



Shelter Medicine Journal

The Humane Society of Boulder Valley is committed to rehoming companion animals that exhibit manageable health and behavior in the shelter environment.

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The purpose of this document is to provide guidelines for treating the wide variety of medical conditions in shelter animals. The document is not intended to restrict veterinarians from making decisions in the best interest of the patient or the Humane Society of Boulder Valley (HSBV) on a case-by-case basis.

Content Disclaimer

This is a living document in constant update. It was developed for and by the staff of the Humane Society of Boulder Valley for internal policy and practices. We cannot guarantee the accuracy of drug dosages and some drugs are listed for off-label usage. Because new drugs are developed regularly and protocols change, we encourage thorough research into any drug or treatment recommendation made in this document.

Review

This document will be reviewed annually to reflect organizational practices and current medical treatment options.

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The document brings in language, protocols and procedures originally developed for the *Assessment Tool for the Evaluation of Animals*. That document outlines the criteria to assist in the evaluation of animals for adoption and euthanasia. The Assessment Tool includes the work of the Metro Denver Shelter Alliance, Denver Dumb Friends League, and San Diego Humane Society.

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Definitions and Glossary

Alternative options: Alternative options will be reasonably explored for animals initially accepted for adoption but that fail to continue to meet the criteria for adoptability (the term “re-qualified” may be used to identify these animals – see glossary definition of re-qualified). Some examples of options to pursue include, but are not limited to: cooperating with other placement facilities, assisting with appropriate foster care or adopting the animal with a medical or behavior disclosure. In all cases, the manager of the department initiating the request for euthanasia or his/her designee is responsible for contacting previous private party guardians (unless they requested not to be contacted).

Asilomar Accords: Developed in 2004, the Accords are a set of Guiding Principles, standardized definitions, a statistics table for tracking shelter populations, and a formula for determining shelter live release rates. The purpose of the definitions, table, and live release rate formula is to produce a uniform system so that shelters and other stakeholders can get a better understanding of lifesaving progress nationwide. www.asilomaraccords.org

B & H: Internally used abbreviation for Behavior & Health. This is a department within the shelter that is responsible for tracking animals as they flow through the building. This department performs initial intake examinations and behavior assessments, coordinates foster, return to guardian, and euthanasia lists. Animals needing additional veterinary or behavioral evaluation and support are scheduled by the B & H team for veterinary or behavior checks. This abbreviation can refer to either the department, or a coordinator within that department.

Considerations: Once an animal is owned by HSBV, we recognize that the issues surrounding some animals are complex. Considerations are options that we may use to save animals’ lives.

Chronic: persisting for a long time; the period is undefined and varies with circumstances, if known; usually more than one week. Also has the sense of the disease showing little change or very slow progression over a long period.

Disposition Committee: This committee will make a final disposition or euthanasia determination, when such determination is not clear or when there is a request for review.

Disposition Pending: This is the status of an animal where the final outcome for an animal has not yet been determined. An animal placed on the Disposition Pending report may, or may not be a candidate for euthanasia. Animals with illness, as outlined in this document, may be placed on Disposition Pending, while in quarantine, under treatment or hospitalized.

E/C: Internally used abbreviation for euthanasia and cremation.

Exposure: For the purposes of infectious disease, we will try to differentiate our treatment and quarantine protocols for those animals which are exposed to the disease either directly or indirectly.

- **Direct Exposure:** patients are from the same litter, shared the same kennel, or had physical (nose/nose) contact with one another. At the discretion of the attending DVM, processes for directly exposed animals may be used for animals which are indirectly exposed but risk of disease is higher (i.e. outbreak, inability to determine direct exposure).
- **Indirect Exposure:** patients housed in the same room (but not same kennel), arrived on the same transfer vehicle, or were in close proximity without any contact.

Feral: A domestic feline that comes in with pupils dilated; crouched in furthest area of the kennel, trap or carrier; frozen during the day, destructive at night; enters the shelter in a trap; intact or ear-tipped; resistant to human contact; no identification; explosive activity only when touch is attempted or when cat is loose; little or no vocalization. While a non-feral cat may enter a shelter displaying some of these points, a feral cat will generally display most of these conditions.

Juvenile: Under 6 months old. Animals 6 months and older are considered adults.

Medical and Behavior Disclosures: HSBV is committed to sharing information observed in the shelter or communicated by surrendering parties. The adopter will be fully informed about observed or reported medical or behavioral conditions and anticipated costs for future care and maintenance. At times, clients may be required to sign a written document which will outline known behavioral or medical concerns about an animal. The signed disclosure will be stored in a separate file or with the adoption paperwork. All medical disclosures become a part of the animal's medical record. HSBV maintains a file of standard and editable Medical Disclosures for hundreds of conditions.

Overall Poor Health: Animals exhibiting one or more of the following characteristics:

- Anorexic
- Emaciated
- Failure to Thrive
- Heart Failure
- Immobile
- Jaundice
- Lack of Self-Grooming
- Lethargy
- Polyuria/Polydipsia (PU/PD)
- Respiratory Distress
- Uncontrollable Pain and Suffering
- Dental Disease - Severe

Re-Qualified: The animal was initially deemed healthy or treatable, but later exhibited medical or behavioral conditions that required re-categorization to unhealthy/untreatable (U/U).

Shelter Vet Tech: Clinic veterinary technician or veterinary assistant that is assigned to the shelter for the day. This tech works closely with the B & H department, and is responsible for medically monitoring sheltered animals, administering meds, helping to triage the “needs vet check” list, and assists the Shelter Veterinarian with rounds. Also assists the shelter with adopter communication both before and after adoption.

Standard Operating Procedures / SOPs: Our practices around husbandry and herd health are directed by Standard Operating Procedures. SOPs for all departments may be viewed internally in [P:/Procedures](#) folder.

Treatable: Means and includes all dogs and cats that are “rehabilitatable” and all dogs and cats that are “manageable” as defined in Asilomar Accords.

T/M (Treatable/Manageable): Means and includes all dogs and cats who are not “healthy” and who are not likely to become “healthy,” regardless of the care provided; but who would likely maintain a satisfactory quality of life, if given medical, foster, behavioral, or other care, including long-term care, equivalent to the care typically provided to pets by reasonable and caring pet owners/guardians in the community; provided, however, that the term “manageable” does not include any dog or cat who is determined to pose a significant risk to human health or safety or to the health or safety of other animals. This definition refers to standards as part of the Asilomar Accords.

T/R (Treatable/Rehabilitatable): Means and includes all dogs and cats who are not “healthy,” but who are likely to become “healthy,” if given medical, foster, behavioral, or other care equivalent to the care typically provided to pets by reasonable and caring pet owners/guardians in the community. This definition refers to standards as part of the Asilomar Accords.

U/U (Unhealthy/Untreatable): Means and includes dogs and cats who, at or subsequent to the time they are taken into possession, (1) have a behavioral or temperamental characteristic that poses a health or safety risk or otherwise makes the animal unsuitable for placement as a pet, and are not likely to become “healthy” or “treatable” even if provided the care typically provided to pets by reasonable and caring pet owners/guardians in the community; or (2) are suffering from a disease, injury, or congenital or hereditary condition that adversely affects the animal’s health or is likely to adversely affect the animal’s health in the future, and are not likely to become “healthy” or “treatable” even if provided the care typically provided to pets by reasonable and caring pet owners/guardians in the community; or (3) are under the age of eight weeks and are not likely to become “healthy” or “treatable,” even if provided the care typically provided to pets by reasonable and caring pet owners/guardians in the community. This definition refers to standards as part of the Asilomar Accords.

Treatment Policies

The Humane Society of Boulder Valley utilizes a variety of staff to assess an animal's health. A member of the Veterinary team will direct the medical care of animals with suspect or diagnosed medical conditions. Many animals do not receive an exam by a DVM. Animals surrendered with a diagnosed medical condition, listed in this document as unhealthy/untreatable, may not receive any further evaluation.

The following are our general treatment policies:

Pediatric Spay/Neuter:

The Humane Society of Boulder Valley recognizes that pet over-population remains a serious national issue. To this end, HSBV supports and performs spay/neuter on all adoption dogs, cats and rabbits including pediatric (early, pre-pubescent) spay/neuter in dogs and cats in an effort to reduce the number of unwanted animals of these species. HSBV believes that early age spay/neuter of shelter animals is a safe and effective method to help fight the single most life-threatening issue for dogs and cats: over-population and euthanasia of unwanted homeless pets.

HSBV urges humane organizations and animal control agencies to sterilize dogs and cats before release for adoption, as is the law in Colorado. HSBV encourages the establishment of high-quality, affordable, and accessible spay/neuter programs, supports initiatives designed to discourage unplanned domestic pet breeding, and seeks cooperation between humane societies and veterinarians in resolution to pet over-population issues.

Dogs and cats who are medically sound will be considered for spay/neuter surgery when they have reached eight weeks of age, and weigh at least two pounds. Consideration: Small breed animal not expected to reach minimum weight before adoption.

Pregnant Animals:

Pregnant animals may have their pregnancies terminated regardless of length of gestation. Consideration: Animal is not legally owned by Humane Society Boulder Valley.

Impounded Animals:

Treatments, cost/billing to jurisdictions, supportive care: involves hydration, pain management, and antibiotic therapy, based on ability to be handled. Consideration: Animal is not legally owned by Humane Society Boulder Valley.

Injured Animals:

A modified behavior assessment must occur prior to major medical treatment. Consideration: Animal is not legally owned by Humane Society Boulder Valley.

Criteria to Assist in the Evaluation of Animals for Adoption and Euthanasia:

The Humane Society of Boulder Valley (HSBV) is committed to providing quality care for every animal. We evaluate the health and behavior of each animal on an individual basis. We use comprehensive assessments to determine an animal's needs and balance those needs with the greater good of the animal population in our care.

We recognize that animals are complex beings and many factors play into their health and behavior in the shelter. Staff and qualified volunteers will evaluate the animal, and if concerns arise, staff will review the possible considerations for the animal when deciding a final disposition.

Shelter Animal Participation in Clinical Trials:

While the Humane Society of Boulder Valley opposes the use of animals in laboratory research for education and experimentation, we recognize that there is vital research needed for human and animal health. HSBV will not relinquish or adopt animals to facilities that will conduct animal research or that will house animals long-term for blood donor programs. HSBV may select animals for participation in clinical health studies where the individual animal will suffer no ill effects and should directly benefit from the program.

Cosmetic Surgery on Companion Animals:

The Humane Society of Boulder Valley's Veterinary Clinic does not perform tail docking, ear cropping, canine debarking, or feline declawing surgical procedures. We encourage humane alternatives to declawing and debarking through behavior modification to mitigate unwanted behaviors. HSBV discourages any unnecessary elective surgical procedure that is painful, distressful, or restrictive when done solely for convenience or cosmetic purposes.

Vaccination Protocols

Vaccination on Intake:

Animals arriving to the Humane Society of Boulder Valley will be vaccinated upon intake to inhibit the spread of infectious disease throughout our shelter. Dogs will receive DHPP and IN Bordetella vaccination. Cats will receive FVRCP vaccination.

Pregnant and nursing dogs will be vaccinated upon intake. At the discretion of the attending DVM, cats in obvious late-term pregnancy, or that are nursing kittens less than four weeks of age may not be vaccinated depending on the shelter population at the time and the risk of infection for panleukopenia.

Exceptions to the vaccination on intake protocol may be made for guardian surrendered animals that arrive with proof that vaccines are current, or animals transferred from shelters where documentation of vaccinations is provided.

A delay in vaccination may be recommended by a DVM when the animal is behaviorally compromised (unsafe) or if the condition of the animal would medically contraindicate vaccination.

Rabies:

Dogs and cats over three months of age will be vaccinated for Rabies before being placed into the adoption center or traveling to a remote adoption location.

Re-vaccinations, Ferrets, and Deworming:

Dogs that remain in the shelter for more than 17 days will have a booster vaccination of DHPP. Cats that remain in the shelter for more than 17 days will have a booster vaccination for FVRCP. Puppies and kittens under four months of age will continue to receive boosters every 17 days until 4 months of age.

Ferrets will be vaccinated for distemper after pre-treatment w/ pediatric diphenhydramine solution. Dogs and cats will be preventatively treated with broad spectrum dewormer.

Feline Leukemia / FIV Vaccination and Testing:

The issue of FeLV/FIV testing in cats is a very complex one. A national prevalence survey found that only 2-4% of healthy cats are positive. Because the risk is very low, the Humane Society of Boulder Valley will test only those cats considered to be at "high risk" for either illness. HSBV will not vaccinate cats for FeLV prior to adoption.

HSBV will test cats that have been confiscated or surrendered from a known or suspected hoarding situation. Queens will be tested prior to foster care, and foster families may request that any feline they are planning to take be tested prior to pick up. Intact, free-roaming male cats or any cat with signs of fighting or long-term stray status will be tested. Veterinarians may also elect to test cats with abscesses, stomatitis, or other diseases where retrovirus may contribute to these issues.

The American Association of Feline Practitioners recommends that all cats be tested for FeLV/FIV. For this reason, all clients are encouraged to have all cat and kittens tested prior to adoption, if this has not already been performed.

Leptospirosis:

Leptospirosis is not currently considered a “core” vaccination in Colorado. Shelter canines will not be vaccinated against this disease. Because this is an emerging disease, educational information about the disease will be provided to adopters, and our clinic will encourage vaccination post-adoption.

Canine Influenza Virus:

While this is an emerging contagious disease and should be a consideration in dogs exhibiting signs of canine infectious respiratory disease complex, the currently available vaccinations don't broadly cover virus variants and are expensive. For protection, dogs must receive two vaccinations administered three weeks apart and average length of stay is typically less than two weeks. Preventative measures revolve around excellent disease control practices, staff education and thoughtful movement of dogs throughout the facility.

Guidelines for Ethical Decisions

The Humane Society of Boulder Valley recognizes that life and death decisions may not always be easily made. We trust our staff will act in the best interest of the patient, the community, and the organization when making such decisions. When faced with a particularly challenging decision, there are six key areas to consider and discuss:

Non-Maleficance: If we do not treat, what will be the quality of life?

- Suffering and pain
- Life expectancy

Benefits: If we treat, what are the benefits and increase to quality of life?

Reasonability: Will this condition be reasonable for an adopter to manage?

- Medically
- Behaviorally
- Can a typical staff member message the issue, and will the adopter fully understand what is involved?
- Chance for success
- Unknown diagnosis – can the adopter handle future needs?
- Complexity of issues
- What follow up will the adopter need to complete for success?
- Will this create a healthy relationship between the pet and its caretakers, adopter, or guardian?

Resources: What is our capacity to treat or manage?

- Time
- Money
- Staff
- Space
- Ability to help other shelters with our resources

Perception: What is the perception (emotion) of our stakeholders?

- Staff
- Volunteers
- Donors

Liability: What is our reasonable risk?

- Risk to the community, public safety
- Risk to the adopter

Conditions

Abscesses:

When staff identifies a possible abscess, animal is placed on “needs vet check” if the animal is non-painful. Severe cases can be brought directly to the clinic. If Plague is suspected, please reference Plague section.

1. Physical exam including rectal temperature.
2. Wound care: clip, clean, and medicate.
3. May include:
 - Lancing
 - Flushing
 - Topical treatment
 - Penrose or umbilical tape drain, removed after 3-5 days
 - Antibiotics, oral or injectable as determined by attending DVM.
4. FeLV/FIV test
5. Animal will be rechecked by DVM following treatment.
6. If animal is unresponsive to initial treatment, case will be reassessed based on behavior assessment. A 2nd antibiotic trial is possible. Further diagnostics can include: FNA, full exploration for foreign body.
7. Animal should be spayed or neutered at time of treatment if it is shelter property.
8. Animal can be placed in adoptions to complete healing if stable.

Anorexia:

When a cat is identified as not eating the following steps will be taken.

1. Begin three days of monitoring eating, tracking in PetPoint. Technicians will provide a labelled ‘buffet’ of canned and dry food. If it is established that the cat is not eating within 24 – 48 hours, a DVM will prescribe an appetite stimulant.
 - *Midazolam* 5mg/ml, 0.5mg or 0.1ml/adult cat IM, SID for 1-3 day
 - *Mirtazapine* 7.5mg, ½ tablet daily to EOD
2. Cat will be placed on “needs vet check” for a physical exam if not recently done.
3. Any cat on an appetite stimulant will be rechecked daily by the shelter technician by placing it on monitor eating.
4. If no improvement is seen, cat will be transferred to the Clinic for closer monitoring and supportive care which may include IV catheter and fluids as well as screening bloodwork.
5. Cats whose bloodwork confirms hepatic lipidosis will be euthanized.
6. Esophageal feeding tube may be placed if anorexia is confirmed, appetite stimulant did not help and the cat has a condition with reasonable prognosis for recovery.
7. Cats who have become anorexic as a result of a pre-existing illness, i.e. URI, severe gingivitis, are candidates for esophageal feeding tubes.

Cats who are anorexic due to behavioral concerns are not candidates for esophageal tubes.

8. An anorexic cat that is thought to be reacting to the shelter environment may be a HOPE candidate. The cat must begin eating within 1 week in the foster home and should be adopted from the home.

