20/18 9:53 AM

Client Communication Notes

**B6**

**B6**

Initials **B6**

14-Aug-2018 01:00 PM

#52374 **B6**

Notes

**B6**

Examination Report Canine

Presenting Pmt: PE 4DX update vaccines

**B6**

Current Meds & Supplements

Client: **B6**  
Patient:

RDVM **B6** records

Flea & Tick Prevention: Administered

Heartworm Prevention: monthly ivermectin product that owner gets from Great Council travels there.

Physical Exam: Attitude: BAR

Hydration Status: Normal **If Abnormal %**

**Mouth:**

- Normal
- Abnormal
- Did Not Examine

**Cardiovascular:**

- Normal
- Abnormal
- Did Not Examine

**Musculoskeletal:**

- Normal
- Abnormal
- Did Not Examine

**Eyes:**

- Normal
- Abnormal
- Did Not Examine

**Respiratory:**

- Normal
- Abnormal
- Did Not Examine

**Integument:**

- Normal
- Abnormal
- Did Not Examine

**Rect:**

- Normal
- Abnormal
- Did Not Examine

**Abdomen:**

- Normal
- Abnormal
- Did Not Examine

**Neurologic:**

- Normal
- Abnormal
- Did Not Examine

**Nose/Throat:**

- Normal
- Abnormal
- Did Not Examine

**Urogenital:**

- Normal
- Abnormal
- Did Not Examine

**Lymph Nodes:**

- Normal
- Abnormal
- Did Not Examine

Other:

Exam Notes:

slight tartar

DDs: mild, appears healthy

Recommendations/Plan:

**B6**

**B6**

Medis Dispensed:

Tech: **B6**

Veterinarian: **B6**

Qty	Product / Service
1.00	Physical Exam / Intra Visc - (Annual reminder)
1.00	'DHAPP' Vaccination (1 yr) (Includes Fixed Fee 3.00 EAC Tax # Batch No: 9160111A)
1.00	'DHAPP' vaccine/Duramune Max 5-Inv # Batch No: 9160113A
1.00	Canna Standard TNC, Chef 25 40X (25049099)

Provider	Staff	Date
<b>B6</b>		14-Aug-2018 11:07 AM
		14-Aug-2018 11:07 AM
		14-Aug-2018 11:07 AM
		14-Aug-2018 11:07 AM

Client:  
Patient:

**B6**

**RDVM B6 records**

Ordered *	Updated	Status	Order	Source
04-Dec-2018 10:12 am	05-Dec-2018 10:42 am	Final	Canine Young w/ Cardiacal proBNP (29249904 Standard CBC Chem #0, HW AG	IDEXX Reference Laboratories

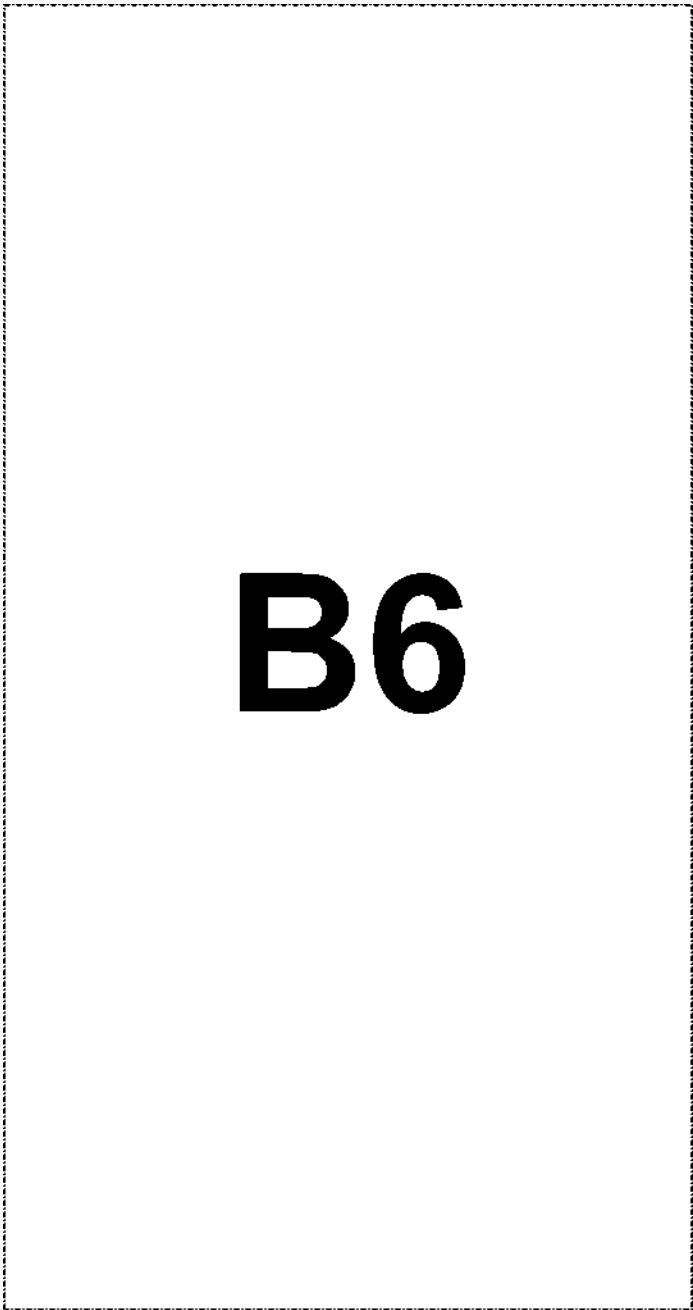
Final | Accession # **B6** [View in MyConnect Plus](#)

**HEMATOLOGY**

- RBC
- Hematocrit
- Hemoglobin
- MCV
- MCH
- MCHC
- % Reticulocyte
- Reticulocytes
- Reticulocyte Hemoglobin
- WBC
- % Neutrophils
- % Lymphocytes
- % Monocytes
- % Eosinophils
- % Basophils
- Neutrophils
- Lymphocytes
- Monocytes
- Eosinophils
- Basophils
- Platelets

**CHEMISTRY**

- Glucose
- IDEXX SDMA
- Creatinine
- BUN
- Potassium
- Total Protein
- Albumin
- Globulin
- Albumin Globulin Ratio
- ALT
- ALP
- Hemoglobin Index
- Lipemia Index
- Cardiacal proBNP - Canine



Client: **B6**  
Patient: **B6**

RDVM **B6** records

**B6**

SEROLOGY  
Heartworm Antigen by ELISA

14-Aug 2018  
11:27 am

15-Aug  
2018  
10:00 am

Final Canine Standard CBC Chem 25 4DX (25049999)

REXX  
Referencia  
Laboratory



Client: **B6**  
Patient:

RDVM **B6** records

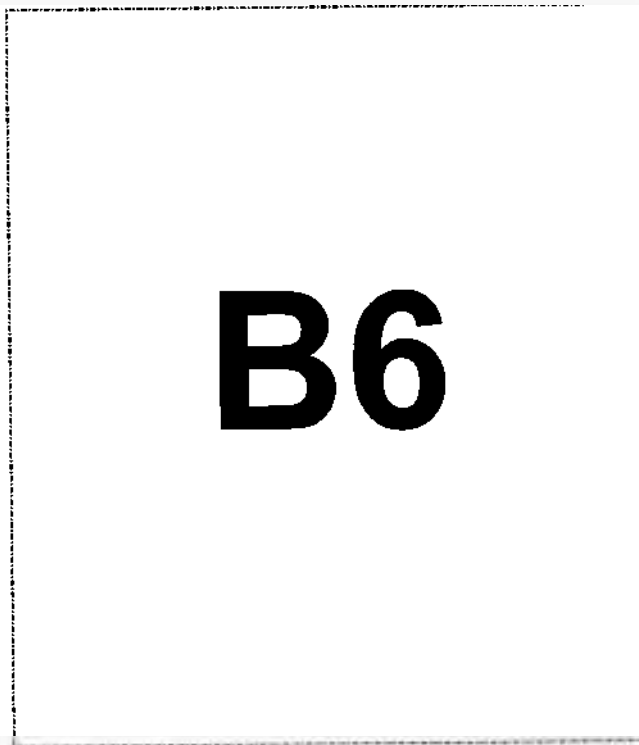
Ordered	Updated	Status	Order	Source
04-Dec-2018 10:43 am	05-Dec-2018 10:43 am	Final	Canine Young w/ Cardiolipin proBMP (29249999) Standard CBC Chem 12 HW AG	IDEXX Reference Laboratories
14-Aug-2018 11:07 am	15-Aug-2018 10:11 am	Final	Canine Standard CBC Chem 25 4DX (25049999)	IDEXX Reference Laboratories

Final | Accession # **B6**

[View in Reference Plus](#)

**HEMATOLOGY**

- RBC
- Hematacrit
- Hemoglobin
- MCV
- MCH
- MCHC
- % Reticulocyte
- Reticulocytes
- Reticulocyte Hemoglobin
- ~~WBC~~
- % Neutrophils
- % Lymphocytes
- % Monocytes
- % Eosinophils
- % Basophils
- Neutrophils
- Lymphocytes
- Monocytes
- Eosinophils
- Basophils
- Platelets
- Platelet Count



PLATELET CLUMPS SEEN ON SLIDE. PLATELET COUNT AND BLOOD FLOW ESTIMATE MAY BE FAULTY DUE TO THIS. PLATELETS APPEAR SLIGHTLY INCREASED ON THE BLOOD FLOW (180,000 PER MICROLITER) TO ADEQUATE.  
Slide reviewed for platelet estimate. For a full slide review, including cell morphology, a slide evaluation add-on (code 2000) is available.

- AUTOMATED WBC
- SEE PLATELET COUNT

**CHEMISTRY**

- Glucose
- IDEXX S-CMA
- Creatinine
- BUN
- BUN Creatinine Ratio
- Phosphorus
- Calcium
- Sodium



Client: **B6**  
Patient:

RDVM **B6** records

Phosphorus  
Na:K Ratio  
Chloride  
TCO2 (Bicarbonate)  
Anion Gap  
Total Protein  
Albumin  
Globulin  
Albumin:Globulin Ratio  
ALT  
AST  
ALP  
GGT  
Bilirubin - Total  
Bilirubin - Unconjugated  
Bilirubin - Conjugated  
Cholesterol  
Creatine Kinase  
Hemolysis Index  
Lipemia Index

**B6**

- b
- b
- BOTH GFR AND CREATININE ARE WITHIN THE REFERENCE INTERVALS WHICH INDICATES KIDNEY FUNCTION IS LIKELY GOOD. EVALUATE A COMPLETE URINALYSIS AND CONFIRM THERE IS NO OTHER EVIDENCE OF KIDNEY DISEASE
- Index of 0, 1, 2 prohibits no significant effect on chemistry values
- Index of 0, 1, 2 prohibits no significant effect on chemistry values

SERBIOLOGY

Neutrophil Antigen  
 Ehrlichia canis (serovar)  
 Lyme (Borrelia burgdorferi)  
 Anaplasma phagocytophilum (hrpIS)

**B6**

Client: **B6**  
Patient:

**RDVM** **B6** records

The American Veterinary Society recommends that a confirmatory test be run on all positive antigen test results prior to therapy, especially when a positive test result is unexpected. For a positive negative result on a ADs Plus, we recommend test code 723, Herpesvirus Antigen by ELISA as a confirmatory test.

The Herpesvirus (canine herpesvirus) antibody portion of the test uses peptides from viral antigens that are sensitive and specific for detecting exposure to these pathogens. If positive, submission of a fresh whole blood sample with an air-dried smear for a comprehensive CBC, test code 200, is recommended to identify abnormalities consistent with infection, primarily thrombocytopenia and anemia. PCR testing is complementary to serology and may be useful for confirmation of infection and for detection of infection in patients early in infection prior to seroconversion, especially in patients with clinical signs. Consider test code 1044, Herpesvirus can ResPCR Test, or test code 28703, Titer/Vector Comprehensive ResPCR Panel Add-on (preferred).

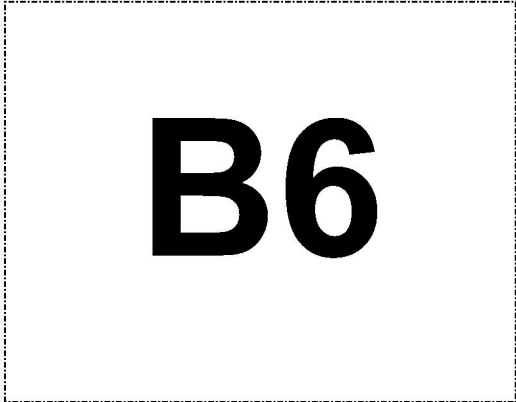
The Lyme (borrelia burgdorferi) antibody portion of the test detects Lyme CS antibodies. A positive Lyme CS antibody response indicates infection in dogs, rather than exposure or vaccination. This test may detect antibodies before clinical signs of joint disease. The quantitative assay for Lyme CS antibodies (Lyme Quant CS Antibody by ELISA, test code 7266) is preferred for assessing response to treatment. A measurable decline in quantitative Lyme CS antibody levels within 6 months correlates with effective treatment, whereas the ADs Plus test may remain positive. For more information on Lyme, please visit <https://www.idexx.com/us/lab/ima/facts-about-lyme>.

The *Brucella abortus* phage-typing antibody portion of the test uses a peptide that is sensitive and specific for detecting exposure to these organisms. If positive, submission of a fresh whole blood sample with an air-dried smear is recommended to identify abnormalities consistent with infection, primarily thrombocytopenia. PCR testing is complementary to serology and may be useful for confirmation of infection and for detection of infection in patients early in infection prior to seroconversion, especially in patients with clinical signs. Consider test code 2114, *Brucella abortus* ResPCR Test, or test code 28703, Titer/Vector Comprehensive ResPCR Panel Add-on (preferred).

2025-08-08 10:00 AM

Client: **B6**  
Patient: **B6**

RDVM



Client Information:

**B6**

Patient Information:

**B6**  
Canine, golden retriever, Female, , Gold  
Birthday:  
Neutered: N

Cardiovascular Examination Summary

for **B6**  
8-Dec 2016

Dear **B6**

**B6** was evaluated at **B6** Cardiology on 8-Dec 2016 by **B6** in the **B6**. The results of that evaluation are found below.

Referred by: **B6**

Presenting Complaint: Congenital cardiac OFA certification

History: **B6** has no history of a murmur with no clinical signs of cardiac disease or heart failure.

Cardiovascular Physical Examination: BCS 2/5, BAR, MM pink, moist, CRT 2.0 sec, no jugular pulsations, RR 36 BPM, lung sounds slightly increased but no crackles or wheezes noted, HR 60-80 BPM with a regularly regular rhythm, no murmur is noted, femoral pulse is regular, symmetrical, and equal.

Diagnostics Performed:

Laboratory Findings: Not recommended or performed at this evaluation.

Imaging:

Thoracic Radiographs: Not recommended or performed at this evaluation.

Echocardiogram: Not recommended or performed at this evaluation.

Other:

Electrocardiogram: Not recommended or performed as part of this evaluation.

Client:  
Patient:

**B6**

**RDVM**

---

**In-Hospital Treatments:** None

**Diagnostics Pending:** None

**Cardiovascular Case Assessment:** Normal cardiovascular physical exam

**Medical Therapy/Treatment Recommendations:** None

**Diet Recommendations:** No change in diet is recommended at this time.

**Exercise Limitations:** No specific limitations are recommended based on this evaluation. Please allow **B6** to continue to set the pace and rest as needed.

**Follow-up:** No follow-up evaluation is indicated

If you have any questions or concerns, please feel free to call.  
Sincerely,

**B6**

**MEDICATIONS MAY HAVE PRICE CHANGES THAT ARE BEYOND OUR CONTROL. WE APOLOGIZE FOR ANY INCONVENIENCE.**

**MEDICATION REFILLS** (only for medications from **B6** with a refill option):  
\*Refill requests can be called into the Specialty Center during normal business hours: Mon-Fri 8am-5pm. We will not always be able to accommodate refill requests after hours or on weekends. You can pick the prescriptions up after hours only if you call before 5pm on Friday.

**WEEKEND OR AFTER HOURS MEDICATION REFILLS WILL HAVE A \$20 FEE IF CALLED IN AFTER 5PM ON FRIDAY\*\***  
**IF YOU CALL BEFORE 5PM ON FRIDAY, WE WILL HAVE IT READY FOR PICK UP ANYTIME, EVEN AFTER HOURS AND WEEKENDS**  
Thank you for your understanding!

Client: **B6**  
Patient: **B6**

**IDEXX BNP - 1/2/2019**

IDEXX Reference Laboratories

Client: **B6** Patient: **B6**

IDEXX VetConnect 1-888-433-9987

Client: **B6**  
Patient: **B6**  
Species: CANINE  
Breed: GOLDEN\_RETRIEVE  
Gender: FEMALE SPAYED  
Age: **B6**

Date: 01/02/2019  
Requisition #: 434853  
Accession #: **B6**  
Ordered by: **B6**

**TUFTS UNIVERSITY**  
200 WESTBORO RD  
NORTH GRAFTON, Massachusetts 01536  
508-839-5395

Account: **B6**

**CARDIOPET proBNP - CANINE**

Test	Result	Reference Range	Low	Normal	High
CARDIOPET proBNP - CANINE	<b>B6</b>	0 - 900 pmol/L	HIGH		<b>B6</b>

Comments

**B6**

Please note: complete interpretive comments for all concentrations of Cardiotest proBNP are available in the online directory of services. Serum specimens received at room temperature may have decreased NT-proBNP concentrations.

Client: **B6**  
Patient: **B6**

CBC/CHEM - 1/2/2019



### Tufts Cummings School Of Veterinary Medicine

200 Westboro Road  
North Grafton, MA 01536

#### DUPLICATE

Name/DOB:	<b>B6</b>	Sex:	F	Provider:	<b>B6</b>
Patient ID:	<b>B6</b>	Age:	66	Order Location:	<b>B6</b>
Phone number:		Species:	Canine	Sample ID:	1901020129
Collection Date:	1/2/2019 11:22 AM	Breed:	Golden Retriever		
Approval date:	1/2/2019 1:17 PM				

#### CBC, Comprehensive, Sm Animal (Research)

		Ref. Range/Females
SMACHUNSKI		
WBC (ADVIA)	<b>B6</b>	4.40-15.10 K/uL
RBC (Advia)	<b>B6</b>	5.80-8.50 M/uL
Hemoglobin (ADVIA)	<b>B6</b>	13.3-20.5 g/dL
Hematocrit (Advia)	<b>B6</b>	39-55 %
MCV (ADVIA)	<b>B6</b>	64.5-77.5 fL
MCH (ADVIA)	<b>B6</b>	21.3-25.9 pg
MCHC (ADVIA)	<b>B6</b>	31.9-34.3 g/dL
RDW (ADVIA)	<b>B6</b>	11.9-15.2
Platelet Count (Advia)	<b>B6</b>	173-486 K/uL
01/02/19 1:17 PM		
Mean Platelet Volume (Advia)	<b>B6</b>	8.29-13.20 fl
01/02/19 11:41 AM		
Platelet Crit	<b>B6</b>	0.129-0.403 %
01/02/19 11:41 AM		
Reticulocyte Count (Advia)	<b>B6</b>	0.20-1.60 %
Absolute Reticulocyte Count (Advia)	<b>B6</b>	14.7-113.7 K/uL

#### Microscopic Exam of Blood Smear (Advia)

		Ref. Range/Females
SMACHUNSKI		
Seg Neuts (%)	<b>B6</b>	43-86 %
Lymphocytes (%)	<b>B6</b>	7-47 %
Monocytes (%)	<b>B6</b>	1-15 %
Eosinophils (%)	<b>B6</b>	0-16 %
Nucleated RBC	<b>B6</b>	0-1 /100 WBC
01/02/19 11:41 AM		
Seg Neutrophils (Abs) Advia	<b>B6</b>	2.80-11.50 K/uL
Lymphs (Abs) Advia	<b>B6</b>	1.00-4.80 K/uL
Mono (Abs) Advia	<b>B6</b>	0.10-1.50 K/uL
Eosinophils (Abs) Advia	<b>B6</b>	0.00-1.40 K/uL
WBC Morphology Echinocytes	<b>B6</b>	

#### Research Chemistry Profile - Small Animal (Cobas)

Sample ID: 1901020129/1  
This report continues... (Final)

Reviewed by: \_\_\_\_\_

Client: **B6**  
Patient:

CBC/CHEM - 1/2/2019



**Tufts Cummings School Of Veterinary Medicine**

200 Westboro Road  
North Grafton, MA 01536

**DUPLICATE**

Name/DOB: **B6**      Sex: F      Provider: **B6**  
Patient ID:      Order Location: **B6**  
Phone number:      Age: **66**      Sample ID: 1901020129  
Collection Date: 1/2/2019 11:22 AM      Species: Canine  
Approval date: 1/2/2019 1:17 PM      Breed: Golden Retriever

**Research Chemistry Profile - Small Animal (Cobas) (cont'd)**

		Ref. Range/Females
DNOYES		
Glucose	<b>B6</b>	67-135 mg/dL
Urea		8-30 mg/dL
Creatinine		0.6-2.0 mg/dL
Phosphorus		2.6-7.2 mg/dL
Calcium 2		9.4-11.3 mg/dL
Magnesium 2+		1.8-3.0 mEq/L
Total Protein		5.5-7.8 g/dL
Albumin		2.8-4.0 g/dL
Globulins		2.3-4.2 g/dL
A/G Ratio		0.7-1.6
Sodium		140-150 mEq/L
Chloride		106-116 mEq/L
Potassium		3.7-5.4 mEq/L
tCO2(Bicarb)		14-28 mEq/L
AGAP		8.0-19.0
NA/K		29-40
Total Bilirubin		0.10-0.30 mg/dL
Alkaline Phosphatase		12-127 U/L
GGT	0-10 U/L	
ALT	14-86 U/L	
AST	9-54 U/L	
Creatine Kinase	22-422 U/L	
Cholesterol	82-355 mg/dL	
Triglycerides	30-338 mg/dl	
Amylase	409-1250 U/L	
Osmolality (calculated)	291-315 mmol/L	

Sample ID: 1901020129/2  
REPRINT: Orig. printing on 1/2/2019 (Final)

Reviewed by: \_\_\_\_\_  
Page 2



Client: **B6**  
 Patient: **B6**

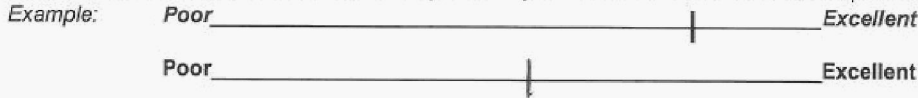
diet history 1/2/19

**CARDIOLOGY DIET HISTORY FORM**

Please answer the following questions about your pet

Pet's name: **B6** Owner's name: **B6** Today's date: 1/2/19

1. How would you assess your pet's appetite? (mark the point on the line below that best represents your pet's appetite)



2. Have you noticed a change in your pet's appetite over the last 1-2 weeks? (check all that apply)

- Eats about the same amount as usual     Eats less than usual     Eats more than usual  
 Seems to prefer different foods than usual     Other \_\_\_\_\_

3. Over the last few weeks, has your pet (check one)  
 Lost weight     Gained weight     Stayed about the same weight     Don't know

4. Please list below ALL pet foods, people food, treats, snack, dental chews, rawhides, and any other food item that your pet currently eats. Please include the brand, specific product, and flavor so we know exactly what you pet is eating.

Examples are shown in the table – please provide enough detail that we could go to the store and buy the exact same food.

Food (include specific product and flavor)	Form	Amount	How often?	Fed since
Nutro Grain Free Chicken, Lentil, & Sweet Potato Adult	dry	1 1/2 cup	2x/day	Jan 2018
85% lean hamburger	microwaved	3 oz	1x/week	Jan 2015
Pupperoni original beef flavor	treat	1/2	1x/day	Aug 2015
Rawhide	treat	6 inch twist	1x/week	Dec 2015
Taste of the Wild Sierra Mountain Dry Hills Science Adult Salmon Veggie	dry	1 1/2 cup	2x/day	June 2018
Triumph Small Original Biscuits	canned	2 spoons	2x/day	Sept 2018
Oravet Dental Hugelb Chews	treat	1 biscuit	10x/day	July 2018
American Tourmaline Salmon & Sweet Potato	treat	1	1/week	July 2018
Old Mother Hubbard Classic Biscuit	dry	1 1/2 cup	2x/day	Apr 2017 - May 18
Victor Hero Grain Free	treat	1 bisc	10x/day	Jul 17 / May 18
Whole Earth Farm	dry	1 1/2	2x/day	Feb 2018
Acana Heritage Free Run Poultry	dry	1 1/2	2x/day	Jun 17 - Jul 17

\*Any additional diet information can be listed on the back of this sheet

5. Do you give any dietary supplements to your pet (for example: vitamins, glucosamine, fatty acids, or any other supplements)?  Yes  No If yes, please list which ones and give brands and amounts:

	Brand/Concentration	Amount per day
Taurine	<input type="checkbox"/> Yes <input type="checkbox"/> No	_____
Carnitine	<input type="checkbox"/> Yes <input type="checkbox"/> No	_____
Antioxidants	<input type="checkbox"/> Yes <input type="checkbox"/> No	_____
Multivitamin	<input type="checkbox"/> Yes <input type="checkbox"/> No	_____
Fish oil	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	_____
Coenzyme Q10	<input type="checkbox"/> Yes <input type="checkbox"/> No	_____
Other (please list): Example: Vitamin C	Nature's Bounty	500 mg tablets - 1 per day
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

6. How do you administer pills to your pet?

- I do not give any medications  
 I put them directly in my pet's mouth without food after they eat regular food  
 I put them in my pet's dog/cat food  
 I put them in a Pill Pocket or similar product  
 I put them in foods (list foods): dry food

Client:  
Patient:

**B6**

diet history 1/2/19

Peara Wild Atlantic July 14 - June 2015

Blue Buffalo Wilderness,  
Feb 14 - July 2014

### Home Food

Bread  
Cheese  
Steak  
Ham  
Banana  
Squash  
Sweet Potato  
Liver  
Chicken Gizzards & Hearts  
Tripe  
Chicken Breast

### Supplement

American Journey Wild Alaskan  
Salmon Oil  
Nov 2018 - present

{ Flea  
Advantix II  
Dewormer  
Ivermectin for large dogs

Client: **B6**  
Patient: **B6**

**UCDavis Taurine Level**

26344 PL  
26345 WB

**Amino Acid Laboratory Sample Submission Form**

Amino Acid Laboratory, 1089 Veterinary Medicine Drive, Davis, Ca 95616  
Telephone: 530-752-5058, Fax: 530-752-4698  
Email: [ucd.aminoacid.lab@ucdavis.edu](mailto:ucd.aminoacid.lab@ucdavis.edu)  
[www.vetmed.ucdavis.edu/labs/amino-acid-laboratory](http://www.vetmed.ucdavis.edu/labs/amino-acid-laboratory)



Veterinarian Contact: **B6**

Clinic/Company Name: **Tufts Cummings School of Vet. Med. - Clinical Pathology Laboratory**

Address: **200 Westboro Road, North Grafton MA 015389**

Email: **Clinpath@tufts.edu** | **lcardvet@tufts.edu**

Telephone: **508-887-4669** Fax: **508-838-7936**

Billing Contact: **B6** Email: **B6**

Billing Contact Phone: **B6** Tax ID: \_\_\_\_\_

Patient Name: **B6** Species: **Canine**

Breed: **Golden** Owner's Name: **B6**

Current Diet: **taste of the wild**

Sample type: Plasma  Whole Blood  Urine  Food  Other

Test: **Taurine** Complete Amino Acids Other: \_\_\_\_\_

**Taurine Results (lab use only)**

Plasma: **B6** Whole Blood: **B6** Urine: \_\_\_\_\_ Food: \_\_\_\_\_

	Plasma (nMol/ml)		Whole Blood (nMol/ml)	
	Normal Range	No known risk for deficiency	Normal Range	No known risk for deficiency
Cat	80-120	>40	300-600	>200
Dog	60-120	>40	200-350	>150

\* Please note with the recent increase in the number of dogs screened for taurine deficiency, we are seeing dogs with values within the reference ranges (or above the "no known risk for deficiency range") yet are still exhibiting signs of cardiac disease. Veterinarians are welcome to contact our laboratory for assistance in evaluating your patient's results.

Client: **B6**  
Patient:

---

**Vitals Results**

---

1/2/2019 10:17:06 AM	Weight (kg)	30.4000
----------------------	-------------	---------

---

**Patient History**

---

12/13/2018 10:44 AM	Appointment
12/27/2018 12:24 PM	Appointment
01/02/2019 10:00 AM	UserForm
01/02/2019 10:17 AM	Vitals
01/02/2019 10:21 AM	Treatment
01/02/2019 11:06 AM	Purchase
01/02/2019 11:06 AM	Purchase
01/02/2019 11:42 AM	UserForm
01/02/2019 11:45 AM	Purchase
01/02/2019 11:45 AM	Purchase
01/02/2019 12:14 PM	Email

**B6**

**Cummings**  
**Veterinary Medical Center**  
AT TUFTS UNIVERSITY

**B6**

Foster Hospital for Small Animals  
55 Willard Street  
North Grafton, MA 01536  
Telephone (508) 839-5395  
Fax (508) 839-7951  
<http://vetmed.tufts.edu/>

**B6**  
**B6** Female  
Canine Golden Retriever Cream  
434853

1/10/2019

Dear **B6**

Thank you for referring **B6** with their pet **B6**

If you have any questions, or concerns, please contact us at 508-887-4988.

Thank you,

**B6**

**Cummings**  
**Veterinary Medical Center**  
AT TUFTS UNIVERSITY

**B6**

Foster Hospital for Small Animals  
55 Willard Street  
North Grafton, MA 01536  
Telephone (508) 839-5395  
Fax (508) 839-7951  
<http://vetmed.tufts.edu/>

B6

B6

Female

Canine Golden Retriever Cream  
434853

1/10/2019

Dear None

Thank you for referring B6 with their pet B6

If you have any questions, or concerns, please contact us at 508-887-4988.

Thank you,

B6

Foster Hospital for Small Animals

55 Willard Street  
North Grafton, MA 01536  
(508) 839-5395

All Medical Records

Client: [B6]  
Address: [B6]

Patient: [B6]  
Breed: Boxer  
DOB: [B6]

Species: Canine  
Sex: Female

Home Phone: [B6]  
Work Phone: ( ) -  
Cell Phone: [B6]

[B6]

Referring Information

[B6]

Client: [B6]  
Patient: [B6]

Initial Complaint:

Scanned Record

Initial Complaint:

New, boxer 2-3 murmur. ok per [B6]

Initial Complaint:

Recheck [B6]

Client: **B6**  
Patient: **B6**

---

**Initial Complaint:**

Recheck **B6** - **B6** to oversee

SOAP Text **B6** 4:07PM - **B6**

---

**B6** 4:30:12 PM  
Prescribed **B6** 30mg Tablets - FHSA (30)  
Instructions - Give 1/2 tab by mouth every 12 hours. - Expires: **B6** 11 Refills

**Initial Complaint:**

Recheck **B6**

SOAP Text Nov 29 2017 11:20AM - **B6**

---

**Initial Complaint:**

Recheck **B6**

**Initial Complaint:**

Recheck **B6**

SOAP Text Nov 15 2018 2:01PM - **B6**

---

**Disposition/Recommendations**

---



Client:  
Patient:

**B6**

---

---

Client: **B6**  
Patient:



**Foster Hospital for Small Animals**

55 Willard Street  
North Grafton, MA 01536  
(508) 839-5395

Client: **B6**  
Veterinarian:  
Patient ID: **B6**  
Visit ID:

Patient:	<b>B6</b>
Species:	Canine
Breed:	Boxer
Sex:	Female
Age:	<b>B6</b> Years Old

**Lab Results Report**

11/15/2018 3:35:43 PM      Accession ID: **B6**

Test	Results	Reference Range	Units
Troponin I Research - FHSA	<b>B6</b>	0 - 0.08	mg/dl



4/111

**B6**

**B6**

Printed Tuesday, December 04, 2018

Client: **B6**  
Patient:

Referral and records **B6**

Case ID: **B6**

**B6**



REFERRAL FORM

TUFTS NEW ENGLAND VETERINARY MEDICAL CENTER  
Henry and Lois Foster Hospital for Small Animals  
Hospital for Large Animals  
750 Winthrop Road, Route 50  
North Grafton, MA 01536  
508-850-8745

Service to Which Referred: \_\_\_\_\_ Appointment Date: **B6** Time: \_\_\_\_\_

OWNER INFORMATION:

Name: **B6** District Phone: **B6** Existing Phone: \_\_\_\_\_  
Address: **B6** City: **B6** State: **B6** Zip Code: **B6**

PATIENT INFORMATION:

Registered Name: **B6**  
Species: CANINE Breed: BOXER Sex: Female Age: 20yr

CASE HISTORY:

Chief Complaint/Provisional Diagnosis: Heart MURMUR

Companion History: guy 2/26/16 Date 2/15/16

Other History: \_\_\_\_\_

History, Test Results (if possible, please attach results): \_\_\_\_\_

Are ECGs/ECGs enclosed? NO

Current Therapy & Medications (include dosage): \_\_\_\_\_

Special Concerns/Requests: \_\_\_\_\_

REFERRING VETERINARIAN INFORMATION:

Name: **B6** Clinic/ Hospital: **B6**  
Phone: **B6** Fax: **B6**  
Address: **B6** City: **B6** State: **B6** Zip Code: **B6**

If an animal is being referred which has had lab work done at TVDL, please include copies of the lab results or the TVDL accession number. If you are facing us information about a clinical case which has been referred, please use fax number (508) 850-8745.

Client: **B6**  
Patient: **B6**

Referral and records **B6**

March 14, 2016

**B6**

**B6**

2/7

**B6**  
**B6**

Patient Chart

Printed: 3/22/16 at 12:28a

CLIENT INFORMATION

Name: **B6**  
Address: **B6**  
Phone: **B6**  
Species: **B6**

PATIENT INFORMATION

Name: **B6**  
Sex: Female  
Birthday: **B6**  
UP: **B6**  
Color: Fawn  
Markings: (none)  
Species: **B6**  
Breed: **B6**  
Age: 25  
Weight: 25.5 lbs  
Weight: 25.5 lbs  
Color: Cream

Reminders for Pet: **B6** **B6**

EXPIRES	Description	TYPE
3/22/16	Canine Rabies Vaccination, 1yr	1000000
3/22/16	Canine DA2PP2 (incl. LEPTO), 1 yr	1000000

MEDICAL HISTORY - Reminder View

Date	By	Code	Description	Qty (Entered)
3/22/16	<b>B6</b>	430	Canine Rabies Vaccine, 1yr	430-10
3/22/16	<b>B6</b>		Expires: 3/22/16 Type: RV Mfg: ZOOZ Admin: <b>B6</b>	
3/22/16	<b>B6</b>	435	Canine DA2PP2 (inc. Lepto), 1 yr	
3/22/16	<b>B6</b>		Expires: 3/22/16 Type: MLV Mfg: PPSZ Admin: <b>B6</b>	

Client: **B6**  
Patient:

Referral and records **B6**

**B6**

**B6**

**B6**

**B6**

**B6**

Client:  
Patient:

**B6**

Referral and records

**B6**

**B6**

**B6**

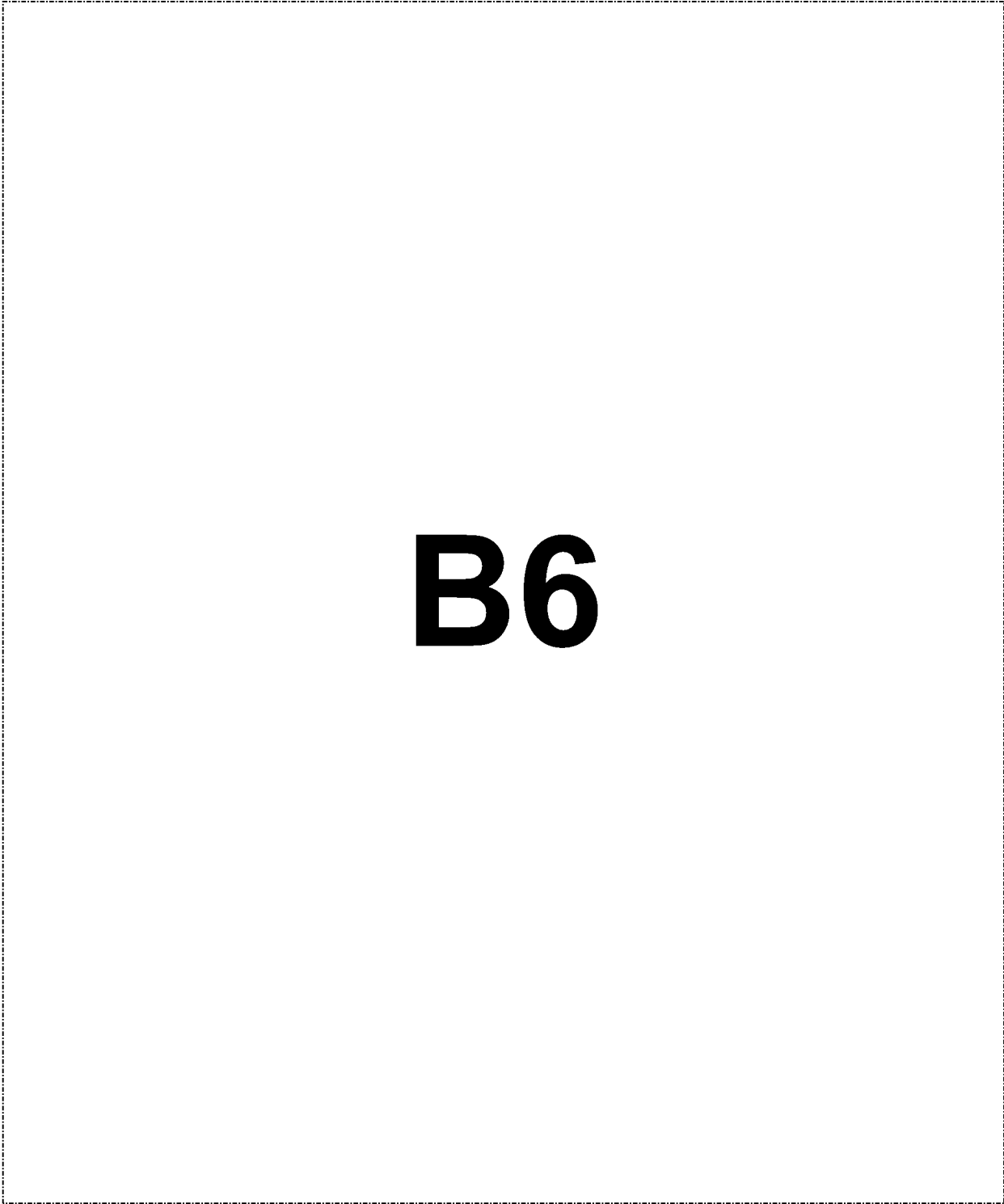
**B6**

Client: **B6**  
Patient:

Referral and records **B6**

**B6**

**B6**



Client:  
Patient:

**B6**

Referral and records

**B6**

Mar 05 10:54:17

**B6**

**B6**

pg. 4

**B6**




Client: **B6**  
Patient: **B6**

Signed consent



**B6**

**B6** Female  
Central Spinal Cord Injury  
Patient ID: **B6**

**STANDARD CONSENT FORM**

I am the owner, or agent for the owner, of the above described animal and have the authority to execute consent. I hereby authorize the Cummings School of Veterinary Medicine at Tufts University (herein after Cummings School) to provide for treatment of said animal according to the following terms and conditions:

Cummings School and its officers, agents and employees will provide such veterinary medical care as they deem reasonable and appropriate under the circumstances.

Cummings School and its officers, agents, and employees will use all reasonable care in the treatment of the above mentioned animal, but will not be liable for any loss or accident that may occur or any disease that may develop as a result of the care and treatment provided.

I understand that the above described animal may be treated by Cummings School students under the supervision and assistance of Cummings School staff members.

In executing this form, I hereby expressly acknowledge that risks, benefits and alternative forms of treatment have been explained to me. I understand said explanation, and I consent to treatment. Should any additional treatments or diagnostics be required during the continued care of my animal, I understand that I will be given the opportunity to discuss and consent to these additional procedures. I understand that further or additional treatment may be required without an opportunity for discussion and consideration by me, in the case of the development of any life-threatening emergency during the continued care of my animal and I expressly consent to all such reasonable treatment as required. I realize and understand that results cannot be guaranteed.

If any equipment is left with the animal, it will be accepted with the understanding that Cummings School assumes no responsibility for any loss of equipment that may occur.

I agree to picking the animal when notified that it is ready for release.

In the event the animal is not picked up, and if less than 105 days have elapsed since a registered letter was sent to the address given above, notifying me to call for the animal, the animal may be sold or otherwise disposed of in a humane manner and the proceeds applied to the charges incurred in caring and treating the animal. Failure to remove said animal will not and does not release me from obligation for the costs of services rendered.

I hereby grant to the Cummings School of Veterinary Medicine at Tufts University, its officers and employees (herein after referred to herein as Cummings School), and its agents and assigns (the Grantee) the irrevocable right to photograph / videotape the operation or procedure to be performed, including appropriate and extensive use (with photographs and images for, and in connection with, a Grantee's medical, scientific, educational, and publicly funded, by any means, methods and media (print and electronic) now known or, in the future, developed that the Grantee deems appropriate (provided that such photographs and images may not be used in for-profit commercial, unless such commercial and publicizing educational programs at Cummings School). As medical and surgical treatment necessitates the removal of tissue, cells, fluids or body parts of my animal, I authorize the Grantee to dispose of or use these tissues, cells, fluids or body parts for scientific and educational purposes.

Client: **B6**  
Patient: **B6**

**Signed consent**

I understand that a FINANCE CHARGE will be applied to all accounts unpaid after 30 days. The FINANCE CHARGE is computed on a monthly rate of 1.50% per month, which is an annual percentage rate of 18% applied to the average daily balance outstanding, with a minimum fee of \$ .50.

I do further agree that should any payment, or the full amount of the sum stated above, become overdue more than 30 days from the above agreed upon time of payment or payments, the entire balance shall be considered in default and become due and payable. I further agree to be responsible for any or all collection agency and/or attorney fees necessary to collect the full amount.

I do further agree to comply with hours of visitation in conjunction with our Hospital's policy.

I have read, understood, and agree to accept the terms and conditions herein.

Owner's name: **B6** Date: **B6**

Owner's Address: **B6**

**B6**

**B6**

If the individual submitting the animal is someone other than the legal owner, please complete the portion below:

The owner of the animal **B6** is granted the authority to obtain medical treatment and to bind this owner to pay the veterinary medical services provided at Cummings School pursuant to the terms and conditions described above.

Authorized Agent - Please Print

Agent's Signature

Street Address

Date

Town/City State Zip

Client: **B6**  
Patient:

rDVM **B6** records 1/8/16-5/30/17

**B6**

Patient Chart

Address: **B6**

Client Information

Name: **B6**      Species: **B6**

Address: **B6**

Phone:

Medical Information

Name: **B6**      Species: **B6**  
Sex: Female      Breed: **B6**  
Breed: **B6**      Age: **B6**  
ID: **B6**      Status: **B6**  
Color: **B6**      Weight: **B6**  
Registered: **B6**      Collar: **B6**

Prescriptions for: **B6**      Lot/Flow:

Prescription	Lot/Flow
Amoxicillin 500mg capsules	10000000
Amoxicillin 500mg capsules	10000000
Amoxicillin 500mg capsules	10000000
Amoxicillin 500mg capsules	10000000
Amoxicillin 500mg capsules	10000000

**B6**

Client:  
Patient:

**B6**

rDVM

**B6**

records 1/8/16-5/30/17

**B6**

**B6**

**B6**

**B6**

Client: **B6**  
Patient:

rDVM **B6** records 1/8/16-5/30/17

**B6** **B6** **B6**

**B6**

Client: B6  
Patient: B6

rDVM B6 Chem 25 w/SDMA, CBC, T4 5/30/17

HEALTHCARE B6

B4

Series 1 Page 883

B4

B6

Order: B6  
Patient: B6  
Species: B6  
Breed: B6  
Age: B6  
Gender: B6

Account: B6

Referral #: B6  
Acquisition #: B6  
Order work: B6  
Ordered by: B6  
Request: B6

Test	Result
ALP	(5 - 160) U/L
ALT	(18 - 121) U/L
AST	(18 - 55) U/L
CREATINE KINASE	(10 - 200) U/L
GGT	(0 - 17) U/L
ALBUMIN	(2.7 - 3.9) g/dL
TOTAL PROTEIN	(5.5 - 7.5) g/dL
GLOBULIN	(2.4 - 4.0) g/dL
TOTAL BILIRUBIN	(0.0 - 0.3) mg/dL
BILIRUBIN CONJUGATED	(0.0 - 0.1) mg/dL
BLIN	(0 - 31) mg/dL
CREATININE	(0.5 - 1.5) mg/dL
CHOLESTEROL	(101 - 245) mg/dL
GLUCOSE	(80 - 114) mg/dL
CALCIUM	(9.4 - 11.3) mg/dL
PHOSPHORUS	(2.8 - 5.1) mg/dL
TCO2 (BICARBONATE)	(13 - 27) mmol/L
CHLORIDE	(108 - 119) mmol/L
POTASSIUM	(4.0 - 5.4) mmol/L
SODIUM	(142 - 152) mmol/L
ALBGLOB RATIO	(0.7 - 1.5)
BLIN/CREATININE RATIO	
BILIRUBIN UNCONJUGATED	(0.0 - 0.2) mg/dL
NAK RATIO	(26 - 37)
HEMOLYSIS INDEX	
Index of 0, 1+, 2+ exhibits no significant effect on chemistry values.	
LIPEMIA INDEX	
Index of 0, 1+, 2+ exhibits no significant effect on chemistry values.	

B6

B6

B6

FINAL REPORT - CONTINUED ON NEXT PAGE

PAGE 1

17

B6

B6

MSD 11 11 10 10

Client:  
Patient:

**B6**

rDVM

**B6**

Chem 25 w/SDMA, CBC, T4 5/30/17

05/30/17 17:00:20

**B6**

→

**B4**

Station 1 Page 002

ANION GAP	<b>B6</b>	[11 - 26] mmol/L	<b>B6</b>
SDMA		[0 - 14] µg/dL	
BOTH SDMA AND CREATININE ARE WITHIN THE REFERENCE INTERVAL, which indicates kidney function is likely good. Evaluate a complete urinalysis and confirm there is no other evidence of kidney disease.			

HEALTHCHEK PLUS CBC COMPREHENSIVE

Test	Result
WBC	14.9 - 17.6 K/UL
RBC	7.39 - 8.70 MILL
HGB	13.4 - 20.7 g/dL
HCT	39.3 - 50.5 %
MCV	79 - 76 fL
MCH	21.9 - 26.1 pg
MCHC	32.6 - 39.2 g/dL
% RETICULOCYTE	%
RETICULOCYTE	10 - 1.0% K/UL
% NEUTROPHIL	%
% LYMPHOCYTE	%
% MONOCYTE	%
% EOSINOPHIL	%
% BASOPHIL	%
PLATELET	143 - 440 K/UL
REMARKS	

**B6**

**B6**

SLIDE REVIEWED MICROSCOPICALLY.  
NO PARASITES SEEN

NEUTROPHIL	<b>B6</b>	3245 - 12670 /ul	<b>B6</b>
LYMPHOCYTE		1080 - 4850 /ul	
MONOCYTE		130 - 1150 /ul	
EOSINOPHIL		70 - 1480 /ul	
BASOPHIL		0 - 100 /ul	

**B6**

**B6**

HEALTHCHEK PLUS T4

Test	Result
T4	<b>B6</b> [1.0 - 4.0] µg/dL L <b>B6</b>
Interpretive ranges: <1.0 Low 1.0-4.0 Normal >4.0 High 2.1-5.4 Therapeutic	
Dogs with no clinical signs of hypothyroidism and results within the	

**B6**

FINAL REPORT - CONTINUED ON NEXT PAGE  
PAGE 2

24

**B6**

**B6**

05/30/17 17:00:20

Client: **B6**  
Patient:

rDVM **B6** Chem 25 w/SDMA, CBC, T4 5/30/17

RESULTS

**B6**

**B4**

Results Page 883

normal reference range are likely euthyroid. Dogs with low T4 concentrations may be hypothyroid or "euthyroid sick". Occasionally, hypothyroid dogs can have T4 concentrations that are low normal. Dogs with clinical signs of hypothyroidism and low or low normal T4 concentrations may be evaluated further by submission of free T4 and canine TSH. A high T4 concentration in a clinically normal dog is likely variation of normal; however, elevations may occur secondary to thyroid autoantibodies or rarely thyroid neoplasia. For dogs on thyroid supplement, acceptable 4-6 hour post pill total T4 concentrations generally fall within the higher end or slightly above the reference range.

**B6**

FINAL REPORT

PAGE 3 OF 3

CP

**B6**

**B6**

RESULTS



Client: **B6**  
Patient: **B6**

Holter Monitor report 5/31/17

**CANINE HOLTER MONITORING REPORT**

**HOLTER MONITOR REPORT**

Patient Name:	<b>B6</b>	Interp. Physician:	
Date of Birth:		Scan Number:	
ID:	<b>B6</b>	Date Recorded:	5/31/2017 11:00
Age:	22 Months	Date Processed:	6/2/2017
Sex:	F	Recorder Num:	<b>B6</b>
Analyst:		Hookup Tech:	
Physician:		Medications:	
Indications:	Rest of		

**B6**

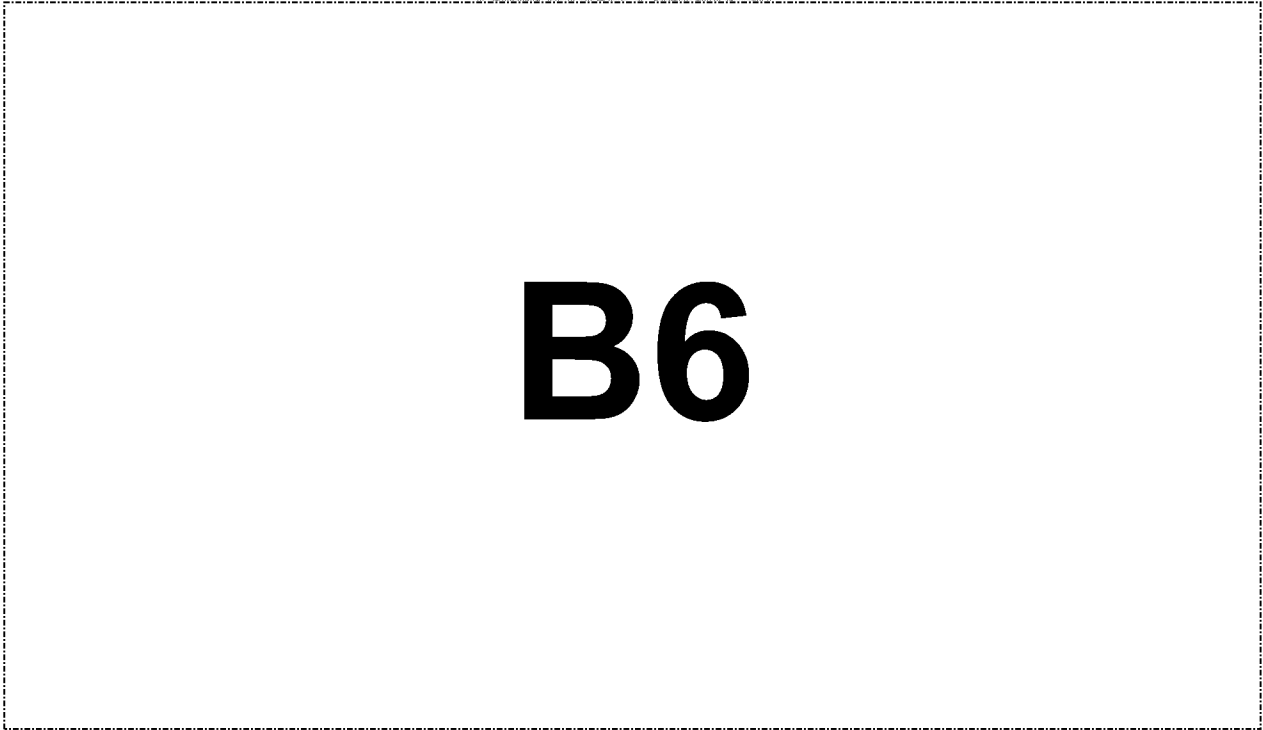
Physician's Signature

Client: **B6**  
Patient: **B6**

**Holter Monitor report 5/31/17**

Patient: **B6** ID: **B6** Date Recorded: 5/31/17 10:56 Page: 1

**GENERAL PROFILE**



Client: **B6**  
Patient: **B6**

Holter Monitor report 5/31/17

Patient: **B6** ID: **B6** Date Recorded: 5/31/2017 10:56 Page: 8

CRITICAL EVENTS

**B6**

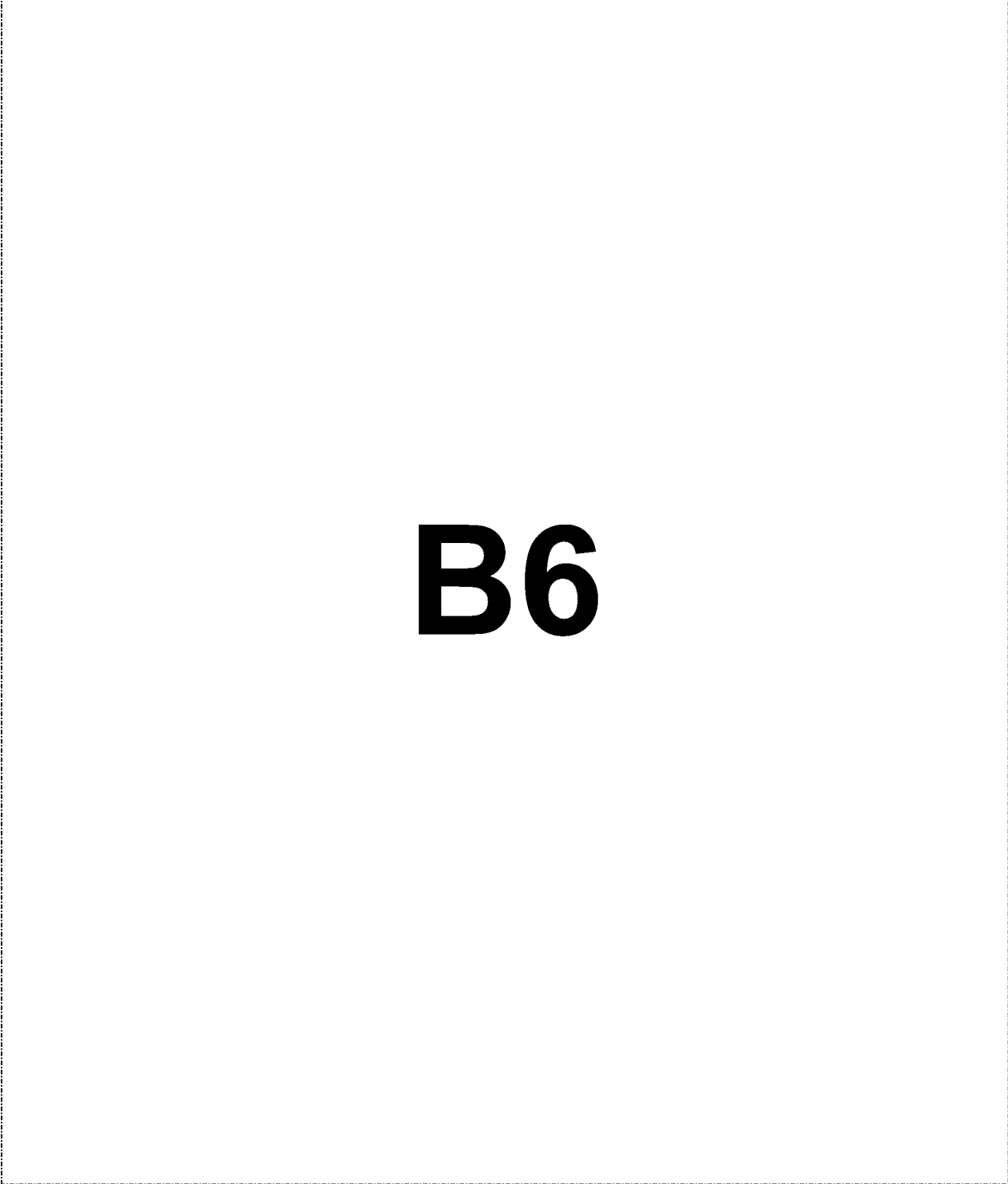
Client: **B6**  
Patient: **B6**

Holter Monitor report 5/31/17

Patient: **B6** ID: **B6** Date Recorded: 5/31/2017 10:56 Page: 2

FULL SIZED STRIPS

(Date: 5/31/2017, 10:56 AM, 111)



Client: **B6**  
Patient: **B6**

**Holter Monitor report 5/31/17**

Patient: **B6** ID: **B6** Date Recorded: 5/31/2017 10:56 Page: 1

**FULL SIZED STRIPS**

**B6**

Client: **B6**  
Patient: **B6**

Holter Monitor report 5/31/17

Patient: **B6** ID: **B6** Date Recorded: 5/31/2017 10:58 Page: 4

**FULL SIZED STRIPS**

(Gain 0.50 mv/mm) ECG 25 mm/sec (ALL)

**B6**

Client: **B6**  
Patient: **B6**

Holter Monitor report 5/31/17

Patient: **B6** ID: **B6** Date Recorded: 5/31/2017 8:18:58 AM Page: 7

FULL SIZED STRIPS

Start: 6:50:00 AM 5/31/17 End: 6:50:00 AM 5/31/17

**B6**

Client: **B6**  
Patient: **B6**

Holter Monitor report 5/31/17

Patient: **B6** ID: **B6** Date Recorded: 5/31/2017 10:56 Page: 8

FULL SIZED STRIPS

**B6**



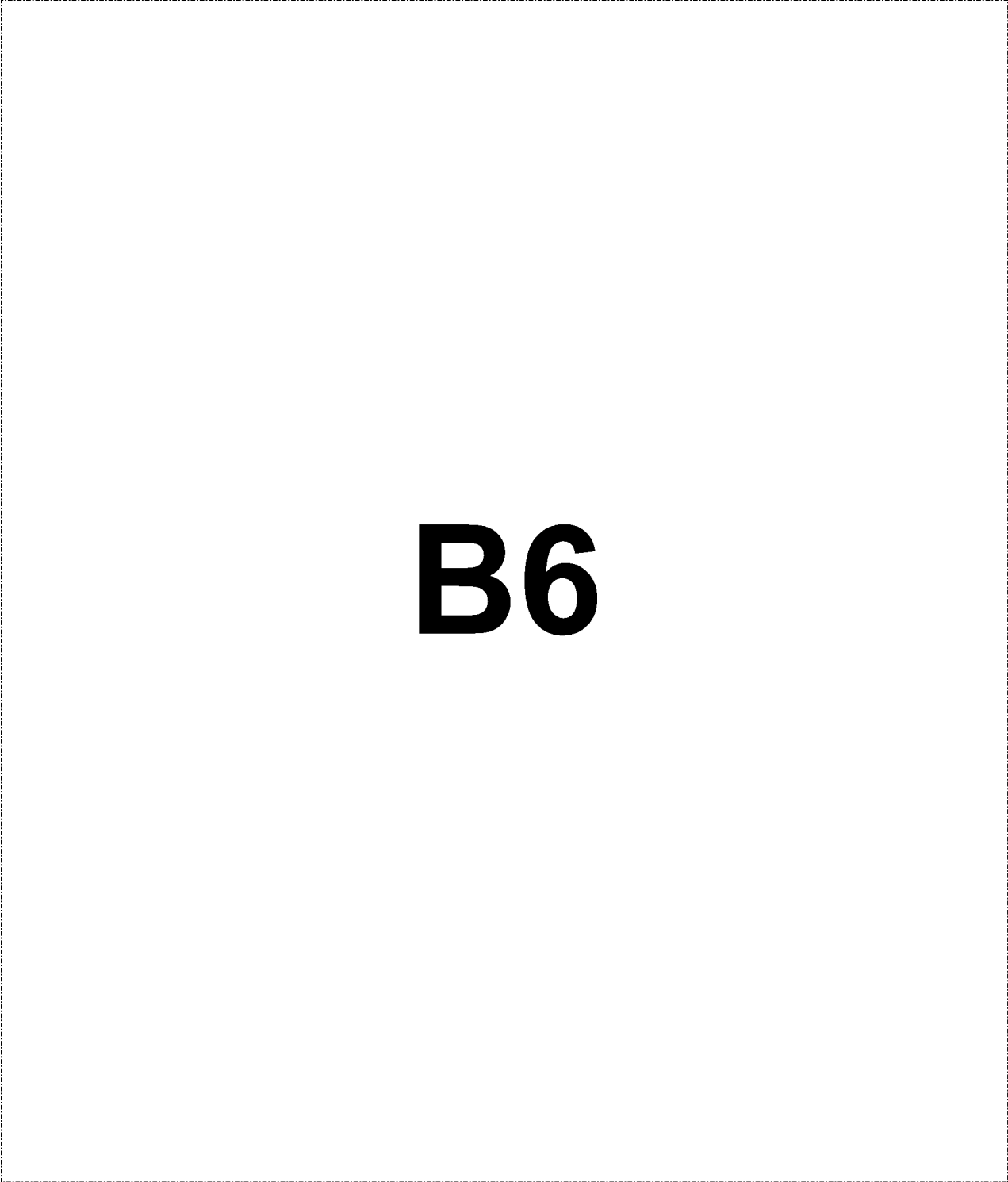
Client: **B6**  
Patient: **B6**

Holter Monitor report 5/31/17

Patient: **B6** ID: **B6** Date Recorded: 5/31/2017 10:56 Page: 1

FULL SIZED STRIPS

Strip 150 - Strip 150



Client: **B6**  
Patient: **B6**

Holter Monitor report 5/31/17

Patient: **B6** ID: **B6** Date Recorded: 5/31/2017 10:56 Page 10

FULL SIZED STRIPS

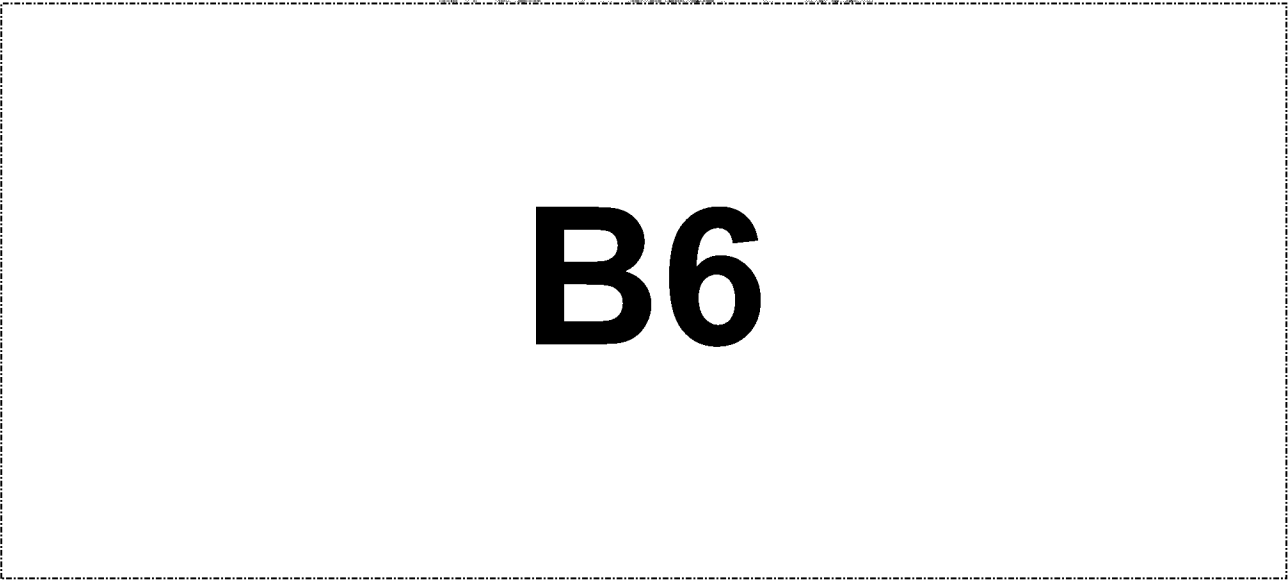
**B6**

Client: **B6**  
Patient: **B6**

**Holter Monitor report 5/31/17**

Patient: **B6** ID: **B6** Date Recorded: 5/31/2017 10:56 Page: 11

**FULL SIZED STRIPS**



Client:  
Patient:

**B6**

**B6**

visit

**B6**

**B6**

**B6**

Client: **B6** (M/F) **B6** • Gender (Sex): • Race • Female, Spayed • By: **B6** • Reg  
Referred by: **B6** • Provider: **B6** • Date born:

**B6**

**B6**

Client: B6  
Patient: B6

B6 visit B6

B6

B6

Client: B6 B6

Discharge Instructions for B6  
B6

**Final Diagnosis: Aortic Hypoplasia, Suspect Syncope Episodes**

B6 came in tonight for an episode of collapse that she rapidly recovered from. Due to her history of aortic hypoplasia, we checked an ECG and her blood pressure which were within normal limits.

Please schedule an appointment with your cardiologist for reevaluation. If at any time B6 has exercise intolerance, more collapse episodes, change in behavior, or change in mucous membrane color please have her evaluated by a veterinarian.

Thank you for entrusting us with B6 care. She is such a sweet girl and we wish her the best! If you have any questions or concerns please do not hesitate to call.

B6 DVM

Client: **B6**  
Patient:

**B6** visit **B6**

**B6**

**B6**  
Species: Canine - **B6**  
Color: Fawn **B6** Sex: Female **B6**

1 1/2 yrs FSFI

DATE	<b>B6</b>
TIME	ER 4:00 pm
DR	STM

CHIEF COMPLAINT	collapsed; now unable to walk			DIET	Earthen Meadow Feat
APPETITE	<input checked="" type="radio"/> GOOD	<input type="radio"/> DECREASED	<input type="radio"/> NONE	VOMITING	YES <input type="radio"/> NO <input checked="" type="radio"/>
STOOL	<input checked="" type="radio"/> NORMAL	<input type="radio"/> DIARRHEA	<input type="radio"/> CONSTIPATION	PUFED	YES <input checked="" type="radio"/> NO <input type="radio"/>
VACCINES	D/D				

- aortic hypoplasia - Tufts
- came in from outside - wobbly, fell over, couldn't get up  
disoriented/slow, fell over - rigid

no restrictions/  
modifications

DIFFERENTIAL LIST

HOME INSTRUCTIONS

FINAL DIAGNOSIS

**B6**

**B6**

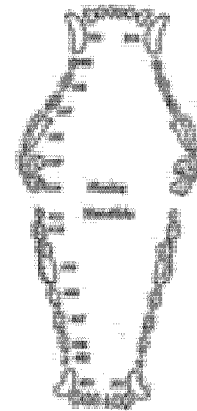
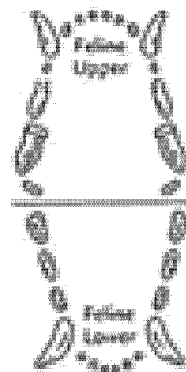
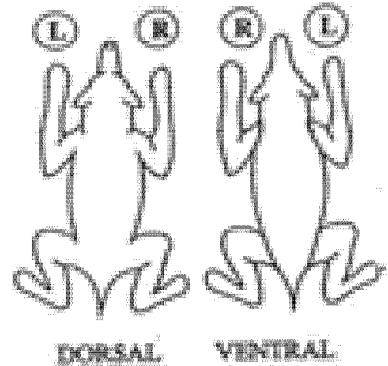
Client: **B6**  
 Patient: **B6**

**B6** visit **B6**

1 General Appearance	N <input type="checkbox"/> A <input type="checkbox"/>	4 Mucous Membranes	N <input type="checkbox"/> A <input type="checkbox"/>	7 Lymph Nodes	N <input type="checkbox"/> A <input type="checkbox"/>	10 Musculoskeletal	N <input type="checkbox"/> A <input type="checkbox"/>
2 Eyes	N <input type="checkbox"/> A <input type="checkbox"/>	5 Circulatory	N <input type="checkbox"/> A <input type="checkbox"/>	8 Digestive	N <input type="checkbox"/> A <input type="checkbox"/>	11 Genitourinary	N <input type="checkbox"/> A <input type="checkbox"/>
3 Ears	N <input type="checkbox"/> A <input type="checkbox"/>	6 Respiratory	N <input type="checkbox"/> A <input type="checkbox"/>	9 Neurologic	N <input type="checkbox"/> A <input type="checkbox"/>	12 Integumentary	N <input type="checkbox"/> A <input type="checkbox"/>
T <b>08.8</b>	P <b>100</b>	WT <b>38 kg</b>	Body Condition (1-5) 1=Emaciated 5=Obese		13 Endocrine	N <input type="checkbox"/> A <input type="checkbox"/>	
R <b>10</b>	Last WT						
Pain (0-10)		Date:					
Localized to:							
Chronic or Acute							
Last Pain Score:		Date:					

**DESCRIPTION OF PE ABNORMALITIES:**

**Initial PE:**  
 Vitals: T-88.8; P-100; R-20; W-28 kg CRT +0 sec  
 EENT: Mucous membranes pink, moist. No ocular or nasal discharge. No foreign material in external nares. Ears free of discharge AUJ  
 HL: No murmurs or arrhythmias, pulses strong and synchronous. Normal respiratory rate and effort. Normal bronchovesicular sounds in all fields.  
 Ure/Gen: Bladder small and soft. No discharge from vulva.  
 Abd: Soft and non-painful. No palpable masses or organomegaly.  
 PLM: Normal size and texture.  
 Integ: Quiet, clean  
 Musc: Ambulatory x 4.  
 CNS: BARS. No neurologic deficits noted.  
 BCS: 5/9  
 CSU Pain Scale: 0/4



- A.  Plaque
- B.  Bad Breath
- C.  Tumor
- D.  Gingivitis
- E.  Loose Teeth
- F.  Broken Teeth
- G.  Missing Teeth
- H.  Feline Resorptive Lesion
- I.  Other

\*\*Please highlight corresponding recommendation code on travel sheet

**B6**

**B6**

Client: **B6**  
Patient: **B6**

**Holter Monitor Report 11/16/17**

**CANINE HOLTER MONITORING REPORT**

**HOLTER MONITOR REPORT**

Patient Name:	<b>B6</b>	Interp. Physician:	
Date of Birth:		Scan Number:	
ID:		Date Recorded:	11/16/2017 08:30:00
Age:	2 YEARS	Date Processed:	11/16/2017
Sex:	M	Recorder Num:	<b>B6</b>
Analyst:		Hookup Tech:	
Physician:		Medications:	
Indications:	<b>B6</b>		

**B6**

Physician's Signature

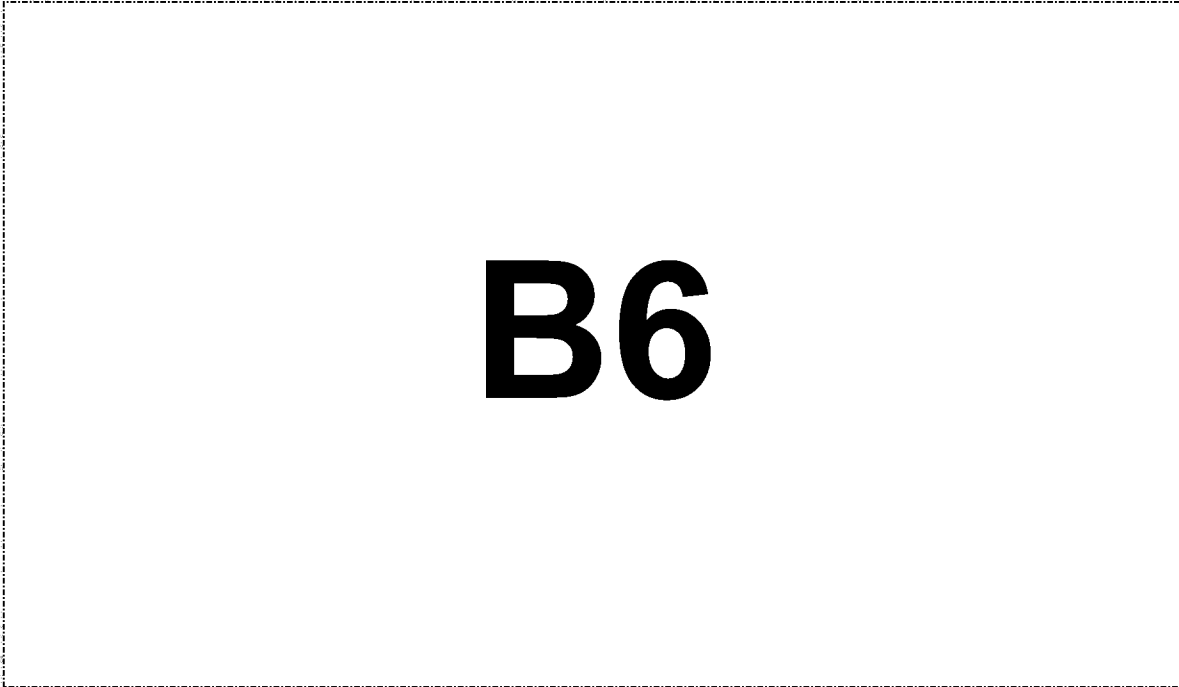


Client: **B6**  
Patient:

**Holter Monitor Report 11/16/17**

Patient: **B6** ID: **1** Date Received: **11/16/17** @ **5:51** Page: **1**

**GENERAL PROFILE**



Client: **B6**  
Patient: **B6**

**Holter Monitor Report 11/16/17**

Patient: **B6** ID: **1** Date Received: **11/14/17** @ **5:51** Page: **3**

**CRITICAL EVENTS**

**B6**

Client: **B6**  
Patient: **B6**

**Holter Monitor Report 11/16/17**

Patient: **B6** ID: **1** Date Received: **11/16/17** @ **5:50** Page: **1**

**FULL SIZED STRIPS**

Strip 0.50 cm x 1.00 cm (1.00 cm x 1.00 cm)

**B6**

Client: **B6**  
Patient: **B6**

**Holter Monitor Report 11/16/17**

Patient: **B6** ID: **1** Date Received: **11/16/17** @ **5:51** Page: **1**

**FULL SIZED STRIPS**

**B6**

Client: **B6**  
Patient: **B6**

**Holter Monitor Report 11/16/17**

Patient: **B6** ID: **1** Date Received: **11/16/17** @ **5:51** Page: **4**

**FULL SIZED STRIPS**

**B6**

Client: **B6**  
Patient:

**Holter Monitor Report 11/16/17**

Patient: **B6** ID: **1** Date Received: **11/16/17** @ **5:51** Page: **1**

**FULL SIZED STRIPS**

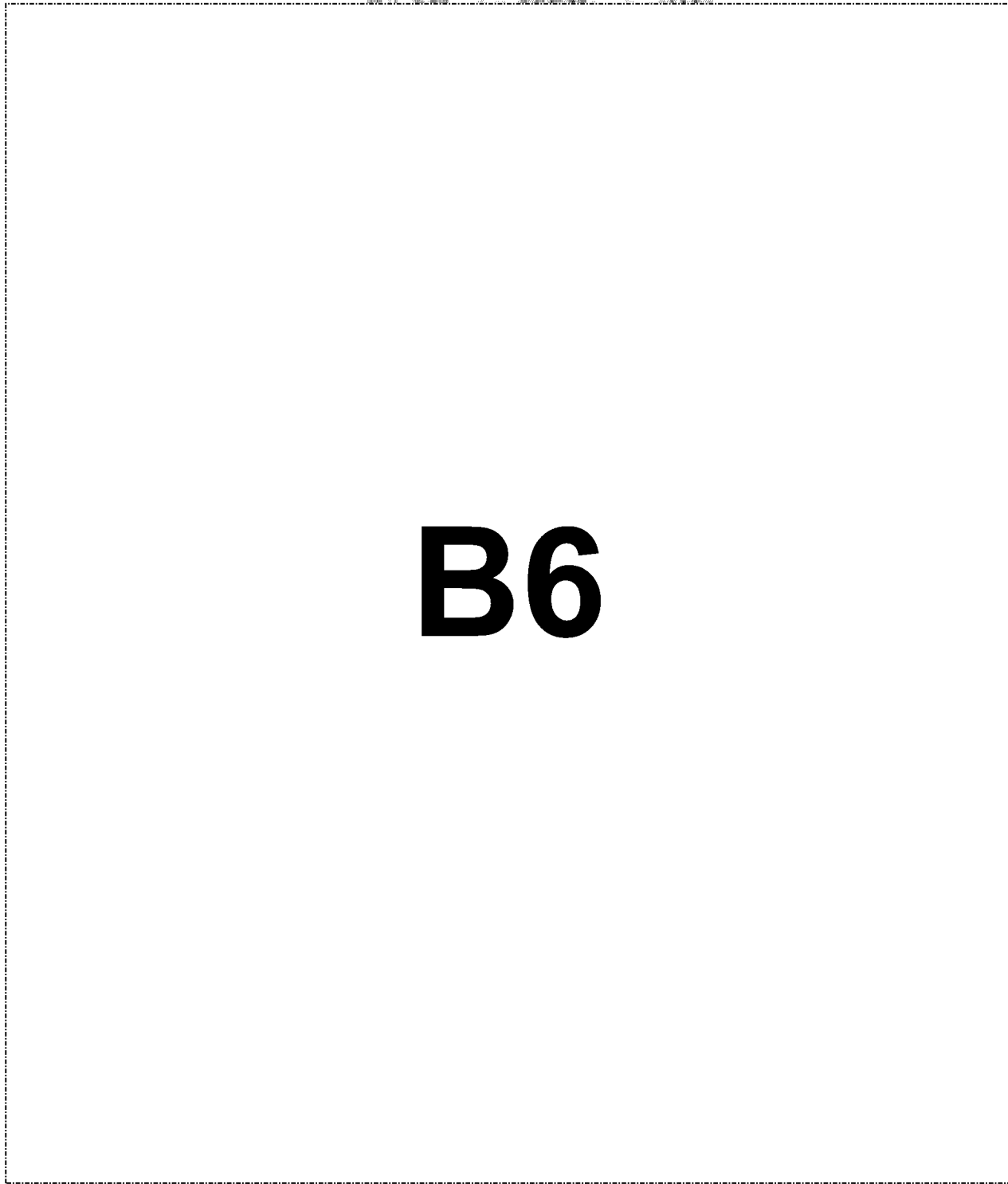
**B6**

Client: **B6**  
Patient: **B6**

**Holter Monitor Report 11/16/17**

Patient: **B6** ID: **1** Date Received: **11/16/17** @ **5:51** Page: **4**

**FULL SIZED STRIPS**



Client:  
Patient:

**B6**

**Holter Monitor Report 11/16/17**

Patient: **B6**      CH-1      Date Received: 11/16/17      @ 5:51 PM      Page: 4

FULL-SIZED STRIPS

**B6**

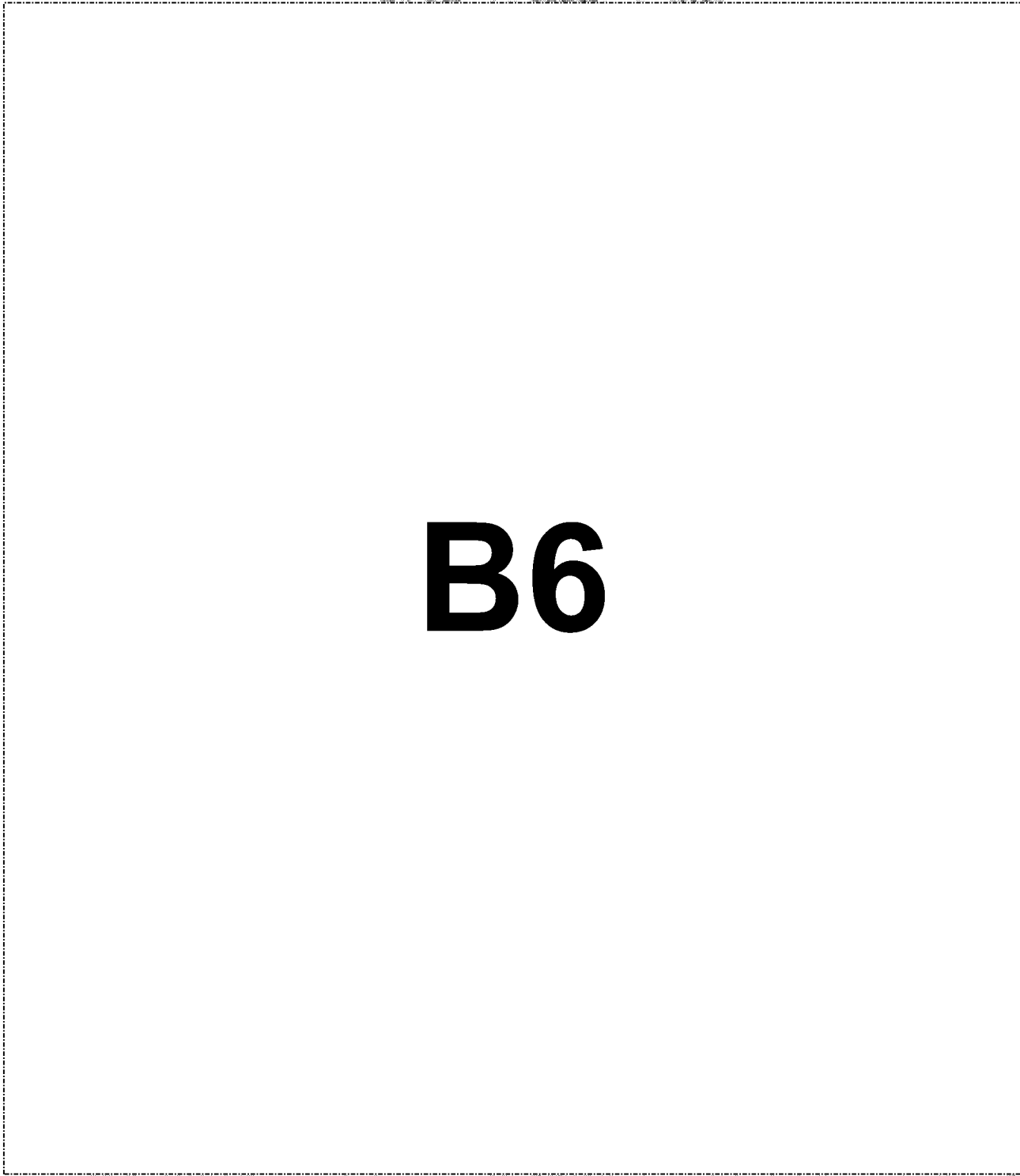


Client: **B6**  
Patient: **B6**

**Holter Monitor Report 11/16/17**

Patient: **B6** ID: **1** Date Received: **11/16/17** @ **5:51** Page: **12**

**FULL SIZED STRIPS**



Client:  
Patient: **B6**

Holter Monitor Report 11/16/17

Patient: **B6** ID: 1 Date Received: 11/16/17 @ 5:51 Page 11

FULL SIZED STRIPS

**B6**

Client: **B6**  
Patient:

RDVM - **B6** - Hx, Labs, 1/8/16 - 6/20/17

**B6**

Patient Chart

Phone: **B6**

CLIENT INFORMATION

Name: **B6**  
Address: **B6**  
Phone:

Species: **B6**

PHYSICAL INFORMATION

Name: **B6**  
Sex: Female  
Breed: **B6**  
Color: **B6**  
Microchip: **B6**

Species: **B6**  
Breed: **B6**  
Age: **B6**  
Status: **B6**  
Weight: **B6**  
Color:

Microchip ID: **B6**

Last Exam:

Microchip ID	Description	Last Exam
12345678	Canine Rabies Vaccination, Titer	01/08/16
12345678	Canine Distemper, Bordetella, Parvovirus, Adenovirus-2, Leptospirosis, Herpesvirus, Coronavirus, and Rotavirus	01/08/16
12345678	Canine Bordetella Parvovirus	01/08/16
12345678	Canine Leptospirosis	01/08/16
12345678	Canine Herpesvirus	01/08/16
12345678	Canine Coronavirus	01/08/16
12345678	Canine Rotavirus	01/08/16

MEDICAL HISTORY

Date:                      Dr:                      Clinic:                      Description:                      Sex (Transposed)

**B6**

Client: **B6**  
Patient:

**RDVM** - **B6** - Hx, Labs, 1/8/16 - 6/20/17

**B6**

**B6**

**B6**

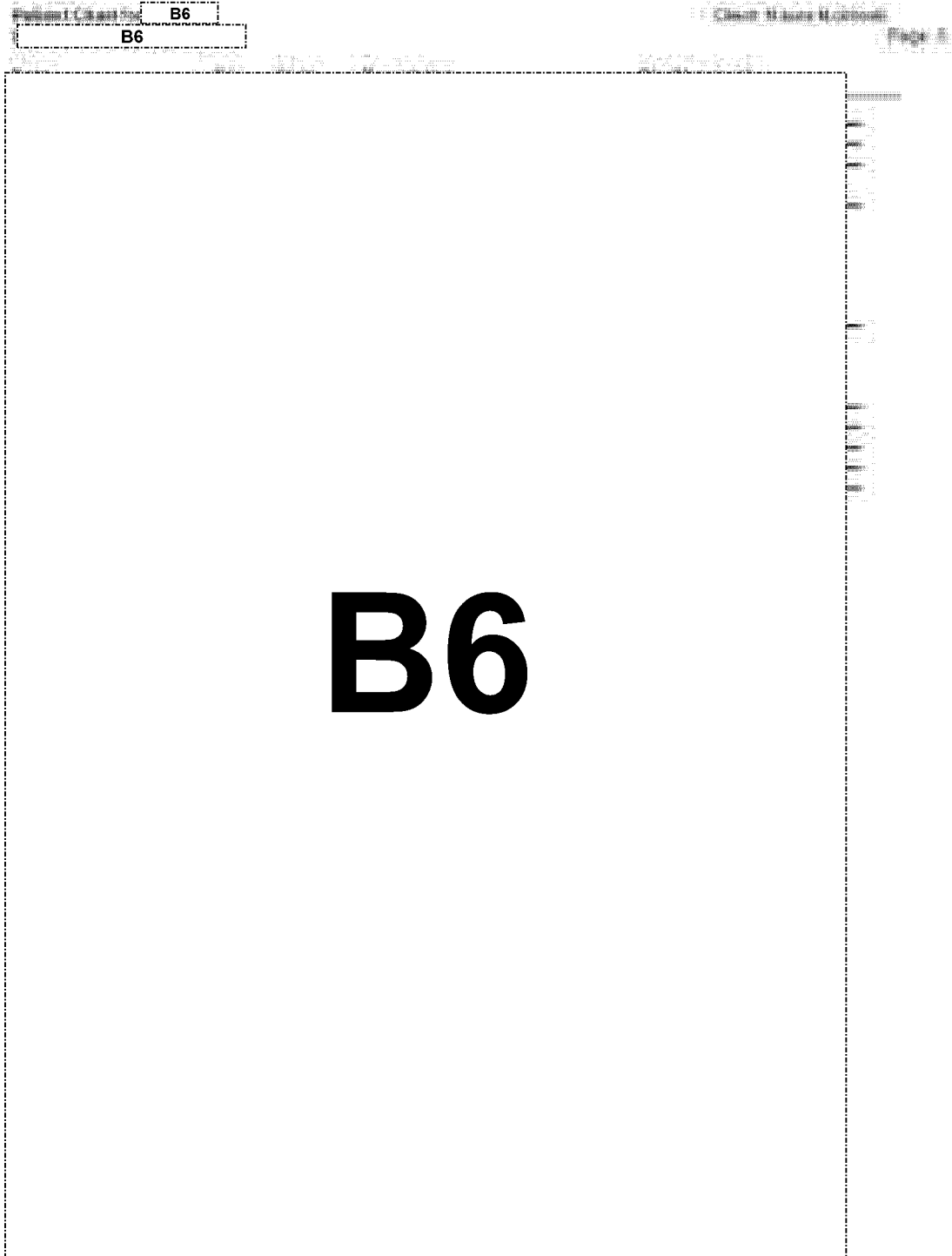
Client:  
Patient:

**B6**

RDVM -

**B6**

- Hx, Labs, 1/8/16 - 6/20/17



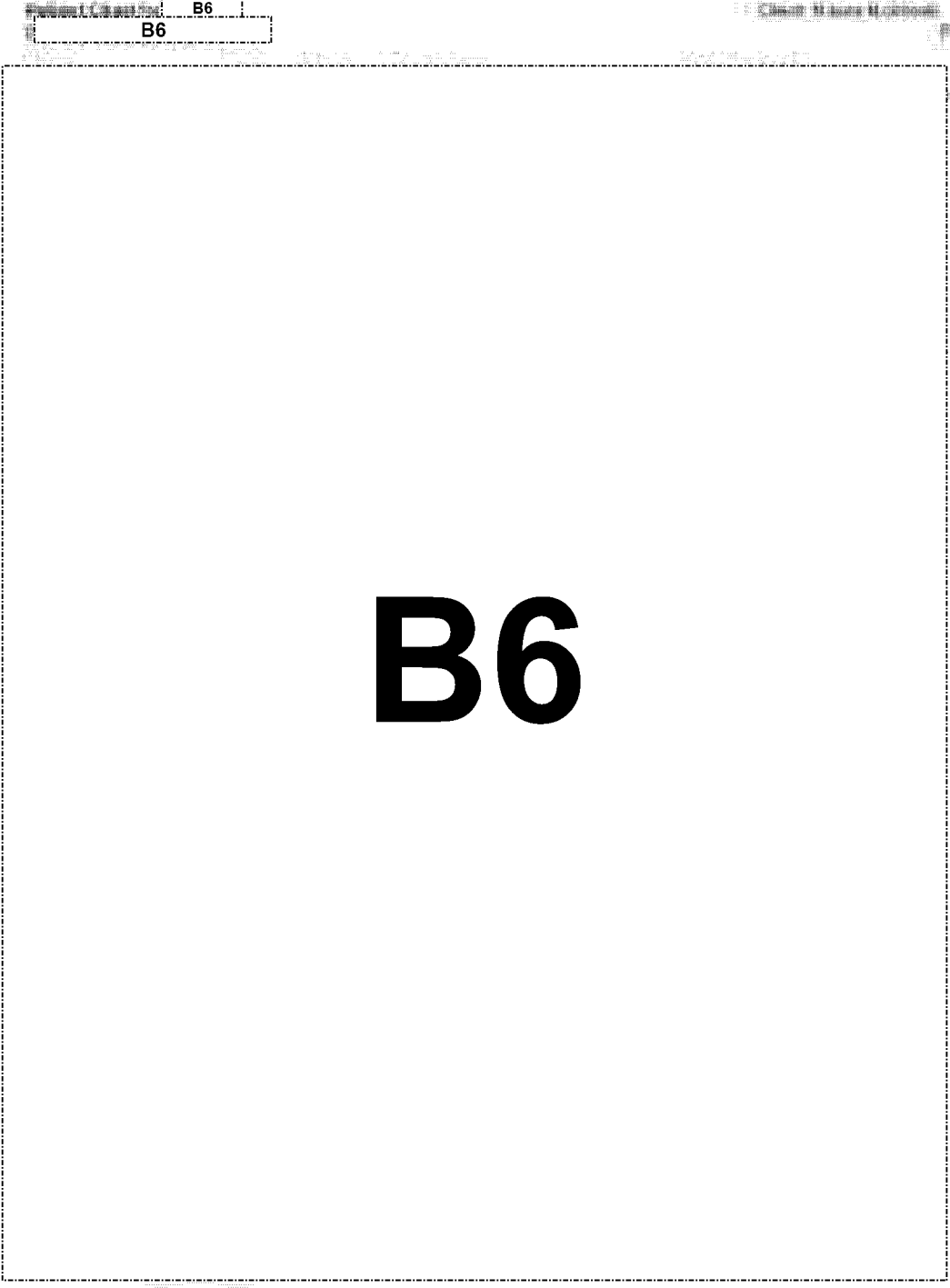
Client:  
Patient:

**B6**

RDVM -

**B6**

- Hx, Labs, 1/8/16 - 6/20/17



Client:  
Patient:

**B6**

RDVM

**B6**

- Hx, Labs, 1/8/16 - 6/20/17

**B6**

**B6**

Client: **B6**  
Patient:

Holter report 3/30/18

### CANINE HOLTER MONITORING REPORT

#### HOLTER MONITOR REPORT

Patient Name:	<b>B6</b>	Interp. Physician:	
Date of Birth:		Scan Number:	10000000000000000000
ID:		Date Recorded:	3/30/2018 @ 20:51
Age:	2 YEARS	Date Processed:	3/30/2018
Sex:	F	Recorder Num:	001560
Analyst:		Hookup Tech:	
Physician:		Medications:	
Indications:	Rest of		

**B6**

Physician's Signature



Client: **B6**  
Patient: **B6**

Holter report 3/30/18

Page: **B6** Date Received: 3/30/2018 @ 14:18 Page: 1

GENERAL PROFILE

**B6**

Client: **B6**  
Patient: **B6**

**Holter report 3/30/18**

Patient: **B6** ID: **3018** Date Received: **3/30/2018** @ **10:11** Page: **8**

**CRITICAL EVENTS**

**B6**

Client: **B6**  
Patient: **B6**

Holter report 3/30/18

Page: **B6** Date Received: 3/30/18 Page: 4

**FULL SIZED STRIPS**

**B6**

Client: **B6**  
Patient:

Holter report 3/30/18

Patient: **B6** ID: **1** Date Received: **3/30/2018** @ **10:11** Page: **8**

FULL-SIZED STRIPS

Strip 015 (00:00) - 015 (01:00) (ALL)

**B6**

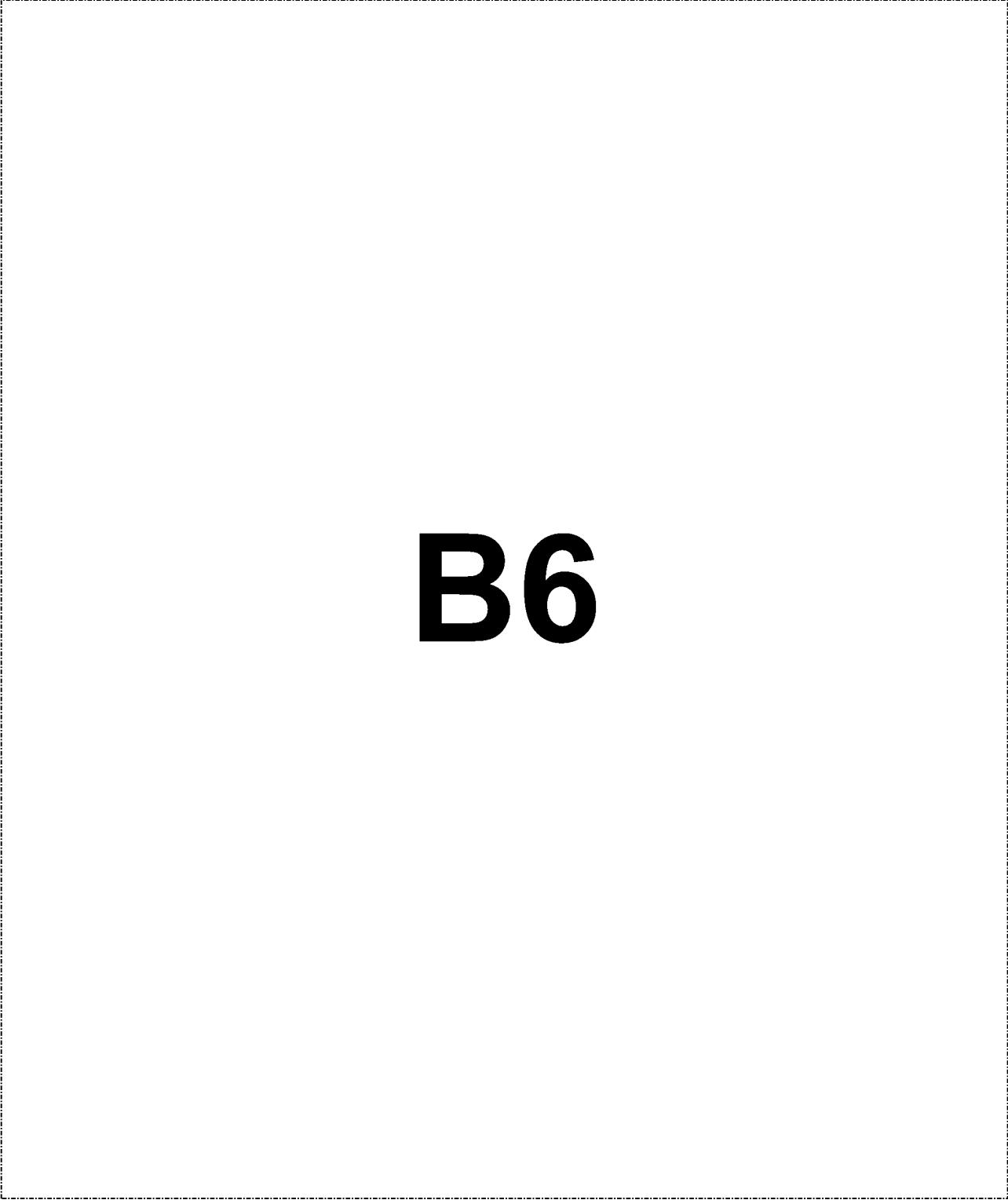
Client: **B6**  
Patient: **B6**

Holter report 3/30/18

Patient: **B6** ID: **B6** Date Received: **3/30/2018** @ **10:11** Page: **4**

**FULL SIZED STRIPS**

**Strip 015 (00:00 - 00:05) (00:00 - 00:05)**



Client: **B6**  
Patient: **B6**

Holter report 3/30/18

Patient: **B6** ID: **1011** Date Received: **3/30/2018** @ **10:11** Page: **7**

**FULL SIZED STRIPS**

**B6**

Client:  
Patient: **B6**

Holter report 3/30/18

Patient: **B6**      Date Recorded: 3/30/18      Page: 8

**FULL SIZED STRIPS**

**B6**

Client: **B6**  
Patient:

Holter report 3/30/18

Patient: **B6** ID: **1011** Date Received: **3/30/2018** @ **10:11** Page: **8**

FULL SIZED STRIPS

**B6**

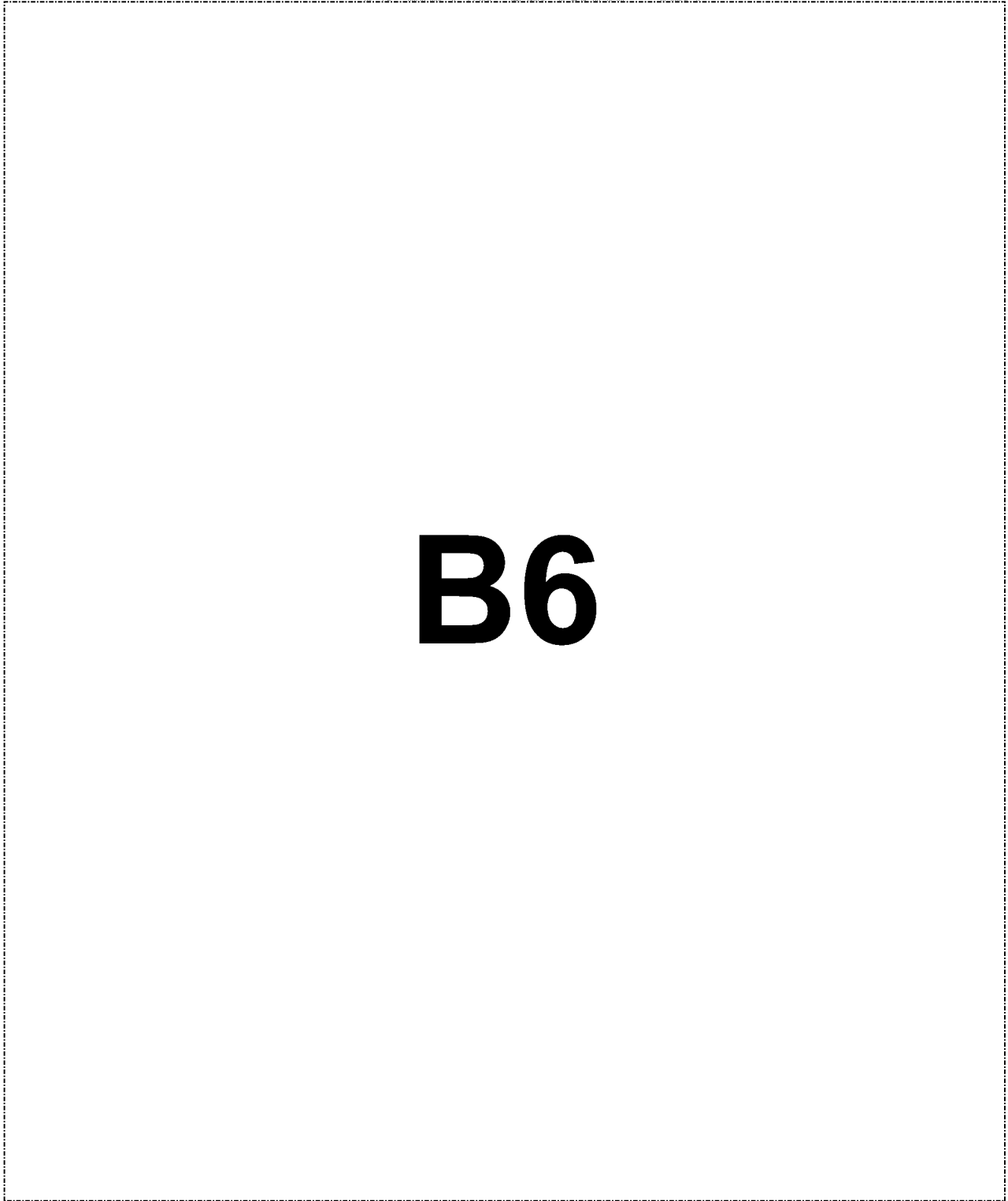


Client: **B6**  
Patient: **B6**

Holter report 3/30/18

Patient: **B6** ID: **1011** Date Received: **3/30/2018** @ **10:11** Page: **11**

**FULL SIZED STRIPS**



Client: **B6**  
Patient: **B6**

Holter Monitor report 11/7/19

### CANINE HOLTER MONITORING REPORT

#### HOLTER MONITOR REPORT

Patient Name:	<b>B6</b>	Interp. Physician:	
Date of Birth:		Scan Number:	11/07/2019 @ 20:07
ID:		Date Recorded:	11/07/2019 @ 20:07
Age:		Date Processed:	11/07/2019
Sex:		Recorder Num:	601963
Analyst:		Hookup Tech:	
Physician:		Medications:	
Indications:			

**B6**

Physician's Signature: \_\_\_\_\_

Client: **B6**  
Patient: **B6**

**Holter Monitor report 11/7/19**

**GENERAL PROFILE**



Client: **B6**  
Patient:

**Holter Monitor report 11/7/19**

Patient: **B6** Date Recorded: 11/7/2019 @ 16:47 Page: 1

**CRITICAL EVENTS**

**B6**

Client: **B6**  
Patient: **B6**

**Holter Monitor report 11/7/19**

Patient: **B6** Date: 11/7/19 Page: 4

**FULL-SIZED STRIPS**

ECG # 11/7/19

**B6**

Client: **B6**  
Patient: **B6**

**Holter Monitor report 11/7/19**

Patient: **B6** Date: 11/7/2019 Page: 1

**FULL-SIZED STRIPS**

**B6**

Client:  
Patient: **B6**

**Holter Monitor report 11/7/19**

Patient: **B6** Date: 11/7/2019 Page: 8

**FULL-SIZED STRIPS**

From: 11/7/2019 12:00:00 AM To: 11/7/2019 11:59:59 AM

**B6**

Client: **B6**  
Patient: **B6**

Holter Monitor report 11/7/19

Patient: **B6** Date: 11/7/2019 Page: 7

FULL-SIZED STRIPS

Printed: 11/7/2019 10:47:11 AM

**B6**



Client:  
Patient: **B6**

Holter Monitor report 11/7/19

Patient: **B6** Date: 11/7/2019 Page: 1

FULL-SIZED STRIPS

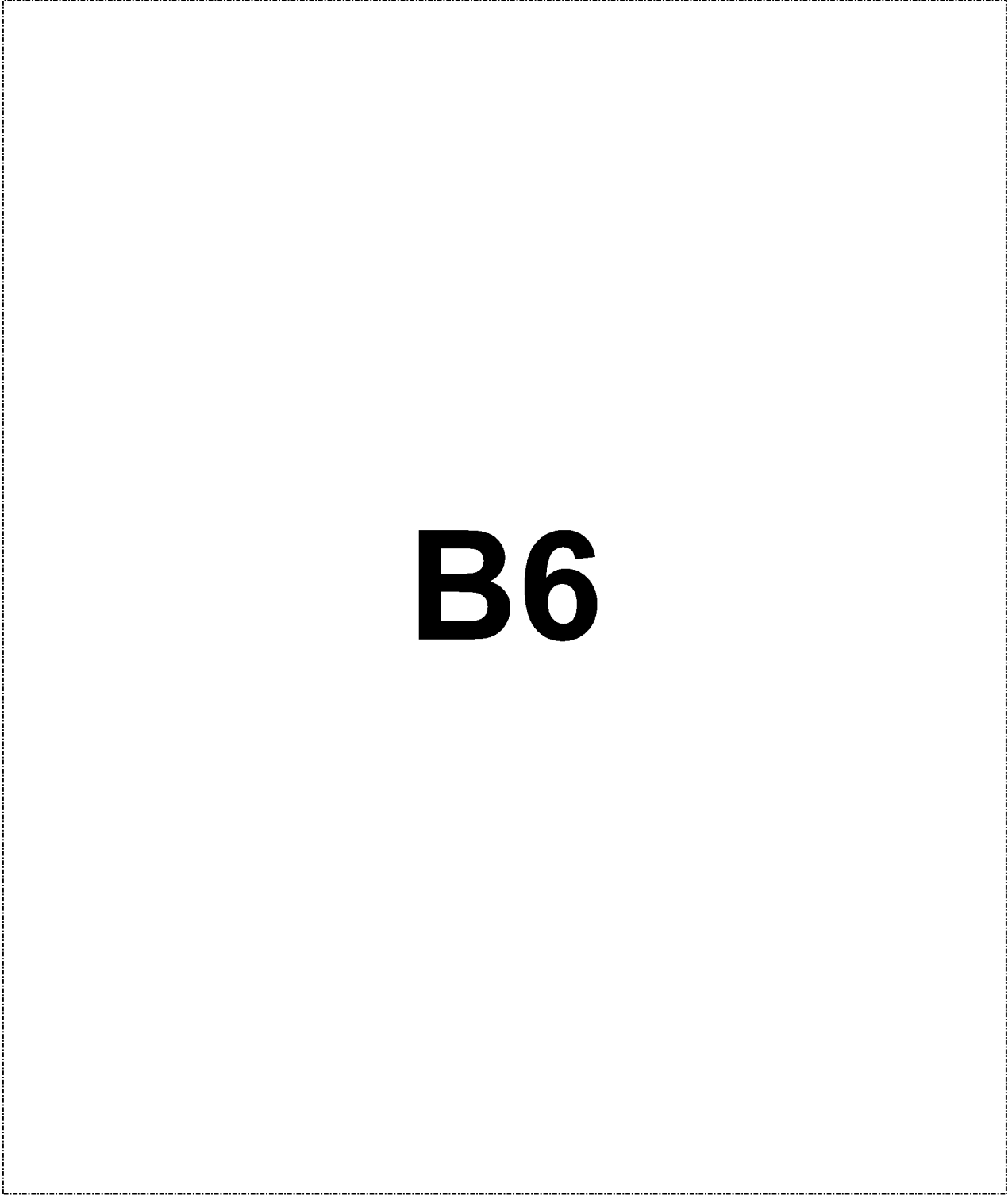
**B6**

Client: **B6**  
Patient: **B6**

Holter Monitor report 11/7/19

Patient: **B6** Date: 11/7/19 Page: 68

FULL-SIZED STRIPS



Client: **B6**  
Patient:

**Holter Monitor report 11/7/19**

Patient: **B6** Date: 11/7/2019 Page: 11

**FULL-SIZED STRIPS**

Form 6-58 (rev. 10-11-11)

**B6**

Client: **B6**  
Patient: **B6**

**Holter Monitor report 11/7/19**

Patient: **B6** Date: 11/7/2019 Page: 11

**FULL-SIZED STRIPS**



Client:  
Patient:

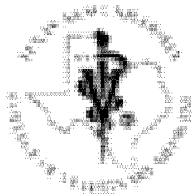
**B6**

Lab Results IDEXX CARDIOPET proBNP 11/15/18

**B6**

Client: **B6**  
Patient: **B6**

**Cardiac Troponin/Texgi SST 11/15/18**



Gastrointestinal Laboratory  
Dr. J.M. Steiner  
Department of Small Animal Clinical Sciences  
Texas A&M University  
4474 TAMU  
College Station, TX 77843-4474



Website User ID: **B6**

GI Lab Assigned Clinic ID: 11488

<b>B6</b>	Phone:	505 887 4889
Tufts University-Clinical Pathology Lab	Fax:	9 508 839 7936
Attn: <b>B6</b>	Animal Name:	<b>B6</b>
200 Westboro Road	Owner Name:	<b>B6</b>
North Grafton, MA 01536	Species:	Canine
USA	Date Received:	Nov 20, 2018

Tufts University-Clinical Pathology Lab  
Tracking Number: 1811159181  
GI Lab Accession: **B6**

Test	Result	Reference Interval	Assay Date
<b>B6</b>			

Comments:

**B6**  
B6  
11/20/2018 3:51 PM  
CARDIAC TROPONIN/TEXGI  
S&T  
Canine

GI Lab Contact Information

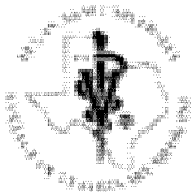
Phone: (773) 862-2861  
Fax: (773) 862-2864

Email: [glab@cvm.tamu.edu](mailto:glab@cvm.tamu.edu)  
[vetmed.tamu.edu/glalab](mailto:vetmed.tamu.edu/glalab)

Client: B6  
Patient:

**Cardiac Troponin/Texgi SST 11/15/18**

---



Gastrointestinal Laboratory  
Dr. J.M. Steiner  
Department of Small Animal Clinical Sciences  
Texas A&M University  
4474 TAMU  
College Station, TX 77843-4474



**Important  
Notices:**

**Ongoing studies:**

**Cobalamin Supplementation Study-** Dogs and cats with cobalamin deficiency with normal PLI, and either normal or low (consistent with EPI) TLI to compare the efficacy of oral vs parenteral cobalamin supplementation. Contact Dr. Cheng at [chcheng@cvm.tamu.edu](mailto:chcheng@cvm.tamu.edu) for further information.

**Chronic Pancreatitis with Uncontrolled Diabetes Mellitus-** Seeking dogs with chronic pancreatitis and uncontrolled diabetes mellitus for enrollment into a drug trial/medication provided at no cost). Contact Dr. Sue Yee Lim at [slim@cvm.tamu.edu](mailto:slim@cvm.tamu.edu) or Dr. Sina Mansik at [smansik@cvm.tamu.edu](mailto:smansik@cvm.tamu.edu)

**Dogs with Primary Hyperlipidemia-** Prescription diet naïve dogs newly diagnosed with primary hyperlipidemia are eligible to be enrolled in a dietary trial. Contact Dr. Lawrence at [ylawrence@cvm.tamu.edu](mailto:ylawrence@cvm.tamu.edu) for more information.

**Dogs with Chronic Pancreatitis-** Dogs with chronic pancreatitis (cPLI >400 µg/L) and hypertriglyceridemia (>300 mg/dl) are eligible to be enrolled in a dietary trial. Contact Dr. Lawrence at [ylawrence@cvm.tamu.edu](mailto:ylawrence@cvm.tamu.edu)

**Chronic enteropathies in dogs-** Please fill out this brief form <http://tinyurl.com/ibc-enc02> to see if your patient qualifies.

**Feline Chronic Pancreatitis-** Cats with chronic pancreatitis for more than 2 weeks and cPLI >10 µg/L are eligible for enrollment into a treatment trial investigating the efficacy of prednisone or cyclosporine. Please contact Dr. Yamakita for further information at [pyamkita@cvm.tamu.edu](mailto:pyamkita@cvm.tamu.edu).

**We can not accept packages that are marked "Bill Receiver"**

Use our preprinted shipping labels to save on shipping. Call 979-862-2861 for assistance. The GI Lab is not here to accept packages on the weekend. Samples may be compromised if you ship for arrival on Saturday or Sunday or if shipped via US Mail.

**GI Lab Contact Information**

Phone: (979) 862-2861  
Fax: (979) 862-2864

Email: [glab@cvm.tamu.edu](mailto:glab@cvm.tamu.edu)  
[vetmed.tamu.edu/glalab](mailto:vetmed.tamu.edu/glalab)

Client: **B6**  
 Patient: **B6**

**TAURINE Panel 11/15/18**

Veterinarian Name: **B6**  
 Telephone: 810-751-1011 Fax: 810-751-4411  
 Email: **B6**

Veterinarian Contact: **B6**  
 Clinic/Company Name: Tufts Cummings School of Vet. Med. - Clinical Pathology Laboratory  
 Address: 300 Westboro Road, North Grafton, MA 01536  
 Email: Clinpath@tufts.edu  
 Telephone: 508-857-4444 Fax: 508-856-7708

Billing Contact: **B6** Email: **B6**  
 Billing Contact Phone: **B6** Tax ID:  
 Patient Name: **B6** Species: **B6**  
 Breed: **B6** Owner's Name: **B6**

Current Diet: **B6**  
 Sample type: Plasma  Whole Blood  Urine  Feces   
 Test: Taurine  Complete Amino Acids  Other:   
 Taurine Results (do not use only): **B6** **B6**  
 Plasma  Whole Blood  Urine  Feces

	Plasma (nMol/ml)		Whole Blood (nMol/ml)	
	Normal Range	No known risk for deficiency	Normal Range	No known risk for deficiency
Cat	80-120	>40	300-600	>200
Dog	60-120	>40	200-350	>150

\* Please note with the recent increase in the number of dogs screened for taurine deficiency, we are seeing dogs with values within the reference ranges (or above the 'no known risk for deficiency range') yet are still exhibiting signs of cardiac disease. Veterinarians are welcome to contact our laboratory for assistance in evaluating your patient's results.





**CARDIOLOGY SERVICE UPDATE: DOG FOOD & DILATED CARDIOMYOPATHY**

The Cardiology Service has developed this document in response to the alerts from the FDA. These alerts identify an associated risk for some grain-free diets containing certain ingredients (legumes like peas, pea components, lentils; white potatoes, sweet potatoes) and a diagnosis of dilated cardiomyopathy (DCM). The links provided throughout this document can be copied and pasted to obtain additional information.

FDA Alerts found here:

- <https://www.fda.gov/Animal/Veterinary/News/Events/CDM/peasandcorn618305.htm>
- <https://www.fda.gov/Animal/Veterinary/Resources/for/You/Animals/owners/Alerts/peasandcorn618305.htm>

**What is Dilated Cardiomyopathy (DCM)?**

DCM is a heart muscle disorder that results in a weak pump function and heart chamber enlargement. In the early stages of this disease pets may appear totally healthy with no apparent clinical signs. Later in the course of this disease, dogs may have a heart murmur, an arrhythmia (irregular heart beat), collapse episodes, weakness or tiredness with exercise, and even trouble breathing from congestive heart failure. While there are some breeds of dogs (like Doberman) that have a genetic predisposition to development of DCM, there are also nutritional factors that may result in this disease.

**What should I do?**

If you are feeding a diet of concern based upon the FDA alert we recommend that you consult with your veterinarian or veterinary cardiologist. We provide 4 general points for guidance below:

1. An initial step is to consider whether you are willing or interested in performing additional testing to assess whether your pet is affected with DCM. If you believe your dog is at risk, showing any of the aforementioned clinical signs or would prefer to simply rule out any heart disease, we recommend that you first have your pet's taurine levels tested (both whole blood and plasma levels) as well as seek an echocardiogram by a board-certified veterinary cardiologist. Low taurine levels are associated with development of DCM in dogs and are sometimes a component of this current issue.

Information on taurine testing can be found here: <https://www.vetmed.ucdavis.edu/lab/taurino-acid-laboratory>

2. At this time, diet change is recommended when possible and should be considered regardless of the results obtained from any testing. You can consult with your veterinarian in selecting a new diet that avoids the ingredients of concern listed by the FDA. When selecting this diet, we recommend that you choose a diet that is manufactured with rigorous quality control measures and research behind the formulation. A way to ensure that your diet meets these recommendations is to follow the following guidelines that were generated by a large number of the world's leading experts in veterinary nutrition.

Food selection guidelines found here:

- <https://www.asvsn.org/WBA/VA/media/Article-and-Editorial/Selecting-the-Best-Food-for-your-Pet.pdf>

3. If your pet is identified through testing to have a low blood taurine level or evidence of DCM by echocardiogram, we urge you to report this information to the FDA.

FDA reporting guidelines found here: <https://www.fda.gov/Animal/Veterinary/Safety/Health/Reports/Problemium183403.htm>

4. Work with your veterinarian(s) to determine the best course of action and medical treatments if indicated. In the case of a DCM diagnosis, diet change alone may not be sufficient and additional medications may be prescribed.

Please continue to monitor the FDA website and the UC Davis School of Veterinary Medicine Newsfeeds for updates and recommendations regarding this issue.

Client: **B6**  
 Patient: **B6**

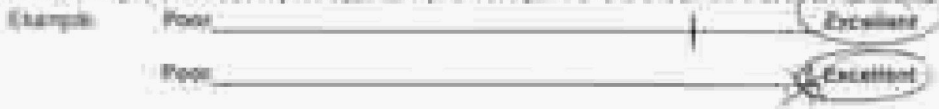
Diet hx

**CARDIOLOGY DIET HISTORY FORM**

Please answer the following questions about your pet.

Pet's name: **B6**, Owner's name: **B6**, Pet's date: **B6**

1. How would you assess your pet's appetite? (Mark the point on the line below that best describes your pet's appetite)



2. Have you noticed a change in your pet's appetite over the last 1-2 weeks? (check all that apply)  
 Eats about the same amount as usual  
 Eats less than usual  
 Eats more than usual  
 Seems to prefer different foods than usual  
 Other: \_\_\_\_\_

3. Over the last few weeks, has your pet (check only)  
 Lost weight  
 Gained weight  
 Stayed about the same weight  
 Don't know

4. Please list below ALL pet foods, people food, treats, snacks, dental chews, rawhides, and any other food item that your pet currently eats. Please include the brand, specific product, and flavor so we know exactly what your pet is eating.

Examples are shown in the table - please provide enough detail that we could go to the store and buy the exact same food

Food (include specific product and flavor)	Form	Amount	How often?	Fed since
Arctic Green Free Chicken, Lamb, & Sweet Potato Adult	dry	1 1/2 cups	twice	Jan 2018
100% lean hamburgers	microwaved	2 oz	1x/week	Jan 2018
Applegate organic beef bawls	meat	N	1x/day	Aug 2015
Rawhide	meat	1 inch beef	1x/week	Dec 2018
Blueberries - Mountain Forest variety	dry	1 1/2 oz	2x/day	Jan 2018
Blueberries - Backyard variety	dry	1 1/2 oz	3x/week	Jan 2018
Rawhide Chicken (Redwood Forest)	meat	1/2 cup	1-2x/week	Jan 2018
Cubed Tuna (P. M. M. M. M. M.)	meat	1/2 cup	1-2x/week	Jan 2018
Blueberries - Mountain Forest (1/2 cup)	dry	1/2 cup	2x/day	Jan 2018

(NO "HOLY GRAIN" DO "HOLY")  
 \*Any additional diet information can be listed on the back of this sheet

5. Do you give any dietary supplements to your pet (for example, vitamins, glucosamine, fatty acids, or any other supplement)?  Yes  No. If yes, please list which ones and give brands and amounts.

	Brand/Concentration	Amount per day
Taurine	_____	_____
CoQ10	_____	_____
Anticoagulants	_____	_____
Multivitamins	_____	_____
Fish oil	_____	_____
Coenzyme Q10	_____	_____
Other (please list)	_____	_____
Example: Vitamin C	_____	_____
<b>Ascorbic Acid</b>	<b>1000mg - All Natural Supplement</b>	<b>500 mg tablets - 1 per day</b>

6. How do you administer pills to your pet?  
 I do not give any medications  
 I put them directly in my pet's mouth without food  
 I put them in my pet's dog/cat food  
 I put them in a Pill Pocket or similar product  
 I put them in food (pet food) - small pieces of (canned) dog food

Client: **B6**  
Patient: **B6**

---

**Vitals Results**

---

<b>B6</b>	3:29:53 PM	Weight (kg)
<b>B6</b>	2:23:42 PM	Weight (kg)
<b>B6</b>	10:41:26 AM	Weight (kg)
<b>B6</b>	2:45:48 PM	Weight (kg)
<b>B6</b>	2:01:47 PM	Weight (kg)

**B6**

Client: **B6**  
Patient:

**ECG from Cardio**

---

**B6**

**B6**

01/28/2018 09:00  
Tulsa Community  
Health Diagnostic Center of the West  
Tulsa, OK

---

**B6**

Client: **B6**  
Patient:

**ECG from Cardio**

---

**B6**

**B6**

Page 3 of 8  
Full Name: [Redacted]  
Full Address: [Redacted]  
[Redacted]



Client:  
Patient:

**B6**

**ECG from Cardio**

---

**B6**

**B6**

Page 2 of 2  
Full Name:  
Full Address:  
City:

**B6**

Client: **B6**  
Patient:

**ECG from Cardio**

**B6**

**B6**

01/11/2011  
10:00 AM  
Page 1 of 1

**B6**

Client: **B6**  
Patient: **B6**

**ECG from Cardio**

**B6**

**B6**

01/11/2011  
10:52:00 AM  
Page 1 of 1  
FDA  
FDA (Division of the ...)  
FDA





Client: **B6**  
Patient: **B6**

**ECG from Cardio**

---

**B6**

**B6**

01/28/2011 09:00 AM  
Full Name: [REDACTED]  
Full Address: [REDACTED]  
City: [REDACTED]



Client: **B6**  
Patient: **B6**

**ECG from Cardio**

---

**B6**

**B6**

01/28/2019 09:00  
Tutor (Accession):  
Ref: (Accession) of the (Accession)  
System

---

**B6**

Client: **B6**  
Patient: **B6**

**ECG from Cardio**

**B6**

**B6**

01/28/2019 09:00:00 Page 3 of 8  
Full Name: [REDACTED]  
Full Address: [REDACTED]  
City: [REDACTED]



Client: **B6**  
Patient: **B6**

**ECG from Cardio**

**B6**

**B6**

01/28/2019 09:00:00 Page 1 of 1  
Full Name: [REDACTED]  
Full Address: [REDACTED]  
[REDACTED]

**B6**

Client: **B6**  
Patient: **B6**

Alba Hotler

### CANINE HOLTER MONITORING REPORT

#### HOLTER MONITOR REPORT

Patient Name:	<b>B6</b>	Interp. Physician:	
Date of Birth:		Scan Number:	
ID:	<b>B6</b>	Date Recorded:	5/15/2017 10:00
Age:	22 Months	Date Processed:	6/2/2017
Sex:	F	Recorder Num:	254721
Analyst:		Hookup Tech:	
Physician:		Medications:	
Indications:	Rest of		

**B6**

Physician's Signature

Client: **B6**  
Patient: **B6**

**Alba Hotler**

Page: 88/111  
B6 B6

**GENERAL PROFILE**

**B6**

Client: **B6**  
Patient: **B6**

**Alba Hotler**

Page: 89/111 **B6** **B6** Date: 11/11/2017 11:56 Page: 8

**CRITICAL EVENTS**

**B6**

Event ID	Date	Time	Event Type	Description

Event ID	Date	Time	Event Type	Description

Client: **B6**  
Patient: **B6**

**Alba Hotler**

Patient: **B6** ID: **B6** Date Encoded: 11/11/2017 11:56 Page: 4

**FULL SIZED STRIPS**

**B6**



Client: **B6**  
Patient: **B6**

**Alba Hotler**

Patient: B6 ID: B6 Date Entered: 1/11/2017 10:56 Page: 1

FULL SIZED STRIPS

**B6**

Client: **B6**  
Patient: **B6**

**Alba Hotler**

Patient: **B6** ID: **B6** Date Encountered: 1/11/2017 11:56 Page: 4

**FULL SIZED STRIPS**

**B6**

Client: **B6**  
Patient: **B6**

**Alba Hotler**

Patient: **B6** ID: **B6** Date Encountered: 1/11/2017 10:56 Page: 7

**FULL SIZED STRIPS**

**B6**

Client: **B6**  
Patient: **B6**

**Alba Hotler**

Patient: **B6** ID: **B6** Date Encoded: 1/11/2017 10:56 Page: 3

**FULL SIZED STRIPS**

**B6**

Client: **B6**  
Patient: **B6**

**Alba Hotler**

Patient: **B6** ID: **B6** Date Encountered: 1/11/2017 10:56 Page: 1

**FULL SIZED STRIPS**

Strip 1.50, 2.00, 2.50, 3.00, 3.50, 4.00, 4.50, 5.00, 5.50, 6.00, 6.50, 7.00, 7.50, 8.00, 8.50, 9.00, 9.50, 10.00

**B6**

Client: **B6**  
Patient: **B6**

**Alba Hotler**

Patient: **B6** ID: **B6** Date Encountered: 11/11/2017 11:56 Page 10

**FULL SIZED STRIPS**

**B6**

Client: **B6**  
Patient: **B6**

**Alba Hotler**

Patient: **B6** ID: **B6** Date Encoded: 11/11/2017 10:56 Page 11

**FULL SIZED STRIPS**

**B6**

Client: **B6**  
Patient: **B6**

**ECG from Cardio**

---

**B6**

**B6**

21-1-18, 18  
Total Number of  
Total Number of  
2018/18

**B6**



Client: **B6**  
Patient:

**ECG from Cardio**

---

**B6**

**B6** 2018/04/04 08:00:00  
2018/04/04 08:00:00  
2018/04/04 08:00:00  
2018/04/04 08:00:00

---

**B6**

Client:  
Patient:

**B6**

**ECG from Cardio**

---

**B6**

**B6**

2018/04/04 Page 2 of 4  
FDA Summary  
Public Comments (and Responses)  
[REDACTED]

**B6**

Client: **B6**  
Patient:

**ECG from Cardio**

---

**B6**

**B6**

2018 09 08  
10:00 AM  
10:00 AM  
10:00 AM  
10:00 AM

**B6**

Client: **B6**  
Patient:

**ECG from Cardio**

---

**B6**

**B6**

21.001 (P) 001  
Pulse: 50/min  
Pulse: 50/min  
Pulse: 50/min  
Pulse: 50/min

---

**B6**

**Patient History**

	03:28 PM	Appointment
	04:51 PM	Appointment
	04:52 PM	Appointment
	04:53 PM	Appointment
	04:58 PM	Appointment
	04:58 PM	Appointment
	04:59 PM	Appointment
	05:19 PM	Purchase
	02:33 PM	UserForm
	02:45 PM	Purchase
	03:29 PM	Vitals
<b>B6</b>	03:30 PM	Purchase
	03:40 PM	Treatment
	04:02 PM	UserForm
	05:47 PM	Email
	05:47 PM	Email
	12:15 PM	Appointment
	02:10 PM	UserForm
	02:23 PM	UserForm
	02:23 PM	Vitals
	03:10 PM	Treatment
	03:10 PM	Purchase
	03:22 PM	Purchase
	04:46 PM	UserForm
	03:24 PM	Email
	02:20 PM	Appointment
	02:20 PM	Appointment
	02:22 PM	Appointment

**B6**

Client: **B6**  
Patient:

**Patient History**

02:18 PM	UserForm
02:22 PM	UserForm
03:07 PM	Treatment
03:39 PM	Purchase
03:52 PM	Purchase
04:15 PM	Purchase
04:36 PM	Prescription
04:38 PM	Purchase
09:56 AM	Appointment
10:46 AM	Appointment
09:50 AM	Appointment
09:57 AM	UserForm
10:17 AM	Purchase
10:26 AM	Treatment
10:41 AM	Vitals
11:08 AM	Purchase
11:20 AM	Purchase
11:51 AM	UserForm
05:22 PM	Email
08:51 AM	Appointment
02:19 PM	UserForm
02:43 PM	UserForm
02:45 PM	Treatment
02:45 PM	Vitals
02:46 PM	Purchase
03:26 PM	Purchase
12:57 PM	Email
10:35 AM	UserForm
05:14 PM	Appointment
06:58 PM	Appointment
01:02 PM	UserForm
01:04 PM	Treatment
02:01 PM	Vitals
02:22 PM	Prescription

**B6**

**B6**

Client: **B6**  
Patient:

**Patient History**

<b>B6</b>	03:00 PM	Deleted Reason
	03:00 PM	Deleted Reason
	03:00 PM	Deleted Reason
	03:22 PM	Purchase
	03:25 PM	Purchase
	03:25 PM	Purchase
	03:36 PM	Labwork
	03:36 PM	Purchase
	04:48 PM	UserForm
	06:08 PM	Email

**B6**



Cummings School of  
Veterinary Medicine

*Healing Animals. Helping Humans. Transforming Global Health.*

Forster Hospital for Small Animals  
55 Willard Street  
North Grafton, MA 01526  
Telephone (508) 829-5295  
Fax (508) 829-8739  
<http://vetmed.tufts.edu/>

**B6**

**B6**

Female

Canine, Breed: Friesian

**B6**

**B6**

Dear **B6**

Thank you for referring **B6** with their pet **B6**.

If you have any questions, or concerns, please contact us at 508-827-1981.

Thank you,

**B6**, DVM, DACVIM (Cardiology)





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55 Willard Street  
North Grafton, MA 01526  
Telephone (508) 829-5295  
Fax (508) 829-8739  
<http://vetmed.tufts.edu/>

**B6**

**B6**

Female

Canine Heart Failure

**B6**

**B6**

Dear **B6**

Thank you for referring **B6** with their pet **B6**

If you have any questions, or concerns, please contact us at 508-827-1981.

Thank you,

**B6**

DVM, DACVIM (Cardiology)

**Cummings**  
**Veterinary Medical Center**  
AT TUFTS UNIVERSITY

Forster Hospital for Small Animals  
55 Willard Street  
North Grafton, MA 01526  
Telephone (508) 829-5295  
Fax (508) 829-8739  
<http://vetmed.tufts.edu/>

**B6**

**B6**

Female  
Cancer - Breast - Fatty

**B6**

**B6**

Dear **B6**

Thank you for referring **B6** with their pet **B6**.

If you have any questions, or concerns, please contact us at 508-827-1981.

Thank you,

**B6**

DVM (Resident, Cardiology)

**Cummings**  
**Veterinary Medical Center**  
AT TUFTS UNIVERSITY

Forster Hospital for Small Animals  
55 Willard Street  
North Grafton, MA 01526  
Telephone (508) 829-5295  
Fax (508) 829-7951  
<http://vetmed.tufts.edu/>

**B6**

**B6** Female  
Castrate, Spayed, Fixed  
**B6**

**B6**

Dear **B6**

Thank you for referring **B6** with their pet **B6**.

If you have any questions, or concerns, please contact us at 508-829-4988.

Thank you,

**B6** DVM, DACVIM (Cardiology)

**Cummings**  
**Veterinary Medical Center**  
AT TUFTS UNIVERSITY

Forster Hospital for Small Animals  
55 Willard Street  
North Grafton, MA 01526  
Telephone (508) 829-5295  
Fax (508) 829-7951  
<http://vetmed.tufts.edu/>

**B6**

**B6**

Female

Castrated Spayed Female

**B6**

**B6**

Dear **B6**

Thank you for referring **B6** with their pet **B6**

If you have any questions, or concerns, please contact us at 508-829-4988.

Thank you,

**B6** DVM, DACVP (Cardiology)

**Cummings**  
**Veterinary Medical Center**  
AT TUFTS UNIVERSITY

Forster Hospital for Small Animals  
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North Grafton, MA 01526  
Telephone (508) 829-5295  
Fax (508) 829-7951  
<http://vetmed.tufts.edu/>

**B6**

**B6**

Female

Castr. Bitch - Fetus

**B6**

**B6**

Dear **B6**,

Thank you for referring **B6** with their pet **B6**.

If you have any questions, or concerns, please contact us at 508-827-1981.