Esophageal Feeding Tubes:

Ideally all cats with e-tubes should be cared for in the clinic. When this is not possible, the shelter technician will be responsible for feeding cats with e-tubes. Cats with e-tubes should be fed 2-4 small meals daily using the following guidelines:

1. Prescription A/D (180kcal/5.50z can), watered down to an applesauce consistency. A cat's oral water intake should be about 25-35 ml/# per day and this volume is be accounted for when mixing A/D and providing water via the e-tube.
2. The following amounts of A/D are recommended per weight and based on Basal Energy Estimate (chart from Saunders Manual of Small Animal Practice, 2nd Ed, pg. 31).
 - Small cats (4-6 lbs.) about 180 kcal/day
 - Large cats (10+ lbs.) about 250 kcal/day
3. Any vomiting should be brought to the DVM's attention immediately
4. Cats with e-tubes are foster care candidates

Cats with e-tube should have access to kibble and canned food as they may begin to eat spontaneously. The following guidelines should be followed concerning e-tube cat rechecks

1. In addition to daily vet tech care, all e-tube cats should be rechecked weekly by DVM and adhere to the following treatment schedule:
 - Week One: Multiple tube feedings every day
 - Week Two: Begin decreasing tube feeding amounts to encourage independent eating. Appetite stimulant may be tried.
 - Week Three: Cat must be eating independently or is a euthanasia candidate
2. E-tubes can be removed when a cat has resumed eating spontaneously for at least 24 hours
3. Cat will be monitored post e-tube removal for 3 days prior to being approved for Adoptions
4. Prior to moving to adoptions, cats will get a new baseline weight, on a digital scale
5. All cats with e-tubes should be placed on Monitor Weight, and should be weighed weekly by the shelter technician.

Bloodwork Indications, Basic Guidelines for Interpretation of Bloodwork Results, and Blood Abnormalities:

B&H will identify animals for “needs vet check” with a known or estimated age of:

- Over 8 years for cats
 - Over 6 years for large dogs
 - Over 8 years for small dogs.
1. Attending DVM will perform a physical exam and decide if bloodwork is necessary.
 - a. Healthy, geriatric animals that do not need dentistry do NOT always need bloodwork.
 - b. Most animals will have a pre-anesthetic profile (6-8 chemistries), and a CBC. A T4 can be added if the DVM is suspicious of hyper/hypothyroidism.
 - c. Blood panel should include heartworm test for dogs.
 2. Attending DVM will direct laboratory submission paperwork and mark bloodwork as pending on rounds.
 3. DVM will enter a vet exam, a bloodwork treatment and a note in description field that bloodwork is pending into PetPoint. The morning after bloodwork is sent:
 - a. Attending DVM will review results, make a diagnosis if possible, and enter results in PetPoint.
 - b. Any additional follow up, such as medications will be given to Vet Techs to complete.
 4. Stray animals should receive emergency medical treatments for stabilization and pain management. Some in house diagnostics, such as blood chemistries, CBC, x-rays, and electrolyte checks may be necessary if injuries are life threatening.
 - a. DVM or technicians will enter treatments for stray animals into PetPoint. See SOP for Money Due Holds for any costs associated with those treatments
 - b. Service desk employees will request remittance of these costs at the point of reclaim.
 - c. Further diagnostics for chronic medical conditions in strays will be pursued after the animal is property of HSBV, post behavioral assessment.
 5. Foster animals will follow basic guidelines for shelter animals.

Basic Guidelines for Interpreting Bloodwork Results:

- **ALT** – liver specific enzyme in dogs and cats. The magnitude of the increase in serum enzyme activity parallels the number of hepatocytes damaged but provides no information regarding the reversibility of the injury at the cellular level, the regenerative capacity at the tissue level or the status of function at the organ level. It is not a liver 'function' test. Using ALT elevations alone should not be used as a 'qualifier' for adoption.
- **ALP** – alkaline phosphatase, not liver specific as it is found in bone cells, bile epithelium, intestine, placenta, kidney and some cancers. In dogs, excessive glucocorticoids are the most common cause of increases. Increases can also be caused by drug therapy (anticonvulsants), biliary blockage, kidney disease, neoplasia or stress of chronic illness. ALP levels at a 5X magnitude of increase above normal are very suggestive of a serious disorder----Cushing's disease, liver neoplasia, cholestasis (gall bladder).
- **BUN** – elevations are usually due to dehydration if total protein is elevated or abnormal kidney function if elevated concurrently with Creatinine. A urine specific gravity is checked to evaluate the kidney's ability to concentrate urine.
- **Creatinine** – if elevated concurrently with BUN it indicates kidney disease.
- **Total Protein** – If elevated, indicates dehydration. If very high, it can be suggestive of FIP if other physical exam findings, signalment and history are also suggestive of FIP. Differentiating Albumin and Globulin values will also help to identify cause or lead to further diagnostics if warranted.
- **Glucose** – If elevated, this is suggestive of diabetes mellitus. If in a cat and between 200 and 300, it could be due to stress. Urine glucose is checked to confirm diabetes mellitus.
- **USG** – urine specific gravity, should be >1.040. If <1.020 AND BUN and Creatinine are elevated = kidney disease.

Blood Abnormalities

Hemotropic Mycoplasma:

This should be a consideration for cats with anemia and usually 'flagged' by the reference lab to consider PCR for confirmation.

1. OK to confirm diagnosis with PCR if cat is behaviorally an adoption candidate
2. If positive (+), treat with *doxycycline* 10mg/kg PO SID for a minimum of two weeks.
3. Recheck PCV to ensure response
4. Medical Disclosure

Canine Infectious Respiratory Disease (CIRD):

Dogs with any respiratory symptoms are placed in the Respiratory Ward.

Dogs should NOT be presumed to have "kennel cough". Clinical signs are:

Coughing with or without phlegm
Ocular/nasal discharge
Lethargy
Pneumonia

Fever

Lack of appetite

Diagnostic rule-outs for dogs with CIRDC include:

Bordetella bronchiseptica

Mycoplasma

Canine Influenza

Streptococcus zooepidemicus

Parainfluenza

Canine herpes virus

Canine adenovirus-2

(Or a combination of the above)

Non-infectious causes of coughing should also be considered:

Heartworm infection

Neoplasia

Heart disease

Congenital – collapsing trachea

Obstruction

1. Shelter staff or volunteers should notify a shelter veterinary technician if any additional (beyond respiratory) symptoms exist.
2. Obtain a rectal (or axillary) temperature for baseline measurement.
3. Dogs may be started on antibiotics and cough suppressants. Initial treatment will be for seven days. If no nasal discharge or fever, cough suppressants alone may be adequate.
 - a. Cough tabs (*guaifenesin* and *dextromethorphan*), 1 tablet BID 3 to 7 days for medium to large breed dogs, ¼ tablet for puppies and toy breeds, or *Tramadol* 2 to 4 mg/kg BID.
 - b. *Doxycycline* or *minocycline* at 10mg/kg, SID 7 to 14 days
 - c. *Clindamycin* at 6-11mg/kg BID (especially for nasal discharge if *Doxycycline* unavailable)
 - d. *Butorphanol* 0.4mg/kg SQ PRN for severe cough
 - e. *Other antibiotics as warranted by DVM*
4. Shelter vet tech will monitor appetite while medicating.
5. Place dog on “needs vet check”. All dogs in Respiratory Ward will get an initial vet exam and recheck in 7 days or sooner if not responding to treatment.
 - a. Persistent fever, lethargy, nasal discharge, cough or poor appetite may warrant additional diagnostics: Respiratory PCR panel or FA to screen for respiratory pathogens including Canine Distemper Virus
 - b. Chest x-rays.
 - c. Source history or lack of previous history may warrant heartworm test.
 - d. A second round of antibiotics may be prescribed.
 - i. SMZ-TMS at 30mg/kg BID
 - ii. *Baytril*, *Amoxicillin*, *Clavamox*
 - iii. Continue daily monitoring and with vet rechecks at days 3 and 7.

- iv. If dog is still symptomatic after two treatments chest x-rays should be completed if not already done.
 - e. Dog may be either placed on Disposition Pending or should have a chronic URI disclosure that is specific to individual case.
- 6. Check with attending DVM regarding adoption availability status. Dogs will default to “available” status if already altered
 - a. DVM will mark “unavailable” any dog showing fever, lethargy, anorexia, pneumonia, or other medical concerns.
 - b. Dogs that have not been altered may be placed on “needs spay/neuter” and surgery performed when cleared by DVM
 - c. All dogs made “available” for adoptions while in treatment for CIRDC are housed in respiratory quarantine ward and can have adoption meets away from the healthy shelter population.
 - i. Dogs may be placed on hold or adopted with medications.
 - ii. Holds will be for 24 hours (not through the end of medications). Potential guardian must make a decision based on dog’s existing health concerns
- 7. While dogs are held in the Respiratory Ward, unless otherwise directed by the attending DVM:
 - a. Will be walked by volunteers and staff
 - b. Can participate in playgroups with other kennel cough dogs
- 8. When Respiratory Ward is full, altered and otherwise healthy dogs can go into a condo in adoptions (maximum of 3) before a second Respiratory Ward is created. At this time, a shelter/clinic meeting should take place concerning specific cases, trends, and herd health

Canine Influenza:

HSBV does not currently vaccinate shelter animals for H3N8 or H3N2. Please refer suspected cases to the section on CIRDC.

Dental Disease

B&H identifies animals for exam of teeth. Place animals on “needs vet check” for dental examination. The veterinarians agree that most animals over the age of four could benefit from a dental prophylaxis, and that most animals over the age of ten typically need dentistry.

1. DVM will do physical exam and give the animal a grade of 0-4/4 for both tartar and gingivitis. DVM will assign a grade of **Good, Fair or Poor** for overall dental/periodontal disease.
 - a. GOOD = 0-1 Gingivitis and 0-1 Tartar, or focal areas with grade 2/4 gingivitis and/or tartar but no evidence of resorptive lesions.
 - b. FAIR = 2+ Gingivitis and/or 2+ Tartar, a reasonable veterinarian would recommend that a dental cleaning should be done.
 - c. POOR = 3+ Gingivitis or 3+ Tartar or evidence of painful tooth including resorptive lesions(s). Poor dental grades would also include any level of gingivitis and tartar when extractions are expected, teeth are mobile, abscesses are present, or teeth have fractures.

- d. Some fractures, and teeth that are severely worn, may not need immediate dentistry. A medical disclosure for the specific issue may be sufficient.
2. Whenever possible, it is preferred to perform the dentistry prior to adoption.
3. If an animal needs dentistry and is undergoing another anesthetic procedure (i.e. lump removal or spay/neuter) the dentistry can be scheduled and done at the same time.
4. Bloodwork prior to dentistry will be based on age and at the discretion of the attending DVM.
5. Cats may be tested (with a negative result) for FeLV/FIV, where retrovirus is suspect. Refer to SMJ section on Feline Leukemia and FIV.
 - a. If tested, any medical disclosure should clearly indicate that the test was performed, and the medical record should reflect the test and result.
6. Cats under the age of 12 years will be qualified for dentistry based on severity of dental disease and availability to allocate resources. Cats should have no history of behavior or medical issues, including inappropriate elimination. Cats over the age of 12 years may not typically be candidates for dentistry. Exceptions to either condition should have approval from the Director of Shelter Services or Chief Shelter Veterinarian.
7. **Poor** ratings may have dental scheduled or be placed on the needs dental list using the SOP. Patients with painful teeth or severe calculus will receive the highest priority.
 - a. Place the animal on a medical hold "Needs dentistry prior to adoption"
 - b. Animal is scheduled for a Dental procedure using PetPoint.
 - c. Animal may be made available for adoption (at discretion of attending DVM).
 - d. Dentistry should be scheduled in clinic, ideally within 7-10 days.
 - e. If animal on the "needs dental" list is placed on hold by an adopter, this patient becomes a priority on the list.
 - f. When dentistry is completed, DVM will release the medical hold and create post-dentistry medical disclosure.
 - g. If not able to provide dentistry prior to animal being adopted (not ideal), DVM should create a medical disclosure for Severe/Needs Dental, adoption counseling should involve shelter veterinary technician.
8. For **Fair** ratings, dentistry may be performed at the discretion of the attending veterinarian.
 - a. If dentistry is not performed, the following PetPoint template should be included in the medical examination history:

Animal has been identified as having tartar and/or gingivitis on his/her teeth. A dental cleaning may be recommended and can be discussed with your veterinarian at your New Pet Exam. Due to limited resources HSBV only provides these services to those animals with the most severe disease. We do recommend feeding Hills Prescription T/D, Science Diet Oral Care or other dental diet food to help prevent tartar build-up. Most dogs and cats 4 years of age and older have dental disease.

Internet Resource: www.vohc.org

The Veterinary Oral Health Council website lists appropriate diets and products.

9. **Good** dental ratings do not need any treatment in the shelter. The following PetPoint template should be amended to the medical record to inform adopter of preventative care:

Animal has been identified as having some tartar or gingivitis on teeth. Although this does not immediately require a dental, the HSBV Veterinarian team has recommended TD or dental diet food to help with this animal's dental health. The Veterinary Oral Health Council website lists appropriate diets and products. www.vohc.org

10. **Post Dental Care:** Oral antibiotics for 7-10 days or *Convenia* injection and pain management as recommended by attending DVM. Foster is an option for all dental recovery animals. The clinic will notify B&H if this is necessary.
 - a. All animals should be scheduled for a veterinary recheck 3-7 days post dentistry as determined by the attending DVM. The animal may be made "available" during this period.
 - b. **Cats:** All cats will be observed at the clinic for signs of eating. When eating, they are moved to Cat Adoption and placed on "monitor eating" until shelter vet tech is comfortable that the cat is eating consistently. Cats that exhibit signs of anorexia will be treated according to anorexia protocol.
 - c. **Dogs:** Can remain in the clinic after the dental procedure or be moved to adoptions post-surgery recovery and closely monitored the following day to ensure they are eating.

Diabetes:

Animals surrendered with diabetes or diagnosed diabetic during veterinary evaluation will be classified U/U and euthanized. Regulating and managing a diabetic pet in the shelter environment and/or transitioning to a new home is difficult and the risk of severe/life threatening complications are common.

Diarrhea:

A fecal analysis will be done on animals with a history or observation of diarrhea and treated appropriately for intestinal parasites (whipworms, roundworms, hookworms, coccidia, giardia).

1. Shelter Technician will do an initial physical exam to rule out dehydration, lethargy and other suspicious symptoms that may need immediate medical attention.
 - a. If the animal BAR, treatment will wait for fecal results.
 - b. Animal may be placed on "Monitor Diarrhea" for 1-2 days if stress is suspected or the sample is too watery to collect and animal is eating and active.
 - c. Parvo test on puppies/dogs will be done if diarrhea is bloody, dog is lethargic, vomiting or shows no interest in food.
 - d. We will not actively seek foster for animals with diarrhea.
2. If 1st fecal results are NPSATT, animal will be observed for 3 days, but can remain in the Adoption Center if the diarrhea is Purina Fecal Score 5 or

less. Animals with watery diarrhea (PFS 6 or 7) should be removed from the adoption areas.

- a. Animal should be placed on “monitor diarrhea”. Litterbox use in cats and ferrets should also be monitored.
 - b. Shelter Technician should begin Forti-Flora for 3 days as well as metronidazole at the discretion of the DVM.
 - c. Shelter Technician can switch to a bland diet: Sensitive Stomach, EN or I/D food.
 - d. DVM may begin initial drug trial therapy of *Metronidazole* at 5-10mg/#, BID x 7days, or may wait until 3-day recheck. See section on Ferrets for drugs and dosages. If/when Canalevia is available, this supplement may be administered.
 - e. Recheck with Shelter Technician at 3 days. If still having diarrhea at 3 days:
 - i. Animal should be made “unavailable” and pulled from adoptions.
 - ii. DVM should begin initial 7-day drug trial with *metronidazole* if not already started. A recent CSU study demonstrated that dogs have better response to Forti-Flora combined with Metronidazole with non-specific diarrhea.
 - iii. Animal should remain on pro-biotic and bland diet.
3. If diarrhea continues, a 2nd fecal sample will be pulled and given to the shelter veterinary technician for analysis (direct), and sent to outside lab for processing (o/p). If 2nd fecal results are NPSATT:
- a. Animal should be placed on Disposition Pending for Chronic Severe.
 - b. Animal should be separated and housed individually.
 - c. Animal will be placed on “needs vet check” for physical exam.
 - d. FeLV/FIV test will be performed on cats.
 - e. DVM may begin 2nd drug trial therapy:
 - *Panacur* SID x 5 days
 - *Amoxicillin* BID x 7 days
 - *Albon* 50 mg/kg SID x 10 days
 - DVM may also recommend an additional trial therapy of GI response, green goddess, *Benebac*, psyllium husks, or *Tylan* powder.
 - See section on Ferrets for drugs and dosages.
 - f. If supportive care is necessary, animal will be transferred to the clinic. Bloodwork and x-rays can be performed at the discretions of the DVM based on age of animal and previous diagnostics with costs in mind.
 - g. Animal should be evaluated for any other medical or behavioral condition, including litterbox use in cats. Animals with any other conditions (behavioral or medical) should be E/C for complexity of issues.
 - h. Cats that are not actively self-grooming, appear unkempt, or are otherwise not “thrifty” based on attending DVM observation should be euthanized.

4. If diarrhea continues, a 3rd fecal will be pulled, and DVM may consider testing cats/kittens for *Tritrichomonas Foetus* infection.
 - a. Cats that test positive for *Tritrichomonas* will be euthanized.
 - b. DVM may begin a third drug trial, which is not to exceed an additional seven days.
 - c. Animals in foster, foster family should be informed that outcome may not be an adoption candidate.
 - d. Foster for diarrhea is an option if committed foster home is available and stress/diet is the likely cause.
 - e. Animals that do not respond to third drug trial will be euthanized for chronic diarrhea.
5. If fecal results are positive for a parasite treat with appropriate drug therapy per DVM.
6. Animals that do not respond to trial therapies, and continue to have diarrhea after four weeks (or conclusion of third drug trial, whichever is earliest) will be euthanized for chronic medical condition.

Coccidia: Diagnosis made by a DVM following a fecal analysis.

If not resolved at 8 days, recheck fecal and switch medication accordingly.