Thank you,

**B6** DVM, DACVP (Cardiology)

All Medical Records

Client:

B6

Address:

Patient:

B6

Breed: Golden Retriever

DOB:

B6

Species: Canine

Sex: Male

(Neutered)

Home Phone:  
Work Phone:  
Cell Phone:

B6

Referring Information

B6

Client:

B6

Patient:

Initial Complaint:

Emergency

SOAP Text Jun 20 2017 11:44PM - B6

6/20/2017 11:44:47 PM EXAM, GENERAL

Subjective (S)

Dx wit B6 at RDVM today - got IV fluids and B6 by injection (owner didn't give B6 at home orally). He was seen at RDVM because he was panting and lethargic and had nasal discharge. He was grunting and was not feeling well at home. Wretching at home before presentation. Got bully stick yesterday night. Other owner took stick out of mouth the night before - unsure if he was chewing on it or what. Been slowing down a little past couple months. No breathing difficulty.

Curren meds:

B6

Objective (O)

B6

H/L: NMA, NSR, SSFP; severe inspiratory stridor/dyspnea; harsh BVS bilaterally, no crackles/wheezes

B6

Client: **B6**  
Patient: **B6**

Assessment (A)

**B6**

Plan (P)

**B6**

Diagnostics:  
NOVA  
CBC/Chemistry  
Thoracic radiographs in the AM

Discussed concern for severe respiratory crisis. Patient would likely need to be intubated overnight. Plan was to just stabilize overnight and reassess in the AM - at this point I was not completely sure **B6** was a straight forward LARPAR case due to the severe inflammation present. I would like to give him the night for the swelling to go down and recheck tomorrow. If necessary, a tieback can be performed - owner aware of higher anesthetic risk and aspiration pneumonia. Expecting update by noon but mentioned she might call by 10 am for update.

Deposit and estimate: **B6**

SOAP completed by: **B6**

**B6**

6/21/2017 4:48:33 PM

Prescribed - **B6**  
Instructions

6/21/2017 5:15:30 PM

Prescribed - **B6**  
Instructions

SOAP Text Jun 21 2017 6:14PM **B6**

Doctor: **B6**

Presenting complaint:

**B6**

Diagnostics

**B6**

Client: **B6**  
Patient: **B6**

---

Treatments

**B6**

Exam:

Subjective (S): attitude: quiet, sedated  
BCS: 7/9  
Hydration: normal

Objective (O)

**B6**

H/L: NMA NSR fPSS normal BV sounds bilaterally with normal RR and RE, snores at rest

**B6**

Assessment (A)

**B6**

Dx Plan (P)

**B6**

Tx Plan

**B6**

Communication Summary:

See CComm notes

SOAP Text Jun 22 2017 8:00AM **B6**

Doctor: **B6**

Presenting complaint:

**B6**



Client: **B6**  
Patient:

**B6**

Diagnostics

**B6**

6/21

**B6**

Treatments

**B6**

Exam:

Subjective (S): attitude: quiet, sedated

BCS: 7/9

Hydration: normal

Objective (O)

**B6**

H/L:NMA NSR fPSS normal BV sounds bilaterally with normal RR and RE, snores at rest

**B6**

Assessment (A)

**B6**

Plan

**B6**

histo pending

Communication Summary:

See CComm notes

6/22/2017 10:55:51 AM **B6**

6/22/2017 11:27:48 AM **B6**

Client: **B6**  
Patient: **B6**

Instructions - **B6**

6/22/2017 11:29:01 AM

**B6**

SOAP Text Jun 23 2017 10:47AM - **B6**

Doctor: **B6**

Presenting complaint:

**B6**

Diagnostics

**B6**

6/21

**B6**

6/22

**B6**

Treatments

**B6**

Exam:

Subjective (S): attitude: quiet, interactive

BCS: 7/9

Hydration: normal

Objective (O)

**B6**

H/L:NMA NSR fPSS normal BV sounds bilaterally with normal RR and RE, minimal airway noise

**B6**

Client: **B6**  
Patient: **B6**

Rectal:np

Assessment (A) **B6**

Plan **B6**

Communication Summary:  
See CComm notes **B6**

6/23/2017 4:39:18 PM  
Prescribed **B6**  
Instructions **B6**

6/23/2017 4:39:37 PM  
Prescribed **B6**  
Instructions **B6**

6/23/2017 5:03:32 PM  
Prescribed **B6**  
Instructions **B6**

SOAP Text Jun 24 2017 2:59PM **B6**

Doctor: **B6**

Presenting complaint: **B6**

Diagnostics  
6/20 **B6**

6/21 **B6**

6/22 **B6**

Treatments

Client: **B6**  
Patient: **B6**

Current **B6**

Exam:  
Subjective (S): attitude: quiet, interactive  
BCS: 7/9  
Hydration: normal

Objective (O)

**B6**

H/L:NMA NSR fPSS normal BV sounds bilaterally with normal RR and RE, minimal airway noise - but after eating was more stertorous

**B6**

Assessment (A)

**B6**

Plan

**B6**

Communication Summary:  
See CComm notes

6/25/2017 9:14:51 AM

Prescribed **B6**  
Instructions **B6**

SOAP Text Jun 25 2017 4:06PM - **B6**

Doctor **B6**

Presenting complaint:

**B6**

Diagnostics  
6/20

**B6**

Client: **B6**  
Patient:

6/21

**B6**

6/22

**B6**

Treatments

**B6**

Exam:

Subjective (S): attitude: quiet, interactive  
BCS: 7/9  
Hydration: normal

Objective (O)

**B6**

H/L:NMA NSR fPSS normal BV sounds bilaterally with normal RR and RE, minimal airway noise

**B6**

Assessment (A)

**B6**

Plan

**B6**

Communication Summary:  
See CComm notes

SOAP Text Jun 26 2017 9:19AM **B6**

**B6** 6/26/17

Presenting complaint:

**B6**

Client: **B6**  
Patient: **B6**

**B6**

Overnight update: Clinically well, but had a fever of 105.7 at 10PM. resolved with time and **B6**

Diagnostics  
6/20

**B6**

6/21

**B6**

6/22

**B6**

Treatments

**B6**

Exam:

Subjective (S): attitude: BAR, interactive  
BCS: 7/9  
Hydration: normal

Objective (O)

**B6**

H/L: NMA NSR fPSS normal BV sounds bilaterally with normal RR and RE, minimal airway noise

**B6**

Assessment (A)

**B6**

Plan

**B6**

Client: **B6**  
Patient: **B6**

Communication Summary **B6**  
**B6**

6/26/2017 2:45:50 PM

Prescribed - **B6**  
Instructions **B6**

6/26/2017 2:46:40 PM

Prescribed - **B6**  
Instructions **B6**

6/26/2017 2:47:03 PM

Prescribed - **B6**  
Instructions **B6**

**Initial Complaint:**

Emergency

**SOAP Text Jan 14 2019 12:03PM - B6**

EXAM, GENERAL 1/14/19

Subjective (S)

**B6** MC Golden - this week lethargic, o' thinks very lethargic yesterday and could have died. Having to encourage him to get up out of bed, doesn't want to do anything, but one day did go for a long walk. Yesterday had episode in afternoon where he was extremely lethargic but recovered later so didn't have evaluated. No V/D, no C/S or oculonasal discharge. No changes in appetite. Full bloodwork 2 weeks ago, noted new murmur grade 2/6, recommended echo which is scheduled for Feb 5th. O wants sooner.

has been trying to lose weight, T4 checked and was low normal, tick negative 2 weeks ago. Has hot spot that was noted on Friday, put cone on but no topical or oral medications for it, was covered with bacitracin temporarily. Previous hot spots. **B6**

Diet: Earthborne Coastal grain free kibble - good appetite, drinking normally. Hx of **B6**

**B6**

Medication: **B6**

Vaccines: **B6**

Travel: None.

Objective (O)

**B6**

H/L: Grade I-II/VI left systolic murmur, FPSS, no arrhythmia, eupneic, normal BV sounds bilaterally

**B6**

Client: **B6**  
Patient:

**B6**

Assessment (A)

A1: Lethargy: diagnosis open

A2: New heart murmur: DMVD vs. DCM vs. other

Plan (P)

-Recommend recheck CBC/chem/UA - declined

**B6**

-Keep scheduled appointment with Cardio for echo

Client communication: Patient presented to ER for hot spot and was placed in exam room to wait due to dog aggression/fear aggression. Met with client - introduced myself and client revealed that she was actually here because **B6** was displaying extreme lethargy yesterday and she is concerned for cardiac disease, as her vet recently diagnosed a heart murmur and recommended a cardio consult and workup, which is scheduled for February. Client is very concerned that lethargy is cardiac related and wants echo sooner. She describes patient as non responsive and unwilling to get up yesterday, afraid he might die, but did not want to seek care yesterday. He seemed better in the afternoon and went for his normal walk. Explained to client that I am unlikely able to get a cardio consult today for a stable patient, unless we find significant changes on exam such as lung changes or arrhythmia, and again don't suspect that lethargy will be cardiac in origin but need to perform a full exam. Discussed exam findings - normal patient, low grade murmur, warrants workup but not today. Offered recheck bloodwork since done 2 weeks ago but lethargy is new, client declined. Would like treatment for hot spot and will keep cardio appointment.

SOAP completed by: **B6**

**Initial Complaint:**

Cardiology Recheck - DCM study - will be fasted - fearful dog will be waiting in car

**SOAP Text Feb 1 2019 1:48PM - Rush, John**

---

**Disposition/Recommendations**

---



Client:  
Patient:

**B6**

---

---

Client: **B6**  
 Patient: **B6**

**Cummings**  
**Veterinary Medical Center**  
 AT TUFTS UNIVERSITY

**Foster Hospital for Small Animals**

55 Willard Street  
 North Grafton, MA 01536  
 (508) 839-5395

Client: **B6**  
 Veterinarian:  
 Patient ID: **B6**  
 Visit ID:

Patient:	<b>B6</b>
Species:	Canine
Breed:	Golden Retriever
Sex:	Male (Neutered)
Age:	<b>B6</b> Years Old

**Lab Results Report**

**Nova Full Panel-ICU**      **6/20/2017 11:58:25 PM**      **Accession ID: **B6****

Test	Results	Reference Range	Units
SO2%	<b>B6</b>	94 - 100	%
HCT (POC)		38 - 48	%
HB (POC)		12.6 - 16	g/dL
NA (POC)		140 - 154	mmol/L
K (POC)		3.6 - 4.8	mmol/L
CL(POC)		109 - 120	mmol/L
CA (ionized)		1.17 - 1.38	mmol/L
MG (POC)		0.1 - 0.4	mmol/L
GLUCOSE (POC)		80 - 120	mg/dL
LACTATE		0 - 2	mmol/L
BUN (POC)		12 - 28	mg/dL
CREAT (POC)		0.2 - 2.1	mg/dL
TCO2 (POC)		0 - 0	mmol/L
nCA		0 - 0	mmol/L
nMG		0 - 0	mmol/L
GAP		0 - 0	mmol/L
CA/MG		0 - 0	mol/mol
BEeef		0 - 0	mmol/L
BEb		0 - 0	mmol/L
A		0 - 0	mmHg
NOVA SAMPLE	0 - 0		



Client: **B6**  
 Patient: **B6**

FiO2	<b>B6</b>	0 - 0	%
PCO2		36 - 44	mmHg
PO2		80 - 100	mmHg
PH		7.337 - 7.467	
PCO2		36 - 44	mmHg
PO2		80 - 100	mmHg
HCO3		18 - 24	mmol/L

**Nova Full Panel-ICU**      6/21/2017 12:14:52 AM      Accession ID: **B6**

Test	Results	Reference Range	Units
TS (FHSA)	<b>B6</b>	0 - 0	g/dl
PCV **		0 - 0	%
TS (FHSA)		0 - 0	g/dl

**Nova Full Panel-ICU**      6/21/2017 2:13:12 AM      Accession ID: **B6**

Test	Results	Reference Range	Units
WBC (ADVIA)	<b>B6</b>	4.4 - 15.1	K/uL
RBC(ADVIA)		5.8 - 8.5	M/uL
HGB(ADVIA)		13.3 - 20.5	g/dL
HCT(ADVIA)		39 - 55	%
MCV(ADVIA)		64.5 - 77.5	fL
MCH(ADVIA)		21.3 - 25.9	pg
MCHC(ADVIA)		31.9 - 34.3	g/dL
RDW (ADVIA)		11.9 - 15.2	
PLT(ADVIA)		173 - 486	K/uL
MPV (ADVIA)		8.29 - 13.2	fl
RETIC(ADVIA)		0.2 - 1.6	%
RETICS (ABS) ADVIA		14.7 - 113.7	K/uL
COMMENTS (HEMATOLOGY)		0 - 0	

**Nova Full Panel-ICU**      6/21/2017 2:13:27 AM      Accession ID: **B6**

Test	Results	Reference Range	Units
GLUCOSE	<b>B6</b>	67 - 135	mg/dL
UREA		8 - 30	mg/dL
CREATININE		0.6 - 2	mg/dL
PHOSPHORUS		2.6 - 7.2	mg/dL
CALCIUM2		9.4 - 11.3	mg/dL
MAGNESIUM 2+		1.8 - 3	mEq/L
T. PROTEIN		5.5 - 7.8	g/dL
ALBUMIN		2.8 - 4	g/dL
GLOBULINS		2.3 - 4.2	g/dL
Λ/G RATIO		0.7 - 1.6	
SODIUM		140 - 150	mEq/L



Client: **B6**  
 Patient:

CHLORIDE		106 - 116	mEq/L
POTASSIUM		3.7 - 5.4	mEq/L
ICO2 (BICARB)		14 - 28	mEq/L
AGAP		8 - 19	
NA/K		29 - 40	
T BILIRUBIN		0.1 - 0.3	mg/dL
D.BILIRUBIN		0 - 0.1	mg/dL
I BILIRUBIN		0 - 0.2	mg/dL
ALK PHOS	<b>B6</b>	12 - 127	U/L
GGT		0 - 10	U/L
ALT		14 - 86	U/L
AST		9 - 54	U/L
CK		22 - 422	U/L
CHOLESTEROL		82 - 355	mg/dL
TRIGLYCERIDES		30 - 338	mg/dl
AMYLASE		409 - 1250	U/L
OSMOLALITY (CALCULATED)		291 - 315	mmol/L

**Nova Full Panel-ICU**      **6/21/2017 2:13:10 AM**      **Accession ID: B6**

Test	Results	Reference Range	Units
SEGS%		43 - 86	%
LYMPHS%		7 - 47	%
MONOS%		1 - 15	%
EOS%		0 - 16	%
SEGS (AB)ADVIA	<b>B6</b>	2.8 - 11.5	K/uL
LYMPHS (ABS)ADVIA		1 - 4.8	K/uL
MONOS (ABS)ADVIA		0.1 - 1.5	K/uL
EOS (ABS)ADVIA		0 - 1.4	K/uL
WBC MORPHOLOGY		0 - 0	
No Morphologic Abnormalities			
RBC MORPHOLOGY		0 - 0	
See comment(s)			
Some erythrocytes are smudged and their morphologic features are difficult to assess due to the effects of lipemia.			
POIKILOCYTOSIS	<b>B6</b>	0 - 0	

**Nova Full Panel-ICU**      **6/21/2017 12:35:00 PM**      **Accession ID: B6**

Test	Results	Reference Range	Units
		0 - 0	

AP results  
 CYTOLOGY REPORT

Clinical History:  
 Sample Source: Mass (base of tongue)  
 Slides Received: 1



Client: **B6**  
Patient: **B6**

Microscopic Findings:

**B6**

Cytologic Interpretation:

**B6**

Comments:

**B6**

Electronically Signed by 6/21/2017@1:11 PM

**B6**

0 - 0

AP results  
CYTOLOGY REPORT

Clinical History:

Sample Source: Mass **B6**

Slides Received: 1

Microscopic Findings:

**B6**

Cytologic Interpretation:

**B6**

Comments:

**B6**

Electronically Signed by 6/21/2017@1:11 PM

**B6**

0 - 0

AP results  
CYTOLOGY REPORT

Clinical History:

Sample Source: Mass **B6**

Slides Received: 1

Microscopic Findings:

**B6**



**B6**

Client: **B6**  
Patient: **B6**

**B6**

Cytologic Interpretation:

**B6**

Comments:

**B6**

Electronically Signed by 6/21/2017@1:11 PM

**B6**

<b>Nova Full Panel-ICU</b>	<b>6/21/2017 12:35:00 PM</b>	<b>Accession ID:</b>	<b>B6</b>
Test	Results	Reference Range	Units

0 - 0

AP results  
PRELIMINARY BIOPSY REPORT

Microscopic Findings:

**B6**

Gross Description:

**B6**

Electronically Signed by 6/23/2017@3:23 PM

**B6**

0 - 0

AP results  
PRELIMINARY BIOPSY REPORT

Microscopic Findings:

**B6**

Gross Description:

**B6**

Electronically Signed by 6/23/2017@3:23 PM

**B6**

0 - 0

AP results  
PRELIMINARY BIOPSY REPORT



Client: **B6**  
Patient: **B6**

Microscopic Findings:

**B6**

Gross Description:

**B6**

Electronically Signed by 6/23/2017@3:23 PM

**B6**

0 - 0

AP results  
BIOPSY REPORT

Diagnosis:

**B6**

Microscopic Findings:

**B6**

Gross Description:

**B6**

Comment:

**B6**

Electronically Signed by 6/30/2017@11:19 AM

**B6**

0 - 0

AP results  
BIOPSY REPORT

Diagnosis:

**B6**

Microscopic Findings:

**B6**

Gross Description:



Client: **B6**  
Patient: **B6**

**B6**

Comment:  
**B6**

Electronically Signed by 6/30/2017@11:19 AM  
**B6**

0 - 0

AP results  
BIOPSY REPORT

Diagnosis:  
**B6**

Microscopic Findings:  
**B6**

Gross Description:  
**B6**

Comment:  
**B6**

Electronically Signed by 6/30/2017@11:19 AM  
**B6**

Nova Full Panel-ICU		6/26/2017 11:34:12 AM	Accession ID: <b>B6</b>
Test	Results	Reference Range	Units
WBC (ADVIA)	<b>B6</b>	4.4 - 15.1	K/uL
RBC(ADVIA)		5.8 - 8.5	M/uL
HGB(ADVIA)		13.3 - 20.5	g/dL
HCT(ADVIA)		39 - 55	%
MCV(ADVIA)		64.5 - 77.5	fL
MCH(ADVIA)		21.3 - 25.9	pg
MCHC(ADVIA)		31.9 - 34.3	g/dL
RDW (ADVIA)		11.9 - 15.2	
PLT(ADVIA)		173 - 486	K/uL
MPV (ADVIA)		8.29 - 13.2	fL
RETIC(ADVIA)		0.2 - 1.6	%





Client: **B6**  
Patient: **B6**

RETICS (ABS) ADVIA **B6** 14.7 - 113.7 K/uL  
COMMENTS (HEMATOLOGY) 0 - 0

**Nova Full Panel-ICU** 6/26/2017 11:34:10 AM Accession ID: **B6**

Test	Results	Reference Range	Units
SEGS%	<b>B6</b>	43 - 86	%
LYMPIIS%		7 - 47	%
MONOS%		1 - 15	%
EOS%		0 - 16	%
SEGS (AB)ADVIA		2.8 - 11.5	K/uL
LYMPHS (ABS)ADVIA		1 - 4.8	K/uL
MONOS (ABS)ADVIA		0.1 - 1.5	K/uL
EOS (ABS)ADVIA		0 - 1.4	K/uL
WBC MORPHOLOGY		0 - 0	
No Morphologic Abnormalities			
ACANTHOCYTES		0 - 0	
POIKILOCYTOSIS		0 - 0	



**Vitals Results**

6/21/2017 12:08:06 AM	Notes
6/21/2017 1:11:50 AM	Respiratory Rate
6/21/2017 1:14:59 AM	Temperature (F)
6/21/2017 1:15:05 AM	Heart Rate (/min)
6/21/2017 1:15:11 AM	Respiratory Rate
6/21/2017 1:51:23 AM	Weight (kg)
6/21/2017 2:09:14 AM	Nursing note
6/21/2017 3:06:54 AM	Respiratory Rate
6/21/2017 4:08:04 AM	Quantify IV fluids (mls)
6/21/2017 4:15:21 AM	Notes
6/21/2017 4:15:37 AM	Heart Rate (/min)
6/21/2017 4:15:42 AM	Respiratory Rate
6/21/2017 4:56:54 AM	Respiratory Rate
6/21/2017 5:29:10 AM	Respiratory Rate
6/21/2017 5:29:33 AM	Heart Rate (/min)
6/21/2017 8:00:07 AM	Respiratory Rate
6/21/2017 8:05:00 AM	Quantify IV fluids (mls)
6/21/2017 8:05:46 AM	Heart Rate (/min)
6/21/2017 8:15:57 AM	Notes

**B6**

**B6**

## STANDARD CONSENT FORM

I am the owner, or agent for the owner, of the above-described animal and have the authority to execute consent. I hereby authorize the Cummings School of Veterinary Medicine at Tufts University (herein after Cummings School) to prescribe for treatment of said animal according to the following terms and conditions.

Cummings School and its officers, agents and employees will provide such veterinary medical care as they deem reasonable and appropriate under the circumstances.

Cummings School and its officers, agents, and employees will use all reasonable care in the treatment of the above mentioned animal, but will not be liable for any loss or accident that may occur or any disease that may develop as a result of the care and treatment provided.

I understand that the above identified animal may be treated by Cummings School students under the supervision and assistance of Cummings School staff members.

In executing this form, I hereby expressly acknowledge that risks, benefits and alternative forms of treatment have been explained to me. I understand said explanation, and I consent to treatment. Should any additional treatments or diagnostics be required during the continued care of my animal, I understand that I will be given the opportunity to discuss and consent to these additional procedures. I understand that further or additional treatment may be required without an opportunity for discussion and consideration by me, in the case of the development of any life-threatening emergency during the continued care of my animal and I expressly consent to all such reasonable treatment as required. I realize and understand that results cannot be guaranteed.

If any equipment is left with the animal, it will be accepted with the understanding that Cummings School assumes no responsibility for any loss of equipment that may occur.

I agree to pick up the animal when notified that it is ready for release.

In the event the animal is not picked up, and if ten (10) days have expired since a registered letter was sent to the address given above, notifying me to call for the animal, the animal may be sold or otherwise disposed of in a humane manner and the proceeds applied to the charges incurred in caring and treating the animal. Failure to remove said animal will not and does not relieve me from obligation for the costs of services rendered.

I hereby grant to the Cummings School of Veterinary Medicine at Tufts University, its officers and employees (collectively referred to herein as Cummings School), and its agents and assigns (the Grantees) the irrevocable rights to photograph / videotape the operation or procedure to be performed, including appropriate and otherwise use such photographs and images for, and in connection with, a Grantee's medical, scientific, educational, and publicity purposes, by any means, methods and media (print and electronic) now known or, in the future, developed that the Grantee deems appropriate (provided that such photographs and images may not be used in for-profit commercials, unless such commercials are publicizing educational programs at Cummings School). As medical and

surgical treatment necessitates the removal of tissue, cells, fluids or body parts of my animal, I authorize the Graduate to dispose of or use these tissues, cells, fluids or body parts for scientific and educational purposes.

I understand that a FINANCE CHARGE will be applied to all accounts unpaid after 30 days. The FINANCE CHARGE is computed on a monthly rate of 1.33% per month, which is an annual percentage rate of 16% applied to the average daily balance outstanding, with a minimum fee of \$5.00.

I do further agree that should any payment, or the full amount of the sum stated above, become overdue more than 30 days from the above agreed upon time of payment or payments, the entire balance shall be considered in default and become due and payable. I further agree to be responsible for any or all collection agency and/or attorney fees necessary to collect the full amount.

I do further agree to comply with hours of visitation in conjunction with our Hospital's policy.

I have read, understand, and agree to accept the terms and conditions herein.

Owner's name:

Date: 7/8/2015

Owner's address:

7/8/15  
Date

**If the individual submitting the animal is someone other than the legal owner, please complete the portion below:**

The owner of the animal  has granted me authority to obtain medical treatment and to bind this owner to pay the veterinary medical services provided at Cummings School pursuant to the terms and conditions described above.

Authorized Agent - Please Print:

Agent's Signature

Street Address

Date

Town/City

State

Zip



Cummings School of  
Veterinary Medicine

Helping Animals. Helping Humans. Transforming Global Health.

Surgery Center: 508-882-4794

Forster Hospital for Small Animals  
95 Willard Street  
North Grafton, MA 01536  
Telephone: (508) 839-5295  
Fax: (508) 839-8739  
<http://www.tufts.edu/vet/>

**Patient**

**Name:**

B6

**Signalment:**

B6 Years Old BB/Lars Male  
(Neutered) Dalmatian/Poodle

**Owner**

**Name:**

**Address:**

B6

**Patient ID:**

320320

**Contact (Resident**

**Student):**

B6

**Discharge Instructions**

**Admit Date:**

B6

11:52 PM

**Discharge Date:**

**Diagnosis:**

1.

B6

**Procedures:**

1. Physical Exam
2. VD pelvic X rays of right knee

**Medications:**

**Dispersed:**

**Continued:**

**Diet:**

Please continue Broom's regular diet.

B6

**B6**

**Radiology Request & Report**

**Patient**

Name: B6  
Species: Canine  
Breed: Male (Neutered)  
Breed: Doberman Pinscher  
Birthdate: B6

**Owner**

Name: B6  
Address: B6

Patient ID: 120100  
Date of request: B6

Attending Clinician: B6 DVM, DACVP Student: B6

Date of exam: B6

Patient Location: Ward/Cage: Weight (kg) 37.3

- Inpatient  
 Outpatient Time:  
 Waiting  
 Emergency

**Sedation**

- IMAG  
 ORAG  
 1/2 dose ORAG  
 DexDormitor/Butorphanol  
 Anesthesia to sedate/anesthetize

Examination Desired: B6

**Presenting Complaint:**

New cruciate evaluation, possibly sx at r/DVM

**B6**

**Conclusions:**

**B6**

**Radiologists:**

Primary: [B6] [DMM]

Reviewing: [B6] [DMM]

[B6] [DMM]

**Dates:**

Reported: 7.9.2015

Finalized: 7.10.2015

**Treatment Plan**

Estimated Charges  
 \$7,000.00

B6

B6

Owner's Name

B6

Client Signature

I understand that the practice of Tufts University School of Veterinary Medicine and Factor Hospital will be responsible for the administration of anesthesia and all other treatment. Permission to administer medical treatment will be given only when the veterinarian deems it necessary, in view of the animal's condition and health.

I understand that I am responsible for the payment of all charges incurred by my animal. I agree to pay 75% unless otherwise specified in the invoice. An invoice is issued when charges are incurred and the balance is due. Payment is due at the time of the procedure unless otherwise specified.

Procedures involving anesthesia require the animal to be under general anesthesia. There will be additional charges for anesthesia and related services beyond the specified charges.

I hereby accept the terms and agree to the above conditions of the treatment plan.

Thank you for allowing us to care for our pet.

App. Title  
 Date  
 Print Name

B6





Cummings School of  
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*Leading Animals. Helping Humans. Transforming Global Health.*

**B6**

**B6**

Male (Neutered)

Caroline (Dorcas) Fischer

Medical ID: 3290328

**SURGERY REPORT**

Date of report

**B6**

Attending Clinician

**B6**

Date of procedure

**B6**

Primary Surgeon

**B6**

Student

**B6**

Procedure(s) performed

**B6**

**B6**

Comments



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Telephone: (508) 839-5295  
Fax: (508) 839-8739  
<http://www.tufts.edu/vet/>

Patient

Name:

B6

Signature:

B6 Years Old Male  
(Sex/Species) Debra Ann Prother

Owner

Name:

Address:

B6

Patient ID:

320520

Contact Clinician:

Alternate Clinician:

Student:

B6

### Discharge Instructions

Admit Date:

Discharge Date:

B6

Diagnosis:

Procedures:

Medications:

Dispense:

B6

B6

Diet:

### CASE SUMMARY

General summary:

B6

**B6**



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55 Willard Street  
North Grafton, MA 01536  
Telephone: (508) 839-5295  
Fax: (508) 839-8179  
<http://vetmed.tufts.edu/>

Patient

Name:

B6

Signalment:

B6 Years Old BB/ Tan Male  
(Males only) Dalmatian / Weimaraner

Owner

Name:

Address:

B6

Patient ID:

123456

Contact (Residence):

B6 DVM, DACVP

Alternate (Clinic):

Student:

### RE-EXAMINATION FORM

Date: 10/1/2015

Problem: Chest/Respiratory Issues

History:

B6

**B6**

**B6**

**B6**

**B6**



**B6**

**B6**

**B6**

**B6**

# Cummings Veterinary Medical Center

AT TUFTS UNIVERSITY  
Cardiology Liaison: 508-887-4696

**B6**

**B6**

Dr. 302030  
Gender:

**B6**

Years Old Male (Neutered) Doberman

Pinscher

Black/Tan

## Cardiology Appointment Report

Date: 12/5/2018

### Attending Cardiologist:

John E. Rush DVM, MS, DACVIM (Cardiology), DACVECC

**B6**

### Cardiology Resident:

**B6**

### Cardiology Technician:

**B6**

Student: **B6** V19

### Presenting Complaint:

Evaluation of DCM/arrhythmia

### Concurrent Diseases:

History of Anaplasmosis

History of vonWillebrand disease (40% as of 7/15)

History of skin allergies

History of elevated ALT

### General Medical History:

**B6**

**Diet and Supplements:**

Home cooked diet consisting of lamb protein with broccoli, egg, Brewer's yeast, cod liver oil, salmon oil  
TID

New 4 days ago:

Taurine 500 mg tablet PO BID

Coenzyme Q-10 supplement SID

L-carnitine BID

Coenzyme-10 supplement SID

**Cardiovascular History:**

Prior CHF diagnosis? No

Prior heart murmur? No

Prior ATE? No

Prior arrhythmia? Yes

Monitoring respiratory rate and effort at home? No

Cough? No

Shortness of breath or difficulty breathing? No, just not as apt to exercise, stops often during walks

Syncope or collapse? No

Sudden onset lameness? No, not outside of arthritis

Exercise intolerance? Yes

**Current Medications Pertinent to CV System:**

**B6**

**Cardiac Physical Examination:**

**B6**

**Muscle condition:**

Normal

Mild muscle loss

Moderate cachexia

Marked cachexia

**Cardiovascular Physical Exam:**

**Murmur Grade:**

None

I/VI I/-

I/VI

II/VI

IV/VI

V/VI

VI/VI

Murmur location/description: systolic left apical

**Jugular veins:**

- Bottom 1/3 of the neck
- Middle 1/3 of the neck
- 1/2 way up the neck
- Top 2/3 of the neck

**Arterial pulse:**

- Weak
- Fair
- Good
- Strong
- Bounding
- Pulse deficits
- Pulsus paradoxus
- Other:

**Arrhythmic:**

- None
- Sinus arrhythmia
- Premature beats
- Bradycardia
- Tachycardia

**Gallop:**

- Yes
- No
- Intermittent
- Pronounced
- Other:

**Pulmonary assessment:**

- Expect
- Mild dyspnea
- Marked dyspnea
- Normal IV search
- Pulmonary crackles
- Wheezes
- Upper airway stridor

**Abdominal exam:**

- Normal
- Hepatomegaly
- Abdominal distension
- Mild ascites
- Marked ascites

**Problems:**

Diagnosed DCM and ventricular arrhythmia

**Diagnostic plan:**

- Echocardiogram
- Chemistry profile
- ECG
- Renal profile
- Blood pressure
- Dialysis profile
- Thoracic radiographs
- NT-proBNP
- Troponin I
- Other tests:

**Echocardiogram Findings:**

**General/2-D findings:**

B6

**Doppler findings:**

Trace MR, Trace TR

**Mitral inflow:**

- Summated
- Normal
- Delayed relaxation

- Pseudotumor
- Restrictive

**ECG findings:**

NSR with frequent VPCs and APCs

**Radiographic findings:**

**B6**

**Assessment and recommendations:**

**B6**

**Final Diagnosis:**

DCM

Ventricular and supraventricular ectopy

**Heart Failure Classification Score:**

**ISACHC Classification:**

- |  |                               |
|--|-------------------------------|
| <input type="checkbox"/> Ia            | <input type="checkbox"/> IIIa |
| <input checked="" type="checkbox"/> Ib | <input type="checkbox"/> IIIb |
| <input type="checkbox"/> II            |                               |

**ACVIM Classification:**

- |  |                            |
|--|----------------------------|
| <input type="checkbox"/> A             | <input type="checkbox"/> C |
| <input type="checkbox"/> B1            | <input type="checkbox"/> D |
| <input checked="" type="checkbox"/> B2 |                            |



M-Mode

IVSd  
LVIdf  
LVPMd  
IVSs  
LVIdc  
LVPMs  
EDV(Teich)  
ESV(Teich)  
EF(Teich)  
%FS  
SV(Teich)  
Ao Diam  
LA Diam  
LA/Ao  
EPSS  
Max LA  
TAISE

B6

cm  
cm  
cm  
cm  
cm  
cm  
ml  
ml  
%%ml  
cm  
cm  
cm  
cm

M-Mode Normalized

IVSdN  
LVIdfN  
LVPMdN  
IVSsN  
LVIdcN  
LVPMsN

B6

(0.290 - 0.520)  
(1.350 - 1.730) !  
(0.330 - 0.530)  
(0.430 - 0.710) !  
(0.790 - 1.140) !  
(0.530 - 0.780) !

2D

Ao Diam  
IVSd  
LVIdf  
LVPMd  
EDV(Teich)  
IVSs  
LVIdc  
LVPMs  
ESV(Teich)  
EF(Teich)  
%FS  
SV(Teich)  
LVId LAX  
LVAd LAX  
LVEDV A-L LAX  
LVEDV MOD LAX  
LVIs LAX  
LVAs LAX  
LVESV A-L LAX  
LVESV MOD LAX  
HR

cm  
cm  
cm  
cm  
ml  
cm  
cm  
cm  
ml  
%%ml  
cm  
cm  
cm  
ml  
ml  
cm  
ml  
BPM

EF A-L IAX  
LV EF MOD LAX  
SV A-L IAX  
SV MOD LAX  
CO A-L IAX  
CO MOD LAX  
LV Length  
SA LA  
SA LA / Ao Diam  
LV Diameter

Doppler

MV E Vel  
MV Desc I  
MV A Vel  
MV E/A Ratio  
E'  
E/E'  
MR Vmax  
MR maxPG  
AV Vmax  
AV maxPG  
PV Vmax  
PV maxPG

B6

%  
%  
ml  
ml  
l/min  
l/min  
cm  
cm  
cm  
  
m/s  
ms  
m/s  
  
m/s  
  
m/s  
mmHg  
m/s  
mmHg  
m/s  
mmHg

# Treatment Plan

Revised 11/2016  
11/2016

# B6

Conduct a physical examination of the patient and determine if the patient is stable enough to be transported to the hospital. If the patient is not stable, contact the hospital and discuss the patient's condition. If the patient is stable, transport the patient to the hospital and discuss the patient's condition. If the patient is not stable, contact the hospital and discuss the patient's condition. If the patient is stable, transport the patient to the hospital and discuss the patient's condition.

Page 1 of 1
11/2016
11/2016

**B6**

**B6**

Cummings  
Veterinary Medical Center  
AT TUFTS UNIVERSITY

Foster Hospital for Small Animals  
55 Willow Street  
North Grafton, MA 01536  
Telephone (508) 833-5000  
Fax (508) 833-7951  
<http://vetmed.tufts.edu/>

**B6**

**B6**

Male (Neutered)

Breed: Doberman Pinscher Black/Tan  
520320

**Biopsy Request**

Doctor to serve as contact: **B6**

(if primary contact is not available during business hours, provide a secondary contact, as well)

Phone/pager:

Email: **B6**

Total # of anatomic sites sampled (each site will be charged separately): 1

Total # of separate containers submitted: 2

Images sent to [pathpics@tufts.edu](mailto:pathpics@tufts.edu)?

- Yes  
 No

**CASE SUMMARY** (CONCISE DESCRIPTION of time-sequence, therapy, summary of abnormal clinical pathology and diagnostic imaging; lesion size, margin label/orientation if relevant):

**B6**

**CLINICAL DIAGNOSES/DIFFERENTIALS:**

**CONTAINER 1.** (in addition to site specific history include number of tissue pieces): caudal maxillary mass

**CONTAINER 2.** (in addition to site specific history include number of tissue pieces): margins of mass

**CONTAINER 3.** (in addition to site specific history include number of tissue pieces):



# Cummings Veterinary Medical Center

AT TUFTS UNIVERSITY

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North Grafton, MA 01536  
Telephone: (508) 839-5295  
Fax: (508) 839-7953  
<http://vetmed.tufts.edu/>

Patient

Name:

B6

Signalment:

7 years Old Black/Tan Male  
(Neutered) Doberman Pinscher

Owner

Name:

B6

Address:

Patient ID:

320320

Contact (Clinician):

B6

DVM, DACVP

Alternate (Clinician):

B6

DVM (SA Surgery Resident)

Student:

B6

'13

---

## Discharge Instructions

Admit Date: 12/20/2018

Discharge Date: 12/20/2018

B6

# B6

---

**Prescription Refill Disclosure:**

*For the safety and well-being of our patients, your pet must have had an examination by one of our veterinarians within the past year in order to obtain prescription medications.*

**Ordering Food:**

*Please check with your primary veterinarian to purchase the recommended diet(s). If you wish to purchase your food from us, please call 7-10 days in advance (505-567-4679) to ensure the food is in stock. Alternatively, veterinary diets can be ordered from online retailers with a prescription/veterinary approval.*

**Clinical Trials:**

*Clinical trials are studies in which our veterinary doctors work with you and your pet to investigate a specific disease process or a promising new drug or treatment. Please see our website, [vet.cigna.com/clinical-trials](http://vet.cigna.com/clinical-trials)*

---

B6



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26 Willard Street  
North Grafton, MA 01526  
Telephone (508) 829-5295  
Fax (508) 829-8739  
<http://www.tufts.edu/vet/>

**B6**

**B6**

Male (Neutered)

Canine, Dobberman Pinscher, BK/Tan  
320130

7/9/2015

RE **B6**

**B6**

If you have any questions, or concerns, please contact us at 508-829-4100.

Thank you.

**B6** DVM, DACV





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Forster Hospital for Small Animals  
55 Willard Street  
North Grafton, MA 01526  
Telephone (508) 829-5299  
Fax (508) 829-8739  
<http://www.tufts.edu/vet/>

**B6**

**B6**

**B6** (Westwood)

Caring. Collaborative. Precise. **B6**/tan  
3201120

7/21/2015

Dear Dr. **B6**

Thank you for referring **B6** with their pet **B6**

Please see the attached discharge instructions.

If you have any questions, or concerns, please contact us at 508-827-4901.

Thank you.

**B6** DVM, DACVP



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North Grafton, MA 01526  
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Fax (508) 829-8739  
<http://vetmed.tufts.edu/>

**B6**

**B6**

Male (Neutered)

Canine, Dobberman Pinscher, BB/ton  
370130

09/7/2015

Hi **B6**

Thank you for referring **B6** with their pet **B6**

See attached owner instructions. **B6** is doing well, although he has had a few episodes of trauma in the recovery period.

**B6**

If you have any questions, or concerns, please contact us at 508-829-4100.

Thank you,

**B6** DVM, DACVP

Cummings  
Veterinary Medical Center  
AT TUFTS UNIVERSITY

**B6**

Forster Hospital for Small Animals  
55 Willard Street  
North Grafton, MA 01526  
Telephone (508) 829-5399  
Fax (508) 829-7951  
<http://vetmed.tufts.edu/>

**B6**

Male (Neutered)

Causes: Obsessive-Compulsive  
Black/Tan  
3203320

12/5/2018

Dear Dr. **B6**

Thank you for referring **B6** with their pet **B6**

If you have any questions, or concerns, please contact us at 508-827-1901.

Thank you,

**B6** DVM (Cardiology)

Client: **B6**  
 Patient:

**Cummings**  
**Veterinary Medical Center**  
 AT TUFTS UNIVERSITY

**Foster Hospital for Small Animals**

55 Willard Street  
 North Grafton, MA 01536  
 (508) 839-5395

Client: **B6**  
 Veterinarian:  
 Patient ID: **B6**  
 Visit ID:

Patient: **B6**  
 Species: Canine  
 Breed: Treeing Walker Coonhound  
 Sex: Male (Neutered)  
 Age: **B6** Years Old

**Lab Results Report**

**Chemistry 21 (Cobas)** 6/7/2019 2:48:19 PM **Accession ID: B6**

Test	Results	Reference Range	Units
PHOSPHORUS	<b>B6</b>	2.6 - 7.2	mg/dL
GLUCOSE		67 - 135	mg/dL
A/G RATIO		0.7 - 1.6	
OSMOLALITY (CALCULATED)		291 - 315	mmol/L
SODIUM		140 - 150	mEq/L
CHLORIDE		106 - 116	mEq/L
CALCIUM2		9.4 - 11.3	mg/dL
ALBUMIN		2.8 - 4	g/dL
AST		9 - 54	U/L
POTASSIUM		3.7 - 5.4	mEq/L
ALK PHOS		12 - 127	U/L
CHOLESTEROL		82 - 355	mg/dL
UREA		8 - 30	mg/dL
T. PROTEIN		5.5 - 7.8	g/dL
NA/K		29 - 40	
COMMENTS (CHEMISTRY)		0 - 0	
CREATININE		0.6 - 2	mg/dL
ALT		14 - 86	U/L
T BILIRUBIN	0.1 - 0.3	mg/dL	



Client: **B6**  
Patient:

GLOBULINS

**B6**

2.3 - 4.2

g/dL



stringsoft

4/12

**B6**

Printed Monday, June 10, 2019

**Vitals Results**

6/7/2019 2:04:56 PM                      Weight (kg)                      37.3000

**Patient History**

06/07/2019 01:55 PM                      UserForm  
06/07/2019 01:57 PM                      Purchase  
06/07/2019 02:04 PM                      Vitals  
06/07/2019 02:04 PM                      Vitals  
06/07/2019 02:08 PM                      Treatment  
  
06/07/2019 02:35 PM                      UserForm  
  
06/07/2019 02:36 PM                      Purchase  
06/07/2019 02:47 PM                      Purchase  
06/07/2019 03:33 PM                      Prescription

**B6**

## Discharge Instructions

**Patient**

Name: B6

Species: Canine

Tricolor Male (Neutered) Treeing Walker

Coonhound

Birthdate: B6

**Owner**

Name: B6

Address: B6

Patient ID: B6

**Attending Cardiologist:** John E. Rush DVM, MS, DACVIM (Cardiology), DACVECC

B6

**Cardiology Resident:**

B6

**Cardiology Technician:**

B6

Student: B6 V20

Admit Date: 6/7/2019 1:52:55 PM

Discharge Date: 6/7/2019

**Diagnoses:** Chronic valvular disease with mitral regurgitation, history of congestive heart failure with pulmonary edema and ascites.

**Clinical Findings:** Thank you for bringing B6 to Tufts for a one week recheck. B6 had a recent episode of heart failure and still had residual fluid in his abdomen during his last visit. You report he has been tolerating his medications very well and has been eating wonderful since last visit! You also noticed his belly has gotten smaller since last visit.

On physical exam today, B6 was bright and alert. He lost about 2kg (4.4lb). As expected, his murmur is unchanged since his last visit. His pulses were good today. We took a quick look at B6 belly with the ultrasound to check for fluid in his abdomen (ascites). B6 ascites has almost completely resolved, indicating that the medications are working great for him!

We have submitted a chemistry panel to recheck B6 kidney values to make sure he is tolerating the B6 well. You should hear back with these results in the next 1-2 business days. Depending on the values, we may consider increase the frequency of the B6 to twice a day.

**Monitoring at Home:**

\*You can evaluate the fluid in his belly by using a malleable measuring tape around the same part of his abdomen every other day. If you notice significant increases in size, this may also mean that you should give an extra dose of B6. Please let us know if additional doses are given.

We would like you to monitor [B6] breathing rate and effort at home, ideally during sleep or at a time of rest. The doses of drugs will be adjusted based on the breathing rate and effort. In general, most dogs with heart failure that is well controlled have a breathing rate at rest of less than 35 breaths per minute. In addition, the breathing effort, noted by the amount of belly wall motion used for each breath, is fairly minimal if heart failure is controlled. An increase in breathing rate or effort will usually mean that you should give an extra dose of [B6] if difficulty breathing is not improved within 30-60 minutes after giving extra [B6] then we recommend that a recheck exam be scheduled and/or that [B6] be evaluated by an emergency clinic. There are instructions for monitoring breathing, and a form to help keep track of breathing rate and drug doses, on the Tufts HeartSmart web site (<http://vet.tufts.edu/heartsmart/at-home-monitoring/>).

We also want you to watch for weakness or collapse, a reduction in appetite, worsening cough, or distention of the belly as these findings indicate that we should do a recheck examination.

**Diet Suggestions:** Continue [B6] on his early cardiac diet. He is on the thinner side right now so we recommend increasing his food from 4 cups a day to 5 cups a day.

#### **Recommended Medications:**

**B6**

**Recheck Visits:** [B6] as an appointment recheck scheduled for the study he is participating in at 2pm on August 23rd with [B6]

Thank you for entrusting us with [B6] care. Please contact our Cardiology liaison at (508) 887-4696 or email us at [cardiovet@tufts.edu](mailto:cardiovet@tufts.edu) for scheduling and non-emergent questions or concerns.

Please visit our HeartSmart website for more information  
<http://vet.tufts.edu/heartsmart/>

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#### **Prescription Refill Disclaimer:**

*For the safety and well-being of our patients, your pet must have had an examination by one of our veterinarians within the past year in order to obtain prescription medications.*

#### **Ordering Food:**

*Please check with your primary veterinarian to purchase the recommended diet(s). If you wish to purchase your food from us, please call 7-10 days in advance (508-887-4629) to ensure the food is in stock. Alternatively, veterinary diets can be ordered from online retailers with a prescription/veterinary approval.*

#### **Clinical Trials:**

*Clinical trials are studies in which our veterinary doctors work with you and your pet to investigate a specific disease process or a promising new test or treatment. Please see our website: [vet.tufts.edu/cvmc/clinical-studies](http://vet.tufts.edu/cvmc/clinical-studies)*

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Case [B6]

Owner: [B6]

Discharge Instructions

**Nutritional Tips for Pets with Heart Disease**

**Low sodium, high quality pet treats**

**Notes:**

1. Most other dog treats are high in sodium.
2. If your pet has other medical conditions, these treats may not be appropriate. Talk to your veterinarian if you have questions or make an appointment with the Nutrition Service.

Product	Calories per treat
<b>Dogs</b>	
Hill's Science Diet Baked Light Biscuits with Real Chicken Small Dog Treat	8
Hill's Science Diet Baked Light Biscuits with Real Chicken Medium Dog Treat	34
Hill's Science Diet Soft Savories Peanut Butter & Banana, Beef & Cheddar, or Chicken & Yogurt Dog Treat	25-27, depending on flavor
Hill's Ideal Balance Soft-Baked Naturals with Chicken & Carrots, Duck & Pumpkin, or Beef & Sweet Potato Dog Treat	12-13, depending on flavor
Purina Beyond Natural Salmon Dog Biscuit Treat with Oats or Chicken & Barley	27-29, depending on flavor
Purina Alpo Variety Snaps Little Bites (beef, chicken, liver, lamb or beef, bacon, cheese, peanut butter)	16
Purina Alpo Variety Snaps Big Bites (beef, chicken, liver, lamb)	58
Royal Canin Original Canine treat	5
<b>Cats</b>	
Royal Canin Original Feline treat	2
Fancy Feast Duos Natural Rotisserie Chicken Cat treat	2
Fancy Feast Duos Tuna with Accents of Parsley Cat treat	2

**Taste enhancers to can make your pet's food tastier to increase food intake**

Safe and effective appetite stimulants are now available for dogs and cats. Please talk to your veterinarian if your pet is not eating well, not eating ideal foods, or is losing weight.

**Notes:**

1. All foods in this list should be prepared without salt.
2. These taste enhancers should be added in small amounts. If your pet eats too much of them, they will unbalance the diet and increase your pet's risk for nutritional deficiencies.

**Dogs**

- ♥ Honey or maple syrup
- ♥ Homemade chicken, beef, or fish broth (made without salt; avoid all deli meats and rotisserie chicken). Avoid store bought broths because even the low sodium brands are too high in sodium.
- ♥ Sugar (brown or white) – Domino pourable light brown sugar is a good option
- ♥ Vanilla or fruit yogurt – One option that dogs seem to like is Yoplait Custard Yogurt (caramel or vanilla flavors). If you try other brands, just be sure the sodium is less than 100 mg per 100 calories (the Yoplait is 95 mg per 170 calories which comes out to 56 mg sodium per 100 calories). Also avoid yogurts with artificial sweeteners.
- ♥ Maple syrup. Low salt brands include Log Cabin All Natural, Maple Grove Farm 100% pure maple syrup, or Stop and Shop Original Syrup
- ♥ Applesauce (be sure they have less than 50 mg sodium per serving)
- ♥ Ketchup (no salt added). Examples include Hunts or Heinz no salt added
- ♥ Pasta sauce (no salt added). Examples, Francesco Rinaldi no salt added or Enrico's no salt added)
- ♥ Frosted Mini Wheats Original – these can be crumbled on his food
- ♥ Lean meats, cooked (chicken, turkey, beef, or fish) – not deli/sandwich meats, cold cuts, rotisserie chicken, and any canned fish or meat
- ♥ Eggs, cooked





### **Dogs (continued)**

- ♥ Homemade chicken, beef, or fish broth (even low sodium store-bought broths are too high in sodium). Avoid all canned soups unless labeled as no salt added
- ♥ Low-salt breakfast cereal - the label should read "very low sodium food" or contain less than 20 mg sodium per serving. A good option is Frosted Mini Wheats Original or Little Bites Original
- ♥ Fresh vegetables/fruit. Examples include carrots, green beans, apple, orange, banana (avoid grapes, raisins, onions, garlic)
- ♥ Low sodium canned dog foods

### **Cats**

- ♥ Lean meats, cooked (chicken, turkey, beef, or fish) – not sandwich meats/cold cuts, canned tuna, or rotisserie chicken
- ♥ Eggs, cooked
- ♥ Homemade chicken, beef, or fish broth (even low sodium store-bought broths are too high in sodium)
- ♥ Low sodium canned cat foods



### **Foods to avoid**

- ♥ Fatty foods (meat trimmings, cream, ice cream)
- ♥ Baby food
- ♥ Pickled foods
- ♥ Bread
- ♥ Pizza
- ♥ Condiments (ketchup, soy sauce, barbecue sauce, etc – unless they are unsalted or no salt added)
- ♥ Sandwich meats/cold cuts (ham, corned beef, salami, sausages, bacon, hot dogs)
- ♥ Rotisserie chicken
- ♥ Most cheeses, including "squirtable" cheeses
- ♥ Processed foods (such as, potato mixes, rice mixes, macaroni and cheese)
- ♥ Canned vegetables (unless "no salt added")
- ♥ Potato chips, packaged popcorn, crackers, and other snack foods
- ♥ Soups (unless homemade without salt)
- ♥ Most commercial pet treats

### **Tips for administering medications**

Foods commonly used to administer your pet's pills can provide a large amount of additional salt to your pet's diet. Preferable ways to give medications include:

- ♥ Have one of our staff show you how to give medications without using food
- ♥ Insert medications into one of the following foods:

#### **Dogs or cats**

- Low-sodium canned pet food
- Home-cooked meat such as chicken or hamburger (made without salt); not lunch meats
- Whipped cream (Reddi Wip)
- Marshmallows
- Greenies Pill Pockets
  - Dog chicken, hickory smoke, or peanut butter flavors; cat chicken or salmon flavor
  - Avoid grain-free duck and pea which is high in sodium
  - Try to use the smallest size possible (ideally, the cat sized Pill Pockets, even for dogs) and as few as possible to avoid excessive salt.
    - Caution: Not all similar products from other companies are low in sodium.

#### **Dogs**

- Soft fruit, such as banana, orange, melon, or strawberries (avoid grapes)
- Peanut butter (only if labeled as "no salt added") – examples include Smucker's Natural Creamy Peanut Butter with No Salt Added or Teddie All Natural Smooth Unsalted Butter
- Frosting (should be less than 75 mg/serving and contain no artificial sweeteners or xylitol). Examples include Duncan Hines whipped vanilla frosting, Betty Crocker whipped vanilla frosting)

You may find our Petfoodology post called, "Pill-popping pets" helpful for additional ideas:

[http://vetnutrition.tufts.edu/2018/09/foods\\_for\\_giving\\_pills/](http://vetnutrition.tufts.edu/2018/09/foods_for_giving_pills/)

# Cummings

## Veterinary Medical Center

AT TUFTS UNIVERSITY

Cardiology Liaison: 508-887-4696

**B6**

Patient ID:

**B6** Canine  
Years Old Male (Neutered) Treeing Walker  
Coonhound  
Tricolor

### Cardiology Appointment Report

Date:

#### Attending Cardiologist:

John E. Rush DVM, MS, DACVIM (Cardiology), DACVECC

**B6**

#### Cardiology Resident:

#### Cardiology Technician:

**B6**

Student:

**Presenting Complaint:** Redcheck. DMVD with decreased contractile function and recent history of CHF (5/22/19). Persistent mild to moderate ascites during last visit 5/29/19.

#### Concurrent Diseases:

unknown etiology (saw optho but declined further diagnostics)

#### General Medical History:

Appetite back to normal, taking medications no problem, less restless, belly seems less distended than last visit. Looks thinner than he was prior to CHF

History of:

Had loose bowel movements recently but also had change in diet.

Flaky skin

#### Diet and Supplements:

Royal canin early cardiac- 4 cups a day

#### Cardiovascular History:

Prior CHF diagnosis? Y

Prior heart murmur? Y- III

Prior ATE? N

Prior arrhythmia? N

Monitoring respiratory rate and effort at home? Y averaging 33

Cough? N

Shortness of breath or difficulty breathing? N

Syncope or collapse? N

Sudden onset lameness? N

Exercise intolerance? N

**Current Medication: Pertinent to CV System:**

**B6**

**Cardiac Physical Examination:**

**B6**

**Muscle condition:**

- |  |  |
|--|--|
| <input type="checkbox"/> Normal                      | <input type="checkbox"/> Moderate cachexia |
| <input checked="" type="checkbox"/> Mild muscle loss | <input type="checkbox"/> Marked cachexia   |

**Cardiovascular Physical Exam:**

**Murmur Grade:**

- |  |                                |
|--|--------------------------------|
| <input type="checkbox"/> None              | <input type="checkbox"/> IV/VI |
| <input type="checkbox"/> I/VI              | <input type="checkbox"/> V/VI  |
| <input checked="" type="checkbox"/> II/VI  | <input type="checkbox"/> VI/VI |
| <input checked="" type="checkbox"/> III/VI |                                |

**Murmur location/description:** left apical systolic

**Jugular vein:**

- |  |  |
|--|--|
| <input checked="" type="checkbox"/> Bottom 1/3 of the neck | <input type="checkbox"/> 1/2 way up the neck |
|--|--|

Middle 1/3 of the neck

Top 2/3 of the neck

**Arterial pulses:**

- Weak
- Fair
- Good
- Strong

- Bounding
- Pulse deficits
- Pulsus paradoxus
- Other:

**Arrhythmic:**

- None
- Sinus arrhythmia
- Premature beats

- Bradycardia
- Tachycardia

**Gallop:**

- Yes
- No
- Intermittent

- Pronounced
- Other:

**Pulmonary assessments:**

- Eupneic
- Mild dyspnea
- Marked dyspnea
- Normal BV sounds

- Pulmonary crackles
- Wheezes
- Upper airway stridor

**Abdominal exam:**

- Normal
- Hepatomegaly
- Abdominal distension

- Mild ascites
- Marked ascites

**Problems:**

CMVD:

Hx of CHF:

Hx of B6

**Diagnostic plan:**

- Echocardiogram
- Chemistry profile
- ECG
- Renal profile
- Blood pressure

- Dialysis profile
- Thoracic radiographs
- NT-proBNP
- Troponin I
- Other tests: fluid check

**Echocardiogram Findings:**

**General/2-D findings: \*fluid check\***

There is very mild ascites visualized. No pericardial effusion or b-lines seen.

**Assessment and recommendations:**

Findings consistent with marked improvement on abdominal fluid and, since patient is clinically better with good appetite and energy level, recommend maintain current medications doses and frequency. Since blood work revealed increase in kidney values, B6 Instead of increasing to BID. Clients oriented to measure belly twice a week and keep counting respiratory rate. Recommend start fish oil since patient has moderate cachexia. Recheck kidney values and echocardiogram in 2 months, sooner if clinical signs occur such as decreased appetite, lethargy, abdominal distension, or dyspnea.

**Final Diagnosis:**

DMVD with PHTN;

Reduced contractile function.

**Heart Failure Classification Score:**

**ISACHC Classification:**

Ia

Ib

II

IIIa

IIIb

**ACVIM Classification:**

A

B1

B2

C

D



REVIEW

Open Access



# Taurine: the appeal of a safe amino acid for skeletal muscle disorders

Annamaria De Luca\*, Sabata Pierno and Diana Conte Camerino

## Abstract

Taurine is a natural amino acid present as free form in many mammalian tissues and in particular in skeletal muscle. Taurine exerts many physiological functions, including membrane stabilization, osmoregulation and cytoprotective effects, antioxidant and anti-inflammatory actions as well as modulation of intracellular calcium concentration and ion channel function. In addition taurine may control muscle metabolism and gene expression, through yet unclear mechanisms. This review summarizes the effects of taurine on specific muscle targets and pathways as well as its therapeutic potential to restore skeletal muscle function and performance in various pathological conditions. Evidences support the link between alteration of intracellular taurine level in skeletal muscle and different pathophysiological conditions, such as disuse-induced muscle atrophy, muscular dystrophy and/or senescence, reinforcing the interest towards its exogenous supplementation. In addition, taurine treatment can be beneficial to reduce sarcolemmal hyper-excitability in myotonia-related syndromes. Although further studies are necessary to fill the gaps between animals and humans, the benefit of the amino acid appears to be due to its multiple actions on cellular functions while toxicity seems relatively low. Human clinical trials using taurine in various pathologies such as diabetes, cardiovascular and neurological disorders have been performed and may represent a guide-line for designing specific studies in patients of neuromuscular diseases.

**Keywords:** Taurine skeletal muscle, Inherited muscle disorders, Disuse muscle atrophy, Development and aging, Skeletal muscle performance

## Background

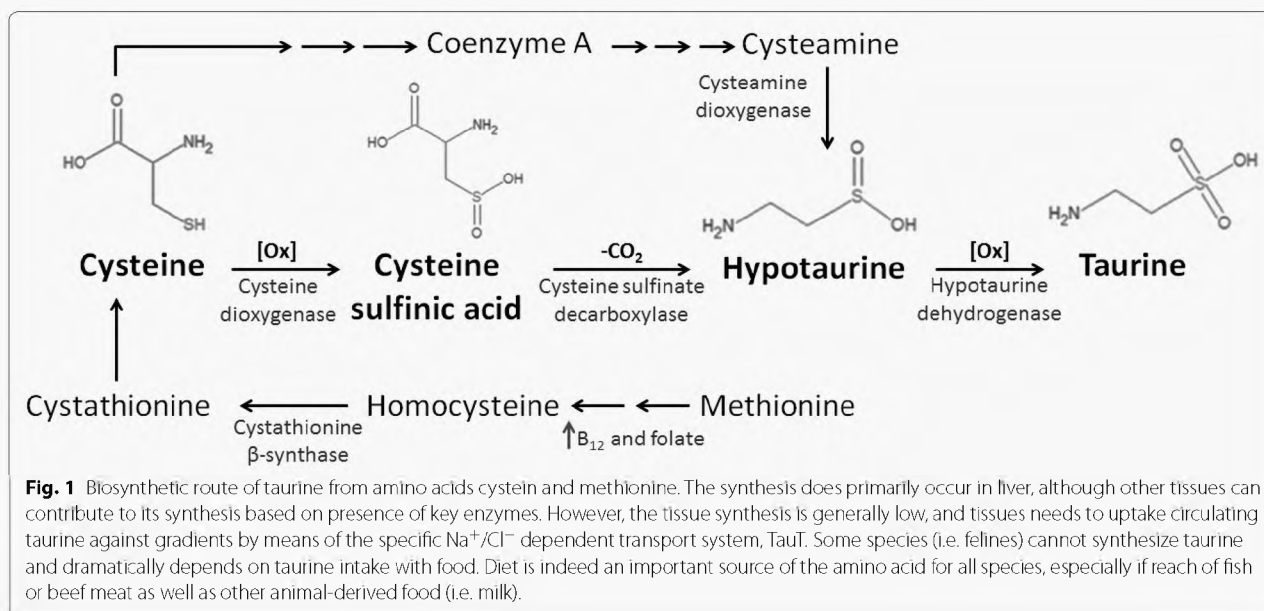
Taurine (2-aminoethane-sulfonic acid) is a sulfur-containing amino acid which is not used for protein synthesis and is therefore the most abundant free amino acid in mammalian tissues, with the exception of human liver in which aspartate is the most abundant one [1, 2]. The intracellular concentration of taurine ranges between 5 and 20  $\mu\text{mol/g}$  wet weight in many tissues, especially in excitable ones, such as brain, heart and skeletal muscle [1, 3, 4]. Endogenous synthesis occurs in the liver via the cysteine sulfinic acid pathway. The metabolic reaction consists in a first oxidation of the sulfhydryl group of cysteine to cysteine sulfinic acid by the enzyme cysteine dioxygenase. Cysteine sulfinic acid is then decarboxylated to hypotaurine by the cysteine sulfinic acid decarboxylase.

Taurine is obtained by a yet unclear spontaneous or enzymatic oxidation (by hypotaurine dehydrogenase) of hypotaurine (Fig. 1). The endogenous synthesis of taurine is highly variable between individuals also in relation to nutritional state, to the amount of protein intake and to cysteine availability [1, 5]. In turn the availability of cysteine is highly dependent on the metabolic equilibrium between homocysteine and methionine, via folic acid, vitamin B12 and the efficiency of the enzyme methyltetrahydrofolate reductase. In addition, a certain amount of taurine has to be introduced with food, mostly in carnivores and, to a minor extent, in omnivores [1]. The importance of the two sources vary quite a lot between species, with some, like felines and foxes, being highly dependent on diet acquisition of taurine, as they are unable to synthesize it. These species are also particularly susceptible to deficient states, developing severe pathophysiological conditions, such as dilated cardiomyopathy, retinal degeneration and reproduction defects

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[3, 6]. These evidences first outlined the key role of taurine for mammalian tissue functions and helped to better understand the link between tissue distress in retaining proper taurine concentration and various pathophysiological conditions.

In fact, even in species able to synthesize taurine, the tissue-specific synthesis is relatively low, with liver being the main source according to the higher expression of enzymes as cysteine dioxygenase. Importantly, the activity of this latter enzyme strictly depends upon cysteine availability, so that the exact amount of taurine being endogenously synthesized is difficult to predict [7]. However, the high intracellular concentration is guaranteed by the presence of a specific active transporter that concentrates taurine inside the cells against gradients. The taurine transporter (TauT; encoded by the SLC6A6 gene) is a sodium and chloride ion-dependent transporter ubiquitously expressed in mammalian tissues. The concentration of taurine is 100-fold less in the plasma (20–100  $\mu\text{M}$ ) than in the tissues, suggesting that it is indeed required for modulating key cellular functions. Due to the high tissue concentration, taurine also works as an osmolyte. Its cellular efflux via volume-dependent or volume-independent pathways works to osmotically balance the excessive production of metabolic by-products. Both uptake systems and efflux pathways are tightly regulated at transcriptional and post-transcriptional level, leading to an accurate control of taurine intracellular levels [8].

Since its discovery in ox bile in 1827, several physiological functions have been described for the amino acid, ranging from the classical role of conjugating agent for

bile acids, to wider actions as osmotic pressure regulator, modulator of calcium homeostasis and signaling and, more recently, as an endogenous anti-oxidant and anti-inflammatory compound in various tissues. The mechanism by which taurine exerts all these different functions is still unclear. Some of the taurine actions in central nervous system (CNS), seem to occur via specific binding sites or receptors, i.e. in thalamus taurine modulates neuronal firing via activation of extra-synaptic gamma-aminobutyric acid (GABA) receptor isoforms  $\alpha 4\beta 2\delta$  with a greater affinity than GABA [9–12]. Such high affinity binding sites have not been evidenced in other tissues.

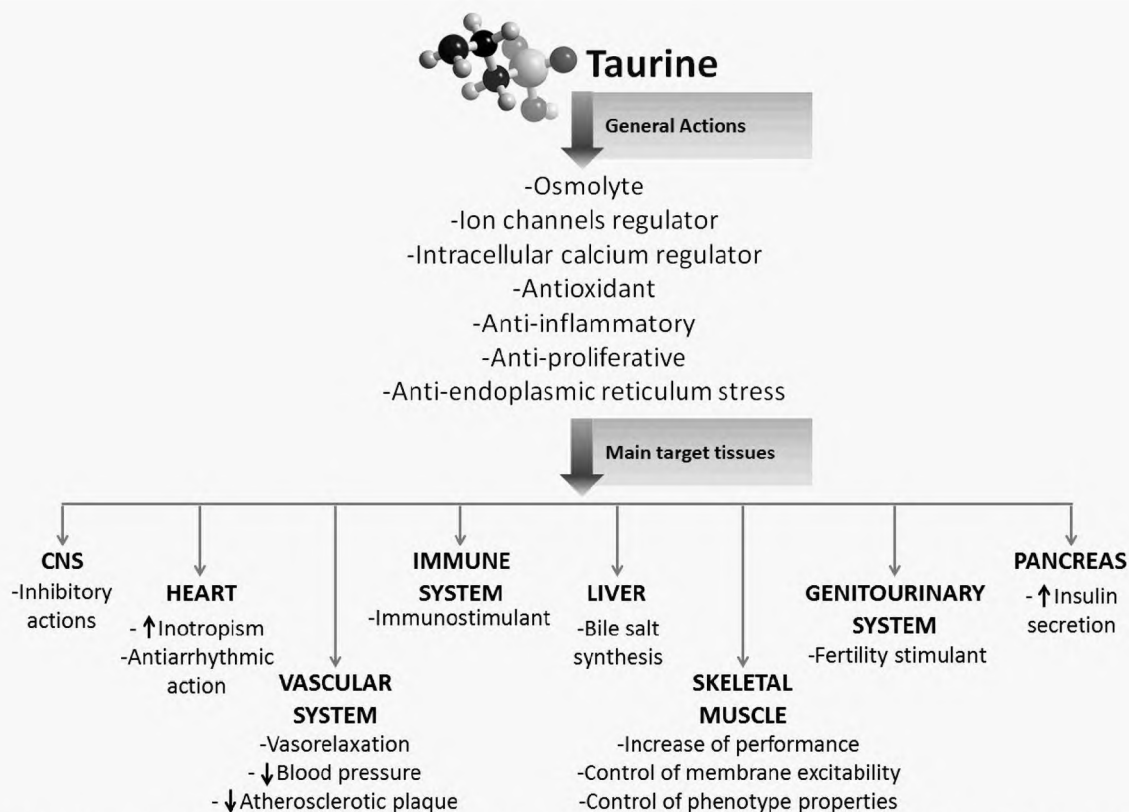
Skeletal muscle is one of the tissues able to concentrate the largest amount of body's taurine, via the TauT activity. Pioneer studies of Ryan Huxtable anticipated that the high taurine level is needed to maintain an appropriate calcium homeostasis, likely by ensuring a correct calcium re-uptake by the sarcoplasmic reticulum [13]. Similar actions were also described in heart, with taurine exerting complex modulation of calcium homeostasis in relation to external concentration of the cation with beneficial effects in contrasting arrhythmias or heart failure [1, 3, 4].

Transgenic mice lacking TauT gene have been generated by two separate groups [6, 14–16]. In line with a key role of taurine for maintaining proper physiological functions, the drastic reduction in content consequent to TauT deletion is associated to a variety of disorders in various tissues, such as eye, kidney, heart, nociceptive system and skeletal muscle [14–17]. These conditions resemble those occurring when taurine tissue content is

altered by pathophysiological states or by inhibitors of the taurine transporter. In spite the pre-clinical research has disclosed many conditions in which taurine supplementation may be beneficial, the therapeutic use of taurine is very limited. Taurine is commonly known for its claimed effects as energizer and anti-fatigue compound and it is present in many energy soft drinks as well as in supplement cocktails for athletes. The toxicity of taurine in this context is considered relatively low with respect to other active ingredients; actually it may also be protective against cardiovascular action of caffeine [18]. Such a protection may again result from multiple taurine actions, i.e. an antihypertensive effect via vasodilatation (by reducing adrenergic and angiotensin II actions as well as calcium-induced vasospasm) along with a reduced risk of cardiac arrhythmias via modulation of ion channels and ionic homeostasis [18]. However a certain caution is important especially when taurine is used in children and/or in association with drugs, alcohol or other food supplements [19–23]. Apart for its nutraceutical role,

taurine may exert clear pharmacological actions by modulating signaling pathways and targets or via restoration of its altered tissue levels. No systematic toxicity studies have been performed to assess the toxicological parameters for taurine; however human trials have used taurine up to 10 g/daily without overt signs of toxicity. This may also depend on the direct relationship between taurine plasma level and its excretion rate by the kidney [19].

An extensive revision of all the actions of taurine in various tissues and the wide potential usefulness of its supplementation is out of the scope of this review. However, a general overview is provided in Fig. 2. As far as inherited or acquired pathophysiological conditions of skeletal muscle are concerned, the pre-clinical findings allow to distinguish effects related to exogenous pharmacological action of taurine on rather specific targets, such as in myotonic syndromes, to conditions that may be accompanied by changes in intercellular taurine content or change in calcium homeostasis, in which a taurine supplementation may be helpful to restore altered levels.



**Fig. 2** Taurine plays many and different physiological roles in various tissues. Some taurine actions, as the inhibitory effect at CNS, seem to be mediated by a receptor mechanism, while the effects on other tissues and systems occur via less defined mechanisms of action. Accordingly, the figure also briefly summarizes the main taurine effects ranging from control of calcium handling mechanism and excitation–contraction coupling in the heart, the ability to control immune reaction and inflammation, via inhibition of NF-κB as well as the main role of taurine in conjugating bile salts. Virtually all tissues are sensitive to taurine action with described effect of taurine on visual function (not shown), fertility, insulin release etc. The reported scheme is not supposed to be exhaustive of all taurine effects and only serves as general overview.



The present review is aimed at providing the state-of-art of taurine research in skeletal muscle, with particular attention to its potential therapeutic application as orphan drug in inherited rare muscle disorders, as well as in pathophysiological conditions such as aging, malnutrition and/or muscle disuse.

### **Skeletal muscle ion channels as specific targets of taurine: the potential action of taurine as anti-myotonic drug**

#### **Taurine and skeletal muscle chloride channels CLC-1**

In CNS, taurine has been long claimed to act as an “inhibitory” amino acid and neurotransmitter [1]. Neuronal synthesis of taurine and metabotropic taurine receptors have been described in specific areas of CNS, where taurine acts in a glycine or GABA-like manner, by enhancing hyperpolarizing chloride-mediated conductance in nervous cells [9, 11, 12]. Pre-clinical evidences were provided of a beneficial effect of taurine in controlling/preventing seizure discharges and neurotoxicity [1, 12, 24]. The ability of taurine to act as inhibitory amino acid raised attention to its possible effect as potential membrane stabilizer in skeletal muscle. We investigated about the actions of the amino acid on voltage-gated chloride channels CLC-1 that account for the macroscopic chloride conductance (gCl) of skeletal muscle. Resting gCl accounts for about 70–90% to the total membrane conductance of sarcolemma and plays a pivotal role in maintaining the sarcolemmal electrical stability by shunting the depolarization-driven potassium accumulation in transverse tubules. Thus the large gCl allows repolarization and muscle relaxation.

Loss-of-function mutations of CLC-1 are responsible of myotonic syndromes with either autosomal dominant (Thomsen disease) or recessive pattern of inheritance (Becker’s Myotonia Congenita). The resulting decrease of gCl is responsible for the pathological hyperexcitability and for the delayed relaxation, spasms and stiffness typical of the disease in both patients and myotonic animals [25–27].

Our research has shown that taurine, acutely applied *in vitro*, exerts a concentration-dependent increase of gCl in rat extensor digitorum longus (EDL) myofibers, and in parallel reduces membrane excitability [28, 29]. The effective concentrations are in the millimolar range, likely in relation to the high intracellular level of the amino acid [28, 29]. A pre-clinical evaluation of the potential anti-myotonic activity of taurine has been performed. We found that taurine does not antagonize the myotonic discharges in rats made myotonic by administration of anthracene-9-carboxylic acid, a direct chloride channel blocker, nor does it restore gCl lowered *in vitro* by the same agent. However, when rats are made myotonic

by a chronic exposure to 20,25 diazacholesterol, which reduces gCl indirectly by modifying lipid membrane composition, taurine antagonizes the electromyographic signs of myotonia if administered *in vivo*, while its acute *in vitro* application contrasts both the reduced gCl and the high frequency firing of single myofibers [30]. These results suggested that taurine can contrast myotonia if chloride channels are available for a direct modulation, implying its direct action at channel level or on a site nearby. A series of taurine analogues were tested on gCl of rat EDL myofibers to investigate the structure–activity relationship (SAR) between taurine and chloride channels. The results provided a pharmacological evidence of the presence of a specific low-affinity taurine binding site able to modulate chloride channel function and/or kinetic [31]. In particular, an increased distance between the two charged heads of taurine and/or a more distributed positive charge for the replacement of the amino group with aza-cyclo moieties lead to a decreased potency in enhancing gCl [31]. The direct action of taurine on skeletal muscle chloride channel was further confirmed by two microelectrode voltage-clamp recordings of chloride currents sustained by human CLC-1 channel heterologously expressed in *Xenopus* oocytes. In these conditions, the *in vitro* application of 20 mM taurine enhanced by 100% the chloride currents and shifted channel activation toward more negative potentials, an effect that likely accounts for the increase in resting gCl observed in native fibers [32–34]. This direct modulation adds to other possible homeostatic and modulatory roles that the high intracellular taurine has on chloride channels. However, as anticipated, the acute modulation of gCl may require fully or partly functional chloride channels, questioning about the real efficacy of taurine in CLC-1 related myotonic syndromes, especially for those mutations that seriously affect channel expression and protein level. Taurine has been tested in patients with myotonic dystrophy with encouraging results. In particular acute parenteral administrations of taurine allowed to reduce membrane excitability evaluated in relation to potassium plasma concentration after potassium-enriched infusion, suggesting again an action on membrane ionic conductance. Accordingly, a double-blind oral administration of taurine led to a long-term control of myotonic symptoms estimated as reduction of electromyographic (EMG) discharges and potassium induced-hyperexcitability [35–37]. Even taking into account the possible bias deriving from these small sized trials, the effects of taurine in myotonic dystrophy patients suggest alternative modality for decreasing membrane excitability. In fact, myotonic dystrophy type 1 (DM1) or Steinardt syndrome, is caused by expansion of a CTG trinucleotide repeat in the non-coding region of DM protein kinase with abnormalities

in mRNA metabolism and alternative splicing of certain genes. In DM1 patients, the abnormal inclusion of alternative exons 6B and/or 7A and retention of intron 2 of CLC-1 channel gene (*CLCN1*) gene have been observed. These aberrant-splicing, which may also occur in myotonic dystrophy type 2 (DM2) patients, leads to premature termination codons, with a consistent decrease of the mRNA of *CLCN1*, of CLC-1 protein and consequently of gCl [38, 39]. Therefore, the possible modulatory action of taurine on other skeletal muscle ion channels has to be taken into account.

#### **Taurine and Nav1.4 voltage gated sodium channels**

It is feasible to hypothesize a modulation by taurine of the skeletal muscle isoform of voltage-gated sodium channel (Nav1.4), involved in the generation and propagation of action potential and main target of symptomatic anti-myotonic drugs [37, 40]. The effect of taurine on sodium channels of native muscle fibers has been investigated in our laboratories by cell-attached patch clamp recordings. Taurine has a dual effect. In particular taurine enhances the sodium transients elicited by depolarizing test pulses close to the threshold for channel activation (test pulse to  $-70/-50$  mV), an effect that is likely related to the observed shift of the activation curve towards more negative potentials. However, taurine reduces sodium currents at more depolarized test pulse potentials, with a 50% inhibition of the maximal peak sodium current observed at 10 mM taurine. In parallel, a left-shift of the steady-state inactivation curve has been observed, indicating the ability of taurine to stabilize the blocked channels in the inactivated state [34, 41 Desaphy and Conte Camerino, unpublished observation]. This peculiar effect of taurine on Nav1.4 channel is similar to what has been observed on cardiac sodium currents [42, 43] and underlines a complex action of the amino acid on sodium channel gating and kinetic. Our extensive structure–activity relationship studies of inhibitors of Nav1.4 channel allow to predict that the anesthetic-like action of taurine is mediated by the amino group, a main pharmacophore moiety in sodium channel blockers [44–47]. The dual ability of taurine to open chloride channels and to block sodium channels envisages a greater therapeutic action of the amino acid in myotonic states related to gain-of-function mutations of sodium channels, such as Sodium Channel Myotonia and Paramyotonia Congenita. The verification that taurine is able to compensate mutation-related biophysical alterations of Nav1.4 channels will be helpful at this regard, and is part of future projects of our laboratory. For the moment, the action of taurine on sodium channels can account for the antimyotonic effect in conditions where chloride channels are defective or dysfunctional [35, 36]. In line with this, the mechanism of

taurine action on Nav1.4 sodium channels deserves to be further investigated since it may better support its pharmacological potential and its clinical use in hyperexcitability muscle disorders (Table 1).

#### **Role of proper taurine intramuscular level for excitation–contraction coupling and muscle performance**

The ability of skeletal muscle to concentrate taurine against gradient pushed toward a better understanding of its physiological role. Adult rats were chronically treated with guanidinoethane sulfonate (GES), an inhibitor of taurine transporter (TauT) to induce a reduction of taurine content in skeletal muscle. We found that a 50% reduction of taurine in EDL muscle leads to a marked decrease in gCl, and to a parallel enhancement of sarcolemmal excitability, disclosing the ability of taurine level to exert a physiological control on chloride channel function and sarcolemmal stability [48]. The mechanism underlying this effect is not clear yet, but we cannot rule out the ability of taurine to modulate CLC-1 channel function via a fine-tuning of a calcium-dependent phosphorylation-signaling pathway, as discussed below. In line with the described ability of taurine to control calcium homeostasis in both skeletal muscle and cardiac tissue [1, 4], we found a marked alteration of mechanical threshold, i.e. the voltage at which muscle fiber contracts in response to depolarizing voltage steps, in taurine-depleted EDL myofibers. Mechanical threshold depends on the kinetic of calcium release from and reuptake by sarcoplasmic reticulum, also in relation to basal cytosolic calcium concentrations. Taurine depleted EDL muscle fibers contract at more negative potentials with respect to normal ones, implying an impact of GES treatment on calcium handling [48, 49]. Both the decrease in gCl and the shift of mechanical threshold toward negative potentials were rapidly reverted by in vitro application of millimolar concentration of taurine. Actually, depleted muscles showed a higher than normal sensitivity to exogenous taurine with respect to normal ones [48], further corroborating the link between the observed alterations and the taurine level. The contractile properties and fatigability of EDL muscles depleted of taurine by a GES treatment were investigated by Bakker's group. It was found that the treatment with GES decreases muscle taurine levels to <40% of controls and decreases the peak twitch force of EDL muscles by 20%. Also, GES-treated muscles develop a lower force in force–frequency relationship and show a slower time to fatigue, likely in relation to the lower metabolic demands of the weaker muscles [50]. Primary information about the long-term effect of taurine in skeletal muscle and, consequently, of potential usefulness of its exogenous administration

**Table 1 Involvement and therapeutic potential of taurine in physio-pathological conditions and diseases of skeletal muscle**

Condition	Change in Taurine content / TauT	Pathogenetic mechanisms related to changes in taurine content	General symptoms	Taurine targets	Therapeutic Potential of Taurine
Post-natal development	Age-dependent increase in TauT expression and intracellular content	Delayed development and delayed acquisition of specific phenotypic properties; metabolic dysfunction	Specie-specific (due to different sensitivity to taurine deficiency)	Mitochondria; ion channels; calcium homeostasis and calcium dependent gene expression	Taurine supplementation in formula for pre-term born infants; to ensure a proper skeletal muscle phenotype differentiation
Aging	Decrease in Taurine content; no information on TauT expression	Metabolic distress; calcium dependent dysfunction; reduced regenerating ability; reduced activity of free-oxygen radicals scavengers	Sarcopenia; atrophy, weakness and fatigue degeneration, altered excitation–contraction coupling, impaired performance	Ion channels; Calcium homeostasis; oxidative stress and atrophy	To counteract the decrease in taurine content and the consequent reduction in chloride channel function and the alteration in calcium ion homeostasis; to ameliorate performance and muscle strength
Ischemia and reperfusion injury	Decrease due to a compensatory taurine efflux	Insufficient vaso-dilation in relation to muscle work; metabolic distress; oxidative stress	Hyperkalemia, muscle dysfunction; ROS-induced inflammation and damage	Metabolic-sensitive channels; mitochondria	To counteract hyper-kalemia by inhibiting $K_{ATP}$ and $KCa^{2+}$ channels; to prevent ischemia-induced taurine loss
Myotonic syndromes and periodic paralyses	Unknown	Primary inherited channelopathies due to loss-of function mutations of ClC-1 chloride channel or gain-of-function mutations of Nav1.4 sodium channel	Hyperexcitability and impaired muscle relaxation	ClC-1 chloride channel; Nav1.4 sodium channel	To reduce membrane hyperexcitability through: opening of chloride channel and increase in gCl mediated by both short and long term actions; modulation of generation and propagation of action potential, by blocking sodium channel with a local-anesthetic like mechanism
Disuse	Slow-to-fast decrease in taurine content; no change in TauT expression	Myofiber phenotype transition in postural muscle; atrophy	Atrophy, change in metabolism, slow-to-fast transition; weakness	Ion channel function and expression; calcium homeostasis	To counteract disuse-induced taurine loss; to counteract myofiber transition; potential counteraction of atrophy
Duchenne muscular dystrophy and related myopathies	Change in content related to pathology phase; possible reduction of TauT expression	Alteration of calcium homeostasis; calcium-related degeneration; oxidative stress and inflammation	Progressive muscle degeneration and weakness; muscle fiber loss and fibrosis; sarcolemmal instability; altered calcium homeostasis; inflammation and oxidative stress	Chloride channel and voltage-insensitive calcium permeable channels (Leak/TRP-like); SERCA; mitochondria	To ameliorate muscle performance; to counteract taurine loss and to modulate calcium availability for contraction; to counteract contraction-induced ischemia. To contrast degeneration-induced decrease in gCl; adjuvant therapy in combination with glucocorticoids

The table summarizes the main role of taurine in various conditions of skeletal muscle, indicating evidences in relation to changes in tissue content and potential site of taurine action. Please refer to text for more detailed information and specific references.

*TauT* taurine transport system, *SERCA* sarco/endoplasmic reticulum calcium ATPase, *gCl* macroscopic chloride conductance, *TRP* transient receptor potential channels, *ROS* reactive oxygen species, *KATP* ATP-dependent potassium channels, *KCa* calcium activated potassium channels.

derives from studies on mice in which the TauT was genetically knocked out [6, 14–16]. TauT knockout mice (TauT<sup>-/-</sup>) show more than 90% decrease in taurine content in both muscle and heart and are characterized by a marked decrease in exercise performance in exhaustive training models. Although the force of isolated muscle has not been measured in these TauT<sup>-/-</sup> mice, clear abnormalities of muscle structure have been found, including signs of atrophy and muscle necrosis. Additionally, the muscles of TauT<sup>-/-</sup> mice have a shift of metabolism toward the glycolytic pathway, especially in condition of exercise; this has been related to a dysfunction in mitochondrial function and in fatty acid oxidative pathways [51]. In parallel, taurine deficiency leads to cardiomyopathy characterized by remodeling of ventricular cardiomyocytes, ultrastructural damages of myofibril and mitochondria, and overexpression of markers of heart failure, such as atrial natriuretic peptide, brain natriuretic peptide and beta-myosin heavy chain [15, 16].

It is therefore evident that taurine is essential to maintain muscle performance and excitation–contraction coupling; however the mechanism for these actions is still unclear. An *in vitro* study of Berg and Bakker clearly demonstrated the ability of taurine to increase the accumulation of calcium into sarcoplasmic reticulum (SR) in isolated skinned myofibers by 35%, an effect that accounts for the greater depolarization-induced contraction of fiber exposed to 20 mM taurine. This in spite taurine slightly reduces the sensitivity of contractile apparatus to calcium [52]. Interestingly, a recent study demonstrated that a prolonged exposure to 10–20 mM taurine increases the rate of calcium uptake in both type I and type II human myofibers; an action within the SR lumen has been proposed. An increase in contractile sensitivity to calcium was also observed but exclusively in type I fibers [53]. These results reinforce the original data of Huxtable and Bressler about the ability of taurine to stimulate calcium uptake by vesicles of SR [13]. Recent insight into the role of taurine in skeletal muscle has been obtained by the group of Hayes, who supplemented rats with taurine and evaluated the outcome on various functional parameters [54]. Taurine supplementation significantly increases the amino acid content in skeletal muscle, without any adaptive change in TauT activity; in parallel an increase in force and a greater resistance and recovery after fatigue have been observed. These changes were paralleled by an increase in calsequestrin1, the calcium binding protein that works to maintain high amounts of calcium in the cisterna of SR. This suggests that taurine supplemented muscle can store a greater quantity of calcium with a consequent greater calcium availability for contraction. However, the involvement of sarco/endoplasmic reticulum calcium-ATPase (SERCA) remains

to be better clarified. A decrease in markers of oxidative stress was also found, indicating that taurine may help to control activity-related oxidative stress [48]. In support to this view, a recent report by Silva et al. showed that a daily treatment of rats with 300 mg/kg taurine for 2 weeks protects muscles against *in vivo* eccentric exercise damage, such as downhill running [55]. In particular taurine reduced protein carbonylation or oxidized thiols, without increasing the expression of endogenous anti-oxidant pathways, such as superoxide dismutase or catalase [55]. Sugiura et al. similarly found that taurine administration before strenuous exercise reduces muscle DNA damage likely via down-regulation of inducible nitric oxide synthase (iNOS) and consequent reduction of nitrosative inflammation [56]. The protective effects of taurine supplementation are due to a long term modulatory effect, likely in relation to its muscle uptake and intracellular levels. In fact acute *in vitro* application of physiological concentrations of taurine to isolated mouse soleus muscle, does not increase muscle contractile performance in term of force, fatigue resistance and recovery and does not exert any synergistic action when associated with caffeine [57]. Despite the authors suggesting a lack of ergogenic benefit by acute taurine, it is important to underline that slow twitch soleus muscle is characterized by high intracellular taurine content [58, 59], predicting its lower dependency on extracellular concentrations. Accordingly, we have shown that a chronic treatment with taurine to dystrophic mice leads to a minor increase of its intracellular content in soleus muscle than in fast twitch muscles [59].

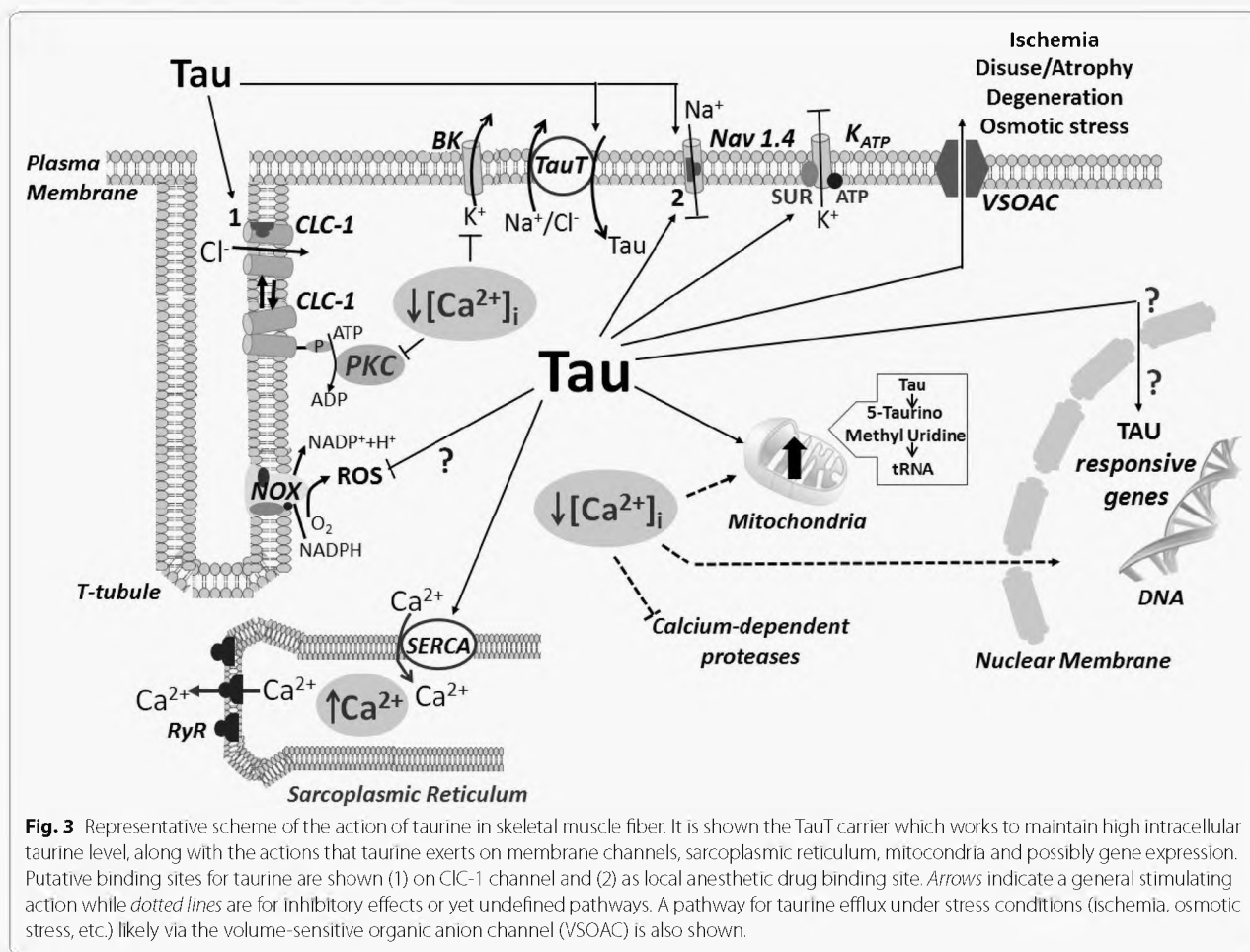
Although taurine supplementation enhances exercise performance, its efflux during exercise and/or ischemia, with consequent decrease in tissue concentration, can also occur [60, 61]. Whether the loss of taurine is a marker of tissue damage or rather a cytoprotective mechanism against ischemic insult, is still matter of debate [60, 62, 63]. The protective effect of taurine efflux in the above conditions can be related to the need to osmotically balance, along with water movement, the increase of by-products of metabolism in the myofibers [1, 14]. However a role in the mechanism to contrast fatigue can be envisaged. In fact, taurine exerts an inhibitory control on channels that couple the metabolic state of the myofiber with membrane excitability, such as the ATP-dependent potassium (KATP) channels and calcium-activated potassium channels [64, 65]. Taurine blocks skeletal muscle KATP channel by binding the channel complex nearby the sulphonylurea receptor [64]. During ischemia–reperfusion injury, the opening of KATP are involved in the cytoprotective effect of the preconditioning mechanisms, by preventing the influx of calcium ions and preserving the ATP

content of the muscle. The efflux of taurine during exercise and/or ischemia may be required to relieve a basal inhibitory effect and to enhance the potassium efflux and membrane repolarization via the specific channels activated by ATP depletion and/or intracellular calcium accumulation. This would exert a protective action against exercise-induced fatigue or impairment in muscle performance related to ischemia–reperfusion injury [64, 65]. Accordingly, the depletion of taurine induced by GES in rat skeletal muscle significantly increases the macroscopic resting potassium conductance of about 80% [48].

Intracellular taurine can also be conjugated in mitochondria of extra-hepatic tissues to 5-taurinomethyl uridine that is present in tRNA and modulates the synthesis of mitochondrial proteins. Consequently, the fatigue and the enhanced oxidative stress observed in myopathic states by taurine depletion can also be due to respiratory chain inefficiency [4, 51, 66]. A representative scheme of the taurine actions in striated myofibers is shown in Fig. 3.

### Taurine as potential therapeutic muscular agent from birth to elderly

The role of taurine for post-natal development of various organs depends upon the species-specific ability to endogenously synthesize the amino acid. Cats, that critically depend on exogenous taurine intake, develop serious impairments during post-natal development if not fed with taurine. Although less compelling for humans, prematurely born infants are believed to lack the enzymes that convert cystathionine to cysteine, and may, therefore, become taurine-deficient if not breast-fed. In fact taurine is present in mother’s milk and evidences are available about potential usefulness of taurine addition in the formula especially for pre-term births [67, 68]. The actual necessity or benefit of this practice has never been rigorously studied, and as such, taurine has yet to be proven to be important during fetal development, perhaps via epigenetic and/or organogenesis related mechanisms. Recent focus has been addressed to the potential benefit of taurine supplementation in mice during gestational period, especially when mothers are exposed to



**Fig. 3** Representative scheme of the action of taurine in skeletal muscle fiber. It is shown the TauT carrier which works to maintain high intracellular taurine level, along with the actions that taurine exerts on membrane channels, sarcoplasmic reticulum, mitochondria and possibly gene expression. Putative binding sites for taurine are shown (1) on CLC-1 channel and (2) as local anesthetic drug binding site. Arrows indicate a general stimulating action while dotted lines are for inhibitory effects or yet undefined pathways. A pathway for taurine efflux under stress conditions (ischemia, osmotic stress, etc.) likely via the volume-sensitive organic anion channel (VSOAC) is also shown.

low-protein diet, a condition mimicking the low weight at birth and related to the risk of developing dysmetabolic states later on [69]. In these conditions taurine protects pancreas by decreasing islet sensitivity to cytokines and shows to have an impact on gene expression and “reprogramming” in various tissues, including skeletal muscle [70–72].

In support of the pivotal role of adequate taurine level for skeletal muscle development, we demonstrated that taurine muscle level increases during the first month of rat post-natal life [73]. This increase matches the acquisition of phenotype-specific contractile properties. In particular in rat fast-twitch EDL muscle it occurs in parallel with the post-natal increase in muscle gCl and of CIC-1 channels expression; i.e. during the acquisition of the mature profile [39, 73–75]. Adult levels are likely to be attained later, since a proton nuclear magnetic resonance (H-NMR) study showed an increase in taurine in different rat skeletal muscles from 6 to 18 weeks of age [76]. Accordingly, an age dependent increase of taurine as well as of other amino acids, has been found in muscle of metabolically healthy children (age range 1–15) with respect to adults [77].

In agreement with an active role of taurine for muscle phenotype acquisition, supplementation of mothers during pregnancy and lactation as well as of new-born rats results in a higher content of the amino acid in skeletal muscle, accompanied by a more rapid development of gCl [73]. Whether such an increase is due to a modulatory action of taurine on CIC-1 channel or to an effect on its gene expression is not known yet. Importantly, a profound alteration in gene expression has been described in liver and skeletal muscle of pups that were exposed prenatally to low protein diet, while the addition of taurine to mothers via drinking water during gestation leads to a marked protection [71, 72]. Focusing on skeletal muscle, the rescuing effect of taurine did occur for genes involved in oxidative phosphorylation and in the tricarboxylic acid cycle that were markedly down-regulated in skeletal muscle by the low protein diet. Importantly, plasma taurine concentration has been suggested to be a marker of fetal well-being and a prerequisite for normal fetal development [78]. In line with the important role of taurine for skeletal muscle development, the TauT expression increases during myogenesis and its gene has consensus site for myocyte enhancing factor 2 (MEF2), being therefore under strict control of myogenic program [79]. Also, taurine has been shown to stimulate myofiber differentiation in vitro [80]. Although the mechanism through which taurine may control gene expression during development is not clear yet, it appears to be a necessary factor in myogenesis, and perhaps in mitochondrial biogenesis, with key role for tissue development (Table 1).

Another condition that may benefit from taurine supplementation is aging. Age-related sarcopenia is accompanied by profound changes in hormonal and metabolic profile of skeletal muscle. An important alteration in the content of various amino acids occurs in human muscle specimen with age, as a result of age-related increase in proteolysis; in parallel a marked decrease in taurine content has been observed [81].

Besides sarcopenia, skeletal muscle of aged rats develops features that are overlapping those observed in taurine depleted muscles, i.e. a marked decrease in gCl and a change in calcium homeostasis with a shift of mechanical threshold towards more negative potentials [82, 83]. We found by high-performance liquid chromatography (HPLC) determination that muscle taurine concentration is in fact significantly decreased in muscle of aged rats; however the levels can be restored to adult values upon the exogenous administration of taurine for 3 months (1 g/kg in drinking water) [84]. Importantly, the taurine administration counteracts the decrease in gCl and the alteration in excitation–contraction coupling of aged rat EDL muscle, supporting the key role of the amino acid in the alterations observed and the potential beneficial role of its supplementation in elderly subjects (Table 1). In the EDL muscle of aged rats supplemented with taurine an almost complete recovery of the pharmacological sensitivity of gCl to either direct and indirect channel modulators, such as the enantiomers of p-chloro-phenoxy propionic acid and the phorbol esters, respectively, was observed. The effect of these latter, along with the amelioration of mechanical threshold observed, discloses the ability of taurine to modulate gCl by reducing the phosphorylation state of the chloride channel brought about by calcium and phospholipid-dependent protein kinase C [83, 84]. This offers a unifying mechanism for physiological taurine action via calcium homeostasis and modulation of calcium-dependent signaling pathways.

In line with the above observations, TauT<sup>-/-</sup> mice show accelerated senescence, with greater muscular damage and endoplasmic reticulum stress due to accumulation of misfolded proteins. A central role of calcium mishandling has been proposed, along with the interest in maintaining adequate taurine level for contrasting aging-related muscle impairments [85].

### **Taurine and muscular dystrophy**

The alteration of calcium homeostasis is a hallmark of muscles affected by inherited muscular dystrophy, such as in mice with X chromosome-linked muscular dystrophy (mdx), the most widely used model for Duchenne muscular dystrophy (DMD). It is believed that the absence of dystrophin, a protein with a key role for sarcolemmal integrity and mechano-transduction, leads to

sarcolemmal tears and to overactivity of voltage-insensitive cationic channels which enhance passive calcium entry, especially during work load [86–88]. This in turn leads to both the alteration of excitation–contraction coupling and to the activation of degenerative pathways [88, 89]. We have found that the EDL muscles of dystrophic mdx animals undergoing chronic exercise protocols, have features resembling taurine depleted ones, i.e. a reduction of gCl and a negative rheobase voltage for mechanical activation [89, 90]. Dystrophic muscle may have a reduced ability in retaining intracellular taurine; in fact we observed a trend of a lower than normal taurine muscle concentration in parallel with markedly high levels in plasma [89]. Accordingly, other authors found that taurine levels fluctuate in mdx muscles in relation to the disease phase, with compensatory increases being observed after acute degenerative period and glucocorticoid treatment [91, 92]. In this frame, taurine seems to be a useful marker of the dystrophic state of mdx mice when monitored by H1-magnetic resonance spectroscopy both in vivo and ex vivo, although technical problems may still limit the accurate peak resolution for quantitative evaluation [91–95]. In our experiments, the in vitro application of millimolar taurine concentrations fully restored the alteration of mechanical threshold observed in these animals [89]. Interestingly, similar results have been obtained upon chronic taurine treatment in exercised mdx mice. The in vivo treatment also significantly contrasted the decrease in gCl and lead to a significant increase of mouse strength in vivo, due to an interesting anabolic action of the amino acid in the dystrophic animals [90]. As previously mentioned,  $TauT^{-/-}$  mice are characterized by a marked 80% decrease in exercise performance and increased fatigability, a feature that is classically observed in the mdx phenotype [6, 14, 90, 96]. The role of taurine in muscular dystrophy is also under study in Hayes' laboratory, where a lower expression of  $TauT$  in mdx mouse muscle has been demonstrated, which is not influenced by exogenous taurine administration [97], supporting the difficulty of dystrophic muscle to retain taurine. Exercise protocols may differently modulate intramuscular taurine concentration, ranging from no change to phenotype-dependent decrease, likely in relation to the exercise type; however taurine supplementation can enhance exercise performance [60, 61]. Due to the impaired mechano-transduction of dystrophic myofibers, it would be of interest to evaluate whether the exercise protocol in mdx mice can lead to a further distress in taurine concentration and in  $TauT$  expression; this is currently ongoing in our laboratory.

Based on first encouraging results, we tested the possible advantage to combine taurine with  $\alpha$ -methylprednisolone, a glucocorticoids currently in use

in dystrophic patients [58]. A synergistic action of the two drugs in enhancing mouse strength and in restoring calcium homeostasis was observed, with a normalization of mechanical threshold and a reduction of the overactivity of the cation channels likely involved in abnormal calcium entry [58, 86, 98]. The treatment was also associated with a significant increase in taurine content in fast-twitch limb muscles, suggesting that dystrophic muscle maintains the ability to uptake taurine if adequately supplemented [58]. The synergistic action observed corroborates a potential interest of taurine as adjuvant therapy in steroid-treated patients. This is also supported by the evidence that glucocorticoids exert an inhibitory action of renal taurine re-uptake, then leading to hypotaurinemia, which in turn may have long-term negative effects on cardiovascular function [5].

Importantly, the taurine treatment to mdx mice significantly reduces the high plasma level of lactate dehydrogenase, an index of metabolic distress, and it is worth to underline that a marked increase in plasma lactate actually occurs in  $TauT^{-/-}$  mice [6]. Therefore taurine can also play a role in metabolism in dystrophic muscle, similarly to what observed in exercise-challenged  $TauT^{-/-}$  mice [51].

Increasing evidences suggest a link between calcium homeostasis, oxidative stress and mitochondrial distress in muscular dystrophy, leading to reconcile all these taurine actions under few main mechanisms, although not fully clear yet [99, 100]. As already mentioned, taurine supplementation contrasts the exercise-induced increase in oxidative markers, without enhancing the level of endogenous anti-oxidant [55]. Other evidences support that the sulfonic amino acid is actually incapable of scavenging the common oxidants, namely, superoxide, hydrogen peroxide and hydroxyl radical, which instead are the main products of enhanced NADPH oxidase activity in dystrophic muscle [99–101]. However, the amino group of taurine can neutralize hypochlorous acid, one of the reactive species generated by myeloperoxidase-halide system in neutrophils [102]. In that reaction, taurine is converted to taurine chloramine, which is less toxic than hypochlorous acid and actually serves as a modulator of the immune system also by interfering with the production of several pro-inflammatory mediators and activation of the transcription factor nuclear factor kappa-light-chain-enhancer of activated B cells (NF- $\kappa$ B) [102]. In addition, taurine has been proposed to directly activate peroxisome proliferator-activated receptor  $\gamma$  (PPAR $\gamma$ ) in epithelial cells, a mechanism that may account for its protective action against inflammation-related diabetic retinopathy progression [103]. In consideration of the involvement of chronic inflammation and NF- $\kappa$ B derived mediators in dystrophic muscle [87,

104, 105], the above immunomodulatory actions of taurine are of value. However, whether the anti-inflammatory and anti-oxidant action contributes to the beneficial effect observed in dystrophic animals is not known yet and the evaluation of biomarkers in samples of taurine treated mdx mice will be useful at this regard. Our preliminary results favor a decrease in superoxide anion formation, measured by dihydroethidium staining, in tibialis anterior muscles of exercised mdx mice treated with taurine (De Luca, personal unpublished observations). An attractive hypothesis, currently under study in our laboratory, is that taurine may contrast the impaired SERCA activity in dystrophic muscle either directly or by reducing the damaging effect brought about by oxidation and/or nitrosylation [13, 54, 106]. Interesting recent results of Terrill et al. have shown that a chronic administration of the cysteine precursor 2-oxothiazolidine-4 carboxylate (OTC) markedly decreases the level of thiol oxidation in muscles of mdx mice; in parallel an amelioration of force and muscle morphology has been observed. Importantly the administration was not paralleled by an increase in cysteine or glutathione but rather by an increase in taurine level. The authors underlined that the decrease in taurine content may have a direct causative role in enhanced susceptibility to oxidative stress, disclosing a novel mechanism for beneficial effect of the classical anti-oxidant *N*-acetylcysteine [107].

Considering the mitochondrial sufferance occurring in dystrophic muscle [93], the previously described role of taurine for preserving mitochondrial function has to be taken into account for further studies. Similarly, the potential role of taurine and its chemical chaperone conjugate tauroursodeoxycholic acid in contrasting endoplasmic reticulum stress in various conditions should be considered for the acute and chronic ability of taurine to modulate signaling pathways [108, 109]. In addition, taurine may improve muscle metabolism by contrasting functional ischemia, based on the described vasodilating properties [110]. The clarification of the mechanism of action and the evaluation of long term safety and efficacy also at heart level can add important pre-clinical data to plan clinical trials in DMD patients (Table 1).

### **Taurine and disuse-related muscle atrophy**

Muscle disuse is a general term which describes a condition of inactivity occurring after prolonged bed rest, spaceflight and/or aging. The slow-twitch muscles, devoted to postural maintenance, are the most affected ones, showing a slow-to-fast phenotype transition and severe atrophy, both leading to impaired muscle function. The adaptation of skeletal muscle to different activity includes changes in the expression of structural, metabolic and contractile proteins that fine-tune the

characteristics of this tissue. The hindlimb unloaded (HU) model of disuse in rodents is a widely accepted ground-based model that mimics microgravity condition and is used to study the mechanisms responsible for the disuse-induced modification of skeletal muscle function. The soleus muscle of HU rats and mice becomes atrophic and experiences a slow-to-fast phenotype transition, characterized by an increased expression of the fast myosin heavy chain (MHC) isoform [111, 112]. Along the years, the studies on the HU model have shown that various proteins involved in the control of sarcolemma excitability, calcium ion homeostasis, energy metabolism, and contractile machinery undergo changes in the expression, turnover, and activity in accord with the entering of the slow muscle into a fast program [111, 113–117]. In particular, *ClC-1* chloride and *Nav1.4* sodium channels are differently expressed in fast-twitch and slow-twitch skeletal muscles, the expression of both being higher in the former. Accordingly with the change of phenotype, *ClC-1* channel activity and expression as well as the intracellular resting calcium level in slow-twitch soleus muscle are significantly shifted by HU process toward the values of a fast muscle, even before the modification of MHC expression [111]. Similarly, HU increased sodium current density and sodium channel mRNA level in soleus muscle fibers [113]. All these changes alter the resistance to fatigue of antigravity muscle fibers, an effect that may contribute to the impairment of muscle function, in terms of excitability and contraction. A full understanding of the mechanisms of disuse-induced muscle alterations in humans is still incomplete and few molecules have been proposed for therapy [118, 119]. However, supplementation with essential amino acids and carbohydrates in combination with exercise attenuates muscle protein loss in humans exposed to prolonged inactivity [120, 121]. Based on these considerations and on our previous findings about the action of taurine in the modulation of calcium homeostasis and ion channel function [34, 41, 49], we focused on taurine as a potential candidate to counteract the HU-induced phenotype transition and skeletal muscle function impairment [1, 34].

In agreement with a critical role of taurine in phenotype-specific cellular function, the concentration of the amino acid is twofold higher in soleus compared to EDL muscle. The physiological relevance for this phenotypic difference is still unknown but various hypothesis can be raised based on the essential role of taurine in skeletal muscle and its actions in metabolism and phenotype-dependent properties. Interestingly, our recent findings [59] showed for the first time a marked reduction of taurine content in the soleus muscle of HU rat. This muscle loss would be consistent with an original report of National Aeronautics and Space Administration (NASA)



describing a large excretion of taurine in the urine of the astronauts of the APOLLO mission [122]. In spite of the reduction of taurine in soleus muscle of HU rats, the expression of TauT was unchanged. Indeed, TauT expression was found to be higher in slow-twitch soleus muscle with respect to the fast EDL, and was not reduced during HU, suggesting that the intracellular reduction of taurine is not associated with the change of phenotype. In addition, our data suggest that TauT activity is efficiently maintained during HU, since taurine oral supplementation fully prevents the loss of taurine content in HU-soleus muscle. Thus, we hypothesize that the reduction of intracellular taurine content during HU is likely due to increased taurine efflux. A possible explanation might be that taurine leakage compensates for intracellular osmolarity changes, which likely occurs due to muscle protein degradation and increased catabolism. Accordingly, the production of intracellular osmolytes during muscle disuse atrophy has been described, which may justify taurine escape in this condition [123–125]. Importantly in rats fed with taurine, TauT expression was reduced in soleus muscle, suggesting a negative feed-back regulation as a mechanism to control taurine intracellular level. As anticipated the TauT expression is under control of MEF2, a determinant of slow-fiber phenotype [79], thus it is tempting to speculate that TauT expression after taurine supplementation can be reduced by a mechanism involving a complex cross-talk between taurine and CIC-1 modulation during the phenotype transition.

Our findings also highlighted that taurine supplementation in HU rats has preserved resting gCl and resting cytosolic calcium level together with the slow MHC phenotype in the soleus muscle.

However, taurine had little effect on muscle atrophy, which is a severe condition occurring during HU as well as in various muscle diseases [126]. Indeed, it did not prevent the reduction of muscle-to-body weight ratio and of the fiber cross sectional area (CSA), while it partially contrasted the expression of atrogen-1 and mostly of muscle RING-finger protein-1 (MURF-1), two ubiquitin–proteasome pathway enzymes, that are strongly up-regulated as a result of HU-induced atrophy [127]. Such an effect suggests that a longer treatment or a different therapeutic schedule of taurine might have protective effect against muscle atrophy and might be useful to reach a complete muscular recovery. However complex mechanisms control the relative expression of atrogen and MURF-1 in skeletal muscle under various insults [79, 128] and further experiments are needed (Table 1).

### **Taurine and human skeletal muscle**

Taurine has limited use in clinical settings although human use has been considered for specific diseases such

as non-insulin dependent diabetes and related disorders, to treat alcohol withdrawal, congestive heart failure and arrhythmias, rheumatoid arthritis and other chronic inflammatory states, seizure disorders, and liver related disorders [19, 102, 129]. In Table 2 is a brief report of some clinical studies related to taurine supplementation, with relative dosages and outcomes. Most of them focused on diabetes mellitus, insulin resistance and diabetic complications, based on the rationale that plasma taurine concentration is reduced in patients with insulin-dependent diabetes mellitus (IDDM) [129–136]. Taurine was indicated in addition to specific drugs. Other clinical studies tested taurine in congestive heart failure, hypertension, inherited succinic semialdehyde dehydrogenase deficiency, obesity or its supplementation in aged individuals [137–143].

A part for the use in myotonic dystrophy patients [35–37], the potential therapeutic role of taurine for skeletal muscle disorders has yet to be verified in clinical settings. In fact, most of the studies about the role of taurine for skeletal muscle physiology and its potential in pathological conditions have been carried out in animal models. In these conditions taurine depletion or supplementation are directly correlated with changes in the amino acid content in skeletal muscle, which facilitate the drawing of conclusion about amino acid action and potential. However, few studies have been conducted in humans, and some contradictory reports are available, questioning about the actual usefulness of taurine supplementation or on its mechanism of action. Apart for the age-related changes reported in the previous paragraphs, one of the main issue concerns the modulation of taurine concentration in adult skeletal muscle under conditions of exercise and/or metabolic distress. Galloway et al. [144] demonstrated that taurine supplementation to exercised healthy adults leads to a marked increase in the amino acid plasma level that however is not paralleled, after 7 days of supplementation, by an increase in skeletal muscle. They proposed that intramuscular taurine concentration is tightly regulated and that high plasma level may actually work to reduce TauT activity in order to maintain constant the amino acid level. Therefore, even chronic oral taurine supplementation may cause less increase in human muscles than in rodent ones, and the observed muscle effects could be due to extracellular taurine actions. In addition, plasma levels are also tightly regulated via overexpression of TauT in kidney, which may also show specie-specific regulatory pathways [145, 146].

The dose is another important issue. In fact murine pre-clinical studies often require about tenfold higher concentration than in human trials; by the way this has to match the endogenous high level of taurine in target

**Table 2 Clinical use of taurine in different pathophysiological conditions**

References	Patients	Dose (g/day or mg/kg)	Duration	Result
Franconi et al. [130]	IDDM (Diabetes mellitus type 1)	1.5 g	90 days	No effect
Flizarova and Nedosugova [131]	IDDM	1 g	30 days	Glucose metabolism and trygliceride level improved
Chauncey et al. [133]	NIDDM (DM type 2)	3 g	4 months	Plasma taurine level increased
Brøns et al. [134]	Overweight non-diabetic	1.5 g	8 weeks	No effect
Xiao et al. [136]	Overweight non-diabetic	3 g	2 weeks	Insulin sensitivity improved
Nakamura et al. [132]	NIDDM with microalbuminemia	3 g	12 months	No effect
Moloney et al. [135]	IDDM	1.5 g	2 weeks	Endotelium-dependent reaction improved
Gonzales-Contreras et al. [142]	Cholestasis by parenteral nutrition	~25 mg/kg/day	~50 days	Hepatoprotection with reduction of AST, ALT and GGT
Rosa et al. [143]	Obesity	3 g/day	8 weeks	Increase in plasma levels of taurine and adiponectin; reduction of inflammatory markers
Pearl et al. [141]	Succinic semialdehyde dehydrogenase deficiency (efficacy, safety and tolerability)	50–200 mg/kg/d (age range 12 years)	13 months (mean time from 3 to 50)	No significant effects Tolerability issues at highest doses
Fujita et al. [139]	Hypertension	6 g	7 days	Systolic and diastolic pressure improved
Azuma et al. [138]	Congestive heart failure	6 g	4 weeks	Heart parameters improved
Bergamini et al. [137]	Epilepsy	200 mg–21 g	Various	Seizure frequency reduction
Durelli et al. [36]	Dystrophic myotonia	6–10 g	6 months	Myotonic symptoms improvement
Dunn-Lewis et al. [140]	Elderly	500 mg in multinutrient supplement	4 weeks	Physical function improved

organs. In addition, an accurate muscle exposure to taurine after oral ingestion requires a careful assessment of the pharmacokinetic profile that has not been extensively evaluated in humans. In line with Galloway et al. [144], a single oral dose of 4 g in healthy volunteers allows to get a maximal plasma peak in about 1.5 h and showed a half-life of 1 h with a first-order kinetic clearance; this is in line with kidney being the main organ regulating taurine level [147]. Generally the daily dose of taurine ranges between 3 and 6 g; consequently its fast kinetic can account for some of the puzzling data obtained, suggesting the need of a more careful determination of the optimum dose. It is important to underline that most of the available evidences focus on the usefulness of taurine supplementation in sustaining muscle function in trained individuals. Balshaw et al. have recently evaluated the outcome of 1 g taurine ingestion, evaluated in blind against placebo, on running performance of trained middle-distance runners. They described a modest, although significant, increase in performance in the taurine-treated group, without any change in metabolism parameters [148]. The authors claimed that a similar improvement of

performance after taurine ingestion, without changes in oxygen uptake or plasma lactate, has been found in other studies [144]. Taurine muscle levels were not assessed, thus the correlation between taurine effect and a specific muscle action is rather indirect. Accordingly, they speculated about alternative potential mechanisms, such as the action of taurine at muscle membrane level, in preventing taurine drop during exercise or rather an effect on neuronal function.

In another study, a combination of taurine (2 g) and branched-chain amino acids three times a days for 2 weeks before eccentric exercise, plus 4 days after, has been tested in healthy untreated volunteers. The eccentric exercise protocol consisted of repeated sets elbow flexion at 90° to an extended position, finally leading to uncontrolled damaging stretch. The combination exerted a greater protection against muscle damage and delayed-onset muscle soreness than single administrations, although no detailed investigation has been done to clarify the mechanism of action and/or the amino acid level into the muscle [149]. Similarly, da Silva et al. have recently described the ability of 14 days taurine

administration to increase strength of the elbow flexor subjected to eccentric exercises in young adult males; in parallel, markers of oxidative stress were reduced, without increase in endogenous anti-oxidant expression nor changes in inflammatory markers. Again muscle taurine level were not determined [150]. Therefore the available evidences do not allow to conclude about the ability of supplemented taurine to actually increase its muscle level in adult healthy and trained individuals, suggesting alternative modality of action, i.e. at neuromuscular system. However, it cannot be ruled out that taurine supplementation may effectively enhances muscle taurine levels in conditions characterized by more dramatic fluctuation of its content. This applies to postnatal development and aging, and mostly to pathological conditions such as muscular dystrophy and disuse-related muscle dysfunction (Table 1) [151]. More direct evidences in humans and patients will be helpful, in order to better correlate the effect of exogenous administration of taurine with the ability of residual muscle tissue to uptake the right amount, or rather to disclose taurine actions independent on its intracellular levels [145]. In addition, an inter-individual variation in plasma increase of taurine after supplementation may occur in relation to both nutritional state, age, drug interaction, while gene polymorphism in taurine transporter or modulation of its function and/or expression by cell metabolic state or activation of transcription factors may affect the actual level of taurine being transported into the myofibers [134, 146, 152–154]. Hence caution should be taken when concluding about lack of taurine usefulness for human muscular system without an adequate control of all variables.

## Conclusion

We herein summarized the results obtained in about 30 years of research on taurine and skeletal muscle by us and other research groups. Taurine is far from themes of fashion science or from immediate interest in innovative drug development by Pharma Companies. Nevertheless the reason for such a long interest is that taurine acquired over the years a special appeal for its puzzling and multiple effects. We underlined the ability of taurine to control the function of ion channels and consequently membrane excitability as well as calcium homeostasis and excitation–contraction coupling. It has been highlighted that novel evidences are emerging regarding taurine mechanism of action, ranging from modulation of muscle metabolism to control of gene transcription, as well as in the species-specific mechanisms underlying its intracellular levels in both chronic and acute conditions. These make the research on the topic “taurine and skeletal muscle” a continuous source of novel and exciting results allowing to renew the enthusiasm and novel working hypotheses. The

wide and interconnected effects observed support a key role of the amino acid to ensure a proper muscle function and reinforce its interest as therapeutic agent in various inherited and acquired muscular disorders. The available evidences favor a greater effect of taurine in diseased condition accompanied by alterations in taurine concentration in muscle; similar benefit can occur in conditions where fluctuation in taurine level take place such as exercise, protein content in diet or post-natal development. Both acute and chronic effects of taurine supplementation are feasible, and likely occur with different time-scale although similarly interesting and important. Although a careful distinction has not been made, it is predictable that acute effects of taurine are better appreciable in situations of rapid fluctuations such as exercise, or when involving direct modulation of ion channel, or on muscles that are more dependable of external taurine such as fast-twitch ones. In parallel, chronic taurine effects, likely accompanied by changes in intracellular content, could be of value for long term control of neuromuscular function in progressive conditions, such as muscular dystrophy and disuse or aging-related dysfunction. At this regard more evidences are necessary to better understand the interest of taurine for ensuring a proper muscle function in human other than in animals. Consequently, a more clinically-oriented research will help to support the interest of taurine as novel and safer therapeutic approach of rare inherited muscle diseases and other myopathic states.

## Authors' contributions

ADL: have made a substantial contribution in designing and writing the review, updating current literature and in interpretation of available data in the field; SP: was significantly involved in writing, in figures and table organizations, literature search and interpretation of available information; DCC: critically revised the manuscript and its organization and gave a substantial support to the finalization of the work. All authors have read and approved the final manuscript.

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## Compliance with ethical guidelines

## Competing interests

The authors declare that they have no competing interests.

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Client: B6

Patient: B6

rDVM: B6 Echo and labs 1/12/18

Test	Results	Reference Interval	LOW	NORMAL	HIGH
Profile Dr (January 12, 2018 11:26 AM)					
ALB	B6	3.40 - 5.07			
ALT	B6	27.0 - 61.0			
AST	B6	24.0 - 38.0			
BUN	B6	6.0 - 17.0			
CREA	B6	0.70 - 1.20			
GLUC	B6	80.0 - 120.0			
PROB	B6	1.00 - 2.00			
TRIG	B6	30.0 - 100.0			
WBC	B6	6.00 - 18.00			
HGB	B6	12.00 - 18.00			
HCT	B6	3.00 - 10.00			
PLT	B6	150 - 450			
PT	B6	11.0 - 13.0			
PTT	B6	12.0 - 14.0			
APTT	B6	25.0 - 35.0			
ACT	B6	150 - 200			

B6

B6

B6

Printed: January 12, 2018 11:34 AM

Page 1 of 2

B6

B6



Client: **B6**  
Patient: **B6**

NOVA Panel 2/3/18 9:01am

### Sample Profile

Patient ID: **B6**  
Patient Name:  
Analyzed: 02032018 09:02:08 AM  
Analyzer ID: 231C12620  
Sample Type: Venous  
Panel: Critical Care  
Operator: 123456  
Release: auto  
Required Fields      Optional Fields

Measured:

Test	Value	Unit	Reference Range	Flag
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**B6**

**B6**

Client: B6  
Patient: B6

NOVA Panel 2/4/18 9:00am

### Sample Profile

Patient ID:  
Patient Name:  
Analyst:  
Analyte ID:  
Sample Type:  
Panel:  
Cobas:  
Releaser:

B6  
B6  
B6  
Venous  
Critical Care  
B6

**B6**

Required Fields

Optional Fields

Measured

Test	Value	Unit	Reference Range	Flag
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**B6**

491/74

Client: B6

Patient: B6

IDEXX B6 2/26/18

02/26/2018 01:27

B6

10000

PAGE 02/26/18

Client: B6

Gender: Female(Spayed)

(7000)

Weight: 57.20 lbs

Patient Name: B6

Age: 10 Years

Species: Canine

Doctor: B6 DVM

Street: Osherman

Test	Results	Reference Interval	LOW	NORMAL	HIGH
ProCyt Dx (February 26, 2018 5:03 PM)					
WBC	B6	5.00 - 16.00			
HCT	B6	37.3 - 51.7			
HGB	B6	12.1 - 20.0			
MCV	B6	91.8 - 110.0			
MCH	B6	13.2 - 18.0			
MCHC	B6	15.0 - 17.0			
RDW	B6	13.0 - 21.7			
PLATE	B6				
PLT	B6	30.0 - 110.0			
MPV	B6	8.00 - 10.70			
RDW	B6				
LYM	B6	2.00 - 11.00			
LYM	B6	1.00 - 5.00			
MONO	B6	0.10 - 1.10			
NEU	B6	0.00 - 1.20			
EOS	B6	0.00 - 0.50			
PLT	B6	100 - 400			
MPV	B6	8.7 - 13.2			
PDW	B6	0.1 - 10.4			
PCT	B6	0.14 - 0.40			

B6

B6

B6

Printed: February 26, 2018 5:10 PM

Page 1 of 2

B6

Client: B6  
Patient: B6

IDEXX B6 2/26/18

04/26/2013 03:27

B6

B6

PAGE 01/03

Client: B6  
(FUS)  
Patient Name: B6  
Species: Canine  
Breed: Doberman

Gender: Female/Spayed  
Weight: 57.20 lbs  
Age: 10 Years  
Doctor: B6 DVM

Test Results Reference Interval LOW NORMAL HIGH

Collected On: February 26, 2018 5:10 PM

Test	Results	Reference Interval	LOW	NORMAL	HIGH
GLU		70 - 140			
CREA		0.5 - 1.5			
BUN		7 - 27			
BUN/CREA					
TP		5.2 - 8.2			
ALB		3.2 - 3.8			
GLDH		2.5 - 4.5			
ALSOLO					
ALT		10 - 125			
ALKP		20 - 210			
Ta		140 - 160			
K		10 - 18			
Na/Cr					
Cl		100 - 120			
Om Calc					

B6

B6

Printed: February 26, 2018 5:10 PM

Page 2 of 2

B6

Client: B6  
Patient: B6

RDVM B6 medical records 2/5/18-3/30/18

PATIENT NAME					PRD
OWNER NAME					
MR	DOB	TR	PRD	PRD	MEDICAL RECORD

**B6**

Client:  
Patient:

**B6**  
**B6**

**RDVM** **B6** **medical records 2/5/18-3/30/18**

PATIENT NAME				PAGE	
PATIENT NAME				CURRENT PAGE	
DATE	TIME	RECORD NO.	REMARKS	MEDICAL RECORD	

**B6**

Client: B6  
Patient: B6

RDVM B6 medical records 2/5/18-3/30/18

PATIENT NAME		DATE		PHYSICIAN NAME		PAGE	

B6

Client: B6

Patient: B6

RDVM B6 medical records 2/5/18-3/30/18

PATIENT NAME				RACE	
OWNER'S NAME				OWNER'S NAME	
NO.	DATE	TIME	WOUND	SOAP	MEDICAL RECORD

**B6**



Client: **B6**  
Patient: **B6**

**RDVM** **B6** medical records 2/5/18-3/30/18

PATIENT NAME					PAGE
PATIENT NAME					OWNER'S NAME
DATE	TIME	PROB	TEST	RESULT	MEDICAL RECORD

**B6**

Client: **B6**

Patient: **B6**

**RDVM** **B6** medical records 2/5/18-3/30/18

PATIENT NAME					PAGE	
OWNER'S NAME					OWNER'S NAME	
DATE	TIME	TYPE	PROB. NO.	CLASS.	MEDICAL RECORD	

**B6**

Client: **B6**  
Patient: **B6**

**RDVM** **B6** medical records 2/5/18-3/30/18

PATIENT NAME	PACC OWNER'S NAME
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**B6**

Client: B6  
Patient: B6

RDVM B6 medical records 2/5/18-3/30/18

Client: B6  
Gender: Female/Spayed  
Weight: 58.50 lbs  
Age: 10 Years  
Species: Canine  
Breed: Collie  
Doctor: B6 DVM

Test	Result	Reference Interval	LOW	NORMAL	HIGH
Canine One (March 30, 2018 12:17 PM)					
GLU	B6	80-180			
CREA		0.5-1.5			
BUN/CRE					
TP		5.5-12			
ALB		2.2-3.8			
TBIL		1.0-1.5			
PLATEL					
WBC		10-20K			
HA		140-200			
R		0.5-1.5			
PCV					
ST	100-100				
SMC/Cell					

B6

Printed: March 30, 2018 12:17 PM

Page 2 of 2

B6

Client: B6  
Patient: B6

RDVM B6 medical records 2/5/18-3/30/18

Client: B6 Gender: Female Spayed  
Patient Name: B6 Weight: 58.50 lbs.  
Species: Canine Age: 10 Years  
Sex: Ovarianh DocID: B6 DVM

Test Results Reference Interval LOW NORMAL HIGH

ProCyto Dx (March 26, 2018 12:30 PM)

DATE  
4/11/18

WBC [REDACTED] 11.8-19.8  
WBC [REDACTED] 10.2-20.8  
WBC [REDACTED] 12.0-20.8  
RBC [REDACTED] 15.4-21.7  
HGB [REDACTED] 45.7-66.8  
HCT [REDACTED] 14.25-18.75  
Hctc [REDACTED]  
Hctm [REDACTED]  
Hctpd [REDACTED]  
Hctob [REDACTED]  
Hctad [REDACTED]  
WBC [REDACTED] 2.00-11.00  
LPM [REDACTED] 1.00-4.00  
MPO [REDACTED] 0.50-1.50  
BAND [REDACTED] 0.00-0.50  
PLT [REDACTED] 140-400  
MPV [REDACTED] 8.7-13.3  
PDW [REDACTED] 0.1-10.4  
SPL [REDACTED] 0.00-0.40

B6

B6

RBC Run

WBC Run

B6

Printed: March 30, 2018 12:37 PM

Page 1 of 2

B6

Client: B6  
Patient: B6

RDVM B6 medical records 2/5/18-3/30/18

Client: B6  
(F000)  
Patient Name: B6  
Species: Canine  
Breed: Doberman

Gender: Female/Spyel  
Weight: 54.50 lbs  
Age: 10 Years  
Doctor: B6 DVM

Test	Results	Reference Interval	LOW	NORMAL	HIGH
Complete Chem (March 5, 2018 4:22 PM)					
GLU	B6	70 - 140			
CRP	B6	0.0 - 1.0			
BUN	B6	7 - 27			
SCREMS	B6				
TP	B6	5.0 - 8.0			
ALB	B6	2.0 - 4.0			
WBC	B6	5.5 - 15.0			
ALOH.C0	B6				
ALP	B6	20 - 110			
Ca	B6	100 - 150			
K	B6	3.5 - 5.5			
Na	B6	135 - 155			
Cl	B6	100 - 120			
CO2.Tot	B6				

B6

Printed: March 8, 2018 4:22 PM

Page 2 of 2

B6

Client: B6  
Patient: B6

RDVM B6 medical records 2/5/18-3/30/18

Client: B6 Gender: Female (Screen)  
(7200) Weight: 58.50 lbs  
Patient Name: B6 Age: 10 Years  
Species: Canine Doctor: B6 JMM  
Breed: Doberman

Total Results Reference Interval LOW NORMAL HIGH

ProCyte Dx (March 5, 2018 4:11 PM)

35918  
4:02 PM

Test	Results	Reference Interval
RBC	B6	6.00 - 6.67
HCT	B6	37.3 - 47.7
HGB	B6	13.7 - 20.3
MCV	B6	61.6 - 72.6
MCH	B6	21.2 - 28.8
MCHC	B6	33.0 - 37.8
RDW	B6	13.6 - 15.7
PLATETS	B6	150 - 400
WBC	B6	6.00 - 18.00
NEUT	B6	57.0 - 71.0
LYM	B6	1.00 - 5.00
MONO	B6	0.10 - 1.00
BAND	B6	0.00 - 0.10
PLT	B6	140 - 400
MPV	B6	8.7 - 13.0
PDW	B6	8.1 - 16.8
RTT	B6	0.14 - 0.40

B6

B6

RBC Run

WBC Run

B6

Printed: March 5, 2018 4:22 PM

Page 1 of 2

B6

Client: B6  
Patient: B6

RDVM B6 medical records 2/5/18-3/30/18

Client: B6 Gender: Female (Spayed)  
Patient Name: B6 Weight: 67.20 lbs  
Species: Canine Age: 10 Years  
Breed: Doberman Doctor: B6 DVM

Test	Results	Reference Interval	LOW	NORMAL	HIGH
ProCyte Dx (February 26, 2018 9:33 PM) <span style="float: right;">2018 9:33 PM</span>					
RBC	B6	4.86 - 6.81			
HCT	B6	31.3 - 45.1			
HGB	B6	13.1 - 20.8			
MCV	B6	81.6 - 73.8			
MCH	B6	21.2 - 28.8			
MCHC	B6	32.0 - 37.5			
RDW	B6	13.8 - 21.7			
PLATE	B6				
RETIC	B6	0.0 - 1.00			
IMC	B6	0.05 - 18.78			
SMEL	B6				
ALYM	B6				
LMONO	B6				
NEO	B6				
LMO	B6				
NEU	B6	7.06 - 11.84			
LYM	B6	1.08 - 3.12			
MONO	B6	0.18 - 1.12			
PLT	B6	0.08 - 0.12			
PLT	B6	148 - 388			
MPV	B6	8.7 - 13.2			
PVW	B6	11.1 - 16.8			
PCT	B6	0.14 - 0.48			

B6

B6

RBC Run

WBC Run

B6

Printed: February 26, 2018 9:33 PM

Page 1 of 2

B6



Client: B6  
Patient: B6

RDVM B6 medical records 2/5/18-3/30/18

Client: B6      B6  
Patient Name: B6      Weight: 57.20 kg  
Species: Canine      Age: 10 Years  
Breed: Chihuahua      Doctor: B6 DVM

Test	Results	Reference Interval	LOW	NORMAL	HIGH
Catalyst One (February 26, 2018 6:10 PM)					
GLU	B6	70-140			
UREA	B6	3.0-10.0			
BUNCREA	B6	6.0-17.0			
ALB	B6	2.3-3.0			
BUCR	B6	2.0-4.0			
ALP	B6	25-100			
CR	B6	0.5-1.8			
CL	B6	100-120			

B6

B6

Client: B6

Patient: B6

RDVM: B6 medical records 2/5/18-3/30/18

Client: B6  
Patient Name: B6  
Species: Canine  
Blood Collection: [redacted]  
Gender: Female/Spayed  
Weight: 27.20 lbs  
Age: 10 Years  
Dob: B6

Test	Results	Reference Interval	LOW	NORMAL	HIGH
UA, Analyzed (February 10, 2018 at 10 PM)					
Color	B6				
Clarity					
Specific Gravity					
pH					
Leukocytes					
Red Blood Cells					
Epithelial Cells					
Crystals					
Bilirubin					
Glucose					
Ketones					
Protein					
Urea Nitrogen					
Creatinine					

B6

Client: B6  
Patient: B6

RDVM B6 medical records 2/5/18-3/30/18

**B6**

Printed: February 19, 2018 4:22 PM

Page 2 of 7

**B6**

Client: B6  
Patient: B6

RDVM: B6 medical records 2/5/18-3/30/18

Client: B6  
Patient: B6  
Species: Canine  
Breed: Doberman  
Gender: Female/Spayed  
Weight: 58.10 kg  
Age: 10 Years  
Doctor: B6 DVM

Test	Result	Reference Interval	LOW	NORMAL	HIGH
Cervical Onco (February 19, 2018 4:20 PM) TCC	5.1 mg/dL	11-48			

B6

Printed: February 19, 2018 4:20 PM

Page 1 of 1

B6

Client: B6  
Patient: B6

RDVM B6 medical records 2/5/18-3/30/18

Client: B6  
Patient: B6  
Species: Canine  
Breed: Doberman  
Gender: Female-Spayed  
Weight: 55.10 lbs  
Age: 10 Years  
Doctor: B6 DVM

Test	Results	Reference Interval	LOW	NORMAL	HIGH
Monday, Feb 12, 2018 4:10 PM					
GLU	B6	80-140			
CPK	B6	80-110			
BUN/CREA					
TP		6.0-10.0			
ALB		2.5-4.5			
GLUC		2.0-4.0			
INR/PT					
PLT		200-500			
WBC		14K-16K			
H		15-25			
HCT		18-25			
CRP		100-1000			

Monday, February 12, 2018 4:10 PM

Page 2 of 7

B6

Client: B6  
Patient: B6

RDVM B6 medical records 2/5/18-3/30/18

Client: B6 M Gender: Female spayed  
Patient Name: B6 Weight: 22.12 lbs  
Species: Canine Age: 10 Years  
Breed: Golden Retriever Doctor: B6 DVM

Test	Results	Reference Interval	LOW	NORMAL	HIGH
ProCyte Dx (February 19, 2018 4:03 PM) 1/2/18 11:25 AM					
HGB	B6	5.85 - 9.87			
HCT	B6	27.2 - 51.7			
HGB	B6	13.1 - 20.8			
MCV	B6	47.8 - 73.8			
MCH	B6	21.2 - 28.8			
MCHC	B6	32.9 - 37.9			
RDW	B6	18.6 - 21.7			
PLATETS	B6				
PLT	B6	15.0 - 175.0			
WBC	B6	6.95 - 14.78			
NEUT	B6				
LYM	B6				
MONO	B6				
EOS	B6				
BAAS	B6				
PCV	B6				
MPV	B6				
PDW	B6				
PCT	B6				

B6

B6

RBC Run

WBC Run

B6

Printed February 19, 2018 4:10 PM

Page 1 of 2

B6

Client: **B6**  
Patient: **B6**

**NOVA recheck panel 5/7/18 at 1:19 pm**

**B6**

Client: B6

Patient: B6

RDVM B6 med hx, and labs 5/18/18 - 6/28/18

MAY 28 2018 10:54

B6

B6

PAGE 01/00

B6

B6

FAX COVER SHEET

Date: 6/28/18

From: B6

To: B4, B6

Re: B6

Fax: B4, B6

Attn: B6

Pages (including cover sheet): 6

Urgent \_\_\_ Please Reply \_\_\_ For Review \_\_\_ FYI \_\_\_

Additional Info:

Here are

B6

last 2 rx uppts with us.