1. Animals should be bathed 2-3 times during treatment to prevent reinfection.
2. Foster parents should use disposable litter boxes that are discarded daily.
3. Environmental decontamination is difficult, but can be done with steam cleaning or 10% ammonia.
4. Begin Treatment
 - a. Albon 50-60 mg/kg PO SID for 5-20 days (Plumbs, CAPC 2014)
 - b. Marquis Paste 25mg/lb. SID for 3 days (1cc/10lbs)

Ponazuril (Marquis Paste) Instructions: Dilute one syringe of paste (127 grams at 150 mgs/gm., 120 ml volume) in 21 mls* of water results in a solution of 135 mgs/ml. This can be dosed at 50 mg/kg or 25mg/#. The solution should be stored in a light proof container and thoroughly shaken before administration.

*The math: (127 grams x 150 mgs/gm) = 19050 mgs/141 mls = 135 mgs/ml

Giardia: Diagnosis made by a DVM following a fecal analysis. If not resolved at 8 days, recheck fecal and switch medication accordingly.

1. The Companion Animal Parasite Council (CAPC) recommends *fenbendazole* (50 mg/kg PO once daily for 5 days) as its first choice drug, but *fenbendazole* can be used in combination with *metronidazole* at 25 mg/kg PO twice daily for 5 days. This combination therapy may result in better resolution of clinical disease and cyst shedding.
2. If treatment combined with bathing does not eliminate infection, treatment with either *fenbendazole* alone or in combination with *metronidazole* may be extended for another 10 days
3. *Fenbendazole* Suspension: 100 mg/mL (10%), 0.25cc/# SID for 5 days

Distemper (Canine CDV):

Reference the CDV Distemper Quarantine SOP for disease control protocol. Dogs that are suspected to have CDV may exhibit the following symptoms:

- Lethargy
- Fever
- Ocular / Nasal Discharge
- Conjunctivitis
- Vomiting or diarrhea with a Negative Parvo test
- Hyperkeratosis of paw pads (hard pad disease)
- Decreased appetite/anorexia
- Neurologic abnormalities – seizures, ticks, fly-biting seizures

1. Dogs with any respiratory symptoms are placed in the Respiratory Ward. See section on CIRB.
2. Dogs with severe upper respiratory signs or suspicious for CDV are to be “unavailable”.
3. CDV is suspected if dog is not responding to routine URI treatment, or develops neurologic or other symptoms suggestive of CDV. Testing for CDV is challenging and frequently inaccurate. Test options include:
 - a. IDEXX Respiratory Disease RealPCR panel (**Standard** includes respiratory agents except influenza, **Comprehensive** includes influenza). False negatives and positives can occur.
 - b. Conjunctival swab IFA (to CSU): false negative result may occur, but a positive result is considered diagnostic. Dogs that test negative on IFA test may have further testing and may continue to be housed in the Respiratory Ward at the discretion of the treating DVM.
 - c. Dogs from same source may be quarantined until results are obtained.
 - d. Consider separating single symptomatic puppies to reduce total quarantine time for balance of directly exposed litters. Approval for separating single puppies must be obtained from B&H Supervisor or Shelter Director.
4. Dogs or puppies that test positive and are symptomatic will be euthanized due to the high risk of susceptible dogs entering the shelter population and the lack of appropriate space for treatment in the quarantine area. Dogs that test negative but have advancing symptoms highly suggestive of CDV may be euthanized.
 - a. Exceptions may be made if committed foster parent is willing to quarantine and treat in the foster home.
 - b. Shelter personnel should begin to follow CDV quarantine cleaning protocols outlined in Distemper SOP.
 - c. Begin quarantine of directly exposed at-risk population.
5. Titer testing can help to distinguish dogs at risk of infection from those dogs with antibody protection when evaluating dogs exposed to CDV, particularly dogs from a single transfer group. Clinically normal dogs with high titer levels can be moved to adoption.
6. Begin quarantine housing of all direct exposed and titer NEGATIVE dogs.

- a. Mark all directly exposed population “unavailable” pending the additional CDV tests – approximately three days.
 - b. Place all target population on Disposition Pending.
 - c. If additional tests are positive for CDV:
 - i. Quarantine of directly exposed population for 21 days from LAST CONTACT with infected dog.
 - ii. Follow quarantine cleaning protocols in SOP.
 - iii. Maintain routine vaccination and deworming protocols during quarantine.
 - iv. Any directly exposed animal that is showing CDV symptoms during the 21-day quarantine period will be euthanized.
 - v. After 21-day period, animals that are not symptomatic may be cleared for adoptions by attending DVM.
 - vi. Animals cleared for adoptions after quarantine must have a medical disclosure for Direct CDV Exposure.
 - vii. Shelter tech and/or B&H should notify adopters of any littermates that were adopted prior to the outbreak of Distemper.
 - d. If additional tests are negative for CDV:
 - i. It is okay to release direct exposed population from quarantine.
7. No additional dogs may be added to the Respiratory Ward during the CDV Quarantine.
 8. Any dog may be euthanized if the DVM is highly suspect, regardless of test timeframe.

Ear Issues:

Aural Hematoma:

Pets that present with an aural hematoma are to be placed on vet check.

1. They should receive a full otoscopic exam with sedation if necessary to fully assess the cause.
2. If this is due to chronic otitis or allergies they may be listed as U/U and may be placed on to Disposition Pending depending on the severity or the disease, pain and chronicity.
3. Surgical correction should be performed using a teat cannula drain, the mattress pattern, biopsy punch or similar technique to correct the hematoma while we are treating the underlying disease.

Ear Mites:

Following confirmation from positive ear swab by shelter technician, an animal with ear mites will be treated as follows:

1. Remove gross debris with cotton swab.
2. Drop 0.2 cc of 0.1% dilute *Ivermectin* in each ear
3. Give oral 1% *Ivermectin* (0.01cc/lb.) or 0.1% dilute *Ivermectin* (0.1cc/lb.) for very small kittens
4. Schedule recheck and 2nd topical *Ivermectin* treatment in 2 weeks. Adopter may be sent home with second dose of topical medication.

Medication HOLD will be placed to ensure adopter is informed of infection and follow-up treatment.

5. All kittens in a litter will be treated if one is infected
6. Treatments post adoption are the responsibility of new guardians
7. Will not be housed with ear mite negative cats
8. Medical disclosures are not necessary

Chronic Severe Otitis:

Signs/symptoms include:

- Thickened pinna
- Inflammation and pain
- Debris
- History of treatment without resolution
- Polyps may be identified
- Hardening of vertical ear canal
- Pinna is scarred and covering canal from previous untreated aural hematoma

1. Animals with suspected chronic otitis will be placed on “needs vet check”.
2. Animals diagnosed with severe chronic otitis may be listed as U/U and be placed on Disposition Pending.
3. If no other significant medical or behavioral concerns, dog may be candidate for total ear canal ablation surgery.

Otitis Externa and Yeast Infections:

1. A sample of ear debris will be taken for otic cytology.
2. Once checked, infection is usually a mix of yeast and bacteria. Begin treatment
 - a. If mild and temperament allows, instill *ZnOtic* or *Zymox* (with or without HC) Once daily for seven days
 - b. If more severe and/or pet may be difficult or traumatized from recurrent treatment, *BNT* or *NT ointment* 1-3cc infused into the affected ear(s) once.
 - c. *Otomax* BID or *Miconazole* SID for 2 weeks. (*Miconazole* if infection is yeast only.)
3. If using *Otomax* or *Miconazole* will need ears cleaned every other day. If using *Zymox* or *BNT/NT* **do not** clean the ears during treatment.
4. Can be moved to adoptions with a Medical Disclosure.
5. Rechecked by DVM at one week. At that point, treatment may be continued or tapered for seven days.
 - a. If medication is continued, DVM should recheck again in 1 week.

Eye Issues:

Consultation with an ophthalmologist, if possible, is an option.

Blindness: Blind animals are U/U.

1. Cats: Blind cats that have adjusted to their environment will be considered for adoptions depending all overall health and temperament

2. Dogs: Blind dogs must pass behavior evaluation before being considered for adoptions.
3. Bilateral enucleation may be performed only on well-adjusted animals.

Cataracts: Possible in both dogs and cats. If no other symptoms are present (i.e. diabetes, glaucoma):

1. DVM check eye pressures to rule out glaucoma
2. If negative for glaucoma, no treatment necessary
3. No double-eye enucleations will be performed without collaborative decision with Director of Shelter Services.
4. Medical Disclosure for cataracts with options, including surgery

Cherry Eye and Entropion: Animals requiring surgery will be identified by a DVM during rounds.

1. Animal will be T/R and will be scheduled for surgery ASAP.
2. Post-op antibiotics, pain meds, e-collar and Medical Disclosure will be prescribed by veterinarian
3. DVM recheck 7 days after surgery.

Conjunctivitis (Canine): Identified by B&H and placed on “needs vet check”. Those dogs without discharge, but appear red due to a lack of pigmentation need not be checked by a DVM.

1. If diagnosed by the DVM, begin meds
 - a. BNP with or without hydrocortisone, BID for 5 days.
 - b. *Erythromycin*, BID for 5-7 days.
2. If squinting, fluorescein stain for corneal ulcer. If confirmed, treat appropriately.
 - a. If no improvement, consider debridement / grid keratotomy.
 - b. Ophthalmology consult may be considered if no improvement to rule-out missed underlying cause.
3. Warm compresses daily, if possible.
4. Be aware of origination of dog. *Onchocerca* is found in dogs coming from the Southwestern US, especially New Mexico, and may have symptoms of conjunctivitis. See section on *Onchocerca*.

Conjunctivitis (Feline): Cats that are symptomatic for eye herpes, i.e. runny eyes, inflammation, squinting, ocular discharge, will be placed on vet rounds by B&H or shelter technician

1. If a corneal ulcer is not suspect, begin *Doxycycline* 10mg/kg or 5mg/# PO SID for 7-10 days as first choice drug for eye issues in cats.
2. *Erythromycin* BID topical may be used.
3. *Tobramycin* and *Idoxuridine* are more expensive choices and staff will have difficulty to separate the drops even by 30 seconds. Ideally, if a cat needs this combination, the drops should be administered 3-4x daily and spaced appropriately.
4. *Cidofivir* (0.5%) BID for 1 week, then SID until bottle is gone.

5. If a corneal ulcer is suspect, confirm with fluorescein eye stain
 - a. If negative: proceed with previous medication
 - b. If positive but no URI symptoms are present, perform corneal cytology.
 - i. If eosinophilic keratitis positive, this is an immune mediated disease. Cat is U/U, place on Disposition Pending.
 - ii. Begin *Idoxuridine*, BID for 7 days
 1. If no improvement is seen at day 7, do eye scrape
 2. If improvement is seen, continue meds for a total of 14 days
 - iii. Depending on resources and temperament, a cat with eosinophilic keratitis may be treated with *Pred Acetate* and proceed with adoptions if responding to treatment.

Eye Enucleation: The necessity of this surgery will most likely be the result of trauma or congenital birth defect. Enucleations will be performed prior to an animal being an adoption candidate. These animals are T/R.

1. Bilateral enucleation may be performed only on well-adjusted animals

Glaucoma: When it is definitively diagnosed animal is U/U. Attending veterinarian will diagnose using Tonopen at clinic.

1. If unilateral, enucleation is an option and animal may be an adoption candidate depending on the overall health
 - a. Must have a medical disclosure
 - b. Ophthalmology consult is highly recommended to determine cause and prognosis.
2. If bilateral, animal will be placed on Disposition Pending.

Onchocerca: Uncommon ocular condition in dogs caused by migrating larvae of *Onchocerca lupi*. Symptoms are episcleral granuloma in dogs typically transferred from New Mexico or Four Corners region. Parasite is transmitted by an intermediate host that has not been identified but is likely a fly.

Microfilariae migrate in the tissues and may cross-react with *dirofilaria immitis* in standard ELISA HW testing.

1. Presumptive diagnosis by episcleral redness and swelling. Dog likely from New Mexico or US Four-Corners region.
2. Medical work-up includes PE, heartworm test and standard HW staging regardless of HW of status.
3. Matthew Chavkin DVM, DAVCO Onchocerca Treatment Protocol:
 - a. *Doxycycline* 10 mg/kg PO q24h (or 5mg/kg PO q12h) for 3 months (or *minocycline* 20 mg/kg/day PO)
 - b. *Ivermectin* 200 mcg/kg PO once monthly for 6 months. NOTE: Dr. Chavkin does a 50 mcg/kg test dose first to check for toxicity signs.
 - c. Topical and systemic corticosteroids as needed. Oral prednisone 0.5-1 mg/kg for 1-2 weeks.

- d. Following 6-month treatment, continue monthly *ivermectin*-based heartworm preventative lifelong to sterilize any remaining adult worms. The zoonotic concern is one reason for lifelong preventative.
4. Medical Disclosure

Pannus:

Is identified by a DVM as pigmentation across the iris, usually in Shepherds, Collies and Malamutes commonly seen at higher altitudes. Post diagnosis, dog will be listed as U/U, but may be an adoption candidate if there are no other pending behavior/medical issues. Most cases, once undergoing treatment, will stabilize.

1. *Pred-acetate* or *Optimmune* steroid eye drops BID
2. DVM rechecks weekly while in our care to monitor.
3. Medical Disclosure that includes estimated costs.

Feline Leukemia (FeLV) and FIV:

By signing FeLV/FIV disclosure, clients are encouraged to have all cat and kittens FeLV/FIV tested prior to adoption. Clinic will discuss medical options if cat tests positive. If a client pursues an adoption of a positive cat, a DVM will provide a medical disclosure specific to the feline for the adopter to sign.

1. FeLV and FIV positive cats are U/U.
 - a. If cat is diagnosed as positive after being in the Adoption Center, it will be requalified as Chronic Medical
 - b. No special disease control measures need to be taken when handling a positive cat, as the virus is neutralized by routine disinfection.
 - c. Retesting will be done once a positive result is obtained in an otherwise healthy cat. If a cat has clinical symptoms suggestive of FeLV or behavioral concerns, confirmatory tests are unnecessary and staff can proceed with euthanasia.
 - d. A confirmatory test is done by IDEXX Snap ELISA test in-house using **SERUM**.
 - e. If conflicting results persists in an otherwise healthy cat, confirmation by PCR testing may be pursued.
2. If a cat was housed in a condo and tests positive:
 - a. All cats in condo will be tested
 - b. Condo should be deep cleaned
 - c. New cats can be added once testing and cleaning has been completed
 - d. NOTE: because
3. If a cat was housed in the cattery and tests positive, no special protocol is necessary
4. If any cat from a multiple cat household tests positive, all cats from household will be tested.

Feline Immunodeficiency Virus (FIV)

FIV positive cats with no other medical or behavioral issues can be placed up for adoption with a medical disclosure.

1. FIV positive cats are U/U.
2. A positive test can be confirmed by PCR. This test may be offered at the adopter's expense in the medical disclosure.
3. Kittens under 6 months of age may be reflecting maternal antibodies to FIV and should be held for 30 days and retested to confirm.

Guidelines for FeLV/FIV testing:

1. Cats that are confiscated or surrendered from a known or suspected hoarding situation will be tested.
2. Queens will be tested prior to foster care.
3. Foster parents can request that any kitten or cats they are planning to take be tested prior to pick up
4. Intact, free-roaming males, over one year of age with fighting wounds will be tested
5. Cats with abscesses, stomatitis, dental disease, ringworm or requiring clinic resources to resolve orthopedic or soft tissue trauma.
6. Any other feline at the discretion of the attending DVM.

Heart Murmurs:

B&H or DVM identifies an animal with a heart murmur following a physical exam. Consultation with veterinary cardiologist is an option.

Cats: A murmur in a cat may indicate no heart disease to severe heart disease. A loud murmur in a cat usually means something is abnormal, while a soft murmur can be benign or significant. If a murmur is heard, the attending DVM will:

1. Palpate for a thyroid slip.
 - a. If a slip is felt, or there are other clinical signs of hyperthyroidism, the cat is U/U and will be placed on the Disposition Pending list. B&H will explore all reclaim and rescue options.
2. Schedule a chest x-ray.
 - i. If x-ray is normal, attending DVM will create a medical disclosure for cat indicating diagnostics performed and recommended further treatments.
 - ii. If x-ray shows changes in the heart, cat is U/U and will be placed on the Disposition Pending list.
3. May perform bloodwork including IDEXX ProBNP to assess the heart. If bloodwork is not normal, cat is U/U and will be placed on the Disposition Pending list.
4. All cats with a diagnosed heart murmur that are placed for adoption should have a medical disclosure.
5. Local veterinary cardiologists can be contacted to check for possibility of complimentary echocardiogram.

Dogs: Small breed dogs typically have mitral valvular disease. A soft left apical murmur in a small breed dog most likely indicates mild MR (mitral regurgitation). This most likely will progress but tends to progress slowly (over years rather than months). A loud mitral murmur may still indicate relatively mild disease or may indicate severe disease. A loud right sided murmur may indicate severe tricuspid regurgitation and/or pulmonary hypertension. Large breed dogs with a soft left apical murmur may indicate mild MR or could indicate DCM (dilated cardiomyopathy). A loud murmur usually goes with primary MR but its severity could be relatively mild to severe. If a murmur is heard, the attending DVM will:

1. Shelter technician or DVM may schedule a chest x-ray.
 - a. If x-ray is normal, attending DVM will create a medical disclosure for dog indicating diagnostics performed and recommended further treatments.
 - b. X-ray should be reviewed by radiologist during bi-monthly radiology rounds.
 - c. If x-ray shows changes in the heart, dog is U/U and will be placed on the Disposition Pending list.
 - i. Changes in the heart should be viewed as correlated to the size and breed of the dog.
2. Local veterinary cardiologists can be contacted to check for possibility of complimentary echocardiogram.
3. If the dog's age is a concern, the DVM can perform basic pre-anesthetic bloodwork, including heartworm test for dogs over 7 months of age.