Client: B6

Patient: B6

RDVM B6 med hx, and labs 5/18/18 - 6/28/18

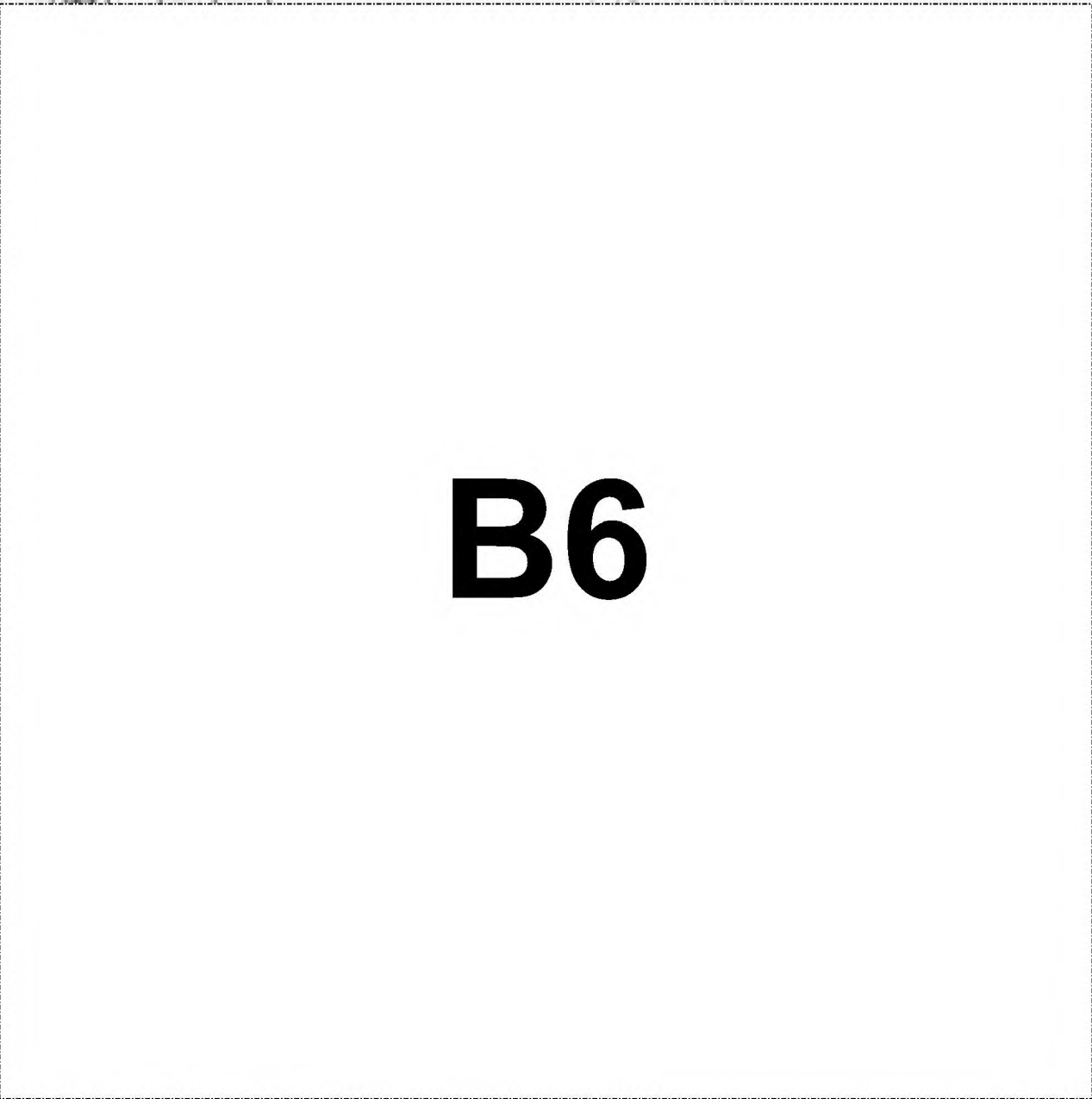
05/24/2018 10:14

B6

B6

Page 77/193

PATIENT NAME	PATIENT ID	PAGE: 77/193
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PATIENT NAME	PATIENT ID	PAGE: 77/193
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Client: B6

Patient: B6

RDVM B6 med hx, and labs 5/18/18 - 6/28/18

05/29/2018 1:14:58

B6

B6

PAGE: 23/88

PATIENT NAME				PATIENT'S NAME	

MEDICAL RECORD					

**B6**

B6

B6

**B6**

Client: B6

Patient: B6

RDVM B6 med hx, and labs 5/18/18 - 6/28/18

05/28/2018 11:39

B6

B6

Page 88/88

05/28/18

**B6**

**B6**



Client: B6  
Patient: B6

RDVM B6 med hx, and labs 5/18/18 - 6/28/18

06/28/2018 10:54 AM B6 B6 HPC 8014

Client: B6 Gender: Female/Spayed  
Patient Name: B6 Weight: 67.20 lbs  
Species: Canine Age: 10 Years  
Breeds: DeLongue Doctor: B6 DVM

Tag Results Reference Interval U/L/W NORMAL HCP

Catalina Care (June 28, 2018 5:58 PM)

GLU	B6	70-140	
CPRO	B6	0.8-1.8	mg/dl
BUN	B6	7-27	mg/dl
ALB	B6	3.2-5.2	g/dl
CR	B6	0.2-2.8	mg/dl
CLAC	B6	0.8-4.5	mg/dl
ALP	B6	19-130	U/L
ALPH	B6	29-210	U/L
TR	B6	148-188	mg/dl
W	B6	4.5-5.8	g/dl
PCV	B6	108-132	%
DC	B6		
DC/Calc	B6		

B6

Printed: June 28, 2018 5:58 PM

Page 2 of 2

B6

**B6**

**B6**

Female (Spayed)

Genie: Doberman Brown/Tan

Patient ID: **B6**

## STANDARD CONSENT FORM

I am the owner, or agent for the owner, of the above described animal and have the authority to execute consent. I hereby authorize the Cummings School of Veterinary Medicine at Tufts University (herein after Cummings School) to prescribe for treatment of said animal according to the following terms and conditions.

Cummings School and its officers, agents and employees will provide such veterinary medical care as they deem reasonable and appropriate under the circumstances.

Cummings School and its officers, agents, and employees will use all reasonable care in the treatment of the above mentioned animal, but will not be liable for any loss or accident that may occur or any disease that may develop as a result of the care and treatment provided.

I understand that the above identified animal may be treated by Cummings School students under the supervision and assistance of Cummings School staff members.

In executing this form, I hereby expressly acknowledge that risks, benefits and alternative forms of treatment have been explained to me. I understand said explanation, and I consent to treatment. Should any additional treatments or diagnostics be required during the continued care of my animal, I understand that I will be given the opportunity to discuss and consent to these additional procedures. I understand that further or additional treatment may be required without an opportunity for discussion and consideration by me, in the case of the development of any life-threatening emergency during the continued care of my animal and I expressly consent to all such reasonable treatment as required. I realize and understand that results cannot be guaranteed.

If any equipment is left with the animal, it will be accepted with the understanding that Cummings School assumes no responsibility for any loss of equipment that may occur.

I agree to pick up the animal when notified that it is ready for release.

In the event the animal is not picked up, and if ten (10) days have expired since a registered letter was sent to the address given above, notifying me to call for the animal, the animal may be sold or otherwise disposed of in a humane manner and the proceeds applied to the charges incurred in caring and treating the animal. Failure to remove said animal will not and does not relieve me from obligation for the costs of services rendered.

I hereby grant to the Cummings School of Veterinary Medicine at Tufts University, its officers and employees (collectively referred to herein as Cummings School), and its agents and assigns (the Grantors) the irrevocable rights to photograph / videotape the operation or procedure to be performed, including appropriate and otherwise use such photographs and images for, and in connection with, a Grantor's medical, scientific, educational, and publicity purposes, by any means, methods and media (print and electronic) now known or, in the future, developed that the Grantor deems appropriate (provided that such photographs and images may not be used in for-profit commercials, unless such commercials are publicizing educational programs of Cummings School). As medical and surgical treatment necessitates the removal of tissue, cells, fluids or body parts of my animal, I authorize the Grantors to dispose of or use these tissues, cells, fluids or body parts for scientific and educational purposes.

I understand that a FINANCE CHARGE will be applied to all accounts unpaid after 30 days. The FINANCE CHARGE is computed on a monthly rate of 1.25% per month, which is an annual percentage rate of 16% applied to the average daily balance outstanding, with a minimum fee of \$5.50.

I do further agree that should any payment, or the full amount of the sum stated above, become overdue more than 30 days from the above-approved upon time of payment or payments, the entire balance shall be considered in default and become due and payable. I further agree to be responsible for any or all collection agency and/or attorney fees necessary to collect the full amount.

I do further agree to comply with hours of visitation in conjunction with our Hospital's policy.

I have read, understand, and agree to accept the terms and conditions herein.

Owner's name:

Owner's address:

Owner's Name Signature: \_\_\_\_\_

Date: \_\_\_\_\_

**If the individual admitting the animal is someone other than the legal owner,  
please complete the portion below.**

The owner of the animal,  has granted me authority to obtain medical treatment and to bind this owner to pay the veterinary medical services provided at Cummings School pursuant to the terms and conditions described above.

Authorized Agent - Please Print: \_\_\_\_\_

Agent's Signature: \_\_\_\_\_

Street Address: \_\_\_\_\_

Date: \_\_\_\_\_

Town/City: \_\_\_\_\_

State: \_\_\_\_\_

Zip: \_\_\_\_\_

**Treatment Plan**

**B6**

**B6**

This estimate is made from our preliminary examination. This is an estimate only and the final bill given after all the work is done will reflect the current status of your pet throughout your animal's hospitalization. The final bill may vary considerably from this estimated cost.

<b>B6</b>	<b>B6</b>
-----------	-----------

**B6**

**B6**

Examination (exam) guarantee of successful treatment is made (I certify that I have read and fully understand the written details for medical, laboratory, and treatment, the need for any such medical and/or surgical treatment considered necessary, as well as its advantages and possible complications, if any, I also assume financial responsibility for all charges included in the estimate) I agree to pay 75% of the estimated cost of the treatment. Additional deposits will be required if a different care or treatment is necessary. Further agreement to pay the balance of the charges when the animal is released.

Payment of this bill does not constitute the payment of the estimated cost. There are additional charges that will be added to this bill during the animal's hospitalization. Payment is required at the time of discharge and upon receiving the bill. Payment of this bill does not constitute the payment of the estimated cost.

Thank you for allowing us into your life.

High Total	<b>B6</b>
Low Total	
Outstanding	



# Cummings Veterinary Medical Center

AT TUFTS UNIVERSITY

Foster Hospital for Small Animals  
55 Willard Street  
North Grafton, MA 01536  
Telephone: (508) 833-5395  
Fax: (508) 833-7951  
<http://vetmed.tufts.edu/>

Emergency & Critical Care: Lurie (508) 837-4345

Patient

Name:

B6

Signalment:

B6 10-year Old Grey/Tan Female  
(Spayed) Doberman

Owner

Name:

Address:

B6

Patient ID:

B6

Emergency Clinician:

B6

DVM (Emergency & Critical Care Resident)

Consulting Clinician:

IR Supervisor:

B6

## Discharge Instructions

Admit Date:

B6

Check Out:

Diagnosis: Dilated cardiomyopathy (DCM) with congestive heart failure

B6

- ◻ We also want you to watch for weakness or collapse, a reduction in appetite, worsening cough, or distention of the belly as these findings indicate that we should do a recheck examination.
- ◻ If you have any concerns, please call or have your dog evaluated by a veterinarian. Our emergency clinic is open 24 hours/day.

**B6**

Please visit our HowSmart website for more information:

<http://vet.hulls.com/HowSmart/>

---

**Prescription Refill Disclaimer:**

*For the safety and well-being of our patients, your pet must have had an examination by one of our veterinarians within the past year in order to obtain prescription medications.*

**Ordering Food:**

*Please check with your primary veterinarian to purchase the recommended diet(s). If you wish to purchase your food from us, please call 7-10 days in advance (508-887-8629) to ensure the food is in stock. Alternatively, veterinary diets can be ordered from online retailers with a prescription/veterinary approval.*

**Clinical Trials:**

*Clinical trials are studies in which our veterinary doctors work with you and your pet to investigate a specific disease process or a promising new test or treatment. Please see our website: [vet.hulls.com/clinical-trials](http://vet.hulls.com/clinical-trials).*

---

Case: B6

Owner: B6

Discharge Instructions:

Radiology Request & Report

Patient Name: B6  
Species: Canine  
Breed/Type/Female (Spayed):  
Doberman  
Birthdate: B6  
Owner Name: B6  
Address: B6  
Patient ID: B6  
Date of request: B6  
Attending Clinician: B6 DVM (SAM Rotating Intern)  
Student: B6 V18

Date of exam: B6

Patient Location: Ward/Cage: ER

Weight (lb.): 0.00

- Inpatient
- Outpatient Times
- Waiting
- Emergency

Sedation

- IMAG
- OBAG
- 1/2 dose OBAG
- DesDomitor/Butorphanol
- Anesthesia to sedate/analgesia

Examination Desired: 3 view CXR

Presenting Complaint and Clinical Questions you wish to answer:  
Diagnosed with DCM in June. CHF vs other lung pathology?

B6

cranial abdomen are normal.

**Conclusions:**

1. Moderate left-sided cardiomegaly consistent with the previously diagnosed DCM. An echocardiogram may be performed to better assess changes to the heart.
2. Diffuse interstitial lung pattern, worse in right and left caudodorsal lung fields, consistent with cardiogenic pulmonary edema and decompensated congestive heart failure.

**Radiologists:**

Primary: B6 V18  
Reviewing: B6 JWC, DACVR

**Dates:**

Reported: 1/9/2018  
Finalized: 1/10/2018

**Treatment Plan**

Animal Name: **B6**

**B6**

This document is created with our proprietary eSignature. This is an electronic and is not the original. Every effort will be made to keep you informed of the current status of your pet throughout your animal's hospitalization. The final fee may vary significantly from the estimated total.

Owner: **B6**

Comments: **B6**

**B6**

**B6**

Doctor of Record:

**B6**

Civil Status:

I understand that my guarantee of service and supervision is void. I hereby release and agree to hold harmless the author(s) for medical and/or nursing care received. The author(s) shall not be held responsible for any and all consequences and possible complications. If any I shall assume full financial responsibility for all charges incurred by this patient(s) up to 75% of the estimated total at the time of admission. All patient records will be subject to additional charge of procedures and materials. I further agree to pay the balance of the charges when the patient(s) is discharged.  
 Procedural billing is shown as up to and including the estimated patient's responsibility. There will be additional charges for hospitalization outside of the hospital's facility.  
 I have read, understood, and agreed to accept the conditions of this treatment plan.  
 Thank you for entrusting us with your pet's care.

High Total	
Low Total	
Net Patient	

**B6**

# Cummings Veterinary Medical Center

AT TUFTS UNIVERSITY  
Cardiology Labour: 508-887-4696

**B6**

Patient ID: **B6**

**B6**

Case#:

Sex: Male Female (Spayed)

Information:

Breeds/Ten: BW: Weight (kg) 27.60

## Cardiology Inpatient

Date: **B6**

Weight: Weight (kg) 27.60

### Attending Cardiologist:

John E. Rush DVM, MS, DACVIM (Cardiology), DACVCP

**B6**

### Cardiology Resident:

**B6**

### Thoracic radiographs available for review?

- Yes - in SS  
 Yes - in PACS  
 No

### Presenting complaint and important concurrent diseases:

Coughing episode and increased respiratory effort ~4am. History of DCM, diagnosed

### Physical Examination:

**B6**

Key findings for consultation: (murmur, arrhythmia, needs fluids, etc.):

History of DCM diagnosis:

**\*STOP - remainder of form to be filled out by Cardiology\***

**B6**

### Muscle conditions:

- Normal  Moderate cachexia

Mild muscle loss

Marked cachexia

### Cardiovascular Physical Exam

#### Murmur Grade:

- None
- I/VI
- II/VI left apical systolic
- III/VI

- IV/VI
- V/VI
- VI/VI

#### Jugular vein:

- Bottom 1/3 of neck
- Middle 1/3 of neck

Top 2/3 of neck

#### Arterial pulses:

- Weak
- Fair
- Good
- Strong

- Bounding
- Pulse deficits
- Pulsus paradoxus
- Other (describe):

#### Arrhythmic:

- None
- Sinus arrhythmia
- Premature beats

- Bradycardia
- Tachycardia

#### Gallop:

- Yes
- No
- Intermittent

- Pronounced
- Other:

#### Pulmonary assessment:

- Espiric
- Mild dyspnea
- Mild to moderate dyspnea
- Normal RV sounds

- Pulmonary Crackles - Diffuse -
- Wheezes
- Upper airway stridor
- Other auscultatory findings: Wet cough producing pulmonary edema fluid.

#### Abdominal exam:

- Normal
- Hepatomegaly

- Abdominal distension
- Mild ascites

**B6**

#### Doppler findings:



Trace P1

2+ MR

1+ TR

**Mitral inflow:**

Severe

Normal

Delayed relaxation

Pseudonormal

Restrictive

**B6**

**Final Diagnosis:**

- Advanced DCM with active CHF

**Heart Failure Classification Score:**

**ISACH Classification:**

Ia

Ib

II

IIIa

IIIb

**ACC/AHA CHF Classification:**

A

B1

B2

C

D



E  
A  
PV Ymax  
PV maxPG  
AV Ymax  
AV maxPG

B6

m/s  
m/s  
m/s  
mmHg  
m/s  
mmHg

### Discharge Instructions

**Patient:**

Name: B6

Species: Canine

Breed/Type: Female (Spayed) Cribberman

Birthdate: B6

**Owner:**

Name: B6

Address: B6

Patient ID: B6

**Attending Cardiologist:**

John T. Rush DVM, MS, DACVIM (Cardiology), DACVCP

B6

**Cardiology Resident:**

B6

B6

Student: B6 /18

Cardiology Technician:  
[Redacted]

Admit Date: B6 5:00:33 AM

Discharge Date: B6

**Diagnosis:**

Idiopathic cardiac myopathy (ICM) with congestive heart failure

**Case summary:**

Thank you for bringing B6 to Tufts emergency services for cough, increased respiratory rate and lethargy.

On admission, your patient had a low-grade fever and was placed in an oxygenated cage with an O2 monitor. Because only mild improvement was noted with the low-grade fever, we decided to start B6 on an intravenous medication called dobutamine, which improves the heart's contractile function. During that period of time we limited handling for diagnostic tests and her breathing had stabilized to not increase again.

Throughout her stay, B6 progressively improved with some changes to her cardiac medications. We were able to progressively wean her off the intravenous medication and continue with oral medication only. Her oxygen supplementation was discontinued this morning and she continued to do great.

During her hospitalization, kidney values were rechecked daily and are still within reasonable limits despite extra IV fluids. Chest radiographs were performed and confirmed the presence of congestive heart failure. A rechecked echocardiogram (ultrasound of the heart) was repeated and confirmed the previous diagnosis of ICM (idiopathic cardiac myopathy) that is considered advanced.

DCM is more common in large and giant breed dogs and is characterized by thinning of the walls of the heart, reduced cardiac pump function, and enlargement of the upper chambers of the heart. Many dogs with DCM will also have significant arrhythmias which can be life threatening and also require medical management. The heart enlargement has now progressed to the point of congestive heart failure, meaning that fluid is backing up into the lungs. Unfortunately this is a progressive disease and we cannot reverse the changes in the heart muscle, however we can use cardiac medications and some changes to the diet to make your dog comfortable and help him to eat and sleep.

**B6**

# B6

## Recheck visits:

A recheck visit is recommended in 2-3 weeks after any medication adjustments are made. At this visit we will check your dog's breathing effort and do a blood test to check kidney values. A recheck recheck visit is recommended in 3-4 months.

Thank you for entrusting us with **B6** care. Please contact our Cardiology team **B6** at **B6** or email us at [cardiovet@vet.tufts.edu](mailto:cardiovet@vet.tufts.edu) for scheduling and run any urgent questions or concerns.

Sincerely,

**B6**

Please visit our HowSmart website for more information:

<http://vet.tufts.edu/howsmart/>

## Prescription refill disclaimer:

For the safety and well-being of our patients, your pet must have had an examination by one of our veterinarians within the past year in order to obtain prescriptions at medical care.

## Ordering Food:

Please call us with your primary veterinarian to purchase the recommended diet(s). If you wish to purchase your food from us, please call 7-10 days in advance (609-887-8679) to ensure the food is in stock. Alternatively, veterinary diets can be ordered from online retailers with a prescription/veterinary approval.

## Clinical trials:

Clinical trials are studies in which our veterinary doctors work with you and your pet to investigate a specific disease process or a promising new form of treatment. Please see our website: [vet.tufts.edu/learning/clinical-trials](http://vet.tufts.edu/learning/clinical-trials)

Case **B6**

Diagnosis **B6**

Discharge instructions

# Cummings Veterinary Medical Center

AT TUFTS UNIVERSITY

Foster Hospital for Small Animals  
55 Winthrop Street  
Boston, MA 02138  
Telephone (617) 879-7299  
Fax (617) 879-7951  
<http://vetmed.tufts.edu/>

## Radiology Request & Report

**Patient**

Name: B6

Species: Canine

Breed/ Sex: Female (spayed)

DOB: B6

Birthdate: B6

**Owner**

Name: B6

Address: B6

Patient ID: B6

Date of request: B6

Attending Clinician: B6 (DVM Resident, Cardiology)

Student:

Date of exam: B6

Patient Location: Ward/Cage: ICU 02

Weight (kg): 27.60

- Inpatient
- Outpatient Clinic
- Waiting
- Emergency

**Sedation**

- BAG
- ORAG
- 1/2 dose ORAG
- Diazepam/Butorphanol
- Anesthesia to sedate/analgesia

Examination Desired: 2 view chest radi. \*\*Patient in active CHF. Abbrivated exam if possible\*\*

Presenting Complaint and Clinical Questions you wish to answer:

CCM, CHF

**Pertinent History:**

Diagnosed with CCM 6 months ago. Presented to the ER yesterday morning for increased RR/RC, and coughing.

B6

**Conclusions:**

The radiographic findings of cardiomegaly and the enlarged left atrium are consistent with the reported dilated cardiomyopathy.

The mild perihilar interstitial pattern is most likely the result of cardiogenic pulmonary edema and decompensated congestive heart failure. Follow-up radiographs can be considered to assess a response to medical management.

**Radiologists:**

Primary:	B6	V18
Reviewing:	B6	B/Sc, DACVR

**Dates:**

Reported: 2/6/18

Finalized: 2/6/18



**Treatment Plan**

**B6**

**B6**

This document deals with our preliminary examination. This is an estimate and is not the final bill. Every effort will be made to keep you informed of the current status of your pet throughout your pet's treatment. The final bill may vary considerably from this estimate cost.

**B6**

**B6**

**B6**

Doctor of Record:

**B6**

www.cvm.tamu.edu

I understand the nature and extent of my pet's condition and I understand that anesthesia for medical and/or surgical treatment is necessary for my pet's medical and/or surgical treatment. I understand that anesthesia is necessary, and I understand the risks associated with anesthesia. I understand that I have assumed financial responsibility for all charges incurred by my pet's treatment. I agree to pay 75% of the estimated cost at the time of admission. Additional deposit will be required if additional procedures are required. I hereby agree to pay the balance of the charges when the estimate is received. I understand that I am assuming the entire financial responsibility for my pet's treatment. I understand that I have assumed financial responsibility for all charges incurred by my pet's treatment. I agree to pay 75% of the estimated cost at the time of admission. I hereby agree to pay the balance of the charges when the estimate is received.

High Total	
Low Total	
75% Deposit	

**B6**

**B6**

# Cummings Veterinary Medical Center

AT TUFTS UNIVERSITY  
Cardiology Lab: 508-887-4696

B6

Patient ID: B6  
B6  
Gender: Intact Male (Spayed)  
Breed/Ten: BWH, Weight (kg): 27.00

## Cardiology Consultation

Date: B6

Weight: Weight (kg) 27.00

Requesting Clinician: B6 (DVM (Emergency & Critical Care Resident))

### Attending Cardiologist:

John L. Bush, DVM, MS, DACVIM (Cardiology), DACVCC

B6

### Cardiology Resident:

B6

### Thoracic radiographs available for review?

- Yes - in SS  
 Yes - in PACS  
 No

### Presenting complaint and important concurrent diseases:

Coughing, increased respiratory rate and effort. R/DVM gave 20 mg lasix and tufts ER gave 100 mg on presentation

### Current medications and doses:

B6

### Key indication for consultation: (murmur, arrhythmia, needs fluids, etc.):

He of DCM, presented today for coughing, lethargy, increased respiratory effort. He of murmur and harsh respiratory sounds

### Questions to be assessed from the Consult:

Medication adjustments to be made - O indicated that his history of borderline kidney values so have struggled to balance toxic dosing? Need for hospitalization?

### In your consult time-sensitive? (e.g., anesthesia today, owner waiting, trying to get biopsy today)

- Yes (explain)  
 No

# B6

**Mucous membranes:**

- Normal
- Mild mucosal loss
- Moderate cachexia
- Mucosal edema

**Cardiovascular Physical Exam**

**Murmur Grade:**

- None
- I/VI
- II/VI
- III/VI
- IV/VI
- V/VI
- VI/VI

Murmur location/description: Left apical systolic

**Jugular vein:**

- Bottom 1/3 of neck
- Middle 1/3 of neck
- Top 2/3 of neck

**Arterial pulses:**

- Weak
- Fair
- Good
- Strong
- Bounding
- Pulse deficits
- Pulsus paradoxus
- Other (describe):

**Arrhythmic:**

- None
- Sinus arrhythmia
- Premature beats
- Bradycardia
- Tachycardia

**Gallop:**

- Yes
- No
- Intermittent
- Protuberant
- Other:

**Pulmonary assessments:**

- Eupneic
- Mild dyspnea
- Marked dyspnea
- Normal SV sounds
- Pulmonary crackles
- Wheezes
- Upper airway stridor
- Other auscultatory findings

**Abdominal exam:**

- Normal
- Hepatomegaly
- Abdominal distension
- Mild ascites

**Assessment and recommendations:**

# B6

**Final Diagnosis:**

- Advanced DCM with LA enlargement
- Current CHF episode suspected to be secondary to decreased diuretic dose

**Heart Failure Classification Score:**

**ISACHC Classification:**

- |                             |                               |
|-----------------------------|-------------------------------|
| <input type="checkbox"/> Ia | <input type="checkbox"/> IIIa |
| <input type="checkbox"/> Ib | <input type="checkbox"/> IIIb |
| <input type="checkbox"/> II |                               |

**ACC/AHA CHF Classification:**

- |                             |                            |
|-----------------------------|----------------------------|
| <input type="checkbox"/> A  | <input type="checkbox"/> C |
| <input type="checkbox"/> B1 | <input type="checkbox"/> D |
| <input type="checkbox"/> B2 |                            |

# Cummings Veterinary Medical Center

AT TUFTS UNIVERSITY

Forbes Hospital for Small Animals  
15 Willow Street  
South Grafton, MA 01520  
Telephone (508) 857-5375  
Fax (508) 857-7971  
<http://vetmed.tufts.edu/>

**Patient**

**Name:**

B6

**Species:**

Canine

**Owner**

**Name:**

B6

**Address:**

Brown/Tan Female (Spayed)

Labrador

B6 Years Old

**Patient ID:**

B6

**Contact Clinician:**

B6

(Emergency and Critical Care  
Resident)

**Alternate Clinician:**

**Specialist:**

B6

**B6** did very well in hospital. She was kept in oxygen overnight with a continuous ECG reading that showed no arrhythmias. Her breathing improved; she was able to come out of oxygen and breathe comfortably in room air. She was discharged.

**Patient care instructions:** Please monitor **B6** at home. She is expected to keep eating, drinking and going to the bathroom. Please ensure she has fresh water available at all times.

**B6** episodes seem to often be characterized by lethargy; if you are concerned you may give **B6** additional furosemide (up to an additional 80 mg). Caution is advised, as lethargy is not specific to congestive heart failure and may indicate a different problem; if **B6** does not improve she should be taken to see a veterinarian.

**Follow up:** Recheck blood work is recommended in 2 weeks; this may be performed via your primary veterinarian. If **B6** is doing well, the furosemide may be dropped back down to 60 mg every 12 hours; however, if she deteriorates, it will need to be increased again. A recheck echocardiogram is recommended in 1-2 months.

---

**Prescription Refill Information:**

For the safety and well-being of our patients, your pet must have had an examination by one of our veterinarians within the past year in order to obtain prescription medications.

**Ordering Food:**

Please check with your primary veterinarian to purchase the recommended diet(s). If you wish to purchase your food from us, please call 7-10 days in advance (800-857-4629) to ensure the food is in stock. Alternatively, vetinary diets can be ordered from online retailers with a prescription/veterinary approval.

**Clinical Trials:**

Clinical trials are studies in which our veterinary doctors work with you and your pet to investigate a specific disease process or a promising new drug or treatment. Please see our website, [vet.duff.com/research/clinical-trials](http://vet.duff.com/research/clinical-trials).

---

Case: **B6**

Diagnosis: **B6**

Dietary instructions:

**Radiology Request & Report**

**Patient:**

**Name:** B6  
**Species:** Canine  
**Breed/ Sex:** Female (spayed)  
**Doberman**  
**Birthdate:** B6

**Owner:**

**Name:** B6  
**Address:** B6

**Patient ID:** B6  
**Date of request:** B6

**Attending Clinician:** B6 DVM (Emergency & Critical Care Resident)      **Student:**

**Date of exam:** B6

**Patient Location:** Ward/Cage: ICU

**Weight (kg):** 27.10

- Inpatient
- Outpatient Clinic
- Waiting
- Emergency

**Sedation**

- IMAG
- ORAG
- 1/2 dose ORAG
- Dex/Domitor/Butorphanol
- Anesthesia to sedate/anesthetize

**Examination Details:** thorax (at least R lateral if not DV as well)

**Presenting Complaint and Clinical Questions you wish to answer:**  
Emergency

**Relevant History:** refractory CHF; Hx of DCM, presented today for coughing, lethargy, increased respiratory effort. Hx of murmur and harsh respiratory sounds.

**B6**

**Conclusions:**

- Cardiopulmonary changes are most consistent with pulmonary edema secondary to congestive heart failure due to reported recent decrease in lasix dose. Normal pulmonary vasculature and smaller cardiac size compared to the previous study are likely secondary to lasix administration. Repeat thoracic radiographs are recommended to monitor response to therapy and cardiology consultation.

**Radiologists**

Primary: B6 EMM

Reviewing:

**Dates**

Reported: 4/2/2018

Finalized:





**Radiology Request & Report**

**Patient**

Name: B6

Species: Canine

Breed/Type: Female (spayed)

Dobberman

Birthdate: B6

**Owner**

Name: B6

Address: B6

Patient ID: B6

Date of request: B6

Attending Clinician: B6

DVM (resident, Cardiology)

Student: B6 V19

Date of exam: B6

Patient Location: Ward/Cage: K31 02 cage

Weight (kg) 27.30

- Inpatient
- Outpatient Clinic
- Waiting
- Emergency

**Sedation**

- IMAG
- OBAG
- 1/2 dose OBAG
- Dex/Domitor/Butorphanol
- Anesthesia to sedate/anesthetize

**B6**

**Conclusion:**

Patchy interstitial infiltrate with pulmonary venous distention, cardiomegaly, and scant pleural effusion most likely represents decompensated congestive heart failure with atypical distribution of cardiogenic pulmonary edema. Follow-up radiographs are recommended to monitor response to therapy.

**Radiologists**

Primary:	B6	(JVM)
Reviewing:	B6	(JVM, DACVR)

**Dates**

Reported: 5/7/2018  
Finalized: 5/8/2018

# Cummings Veterinary Medical Center

AT TUFTS UNIVERSITY  
Cardiology Lab: 508-487-4696

**B6**

Patient ID: **B6**

**B6**

Case:  
Adult Female (spayed)

Information

Sex/Species: F/FW Weight (kg) 27.30

## Cardiology Inpatient

Date: **B6**

Weight: Weight (kg) 27.30

### Attending Cardiologist:

John E. Rush DVM, MS, DACVIM (Cardiology), DACVESC

**B6**

### Cardiology Resident:

**B6**

### Thoracic radiographs available for review?

- Yes - in SS
- Yes - in PACS
- No

Presenting complaint and important concurrent diseases:  
normal respiratory rate

**B6**

Prior medical history:  
DCM, Hypothyroidism

**B6**

**\*STOP - remainder of form to be filled out by Cardiology\***

**B6**

**Muscle conditions:**

- Normal
- Mild muscle loss
- Moderate cachexia
- Marked cachexia

**Cardiovascular Physical Exam**

**Murmur Grade:**

- None
- I/VI
- II/VI
- III/VI
- IV/VI
- V/VI
- VI/VI

Murmur location/description: Left apical systolic

**Regular vein:**

- Bottom 1/3 of neck
- Middle 1/3 of neck
- Top 2/3 of neck

**Arterial pulses:**

- Weak
- Fair
- Good
- Strong
- Bounding
- Pulse deficits
- Pulsus paradoxus
- Other (describe):

**Arrhythmic:**

- None
- Sinus arrhythmia
- Premature beats
- Bradycardia
- Tachycardia

**Gallop:**

- Yes
- No
- Intermittent
- Prominent
- Other:

**Pulmonary assessments:**

- Eupneic
- Mild dyspnea
- Marked dyspnea
- Normal BV sounds
- Pulmonary Crackles
- Wheezes
- Upper airway stridor
- Other auscultatory findings:

**Abdominal exam:**

- Normal
- Hepatomegaly
- Abdominal distension
- Mild ascites

**Echocardiogram Findings:**

**General/2-D findings:**

**Radiographic findings:**

Cardiomegaly (MIS 11) with left atrial enlargement. The pulmonary vessels appear enlarged. There is a diffuse interstitial pattern worse on the right consistent with active CHF.

**Assessment and recommendations:**

Based on today's physical examination and chest radiographs, the patient is believed to be back into CHF. Verified with the owner that the diuretic dose has not been changed recently and it was confirmed that she was still getting furosemide 50 mg PO BID. Because the patient was still persistently tachypneic with marked increased RR and RF, dobutamine CRI @ 3 mcg/kg/min was started and recommended continuing with furosemide 50 mg SQ qd ask the doctor. Best. A quick recheck echocardiogram could be perform in order to assess for pulmonary hypertension and decide if sildenafil would be a good option for this patient. **B6** 5 mg PO SID could also be started. Kidney values should be rechecked daily while in the hospital and then 10-14 days after the start of the new cardiac medications. Recheck echocardiogram in 3 months.

**Final Diagnosis:**

- Advanced DCM with active CHF.

**Heart Failure Classification Score:**

ISACHC Class/Reflux:

- |                             |                               |
|-----------------------------|-------------------------------|
| <input type="checkbox"/> Ia | <input type="checkbox"/> IIIa |
| <input type="checkbox"/> Ib | <input type="checkbox"/> IIIb |
| <input type="checkbox"/> II |                               |

ACVIM CHF Classification:

- |                             |                            |
|-----------------------------|----------------------------|
| <input type="checkbox"/> A  | <input type="checkbox"/> C |
| <input type="checkbox"/> B1 | <input type="checkbox"/> D |
| <input type="checkbox"/> B2 |                            |

**Discharge Instructions**

**Patient:**

Name: B6

Species: Canine

Breeds/Parental Breeds: (Specify if Unknown)

Birthdate: B6

**Owner:**

Name: B6

Address: B6

Patient ID: B6

**Attending Cardiologist:**

John E. Bush DVM, MS, DACVIM (Cardiology), DACVSC

B6

**Cardiology Resident:**

B6

B6

Student: B6 V19

**Cardiology Technician:**

B6

B6

**Diagnosis:**

Dilated cardiomyopathy (DCM) with congestive heart failure

**Case summary:**

Thank you for bringing B6 to Tufts Emergency Services after her exercise-induced cough and increased respiratory effort.

B6

# B6

#### **Recommended Medications:**

# B6

#### **Diet suggestions:**

Dogs with heart failure can maintain more fluid in their body if they eat large amounts of sodium (salt). Sodium can be found in all foods, but some foods are lower in sodium than others. Many pet treats, people foods, and supplements used to give pills often have more sodium than is desirable— a sheet that has suggestions for low sodium treats can be found on the HeartSmart web site (<http://vet.tulsa.okla/heartsmart/diet/>)



# B6

## **Recheck Visits:**

A recheck visit is recommended in 1-2 weeks after any medication adjustments are made. At this visit bloodwork is recommended in order to recheck the kidney values as well as her liver values. This can be done here or with your primary care veterinarian.

A recheck echocardiogram is recommended in 3-4 months with the cardiology department.

Thank you for entrusting us with **B6** care. Please contact our Cardiology liaison, **B6** at **B6** or email us at [cardioset@tufts.edu](mailto:cardioset@tufts.edu) for scheduling and non-emergent questions or concerns.

## **Sincerely,**

**B4, B6**

Please visit our HeartSmart website for more information:

<http://vet.tufts.edu/heartsmart/>

---

## **Prescription Refill Disclosure:**

For the safety and well-being of our patients, your pet must have had an examination by one of our veterinarians within the past year in order to obtain prescription medications.

## **Ordering Food:**

Please check with your primary veterinarian to purchase the recommended diet(s). If you wish to purchase your food from us, please call 7-10 days in advance (603-882-9629) to ensure the food is in stock. Alternatively, veterinary diets can be ordered from online retailers with a prescription/veterinary approval.

## **Clinical Trials:**

Clinical trials are studies in which our veterinary doctors work with you and your pet to investigate a specific disease process or a promising new drug or treatment. Please see our website: [vet.tufts.edu/cvms/clinical-trials](http://vet.tufts.edu/cvms/clinical-trials)

---

Exam:

**B6**

Diagn:

**B6**

Discharge instructions:

Discharge Instructions

Patient:

Name: B6

Species: Canine

Brown/Black Female Chow Chow/Borderman

Medical: B6

Owner:

Name: B6

Address: B6

Patient ID: B6

Attending Cardiologist:

John E. Rush DVM, MS, DACVIM (Cardiology), DACVCP

B6

Cardiology Resident:

Card: B6

Student: B6 VLS

Admit Date: B6 12:21 AM

Discharge D: B6

Diagnoses: Dilated cardiomyopathy (DCM) with heart failure

Clinical Findings:

Thank you for bringing B6 to Tufts today. She is such a good girl and it is always such a pleasure to work with her!

On presentation, B6 was bright and alert, had normal lung sounds and respiratory rate and effort. Her grade 3/6 heart murmur was still auscultated today. On echocardiogram (ultrasound of the heart), her values remain stable with marked dilation of the heart and decreased contractile function.

Today we discussed the fact that there seem to be a relationship between grain free diet and DCM. Since B6 is a dachshund, a breed genetically predisposed to her disease, it is hard to know if her current disease is secondary to her breed or her grain free diet. In order to try and differentiate one from the other we took samples for taurine levels, which are still pending and we will call you with the results.

Since she continues to do well and her heart remains stable we will not make any changes to her medications. We recommend taurine supplementation (please see the instruction below).

B6

# B6

# B6

**Regularly Weigh:** A regular echocardiogram is recommended in 4 months.

Thank you for entrusting us with **B6** care. Please contact our Cardiology Service at (410) 857-4626 or email us at [cardio@hufvets.edu](mailto:cardio@hufvets.edu) for scheduling and non-emergent questions or concerns.

**Stroke:**

**B6**

Please visit our HeartSmart website for more information:  
<http://vet.hufvets.edu/heartsmart/>

**Prescription Diet® Disclaimers:**

For the safety and well-being of our patients, your pet must have food not a prescription by one of our veterinarians within the past year in order to obtain prescription modifications.

**Ordering Food:**

Please check with your primary veterinarian to purchase the recommended diet(s). If you wish to purchase your food from us, please call 7-10 days in advance (206-887-4626) to ensure the food is in stock. Alternatively, veterinary diets can be ordered from

order initiated with a prescription/veterinary approval.

**Clinical Trials:**

Clinical trials are studies in which our veterinary doctors work with you and your pet to investigate a specific disease or condition or to determine some form of treatment. Please see our website: [vet.aafp.com/veterinary-clinical-trials](http://vet.aafp.com/veterinary-clinical-trials)

---

B6

Unrec

B6

Division of Veterinary Medicine

B6

Patient ID: B6

B6

Center

Dr. Olli Forsell (Special) Deborah  
Pruess/Tam

### Cardiology Appointment Report

Date: B6

**Attending Cardiologist:**

John E. Rush DVM, MS, DACVIM (Cardiology), DACVPEC

B6

**Cardiology Resident:**

B6

(primary)

**Cardiology Technician:**

B6

Student: B6 #19

**Presenting Complaint:** Review of ICM

No trouble breathing, no coughing, has not had to give extra doses

**Concurrent Diseases:**

Hypothyroid, incontinence

**General Medical History:**

Diagnosed with ICM in 1/2018, has visited the ER 3 times since then for respiratory issues, last visit was 5/2018 and been good since then.

**Diet and Supplements:**

Tast of the wild, grain free, salmon, occasional treats (dried jerky)

**Cardiovascular History:**

Prior CHF diagnosis? Y

Prior heart murmur? Y

Prior ATE? N

Prior arrhythmia? N

Monitoring respiratory rate and effort at home? Y - below 30

Cough? No

Shortness of breath or difficulty breathing? N

Syncope or collapse? N

Sudden onset lightheadedness? N

Exercise intolerance? N

**Current Medications Pertinent to CV System:**

**B6**

**Muscle condition:**

- |   |  |
|---|--|
| <input type="checkbox"/> Normal           | <input type="checkbox"/> Moderate cachexia |
| <input type="checkbox"/> Mild muscle loss | <input type="checkbox"/> Marked cachexia   |

**Cardiovascular Physical Exam:**

**Murmur Grade:**

- |                                |                                |
|--------------------------------|--------------------------------|
| <input type="checkbox"/> None  | <input type="checkbox"/> IV/VI |
| <input type="checkbox"/> I/VI  | <input type="checkbox"/> V/VI  |
| <input type="checkbox"/> II/VI | <input type="checkbox"/> VI/VI |

II/VI

**Jugular veins:**

- Bottom 1/3 of the neck
- Middle 1/3 of the neck

- 1/2 way up the neck
- Top 2/3 of the neck

**Arterial pulses:**

- Weak
- Fair
- Good
- Strong

- Bounding
- Pulse deficits
- Pulsus paradoxus
- Other:

**Arrhythmic:**

- None
- Sinus arrhythmia
- Premature beats

- Bradycardia
- Tachycardia

**Gallop:**

- Yes
- No
- Intermittent

- Pronounced
- Other:

**Pulmonary assessments:**

- Expansile
- Mild dyspnea
- Marked dyspnea
- Normal IV sounds

- Pulmonary crackles
- Wheezes
- Upper airway stridor

**Abdominal exam:**

- Normal
- Hepatomegaly
- Abdominal distension

- Mild ascites
- Marked ascites

**Problems:**

DCM

Grade II/VI murmur

**Diagnostic plan:**

- Echocardiogram
- Chemistry profile
- ECG
- Renal profile
- Blood pressure

- Dialysis profile
- Thoracic radiographs
- NT-proBNP
- Troponin I
- Other tests:

**B6**

**Mitral Inflow:**

- Summated
- Normal
- Delayed relaxation

- Paradoxical
- Restrictive

**Assessment and recommendations:**

Echocardiogram reveals stable DCM with marked LA enlargement. The patient has been doing very well at home since the last hospitalization and appears to be well tolerating her new cardiac medications. Recheck bloodwork was performed in the ED/ICU at the end of June and was improved compared to the last one that we had while in the hospital. Since the patient is currently on a grain-free diet we also submitted a taurine level today. We also discussed with the owner the possibility of changing diet and go on a diet that contains grains. We will also start taurine supplementation at 1000 mg PO BID. Recheck echocardiogram is recommended in 3 months or sooner if the patient develops clinical signs consistent with worsening heart disease such as increased RR/RF, cough, exercise intolerance, or syncope.

**Final Diagnosis:**

- DCM with marked LA enlargement r/o genetic related vs. diet related.

**Heart Failure Classification Score:**

**ISACH Classification:**

- Ia
- Ib
- II
- IIIa
- IIIb

**ACVM Classification:**

- A
- B1
- B2
- C
- D

**M-Mode:**

IVSd		cm
LVIdd		cm
LVFWd		cm
IVSs		cm
LVIdS		cm
LVFWs		cm
WFS		%
Ao Diam		cm
LA Diam		cm
LA/Ao		
Max LA		cm
EPSS		cm

B6

**M-Mode Normalized**

IVSdN		(0.29 - 0.52)
LVIddN		(1.35 - 1.73)!
LVFWdN		(0.38 - 0.53)
IVSsN		(0.43 - 0.71)

B6







Foster Hospital for Small Animals

55 Willard Street
North Grafton, MA 01536
(508) 839-5395

All Medical Records

Client:
Address: B6

Patient: B6
Breed: Doberman
DOB: B6

Species: Canine
Sex: Female (Spayed)

Home Phone: B6
Work Phone: ( ) -
Cell Phone: B6

Referring Information

B6

Client: B6
Patient: B6

Initial Complaint:

Cardiology Study Appointment

SOAP Text B6 1:58PM - B6

Initial Complaint:

Recheck - B6 - DCM study

SOAP Text B6 12:23PM - B6

Disposition/Recommendations

Client: [B6]  
Patient: [B6]

---

---

**Discharge Instructions**

**Patient:**

Name: B6

Species: Canine

Breed/Type/Variant: (Specify if Uncommon)

Birthdate: B6

**Owner:**

Name: B6

Address: B6

Patient ID: B6

**Attending Cardiologist:**

John E. Bush DVM, MS, DACVIM (Cardiology), DACVSC

B6

**Cardiology Resident:**

B6

B6

Student: B6 V19

**Cardiology Technician:**

B6

B6

**Diagnosis:**

Dilated cardiomyopathy (DCM) with congestive heart failure

**Case summary:**

Thank you for bringing B6 to Tufts Emergency Services after her exercise-induced cough and increased respiratory effort.

B6

Client: B6  
Patient: B6

UCDavis Taurine Level

0404

Sample Submission Form

Animal Care Laboratory  
University of California, Davis  
2020 West Mall #B  
2025 Veterinary Medicine Drive  
Davis, CA 95616  
Tel: (530) 752-2266 Fax: (530) 752-2267

ACCELIDEMPT 0001  
New Patient/Existing Patient Number  
#

Client/Owner Name (Please Print Name and Address)

B6

Vet/Tech Contact: B6

Company Name: B6

Address: B6

Email: B6

TEL: B6

Fax: B6

Billing Contact: B6

TAX ID

Email: B6

Tel: B6

Patient Name: B6

Species: Canine

Owner's Name: B6

Sample Type:  Plasma  Whole Blood  Urine  Food  Other

Test Name:  Taurine  Complete Ammonia Acid  Other

Taurine Results (nmol/ml)

B6

Plasma: Whole Blood Urine: Food

Reference Ranges (nmol/ml)

	Plasma		Whole Blood	
	Normal Range	Low Normal Limit for Taurine Deficiency	Normal Range	Low Normal Limit for Taurine Deficiency
Ud	80-120	>40	300-500	>200
Seg	80-120	>40	300-500	>200

Client: **B6**

Patient: **B6**

Lab Results IDEXX CARDIOPET proBNP **B6**

**B6**

Client: B6

Patient: B6

Diet history 12/12/18

CARDIOLOGY DIET HISTORY FORM
Please answer the following questions about your pet.

Pet's name: B6 Owner's name: B6 Today's date: B6

1. How would you assess your pet's appetite? On a scale of 1 (0) with 1 being poor and 10 being excellent: 10

2. Have you noticed any changes in your pet's appetite over the last 1-2 weeks? (check all that apply)
[ ] Eats about the same amount as usual [ ] Eats less than usual [ ] Eats more than usual
[ ] Seems to prefer different foods than usual [ ] Other: \_\_\_\_\_

3. Over the last few weeks, has your pet's weight:
[ ] Lost weight [ ] Gained weight [x] Stayed about the same weight [ ] Don't know

4. Please list below ALL pet foods, people food, treats, table, dental chews, chews, and any other food item that your pet currently eats. Please include the brand, amount product, and flavor so we know exactly what your pet is eating.

Food includes specific product and flavor. Type Amount How often? Fed since
Examples are given in the table - please provide enough detail that we could go to the store and buy the exact same food

Table with 5 columns: Food (include specific product and flavor), Type, Amount, How often?, Fed since. Rows include items like Milla Green Free Chicken, Lamb & Sweet Potato Adult, BPA Adult Hamburger, etc.

\*Any additional diet information you are listed at the bottom of this sheet

5. Do you give any dietary supplements to your pet (for example: vitamins, glucosamine, fatty acids, or any other supplement)? [x] Yes [ ] No If yes, please list which ones and give brands and amounts

Supplement list form with columns for Name, Yes/No, Amount per day. Includes sections for Blood Coagulation, Nature's Bounty, and other supplements.

6. How do you administer pills to your pet?
[ ] I do not give any medications [ ] I put them directly in my pet's mouth without food
[ ] I put them in my pet's dog/cat food [ ] I put them in a Pill Pocket or similar product
[ ] I put them in food (not kibble) [ ] In the pocket of a toy ball of animal hair and she eats it. The vet said you can't really give pills to it

Additional diet or supplement information: \_\_\_\_\_

Information below to be completed by the veterinarian:
Current body weight: \_\_\_\_\_ kg Current body condition score (1-5): \_\_\_\_\_
Muscle Condition Score: Good [ ] Good [ ] Mild muscle loss [ ] Moderate muscle loss [ ] Severe muscle loss [ ]

Client: B6  
 Patient: B6

**Diet history 8/20/18**

**CARDIOLOGY DIET HISTORY FORM**

Please answer the following questions about your pet

Pet's name: B6 Owner's name: B6 Today's date: B6

1. How would you assess your pet's appetite? (mark the point on the line below that best represents your pet's appetite)  
 Example: Poor ----- | ----- Excellent  
 Poor ----- | ----- Excellent

2. Have you noticed a change in your pet's appetite over the last 1-2 weeks? (check all that apply)  
 Eats about the same amount as usual  Eats less than usual  Eats more than usual  
 Seems to prefer different foods than usual  Other \_\_\_\_\_

3. Over the last few weeks, has your pet (check one)  
 Lost weight  Gained weight  Stayed about the same weight  Don't know

4. Please list below ALL pet foods, people food, treats, snack, dental chews, rawhides, and any other food item that your pet currently eats. Please include the brand, specific product, and flavor as we know exactly what your pet is eating.

Food (include specific product and flavor) Form Amount How often? Fed since  
 Examples are shown in the table - please provide enough detail that we could go to the store and buy the exact same food.

Food (include specific product and flavor)	Form	Amount	How often?	Fed since
Antro Grain Free Chicken, Lentil, & Sweet Potato Adult	Dry	1 1/2 cup	Twice	Jan 2018
85% lean hamburger	Homemade	3 oz	Twice	Jan 2018
Purina original beef flavor	Treat	2	Twice	Aug 2018
Rawhides	Treat	2 each treat	Twice	Jan 2018
Yum! Low Carb Bakery		1.5 cups	2x/day	9/18
Blueberries, strawberries		handful	3-4 times/week	
Apples, organic papaya		" "	3-4 times/week	
Blueberries		1/2	3-4 times/week	
Organic french butter		1 teaspoon	3-4 times/week	
Boiled eggs		1 egg	3-4 times/week	
Crackers		2	3-4 times/week	

\*Any additional diet information can be listed on the back of this sheet

5. Do you give any dietary supplements to your pet (for example: vitamins, glucosamine, fatty acids, or any other supplements)?  Yes  No. If yes, please list which ones and give brands and amounts:

	Brand/Concentration	Amount per day
Taurine	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	_____
Carnitine	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	_____
Antioxidants	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	_____
Multivitamin	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	_____
Fish oil	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	_____
Coenzyme Q10	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	_____
Other (please list):	_____	_____
Example: Vitamin C	Nature's Bounty	500 mg tablets - 1 per day
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

6. How do you administer pills to your pet?  
 I do not give any medications  
 I put them directly in my pet's mouth without food  
 I put them in my pet's regular food  
 I put them in a Pill Pocket or similar product  
 I put them in food (not kibble) in peanut butter / banana / canned food



Client: B6

Patient: B6

---

**Vitals Results**

---

<span style="border: 1px dashed black; padding: 2px;">B6</span>	1:25:17 PM	Weight (kg)	<span style="border: 1px dashed black; padding: 2px;">B6</span>
---	------------	-------------	---



Client: **B6**  
Patient: **B6**

**ECG from Cardio**

---

**B6**

XXXXXXXX-XXXX-XXXX-XXXX-XXXX  
XXXX University  
XXXX University School of Medicine  
XXXXXX

**B6**

Client: **B6**  
Patient: **B6**

**ECG from Cardio**

**B6**

4/20/2019 1:25:45 PM  
Date Recorded:  
Date (month/year) of last test:  
Location:



Client: B6  
Patient: B6

**Patient History**

<b>B6</b>	12:48 PM	UserForm
	01:07 PM	Treatment
	01:20 PM	UserForm
	01:25 PM	Vitals
	01:26 PM	Purchase
	01:27 PM	Purchase
	01:27 PM	Purchase
	09:42 AM	Appointment
	07:22 PM	Appointment
	11:04 AM	UserForm
	11:07 AM	Treatment
	11:59 AM	Purchase
	11:59 AM	Purchase
	12:09 PM	UserForm
	12:24 PM	Purchase
12:47 PM	Appointment	

**B6**

**Discharge Instructions**

**Patient:**

Name: B6

Species: Canine

Breed/Type/Female (Spayed): Doberman

Birthdate: B6

**Owner:**

Name: B6

Address: B6

Patient ID: B6

**Attending Cardiologist:**

John E. Bush DVM, MS, DACVIM (Cardiology), DACVSC

B6

**Cardiology Resident:**

B6

B6

Student: B6 V19

**Cardiology Technician:**

B6

Admit Date: B6 12:44:33 PM

Discharge: B6

Diagnosis: Apparently healthy animal!

B6

**Diet Suggestions:**

We would like to change B6 diet to a low sodium diet. A low diet option would be:

**Dry Food:**

Royal Canin Early Cardiac diet

Purina Canin Saver

Purina Pro Plan Adult Weight Management (this does not have low calories in spite of the name of the food)

**Canned Food:**

Hills Science diet adult (can and barky entire)

**Exercise Recommendations:****B6** does not need any exercise restrictions at this time.**Recommended Medications:****B6** does not need any cardiac medications at this time. Depending on the results of her bloodwork, certain supplementation may need to be initiated. We will call you with the bloodwork results when they become available.**Recheck Visits:** A recheck visit is scheduled for 4 months. At this visit we will want to check breathing effort and heart function and do a blood test. A recheck echocardiogram is recommended at this time as well to track any progression of structural or functional abnormalities.Thank you for entrusting us with **B6** care. Please contact our Cardiology team at (408) 857-4625 or email us at [cardio@paloalto.vet](mailto:cardio@paloalto.vet) for scheduling and non-emergent questions or concerns.Please visit our **B6** website for more information.**B6****Prescription Drug Disclosure:**

For the safety and well-being of our patients, your pet must have had an examination by one of our veterinarians within the past year in order to obtain prescription medications.

**Ordering Food:**

Please check with your primary veterinarian to purchase the recommended diet(s). If you wish to purchase your food from us, please call 7-10 days in advance (408-857-4625) to ensure the food is in stock. Alternatively, veterinary diets can be ordered from online retailers with a prescription/veterinary approval.

**Clinical Trials:**Clinical trials are studies in which our veterinary doctors work with you and your pet to investigate a specific disease process or a promising new drug or treatment. Please see our website <http://paloalto.vet/health/clinical-trials>.Case: **B6**Diagnosis: **B6**

The Range: Initial Exam

# Cummings Veterinary Medical Center

AT TUFTS UNIVERSITY  
Cardiology Liaison: 508-857-4626

**B6**

Patient ID: **B6**

**B6**

Gender:

is (M) Female (F) Male (S) Spayed/Neutered  
Black/Tan

## Cardiology Appointment Report

Date: 8/20/2018

### Attending Cardiologist:

Julian F. Bush DVM, MS, DACVIM (Cardiology), DACVECC

**B6**

### Cardiology Resident:

**B6**

**B6**

### Cardiology Technician:

**B6**

Student: **B6**, V19

### Presenting Complaint:

Brother from same litter was unexpectedly diagnosed with DCM with secondary CHF recently

### Consent Discussion:

**B6**

### General Medical History:

Acting normally, eating and drinking normally, no changes in bathroom habits, coughing occasionally (randomly), no vomiting, diarrhea, or sneezing noticed.

### Diet and Supplements:

Aluna Free-Range Poultry Formulation 1.5-2 cups BID

### Cardiovascular History:

Prior CHF diagnosis? No

Prior heart murmur? No

Prior ATE? No

Prior arrhythmia? No

Monitoring respiratory rate and effort at home? Yes, occasionally

Cough? Occasionally, random events



Shortness of breath or difficulty breathing? No

Syncope or collapse? No

Sudden onset lumpiness? No

Exercise intolerance? No

**B6**

Need refill? No

**Cardiac Physical Examination:**

**B6**

**Muscle condition:**

Normal

Mild muscle loss

Moderate cachexia

Marked cachexia

**Cardiovascular Physical Exam:**

**Murmur Grade:**

None

1/4

1/2

3/4

1/4

1/2

3/4

**Jugular vein:**

Bottom 1/3 of the neck

Middle 1/3 of the neck

1/2 way up the neck

Top 2/3 of the neck

**Arterial pulses:**

Weak

Fair

Good

Strong

Bounding

Pulse deficits

Pulsus paradoxus

Other:

**Arrhythmia:**

None

Sinus arrhythmia

Premature beats

Bradycardia

Tachycardia

**Gallop:**

Yes

No

Intermittent

Pronounced

Other:

**Pulmonary auscultation:**

Normal

Mild dyspnea

Marked dyspnea

Pulmonary crackles

Wheezes

Upper airway stridor

Normal IV fluids

**Abdominal exam:**

- Normal
- Hepatomegaly
- Abdominal distension

- Mild ascites
- Marked ascites

**Problems:**

Apparently healthy animal  
Genetic predisposition to DCM

**Differential Diagnoses:**

DCM

**Diagnostic plan:**

- Echocardiogram
- Chemistry profile
- ECG
- Renal profile
- Blood pressure
- Diagnostics profile
- Thoracic radiographs
- NT-proBNP
- Troponin I
- Other tests:

**B6**

**Mitral inflow:**

- Summated
- Normal
- Delayed relaxation
- Pseudonormal
- Restrictive

**ECG findings:**

sinus arrhythmia

**Assessment and recommendations:**

Normal cardiac structure, although the contractile function is mildly decreased. This may be indicative of early cardiomyopathy. Urine levels were submitted for analysis, and the patient will be switched off of the grain-free diet. If contractile function is not improved at the 4 month recheck despite change in diet, then we should submit a NT-proBNP to help us diagnose if the changes is indicative of primary DCM and not diet related.

**Final Diagnosis:**

Mild MMVD

R/O diet-related vs. primary DCM related mild decrease in contractile function vs normal variation

**Heart Failure Classification Score:**

ISACHC Classification:

- Ia
- IIa



ACVIM Classification:

- A
- B1
- B2

- C
- D

M-Measure

IVSd

IVId

IVPWd

IVSs

IVIdS

IVPWs

%FS

As Diam

LA Diam

LA/As

Max LA

M-Measure - Normalized

IVSdN

IVIdN

IVPWdN

IVSsN

IVIdSN

IVPWsN

As Diam N

LA Diam N

ZD

SA LA

As Diam

SA LA / As Diam

IVId A4C

IVId MOD A4C

IVIs A4C

IVESV MOD A4C

IVET MOD A4C

SV MOD A4C

Doppler

MV E Vel

MV DecT

MV A Vel

MV E/A Ratio

E'



cm

cm

cm

cm

cm

cm

%

cm

cm

cm

(0.29 - 0.52)

(1.35 - 1.73)

(0.33 - 0.53)

(0.43 - 0.71) !

(0.79 - 1.14) !

(0.53 - 0.78) !

(0.68 - 0.89)

(0.64 - 0.90)

cm

cm

cm

ml

cm

ml

%

ml

m/s

ms

m/s

m/s

A'  
L/E'  
PV Vmax  
PV maxPG  
AV Vmax  
AV maxPG

B6

m/s  
m/s  
mmHg  
m/s  
mmHg

Discharge Instructions

Patient

Name: B6

Species: Canine

Breed/Type: Female Cocker Spaniel

Birthdate: B6

Owner

Name: B6

Address: B6

Patient ID: B6

Attending Cardiologist:

John E. Rush DVM, MS, DACVIM (Cardiology), DACVCP

B6

Cardiology Assistant:

B6

B6

Cardiology Technician:

B6

Student: B6 V13

Admit Date: B6 12:44:33 PM

Discharge Date: B6

Diagnosis:

Mild decreased contractile function

Clinical Findings:

Thank you for bringing B6 to B6 for her repeat echocardiogram (ultrasound of the heart).

On physical examination today B6 vital parameters (heart rate, respiratory rate, and temperature) were within normal limits. We performed an echocardiogram (ultrasound of the heart) in order to reassess her mild decreased contractile function. As we discussed, just by looking at the pictures, everything appeared stable. However, when we got the official measurements, the chambers of her heart measured slightly bigger than previously and her contractile function measured slightly lower as well.

As we discussed it is possible that these changes are just a variation of normal for B6. However, we cannot rule out that this is the early sign of dilated cardiomyopathy. In order to get more information on her cardiac status, we submitted a blood test called NT-proBNP. We will have the results by tomorrow and will call you in order to discuss the next step for

B6

B6

# B6

**Recheck Visit:**

A recheck appointment March 6th 11 am with **B6**. At this time we will recheck an echocardiogram.

Thank you for entrusting us with **B6** care. Please contact our Cardiology liaison at (408) 867-4626 or email us at [cardiovet@tamu.edu](mailto:cardiovet@tamu.edu) for scheduling and non-emergent questions or concerns.

Sincerely,

**B6**

Please visit our HeartSmart website for more information:  
<http://vet.tamu.edu/heartsmart/>

**Prescription Refill Disclaimer:**

For the safety and well-being of our patients, your pet must have had an examination by one of our veterinarians within the past year in order to obtain prescription medications.

**Ordering Food:**

Please check with your primary veterinarian to purchase the recommended diet(s). If you wish to purchase your food from us, please call 7-10 days in advance (408-867-4626) to ensure the food is in stock. Alternatively, veterinary diets can be ordered from online retailers with a prescription/veterinary approval.

**Clinical Trials:**

Clinical trials are studies in which our veterinary doctors work with you and your pet to investigate a specific disease process or a promising new drug or treatment. Please see our website: [vet.tamu.edu/center/clinical-trials/](http://vet.tamu.edu/center/clinical-trials/)

Case: **B6**

Owner: **B6**

Discharge Instructions

# Cummings Veterinary Medical Center

AT TUFTS UNIVERSITY  
Cardiology Division: 508.887.4676

St. Louis, Missouri  
371 High Rock Rd  
Ballou, MA 01551  
(508) 827-2507

Patient ID: B6

B6

Gender:

10-year Old Female (Spayed) Doberman  
Black/Tan

## Cardiology Appointment Report

Date: B6

### Attending Cardiologist:

John E. Rush DVM, MS, DACVIM (Cardiology), DACVCP

B6

### Cardiology Resident:

B6

(primary)

B6

### Cardiology Technician:

B6

Student: B6 #19

### Presenting Complaint:

Mild MMVD

Mild decreased contractile function RVD diet related vs. primary DCM related mild decrease in contractile function vs normal variation

DCM Study

### Consent Discussion:

B6

### General Medical History:

Normal behavior, eating and drinking well, no w/d/s, occasional coughing, no more than normal

No more vomiting uncontrollably in sleep, some leaking, but D feels urinary incontinence has greatly improved with diet

### Diet and Supplements:

Parina Pro Plan (Weight Management) L.S. AM w/ Hill's Sed Diet canned (1/4 can) AM and PM, 1 cup afternoon

Has stopped Fish Oil - has questions about causing blood

### Cardiovascular History:

Prior CHF diagnosis? N  
 Prior heart murmur? N  
 Prior ATE? N  
 Prior arrhythmia? Sinus arrhythmia  
 Monitoring respiratory rate and effort at home? Not as much, frequent panting  
 Cough? Occasional, no change from prior  
 Symptoms of breath or difficulty breathing? N  
 Syncope or collapse? N  
 Sudden onset lameness? N  
 Exercise intolerance? N - will occasionally wheeze with cold

**Current Medications Pertinent to CV System:**

**B6**

Administration Frequency: q 12 hrs.  
 Need refills? No

**Cardiac Physical Examination:**

**B6**

**Mucous membranes:**

- Normal
- Mild mucicemia
- Moderate cyanosis
- Marked cyanosis

**Cardiovascular Physical Exam:**

**Murmur Grade:**

- None
- I/VI
- II/VI
- III/VI
- IV/VI
- V/VI
- VI/VI

**Jugular veins:**

- Distend 1/3 of the neck
- Middle 1/3 of the neck
- 1/2 way up the neck
- Top 2/3 of the neck

**Arterial pulses:**

- Weak
- Fair
- Good
- Strong
- bounding
- Pulse deficits
- Pulsus parvus
- Qd m:

**Arrhythmic:**

- None
- Sinus arrhythmia
- Premature beats
- Ectopycardia
- Tachycardia

**Gallop:**

- Yes
- Absent



- No
- Inconsistent

Other:

**Pulmonary assessments:**

- Normal
- Mild dyspnea
- Moderate dyspnea
- Normal RV strain

- Pulmonary crackles
- Wheezes
- Upper airway stridor

**Abdominal exam:**

- Normal
- Hepatomegaly
- Abnormal distension

- Mid azoetes
- Marked azoetes

**Problems:**

Mild MMV)

Mildly decreased contractile function r/o diet related vs. primary DCM related mild decrease in contractile function vs normal variation

**Diagnostic plan:**

- Echocardiogram
- Chemistry profile
- ECG
- Renal profile
- Blood pressure

- Dialysis profile
- Thoracic radiographs
- NT-proBNP
- Troponin I
- Other tests:

**Echocardiogram Findings:**

**B6**

**Mitral inflow:**

- Summated
- Normal
- Delayed relaxation

- Pseudonormal
- Restrictive

**ECG findings:**

Sinus rhythm during the echocardiogram.

**Assessment and recommendations:**

Subjectively today's echo appeared very similar than previously but when comparing the number it appears that the contractile function is slightly decreased. Depending on which measurement is assess, the LV cavity appears stable to slightly bigger. It is unclear if the changes visualized today are just a variant of normal for this patient versus true progression of a heart disease. The patient was switched

(but since the last appointment and Taurine level were also normal. Since the significance of today's findings is unclear, an NT-proBNP was submitted today. If the level is higher than normal for a Doberman (i.e. >550) then we would most likely recommend starting **B6** FOL. A repeat echocardiogram is recommended in 3 months or sooner if the patient develops clinical signs consistent with worsening heart disease such as increased RR/RL, cough, exercise intolerance, or syncope.

**Final Diagnosis:**

- Very early DMM()
- Mild decreased contractile function c/o diet-related vs. primary DCM related mild decrease in contractile function vs normal variation

**Heart Failure Classification Score:**

ISACH Classification:

- Ia
- Ib
- II
- IIIa
- IIIb

ACVIM Class I-III:

- A
- B1
- B2
- C
- D

M Mode

IVSd	cm
LVIdd	cm
LVPWd	cm
IVSs	cm
LVIdc	cm
LVPWc	cm
EDV(Teich)	ml
ESV(Teich)	ml
EF(Teich)	%
%FS	%
SV(Teich)	ml
Ao Diam	cm
LA Diam	cm
LA/Ao	cm
Max LA	cm
<u>2D</u>	
SA LA	cm
Ao Diam	cm
SA LA / Ao Diam	
IVSd	cm
LVIdd	cm
LVPWd	cm
EDV(Teich)	ml
IVSs	cm
LVIdc	cm

**B6**

LVPMs  
ESV(Teich)  
EF(Teich)  
NFS  
SV(Teich)  
LVId AAC  
LVEID MOD AAC  
LVEs AAC  
LVESV MOD AAC  
LVEI MOD AAC  
IV MOD AAC

(Appendix  
MV E Vel  
MV DecT  
MV (inc Slope  
MVA Vel  
MV E/A Ratio  
E'  
E/E'  
A'  
AV Vmax  
AV meanPG  
PV Vmax  
PV meanPG

B6

B  
T  
E  
M  
T  
E  
B  
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T  
E

ml/s  
ms  
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ml/s  
  
ml/s  
  
ml/s  
ml/s  
mmHg  
ml/s  
mmHg

**Cummings**  
**Veterinary Medical Center**  
AT TUFTS UNIVERSITY

Forster Hospital for Small Animals  
55 Willard Street  
North Grafton, MA 01576  
Telephone (508) 829-5395  
Fax (508) 829-7951  
<http://vet.med.tufts.edu/>

**B6**

**B6**

Female (Spayed)

Case# Debraann Black/Cat

**B6**

8/24/2018

Dear **B6**

Thank you for referring **B6** with their pet **B6**

If you have any questions, or concerns, please contact us at 508-827-4981.

Thank you,

**B6** DVM, DACVIM (Cardiology) (18)

**Cummings**  
**Veterinary Medical Center**  
AT TUFTS UNIVERSITY

**B6**

Center Hospital for Small Animals  
55 W Ward Street  
North Grafton, MA 01526  
Telephone: (408) 829-5295  
Fax: (408) 829-7291  
<http://vet.med.tufts.edu/>

**B6**

Female (Spayed)  
Cancer: Echinococcus (Hep/Liv)

**B6**

12/19/2018

Dear **B6**

Thank you for referring **B6** with their pet **B6**

If you have any questions, or concerns, please contact us at 508-857-4981.

Thank you,

**B6**

DVM (Resident, Cardiology)

# Cummings

## Veterinary Medical Center

AT TUFTS UNIVERSITY

Cardiology Liaison: 508-887-4696

**B6**

Patient ID: **B6**

**B6** Canine

**B6** Years Old Male (Neutered) Labrador Retriever

Yellow

### Cardiology Appointment Report

Date: **B6**

#### Attending Cardiologist:

John E. Rush DVM, MS, DACVIM (Cardiology), DACVECC

**B6**

#### Cardiology Resident:

**B6**

#### Cardiology Technician:

**B6**

Student: **B6** V19

#### Presenting Complaint:

Recheck DCM, CHF, mild pulmonary hypertension (dx 8/28/18)

#### Concurrent Diseases:

**B6**

#### General Medical History:

Doing very well since last visit, high energy. **B6** wants to keep active, no cough or increased respiratory effort while resting, has not needed any extra furosemide doses. O thinks he is back to his old self.

#### Diet and Supplements:

ProPlan savory dry chicken, beef, or lamb (thinks stopped giving lamb flavor)

#### Cardiovascular History:

Prior CHF diagnosis? yes (8/24)

Prior heart murmur? yes (III/VI)

Prior ATE? no

Prior arrhythmia? no

Monitoring respiratory rate and effort at home? not lately, but no inc rate or effort noticed

Cough? no

Shortness of breath or difficulty breathing? no

Syncope or collapse? no

Sudden onset lameness? no

Exercise intolerance? 2 one mile walks per day, but wants to run more

**B6**

**Muscle condition:**

- |  |  |
|--|--|
| <input checked="" type="checkbox"/> Normal | <input type="checkbox"/> Moderate cachexia |
| <input type="checkbox"/> Mild muscle loss  | <input type="checkbox"/> Marked cachexia   |

**Cardiovascular Physical Exam:**

**Murmur Grade:**

- |  |                                |
|--|--------------------------------|
| <input type="checkbox"/> None              | <input type="checkbox"/> IV/VI |
| <input type="checkbox"/> I/VI              | <input type="checkbox"/> V/VI  |
| <input type="checkbox"/> II/VI             | <input type="checkbox"/> VI/VI |
| <input checked="" type="checkbox"/> III/VI |                                |

Murmur location/description: left apical systolic

**Jugular vein:**

- |  |  |
|--|--|
| <input checked="" type="checkbox"/> Bottom 1/3 of the neck | <input type="checkbox"/> 1/2 way up the neck |
| <input type="checkbox"/> Middle 1/3 of the neck            | <input type="checkbox"/> Top 2/3 of the neck |

**Arterial pulses:**

- |  |   |
|--|---|
| <input type="checkbox"/> Weak            | <input type="checkbox"/> Bounding       |
| <input checked="" type="checkbox"/> Fair | <input type="checkbox"/> Pulse deficits |

- Good
- Strong

- Pulsus paradoxus
- Other:

**Arrhythmias:**

- None
- Sinus arrhythmia
- Premature beats

- Bradycardia
- Tachycardia

**Gallop:**

- Yes
- No
- Intermittent

- Pronounced
- Other:

**Pulmonary assessments:**

- Eupneic
- Mild dyspnea
- Marked dyspnea
- Normal BV sounds

- Pulmonary crackles
- Wheezes
- Upper airway stridor

**Abdominal exam:**

- Normal
- Hepatomegaly
- Abdominal distension

- Mild ascites
- Marked ascites

**Problems:**

Hx DCM, CHF, PHT

**Diagnostic plan:**

- Echocardiogram
- Chemistry profile
- ECG
- Renal profile
- Blood pressure

- Dialysis profile
- Thoracic radiographs
- NT-proBNP
- Troponin I
- Other tests:

**Echocardiogram Findings:**

**B6**



**Assessment and recommendations:**

Echocardiogram reveals DCM with similar findings (some views slightly smaller) compared to previous exam. Patient looks great on PE and feels well at home. Recommend continuing current medications unless otherwise directed by lab work results. Recheck echo and blood work in ~4-5 months, or sooner if clinical signs occur such as increased RR/Re, cough, collapse, or exercise intolerance.

**Final Diagnosis:**

DCM, history of CHF  
Mild PHT

**Heart Failure Classification Score:**

**ISACHC Classification:**

- Ia
- Ib
- II
- IIIa
- IIIb

**ACVIM Classification:**

- A
- B1
- B2
- C
- D

M-Mode

IVSd	<b>B6</b>	cm
LVIDd		cm
LVPWd		cm
IVSs		cm
LVIDs		cm
LVPWs		cm
EDV(Teich)		ml
ESV(Teich)		ml
EF(Teich)		%
%FS		%
SV(Teich)		ml
Ao Diam		cm
LA Diam		cm
LA/Ao		
Max LA	cm	

M-Mode Normalized

IVSdN	<b>B6</b>	{0.290 - 0.520}
LVIDdN		{1.350 - 1.730} !
LVPWdN		{0.330 - 0.530}
IVSsN		{0.430 - 0.710} !
LVIDsN		{0.790 - 1.140} !
LVPWsN		{0.530 - 0.780} !
Ao Diam N		{0.680 - 0.890} !
LA Diam N		{0.640 - 0.900} !

2D

SA LA  
Ao Diam  
SA LA / Ao Diam  
IVSd  
LVIDd  
LVPWd  
EDV(Teich)  
IVSs  
LVIDs  
LVPWs  
ESV(Teich)  
EF(Teich)  
%FS  
SV(Teich)  
LV Major  
LV Minor  
Sphericity Index  
LVLd LAX  
LVAd LAX  
LVEDV A-L LAX  
LVEDV MOD LAX  
LVLs LAX  
LVA s LAX  
LVESV A-L LAX  
LVESV MOD LAX  
HR  
EF A-L LAX  
LVEF MOD LAX  
SV A-L LAX  
SV MOD LAX  
CO A-L LAX  
CO MOD LAX

B6

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BPM  
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ml  
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l/min  
l/min

Doppler

MR Vmax  
MR maxPG  
MV E Vel  
MV DecT  
MV Dec Slope  
MV A Vel  
MV E/A Ratio  
E'  
E/E'  
A'  
AV Vmax  
AV maxPG  
PV Vmax  
PV maxPG

B6

m/s  
mmHg  
m/s  
ms  
m/s  
m/s  
  
m/s  
  
m/s  
m/s  
mmHg  
m/s  
mmHg

TR Vmax  
TR maxPG

**B6**

m/s  
mmHg

**From:** Rotstein, David </O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=0A3B17EBFCF14A6CB8E94F322906BADD-DROTSTEI>  
**To:** Carey, Lauren; Ceric, Olgica; Glover, Mark; Jones, Jennifer L; Nemser, Sarah; Palmer, Lee Anne; Peloquin, Sarah; Queen, Jackie L; Rotstein, David  
**Sent:** 10/9/2018 2:17:42 PM  
**Subject:** DCM-FW: Orijen 6 fish dry: Lisa Freeman - EON-367903  
**Attachments:** 2055827-report.pdf; 2055827-attachments.zip

David Rotstein, DVM, MPVM, Dipl. ACVP  
CVM Vet-LIRN Liaison  
CVM OSC/DC/CERT  
7519 Standish Place  
**240-506-6763 (BB)**



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**From:** PFR Event <pfpreventcreation@fda.hhs.gov>  
**Sent:** Tuesday, October 09, 2018 10:13 AM  
**To:** Cleary, Michael \* <Michael.Cleary@fda.hhs.gov>; HQ Pet Food Report Notification <HQPetFoodReportNotification@fda.hhs.gov>; **B6**  
**Subject:** Orijen 6 fish dry: Lisa Freeman - EON-367903

A PFR Report has been received and PFR Event [EON-367903] has been created in the EON System.

A "PDF" report by name "2055827-report.pdf" is attached to this email notification for your reference. Please note that all documents received in the report are compressed into a zip file by name "2055827-attachments.zip" and is attached to this email notification.

Below is the summary of the report:

**EON Key:** EON-367903  
**ICSR #:** 2055827  
**EON Title:** PFR Event created for Orijen 6 fish dry; 2055827

<b>AE Date</b>	01/18/2018	<b>Number Fed/Exposed</b>	1
<b>Best By Date</b>		<b>Number Reacted</b>	1
<b>Animal Species</b>	Dog	<b>Outcome to Date</b>	Better/Improved/Recovering

<b>Breed</b>	Mixed (Dog)		
<b>Age</b>	<b>B6</b> Years		
<b>District Involved</b>	PFR-New England DO		

**Product information**

**Individual Case Safety Report Number:** 2055827

**Product Group:** Pet Food

**Product Name:** Orijen 6 fish dry

**Description:** Serial echoes were being done for SAS. Cardiologist noted reduced contractile function over time and that dog was eating BEG diet so recommended change. Owner changed from Orijen to Royal Canin Early Cardiac Diet. Significant improvement in cardiac size and function (and NT-proBNP) after diet change. Had taurine level checked in 2014 - was normal then. Was not retested.

**Submission Type:** Initial

**Report Type:** Adverse Event (a symptom, reaction or disease associated with the product)

**Outcome of reaction/event at the time of last observation:** Better/Improved/Recovering

**Number of Animals Treated With Product:** 1

**Number of Animals Reacted With Product:** 1

Product Name	Lot Number or ID	Best By Date
Orijen 6 fish dry		

**Sender information**

Lisa Freeman  
 200 Westboro Rd  
 North Grafton, MA 01536  
 USA

**Owner information**

**B6**

To view this PFR Event, please click the link below:

<https://eon.fda.gov/eon//browse/EON-367903>

To view the PFR Event Report, please click the link below:

<https://eon.fda.gov/eon//EventCustomDetailsAction!viewReport.jspx?decorator=none&e=0&issueType=12&issuelid=384825>

=====

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Patient ID	Dog name	Owner name	Breed	Sex	Age	Diet	How long fed	Other foods offered	Gluten free	Chamber involvement	CHF (L, R)	Active patient	Outcome	Other relevant info	Other diagnostics	FDA
			Shih Tzu-poodle mix	MN	8 years	California Natural Kangaroo and Red Lentil	years		Y	LV-severe; LA-mod	N	N	alive	now symptoms which may be referable to heart/possible CHF	normal taurine	
			English bulldog	MN	8 years	no diet hx	years		Y	LV, RV-mod; LA-mild	Y, L	N	deceased	right atrial mass		
			Labrador	FS	8 years	California Natural Kangaroo and Red Lentil	years	Changed to other grain free die: 9/17	Y	LV, LA-severe	Y	Y	alive	related to [redacted]	Taurine [redacted]	Y
			Doberman	M	7 years	Hill's Science Diet adult maintenance	years		N	LV, LA-severe; RV, RA-mod	Y	Y	euthanized	no troponin or taurine		
			Scott Bernard	MN	8 years	Unknown Grain Free brand	years		N	LV, LA-severe; RV, RA-mod	N	N	deceased			
			German Shepherd	MN	8 years	Purina Proplan	years	unknown wet food	N	LV, LA-mod; RV, RA-mild	N	N	last visit 5/17	alive?	suspect EFI, elevated troponin; no taurine	
			Pitbull	FS	12 years	prescription diet for skin	years		N	LV, LA-mod	Y, L	N	deceased	no troponin or taurine		
			Great Dane	MN	7 years	Unknown diet	years		Y	LV, LA-severe; RA, RV-mod	Y, R	N	alive?	O dx 3/2017- "taking a different route", also dx w/PH		
			Papillon	FS	13 years	V-dog (commercial vegan diet)	years	changed to meat-based diet after diagnosis-w/d?	Y	LV, LA-severe	Y, L	Y	alive	Early gallbladder dz; elevated taurine [redacted] no troponin		
			Bullmastiff	M	8 years	Nutro Large Breed Chicken and Sweet Potato	years		Y	LV-mild; LA, RV, RA-mod	Y	Y	alive?	no troponin or taurine		
			Boxer	FS	2 years	Purina Proplan	years		N	LV, LA-severe	Y	N	deceased	no troponin or taurine		
			Doberman	FS	5 years	Blue Buffalo weight control	years		Y	LV-mild dec in contractility	N	N	last visit 4/17	alive	suspect occult DCM; no taurine or troponin	
			Cane Corso	M	10 years	Blue Buffalo	years	rotisserie chicken	Y	LV, RV, RA-mild; LA-mod	Y, L	N	deceased	no troponin or taurine		
			Golden Retriever	MN	6 years	Signature Pork	years		Y	LV, LA, RV, RA-mod	Y, R	Y	alive	taurine deficient		
			Pitbull Mix	FS	16 years	Eat @ Home Holistic (Basenji - Green Plains?)	years	park & stretch diet, Akara, duck & sweet potato	Y	LV, LA-mod; RV, RA-mild	May be?	N	euthanized	no troponin or taurine		
			Labrador	FS	5 years	California Natural Kangaroo and Red Lentil	years	switched to venison & lentil diet	Y	L-severe, R-mod	Y, L	N	euthanized	related to [redacted] (piece)		Y
			Doberman	MN	9 years	Hill's J/D	years		N	LV-mod; LA-severe; RV, RA-mild	N	N	seen [redacted]	alive		
			Chickie	MN	4 years	Flintstone Kinstarr	years	switched to CHG'n	Y	LV, LA-mod; RV, RA-mild	Y, L	Y	alive	taurine deficient; no troponin		
			Golden Retriever	MN	13 years	Purina Proplan	years	owner home cooking now - meat and rice	N	LV, LA-mod	Y	Y	alive-CHF	normal taurine; no troponin		
			Great Dane	M	3 years	Nature's Domain Beef and Potato Grain Free	years	treats-poppom; 4health	Y	LV, LA, RV, RA-mod	Y	Y	alive-CHF	also fed 4health		
			Boxer	FS	4 years	Hill's sensitive stomach	years		N	LV-mod; LA-severe; RV, RA-mild	Y	Y	alive-CHF			
			Great Dane	MN	8 years	Unknown Grain Free brand	years		Y	LV, LA-severe; RV-mild; RA-mod	N	N	deceased			
			Pitbull	MN	11 years	Unknown Grain Free brand	years		Y	LV-mild; LA-mod	Y, L	Y	alive-CHF			
			Labrador Mix	FS	7 years	California Natural Kangaroo and Red Lentil	years	Switched to j/d offers canned pumpkin	Y	LV, LA-severe; RV, RA-mild	Y, L	Y	alive	Not taurine deficient		Y
			Doberman	MN	7 years	Origin Original	years		Y	LV-mod dec in contractility	N	Y	alive			
			Great Dane	FS	8 years	Unknown diet	years		Y	LV-mild; LV-mod	Y, L	Y	alive			
			Doberman	MN	8 years	Unknown diet	years		Y	LV, LA-mod; RV, RA-mild	N	Y, but overdue	alive	no troponin or taurine		
			Maltese	FS	11 yrs	Signature Kangaroo and lentil	years	green beans	Y		Y	Y	alive			Y
			Blue Heeler Mix	FS	11 yrs	4Health Grain Free	years	Canine Carry Outco Various ham, chix, beef scraps	Y	LV, RV, RA-mod; LA-mod-sev	N	Y	alive	no troponin; taurine [redacted] plasma [redacted] (whole blood)		Y
			Boxer Mix	MN	9 yrs	Signature Kangaroo and lentil	years	Bland diet-ground beef & rice; Blue canned	Y	LV, LA-severe; RV, RA-mod	Y, L, R	Y	alive	no troponin; taurine [redacted] plasma [redacted] (whole blood)		Y

**B6**

Number	ICR#	CC	Sex	Age	Spec	Breed	Location	Full Histom	Kidney?	Neurology	Heart	Diap	Frs heart kg	Lk heart kg	Special stains	IHC
1	362738	020	M	2yr	MI	Cane Corso		No	No	ly; subjectively enlarged heart; f	No	73.0				
2	362570	356	F	5yr	FS	Bedviewe		Recut?	No	d grossly, RV and LV dilated and	No	26.0				
3	361131	128	F	3yr	FS	Great Dane		Recut?	No	consistent with DCM. Moderate	No	59.4				
4	363970	141	M	4yr	MI	Golden retriever		Recuts, same	No	axial pt lesions, LV and RV except b	Sides	36.1				
5	360387	085	F	4yr	FI	Sancyed		Yes	1-No. ed on gross examination; heart f	x	13.2					
6	362158	138	F	5yr	MC	Pug		Yes	30-Nov. ivy, roughened liver capsule, sof	x	7.3					
7	364380	338	F	8yr	FS	Mixed breed hound		Yes	1-No. a, enlarged heart esp RV free wa	x	17.2					
8	364383	008	F	6yr	F	German shepherd		Yes	1-No. initial abdominal incision of sten	x	~40					
9	361684	060	F	6yr	MC	Do b 1		Yes	1-No. heart. Inflexed, thin walled rha	x	26.0					
10	353942	122	M	13yr	MC	Rat terrier		Yes	30-Nov. attachment. Colon partially strict	x	8.2					
11	305060	110	F	6yr	MC	Rottweiler		Yes	1-No. firm and pink, heart appeared e	x	~46.3					
12	363075	004	F	3yr	MC	Labrador retriever		Yes	30-Nov. lungs pink and mottled; other o	x	32.7					
13	361082	005	F	3yr	FS	Mixed breed		Yes	30-Nov. No signs of infarct	x	~28					
14	370301	603	F	6yr	MC	German shepherd		No	12-Apr. Heart only-no report	x	~32.3					
15	326115	136	F	3yr	MC	Schnauzer		No	1-No. mod-marked pulm edema; mild	No	8.2					
16	373371	261	F	6yr	MC	Mixed breed husky		No	1-No. severe lung expansion w/ red p	Yes	43.6					
17	375111	212	F	5yr	MI	Golden retriever		No	12-Apr. Heart only-no report	x	29.2					
18	364014	191	F	12yr	MC	Labrador retriever		No	12-Apr. Heart only-no report	x	~64.4					
19	374149	183	F	9yr	MN	Terrier mix		Yes	12-Apr. Seropneumous pleural/abd flu	x	8.4					
20	364512	281	F	4yr	FS	Golden retriever		Yes	28-Jul. no congestion; lungs normal; an	x	24					
21	366113	286	F	3yr	MN	Great Dane		No	1-No. Heart slide recuts only	x	III					
22	360743	297	F	8yr	MN	Bulldog		No	13-Jul. Heart only-no report	x						
23	CC-157454	296	F	1.5 yr	MN	Hound mix		Yes	29-Jul. 5 samples only-no report	x						
24	363261	298	F	4yr	MN	Boxer mix		No	13-Jul. Heart only-no report	x						
25	360742	299	F	6.5 yr	FS	Bulldog		Yes	13-Jul. No report submitted	x						
26	368861	300	F	2yr	MN	DSH		No	Partial Heart only-no report	x						
27		301				Mixed breed		No	No Sample archive only							

B6

B6

Not Koga  
Final pre-mortem dx  
Echo dx, DCM etc  
Tau def, yes no  
Cut-in necropsy remarks



---

**From:** Jones, Jennifer L </o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=0f6ca12eaa9348959a4cbb1e829af244-Jennifer.Jo>  
**To:** Carey, Lauren  
**Sent:** 7/12/2018 12:11:43 PM  
**Subject:** RE: Earthborn Coastal Catch dry: Lisa Freeman - EON-358519

Thanks!

Jennifer Jones, DVM  
Veterinary Medical Officer  
Tel: 240-402-5421



**From:** Carey, Lauren  
**Sent:** Thursday, July 12, 2018 8:00 AM  
**To:** Jones, Jennifer L <Jennifer.Jones@fda.hhs.gov>  
**Subject:** FW: Earthborn Coastal Catch dry: Lisa Freeman - EON-358519

"Missing" DCM report from the most recent group.

**From:** PFR Event [<mailto:ppreventcreation@fda.hhs.gov>]  
**Sent:** Monday, July 09, 2018 8:52 AM  
**To:** Cleary, Michael \* <[Michael.Cleary@fda.hhs.gov](mailto:Michael.Cleary@fda.hhs.gov)>; HQ Pet Food Report Notification <[HQPetFoodReportNotification@fda.hhs.gov](mailto:HQPetFoodReportNotification@fda.hhs.gov)> [B6]  
**Subject:** Earthborn Coastal Catch dry: Lisa Freeman - EON-358519

A PFR Report has been received and PFR Event [EON-358519] has been created in the EON System.

A "PDF" report by name "2051555-report.pdf" is attached to this email notification for your reference.

Below is the summary of the report:

**EON Key:** EON-358519

**ICSR #:** 2051555

**EON Title:** PFR Event created for Earthborn Coastal Catch dry; 2051555

<b>AE Date</b>	06/20/2018	<b>Number Fed/Exposed</b>	
<b>Best By Date</b>		<b>Number Reacted</b>	1
<b>Animal Species</b>	Dog	<b>Outcome to Date</b>	Unknown
<b>Breed</b>	Boxer (German Boxer)		
<b>Age</b>	7.6 Years		
<b>District Involved</b>	PFR-New England DO		

**Product information**

**Individual Case Safety Report Number:** 2051555

**Product Group:** Pet Food

**Product Name:** Earthborn Coastal Catch dry

**Description:** Diagnosed with LV cavity dilation and reduced contractile function

**Submission Type:** Initial

**Report Type:** Adverse Event (a symptom, reaction or disease associated with the product)

**Outcome of reaction/event at the time of last observation:** Unknown

**Number of Animals Reacted With Product:** 1

Product Name	Lot Number or ID	Best By Date
Earthborn Coastal Catch dry		

**Sender information**

Lisa Freeman  
200 Westboro Rd  
North Grafton, MA 01536  
USA

**Owner information**

**B6**  
USA

To view this PFR Event, please click the link below:

<https://eon.fda.gov/eon//browse/EON-358519>

To view the PFR Event Report, please click the link below:

<https://eon.fda.gov/eon//EventCustomDetailsAction!viewReport.jspa?decorator=none&e=0&issueType=12&issueId=375143>

=====

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Foster Hospital for Small Animals

55 Willard Street  
North Grafton, MA 01536  
(508) 839-5395

All Medical Records

Client: [B6]  
Address: [B6]

Patient: [B6]  
Breed: Boxer  
DOB: [B6]

Species: Canine  
Sex: Female

Home Phone: [B6]  
Work Phone: ( ) -  
Cell Phone: [B6]

[B6]

Referring Information

[B6]

Client: [B6]  
Patient: [B6]

**Initial Complaint:**

Scanned Record

**Initial Complaint:**

New, boxer 2-3 murmur. ok per [B6]

**Initial Complaint:**

Recheck [B6]

Client: [B6]  
Patient: [B6]

---

**Initial Complaint:**

Recheck [B6] - [B6] to oversee

SOAP Text [B6] 4:07PM - [B6]

---

[B6] 4:30:12 PM

Prescribed [B6] 80mg Tablets - FHSA (30)

Instructions - Give 1/2 tab by mouth every 12 hours. - Expires [B6] 11 Refills

**Initial Complaint:**

Recheck [B6]

SOAP Text [B6] 11:20AM - [B6]

---

**Initial Complaint:**

Recheck [B6]

**Initial Complaint:**

Recheck [B6]

SOAP Text [B6] 2:01PM - [B6]

---

**Disposition/Recommendations**

---

Client:  
Patient:

**B6**

---

---

Client: **B6**  
Patient:



**Foster Hospital for Small Animals**

55 Willard Street  
North Grafton, MA 01536  
(508) 839-5395

Client:	<b>B6</b>
Veterinarian:	
Patient ID:	<b>B6</b>
Visit ID:	

Patient:	<b>B6</b>
Species:	Canine
Breed:	Boxer
Sex:	Female
Age:	<b>B6</b> Years Old

**Lab Results Report**

**B6** 3:35:43 PM Accession ID: **B6**

Test	Results	Reference Range	Units
Troponin I Research - FHSA	<b>B6</b>	0 - 0.08	mg/dl



4/111

**B6**

Printed Tuesday, December 04, 2018

Client: **B6**  
Patient:

Referral and records **B6**

Map 08 18 04 13: **B6**

PR 1206205 a.1



REFERRAL FORM

TUFTS NEW ENGLAND VETERINARY MEDICAL CENTER  
Henry and Lois Foster Hospital for Small Animals  
Hospital for Large Animals  
200 Woburn Road, Route 30  
North Grafton, MA 01536  
508-899-6795

Service to Which Referred \_\_\_\_\_ Appointment Date **B6** Time \_\_\_\_\_

OWNER INFORMATION:

Name: **B6** (Daytime Phone) **B6** (Evening Phone) \_\_\_\_\_  
Address: **B6** City: **B6** State: **B6** Zip Code: **B6**

PATIENT INFORMATION:

Registered Name: **B6**  
Breed: **B6** Sex: Fordic Age: 20yr

CASE HISTORY:

Chief Complaint/Probable Diagnosis: Heart murmur

Current History: 2Vx 2/26/16 Dosp 2/15/16

Other History: \_\_\_\_\_

Diagnostic Test Results (if possible, please attach results): \_\_\_\_\_

Are X-rays included? NO

Current Therapy & Medications (include dosage): \_\_\_\_\_

Special Concerns/Requests: \_\_\_\_\_

REFERRING VETERINARIAN INFORMATION:

Name: **B6** (Clinician) **B6**  
Phone: **B6**  
Address: **B6** City: **B6** State: **B6** Zip Code: **B6**

If an animal is being referred which has had lab work done at TVM, please include copies of the lab results or the TVM accession number. If you are faxing us information about a clinical case which has been referred, please use fax number (508) 899-7861.



Client: **B6**  
Patient:

Referral and records **B6**

March 19, 2019

**B6**

RECEIVED

19

**B6**

Patient Chart

Printed: 3/19/2019 at 10:22am

CLIENT INFORMATION

Name:

Address:

Phone:

**B6**

System:

**B6**

**B6**

Client:  
Patient:

**B6**

Referral and records

**B6**

**B6**

**B6**

Client:  
Patient:

**B6**

Referral and records

**B6**

**B6**

**B6**

Client:  
Patient:

**B6**

Referral and records

**B6**

**B6**

**B6**

**B6**

**B6**

**B6**



Client: B6  
Patient:

**Signed consent**



**B6**

**B6** Female  
Celine, Bambi, Criss, Piper  
Patient ID: B6

**STANDARD CONSENT FORM**

I am the owner, or agent, for the power, of the above described animal and have the authority to execute consent. I hereby authorize the Cummings School of Veterinary Medicine at Tufts University (herein after Cummings School) to provide for treatment of said animal according to the following terms and conditions:

Cummings School and its officers, agents and employees will provide such veterinary medical care as they deem reasonable and appropriate under the circumstances.

Cummings School and its officers, agents, and employees will use all reasonable care in the treatment of the above mentioned animal, but will not be liable for any loss or accident that may occur or any disease that may develop as a result of the care and treatment provided.

I understand that the above identified animal may be treated by Cummings School students under the supervision and assistance of Cummings School staff members.

In executing this form, I hereby expressly acknowledge that risks, benefits and alternative forms of treatment have been explained to me. I understand said explanation, and I consent to treatment. Should any additional treatments or diagnostics be required during the continued care of my animal, I understand that I will be given the opportunity to discuss and consent to those additional procedures. I understand that further or additional treatment may be required without an opportunity for discussion and consideration by me, in the case of the development of any life-threatening emergency during the continued care of my animal and I expressly consent to all such reasonable treatment as required. I realize and understand that results cannot be guaranteed.

If any equipment used with the animal, it will be accepted with the understanding that Cummings School assumes no responsibility for any loss of equipment that may occur.

I agree to pick up the animal when notified that it is ready for release.

In the event the animal is not picked up, and if less than 10 days have elapsed since a registered letter was sent to the address given above, notifying me to call for the animal, the animal may be sold or otherwise disposed of in a humane manner and the proceeds applied to the charges incurred in caring and treating the animal. Failure to remove said animal will not and does not release me from obligation for the costs of services rendered.

I hereby grant to the Cummings School of Veterinary Medicine at Tufts University, its officers and employees (hereinafter referred to herein as Cummings School), and its agents and assigns (the Grantee) the irrevocable right to photograph / videotape the operation or procedure to be performed, including appropriate and relevant use (such photographs and images for, and in connection with, a Grantee's medical, scientific, educational, and publicly supported by any means, methods and media (print and electronic) now known or, in the future, developed that the Grantee deems appropriate (provided that such photographs and images may not be used in for-profit commercial, unless such commercial are publishing educational programs at Cummings School). As medical and surgical treatment necessitates the removal of tissue, cells, fluids or body parts of my animal, I authorize the Grantee to dispose of or use these tissues, cells, fluids or body parts for scientific and educational purposes.

Client: **B6**  
Patient: **B6**

**Signed consent**

I understand that a FINANCE CHARGE will be applied to all accounts unpaid after 30 days. The FINANCE CHARGE is computed on a monthly rate of 1.55% per month, which is an annual percentage rate of 18% applied to the average daily balance outstanding, with a minimum fee of \$ .50.

I do further agree that should any payment, or the full amount of the sum stated above, become overdue more than 30 days from the above agreed upon time of payment or payments, the entire balance shall be considered in default and become due and payable. I further agree to be responsible for any or all collection agency and/or attorney fees necessary to collect the full amount.

I do further agree to comply with hours of visitation in conjunction with our Hospital's policy.

I have read, understood, and agree to accept the terms and conditions herein.

Owner's name: **B6** Date: **B6**

Owner's Address: **B6**

**B6**

**B6**

If the individual admitting the animal is someone other than the legal owner, please complete the portion below:

The owner of the animal **B6** has given me authority to obtain medical treatment and to bond this animal to pay the veterinary medical services provided at Cummings School pursuant to the terms and conditions described above.

Authorized Agent - Please Print

Agent's Signature

Street Address

Date

Town/City State Zip

Client: **B6**  
Patient:

rDVM **B6** records 1/8/16-5/30/17

**B6**

Patient Chart

Name: **B6**

Client Information

Name: **B6**  
Address:  
Phone:

Species: **B6**

Physical Information

Name: **B6**  
Sex:  
Breed: **B6**  
Color:  
Weight:  
Height:

Spikes:  
Eyes:  
Age:  
Status:  
Height:  
Color:

Reference No: **B6**

Location:

Reference No	Description	Location
1000000	CANINE BIRTH RECORDATION, JY	1000000
1000000	CANINE DUFFING BIRTH RECORDATION	1000000
1000000	CANINE DO BIRTH RECORDATION	1000000
1000000	EXAMINATION, ANIMAL	1000000
1000000	WET SPIN	1000000

**B6**



Client: **B6**  
Patient: **B6**

rDVM **B6** records 1/8/16-5/30/17

**B6**

Client:  
Patient:

**B6**

rDVM

**B6**

records 1/8/16-5/30/17

**B6**

**B6**

**B6**

**B6**

Client: **B6**  
Patient:

rDVM: **B6** Chem 25 w/SDMA, CBC, T4 **B6**

12/28/17 17:02:47 **B6** **B6** **B4** Page 001

**B4** **B6**

Account: **B6**

Order: **B6**  
Patient: **B6**  
Species: **B6**  
Breed: **B6**  
Age: **B6**  
Gender: **B6**

Registration #: **B6**  
Accession #: **B6**  
Order work: **B6**  
Ordered by: **B6**  
Request: **B6**

Test	Result
ALP	(5 - 100) U/L
ALT	(18 - 121) U/L
AST	(18 - 55) U/L
CREATINE KINASE	(10 - 200) U/L
GGT	(0 - 17) U/L
ALBUMIN	(2.7 - 3.8) g/dL
TOTAL PROTEIN	(5.5 - 7.5) g/dL
GLOBULIN	(2.4 - 4.0) g/dL
TOTAL BILIRUBIN	(0.0 - 0.3) mg/dL
BILIRUBIN CONJUGATED	(0.0 - 0.1) mg/dL
BLIN	(3 - 31) mg/dL
CREATININE	(0.5 - 1.5) mg/dL
CHOLESTEROL	(131 - 263) mg/dL
GLUCOSE	(83 - 114) mg/dL
CALCIUM	(8.4 - 11.0) mg/dL
PHOSPHORUS	(2.6 - 5.1) mg/dL
TCO2 (BICARBONATE)	(13 - 27) mmol/L
CHLORIDE	(108 - 119) mmol/L
POTASSIUM	(4.0 - 5.4) mmol/L
SODIUM	(142 - 153) mmol/L
ALB/GLOB RATIO	(0.7 - 1.5)
BLIN/CREATININE RATIO	
BILIRUBIN UNCONJUGATED	(0.0 - 0.2) mg/dL
NAK RATIO	(29 - 37)
HEMOLYSIS INDEX	
Index of 0, 1+, 2+ exhibits no significant effect on chemistry values.	
LIPEMIA INDEX	
Index of 0, 1+, 2+ exhibits no significant effect on chemistry values.	

**B6** FINAL REPORT - CONTINUED ON NEXT PAGE PAGE 1

**B6** **B6** 12/28/17 17:02:47

Client: **B6**  
Patient:

rDVM **B6** 25 w/SDMA, CBC, T4 **B6**

05/20/17 STERILE **B6** → **B4** Starline 1 Page 882

ANION GAP	<b>B6</b>	(11 - 26) mmol/L	<b>B6</b>
SDMA		(0 - 14) µg/dL	
BOTH SDMA AND CREATININE ARE WITHIN THE REFERENCE INTERVAL which indicates kidney function is likely good. Evaluate a complete urinalysis and confirm there is no other evidence of kidney disease.			

Test	Result
WBC	(4.8 - 17.8) K/µL
RBC	(4.28 - 8.70) M/µL
HGB	(13.4 - 20.7) g/dL
HCT	(38.3 - 58.5) %
MCV	(88 - 98) fL
MCH	(21.9 - 26.1) pg
MCHC	(32.6 - 39.2) g/dL
% RETICULOCYTE	%
RETICULOCYTE	(10 - 115) K/µL
% NEUTROPHIL	%
% LYMPHOCYTE	%
% MONOCYTE	%
% EOSINOPHIL	%
% BASOPHIL	%
PLATELET	(143 - 440) K/µL

**B6**

SLIDE REVIEWED MICROSCOPICALLY.  
NO PARASITES SEEN

NEUTROPHIL	(3945 - 12670) /µL
LYMPHOCYTE	(1080 - 4850) /µL
MONOCYTE	(130 - 1150) /µL
EOSINOPHIL	(70 - 148) /µL
BASOPHIL	(0 - 100) /µL

**B6**

Test	Result	L	H	
T4	3.8	(1.0 - 4.0) µg/dL	<input type="checkbox"/>	<input type="checkbox"/>

Interpretive ranges:  
<1.0 Low  
1.0-4.0 Normal  
>4.0 High  
2.1-5.4 Therapeutic

Dogs with no clinical signs of hypothyroidism and results within the

**B6**

FINAL REPORT - CONTINUED ON NEXT PAGE  
PAGE 2

24

**B6**

**B6**

05/21/17 08:44 AM

Client: **B6**  
Patient:

rDVM: **B6** Chem 25 w/SDMA, CBC, T4 **B6**

RECENT ITEMS **B6**

**B4**

Iteration 1 Page 803

**B6**

**B6**

FINAL REPORT

PAGE 1 OF 3

1

**B6**

**B6**

1

Client: **B6**  
Patient:

Holter Monitor report 5/31/17

### CANINE HOLTER MONITORING REPORT

### HOLTER MONITOR REPORT

Patient Name:	<b>B6</b>		
Date of Birth:		Scan Number:	
ID:	<b>B6</b>	Date Recorded:	5/31/2017
Age:	22 Months	Date Processed:	6/2/2017
Sex:		Recorder Id:	264721
Analyst:		Hookup Tech:	
Physician:		Medications:	
Indications:	None		

**B6**

Physician's Signature

Client:  
Patient:

**B6**

Holter Monitor report 5/31/17

Patient: **B6** ID: **B6** Date Received: **B6** Page: **B6** Page: **I**

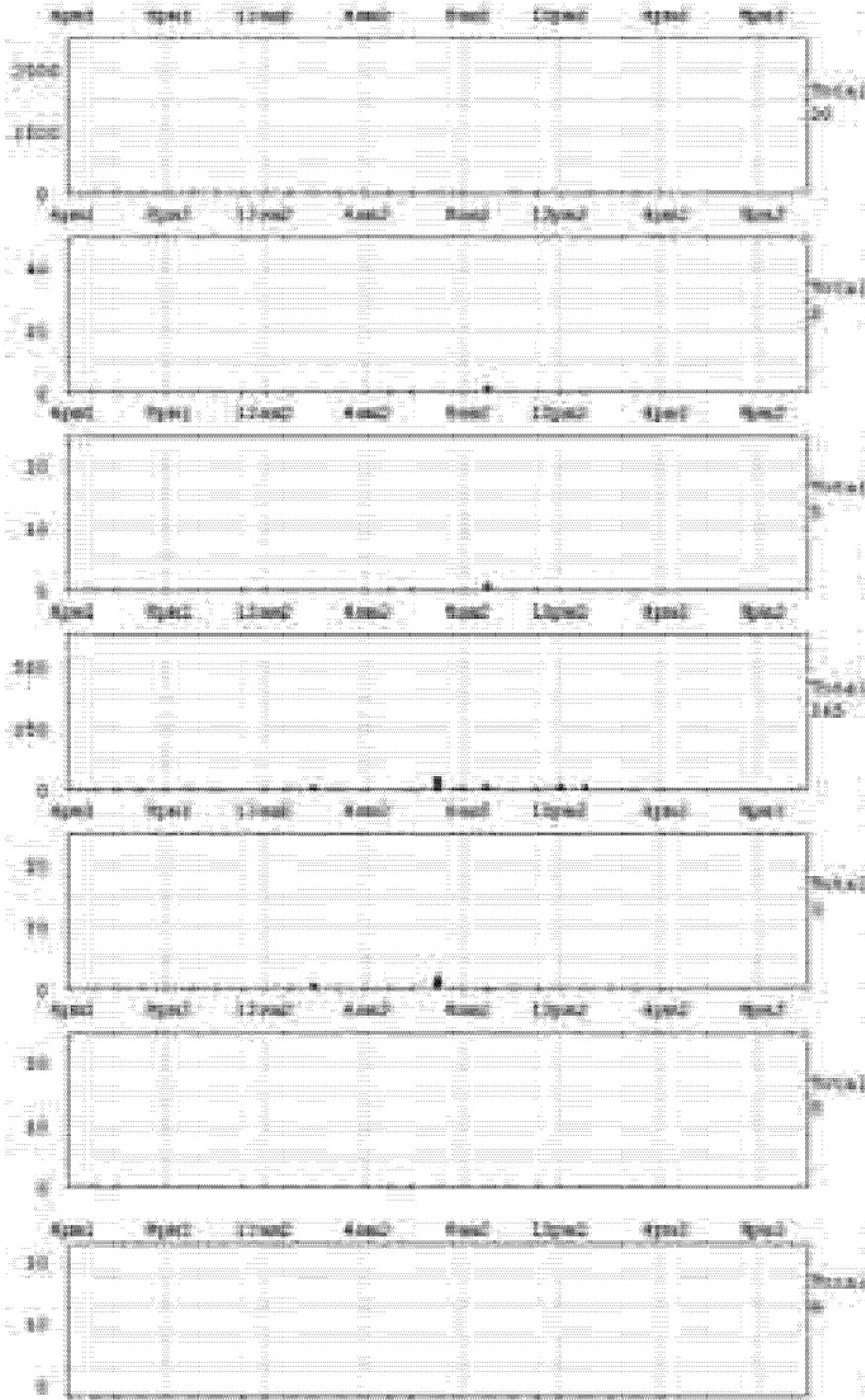
GENERAL PROFILE

**B6**

Client: **B6**  
Patient: **B6**

Holter Monitor report 5/31/17

CRITICAL EVENTS



**B6**



Client: **B6**  
Patient: **B6**

Holter Monitor report 5/31/17

Patient: **B6** ID: **B6** Date Received: **B6** Page: **B6**

**FULL-SIZED STRIPS**  
(Gain 0.50 mv/mm) ECG 25 mm/sec (ALL)

**B6**

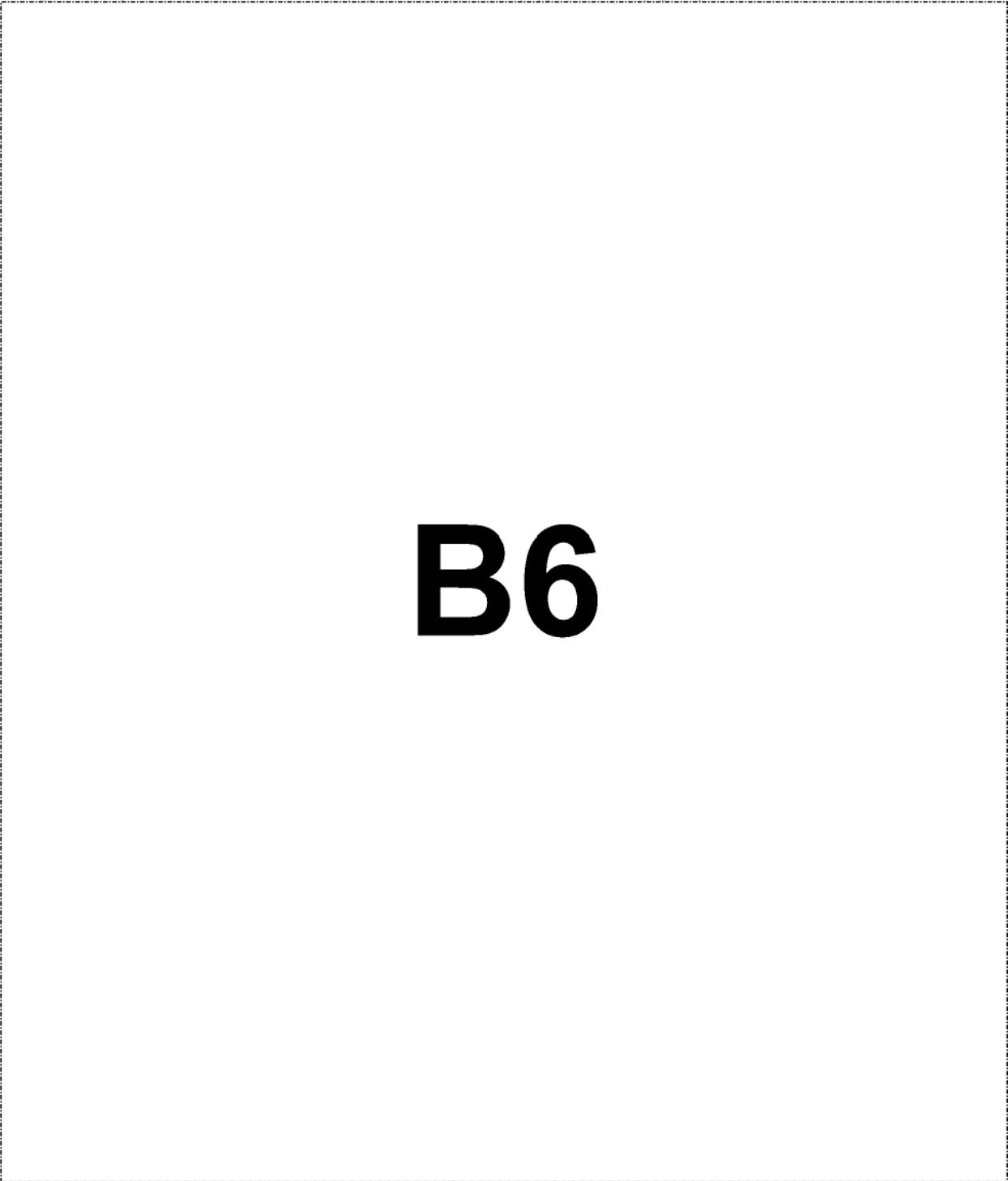
Client: **B6**  
Patient: **B6**

Holter Monitor report 5/31/17

Patient: **B6** ID: **B6** Date Recorded: **B6** Page: **B6**

**FULL-SIZED STRIPS**

(Gain 0.50 mv/mm) ECG 25 mm/sec (ALL)



**B6**

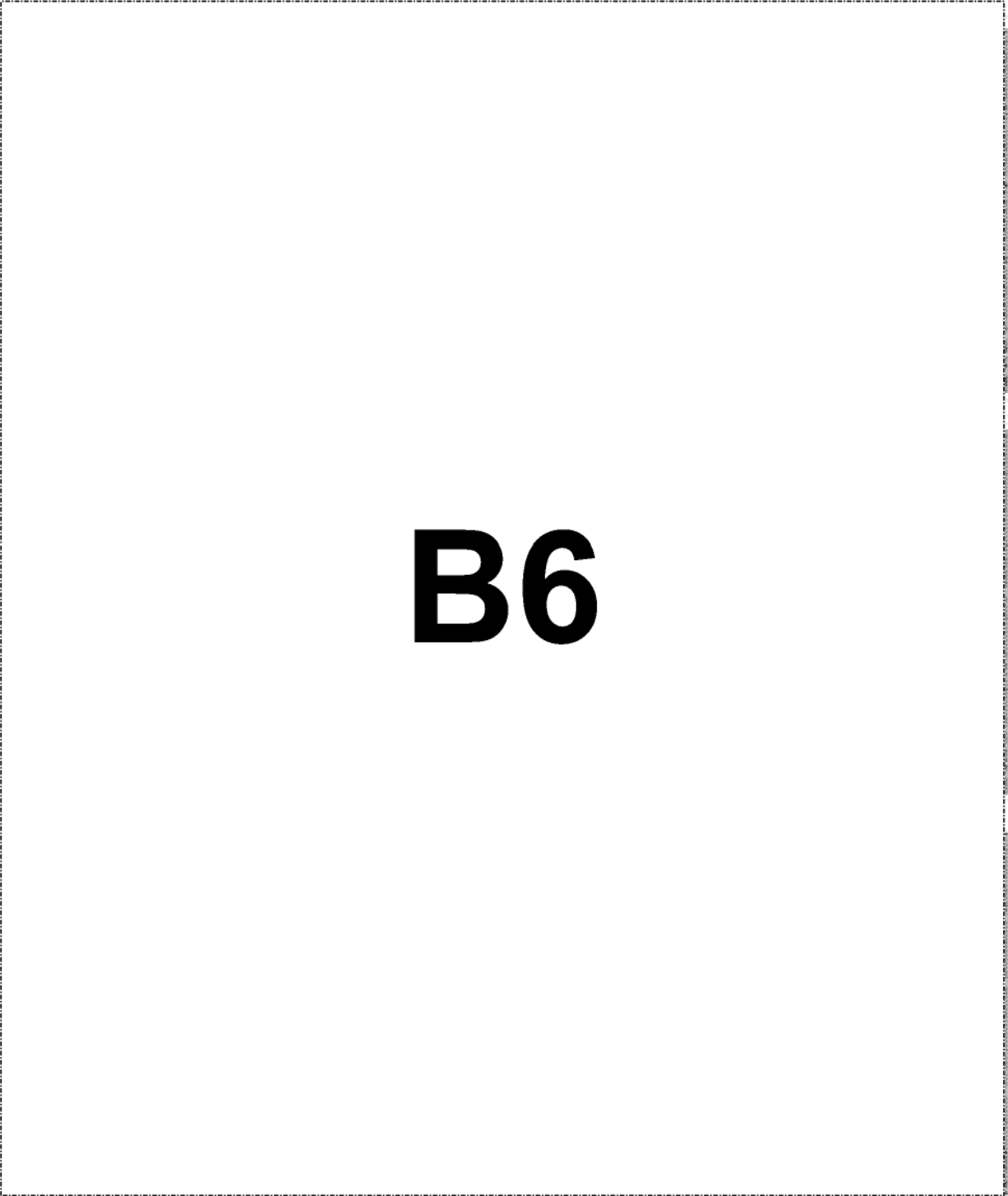
Client: **B6**  
Patient: **B6**

Holter Monitor report 5/31/17

Patient: **B6** ID: **B6** Date Recorded: **B6** Page: **B6**

**FULL-SIZED STRIPS**

(Gain 0.50 mv/mm) ECG 25 mm/sec (ALL)



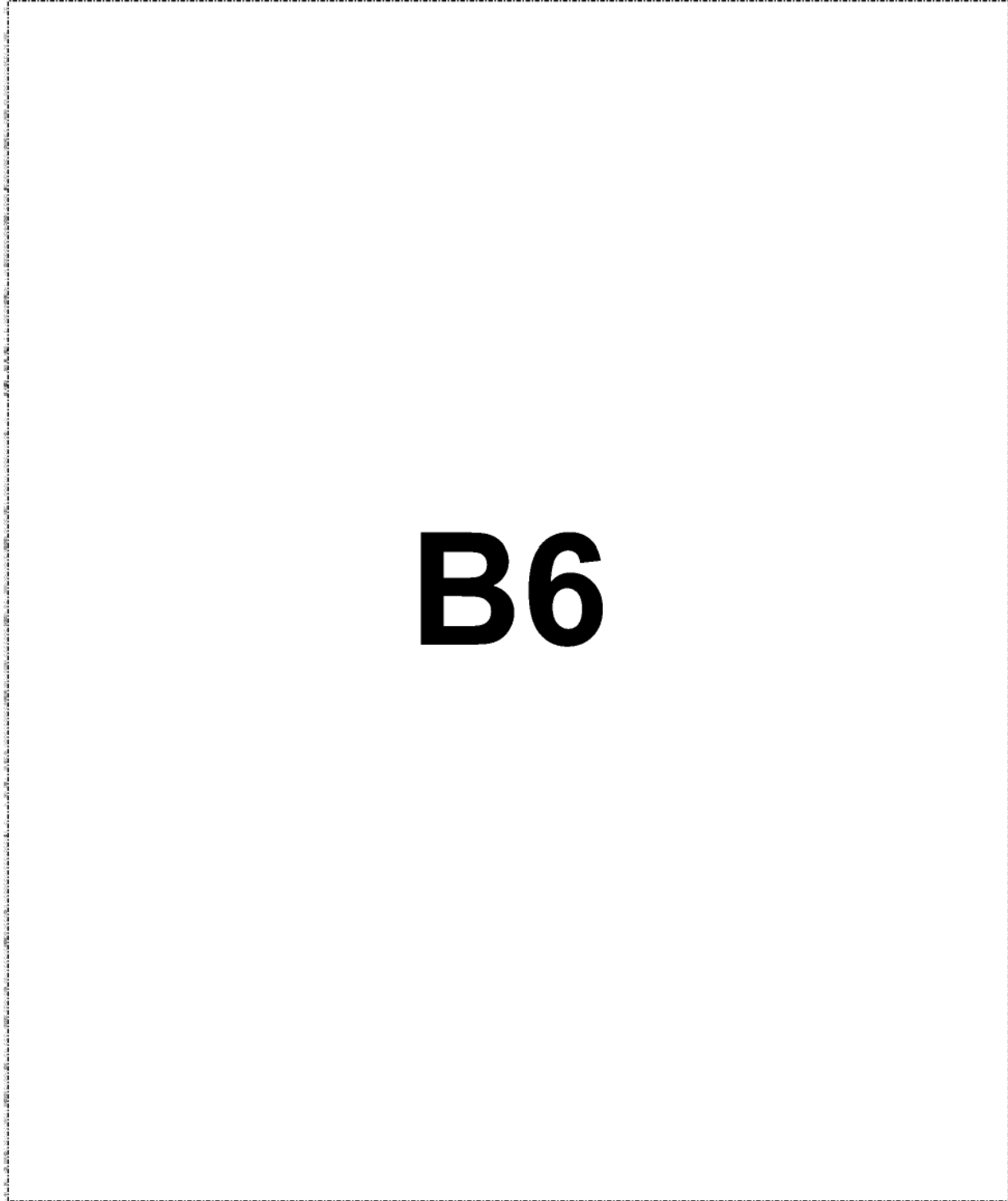
Client: **B6**  
Patient: **B6**

Holter Monitor report 5/31/17

Patient: **B6** ID: **B6** Date Recorded: **B6** Page: **B6**

**FULL-SIZED STRIPS**

(Rate: 0.50 mm/sec, ECG 25 mm/sec, ALL)

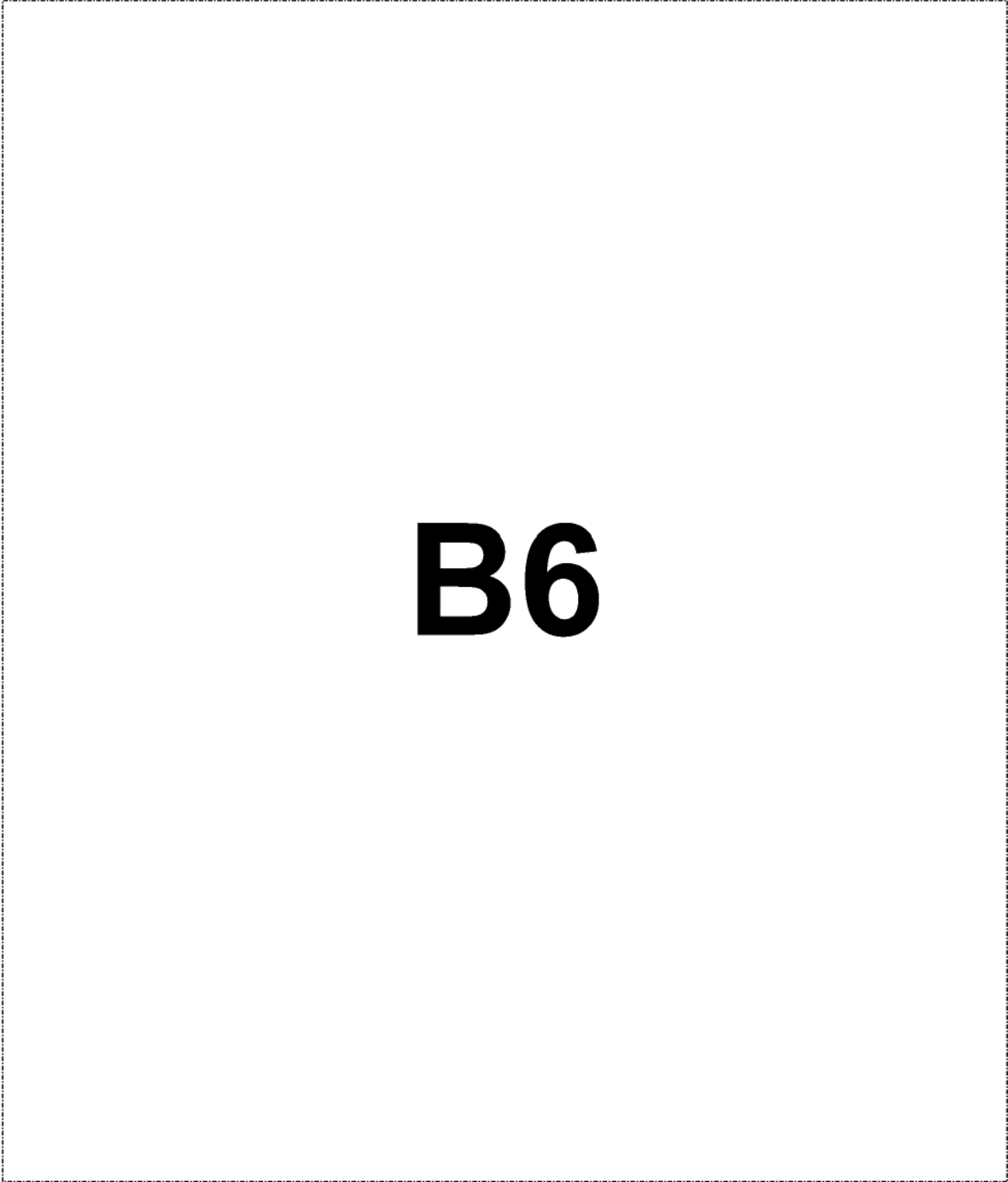


Client: **B6**  
Patient: **B6**

Holter Monitor report 5/31/17

Patient: **B6** ID: **B6** Date Recorded: **B6** Page: **B6**

**FULL-SIZED STRIPS**  
(Gain 0.50 mV/mm) ECG 25 mm/sec (ALL)

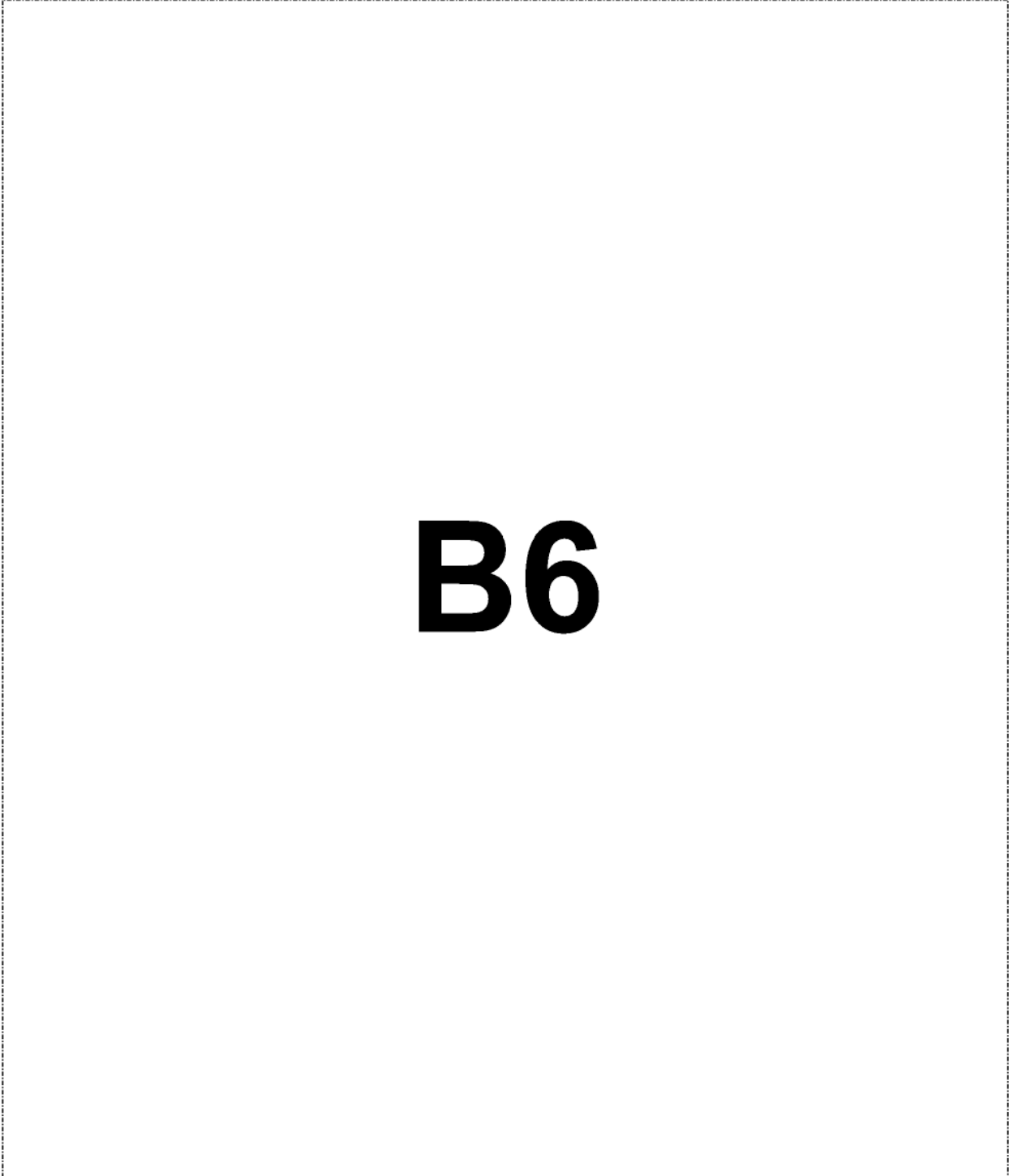


Client: **B6**  
Patient: **B6**

Holter Monitor report 5/31/17

Patient: **B6** ID: **B6** Date Recorded: **B6** Page: **B6**

**FULL-SIZED STRIPS**  
(Gain 0.50 mv/mm) ECG 25 mm/sec (ALL)



Client:  
Patient:

**B6**

Holter Monitor report 5/31/17

Patient: **B6** ID: **B6** Date Received: **B6** Page: **B6**

**FULL-SIZED STRIPS**

(Strip 0.50 sec/box, ECG 25 mm/sec (ALL))

**B6**

Client: **B6**  
Patient: **B6**

Holter Monitor report 5/31/17

Patient: **B6** ID: **B6** Date Recorded: **B6** **B6** Page: 11

**FULL-SIZED STRIPS**  
(Gain 0.50 mv/mm) ECG 25 mm/sec (ALL)





Client:  
Patient:

**B6**

**B6**

visit

**B6**

**B6**

**B6**

Client: **B6**

**B6**

Sex: Female, Spayed • By: **B6**

**B6**

28 kg

Referred by:

**B6**

Provider: **B6**

Date seen:

**B6**

Date:

**B6**

**B6**

VIM

History: **B6** **B6** month female intact boxer, presented for a collapse episode at home. She came in from outside visibly and disoriented then fell over rigidly. She was unable to stand briefly and defecated. She quickly recovered from the episode. She has a diagnosed aortic hypoplasia that was declared well compensated with no restrictions by a cardiologist. She is not on any medications currently.