Heartworm:

Dog testing protocol:

- Any dog over 6 months of age coming from a high risk area will be tested (Regions with a higher incidence of heartworm than the Front Range). Since age is often an estimate, if a dog has all permanent teeth erupted, it will be tested.
- Dogs from High Risk areas that have been tested negative should have the following memo added to medical history:

Heartworm Disease in Dogs:

This dog came from a region where heartworm infection is endemic. This dog has been tested NEGATIVE for heartworm. We recommend that he/she receive monthly heartworm preventative starting immediately and be retested in 6 months because of the complex life-cycle of the heartworm. This is recommended by most manufacturers of heartworm preventatives and the Heartworm Society (www.heartwormsociety.org). It is also recommended to keep dogs on preventative year-round and retest regularly as recommended by your veterinarian.

- Dogs under 6 months do not need to be tested, but should be started on preventative.
- Puppies under 6 months from High Risk areas should have the following memo added to medical history:

Heartworm Disease in Puppies:

This puppy came from a region where heartworm infection is endemic. Heartworm testing of puppies less than 7 months is unreliable and they may be infected with an immature stage of heartworm. We recommend that this puppy is started on heartworm preventative immediately and then be tested 6 months after the first dose of preventative is administered. (www.heartwormsociety.org).

- Any dog that is symptomatic per American Heartworm Society will be tested. This includes:
 - Chronic, persistent cough that does not respond to antibiotics.
 - Intolerance for exercise
 - Abnormal lung sounds
 - Difficulty breathing
 - Abnormal heart sounds
- 1. Perform heartworm test.
- 2. If heartworm negative, dogs and puppies should have the appropriate memo (see above) added to the medical history.
- 3. If heartworm positive:
 - a. Place on “needs vet check” for physical exam and routine diagnostics, including a chest x-ray.
 - b. Send blood to reference lab for Chem, CBC and HWT
 - c. Administer heartworm preventative and schedule monthly.
 - d. Start on doxycycline 10mg/kg BID for 4 weeks.
 - e. DVM will determine “stage” of disease.
 - i. Stage 3 and 4 may be considered U/U and placed on the Disposition Pending list.
 - f. Dog will be placed in the adoption center with medical disclosure for heartworm including the treatment schedule (see below for example). Adopter must talk to DVM or shelter veterinary technician because each animal will be at a unique stage of treatment which requires individual assessment after review of medical record. Adopter should schedule an appointment for a routine veterinary exam with a veterinary clinic provided in the adoption packet as well as contact HSBV Veterinary Clinic to set up appointment to start treatment.
 - g. Adulticide treatment follows the American Heartworm Society guidelines and is typically done post-adoption
 - h. Medical Disclosure, Bullet points for adoption counseling, Treatment Schedule, and Follow-up Information:

MEDICAL DISCLOSURE

The Humane Society of Boulder Valley hereby discloses to _____, that this animal has been diagnosed with, or treated for, the following medical condition(s):

HEARTWORM DISEASE

What IS the problem?

This dog has been diagnosed with heartworm disease which means there are spaghetti-like worms in the great vessels of the heart. Heartworm is transmitted from dog to dog by mosquitoes and is most common in warm humid environments where mosquitoes are prevalent. The disease is treatable with oral and injectable medications. The entire treatment takes many months to complete. Without treatment dogs will develop heart failure and spread the parasite to other dogs.

What has HSBV done so far?

1) Confirmed heartworm infection by sending blood to a reference lab. 2) Took x-rays to check for changes of the heart or lungs caused by heartworm. 3) Started treatment with the antibiotic doxycycline to which kills a bacteria associated with the heartworms. 4) Administered initial dose of heartworm preventive medication to kill immature forms of the worm. Heartworm preventative should be continued lifelong on a monthly basis.

Complete physical exam showed no sign of heart failure.

What still needs to be done?

- **Schedule a New Adoption Exam with your veterinarian (list of participating veterinary clinics provided in adoption packet).** At this appointment, the veterinarian will again review the medical history, make recommendations for 'wellness plan' with the intent that this is your "family veterinary clinic".
- **Schedule an appointment with HSBV Veterinary Clinic within about 30 days of adoption.** This appointment is for the HSBV Veterinary team to address the heartworm disease in your new dog, to review the treatment schedule on this document and follow-up care plan for successful elimination of the disease.
- About 2 months after starting oral medications, your dog will receive start a series of intramuscular injections of a medication called *Immiticide*. This is called the 'adulticide' treatment because it kills the adult/mature worms. Four weeks after the first injection, s/he will return to the clinic and receive two more injections given 24 hours apart. The injections are given in the muscular area of the lumbar region (lower back).

Monthly HEARTWORM PREVENTATIVE has been started and adopter will need to purchase more from a veterinarian and continue monthly administration (\$40-60/year).

The antibiotic doxycycline has been started and must be given twice daily for 28 days. Lost doses must be replaced and paid for by adopter.

Total cost for heartworm treatment is \$500-700; however, HSBV will cover most of these costs post-adoption.

Treatment schedule:

- DAY 0: First dose of heartworm preventative date: _____
- Doxycycline/minocycline: _____
- Monthly heartworm preventative to be given on the _____ day of every month.

- DAY 60: adulticide treatment date: _____
- DAY 90: adulticide treatment date: _____
- DAY 91: adulticide treatment date: _____
- DAY 120: Microfilaria test (optional and not paid for by HSBV)
- Repeat heartworm test 6 months after last adulticide treatment.
date: _____ (This test may be done at your primary veterinary clinic \$30-40)

Adopters are responsible for purchasing heartworm preventative and for the follow-up heartworm test both of which can be done at any veterinary clinic.

RECOVERY AND HOME CARE:

- Because the medication will be killing the adult heartworms that live in the right side of the heart, these worms can cause heart/lung problems as they die. Once treatment has started, it is very important to restrict the dog's exercise. **SHORT LEASH WALKS ONLY, NO RUNNING, JUMPING, PLAYING FOR 4-6 WEEKS AFTER THE LAST INJECTION.** If you're having problems keeping your dog quiet, please call the veterinary clinic.
- If you notice any of the following symptoms please contact a veterinarian immediately: coughing, lethargy, decreased appetite, difficulty breathing. These could be signs that dead and dying worms have blocked blood vessels in the lungs (pulmonary thromboembolism) which may be FATAL.

What can the adopter expect?

Some side effects seen with this injection consist of swelling, soreness, lethargy, vomiting and diarrhea, panting and coughing. Your dog should be under **STRICT CAGE REST** and taken outside for eliminations only or short walks on a leash throughout the treatment and for four to six weeks following the last adulticide treatment.

Internet resource American Heartworm Society www.heartwormsociety.org

He/she recognizes that this medical condition exists and is willing to adopt the animal at this time. The adopter also recognizes that this animal may need veterinary care immediately or in the future and will be responsible for all veterinary charges incurred.

If you have any questions regarding this medical disclosure, please contact our veterinary clinic.

Signature of adopter

date

HEARTWORM POSITIVE CHECKLIST

Name, A#

Physical exam	Enter PE notes using "Heartworm positive" template	
	Rx: Heartworm preventative x 6 months	
	Rx: Doxycycline or minocycline 10 mg/kg BID x 28 d	
Medical disclosure	Fill in dates on the template. Helpful to calculate dates: https://www.timeanddate.com/date/dateadd.html http://heartwormtoolkit.com/	
	Copy and paste into PetPoint record	
	Hard copy to kennel card	
Holds	Medical disclosure: "Heartworm positive, adopter must talk to a shelter veterinarian"	
	Medication: "Doxycycline until xx/xx. Adopter must purchase 6-12 months of heartworm preventative at NAE."	
Radiographs	PetPoint: enter your initial interpretation	
	Add to "radiology review" list under shelter vets	
Blood work	Order blood work through IDEXX: typically CBC/chem11/HWT (test code 2090)	
	Schedule exam for blood work review the following day	

Heartworm Treatment – Key Points:

- Heartworm positive dogs have spaghetti/vermicelli-like worms in the heart and microscopic immature stages of the worm in the blood stream.
- Untreated dogs are a reservoir for infecting other dogs in the community.
- Heartworm is eventually fatal if not treated.
- Doxycycline is an antibiotic and part of the treatment to kill a parasite that lives symbiotically on the worms and it also decreases inflammation in the lungs associated with the worms. It must be given twice daily for one month. Doxycycline is very expensive, especially for a large dog. If the medicine is lost, the adopter will be responsible for paying for it. Cost is about \$200 for an average sized dog.
- Monthly heartworm preventative has been started and must be given year-round for the rest of the dog's life (it is recommended that all dogs are on monthly heartworm preventative). This kills the immature worms.
- Continue administering monthly heartworm preventative throughout the treatment – DON'T STOP. Adopter will need to purchase preventative – can be from any veterinary clinic. Cost is \$60-90/year.
- After a dog has been on heartworm preventative for at least 3 doses, we will start the series of 3 injections. The 1st injection is given. Then in four weeks the 2nd and 3rd injections are given 24hrs apart.
- Adopter must also schedule an appointment with our veterinary clinic prior to the first adulticide injection. Ideally, schedule this appointment within 30 days of the first injection. ***This appointment and all visits for heartworm treatment in our clinic are to address heartworm disease only.***
- The dog must be kept QUIET once the injections are started and for 4-6 weeks after the last injection. The clinic will provide a handout that provides some strategies to keep your dog quiet, prevent boredom and promote learning during this period.
- American Heartworm Society recommends a microfilaria test 4 months after monthly heartworm prevention has been started. This additional test is not paid for by HSBV as part of the heartworm treatment but can be done at our clinic for \$50.
- Six months after the last injection, another heartworm test must be done. The adopter pays for this test and this can be done at any veterinary clinic. This will cost \$30-40.
- ***It is very important to have your New Adoption Exam with a veterinarian of your choice, within 2 weeks of adoption. This can be done at ANY veterinary clinic. This exam is to discuss any questions you may have about the dog, update vaccines, and purchase heartworm preventative.***

Cats:

Cats identified as Heartworm Positive: HSBV will not do additional testing.

1. If the cat is not symptomatic, a medical disclosure will be created and the cat will be eligible for adoption.
2. If the cat is symptomatic, it is U/U and will be placed on the Disposition Pending list.

Hypothyroidism:

Dogs surrendered to the shelter or diagnosed with hypothyroidism are adoption candidates with appropriate Medical Disclosure.

Hyperthyroidism:

Feline hyperthyroidism treatment options include lifelong medication that may or may not be tolerated by the patient, one-time I131 radiation therapy at a specialty facility or surgical removal of the thyroid gland. Cats diagnosed hyperthyroid are classified U/U and will be euthanized. Consideration can be made for treatment on a case-by-case basis if there are no other medical issues to be addressed and approved by the Director of Shelter Services.

Incontinence (Fecal):

Cats: Cats with urinary or fecal incontinence are U/U and will be placed on the Disposition Pending list for Chronic Medical and be euthanized. See also the section on Urinary Issues - Feline.

Dogs: Dogs with fecal incontinence are U/U and will be placed on the Disposition Pending list for chronic medical and be euthanized. See also the section on Urinary Issues – Canine.

Kennel Cough (See Canine Infectious Respiratory Disease)**Newborn Animals:**

All newborn animals should be evaluated by a DVM for any apparent birth defects.

1. Newborn animals with apparent significant birth defects or injury may be euthanized.
2. Strong considerations for euthanasia should be given to newborns that arrive without a queen.
3. Singleton puppies (without bitch or littermates) should be euthanized due to behavioral concerns.

Managing newborn animals entangled in umbilical cord:

1. Immediately release strangulation by cutting away cords. This can be performed by a veterinary technician without veterinary oversight.
2. Provide appropriate support to warm/clean newborns.
3. DVM should evaluate newborns.
 - a. Any newborns whose limbs are compromised (or have any other apparent significant birth defects or injuries) are to be euthanized.

4. Return newborns to queen.
5. If queen is not accepting, newborns can be fostered with experienced foster parent if resource is available.
 - a. Singleton puppies (without bitch or littermates) should be euthanized due to behavioral concerns.

Newborn small mammals (mice, rats, gerbils, and hamsters): Hairless newborns with eyes closed are euthanized because of: stress-induced infanticide, high morbidity and mortality, difficulty to sex, prepuberal and prolific reproduction, and the inability to terminate pregnancy.

Orthopedic Issues:

For all orthopedic issues, strong consideration should be given to the behavior of the patient. When a behavior issue exists, we will consider patients with an orthopedic issue as having a complexity of concerns and euthanasia may be considered. See behavior note under surgical orthopedic procedures.

Carpal Laxity: Patients (primarily puppies) with mild to moderate forms of this condition (functional and ambulatory, mild discomfort to non-painful) are adoption candidates with a medical disclosure.

Conditions are self-limiting with appropriate diet, limb massage, and moderate exercise on surfaces with secure footing.

Severe cases may be supported with short-term splinting or bandages. For severe cases, an additional veterinary consult is recommended and rarely euthanasia may be warranted.

Cranial Cruciate Ligament (CCL) Tears: One of the most common injuries seen in dogs. Patients are evaluated on an individual basis for rear limb lameness with an orthopedic examination. If the presence of a cranial drawer sign, tibial thrust, +/- medial buttress, and/or radiographic evidence (stifle effusion +/- osteoarthritis changes) a diagnosis of CCL tear is confirmed.

1. Patients with mild to no lameness and/or a chronic history suggesting stifle stabilization via scar tissue are adoption candidates with a medical disclosure.
 - a. Medical disclosure indicating surgery may be warranted in the future at the adopter's expense, risk for rupture of the other limb, and a description of the life-long medical care (lean body weight, pain management, joint supplement options, physical therapy options, brace options, etc.)
2. Patients with acute trauma, moderate to severe lameness and pain may require surgical stabilization prior to, or post-adoption. Surgical stabilization options include extracapsular repair (smaller dogs, breed appropriate) or TPLO. SAST (see Appendix 3, see also surgical orthopedic procedure section) or other donated specialist TPLO surgery may be considered for good behavioral adoption candidates.
 - a. Patients with recent surgery are adoption candidates with a medical disclosure.

3. Some individual patients may be candidates for a stifle brace. (In Colorado – contact Orthopets).
4. Euthanasia may be considered if there exists a complexity of medical and/or behavioral issues.

Fractures: Patients with fractures are evaluated on an individual basis for treatment options. Treatment options may include internal or external fixation fracture repair, splinting, FHO, amputation, or euthanasia. A foster period may be needed or in some cases the patient may be adopted with a medical disclosure indicating the follow up medical plan required.

Fungal Bone Infections including Nasal/Sinus Aspergillosis: These are uncommon conditions in Colorado, but if diagnosed or highly suspected, these patients are not adoption candidates and euthanasia is recommended.

Hip Dysplasia: Patients evaluated on an individual basis through gait analysis, orthopedic examination, radiographs, +/- sedated orthopedic examination for Ortolani sign.

1. Mild to moderate clinical signs and radiographic changes with overall good comfort level are adoption candidates with a medical disclosure.
2. Patients with severe clinical signs and pain from hip dysplasia may warrant euthanasia.
3. FHO procedure may be considered or recommended in some individual cases.
4. Pain medications may be prescribed by the attending veterinarian as needed.
5. Puppies 20 weeks or younger with Ortolani signature can be considered for a JPS procedure at the veterinarian's discretion (which can be done in conjunction with spay/neuter). SAST (See appendix 3) or orthopedic referral.

Hypertrophic Osteodystrophy (HOD):

Typically occurs in young large breed dogs, with initial signs usually presenting between 3-5 months of age. The underlying etiology is currently largely unknown, but at this time HOD is primarily considered an auto-inflammatory disorder. It is a developmental disease with a systemic inflammatory component.

1. Diagnosis based on pain in the metaphyseal region(s), fever and radiographic evidence of HOD, double physis.
2. In some cases, radiographic changes may not be seen immediately. If HOD is still strongly suspected, repeat radiographs 48 hours later.
3. Some HOD patients can have other systemic illness symptoms including diarrhea/hematochezia, pustules, pneumonia, nasal/ocular discharge, etc.
4. Most cases of HOD will resolve with time, prednisone and supportive care.
Treatment options:
 - a. *Prednisone*: 0.75-1.1 mg/kg every 12 hours (can increase to 2 mg/kg BID if no response) until clinical symptoms resolved (about 5 days), then taper slowly. *Prednisone* should be considered especially for

severe cases. If an infectious cause (osteomyelitis, physitis) is of concern, prednisone should be reconsidered.

- b. Intravenous fluid support as needed.
 - c. *Famotidine* 0.5-1 mg/kg PO q 12-24 hours
 - d. Additional pain medication as needed (*Tramadol*, CRI).
 - e. Antibiotics (*Clavamox*, *Cephalexin*) if needed for secondary infections.
 - f. Non-Steroidal Anti-Inflammatory (NSAID) medication (*Rimadyl/carprofen*) (if prednisone is not used).
 - g. Patients with HOD should be fed an adult maintenance diet NOT a puppy/high growth diet.
5. Dogs that relapse will often respond to prednisone and may require a low dose of prednisone for months, but are still expected to fully resolve when complete growth maturity occurs.
 6. Dogs with HOD can be made available for adoptions when their pain and fever symptoms are resolved with a medical disclosure describing the individual's medication taper plan and risk for relapse.
 7. Euthanasia may be considered for dogs with severe symptoms not responding to prednisone.

References:

1. *Clinical manifestations, response to treatment, and clinical outcome for Weimaraners with hypertrophic osteodystrophy: 53 cases (2009-2011)*. *J Am Vet Med Assoc*. May 1, 2013;242(9):1260-6. Noa Safra¹; Eric G Johnson; Lisa Lit; Oded Foreman; Zena T Wolf; Miriam Aguilar; Nili Karmi; Carrie J Finno; Danika L Bannasch
2. *Hypertrophic osteodystrophy in six weimaraner puppies associated with systemic signs* *Vet Rec*. July 1999;145(5):130-4. V Abeles¹; S Harrus; J M Angles; G Shalev; I Aizenberg; Y Peres; I Aroch

Lameness, Soft Tissue Injury or Unknown Underlying Cause: Patients with lameness are evaluated with a full physical examination, orthopedic examination and possibly radiographs.

1. If the underlying source of the lameness is not evident after these evaluations, a 7-day trial treatment with an NSAID and rest is recommended.
2. After the 7 day NSAID and rest trial, a repeat physical exam and orthopedic exam should be performed and radiographs performed if indicated.
3. If the lameness is mild, improves with NSAID trial, or appears to be functional in nature, the patient can be made available for adoptions with a medical disclosure.
4. If the patient's lameness is not a functional lameness and the pain can't be improved with medications, euthanasia may be recommended.

Masticatory Myositis (MM): Patients with newly diagnosed MM are not an adoption candidate and euthanasia will be recommended. Patients with a history of MM that is controlled with low dose steroid therapy or if the condition has resolved are adoption candidates with a medical disclosure.

Neoplasia of bones, cartilage, joints (osteosarcoma, chondrosarcoma, synovial cell cancer, metastatic lesions): Patients with physical or/and radiographic evidence of bone, cartilage or joint cancer(s) are not adoption candidates, euthanasia is recommended.

Osteochondritis Dissecans (OCD): Patients with this condition will be euthanized unless SAST (see Appendix 3, see also surgical orthopedic procedure section) or other donated outside specialist surgical services can be obtained.
Purebred patients may be transferred to breed rescue organization with disclosure of condition.

Osteomyelitis: Patients with radiographic evidence of osteomyelitis may be candidates for treatment if expected prognosis is good. However, treatment course is long (minimum of 2-4 months) and euthanasia may be recommended especially with severe cases.
Treatment options include empiric antibiotics (*clindamycin, enrofloxacin*), culture, debridement or/and amputation of the affected area (limb, digit).

Panosteitis: Patients with this condition are adoption candidates with a medical disclosure. Attending veterinarian will prescribe pain control medications as needed based on the individual animal's discomfort. Puppies with this condition should be fed an adult maintenance diet or a large breed puppy diet (NOT a high growth diet).

Patellar luxation: Dogs with luxating patellae are evaluated on an individual basis. Medial patellar luxations (MPLs) are very common in small breed dogs and often suggested by a classic "skip gait." Lateral patellar luxations (LPLs) are less commonly seen.

1. Low grade patellar luxations or/and those with no pain on manipulation of stifle joints and minimal to no lameness are adoption candidates with a medical disclosure. A "skip gait" is acceptable for adoption.
2. Patients that are painful or if ambulation is severely affected as a result of the patellar luxation(s), surgical correction may be recommended prior to adoption.
3. Euthanasia may be considered for severe forms or those with complexity of issues.

Polyarthritis:

1. Infectious or septic polyarthritis: euthanasia will be recommended.
2. Immune mediated polyarthritis may be treated.
 - a. Acute, mild cases can receive trial treatment with *prednisone*. If response to treatment is good, the patient can be considered for adoption with a medical disclosure.
 - b. Severe cases and cases not responding to treatment, euthanasia will be recommended.

Previous Unknown Orthopedic Trauma or Congenital Deformities:

This includes, but not limited to, shortened limbs, limb deformities (missing digits, paws, curvatures, etc.), abnormal or limited range of motion of joint(s), and more.

1. Radiographs may be taken if needed for confirmation or further assessment of the deformity.
2. If the patient is comfortable, ambulatory and without chronic wound/ulcerations from the previous trauma or deformity, they are adoption candidates with either a medical note or a medical disclosure.
3. Patients with chronic wounds or pain may be candidates for surgical correction, amputation, or prosthetic devices if applicable.
4. Euthanasia may be considered on an individual basis if long term comfort is likely not achievable or if other complexity of behavioral/medical issues.

Surgical Orthopedic Procedures: For patients needing an orthopedic procedure, including FHO, CCL tear repair, fracture repair, and amputation, the attending DVM should collaborate with B&H to ensure that the patient has passed a behavior assessment.

1. Animals that are too painful to be behaviorally evaluated should be discussed by the attending veterinarian with the Chief Shelter Veterinarian and Director of Shelter Services prior to any surgical procedure.
2. The attending DVM should evaluate the patient's injury/lameness and make a recommendation on the type of surgery needed.
 - a. If lameness is determined to be related to pain, surgery may or may not be warranted taking into consideration:
 - i. if pain is chronic in nature
 - ii. if pain can be resolved without surgery
 - iii. if patient has a positive prognosis
 - b. If, after assessment, surgery or amputation is not immediately warranted, and pain can be managed in the shelter, the patient may move to adoptions.
 - i. A medical disclosure should be written, which should include how we will handle the patient if the condition progresses within a limited timeframe.
 - ii. Adoption counselors should involve the Shelter Veterinary Technician or Veterinarian during adoption meets.
 - c. If pain cannot be managed in the shelter, surgery should be scheduled.
3. The determination to amputate vs. other orthopedic procedures is made by the attending DVM on a case by case basis, with resources, time, and the patient's behavior being considerations.
4. Following surgery and appropriate recovery in the clinic, the attending DVM should communicate a recovery plan to B&H with estimated length of foster and necessary follow up care.
 - a. B&H may seek a foster home.
 - b. If foster is not available, or if foster is not needed, the patient may be made available with a post-surgical medical disclosure.

Panleukopenia:

Symptoms of Panleukopenia include vomiting, lethargy, diarrhea, and death. Cats that are symptomatic will be tested using a canine parvo test or a blood smear and CBC and will be checked by the attending DVM to evaluate WBC count. Shelter staff will follow the Panleukopenia Quarantine SOP. All cats that test positive are considered U/U and should be euthanized.

1. Cat tests positive and is the property of HSBV, a medical emergency euthanasia will be performed by shelter staff.
2. Cat tests positive and is not the property of HSBV, an in house CBC may be done.
 - a. If WBC count is below normal the cat, suspicion of panleukopenia is high and cat will be quarantined per SOP.
 - b. Supportive care (SQ fluids, 10-20 ml/lb.), antibiotics, and monitored overnight.
 - c. Quarantine will occur in the shelter, not the clinic, per SOP.
3. Cat tests positive on Parvo SNAP test, is symptomatic, and has a reclaim. B&H will contact the previous guardian ASAP and recommend euthanasia. The reclaim may also request to speak with the attending DVM.
 - a. Cat will be quarantined per SOP pending the reclaim.
 - b. Quarantine will occur in the shelter, not the clinic, per SOP.
4. Shelter Vet Tech or B&H will recheck all quarantined cats each morning. DVM should check all quarantined cats during afternoon rounds and update medical plan as necessary.
5. Cat tests negative on Parvo SNAP, and is symptomatic or has a history that puts cat at risk of exposure, an in-house CBC will be performed.
 - a. If WBC count is below normal, begin additional diagnostics as recommended by DVM. This may include fecal analysis, FeLV/FIV test, more comprehensive bloodwork, or radiographs.
 - b. Cats testing negative will be quarantined as per SOP for 24 hours.
 - c. A second in-house CBC may be performed after first day of quarantine. If CBC is improved, continue quarantine. If CBC is below normal, or lower than previous CBC:
 - i. If HSBV Property, medical emergency euthanasia will be performed.
 - ii. If not HSBV property, supportive care antibiotics and SQ fluids will be provided. Suggested antibiotics include:
 - Doxycycline* 5 mg/lb. SID
 - Clindamycin* 5-7mg/lb. SID
 - Azithromycin* 5-15 mg/kg SID- every other day
 - Clavamox* 10-22 mg/kg BID
 - iii. If cat has a reclaim, B&H will contact the previous guardian ASAP and recommend euthanasia.
 - d. If cat is responding to antibiotics, CBC is rebounding, and cat is still alive, it is unlikely panleukopenia.

- i. Continue antibiotics for 7-10 days, and continue quarantine through 14 day period.
6. If cat dies at any point during diagnostics or quarantine period, proceed with Panleukopenia Quarantine SOP for cleaning.

If cat is in Foster:

1. Utilizing the same clinical signs procedure should be followed as a normal shelter animal.
2. If CBC and fecal are normal, foster parent should monitor animal at home. If animal must be returned to the shelter, follow Panleukopenia Quarantine SOP.

For Direct and Indirectly Exposed cats:

1. Euthanasia should always be considered immediately relative to herd health and risk of outbreak.
2. If quarantine is permitted, this must occur for a minimum of 14 days.
 - a. Animals should be moved between cages as infrequently as possible to reduce spread (i.e. animals should not be relocated while risk is being assessed).
 - b. 14-day quarantine is 'reset' for the room if a cat is diagnosed with panleukopenia.

Parvo:

Using the Shelter Parvo Quarantine SOP, those animals that are symptomatic will be parvo tested. Symptoms include juvenile, not interested in food, lethargic, vomiting, or diarrhea.

Once a Positive test result is established the following protocol will be followed.

1. Space in the Clinic Isolation ward will be assessed.
 - a. If available, animals will be treated there, using Routine Parvo treatment (below)
 - b. If no space is available, Positive animals will be placed on the Disposition Pending list.
2. In multiple case outbreaks, individual dogs will be triaged by a DVM prior to treatment. Medical emergency euthanasia will be performed by clinic or shelter staff under the direction of the attending DVM.
3. Dogs that are directly exposed, but not symptomatic will be checked for titers and if positive, bathed and moved forward in the adoption process or held for 14-day quarantine if not titer positive. Follow shelter parvo quarantine SOP procedure for cleaning, feeding, and observation.
4. Dogs that are indirectly exposed will have routine monitoring only.

Routine Parvo Treatment

1. Dog is tested with IDEXX Parvo SNAP test with a positive result, or arrives with a history of a positive test from another veterinary clinic.
 - a. Some dogs with parvo can test false negative. If DVM is suspicious of parvo, the same treatment is warranted until there is a definitive diagnosis or response to therapy and care will be taken to separate this dog if another parvo case is in quarantine ward.

2. Veterinarian and technician team perform initial examination.
 - a. TPR, weight, mucous membrane color, abdominal palpation, thoracic auscultation.
 - b. A running "recheck" status is done in PetPoint daily or more frequently as case warrants.
3. Place IV catheter.
4. Obtain blood sample if directed by DVM:
 - a. PCV/TP can be run for minimal baseline.
 - b. Chemistries and CBC may be done if admitting DVM recommends.
 - c. These results rarely alter the initial treatment plan.
5. Start IV fluids:
 - a. LRS + 5% dextrose or other appropriate isotonic fluid if this is not available. Start with a fluid bolus 10mls/lb., THEN administer *Ampicillin* 10mg/lb. IV and add the following to the fluid bag:
 - i. 1gram of *Ampicillin*
 - ii. 20mEq KCl
 - b. Fluids are run at 2-3 x maintenance. Maintenance fluid rate is 60-90 ml/kg per day (higher volume for younger patients.)
6. Once dog is hydrated, start *Gentamicin* 6.6mg/kg IV daily.
7. Gastro-protectants should be administered
 - a. *Famotidine* 1 mg/kg IV SID (same volume as *Cerenia*)
8. Anti-emetics should be administered if vomiting:
 - a. *Cerenia* 1 mg/kg IV SID.
 - b. *Metoclopramide* 1 – 2 mg/kg IV VERY SLOWLY q24 or 0.2 – 0.5 mg/kg q6-8h PO, SC or IM
 - c. *Ondansetron* 2mg/ml (*Zofran*) 0.5 – 1 mg/kg PO or IV (slowly over 2-15 minutes) q12h.
 - d. *Pantoprazole* 0.7–1 mg/kg IV over 15 minutes q24h.
9. Dog can be treated for pain if indicated
 - a. *Buprenorphine* 0.01 – 0.03 mg/kg IV, IM or SC q6-12h
 - b. *Hydromorphone* 0.1 – 0.2 mg/kg IV, IM or SC q2-4h
 - c. *Butorphanol* 0.1 – 0.5 mg/kg IV, IM, SQ q 6-12hr
 - d. *Morphine* 0.5 – 2 mg/kg IM, SC, or IV (slowly)
10. Perform fecal analysis.
 - a. Treat appropriately when dog can tolerate oral medication.
11. Dog is monitored throughout the day by the DVM and veterinary technician team.
12. If patient's volume loss persists with significant bloody diarrhea or/and vomiting, monitor PCV/TS and possibly albumin, chem, CBC, electrolytes more regularly as per DVM instruction.
13. Plasma Transfusion or *Hetastarch* Options
 - a. If TP <3.5 g/dl or albumin <1.5 g/dl or/and patient's clinical state appears to be deteriorating, consider plasma transfusion.
 - b. Frozen Plasma: takes 30-40 ml/kg plasma to raise albumin 1 g/dl. Thus, therapy likely only effective in small dogs.
 - i. 10lb dog or less: use 1 unit (120mls)
 - ii. 10-20lbs: use 2 units (240mls)

- iii. Over 20lbs may not benefit from plasma for purpose of increasing protein, consider *hetastarch* instead.
 - iv. Thaw frozen plasma in warm water bath (10-30 minutes)
 - v. Plasma must be given through a filtration line.
 - vi. Obtain pre-transfusion patient baseline temperature.
 - vii. Start transfusion slowly 1-2 ml/kg per hour for the first 5-15 minutes. Monitor temperature at 15 minutes. Monitor for vomiting. Recheck temperature at 30, 60, 120, and 180 minutes. Most reactions occur early in the transfusion and are often self-limiting.
 - viii. If concern for transfusion reaction give
 - 1. *Diphenhydramine* 1-2 mg/kg IM or IV
 - 2. +/- *Dexamethasone* SP 0.25 mg/kg IV
 - 3. Often the transfusion can be re-initiated.
 - ix. Plasma can be administered at rates of 5-22 ml/kg per hour, however concern for volume overload at the higher rates. Most often rate will be 10 ml/kg per hour or less.
 - x. Typically the transfusion volume should be infused within 4 hours. (Example: 10lb dog to receive 120 mls plasma, rate will be 30mls/hr. to finish within 4 hours. This equates to 6.67 ml/kg per hour). During plasma transfusion, other fluid therapies are temporarily discontinued.
 - xi. Any excess thawed plasma that is unused must be discarded.
- c. *Hetastarch*: given 5 mg/kg bolus, then 20ml/kg per day.

14. If by day 4 – 5 (or sooner) pain and vomiting are uncontrolled by medication, non-response to treatment, medical emergency euthanasia may be warranted. DVM may also consider other causes for symptoms, including CDV.

15. If intussusception is diagnosed, medical emergency euthanasia is warranted.

16. Once dog stops vomiting, oral medication is started

- a. *Amoxicillin* 5-10 mg/lb. BID
- b. *Metronidazole* 5-10mg/lb. BID

17. When stools are “normal” and dog active, eating, not vomiting, dog is bathed,

18. Patient spayed/neutered and moved to adopts with medical disclosure for parvo treated/recovered.

Penis Paraphimosis

Dogs (most commonly small dogs) with penile paraphimosis (when the penis will not retract into the penile shaft) are not good candidates for adoption. This condition can be managed with by placing a purse string suture to hold the penis within the prepuce. Unless a committed adopter (if patient is already in a foster home or has interested party) is prepared for the long term management, this condition should be considered NAC or adopted only with a medical disclosure.

Rabies:

The following information was taken from the November 26, 2012 “*Colorado Rabies Resource Guide*”. Because the significance of this disease is beyond the scope of this document, the following websites provide the most comprehensive information: www.colovma.org Members only access to the “*Colorado Rabies Resource Guide*”. This document is also saved as a PDF file in the P: Clinic: Shelter Medicine folder. www.cdphe.state.co.us/dc/zoonosis/rabies

Rabies Suspect: Dogs and cats that are suspected to have Rabies may exhibit the following symptoms:

- Abnormal or bizarre behavior (biting at air, attacking inanimate objects)
 - Clinically ill with neurological signs, motor control deficits or overt aggression
 - Unprovoked, sustained attack
 - Owner reports sudden, unexplained behavior changes
 - Owner reports recent contact (within previous six months) of pet dog or cat with skunks or bats
1. Only employees with appropriate pre-exposure vaccinations may handle. No exceptions.
 2. Notify Boulder County Public Health at 303-441-1100 or the appropriate animal control agency to follow up on any human exposures and for directives regarding holding period, euthanasia and submitting head for testing.
 3. Risk assessment: Susceptibility – rabies vaccine status (unvaccinated, expired vaccinated, currently vaccinated). Follow the algorithms located in the Resource Guide.

Post Bite: Dogs, cats, or ferrets involved in a human bite are subject to a MANDATORY 10-day Quarantine for Rabies observation regardless of vaccination status. Animals that remain alive and healthy ten days post-bite would not have been shedding virus in their saliva at the time of the bite and therefore not infectious.

1. Animal Control from the appropriate jurisdiction must be notified of the bite. ACO may contact the client for additional information.
 - a. Please refer to Colorado Department of Public Health and Environment statute 25-1-122 C.R.S which outlines reporting requirements.
2. For bite quarantine that will take place at HSBV, work with Shelter department to see if housing in the shelter is an option.
 - a. Choosing a low-traffic kennel area is ideal.
 - b. Hang a bite confinement sign on the kennel (both sides for dogs).
 - c. Cats should be housed in a middle row kennel for ease of netting or shielding.
3. Owned animals must have appropriate Bite Confinement paperwork completed.

- a. See shelter service desk personnel for assistance.
 - b. Owned animals being quarantined are subject to a daily bite confinement boarding fee.
 - c. For owned animals – clients are welcome to visit during the quarantine period, however the animal is prohibited from being removed or brought outside, and may not come in contact with another person who has not been previously exposed to this patient.
4. All Bite Confinement animals must be clearly labeled as “aggressive” in AVImark or PetPoint software, regardless of displayed behavior.
 5. Shelter animals must have a Hold placed for Medical Quarantine, with a review date of the quarantine release date. This will ensure that the animal is not euthanized prior to the end of the quarantine period.
 6. No one may handle animals on Bite Confinement without an appropriate pre-exposure vaccination.
 7. Unless expressly permitted by the Director of Shelter Services, animals with a history of biting a human are not considered adoption candidates.