**B6**

**Plan:**

Owners to monitor at home and follow up with cardiologist at Tufts.

If you have questions regarding this case and I am not available, please contact:

**B6**

**B6**

If your patient had diagnostic imaging while at:

**B6**

please follow this link and enter the PATIENT ID

**B6**

**B6**

Client: **B6**  
Patient:

**B6** visit **B6**

**B6**

**B6**

Client: **B6** (DOB): **B6**

Discharge instructions for **B6**

**B6**

**Final Diagnosis: Aortic Hypoplasia, Suspect Syncope Episode**

**B6** came in tonight for an episode of collapse that she rapidly recovered from. Due to her history of aortic hypoplasia, we checked an ECG and her blood pressure which were within normal limits.

Please schedule an appointment with your cardiologist for reevaluation. If at any time **B6** has exercise intolerance, more collapse episodes, change in behavior, or change in mucous membrane color please have her evaluated by a veterinarian.

Thank you for entrusting us with **B6** care. She is such a sweet girl and we wish her the best! If you have any questions or concerns please do not hesitate to call.

**B6** DVM

**B6**

Client: **B6**  
Patient:

**B6** visit **B6**

**B6**

**B6**  
Species: Canine - **B6**  
Color: Fawn DOB: **B6** Sex: Female **B6**

1 1/2 yrs **BSFI**

DATE	<b>B6</b>
TIME	ER 9:30 am
DPL	<b>B6</b>

CHIEF COMPLAINT <b>collapsed; now unable to walk</b>					
APPETITE	<b>GOOD</b>	DECREASED	NONE	DIET	<b>Earthborn Meadow Feast</b>
VOMITING YES/NO	<b>NO</b>	STOOL	<b>NORMAL</b>	DIARRHEA	CONSTIPATION
VACCINES	<b>DTD</b>			PUPID YES	<b>NO</b>

HISTORY

- aortic hypoplasia - Tufts
- came in from outside - wobbly, fell over, couldn't get up  
somewhat debilitated  
disoriented/slow, fell over - rigid

no restrictions/  
modifications

DIFFERENTIAL LIST

HOME INSTRUCTIONS

FINAL DIAGNOSIS

**B6**

**1 R...**

Client: **B6**  
 Patient:

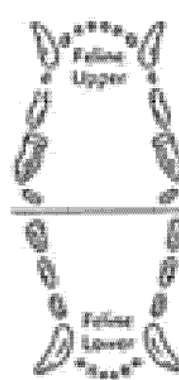
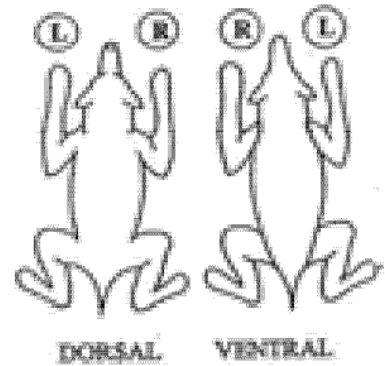
**B6** visit **B6**

1 General Appearance	N <input type="checkbox"/> A <input type="checkbox"/>	4 Mucous Membranes	N <input type="checkbox"/> A <input type="checkbox"/>	7 Lymph Nodes	N <input type="checkbox"/> A <input type="checkbox"/>	10 Musculoskeletal	N <input type="checkbox"/> A <input type="checkbox"/>
2 Eyes	N <input type="checkbox"/> A <input type="checkbox"/>	5 Circulatory	N <input type="checkbox"/> A <input type="checkbox"/>	8 Digestive	N <input type="checkbox"/> A <input type="checkbox"/>	11 Genitourinary	N <input type="checkbox"/> A <input type="checkbox"/>
3 Ears	N <input type="checkbox"/> A <input type="checkbox"/>	6 Respiratory	N <input type="checkbox"/> A <input type="checkbox"/>	9 Neurologic	N <input type="checkbox"/> A <input type="checkbox"/>	12 Integumentary	N <input type="checkbox"/> A <input type="checkbox"/>
T <b>03.9</b>	P <b>100</b>	WT <b>38 Kg</b>	Body Condition (1-5) 1=Emaciated 5=Obese		13 Endocrine		
R <b>10</b>	Last WT						
Pain (0-10)		Date:					
Localized to:							
Chronic or Acute							
Last Pain Score:		Date:					

**DESCRIPTION OF PE ABNORMALITIES:**

Initial PE:

**B6**



- A.  Plaque
- B.  Bad Breath
- C.  Tartar
- D.  Gingivitis
- E.  Loose Teeth
- F.  Broken Teeth
- G.  Missing Teeth
- H.  Feline Absorptive Lesion
- I.  Other

\*\*Please highlight corresponding recommendation code on travel sheet

**B6**

**B6**

Client: **B6**  
Patient: **B6**

Holter Monitor Report **B6**

### CANINE HOLTER MONITORING REPORT

#### HOLTER MONITOR REPORT

Patient Name:	<b>B6</b>	Interp. Physician:	
Date of Birth:		Scan Number:	<b>B6</b>
ID:		Date Recorded:	<b>B6</b>
Age:	3 Years	Date Processed:	<b>B6</b>
Sex:	M	Recorder Type:	
Analyst:		Backup Tech:	
Physician:		Medications:	
Indications:	Heart		

**B6**

Physician's Signature

Client: **B6**  
Patient: **B6**

Holter Monitor Report **B6**

Patient: **B6** CD: **B6** Date Received: **B6** Page: **B6**

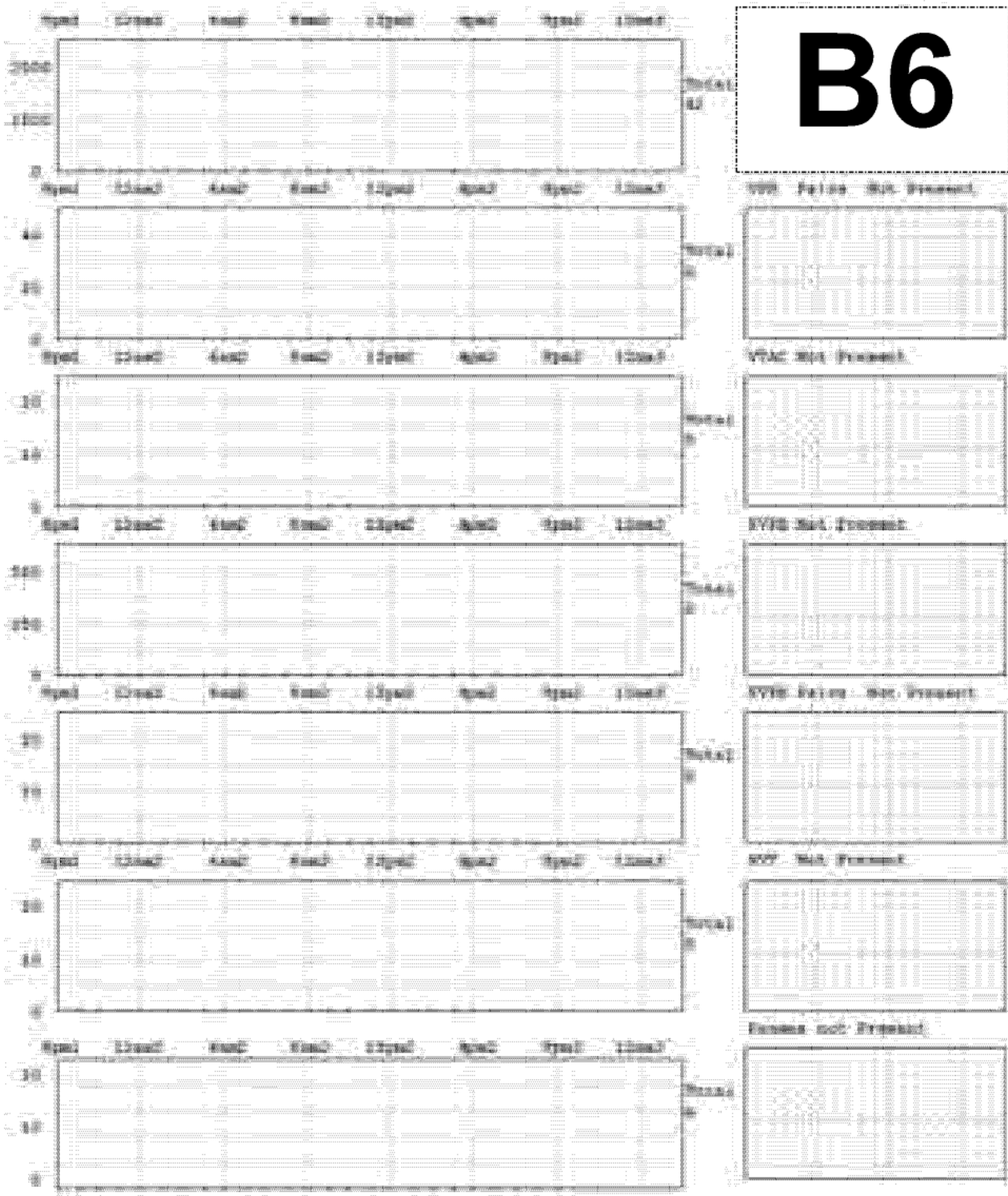
GENERAL PROFILE

**B6**

Client: **B6**  
Patient: **B6**

Holter Monitor Report **B6**

CRITICAL EVENTS



Client: **B6**  
Patient:

Holter Monitor Report: **B6**

Patient: **B6**    CD: **B6**    Date Received: **B6**    Page: 4

**FULL-SIZED STRIPS**

(Date: 0.50 sec/box, ECG: 25 mm/sec, 4.11)

**B6**

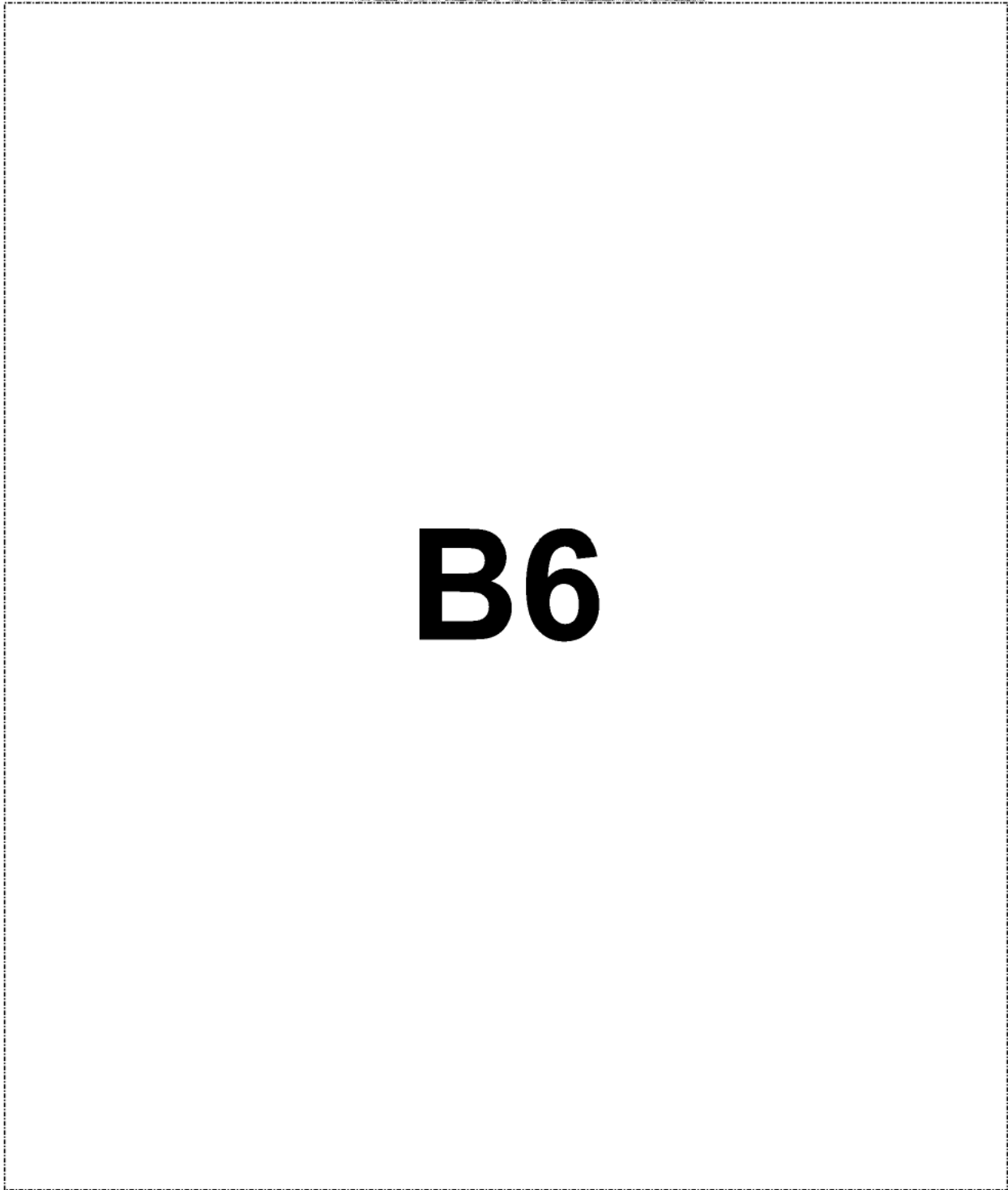


Client: **B6**  
Patient: **B6**

**Holter Monitor Report 11/16/17**

Patient: **B6** ID: **B6** Date Recorded: **B6** Page: **B6**

**FULL-SIZED STRIPS**  
(Gain 0.50 mv/mm, ECG 25 mm/sec (ALL))

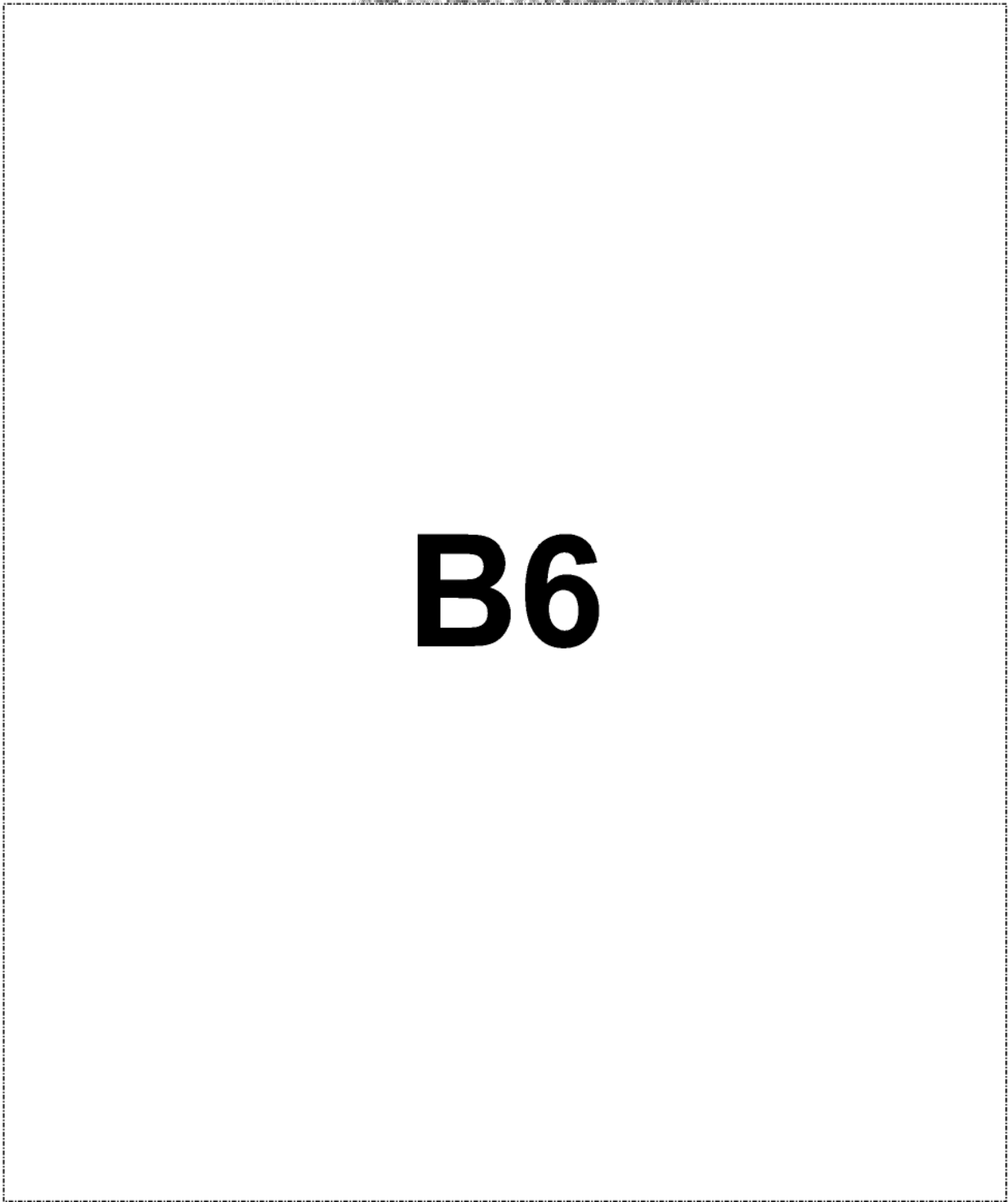


Client: **B6**  
Patient:

Holter Monitor Report 11/16/17

Patient: **B6**      ID: **B6**      Date Recorded: **B6**      Page: **B6**

**FULL-SIZED STRIPS**  
(Rate 0.50 mm/sec, ECG 25 mm/sec (ALL))

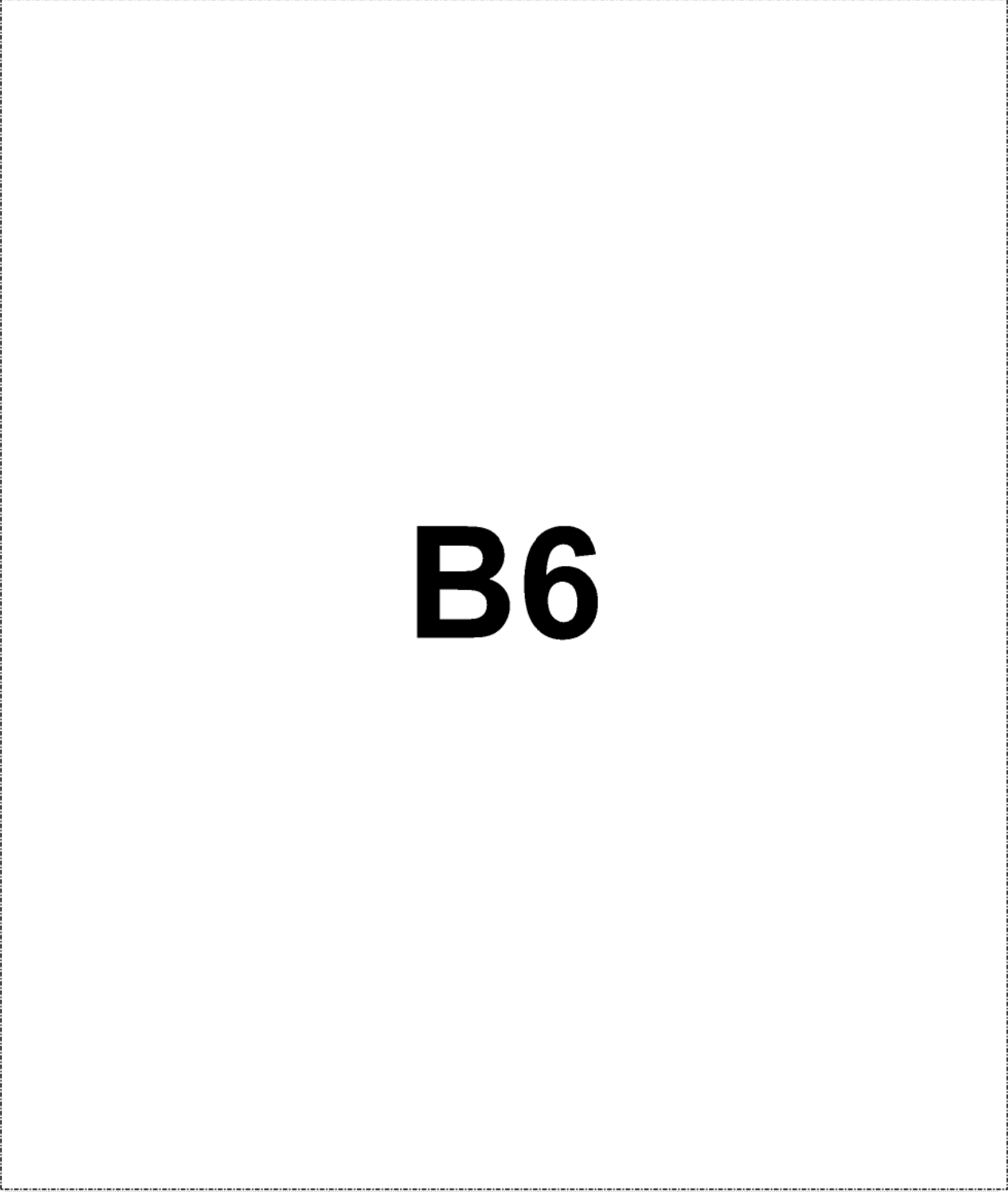


Client: **B6**  
Patient: **B6**

Holter Monitor Report 11/16/17

Patient: **B6**    CD: **B6**    Date Recorded: **B6**    Page: **B6**

**FULL-SIZED STRIPS**  
(Gain 0.50 mv/mm; ECG 25 mm/sec (ALL))



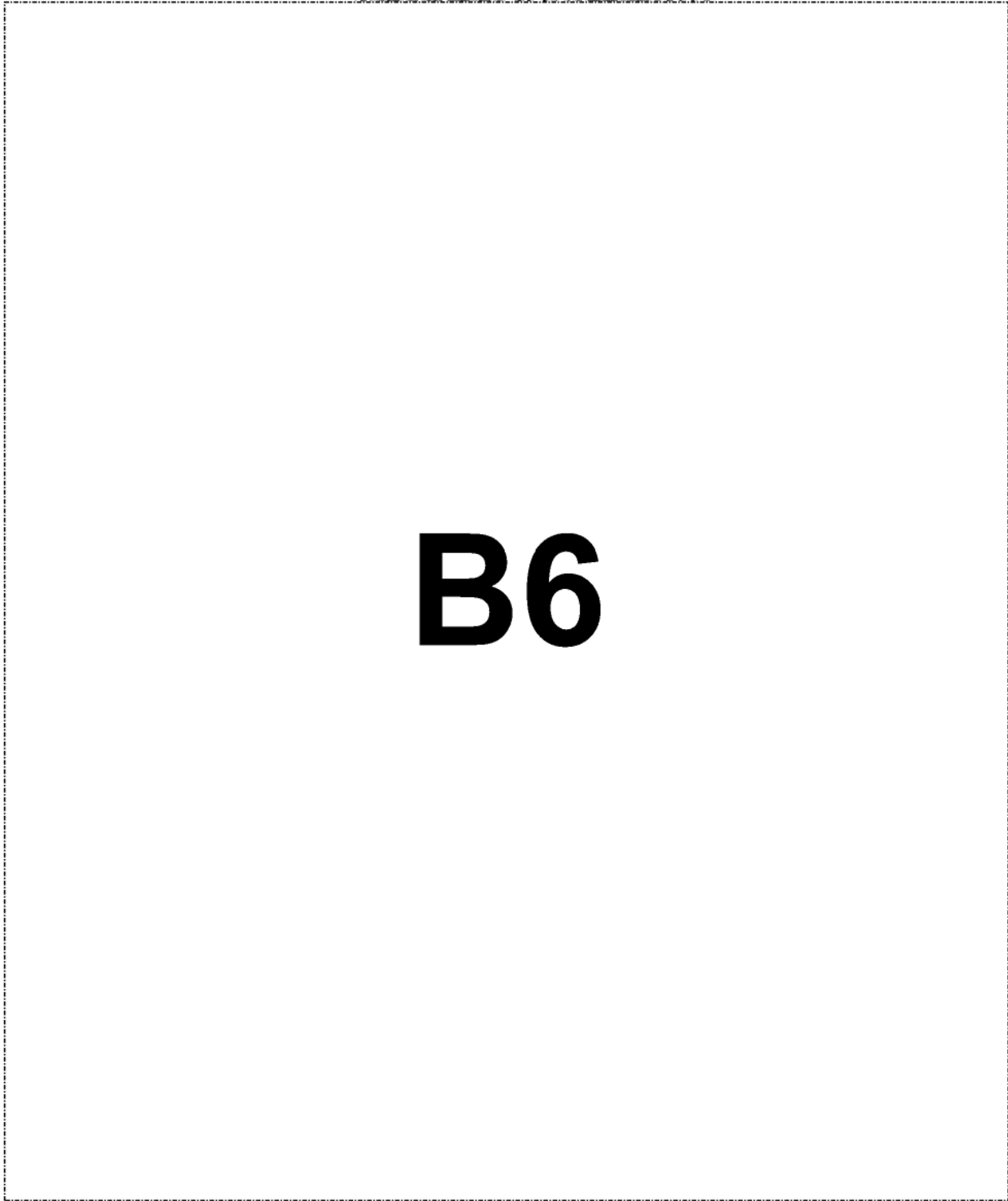
Client: **B6**  
Patient: **B6**

**Holter Monitor Report 11/16/17**

Patient: **B6**      ID: **B6**      Date Received: **B6**      Page: **B6**

**FULL-SIZED STRIPS**

*(This section contains ECG strips.)*

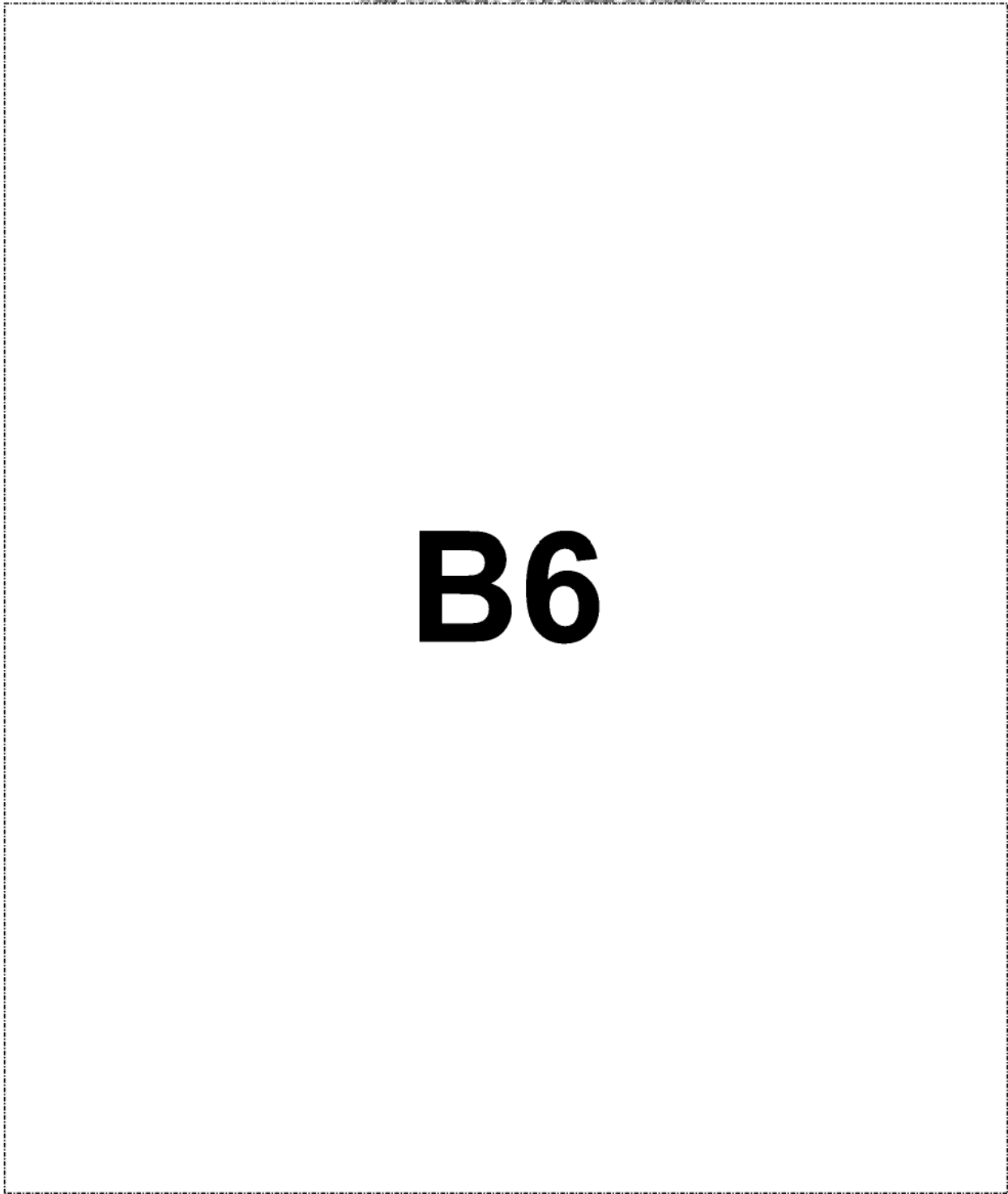


Client: **B6**  
Patient: **B6**

Holter Monitor Report 11/16/17

Patient: **B6** ID: **B6** Date Recorded: **B6** Page: **B6**

**FULL-SIZED STRIPS**  
(Gain 0.50 mv/mm; ECG 25 mm/sec; ALL)

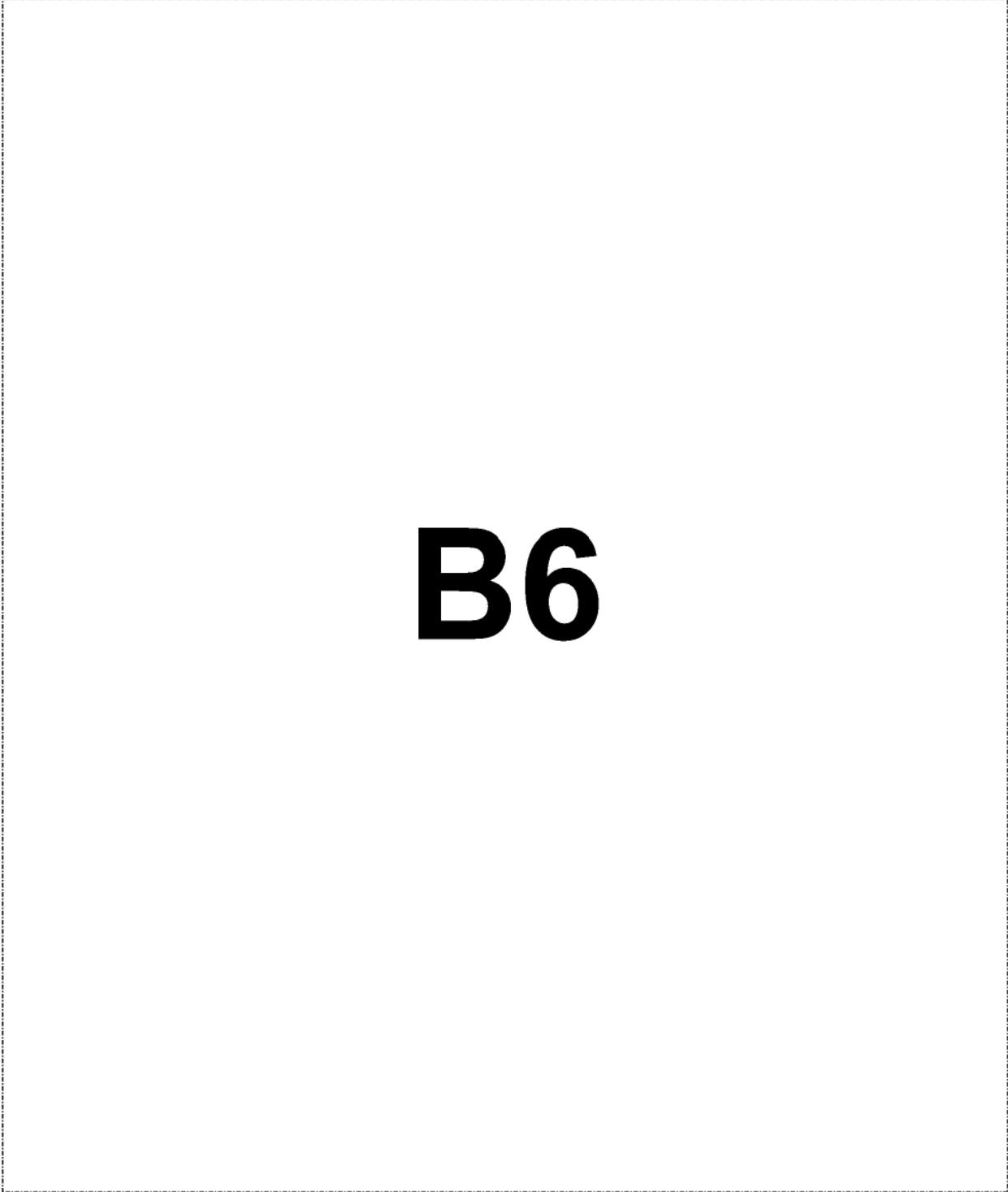


Client: **B6**  
Patient: **B6**

**Holter Monitor Report 11/16/17**

Patient: **B6**    CD: **B6**    Date Recorded: **B6**    Page: **B6**

**FULL-SIZED STRIPS**  
(Gain 0.50 mv/mm) ECG 15 mm/sec (ALL)



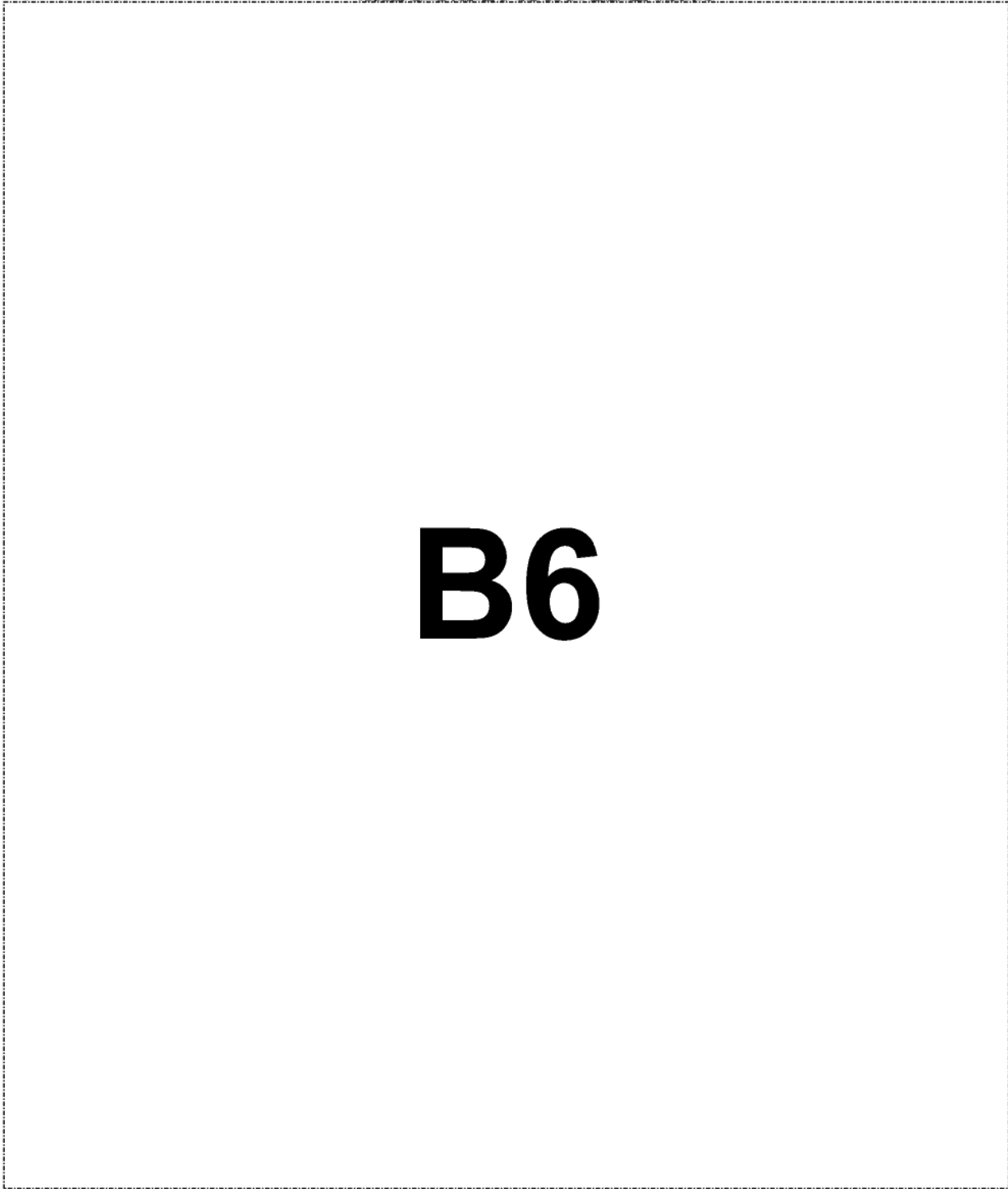
Client: **B6**  
Patient: **B6**

Holter Monitor Report 11/16/17

Patient: **B6**    CD: **B6**    Date Received: **B6**    Page: **B6**

**FULL-SIZED STRIPS**

*(Date: 11/16/17, Time: 10:00 AM, ECG: 12-lead, 1000 Hz)*



Client: **B6**  
Patient:

RDVM **B6** - Hx, Labs, 1/8/16 - 6/20/17

**B6**

Patient Chart

Print **B6**

CLINIC INFORMATION

Name: **B6**  
Address: **B6**  
Phone:

Specialty: **B6**

PATIENT INFORMATION

Name: **B6**  
Sex: **B6**  
Gender: **B6**  
Age:  
Color: **B6**  
Residence: **B6**

Species: **B6**  
Breed: **B6**  
Age: **B6**  
Status: **B6**  
Weight: **B6**  
Color:

Prescription: **B6**

Last Date:

Prescription	Description	Last Date
10000001	Canine Rabies Antigenic Jyr	10/20/17
10000002	Canine DAUPHY (S3 LEFT) Eye	10/20/17
10000003	Canine DAUPHY (S3 RIGHT) Eye	10/20/17
10000004	Examination, general	10/20/17
10000005	WV. ACVIX	10/20/17

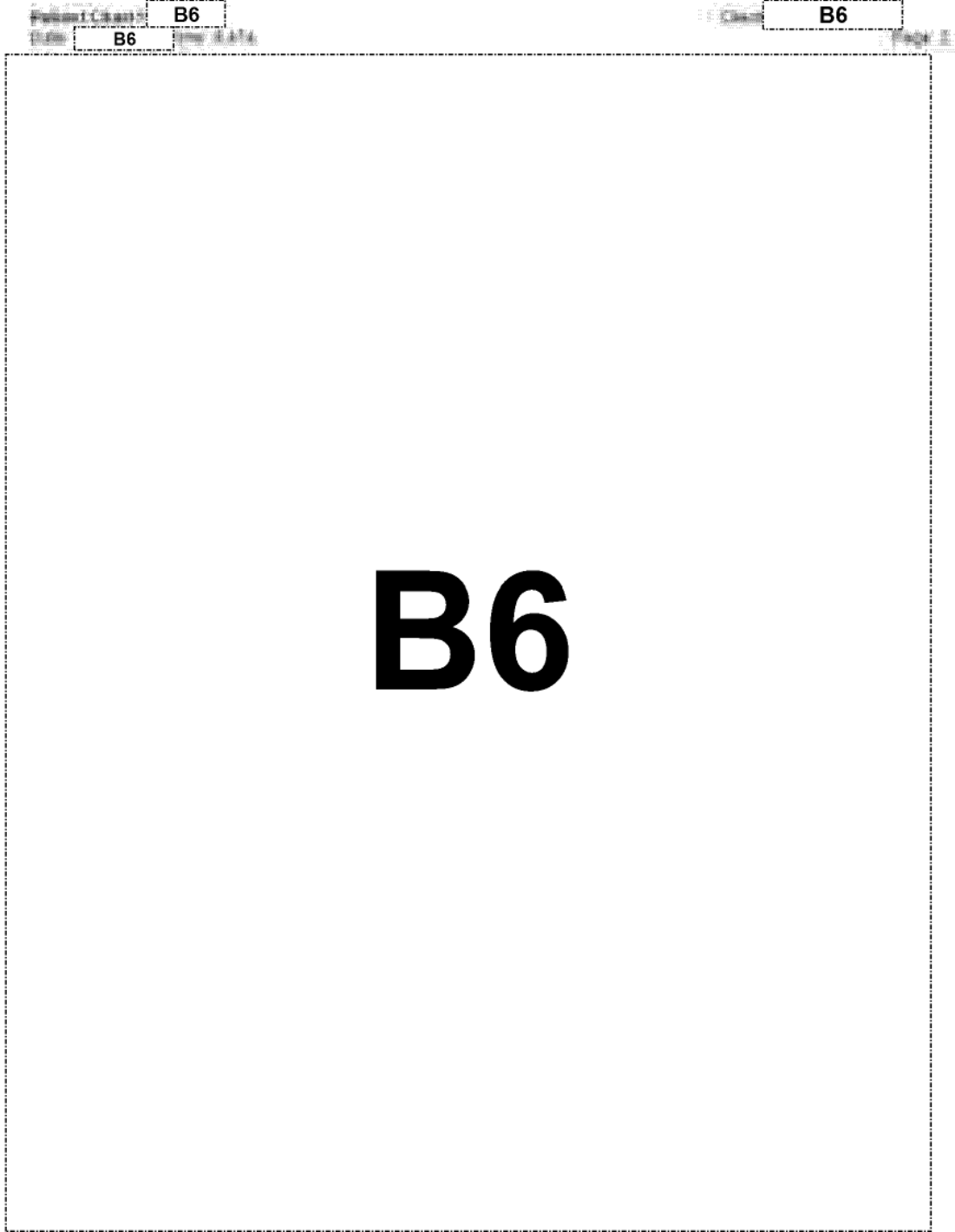
IMMUNIZATION

**B6**



Client: **B6**  
Patient: **B6**

RDVM - **B6** - Hx, Labs, 1/8/16 - 6/20/17



Client:  
Patient:

**B6**

RDVM

**B6**

- Hx, Labs, 1/8/16 - 6/20/17

Personnel, Client, and Site **B6** Client **B6**  
Date **B6** Date (Patient) **B6**  
Name Age Color Hemoglobin Date (Patient)

**B6**

Client: **B6**  
Patient:

RDVM **B6** - Hx, Labs, 1/8/16 - 6/20/17

**B6** **B6** **B6**

**B6**

Client:  
Patient:

**B6**

RDVM

**B6**

- Hx, Labs, 1/8/16 - 6/20/17

---

**B6**

Client: **B6**  
Patient: **B6**

Holter report 3/30/18

### CANINE HOLTER MONITORING REPORT

#### HOLTER MONITOR REPORT

Patient Name:	<b>B6</b>	Interg. Physician:	
Date of Birth:		Scan Number:	<b>B6</b>
ID:		Date Recorded:	3/30/2018 08:25:21
Age:	2 Year	Date Processed:	<b>B6</b>
Sex:	F	Recorder Issue:	02/18/17
Analyst:		Backup Tech:	
Physician:		Medications:	
Indications:	Heart		

**B6**

Physician's Signature

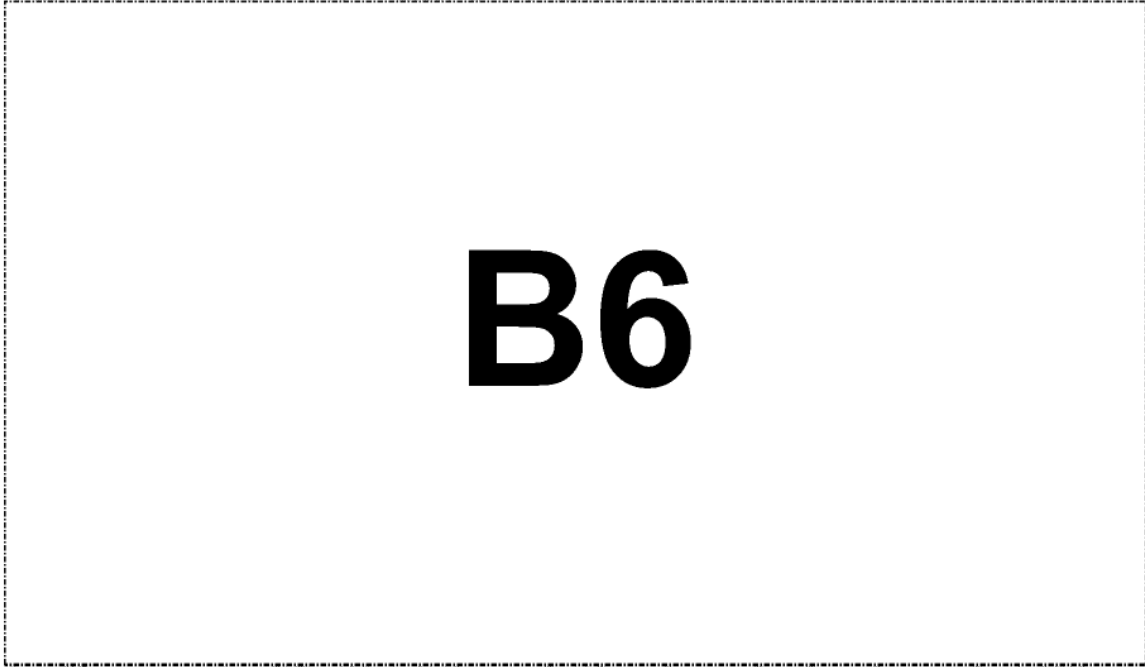
Client:  
Patient:

**B6**

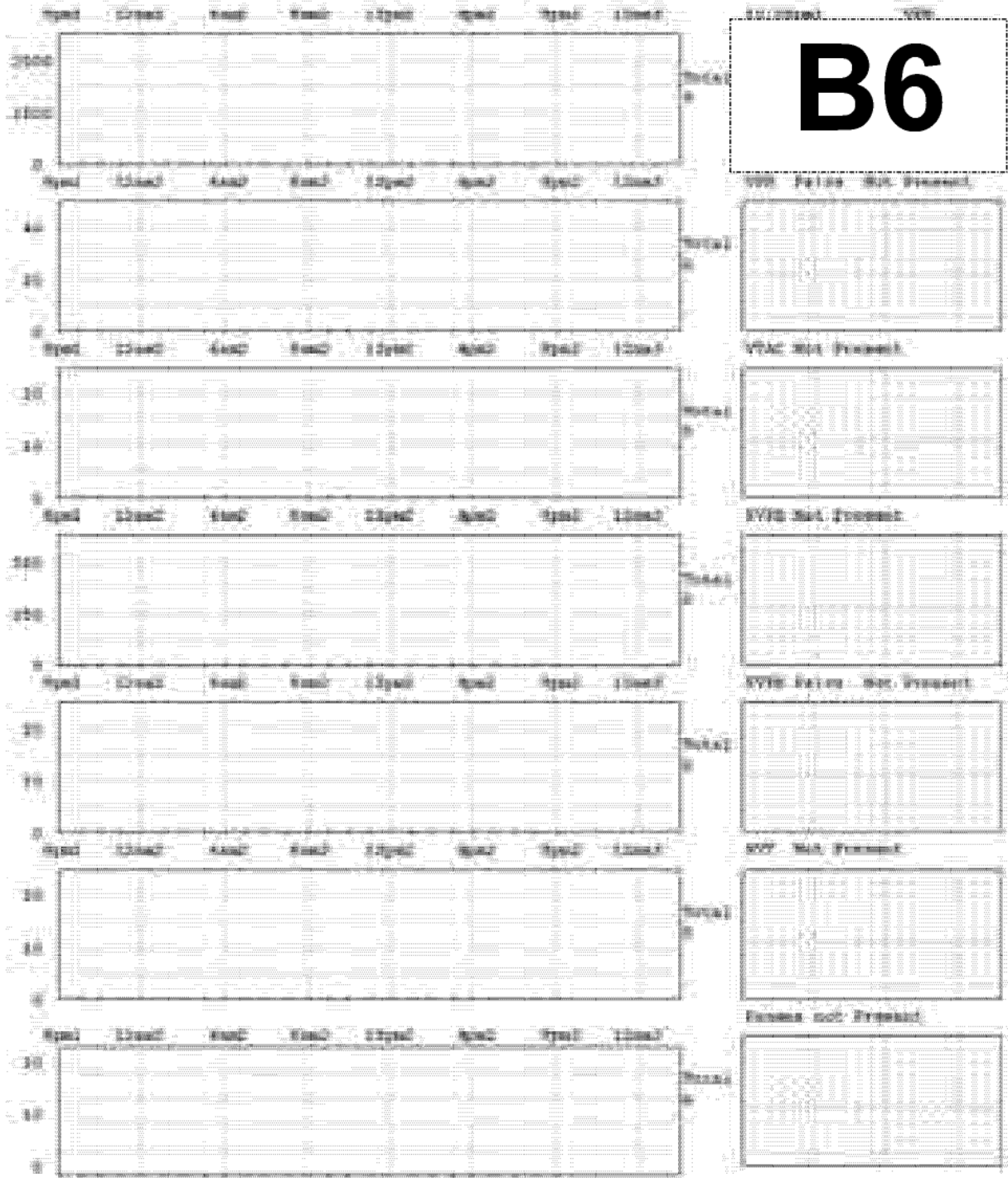
Holter report 3/30/18

Patient Name: **B6** ID: **B6** Date Received: **B6** Page: **B6**

GENERAL PROFILE



**CRITICAL EVENTS**

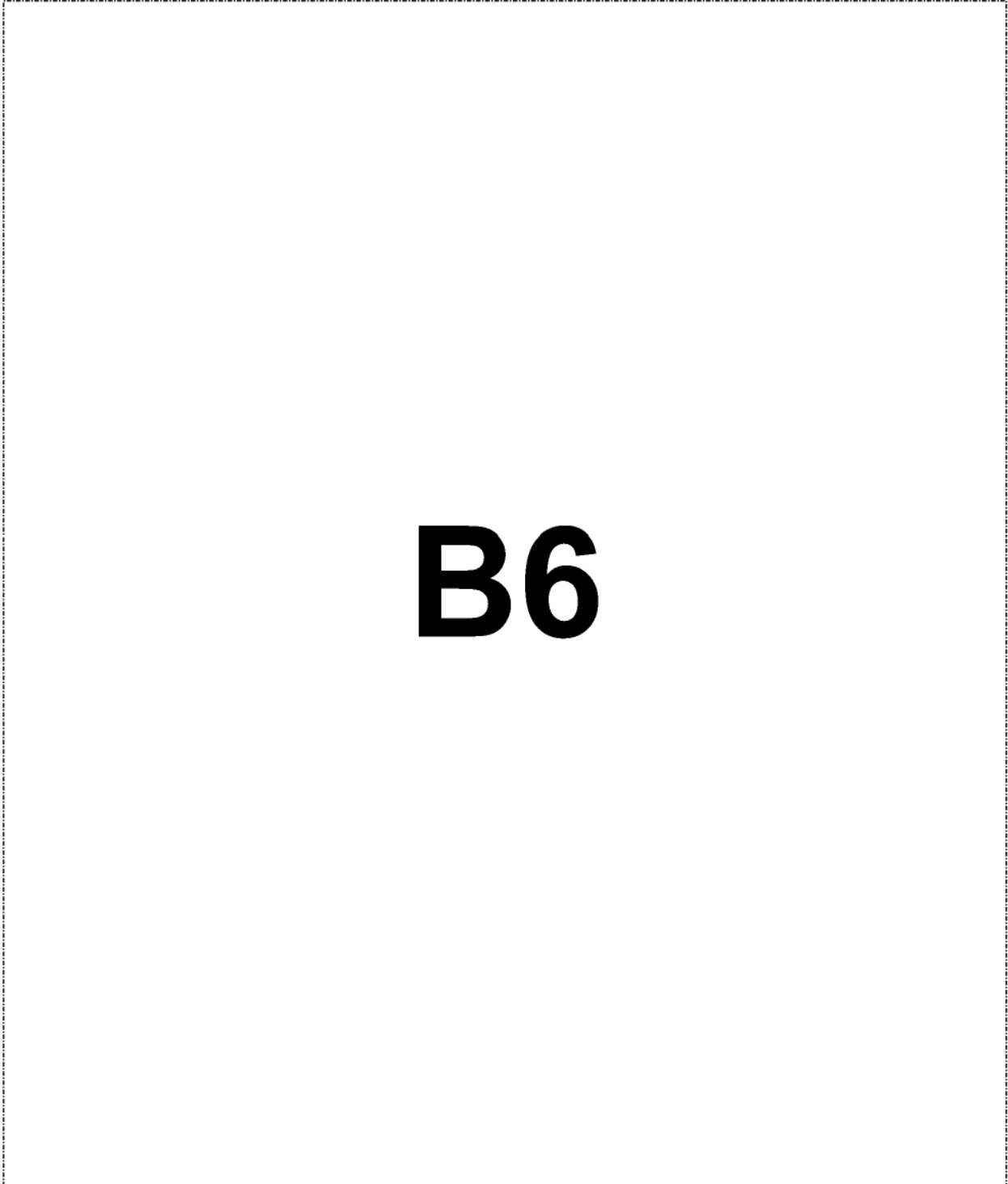


Client: **B6**  
Patient:

Holter report 3/30/18

Patient: **B6** ID: **B6** Date Recorded: **B6** Page: **B6**

**FULL-SIZED STRIPS**  
(Gain 0.25 mv/mm) ECG 25 mm/sec (ALL)





Client: **B6**  
Patient: **B6**

Holter report 3/30/18

Patient: **B6** ID: **B6** Date Recorded: **B6** Page: **B6**

**FULL-SIZED STRIPS**  
Gain 0.25 mv/mm ECG 25 mm/sec (ALL)

**B6**

Client: **B6**  
Patient: **B6**

Holter report 3/30/18

Patient: **B6** ID: **B6** Date Recorded: **B6** **B6** Page: **B6**

**FULL-SIZED STRIPS**

File: A:25-xxxx-ECG:25-xxxx-0111

**B6**

Client:  
Patient:

**B6**

Holter report 3/30/18

Patient: **B6** ID: **B6** Date Recorded: **B6** Page: **B6**

**FULL-SIZED STRIPS**

(Gain 0.25 mv/mm) ECG 25 mm/sec (ALL)

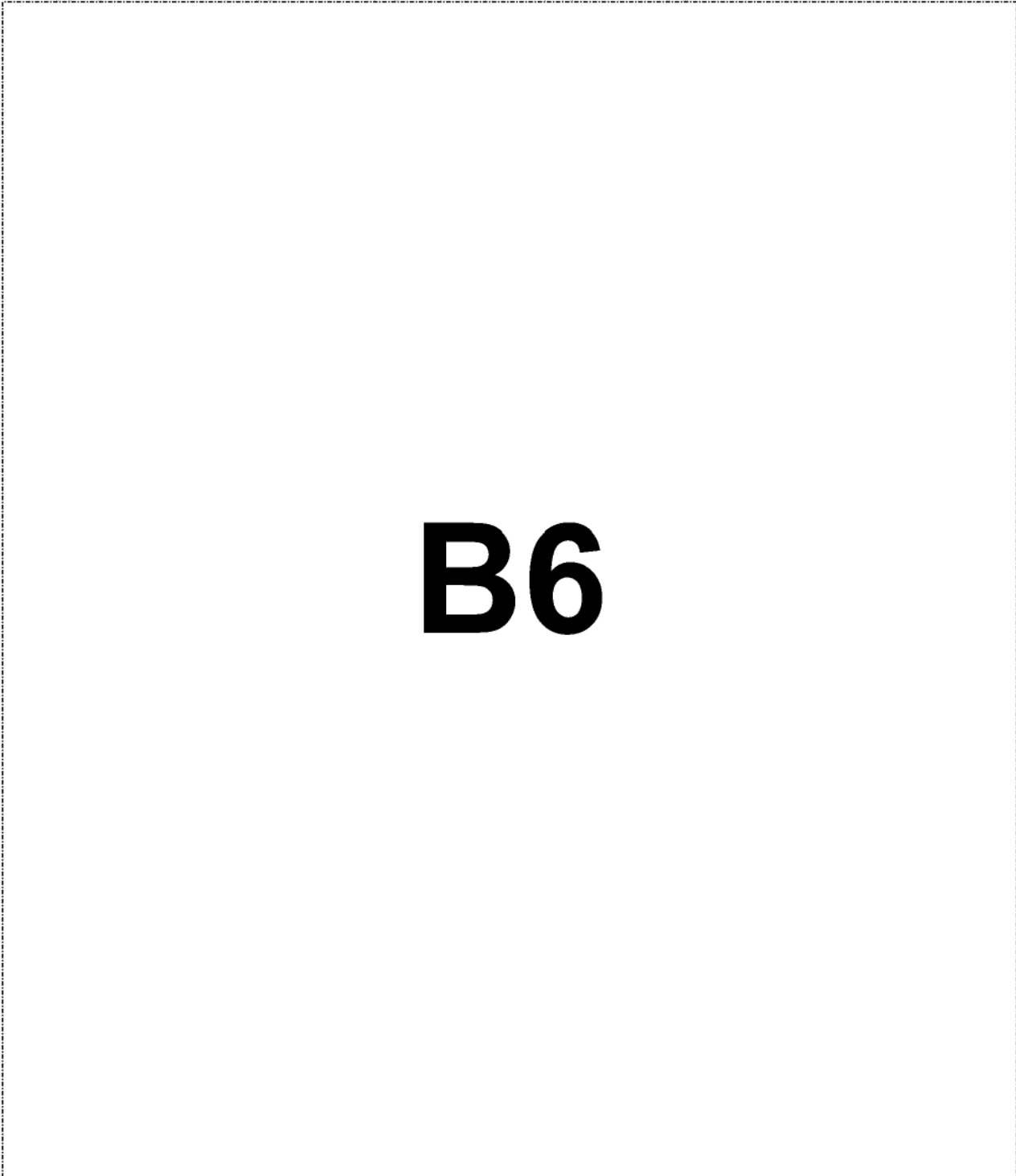
**B6**

Client: **B6**  
Patient: **B6**

Holter report 3/30/18

Patient: **B6** ID: **B6** Date Recorded: **B6** Page: **B6**

**FULL-SIZED STRIPS**  
(Gain 0.25 mv/mm) ECG 25 mm/sec (ALL)



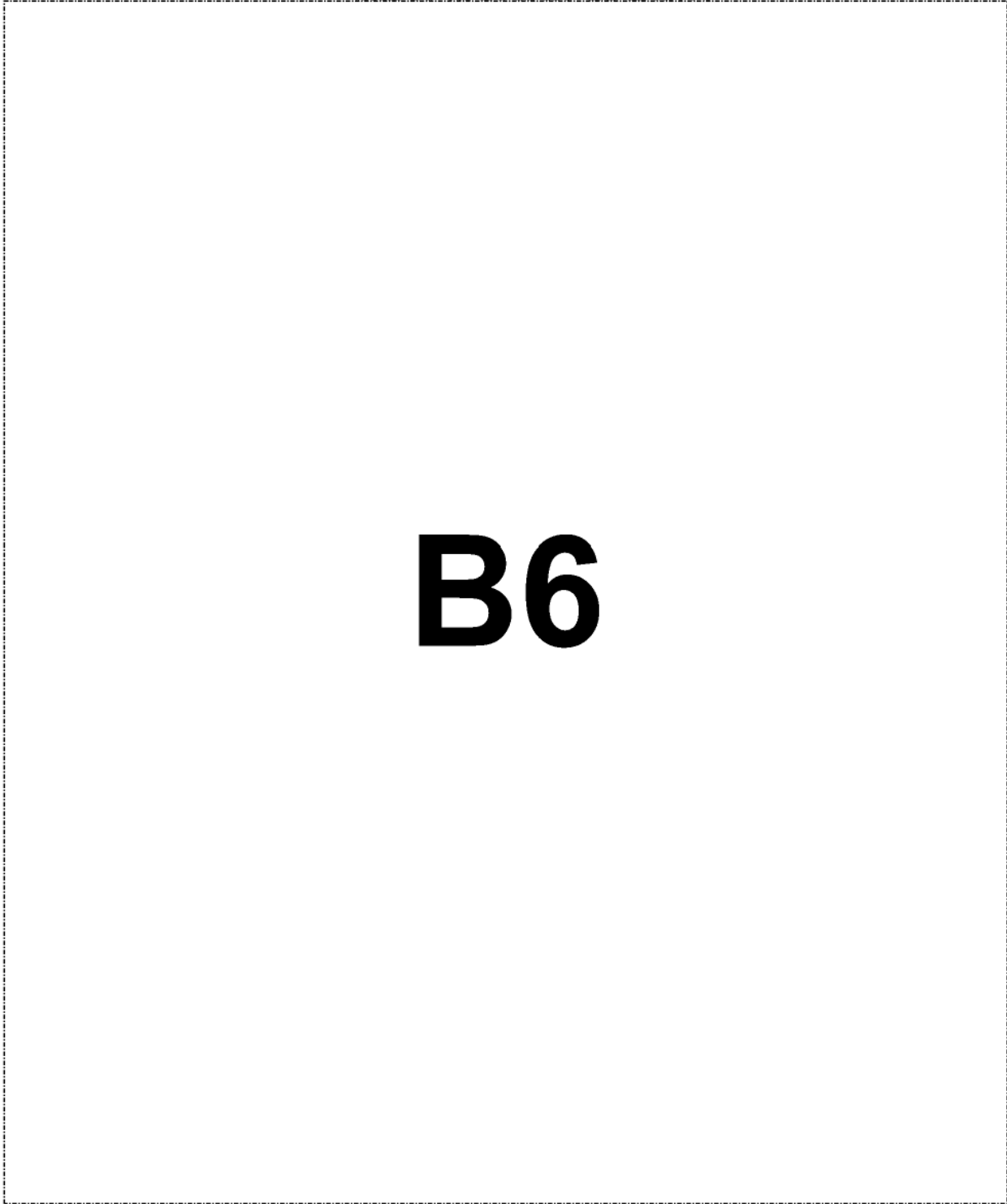
Client: **B6**  
Patient: **B6**

Holter report 3/30/18

Patient: **B6** ID: **B6** Date Recorded: **B6** **B6** Page: **B6**

**FULL-SIZED STRIPS**

(Rate: 25 mm/sec, A.C.G.T. mm/sec (411))



Client: **B6**  
Patient: **B6**

Holter report 3/30/18

Patient: **B6** ID: **B6** Date Recorded: **B6** Page: 11

**FULL-SIZED STRIPS**  
(Rate: 0.25 sec/box, ECG 25 mm/sec, ALL)

**B6**

Client: **B6**  
Patient:

Holter Monitor report 11/7/19

### CANINE HOLTER MONITORING REPORT

#### HOLTER MONITOR REPORT

Patient Name:	<b>B6</b>	Interp. Physician:	
Date of Birth:		Scan Number:	<b>B6</b>
ID:		Date Recorded:	<b>B6</b> 11/7/19
Age:	27 MONTHS	Date Processed:	11/6/2019
Sex:	F	Recorder Num:	021933
Analyst:		Hookup Tech:	
Physician:		Medications:	
Indications:	Quiet		

**B6**

Physician's Signature: \_\_\_\_\_

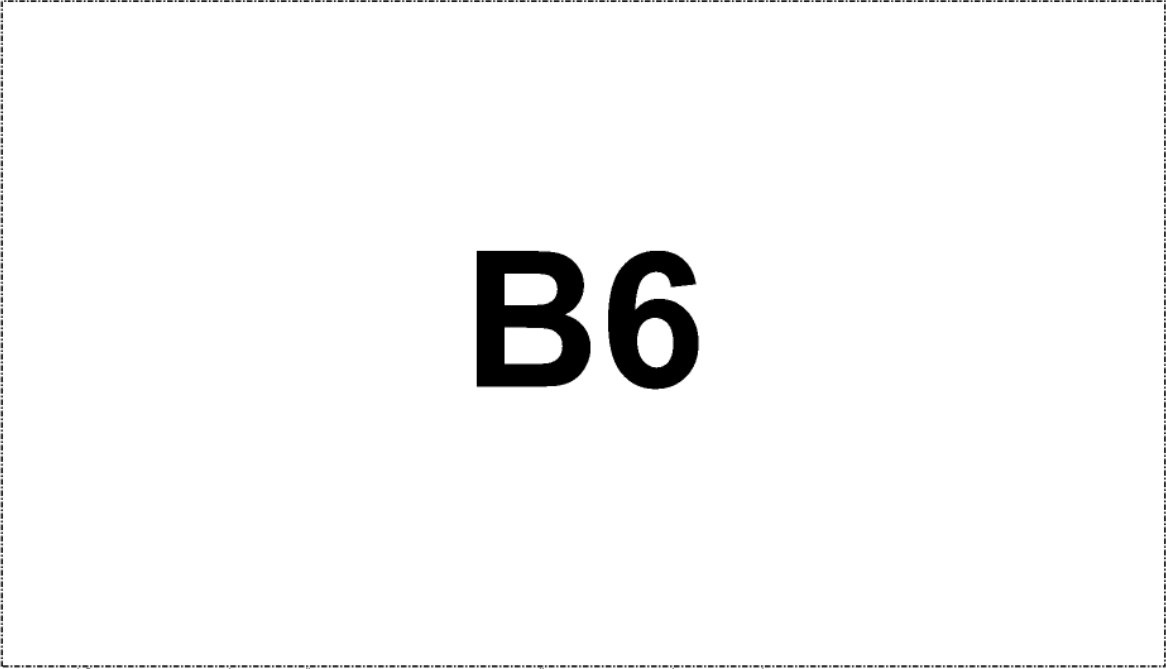
Client:  
Patient:

**B6**

**Holter Monitor report 11/7/19**

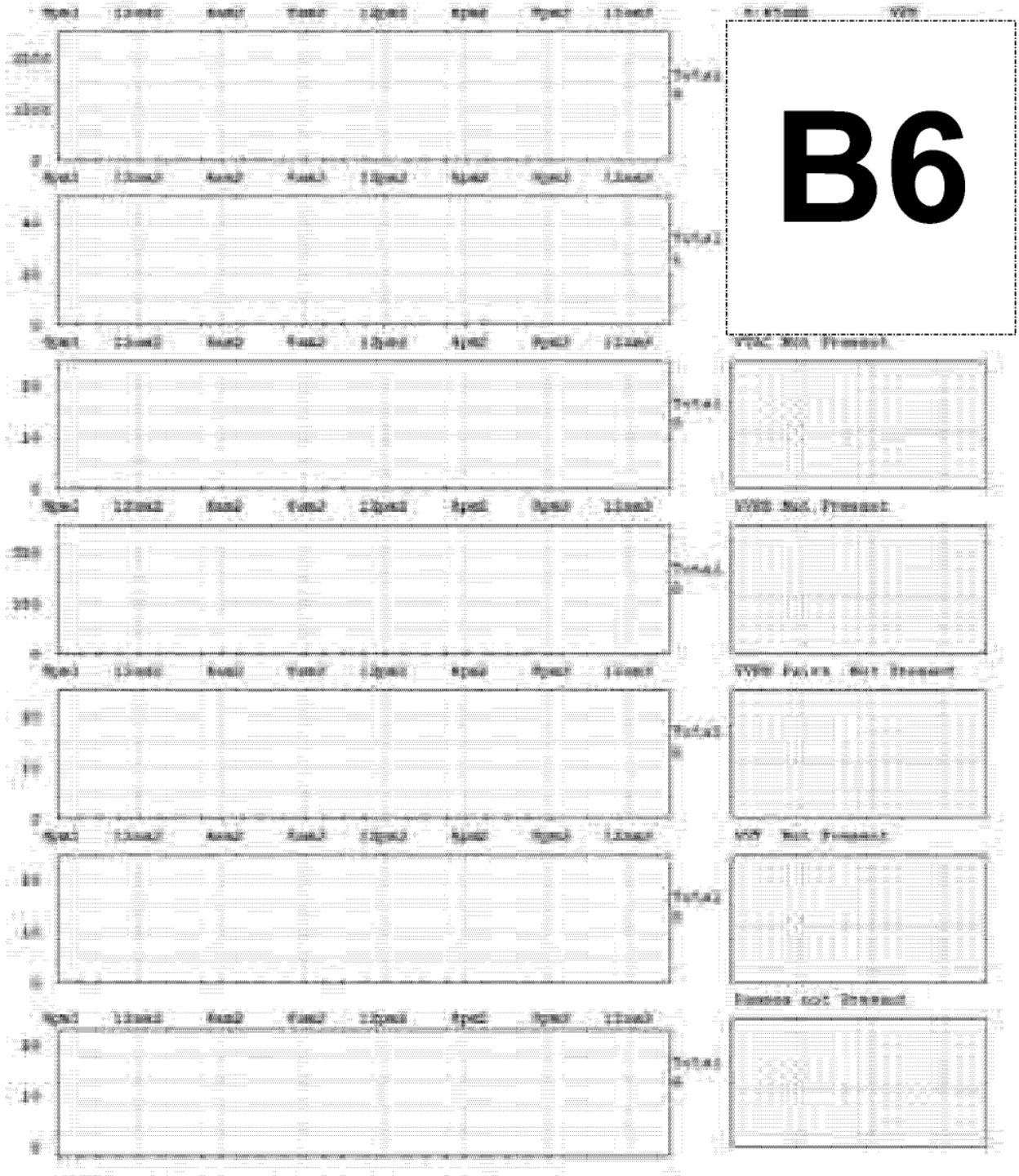
**B6**      **B6**      **Date Downloaded 11/7/2019**      **16:47**      **Page 1**

**GENERAL PROFILE**





CRITICAL EVENTS



Client: **B6**  
Patient:

Holter Monitor report 11/7/19

Patient: **B6** Date Recorded: 11/7/2019 10:47 Page: 1

**FULL-SIZED STRIPS**

From 0:50 minutes ECG 25 mm/sec (ALL)

**B6**

**B6**

Client: **B6**  
Patient: **B6**

Holter Monitor report 11/7/19

Patient: **B6** Date Recorded: **B6** Page: **B6**

FULL-SIZED STRIPS

ECG Machine: ECG Machine (M1)

**B6**

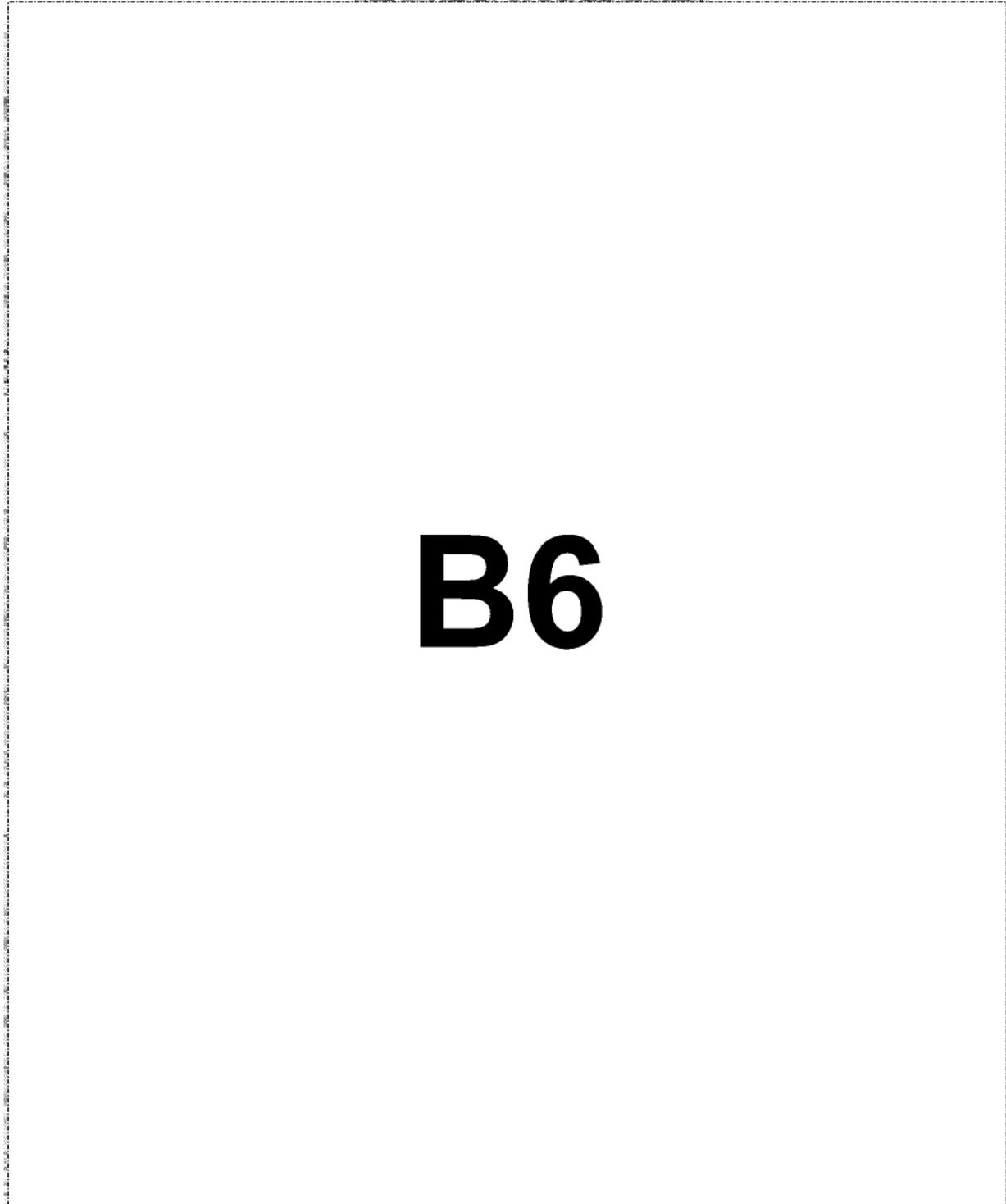
Client: **B6**  
Patient: **B6**

Holter Monitor report 11/7/19

Patient: **B6**      Date Recorded: **B6**      Page: **B6**

**FULL-SIZED STRIPS**

From 4:59 am to 4:59 am (ALL)



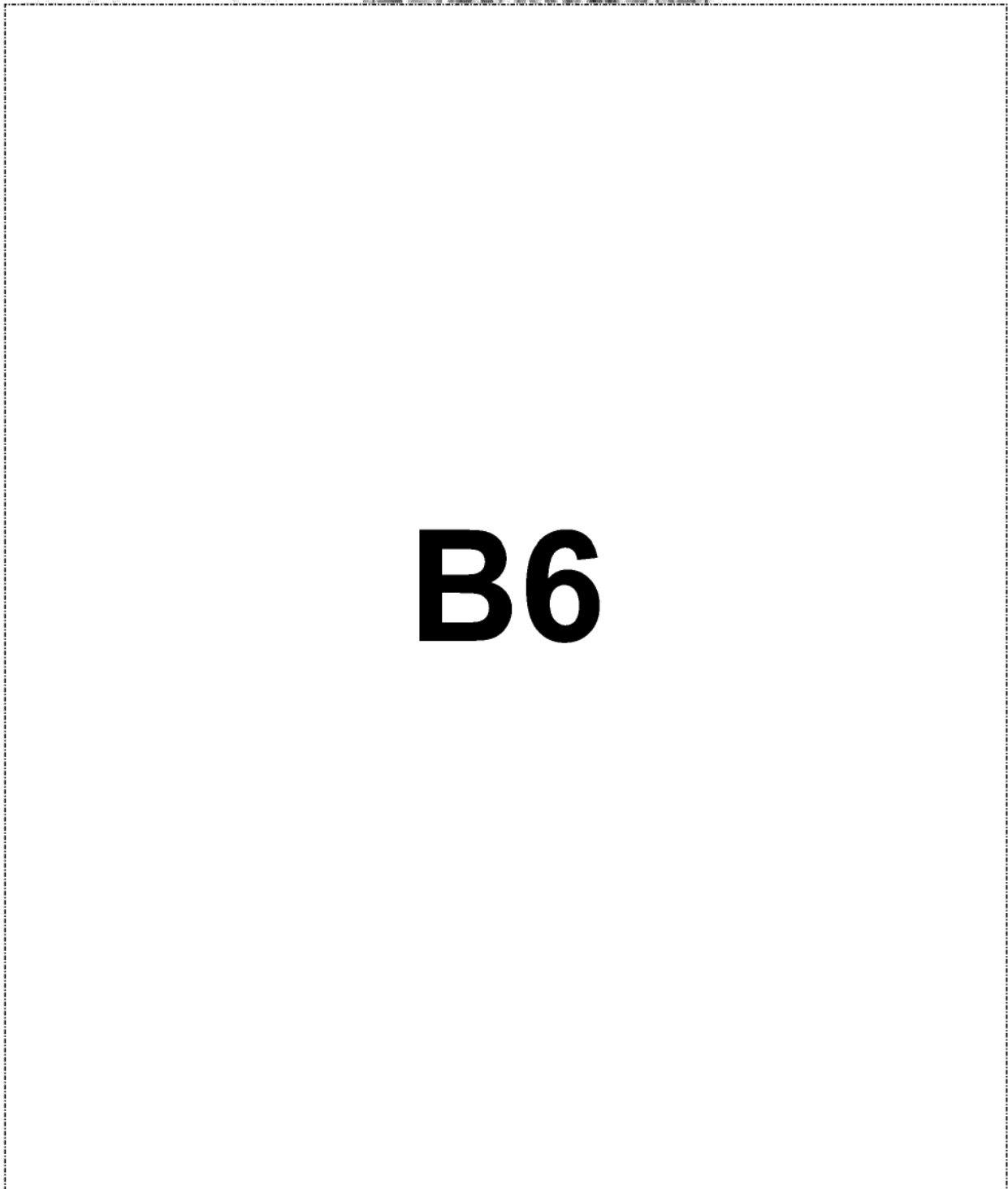
Client: **B6**  
Patient: **B6**

Holter Monitor report 11/7/19

Patient: **B6** Date Recorded: **B6** Page: 7

**FULL-SIZED STRIPS**

Form 4-59 rev. 10/11 ECG 12-lead (ALL)



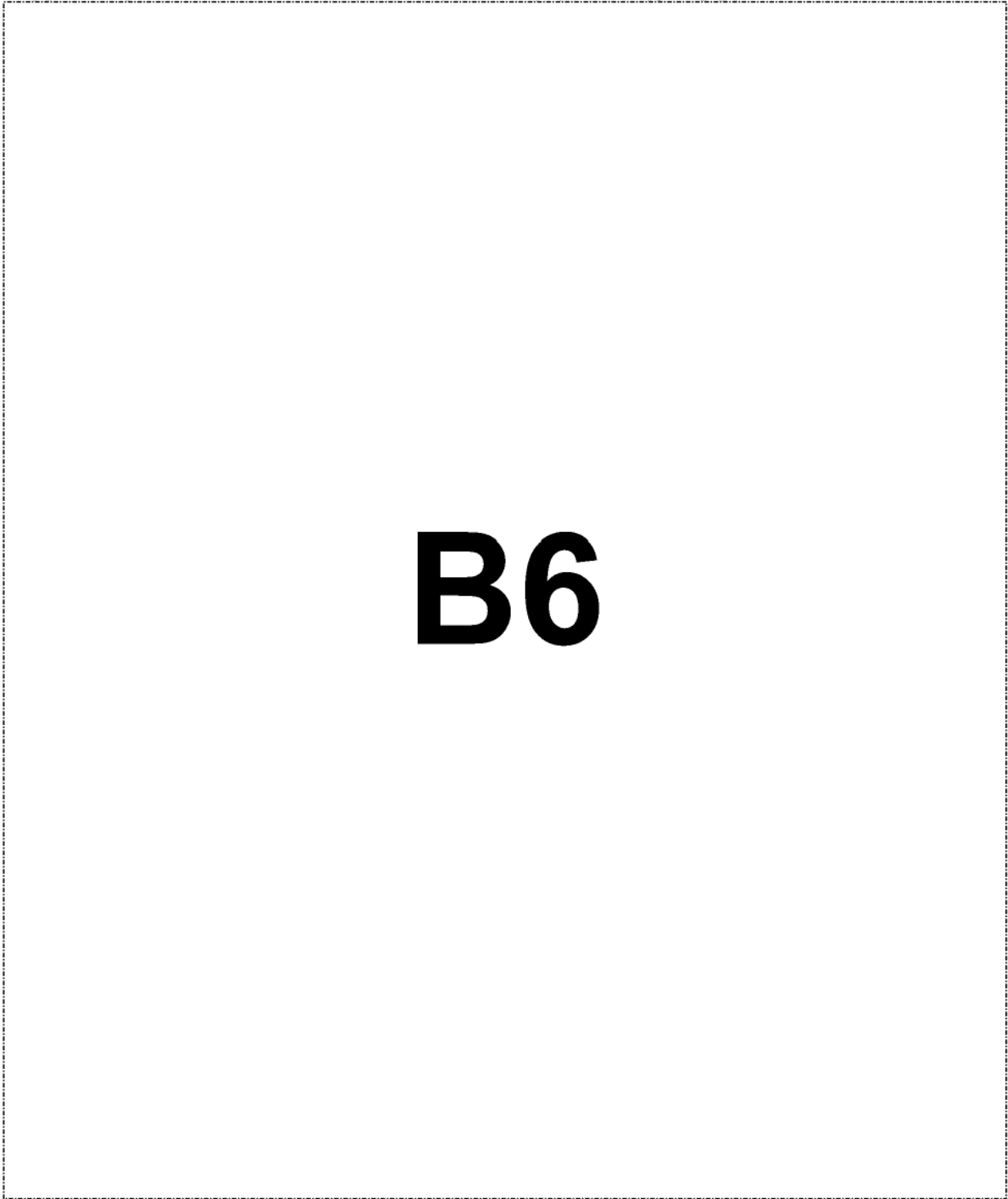
Client: **B6**  
Patient: **B6**

Holter Monitor report 11/7/19

Patient: **B6** ID: **B6** Date Recorded: **B6** Page: **B6**

**FULL-SIZED STRIPS**

From 0:59 min to 1:00 min (ALL)



Client: **B6**  
Patient:

Holter Monitor report 11/7/19

Patient: **B6** Date Recorded: **B6** Page: **B6**

**FULL-SIZED STRIPS**

From 4:50 am to 7:00 am (ALL)

**B6**

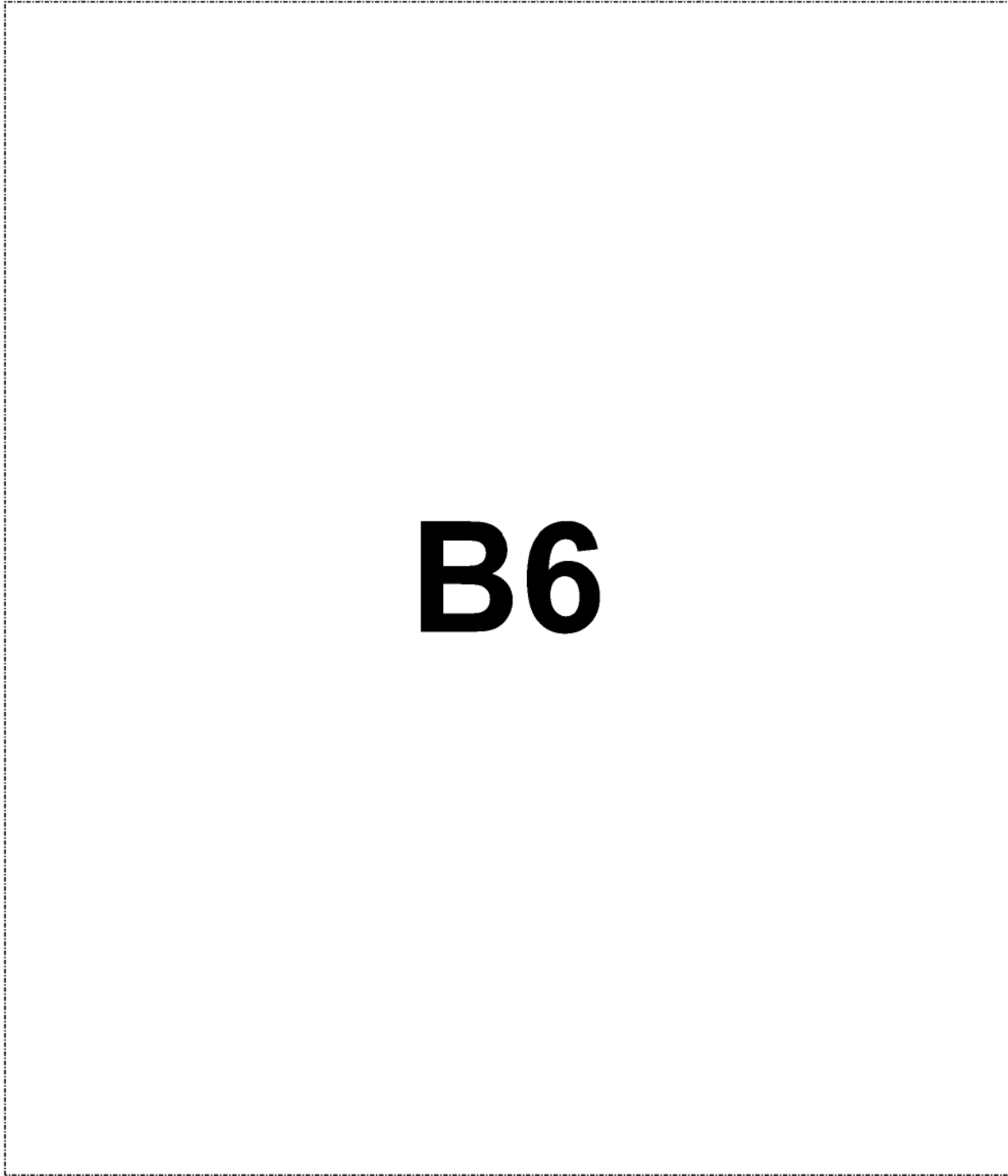
Client: **B6**  
Patient: **B6**

Holter Monitor report 11/7/19

Patient: **B6** ID: **B6** Date Recorded: **B6** Page: **B6**

**FULL-SIZED STRIPS**

From 0:50 min to 1:00 min (ALL)



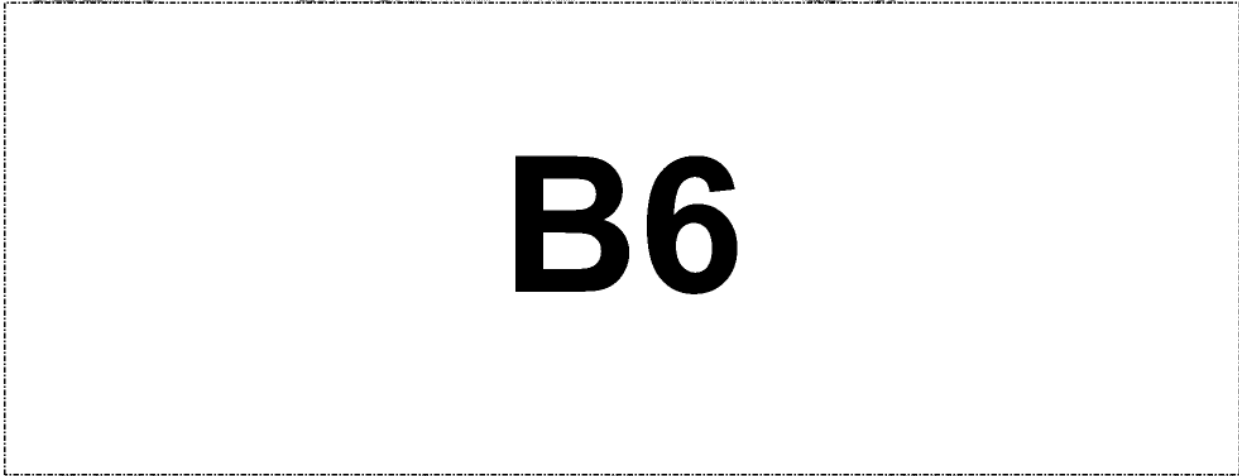


Client: **B6**  
Patient: **B6**

**Holter Monitor report 11/7/19**

Patient: **B6** Date Recorded: **B6** Page: **B6**

**FULL-SIZED STRIPS**  
From 0:50 minutes ECG 25 mm/sec (ALL)



Client: **B6**  
Patient: **B6**

Lab Results IDEXX CARDIOPET proBNP 11/15/18

Client: **B6**

Species: **B6**  
Breed: **B6**  
Gender: **B6**  
Age: **B6**

Regulation: **B6**  
Order #: **B6**

TEST INFORMATION: 1-800-421-0987  
IDEXX LABORATORIES  
200 WEST TRUCKEE RD  
FORT COLLINS, CO 80526  
JAN 2018

CARDIOPET proBNP (U/ml)

CARDIOPET proBNP (U/ml) **B6**      REFERENCE RANGE: **B6**

# B6

Client: **B6**  
Patient:

**Cardiac Troponin/Texgi SST 11/15/18**



Gastrointestinal Laboratory  
Dr. J.M. Steiner  
Department of Small Animal Clinical Sciences  
Texas A&M University  
4474 TAMU  
College Station, TX 77843-4474



Website User ID: [clinpath@tufts.edu](mailto:clinpath@tufts.edu)

GI Lab Assigned Clinic ID: 11485

<b>B6</b>	Phone:	508 887 4689
Tufts University-Clinical Pathology Lab	Fax:	9 508 839 7936
Attn: <b>B6</b>	Animal Name:	
200 WENDERS ROAD	Owner Name:	<b>B6</b>
North Grafton, MA 01536	Species:	Canine
USA	Date Received:	Nov 20, 2018

Tufts University-Clinical Pathology Lab	GI Lab Accession:	<b>B6</b>
Tracking Number: <b>B6</b>		

Test	Result	Reference Interval	Assay Date
------	--------	--------------------	------------

<b>B6</b>			
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Comments:

**B6**  
Canine  
11/15/2018 2:53 PM  
CARDIAC TROPONIN-TEXGI  
SST

GI Lab Contact Information

Phone: (979) 862-2861  
Fax: (979) 862-2864

Email: [glab@svm.tamu.edu](mailto:glab@svm.tamu.edu)  
[vetmed.tamu.edu/gilab](mailto:vetmed.tamu.edu/gilab)

Client:  
Patient:

**B6**

**Cardiac Troponin/Texgi SST 11/15/18**



Gastrointestinal Laboratory  
Dr. J.M. Steiner  
Department of Small Animal Clinical Sciences  
Texas A&M University  
4474 TAMU  
College Station, TX 77843-4474



**Important  
Notices:**

**Ongoing studies**

**Cobalamin Supplementation Study-** Dogs and cats with cobalamin deficiency with normal PLI and either normal or low (consistent with EPI) TLI to compare the efficacy of oral vs parenteral cobalamin supplementation. Contact Dr. Chang at [cchang@cvm.tamu.edu](mailto:cchang@cvm.tamu.edu) for further information.

**Chronic Pancreatitis with Uncontrolled Diabetes Mellitus-** Seeking dogs with chronic pancreatitis and uncontrolled diabetes mellitus for enrollment into a drug trial (medication provided at no cost). Contact Dr. Sue Yee Lim at [sylim@cvm.tamu.edu](mailto:sylim@cvm.tamu.edu) or Dr. Sina Marsilio at [smarsilio@cvm.tamu.edu](mailto:smarsilio@cvm.tamu.edu)

**Dogs with Primary Hyperlipidemia-** Prescription diet naïve dogs newly diagnosed with primary hyperlipidemia are eligible to be enrolled in a dietary trial. Contact Dr. Lawrence at [ylawrence@cvm.tamu.edu](mailto:ylawrence@cvm.tamu.edu) for more information.

**Dogs with Chronic Pancreatitis-** Dogs with chronic pancreatitis (cPLI >400 µg/L) and hypertriglyceridemia (>300 mg/dl) are eligible to be enrolled in a dietary trial. Contact Dr. Lawrence at [ylawrence@cvm.tamu.edu](mailto:ylawrence@cvm.tamu.edu)

**Chronic enteropathies in dogs-** Please fill out this brief form <http://tinyurl.com/ibd-enroll> to see if your patient qualifies.

**Feline Chronic Pancreatitis-** Cats with chronic pancreatitis for more than 2 weeks and cPLI >10 µg/L are eligible for enrollment into a treatment trial investigating the efficacy of prednisolone or cyclosporine. Please contact Dr. Yamkate for further information at [pyamkate@cvm.tamu.edu](mailto:pyamkate@cvm.tamu.edu).

**We can not accept packages that are marked "Bill Receiver"**

Use our preprinted shipping labels to save on shipping. Call 979-862-2861 for assistance. The GI Lab is not here to accept packages on the weekend. Samples may be compromised if you ship for arrival on Saturday or Sunday or if shipped via US Mail.

**GI Lab Contact Information**

Phone: (979) 862-2861  
Fax: (979) 862-2864

Email: [glab@cvm.tamu.edu](mailto:glab@cvm.tamu.edu)  
[vetmed.tamu.edu/glalab](mailto:vetmed.tamu.edu/glalab)

Client: **B6**  
Patient:

**TAURINE Panel 11/15/18**

Animal Care Lab, Inc. 2004 Veterinary West, Unit 1000, Grand Island, NE 68881  
Telephone: 402-752-5056 Fax: 402-752-4664  
Email: [info@animalcarelab.com](mailto:info@animalcarelab.com)  
[www.animalcarelab.com](http://www.animalcarelab.com)

Veterinarian Contact: **B6**

Clinic/Company Name: Tyler Cummings School of Vet. Med. - Clinical Pathology Laboratory

Address: 300 Westboro Road, North Grafton, MA 01536

Email: clp@tylercumings.edu *clp@tylercumings.edu*

Telephone: 508-857-8892 Fax: 508-858-7108

Billing Contact: **B6** Email: **B6**

Billing Contact Phone: **B6** Tax ID: \_\_\_\_\_

Patient Name: **B6** Species: cat

Breed: si Owner's Name: **B6**

Current Diet: cat food

Sample type:  Plasma  Whole Blood  Urine  Food **B6**

Test:  Taurine  Complete Amino Acids  Other: \_\_\_\_\_ **B6** 2:53 PM  
Canine  
TAURINE PANEL  
Lithium Hepatic

Taurine Results (lab use only)

Plasma: **B6** Whole Blood: **B6** Urine: \_\_\_\_\_ Food: \_\_\_\_\_

	Plasma (nMol/ml)		Whole Blood (nMol/ml)	
	Normal Range	No known risk for deficiency	Normal Range	No known risk for deficiency
Cat	80-120	>40	300-600	>200
Dog	60-120	>40	200-350	>150

\* Please note with the recent increase in the number of dogs screened for taurine deficiency, we are seeing dogs with values within the reference ranges (or above the 'no known risk for deficiency range') yet are still exhibiting signs of cardiac disease. Veterinarians are welcome to contact our laboratory for assistance in evaluating your patient's results.



**CARDIOLOGY SERVICE UPDATE: DOG FOOD & DILATED CARDIOMYOPATHY**

The Cardiology Service has developed this document in response to the alerts from the FDA. These alerts identify an associated risk for some grain-free diets containing certain ingredients (legumes like peas, pea components, lentils; white potatoes, sweet potatoes) and a diagnosis of dilated cardiomyopathy (DCM). The links provided throughout this document can be copied and pasted to obtain additional information.

FDA Alerts found here:

<https://www.fda.gov/Animal/Veterinary/News/Events/CVM/updates/cvm613305.htm>

<https://www.fda.gov/Animal/Veterinary/Resources/Information/AnimalHealth/Alerts/cvm616279.htm>

**What is Dilated Cardiomyopathy (DCM)?**

DCM is a heart muscle disorder that results in a weak pump function and heart chamber enlargement. In the early stages of this disease pets may appear totally healthy with no apparent clinical signs. Later in the course of this disease, dogs may have a heart murmur, an arrhythmia (irregular heart beat), collapse episodes, weakness or tiredness with exercise, and even trouble breathing from congestive heart failure. While there are some breeds of dogs (like Doberman) that have a genetic predisposition to development of DCM, there are also nutritional factors that may result in this disease.

**What should I do?**

If you are feeding a diet of concern based upon the FDA alert we recommend that you consult with your veterinarian or veterinary cardiologist. We provide 4 general points for guidance below:

1. An initial step is to consider whether you are willing or interested in performing additional testing to assess whether your pet is affected with DCM. If you believe your dog is at risk, showing any of the aforementioned clinical signs or would prefer to simply rule out any heart disease, we recommend that you first have your pet's taurine levels tested (both whole blood and plasma levels) as well as seek an echocardiogram by a board-certified veterinary cardiologist. Low taurine levels are associated with development of DCM in dogs and are sometimes a component of this current issue.

Information on taurine testing can be found here: <https://www.vetmed.ucdavis.edu/labs/taurine-acid-laboratory>

2. At this time, diet change is recommended when possible and should be considered regardless of the results obtained from any testing. You can consult with your veterinarian in selecting a new diet that avoids the ingredients of concern listed by the FDA. When selecting this diet, we recommend that you choose a diet that is manufactured with rigorous quality control measures and research behind the formulation. A way to ensure that your diet meets these recommendations is to follow the following guidelines that were generated by a large number of the world's leading experts in veterinary nutrition.

Food selection guidelines found here:

<https://www.arsnia.org/NSAV/AMedia/Article-and-Emma-editorial/Selecting-the-Best-Food-for-your-Pet.pdf>

3. If your pet is identified through testing to have a low blood taurine level or evidence of DCM by echocardiogram, we urge you to report this information to the FDA.

FDA reporting guidelines found here: <https://www.fda.gov/Animal/Veterinary/SafetyHealth/ReportsProblem/cvm162403.htm>

4. Work with your veterinarian(s) to determine the best course of action and medical treatments if indicated. In the case of a DCM diagnosis, diet change alone may not be sufficient and additional medications may be prescribed.

Please continue to monitor the FDA website and the UC Davis School of Veterinary Medicine Newsfeeds for updates and recommendations regarding this issue.

Client: **B6**  
 Patient: **B6**

Diet hx

CARDIOLOGY DIET HISTORY FORM

Please answer the following questions about your pet.

Pet's name: **B6** Owner's name: **B6** days old: 14/5/2018

1. How well does your pet's appetite? (mark the good on the line below that best describes your pet's appetite)  
 (Example: Poor \_\_\_\_\_ | \_\_\_\_\_ Excellent)  
 Poor \_\_\_\_\_ | \_\_\_\_\_ Excellent

2. Have you noticed a change in your pet's appetite over the last 1-2 weeks? (check all that apply)  
 Eats about the same amount as usual  Eats less than usual  Eats more than usual  
 Seems to prefer different foods than usual  Other \_\_\_\_\_

3. Over the last few weeks, has your pet (check one)  
 Lost weight  Gained weight  Stayed about the same weight  Don't know

4. Please list below ALL pet foods (people food, treats, snack, dental chews, rawhides, and any other food item that your pet currently eats. Please include the brand, specific product, and flavor so we know exactly what your pet is eating.

Examples are shown in the table - please provide enough detail that we could go to the store and buy the exact same food

Food (include specific product and flavor)	Form	Amount	How often?	Fed since
Nuro Green Free Chicken, Lamb & Sweet Potato Adult	dry	1 1/2 cups	Today	Jan 2018
10% lean hamburger	microwaved	2 oz	1x/week	Jan 2018
Supperin original beef flavor	treat	N	Today	Aug 2015
Mazuri	treat	2 inch treat	1x/week	Dec 2014
Top Notch - Mountain Forest Blend	dry	1 1/4	2x/day	Jan 2018
Supperin - Beef and Lamb	treat	1 treat	3x/week	Jan 2018
Raw Chicken (deboned, skinless)		1/2 cup	1-2x/week	Jan 2018
Cubed Tuna (in olive oil)		1/2 cup	1-2x/week	Jan 2018
Supperin - Beef and Lamb		1/4 cup	2x/day	Jan 2018

Any additional diet information can be listed on the back of this sheet

5. Do you give any dietary supplements to your pet (for example, vitamins, glucosamine, fatty acids, or any other supplements)?  Yes  No If yes, please list which ones and give brands and amounts.

	Brand/Concentration	Amount per day
Taurine	<input type="checkbox"/> Yes <input type="checkbox"/> No	
CoQ10	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Articidin	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Multivitamin	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Fish oil	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Coenzyme Q10	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Other (please list)		
Example: Vitamin C	Nature's Bounty	500 mg tablets - 1 per day
<u>NSER</u>	<u>NSER - All natural supplement</u>	<u>1 scoop / (1/2 tsp)</u>

6. How do you administer pills to your pet?  
 I do not give any medications  
 I put them directly in my pet's mouth without food  
 I put them in my pet's doggie food  
 I put them in a Pill Pocket or similar product  
 I put them in food/treat small piece of (treat) 1x/day

Client: **B6**  
Patient:

**Vitals Results**

<b>B6</b>	5 3:29:53 PM	Weight (kg)	<b>B6</b>
<b>B6</b>	6 2:23:42 PM	Weight (kg)	
<b>B6</b>	7 10:41:26 AM	Weight (kg)	
<b>B6</b>	2:45:48 PM	Weight (kg)	
<b>B6</b>	2:01:47 PM	Weight (kg)	



Client:  
Patient:

**B6**

ECG from Cardio

**B6**

**B6**

01-08-14 09:00  
Tulane University  
New Orleans, Louisiana 70130  
USA

**B6**

Client:  
Patient:

**B6**

**ECG from Cardio**

---

**B6**

**B6**

Page 3 of 8  
Full Disclosure Report of the  
Company

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**B6**

Client:  
Patient:

**B6**

**ECG from Cardio**

**B6**

**B6**

01/11/18 09:00 Page 2 of 8  
Full Name: [Redacted]  
Ref: [Redacted]  
[Redacted]

**B6**

Client: **B6**  
Patient: **B6**

**ECG from Cardio**

**B6**

**B6**

01/01/2019  
Tulane University  
New Orleans, Louisiana 70112  
Page 1 of 1

**B6**

Client: **B6**  
Patient:

**ECG from Cardio**

**B6**

**B6**

01/11/2019 Page 7 of 8  
Tulane University  
New Orleans, Louisiana 70112  
1-504-885-8100

**B6**

Client:  
Patient:

**B6**

ECG from Cardio

**B6**

**B6**

01/01/01 00:00  
Tulane University  
New Orleans, Louisiana 70130  
1/1/2001

**B6**

Client:  
Patient:

**B6**

---

**ECG from Cardio**

---

**B6**

**B6**

01/01/2014 09:00  
Tutor Learning  
PDF GENERATED BY THE SYSTEM

---

**B6**

Client:  
Patient:

**B6**

**ECG from Cardio**

**B6**

**B6**

00-43-000 Page 1 of 8  
FDA Center for  
Vaccines, Biologics, and  
Blood Products

**B6**



Client:  
Patient:

**B6**

**ECG from Cardio**

---

**B6**

**B6**

08-07-09 Page 1 of 1  
FDA Center for  
Vaccines and  
Biologics

**B6**

Client: **B6**  
Patient:

Alba Hotler

### CANINE HOLTER MONITORING REPORT

#### HOLTER MONITOR REPORT

Patient Name:	<b>B6</b>	Interp. Physician:	
Date of Birth:		Scan Number:	
ID:	<b>B6</b>	Date Recorded:	<b>B6</b>
Age:		Date Processed:	6/2/2017
Sex:		Recorder Id:	264721
Analyst:		Backup Tech:	
Physician:		Medications:	
Indications:			

**B6**

Physician's Signature

Client: **B6**  
Patient: **B6**

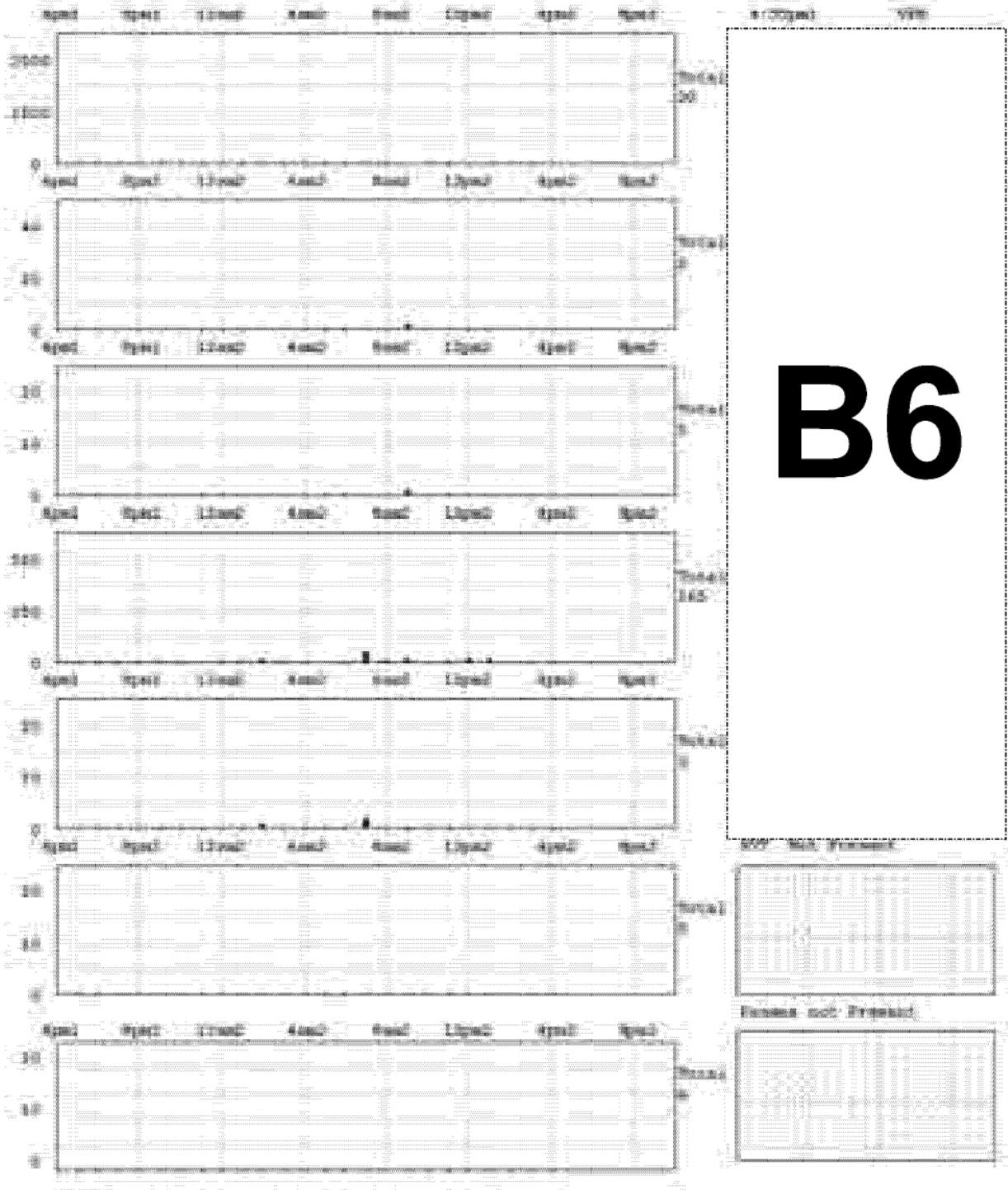
Alba Hotler

Patient: **B6** ID: **B6** Date Received: **B6** Page: **B6**

GENERAL PROFILE

**B6**

CRITICAL EVENTS



Client:  
Patient: **B6**

Alba Hotler

Patient: **B6** ID: **B6** Date Received: **B6** Page: **B6**

FULL-SIZED STRIPS

**B6**

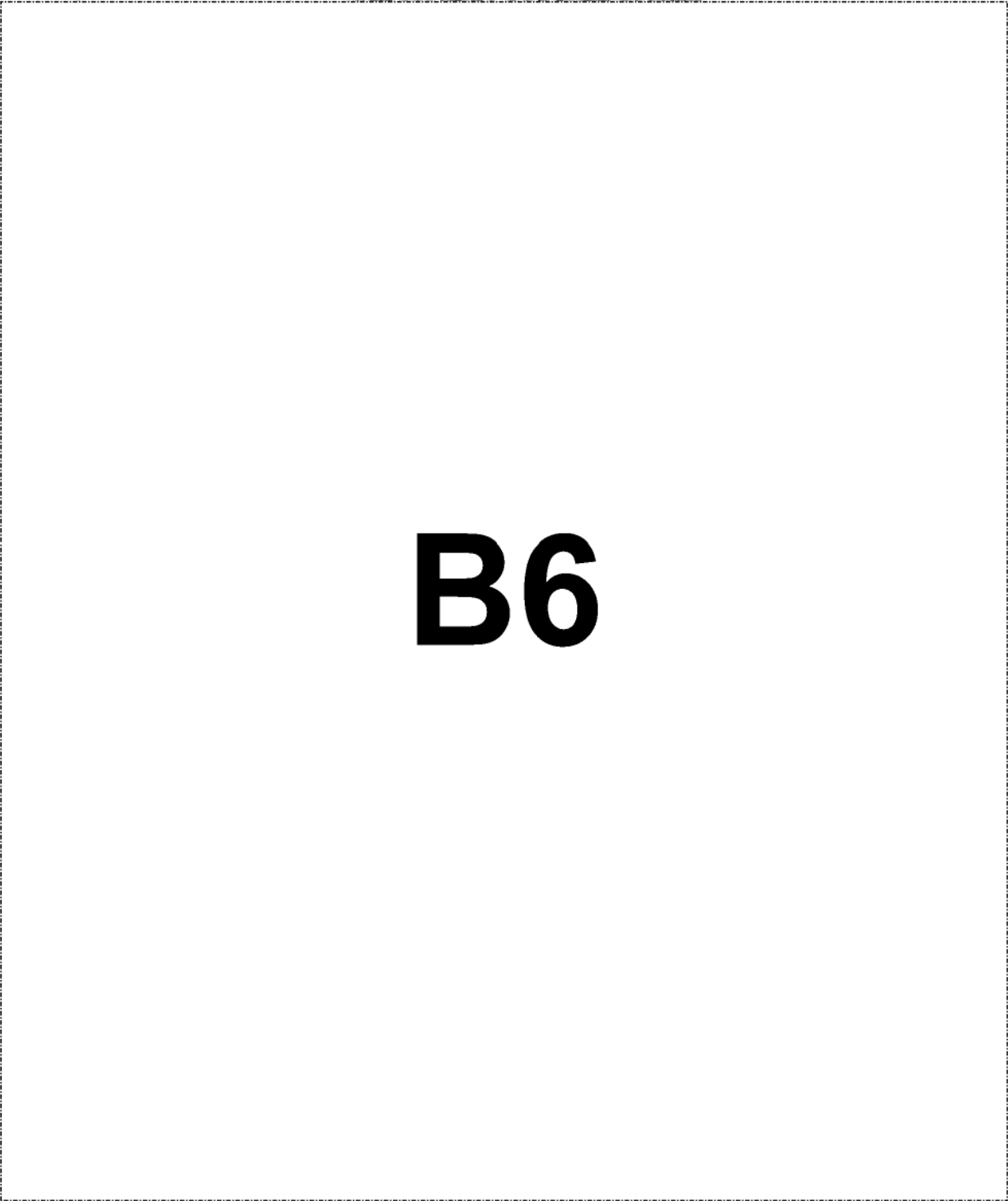
Client: **B6**  
Patient: **B6**

Alba Hotler

Patient: **B6** ID: **B6** Date Received: **B6** Page: **B6**

**FULL-SIZED STRIPS**

(Date: 0.00, 00:00, ECG: 11, 00:00, sec: 1111)



Client:  
Patient:

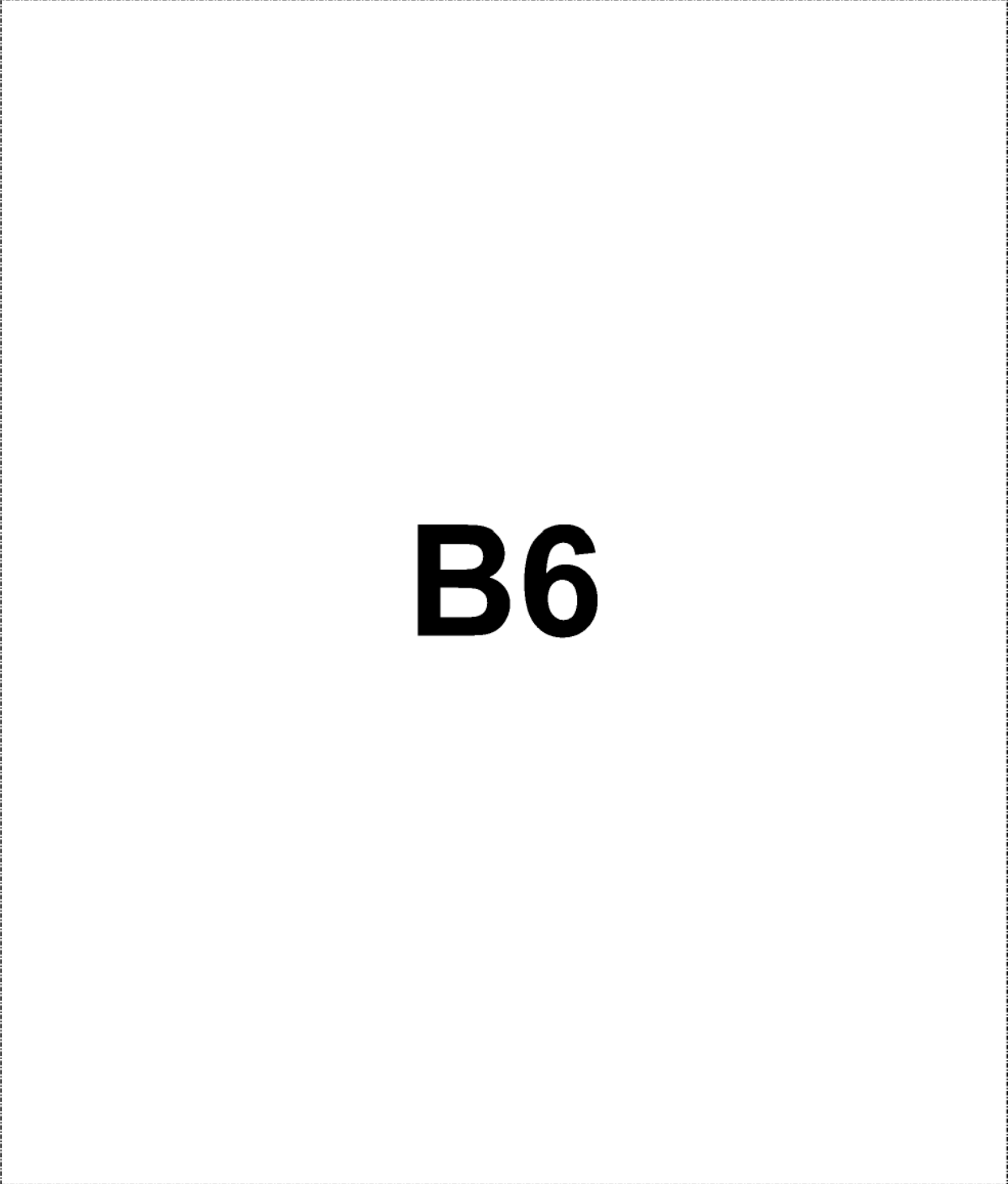
**B6**

Alba Hotler

Patient: **B6** ID: **B6** Date Recorded: **B6** Page: **B6**

**FULL-SIZED STRIPS**

(Gain 0.50 cm/sec) ECG 25 mm/sec (ALL)



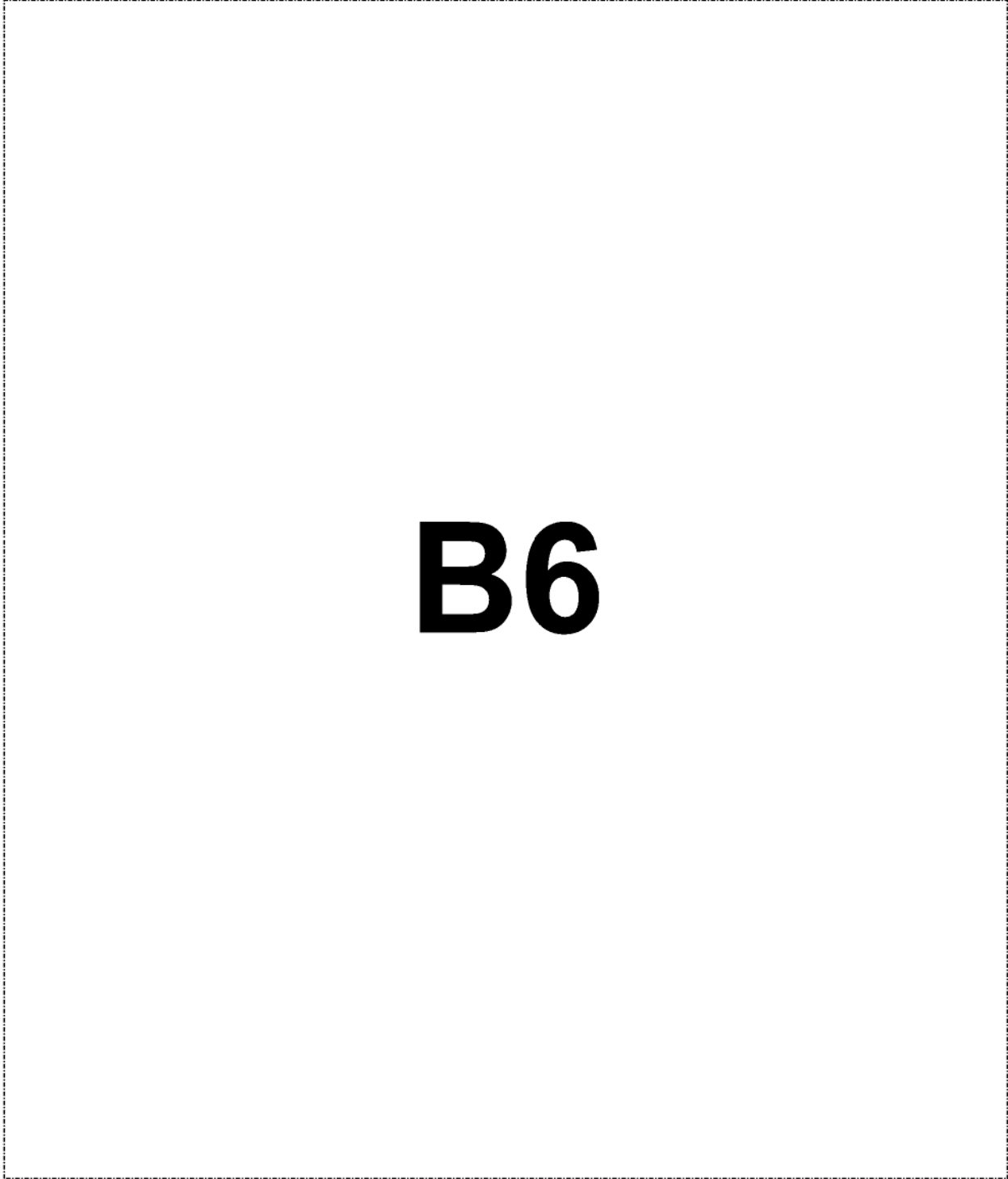
Client: **B6**  
Patient: **B6**

Alba Hotler

Patient: **B6** ID: **B6** Date Received: **B6** Page: **B6**

**FULL-SIZED STRIPS**

(Strip 0.50 mm x 1.00 mm (11))



**B6**



Client:  
Patient:

**B6**

Alba Hotler

Patient: **B6** ID: **B6** Date Recorded: **B6** Page: **B6**

**FULL-SIZED STRIPS**

(Gain 0.50 mV/cm) ECG 25 mm/sec (ALL)

**B6**

Client: **B6**  
Patient: **B6**

Alba Hotler

Patient: **B6** ID: **B6** Date Recorded: **B6** Page: **B6**

**FULL-SIZED STRIPS**

(Gain 0.50 mV/cm) ECG 25 mm/sec (ALL)

**B6**

Client: **B6**  
Patient: **B6**

Alba Hotler

Patient: **B6** ID: **B6** Date Received: **B6** **B6** Page: 10

**FULL-SIZED STRIPS**  
(Gain 0.50 cm/sec) ECG 12-lead (ALL)

**B6**

Client: **B6**  
Patient: **B6**

**Alba Hotler**

Patient: **B6** ID: **B6** Date Recorded: **B6** Page: **B6**

**FULL-SIZED STRIPS**  
(Gain 0.50 cm/sec) ECG 15 mm/sec (ALL)



Client:  
Patient:

**B6**

**ECG from Cardio**

---

**B6**

**B6**

2/1/2018, 08:00  
John Doe  
1234 Main St  
Anytown, CA 90210  
1234567890

---

**B6**

Client: **B6**  
Patient:

ECG from Cardio

**B6**

**B6**

11/14/08 08:00 Page 5 of 8  
Date Submitted  
This message is not intended for  
distribution

**B6**

Client:  
Patient:

**B6**

ECG from Cardio

**B6**

**B6**

# 2:11:04 AM Page 1 of 1  
Data Summary  
This message is not for  
you.

**B6**

Client:  
Patient:

**B6**

ECG from Cardio

---

**B6**

**B6**

2/11/2019 09:00  
Full Name  
Full Address  
City/State

---

**B6**



Client:  
Patient:

**B6**

---

**ECG from Cardio**

---

**B6**

**B6**

01/11/2011 10:11 AM  
ECG Summary  
This message is not for  
distribution

---

**B6**

Client:  
Patient:

**B6**

**Patient History**

<b>B6</b>	03:28 PM	Appointment
	04:51 PM	Appointment
	04:52 PM	Appointment
	04:53 PM	Appointment
	04:58 PM	Appointment
	04:58 PM	Appointment
	04:59 PM	Appointment
<b>B6</b>	05:19 PM	Purchase
	02:33 PM	UserForm
	02:45 PM	Purchase
	03:29 PM	Vitals
	03:30 PM	Purchase
	03:40 PM	Treatment
	04:02 PM	UserForm
	05:47 PM	Email
	05:47 PM	Email
	12:15 PM	Appointment
	02:10 PM	UserForm
	02:23 PM	UserForm
	02:23 PM	Vitals
	03:10 PM	Treatment
	03:10 PM	Purchase
	03:22 PM	Purchase
	04:46 PM	UserForm
	03:24 PM	Email
	02:20 PM	Appointment
	02:20 PM	Appointment
02:22 PM	Appointment	

**B6**

Client:  
Patient:

**B6**

**Patient History**

02:18 PM	UserForm
02:22 PM	UserForm
03:07 PM	Treatment
03:39 PM	Purchase
03:52 PM	Purchase
04:15 PM	Purchase
04:36 PM	Prescription
04:38 PM	Purchase
09:56 AM	Appointment
10:46 AM	Appointment
09:50 AM	Appointment
09:57 AM	UserForm
10:17 AM	Purchase
10:26 AM	Treatment
10:41 AM	Vitals
11:08 AM	Purchase
11:20 AM	Purchase
11:51 AM	UserForm
05:22 PM	Email
08:51 AM	Appointment
02:19 PM	UserForm
02:43 PM	UserForm
02:45 PM	Treatment
02:45 PM	Vitals
02:46 PM	Purchase
03:26 PM	Purchase
12:57 PM	Email
10:35 AM	UserForm
05:14 PM	Appointment
06:58 PM	Appointment
01:02 PM	UserForm
01:04 PM	Treatment
02:01 PM	Vitals
02:22 PM	Prescription

**B6**

**B6**

Client: **B6**  
Patient:

**Patient History**

<b>B6</b>	03:00 PM	Deleted Reason	<b>B6</b>
	03:00 PM	Deleted Reason	
	03:00 PM	Deleted Reason	
	03:22 PM	Purchase	
	03:25 PM	Purchase	
	03:25 PM	Purchase	
	03:36 PM	Labwork	
	03:36 PM	Purchase	
	04:48 PM	UserForm	
	06:08 PM	Email	



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Forster Hospital for Small Animals  
25 W Ward Street  
North Grafton, MA 01576  
Telephone: (508) 833-5295  
Fax: (508) 833-8739  
<http://vet.med.tufts.edu/>

**B6**

**B6**

Female

Causes: Urinary Tract

**B6**

**B6**

Dear **B6**

Thank you for referring **B6** with their pet **B6**

If you have any questions, or concerns, please contact us at 508-833-4988.

Thank you,

**B6** DVM, DACVIM (Cardiology)



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55 Willard Street  
North Grafton, MA 01576  
Telephone: (508) 859-5295  
Fax: (508) 859-8739  
<http://vet.mcc.vtu.edu/>

**B6**

**B6**

Female

Canine, Blood, Feces

**B6**

**B6**

Dear **B6**

Thank you for referring **B6** with their pet **B6**

If you have any questions, or concerns, please contact us at 508-857-1981.

Thank you,

**B6** DVM, DACVP (Cardiology)

**Cummings**  
**Veterinary Medical Center**  
AT TUFTS UNIVERSITY

Forster Hospital for Small Animals  
15 Willow Street  
North Grafton, MA 01526  
Telephone: (508) 829-1335  
Fax: (508) 829-6739  
<http://vet.med.tufts.edu/>

**B6**

**B6** Female  
Caucasian Mastiff  
**B6**

**B6**

Dear **B6**

Thank you for referring **B6** with their pet **B6**

If you have any questions, or concerns, please contact us at (508) 829-4902.

Thank you,

**B6** DVM (Resident, Cardiology)

**Cummings**  
**Veterinary Medical Center**  
AT TUFTS UNIVERSITY

Forster Hospital for Small Animals  
25 W Ward Street  
North Grafton, MA 01526  
Telephone: (508) 829-1335  
Fax: (508) 829-7291  
<http://vet.med.tufts.edu/>

**B6**

**B6**

Female

Cancer: Mast. Fetus

**B6**

**B6**

Dear **B6**

Thank you for referring **B6** with their pet **B6**

If you have any questions, or concerns, please contact us at 508-827-1981.

Thank you,

**B6** DVM, DACVIM (Cardiology)



**Cummings**  
**Veterinary Medical Center**  
AT TUFTS UNIVERSITY

Forster Hospital for Small Animals  
25 Willard Street  
North Grafton, MA 01526  
Telephone: (508) 859-4295  
Fax: (508) 859-7591  
<http://vet.med.tufts.edu/>

**B6**

**B6** Female  
Cocker Spaniel  
**B6**

**B6**

Dear **B6**

Thank you for referring **B6** with their pet **B6**.

If you have any questions, or concerns, please contact us at 508-857-1981.

Thank you,

**B6** DVM, DACVP (Cardiology)

**Cummings**  
**Veterinary Medical Center**  
AT TUFTS UNIVERSITY

**B6**

Forster Hospital for Small Animals  
125 W. Ward Street  
North Grafton, MA 01526  
Telephone: (508) 839-5295  
Fax: (508) 839-7951  
<http://vet.med.tufts.edu/>

**B6** Female  
Cancer Screen Tests  
**B6**

11/26/2018

Dear **B6**

Thank you for referring **B6** with their pet **B6**

If you have any questions, or concerns, please contact us at 508-837-4981.

Thank you,

**B6** DYNAL DAVYON (Cardiology)

---

**From:** PFR Event <pfpreventcreation@fda.hhs.gov>  
**To:** Cleary, Michael \*; HQ Pet Food Report Notification; [B6]  
**Sent:** 12/27/2018 3:56:41 PM  
**Subject:** Homecooked diet - see diet history in medical record: Lisa Freeman - EON-374789  
**Attachments:** 2060600-report.pdf; 2060600-attachments.zip

A PFR Report has been received and PFR Event [EON-374789] has been created in the EON System.

A "PDF" report by name "2060600-report.pdf" is attached to this email notification for your reference. Please note that all documents received in the report are compressed into a zip file by name "2060600-attachments.zip" and is attached to this email notification.

Below is the summary of the report:

**EON Key:** EON-374789

**ICSR #:** 2060600

**EON Title:** PFR Event created for Homecooked diet - see diet history in medical record; 2060600

<b>AE Date</b>	11/15/2018	<b>Number Fed/Exposed</b>	1
<b>Best By Date</b>		<b>Number Reacted</b>	1
<b>Animal Species</b>	Dog	<b>Outcome to Date</b>	Stable
<b>Breed</b>	Doberman Pinscher		
<b>Age</b>	[B6] Years		
<b>District Involved</b>	PFR-New England DO		

**Product information**

**Individual Case Safety Report Number:** 2060600

**Product Group:** Other

**Product Name:** Homecooked diet - see diet history in medical record

**Description:** Arrhythmia identified at primary care vet on 11/15/18. Evaluated at Tufts [B6] and diagnosed DCM with VPCs and APCs. Eating unbalanced homecooked diet. WB taurine [B6] (plasma not measured because owner had started taurine supplementation). Owner was recommended to change diet and we will recheck in 3 months

**Submission Type:** Initial

**Report Type:** Adverse Event (a symptom, reaction or disease associated with the product)

**Outcome of reaction/event at the time of last observation:** Stable

**Number of Animals Treated With Product:** 1

**Number of Animals Reacted With Product:** 1

Product Name	Lot Number or ID	Best By Date
Homecooked diet - see diet history in medical record		

**Sender information**

Lisa Freeman  
200 Westboro Rd  
North Grafton, MA 01536  
USA

**Owner information**

**B6**  
USA

To view this PFR Event, please click the link below:

<https://eon.fda.gov/eon//browse/EON-374789>

To view the PFR Event Report, please click the link below:

<https://eon.fda.gov/eon//EventCustomDetailsAction!viewReport.jsps?decorator=none&e=0&issueType=12&issueId=391798>

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Failure to adhere to the above provisions could result in removal from the approved distribution list. If you think you received this email in error, please send an email to [FDAREportableFoods@fda.hhs.gov](mailto:FDAREportableFoods@fda.hhs.gov) immediately.

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**From:** PFR Event <pfpreventcreation@fda.hhs.gov>  
**To:** Cleary, Michael \*; HQ Pet Food Report Notification; [B6]  
**Sent:** 1/1/2019 9:24:38 PM  
**Subject:** Orijen Adult Original dry (until Aug 2018): Lisa Freeman - EON-375110  
**Attachments:** 2060739-report.pdf; 2060739-attachments.zip

A PFR Report has been received and PFR Event [EON-375110] has been created in the EON System.

A "PDF" report by name "2060739-report.pdf" is attached to this email notification for your reference. Please note that all documents received in the report are compressed into a zip file by name "2060739-attachments.zip" and is attached to this email notification.

Below is the summary of the report:

**EON Key:** EON-375110

**ICSR #:** 2060739

**EON Title:** PFR Event created for Orijen Adult Original dry (until Aug 2018); 2060739

<b>AE Date</b>	12/19/2018	<b>Number Fed/Exposed</b>	2
<b>Best By Date</b>		<b>Number Reacted</b>	1
<b>Animal Species</b>	Dog	<b>Outcome to Date</b>	Stable
<b>Breed</b>	Terrier - Border		
<b>Age</b>	[B6] Years		
<b>District Involved</b>	PFR-New England DO		

**Product information**

**Individual Case Safety Report Number:** 2060739

**Product Group:** Pet Food

**Product Name:** Orijen Adult Original dry (until Aug 2018)

**Description:** Diagnosed with degenerative mitral valve disease in Aug 2017. Progressed to CHF. On

[B6] At regular re-evaluation on 12/19/18, reduced contractile function was noted on echo. Dog was noted to be eating BEG diet. Taurine pending Will recheck in 3 months Will evaluate other dog in household also eating same diet (asymptomatic). Owner is ok to provide further info.

**Submission Type:** Initial

**Report Type:** Adverse Event (a symptom, reaction or disease associated with the product)

**Outcome of reaction/event at the time of last observation:** Stable

**Number of Animals Treated With Product:** 2

**Number of Animals Reacted With Product:** 1

Product Name	Lot Number or ID	Best By Date
Orijen Adult Original dry (until Aug 2018)		

**Sender information**

Lisa Freeman  
200 Westboro Rd  
North Grafton, MA 01536  
USA

**Owner information**

**B6**  
USA

To view this PFR Event, please click the link below:

<https://eon.fda.gov/eon//browse/EON-375110>

To view the PFR Event Report, please click the link below:

<https://eon.fda.gov/eon//EventCustomDetailsAction!viewReport.jspa?decorator=none&e=0&issueType=12&issueId=392119>

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