Please refer to the [Bite Confinement Quarantine SOP](#), [Bite Surrender SOP](#), and [Bite Stray SOP](#), for additional information on housing and handling during quarantine period for animals that have bitten a human. The 10-day observation period only applies if a bite has occurred. You may also reference Colorado Rabies Control Statutes *25-4-601 et. seq. C.R.S. 1973*, and City of Boulder Ordinance *6-1-24*, regarding the Impoundment and Confinement of Animals.

Ringworm

Shelter staff will do the initial screening of cats and dogs for hair loss as part of routine intake procedures of confirming sex, estimating age, weighing, deworming, and administering vaccinations. Animals with suspicious hair loss lesions will be placed on “needs vet check.” Additionally, cats from high risk situations such as hoarding cases, large transfers, and ALL kittens will be fluoresced with a Wood’s lamp at the time of evaluation or when returning from foster care for vaccinations.

Other animal species suspicious for or positively diagnosed with ringworm will be treated if staff and housing resources allow. This includes guinea pigs, ferrets, rabbits and rodents.

Consideration: Suspicious animals are to be placed on “Disposition Pending,” should have a behavior check and cats should be tested NEGATIVE for FeLV/FIV prior to initiating treatment. Cats with other medical or behavioral conditions that create a complexity of issues and kittens under eight weeks of age must be approved for treatment by Director of Shelter Services or Manager of B&H in consultation with Chief Shelter Veterinarian. Treatment for stray animals should commence as soon as above criteria is satisfied. Any treatment for ringworm does not guarantee candidacy for adoption.

Initial diagnosis:

1. Wood's lamp examination of the animal. If lesions fluoresce/glow (individual hairs or follicles glowing apple green fluorescent color), the animal should be considered positive. A fungal culture should be pulled for confirmation. Caution must be taken not to mistake food debris, lint, dander or oral medications such as doxycycline as fluorescence.
2. Idexx dermatophyte PCR should be considered as a diagnostic tool if the animal does not have a definitive Wood's lamp POSITIVE screen but has a suspicious lesion. Hair should be plucked with sterile hemostats from the active border of the lesion and placed in a plain plastic tube. Can also submit fresh tissue samples/punch biopsy if a kerion is suspected.
3. Fungal culture technique
 - a. Label the underside of the culture plate (the side containing DTM media) with the animal's name, shelter ID (A#), and current date.
 - b. Collect the sample using a new toothbrush all over the body, sampling the suspicious lesion(s) last to avoid potentially spreading the infection. If hairs fluoresce under the Wood's lamp, they can be collected directly with a sterile hemostat.
 - c. Using gentle pressure, impregnate the sample onto the culture plate.
 - d. Culture plates will be read daily by the shelter medicine intern or other designated staff, noting changes in color, growth, or new areas of growth associated with concurrent color change.
 - e. If positive growth is observed, a stained tape preparation of the growth will be examined under the microscope and the ringworm will be speciated by the shelter medicine intern or other staff veterinarian whenever possible.
 - f. If there is no growth by day 21, the culture should be considered negative and discarded.
4. Biopsy: this tool should be used only in cases of suspected kerion.

Treatment:

2. Treatment for ringworm will begin after the first dermatophyte culture is pulled. Treatment is based on Dr. Sandra Newbury's Dane County Humane Society protocol.
 - a. See Ringworm Dipping Protocol – Appendix 4.
3. Oral antifungal medication
 - a. The shelter veterinary technician is responsible for administering oral antifungal medications as prescribed by the veterinarian. Adopters are responsible for administering these medications to dogs in the later stages of their treatment (see below).
 - b. Oral medication for cats:
 - i. Kittens: *itraconazole* liquid (*Itrafungol* or *Sporonox*) 10 mg/mL 5-10 mg/kg PO SID x 7 days, then alternate 7 days "off" and 7 days "on" until cured. *Itrafungol* label dose is 5mg/kg PO SID on alternating weeks for 3 treatment cycles.
 - ii. Adult cats: *terbinafine* 250mg tablets 30-40mg/kg PO SID x 14, then then alternate 7 days "on" and 7 days "off" until

cured. Or *itraconazole* 100 mg capsules 5-10 mg/kg PO SID as described above for *Itrafungol/Sporonox*.

- c. Oral medication for dogs:
 - i. *Terbinafine* 30-40 mg/kg PO SID x 14 days, then alternate 7 days “on” and 7 days “off” until cured
4. Lime sulfur dips will be performed on Mondays and Thursdays by veterinary technicians or other authorized staff. Additionally on Thursdays, technicians will Wood’s lamp, culture, and weigh all patients undergoing treatment.

Tracking progress:

1. Fungal cultures are taken once a week on Thursdays.
2. Animals are considered “cured” after 2 consecutive negative cultures, animals are no longer glowing on Wood’s lamp, and no new hair loss is observed. The shelter medicine intern or other designated veterinary staff will track animals’ progress and maintain updated medical records in PetPoint.

Kerion:

1. A skin lesion characterized by a focal area of inflamed skin that is raised, inflamed and exudative with both fungal and bacterial infections present.
2. We’ve only seen this in dogs.
3. Per VIN and literature resources, it can be treated with topical antifungals only if location allows.
4. Rarely fluoresce under Woods Lamp. Diagnosis via PCR, biopsy or clinical impression. Culture is often negative.
5. Systemic treatment with terbinafine 35-40 mg/kg SID for 14d and then alternating weekly on and off meds.
6. Surgical excision of single lesions in locations amenable to excision can be considered.

Housing and husbandry:

1. Dogs
 - a. While undergoing initial treatment, dogs should be listed as “unavailable” and maintained in a ringworm isolation ward with appropriate signage.
 - b. Dogs may be surgically altered after 2 lime sulfur dips. These animals should be treated with appropriate biosecurity measures while in the clinic, including appropriate PPE and separate housing from non-affected animals.
 - c. After 3 lime sulfur dips (7-10 days), dogs may be made available for adoption and move to the adoption center with appropriate signage. A shelter veterinarian must review the dog’s record-- including antifungal medication and medical disclosure-- prior to the move.
 - d. Post-adoption, dogs will continue their treatment on an outpatient basis through HSBV’s veterinary clinic. Adopters must commit to bringing their animals to the clinic 1-2 times a week on a set schedule, giving oral medications as indicated, and cleaning at home until the dog is cured.

- e. Once an animal has vacated a kennel, the kennel is cleaned with Rescue/Accel 1:16 dilution with appropriate contact time by the animal care staff.
2. Cats
 - a. Will be listed as “unavailable” in a ringworm isolation ward with appropriate signage until their treatment is complete.
 - b. Cats may be surgically altered after their first negative culture if more recent cultures are also negative. These animals should be treated with appropriate biosecurity measures while in the clinic, including appropriate PPE and separate housing from non-affected animals.
 - c. Prior to being made available, cats need a medical disclosure to indicate that their treatment is complete.
 - d. Once an animal has completed treatment, their kennel is cleaned with Rescue/Accel 1:16 dilution with appropriate contact time. If the ringworm ward is to be used for another purpose, the room is to be “deep cleaned” with Rescue/Accel 1:16 solution, which includes cleaning kennels and floor.
 3. Non-shelter housing
 - a. Staff foster and staff adoptions are options for ringworm positive animals. Foster homes that have been designated and cleared for ringworm quarantine and treatment may also be contacted.
 - b. For animals already in foster at the time of diagnosis, foster may continue if foster family is willing. Follow protocol as listed above. These homes cannot foster new animals for 6 months unless kittens were isolated in an area that can be disinfected appropriately.

Concerning **DIRECT EXPOSURE** of asymptomatic animals (e.g. littermates):

1. Quarantine animal(s)
2. Careful examination for skin lesions and Woods lamp test
 - a. If positive, begin standard ringworm protocol as outlined above.
 - b. If negative, take a fungal culture or submit samples to Idexx for dermatophyte PCR
3. Prior to being made available, exposed animals should receive at least 1 lime sulfur dip. A medical “hold” is placed to prompt adoption counselors to notify potential adopter that the animal had exposure and received a medicated bath (lime sulfur dip). No medical disclosure is necessary for directly/indirectly exposed animals with no lesions and a negative Wood’s lamp test.

Concerning **INDIRECT EXPOSURE** of asymptomatic animals (e.g. shared housing or handling):

1. Woods lamp and careful examination for skin lesions.
 - a. If positive, begin standard ringworm protocol as outlined above.
 - b. If negative, the animal is bathed in lime sulfur solution and made available for adoption.
2. A medical “hold” is placed to prompt adoption counselors to notify potential adopter that the animal had exposure and received a medicated bath (lime

sulfur dip). No medical disclosure is necessary for directly/indirectly exposed animals with no lesions and a negative Wood's lamp test.

Outbreaks:

1. If there is an outbreak in the shelter the following protocol can be implemented to prevent further contamination: B&H and shelter technician will visually check all cats located in the Adoption Center for hair loss lesions. Those with suspicious lesions will be placed on "needs vet check" and removed from adoptions.
2. Lime sulfur dips can be performed at the discretion of the attending veterinarian.

Seizures:

B&H identifies an animal as having a history of or observation of seizures. For all case scenarios below - the decision to place an animal into a foster home for seizure observation should be made by the Chief Shelter Veterinarian in conjunction with the Director of Shelter Services. Consideration will be given to animals that are considered highly adoptable and without other behavior or medical issues. The age of onset of seizures should be a consideration in the decision to make an animal a potential adoption candidate. Animals that have onset of seizures after the age of five years rarely have idiopathic epilepsy.

1. If an animal arrives previously diagnosed and is controlled by medication:
 - a. B&H will schedule an exam while continuing existing medications and have previous medical history faxed to the clinic if possible.
 - b. After performing a physical exam, attending DVM will create a medical disclosure and animal can be considered for adoption.
 - c. Bloodwork can be submitted at the attending veterinarian's discretion after review of medical history.
2. If an animal arrives at HSBV with a history of seizures, but no medication / no treatment begun:
 - a. B&H will attempt to retrieve medical history on patient for review by DVM from surrendering party or previous DVM.
 - b. Cats:
 - i. If the history is grand mal seizures, if history is unavailable, OR if seizure history is confirmed as "often" or observed in shelter, the cat is U/U, and will be placed on the Disposition Pending list.
 - ii. If history indicates mild or "very infrequent" seizures, cat may be placed in a foster home for a 30-day observation period.
 1. Cat should be FeLV/FIV tested prior to placement in foster.
 2. Idiopathic epilepsy is uncommon in cats compared to dogs. Toxin or infectious causes are possible in cats of any age. Brain tumors are the most common cause in older cats. Veterinarian will perform basic diagnostics to rule-out causes.

3. There aren't as many treatment options for cats as dogs and the overall prognosis for a cat with seizures is poor.
 4. If cat is observed having a seizure it is U/U and will be placed on the Disposition Pending list. B&H will explore all reclaim and rescue options.
- c. Dogs:
- i. If the history is grand mal seizures, if history is unavailable OR if seizure history is confirmed as "often" or is observed in shelter, the dog is U/U and will be placed on the Disposition Pending list. B&H will explore reclaim and rescue options.
 - ii. If history indicates mild or "very infrequent" seizures, dog may be placed in foster home for 30-day observation period.
 1. Following 30-day foster observations with no observed seizures dog can return to HSBV and be placed in Adoptions as T/M with a medical disclosure.
 2. If no foster homes are available for seizure observation, animal will be listed as T/M but is considered NAC and may be placed on the Disposition Pending list. B&H will explore all reclaim and rescue options.
 3. If seizure activity is observed in foster home, see protocol written in following segment.
3. If an animal has seizures while in the shelter:
- a. Cats:
 - i. Transfer to clinic for IV valium and supportive care.
 - ii. Hold through impound period as U/U and will be placed on the Disposition Pending list. B&H will explore all reclaim and rescue options.
 - b. Dogs with cluster seizures:
 - i. If dog is observed have multiple seizures in a row, every 20-30 minutes, it is U/U and will be placed on the Disposition Pending list. B&H will explore all reclaim and rescue options.
 - c. Dogs with active non-cluster seizures:
 - i. Transfer to clinic for IV valium and supportive care
 - ii. DVM will pull a basic pre-anesthetic panel of bloodwork and send it out for analysis. Pending bloodwork will be placed on the B&H communication board by the BHC entering rounds.
 - iii. Begin *Phenobarbital* at 2.5 – 3 mg/kg PO q12hr, PO BID
 - iv. Place in foster for a 30-day observation period
 1. If in 2 to 4 weeks there are no observed seizures, dog can return to Shelter and be placed in Adoptions as T/M with a medical disclosure.
 2. If while on anti-seizure drugs, dog has cluster seizures it is U/U and will be placed on the Disposition Pending list. B&H will explore all reclaim and rescue options.
 3. If dog continues to seizure, consider *levetiracetam/Keppra*

- v. Following 30-day foster observations with no observed seizures dog can return to HSBV and be placed in Adoptions as T/M with a medical disclosure.
- vi. If no foster homes are available for seizure observation, animal will be listed as T/M and will be placed on the Disposition Pending list. B&H will explore all reclaim and rescue options.

Separation Anxiety:

Dogs identified with separation anxiety may be included in the Training and Behavior Department's Behavior Modification Program. Symptoms of separation anxiety are outlined in the Assessment Tool for the Evaluation of Animals. Dogs may be prescribed drug therapy in conjunction with behavior modification.

1. *Clomicalm* (or generic equivalent – *Clomipramine*) at 1-2 mg/kg BID or 2-4mg/kg SID.
2. *Reconcile* (or generic equivalent – *Fluoxetine*) at 0.5-2mg/kg SID.
3. Patient should stay on drug for approximately three months, to give the dog time to adjust, and then wean.
4. Wean from drug, keeping dose (clomipramine BID) but reduce drug by 25% every two weeks.
5. Most common side effect from drug is inappetence which typically resolves in a couple of weeks.

Dogs may be placed for adoption as cleared by Training Department, and with medical disclosure. HSBV will provide the first 30 days of medication, and adopter will be responsible for prescription refills.

Skin:

The B&H department will place an animal on “needs vet check” if a skin issue is found. Shelter veterinary technician will triage and confirm need for veterinary exam.

Skin - Dogs: Unidentified skin issues

1. Diagnostic will include skin scrape, impression smear, tape prep, and/or skin cytology.
2. Wood's lamp examination. If ringworm is a possibility, use ringworm protocol (see ringworm section).
3. If skin issue remains undiagnosed after these diagnostics, the animal will be placed on Disposition Pending

Allergies:

1. Dogs with a history of identified, diet-controlled allergies will be checked during exam.
 - a. B&H will contact the PG if history is complete and obtain vet records if possible.
 - b. Animal will be fed the Rx diet while in the shelter and will be placed for adoption with a medical disclosure.

- c. If a controlled allergy worsens despite food therapy, the animal will be requalified for chronic medical – severe.
2. Dogs with a history of identified drug-controlled allergies will maintain prescribed medication protocol and be examined by veterinarian.
3. Stray dogs with signs of undiagnosed, uncontrolled allergies should be placed on Disposition Pending. Considerations will be made to identify cause and address treatment at the discretion of Director of Shelter Services and Chief Shelter Veterinarian.

Cheyletiella:

Diagnosis done by tape prep, skin scrape or strong suspicion based on history or clinical signs.

1. Treatment will be under the supervision of attending DVM and administered by Shelter Vet Technician.
 - a. *Ivermectin* orally 0.2 – 0.3mg/kg PO or SQ. 3 doses q14 days.
 - b. *Revolution/selamectin* 3 applications q14 days
 - c. Animal may be adopted after second treatment, and the final treatment completed by either the shelter technician or veterinary clinic post-adoption.
2. All animals sharing a kennel will receive treatment.

Demodectic Mange:

1. Any positive skin scrapes should be treated. Animals will be placed for adoption with a medical disclosure.
2. Adults with generalized demodex will be placed on Disposition Pending. Treatment can be initiated on a case-by-case basis.
3. Puppies with demodex may be placed in the adoption center with a Medical Disclosure, and treatment should be started.
4. *Bravecto* per label dosing (dose puppies at their anticipated weight 3 months out), one tablet.
5. A second option for treatment is *Ivermectin* orally 0.6 mg/kg SID – with slow induction to therapeutic dose over 7 days.
 - a. Some breeds and colors of dogs may be affected by *Ivermectin* (herding dogs, merles, and whites). These dogs must be monitored closely for reactions. DVM may begin at a lower dose and gradually increase dose or use alternative treatment.
 - b. Skin scrape in two weeks and continue treatment until there are two consecutively negative scrapes.
6. Appropriate MEDICAL DISCLOSURE dependent on treatment
7. No disclosure post-treatment is necessary.

Discoid Lupus:

Characterized by location on nose and de-pigmentation

1. If Discoid Lupus is diagnosed prior to arriving at the shelter, B&H will place dog on “needs vet check” for confirmation of treatment and medical disclosure.

2. If dog is symptomatic, but no diagnosis has occurred, dog will be placed on “needs vet check”
 - a. Biopsy can be recommended.
 - b. Biopsy samples will be sent out for most timely analysis.
 - c. If biopsy is positive, DVM will place on meds.
3. Due to being an immune-mediated disease, prior to beginning medications, B&H must confirm no other pending medical or behavioral concerns.
 - a. Medications include *Niacinamide* and *Tetracycline/doxycycline* per body weight
 - b. Sun protection measures strongly recommended
4. Dog will be listed as T/M
5. Include a Medical Disclosure

Sarcoptic Mange:

Sarcoptic mange is zoonotic and must be handled with all disease control protocols.

1. Diagnosis based on finding mites or IDEXX sarcoptes antibody by ELISA or by response to treatment.
2. Treatment will be under the supervision of DVM and administered by Shelter Technician.
 - a. *Ivermectin* 0.3 – 0.4 mg/kg SC or PO, repeated weekly for 4 weeks
 - b. *Pyoben* bath.
 - c. *Cephalexin*, dosed by weight.
 - d. *Prednisone* can be Rx to ease comfort for extreme cases.
3. After second treatment, animal may be placed into the adoption area away from other animals.
 - a. Subsequent treatments can be sent home with adopters, and medical disclosure.
 - b. No recheck is needed after second treatment if not symptomatic.
4. No medical disclosure is needed if treatment is complete.
5. All animals sharing kennel space with a positive animal will be treated.

Skin - Cats: Unidentified skin issues

1. Diagnostic will include skin scrape, impression smear, tape prep, and/or skin cytology.
2. Wood’s lamp examination. If ringworm is a possibility, use ringworm protocol (see ringworm section).
3. If skin issue remains undiagnosed after these diagnostics, the animal will be placed on Disposition Pending.
4. After skin diagnostics with negative results:
 - a. If secondary bacterial infection is suspected, trial antibiotics may be warranted.
 - i. *Clavamox* 10mg/# SID for 7 days.
 - ii. *Clindamycin* 5mg/# BID for 7 days.
 - iii. *Convenia* injection may be an option if feline is difficult to medicate.

- b. If a traumatic injury is suspected, a trial of topical and oral antibiotics may be warranted.
- c. If thickening of the epidermis and hair loss due to follicle damage are present, or a generalized problem, the animal will be placed on Disposition Pending.
 - i. At discretion of Director of Shelter Services and Chief Shelter Veterinarian trial treatment with steroids may be considered.
- d. For highly adoptable animals, biopsy can be considered.

Allergies:

- 1. Cats with a history of identified, diet-controlled allergies will be checked during exam.
 - a. B&H will contact the PG if history is complete and obtain vet records if possible.
 - b. Animal will be fed the Rx diet while in the shelter and will be placed for adoption with a medical disclosure.
 - c. If a controlled allergy worsens despite food therapy, the animal will be requalified for chronic medical – severe.
- 2. Cats with a history of identified drug-controlled allergies will be placed on Disposition Pending.
- 3. Stray cats with signs of undiagnosed, uncontrolled allergies should be placed on Disposition Pending.

Alopecia and Psychogenic Alopecia (Fur Barbering):

- 1. If hair loss occurs in non-traditional locations, skin is quiet and is not bilateral, and all diagnostics are negative, cat may be a candidate for biopsy.
 - a. If biopsy result is positive with a diagnosis of poor prognosis, animal will be placed on Disposition Pending as chronic medical severe.
 - b. If biopsy result is negative and animal appears stable and with quality of life, animal can be considered T/M or Healthy.
- 2. If cat has a history of psychogenic alopecia in a home and has symptoms, will be placed on Disposition Pending as Chronic Severe.
 - a. Cats that begin over-grooming in the shelter can be placed on *Amitriptyline*, but may have a tendency to have a negative response to pilling.
 - b. Alleviating stress will be helpful (single kennel, HOPE foster).
 - c. Monitor weekly for re-growth.
 - d. Severity and shelter resources at the time will determine if the animal is an adoption candidate.
 - e. If cat is non-responsive in HOPE foster (i.e. – not mild and stable, or does not improve), cat may not be an adoption candidate.
 - f. Medical disclosure should be generated indicating fur barbering.

Demodex Gatoi

1. Cats with severe pruritus, alopecia and fur barbering should be considered suspect of this uncommon but emerging ectoparasite.
2. Diagnosed by skin scrape or trichogram
3. Treatment Advantage Multi, apply as directed once weekly for six weeks.

Rodent Ulcers:

Identified by with characteristic swollen, bilateral lesions on lips.

1. If it is a chronic condition with thickened tissue and deep erosions, cat will be placed on Disposition Pending as Chronic Medical – Severe.
2. Mild or controlled cases will begin on trial steroid injections.
3. *Depomedrol* 20mg/cat sub-Q.
4. Injections 2-4 injections, 2-3 weeks apart.
5. If cat responds to first injection, limited post-adoption care will be included (1-2 more injections).
6. Chronic steroid injections put cats at risk of developing diabetes mellitus.
7. Medical Disclosure required.

Skin - Ectoparasites:

Fleas:

If fleas are noted during evaluation, the animal should be treated with *Simparica*, *Bravecto*, *Frontline* or *Capstar* by weight. A mild shampoo bath should be given if possible. Animals may be moved into the adoption area, +/- a flea comb.

Ticks:

Treatments will be given when tick(s) is found, either by B&H or clinic staff.

1. Ticks should be removed if possible and event documented in medical record.
2. Frontline or equivalent tick/flea product should be administered including *Simparica* or *Bravecto*
3. In severe cases, a bath with tick shampoo should be given two days after Frontline dose.
4. Shelter vet tech or DVM should check ears.
5. In severe infestations, unaltered animals may be placed on seven days of *Doxycycline*, beginning 3 days prior to spay/neuter.

Tumors/Lumps:

The B&H department will place an animal on “needs vet check” if a lump or tumor is found during the health evaluation.

1. DVM will do a fine needle aspirate and perform cytology exam. Results to be entered into PetPoint.
2. Lipomas, warts and viral papillomas **will not** be removed unless they are visually compromising or hinder adoptability.
3. Lumps / masses that are suspicious of neoplasia **will** be removed.

- a. Unless grossly benign (sebaceous cyst or lipoma) mass will be sent to reference lab for histopathology.
 - b. Results of pathology will be entered into PetPoint by DVM, along with diagnosis and plan.
 - c. Shelter technician will enter suture removal scheduled for 10-14 days.
4. Medical Disclosure for lumps not removed with diagnosis, and for those removed depending on histopathology results.

TVT:

TVT (transmissible venereal tumors) will be identified by the DVM who is addressing the tumor. Prognosis is good, curable with chemotherapy.

1. Treat with *Vincristine*, 0.5mg/m² IV.
 - a. Digital camera may be used to identify progress.
 - b. CBC may be checked prior to each vincristine injection.
 - c. We will seek foster during treatment, but adoption is an option with Medical Disclosure.
 - d. Treat once weekly until tumor fully resolved, may require 4-6 weeks of treatment.
 - e. Will need Medical Disclosure post-treatment.
2. This disease can be transmitted to other dogs by sniffing and licking, and could result in oral or nasal tumors.

URI Upper Respiratory Infections (Feline):

B & H or Shelter Technician will identify animals with possible URI to be placed on “needs vet check”.

1. Those that are eating and drinking with serous discharge will remain in the Adoption Center until given a physical exam by the attending DVM. If cat has a high temperature, move to URI and begin antibiotics.
 - a. Attending DVM may opt to leave cat without a fever in the Adoption Center and recheck the following day. Shelter Technician will place rechecks on daily “To Do” list.
2. If the animal is lethargic, dehydrated, goopy eyes or nose, move to URI isolation, get a baseline temperature on cat and place on “needs vet check”.
 - a. Attending DVM may leave cats without a fever and very mild symptoms in URI room without medication as some cats will spontaneously resolve within a few days. Shelter Tech will place rechecks on daily “To Do” list.
 - b. If cat has a fever, DVM will place on antibiotics.
 - i. *Doxycycline* suspension 100mg/ml, 5mg/lb. SID for 7 to 10 days.
 - ii. For eye issues, DVM should select *Doxycycline* at the above dose as first choice medication. Topical medications *Erythromycin / Idoxuridine / Tobramycin* are expensive as well as stressful and time-consuming to administer. There are concerns that staff will not be able to separate the drops by 30 seconds. Ideally if a cat needs this combination of

- meds, the drops should be administered 3-4 times per day and appropriately spaced. See section on Cat Herpes.
- c. Cats in URI isolation will be checked by Shelter Technician during morning medication rounds. Any change in attitude, appearance, eating or hydration will be placed on “needs vet check for a recheck exam.”
 - i. At 7-day recheck, if cat is responding to treatment, but not completely better, DVM may recommend three days of continued medication with a recheck at ten days.
 - ii. At 7-day recheck, if URI symptoms resolved, DVM may recommend moving to Adoption Center with other post-URI cats or in cattery kennel.
 - iii. At 7-day recheck, if cat has not responded to treatment, DVM may continue doxycycline or recommend switching antibiotics and further diagnostics.
 1. Bloodwork may be performed at the discretion of the DVM based on age of the animal and previous diagnostics with costs in mind.
 2. FeLV/FIV test may be performed at the discretion of the DVM.
 3. Antibiotics may be switched to azithromycin 5-10mg/kg SID for 5 doses then q 2-3 days or *Clavamox* 12.5mg/kg BID for 7 days or Amoxicillin 10mg/kg BID x 7 days.
 3. Cats will receive a maximum of three antibiotic trials. Cats that do not respond to treatment in 14-21 days may have another underlying condition – nasal tumor – and will be placed on Disposition Pending for Chronic Severe. Age and previous history of animal are part of this decision.
 4. Nasopharyngeal polyps should be a consideration for the cause of chronic URI symptoms and exploration under general anesthesia considered.
 5. Cats that require extensive supportive care, i.e. IV catheter, force-feeding, will be moved to clinic as space is available.
 6. If at any point a cat exhibits symptoms of anorexia, switch to anorexia protocol ASAP to facilitate eating. If necessary, please refer to SMJ section on Anorexia and Esophageal Feeding Tubes.
 7. Cats that exhibit signs of behavioral decline while being medicated, including aggressive behavior, may be requalified and placed on Disposition Pending and euthanasia considered.
 8. Foster homes can be sought for all cats in the URI isolation area. There are (at maximum) two isolation rooms available for treating URI. If this capacity is exceeded and foster homes or clinic space are not an option, some cats may be placed on Disposition Pending for Chronic Medical and euthanasia considered. Age and previous history of the animal are part of this decision.
 9. Uncomplicated URI cases may be available for adoption during treatment and remainder of medications sent home with adopter.

Chronic URI: Medical disclosures may be given to a cat that exhibits symptoms of chronic herpes virus and no other medical concerns. This decision will be based on age and previous history of cat and will be made by the attending DVM.

Urinary Issues - Feline:

General Litterbox Issues / Behavioral

The B&H department will identify cats that needs a urinalysis based on previous history of inappropriate elimination or observed concerns. The overall behavior and health of a cat will be taken into consideration when evaluating the adoption candidacy of cats with previous litterbox concerns.

1. Cats that have a history of not using the litterbox will be listed with a status of T/M by B&H.
2. Cats should be placed on “needs vet check” for an examination and urinalysis.
3. Their litterbox should be pulled and place sign “we are trying to get a urine sample” affixed to the kennel.
 - a. Patient should be scheduled in PetPoint for “urine collection” by shelter veterinary technician for urinalysis.
 - b. A litterbox with *Nosorb* is placed in the kennel.
 - c. If sample is contaminated with feces, or a sample is not collected within 24 hours, technician will assist DVM with obtaining a cystocentesis sample.
 - d. Technician should run the sample, enter the results into PetPoint and inform attending DVM.
 - i. Attending DVM should make diagnoses and determine treatment plan. Plan may include screening bloodwork based on age and USG.
 - ii. Medical disclosures should be written for early renal insufficiency or patients needing special diet based on UA results.
4. Cats with a history of inappropriate elimination but normal urinalysis and physical exam will be evaluated for behavior modification and post-adoption support by B&H.

Hematuria (Blood in Urine)

Hematuria is commonly found in cats surrendered to the shelter for inappropriate urination, or may be observed by previous guardian, staff, or volunteers. For hematuria with or without inappropriate litterbox use:

1. A *Nosorb* is preferred over cystocentesis for urine sample collection.
2. If only red blood cells are found (no infection) and >10 RBC/phpf on cytology, X-ray bladder first:
 - a. If urolith seen on radiograph, surgery to remove bladder stones is a case-by-case decision made by veterinarian and shelter management.

- b. If urolith seen, cat may be placed on prescription dissolution diet and recheck x-ray in 2 weeks. If urolith is still present, proceed with surgery if case appropriate.
 - c. If no urolith is seen, begin trial treatment with *Cerenia* for anti-inflammatory effects
 - i. Day 1 – SQ injection 1mg/kg
 - ii. Days 2-5 – *Cerenia* approximately 1mg/kg PO SID, average cat, 4mg, 1/4 of a 16mg tablet
 - iii. Recheck UA with Nosorb sample at the end of *Cerenia* trial.
 - d. If attending DVM suspects that hematuria is due to trauma (i.e. injury or bladder expression) timeframe for recheck may be longer to allow for healing.
3. If recheck urinalysis is clear, okay for Adoption Center with medical disclosure for feline idiopathic cystitis.
 4. If persistent hematuria, then placed on Disposition Pending.

Purina Urinalysis Book, normal urine parameters:

Voided sample <10 WBC/hpf
 Cystocentesis <3 WBC/hpf
 Canine - USG 1.020 - 1.050 (typical)
 Feline - USG 1.025 - 1.060 (typical)

Source: Purina

Incontinence (Urinary): Cats with urinary or fecal incontinence are U/U and will be placed on the Disposition Pending list for Chronic Medical. See also the section on Incontinence (Fecal).

Urethral Obstruction:

The B&H department or Shelter Technician will identify cats that need a urinalysis or immediate veterinary exam based on previous history or observed concerns.

If an animal has a past history of urethral obstruction:

1. Shelter Technician will attempt a free catch UA in the morning. If a free catch is not obtained after two days, the cat may be taken to the clinic for a cystocentesis.
2. Once the sample is obtained:
 - a. A clinic or shelter technician will run an in-house urinalysis and have the shelter DVM review the results.
 - b. Test, results, diagnosis, and medications should be entered into an exam in PetPoint.
 - c. The DVM should determine treatment or special diet, if necessary
3. A medical disclosure should be provided.

If an animal presents to clinic with active urethral obstruction:

Animals with active urethral obstruction, which also have a past history of obstruction, are U/U for chronic medical.

1. Animal may be placed on Disposition Pending.
2. Treatment may be pursued: IV catheter and fluids +/- cystocentesis for bladder decompression. Initial database may consist of in-house CBC/Chemistries, lateral abdominal radiograph to assess for presence of uroliths
3. Management of obstruction can be one of the following
 - a. Traditional decompression: urinary catheter placement
 - i. Fluid diuresis at 2-2.5x maintenance
 - ii. *Prazosin* 1 mg capsule: 0.5 capsule PO BID x 5-7 days
 - iii. *Buprenorphine* 0.3 mg/ml: 0.015 ml/pound TM BID x 5-7 days
 - iv. *Acepromazine* 10mg: 0.25 tab (2.5 mg) PO BID x 5-7 days
 - b. Provided that urinary calculi are not noted on radiograph, Injectable anesthesia management of urethral obstruction (Ed Cooper, The Ohio State University):
 - i. *Acepromazine* (0.25 mg, IM, or 2.5 mg, PO, q 8 h),
 - ii. *Buprenorphine* (0.075 mg, PO, q 8 h)
 - iii. *Medetomidine* (0.1 mg, IM, q 24 h)
 - iv. decompressive cystocentesis as needed
 - v. SC administration of fluids as needed
4. A urine sample should be obtained via cystocentesis or urinary catheterization:
 - a. A clinic or shelter technician will run an in-house urinalysis and have the shelter DVM review the results.
 - b. Test, results, diagnosis, and medications should be entered into an exam in PetPoint.
 - c. The DVM should determine treatment or special diet, if necessary
5. A medical disclosure should be provided once recovered.
6. Animals refractory to either traditional or injectable anesthetic management of UO who is otherwise a good adoption candidate may be a candidate for perineal urethrostomy surgery per shelter DVM's discretion.

Urinary Tract Infection:

For inappropriate litterbox use where a UTI is suspected in cats or dogs show evidence of urinary infection based on the appearance of urine, increased frequency of urination, or painful urination.

1. Animals undergoing treatment for UTI will not be available for adoptions unless approved by DVM.
2. Schedule x-ray (lateral view only) to check for bladder stones.
 - a. If bladder stones present, animal is U/U and placed on Disposition Pending for chronic medical. There may case-by-case exceptions to proceed with surgery or dissolution diet.
 - b. Begin antibiotic treatment: *amoxicillin* or *Clavamox*
 - c. *Convenia* injection only cats who cannot be safely medicated orally.
 - d. Recheck urinalysis will be scheduled in 7 days.
3. If at first recheck adult cat is still not using litterbox or UTI still present animal should be placed on the Disposition Pending list.

- a. DVM should review treatment plan based on age, history of FLUTD, blood in urine, litterbox use, and available resources.
 - b. Urine can be submitted for culture and antibiotic sensitivity.
4. Persistent UTI should be classified as U/U for chronic medical and is not an adoption candidate.

Urinary Issues - Canine:

The B&H department or Shelter Technician will identify dogs that need a urinalysis based on previous history or observed concerns.

1. Shelter Technician will attempt a free catch UA in the morning. If a free catch is not obtained after two days, the dog may be taken to the clinic for a cystocentesis.
2. Once the sample is obtained:
 - a. A clinic or shelter technician will run an in-house urinalysis and have the shelter DVM review the results.
 - b. Test, results, diagnosis, and medications should be entered into an exam in PetPoint.
 - c. The DVM should determine treatment, if necessary, and issue a Medical Disclosure if necessary.
3. Dog may remain in the Adoption Center with antibiotics and a recheck urinalysis may be included with their adoption if case appears uncomplicated.
4. A medical disclosure should be provided.

Incontinence (Urinary):

Dogs with a history of urinary incontinence that is controlled with medication will be listed as T/M. See also section on Incontinence (Fecal).

1. B&H will flag the animal for an exam.
2. Obtain previous medical records and continue the existing treatment.
3. Medical disclosure.

Dogs with a history of urinary incontinence that is not yet controlled will be listed as T/M. Factors in determining trial treatments will include: overall health, age, spayed, severity of incontinence.

1. For young, spayed dogs with a history of mild incontinence begin medication: *Phenylpropanolamine* 1mg/lb. BID.
 - a. Consider foster for 2 – 4-week trial.
 - b. If consistently having accidents after 2 weeks of medication, treatment not working and anatomic abnormality or other cause is likely.
2. If the dog's urinary incontinence is severe or if the dog has urine scalding or perivulvar dermatitis, dog is U/U and placed on Disposition Pending.

Vomit:

Animals that have a history or observation of vomiting will be placed on “needs vet check” by B&H.

1. Shelter Veterinary Technician will do an initial physical exam to rule out parvo, dehydration, lethargy and other suspicious symptoms that may need immediate DVM assistance.
 - a. If the animal appears otherwise clinically normal, it will be placed onto “needs vet check” for veterinary exam.
 - b. Place animal on “monitor vomiting” report.
2. The DVM will perform a physical exam to rule out abdominal masses and other overt issues.
 - a. DVM will prescribe bland diet trial.
 - b. Bloodwork can be performed at the discretion of the DVM based on age of animal and previous diagnostics with costs in mind.
 - c. *Laxatone* may be prescribed SID for 5 days if it is thought to be hairball related in cats.
3. Shelter vet tech will monitor vomiting for 3 days, tracking observations in PetPoint. Animals that are currently being housed in Adoptions may remain in a single kennel and available to the public if vomit is very intermittent.
4. If no vomiting is observed, continue previous treatment for a total of 5-7 days, then transition off of special diet.
5. If vomiting continues:
 - a. Place on “needs vet check” for DVM examination.
 - b. Pull animal from Adoption center and make “unavailable”.
 - c. Consider further diagnostics such as x-rays, or trial therapy of *Cerenia*, *famotidine*, *Metronidazole* or *metoclopramide*.
 - d. Switch to alternative bland diet, such as IVD, Sensitive Stomach, or E/N in smaller amounts twice daily.
 - i. B & H will facilitate the diet change and notification of shelter personnel.
 - ii. Consider contacting reclaim if applicable.
6. If animal is unresponsive to therapy after a total of 14 days, place on Disposition Pending for Chronic Severe.
7. Foster animals that are in committed homes can do a 6-week food trial without prednisone.

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Appendix 1: Rodents and Small Mammal Species

This category includes guinea pigs, gerbils, hamsters, mice, and rats. Due to the short lifespan of these animals (generally under 2 years) there will generally be no medical treatments. B&H will triage animals (no exams necessary) and place them onto Disposition Pending if they exhibit any of the following symptoms:

- Tumors
- Traumatic injury-- severe

Animals with reclaims will be placed on “needs vet check” to gather more information to give to the previous guardian.

Treatment will not be done even if identified.

Ferrets

General information:

- Normal life span: 7-10 years
- Sexual maturity: 4-8 months (average 6 months)
- Gestation length: 42 days
- Normal Vitals: T: 100-104F, HR: 180-250 bpm, R: 33-33 per min.
- Physical Exam Considerations:
 - Ferrets will be vaccinated upon intake for distemper with Merial/B-I Purevax.
 - *Diphenhydramine* pediatric solution (12.5mg/5ml) is administered orally at a dose of 2mg/kg 45 minutes prior to vaccination. Ferrets will be observed for one hour following vaccination to be aware of any vaccine reactions that may occur.
 - Mild reactions are sniffing, sneezing, and coughing. They may progress to severe reactions including bloody vomiting, bloody diarrhea and respiratory arrest.
 - Reactions are treated in the clinic – *diphenhydramine* 2mg/kg IV or IM; *epinephrine* 20ug/kg IV, IM, SQ or IT; *Dexamethasone sodium phosphate* 1-2mg/kg IV or IM; Supportive care – warmth, SQ fluids.
 - When clinic is closed, unvaccinated ferrets should be placed in Cat Impounds. Any other ferrets, vaccinated or not, should be moved from that space and placed in another non-dog area.
 - Incoming juvenile (under 3-years) ferrets with hair loss that is not indicative of adrenal problems may be an adoption candidate.
 - DVM will perform skin scrape and tape prep.
 - If negative, hair loss may be nutritionally based. Ferret may be placed for adoption with medical disclosure listing possible causes and treatments.
 - No further diagnostics, including bloodwork, will be performed.
- Adrenal problems
 - Symptoms in ferrets over 3 years:
 - bald or “rat” tail
 - symmetrical hair loss on back end
 - itching
 - enlarged vulva in females

- hyper sexuality
 - urinary problems in males
 - For suspect cases involving hair loss, bald or “rat” tail: DVM will perform a skin scrape and tape prep, and utilize instructions above regarding juvenile hair loss.
 - For urogenital symptoms: no diagnostics, just DVM exam to identify.
 - Ferret may move to adoptions after a *Melatonin*, *Lupron* or *Deslorelin* implant and with appropriate medical disclosure.
- Diarrhea: Please reference general Diarrhea section of SMJ for all species. This section outlines fecal analysis, drug trials, and disposition. The following outlines the drugs and dosages for ferrets.
 - If a specific parasite is diagnosed, treat with common medications with adjusted doses:
 - *Fenbendazole* suspension (0.4-0.5cc) SID for 6-8 days.
 - *Amoxicillin* 20mg/kg BID
 - *Clavamox* 12.5-25mg/kg BID for 7-10 days.
 - If fecal is NPSATT, or if *Helicobacter* is suspected:
 - *Metronidazole* 20 mg/kg PO BID, and *Amoxicillin* 20 mg/kg PO BID, and *Pepto-Bismol* 0.25 ml/kg PO BID.
 - This treatment protocol will not be performed in the shelter. If volunteers are available to do treatment, we will proceed for 14 days.
 - If no response in 14 days, ferret is not an adoption candidate.
 - Place on Disposition Pending and call rescue.

Guinea Pigs

General information:

- Normal life span: 5-6 years
- Sexual maturity: Females-2 months, Males 3 months
- Gestation length: 59-72 days
- Weaning age: 21 days (or 180g body wt.)
- Normal Vitals: T: 99.0F-103.1F, HR: 240-310 bpm
- Physical Exam Considerations:
 - Tolerate cool better than heat as they are susceptible to hyperthermia. (65 degrees-80 degrees is an acceptable range).
 - Always check teeth for malocclusion.
 - Guinea pigs develop dietary preferences very early in life and sometimes will refuse to eat when presented with different material.
- Hypovitaminosis C
 - Packaged guinea pig food often does not have enough vitamin C as it is water soluble and concentrations decrease rapidly in dry food.
 - Symptoms include joint, coat problems, and immune compromise, and increased susceptibility to disease and impaired ability to heal from disease.
 - Recommended to provide vegetables high in Vitamin C such as parsley, cilantro, red peppers, kale, broccoli, etc.
 - Daily vitamin C requirement: 10-25mg/kg/ per day. During pregnancy/stress, requirements increase.
 - Dose for oral vitamin C supplementation: 50mg daily.

- Pododermatitis/Bumblefoot
 - May be found in obese animals or those kept on wire floored cages.
 - Symptoms include hyperkeratosis on palmar and plantar surfaces of feet which may ulcerate. Infection may lead to osteomyelitis.
 - Treatment: systemic antibiotics (Baytril), foot soaks, improved husbandry, and appropriate vitamin C levels.
 - Radiographs may be used to determine severity of condition.
- Antibiotic Associated Enterotoxaemia
 - Guinea pigs have a sensitive GI tract predominantly populated by gram + bacteria. Antibiotics that target these (penicillin, ampicillin, chlortetracycline, clindamycin, erythromycin, etc.) may lead to overgrowth of *Clostridium difficile*. Toxin production leads to hemorrhagic typhlitis with diarrhea, dehydration, and/or anorexia.
 - Treatment: hydration –SQ fluids, treat hypothermia, consider probiotics with lactobacillus species.
 - *Chloramphenicol* 50mg/kg TID can suppress overgrowth.
 - Common Antimicrobial dosages:
 - TMS: 30mg/kg BID – PO, SC, or IM for 7 days
 - *Chloramphenicol* 50mg/kg BID – PO, SC, or IM for 7 days
 - *Enrofloxacin* 10mg/kg PO BID
- Bordetella
 - Guinea pigs are highly susceptible to *Bordetella*.
- Cervical Lymphadenitis
 - *Strep Zooepidemicus* may occur due to malocclusion leading to abrasion in oral mucosa. *Strep Z* then travels to lymph nodes and causes abscessation.
 - Surgical removal of lymph nodes or draining and flushing of abscess followed by antibiotic therapy is indicated.
- Mites and Lice
 - Symptoms: intense pruritus most commonly caused by *Trixacarus caviae*. These mites may transiently infect humans.
 - Diagnosis: Skin scrape. Mites may not be visualized, thus trial treatment of pruritic patients is often indicated
 - Treatment:
 - For Lice: *Ivermectin* 0.3mg/kg PO, SC- repeat in 10 days. For Mites: *Ivermectin* 0.5 – 0.8mg/kg SQ weekly for 4-6 weeks. Topical Revolution (Selamectin) is reported to be more effective than Ivermectin,
 - Environmental decontamination is essential. Regular, daily cleaning of the habitat. Mist all areas/structures within the habitat using dilute ivermectin spray.
 - *Meloxicam* 0.5 mg/kg SID (up to 1-2 mg/kg if necessary) to treat secondary dermatitis and wounds. Discomfort associated with extreme pruritus may lead to decreased water intake and/or anorexia. Treat skin lesions with TMS tablets diluted to volume needed. Shave areas around wounds and apply vitamin E oil or SSD ointment SID-BID.
- Ringworm

- Guinea pigs can be treated for ringworm at the discretion of shelter veterinarian and Director of Shelter Services.
- See ringworm treatment protocol in SMJ

Rabbits

General information:

- Normal life span: 8-12 years
- Sexual maturity: Small breeds: 125-150 days, Med breeds: 150-180 days, Large/Giant breeds: 6 – 8 months
- Gestation length: 31 days
- Normal Vitals: T: 103.3-104F, HR: 130-325 bpm, R: 32-60 per min.
- Conjunctivitis
 - Place on “needs vet check” prior to any treatment.
 - Treat with *BNP* BID for 7 days.
 - If no improvement, attempt flushing of ducts.
 - If dentistry is needed, rabbit is not an adoption candidate due to complexity of issues.
- Malocclusion
 - If noted by B&H, place on “needs vet check” to determine if the teeth can be managed.
 - If manageable, rabbit may be an adoption candidate with a medical disclosure.
 - If no other medical concerns, consider extraction of all incisors, and adopt with a medical disclosure.
 - Consider transfer to rescue.
- Pastuerella
 - Symptoms: head tilt, abscesses, conjunctivitis, and nasal discharge.
 - These rabbits are not adoption candidates due to this illness being a contagious bacterial infection that can have multiple occurrences due to immune issues.
 - Place on “needs vet check” to confirm and identify condition.
 - Place on Disposition Pending and contact rescue.
- Pododermatitis
 - Symptoms: bleeding ulcers on feet and contact surfaces related to poor husbandry.
 - Treat with *Baytril* 5-15mg/kg BID orally.
 - Also alter surfaces, will not do surgery to debride wounds.

Rats

General Information:

- Normal life span: 2-3+ years
- Maturation: 5 weeks
- Gestation length: 21-23 days
- Physical exam considerations:
 - Restrain “over the back” method. Scruff if too wiggly, though most pet rats are socialized well enough to be relatively cooperative during exams and do not need to be scruffed.

- Oral exam: lower incisors are naturally longer than upper. Make sure no malocclusion is occurring.
- Eyes: Harderian gland behind globe produces lipid and porphyrin- rich secretions, giving tears reddish tinge and fluoresce under UV light. .
- Prone to heat stress, as cannot pant and no sweat glands.
- Mammary tissue (six teats) can expand caudal all the way to perianal tissue.
- Chromodacryorrhea
 - Symptoms: bloody discharge from eyes or nose
 - Occurs when patient is stressed. They do not need an exam and are adoption candidates. This is a common and self-limiting disorder.
- Ulcerative dermatitis
 - S. aureus infection following self-trauma associated with fur mite infestation or pruritus due to other causes (including inflamed salivary glands).
 - Treatment: topical antibiotic, clip nails, clip and clean wounds.
- Mite infestation
 - Skin scrape/tape impression and treatment with ivermectin 0.2-0.4 mg/kg SQ or PO) given once and repeated in 10 days.
- Tumors
 - Commonly a mammary fibroadenoma occurring from neck to inguinal region. Tumors may reach 8-10 cm diameter.
 - Treatment: surgical removal is recommended. Most tumors are benign (10% are adenocarcinomas with poorer prognosis), and removal is curative. New tumors may develop in unrelated mammary tissue requiring additional surgery. Tumors in spayed/neutered rats are less common.
 - Rats with this condition are NAC.
- Respiratory Disease
 - Symptoms: sneezing, discharge, commonly due to mycoplasma and exacerbated by poor husbandry and nutrition.
 - Treatment: *Enrofloxacin* 10mg/kg PO BID x 7 days. Combined with *Doxycycline* 5mg/kg PO BID x 7-21 days. Treatment does not completely eliminate pathogens; thus symptoms may recur.
 - Decision to pursue treatment will depend on overall health and age of rat. Considered T/M.

If additional medical or behavioral concerns NAC due to complexity of issues.

Appendix 2: Reptiles, Birds & Exotic Species

Birds

Mites

- Symptoms: characterized by feather loss on beak, around nose.
 - Skin scrape will be done
 - Treatment will be ivermectin – see dose in Plumbs or equivalent reference.
- Bird may go into the adoption area after the first treatment and second treatment will be included with adoption.

Turtles

General Information:

- Normal Life Span: >50 years in captivity
- Reproduction: Females can produce 2-8 eggs from May – July. They can store sperm for up to 4 years after fertilization.
- Eastern Box Turtle: Male: bright red iris, Female: yellow to reddish brown iris of female. Some differences are only visible in males during breeding season. Males often have longer/thicker tails. Concave plastron. Sometimes these differences are very subtle.
- Basic husbandry tips: Lighting is important! UV light is important (290-320 nm range). Sunlight from outside a window won't work because this light range is filtered out by the window. Solution: Vitamin D supplementation- 100-200 IU/kg/week. No actual dietary requirements are known so this is an empirical treatment. Whole animal diets (mice/fish) are well balanced. Special broad spectrum lights with UV output are used although unknown if they stimulate cholecalciferol synthesis.
- POTZ (Preferred Optimal Temperature Zone) - (77-95 degrees F or 25-35 degrees C) for aquatic and semiaquatic turtles.
 - Basking areas with incandescent light bulbs and reflector hoods directed at specific areas of the cage. (50-100 watt or 200 watt infrared bulbs work well). Warning: Chelonians should not be within 18 inch focal range of infrared lights to avoid burns. Porcelain bulbs can also work for heat production.
 - Cage should not be colder than 70 degrees F overnight, gradually warm to 80-86 degrees F during the day.
 - Lights should be turned off during the night so need heat tapes or heat source for overnight.

Housing

Bigger = better. 20 gallon or bigger is good.

Substrate: Yes: newspaper, indoor/outdoor carpeting, straw, hay, medium to large wood chips mixed with peat moss or alfalfa pellets. –These are good because turtles like to burrow. NO: Gravel, sand, kitty litter, walnut shells or potting soil- these can cause intestinal blockages if ingested.

Turtles often appreciate a hide box as well.

Water: an easy to clean, shallow water dish that turtle can get into and out of easily. Water should be no deeper than turtle's chin when head is partially retracted. They

cannot swim and will drown if submerged. Turtles prefer to defecate in water bowl so bowl should be cleaned regularly. Make sure turtle is able to soak at least 3 times per week as this will help reduce risk of constipation.

Hibernation:

In the wild turtles active from March-October/November. Some turtles in captivity do not go into hibernation, but if appetite decreases in early-mid fall this may be a sign that the animal is getting ready to hibernate. If this is the case, it is important to prepare the turtle for hibernation.

Steps: Once you notice decrease in appetite in early Fall, withhold food but not water for 1-2 weeks. Keeping cage temperature at 70-80F. This allows turtle to empty GI tract. Then remove external heat source and allow enclosure to go to 60-70 degrees. Then select a draft free, dry, dimly lit area that can be kept from 45-60 F.

Temperatures should stay from 50-60 degrees. If they go higher, this will increase turtle's metabolism, thus leading to slow starvation. More information on creating a hibernaculum can be found online or in Reptile Medicine and Surgery by Mader. Some types of hibernation require soaking the hibernating turtle every 2-3 weeks for 2 hours.

Diet:

More carnivorous than many think.

Ornate box turtle: more insectivorous than Eastern Box Turtle. Feed should be varied as much as possible to ensure balanced diet.

Adults should be fed 3 or more times per week in AM and juveniles need to be fed daily. 50% Animal or High Protein Foods – Earthworms, crickets, grasshoppers, slugs, waxworms, mealworms, gold fish, baby mice, dry dog food.

50% Plants: (25% fruits and 75 % vegetables): Fruits: tomatoes, strawberries, raspberries, apples, grapes, etc. Vegetables: Dark leafy greens (mustard, collard, radish, kale), broccoli, squash, sweet potatoes, carrots, etc.

Mader recommends dusting food with calcium lactate, carbonate or gluconate.

Common Diseases/Conditions

Aural abscesses: Cause: suboptimal temperatures, poor husbandry and inadequate diet leading to hypovitaminosis A. These can occur in one or both ears and affect the eyes as well. Fine needle aspirate may show granulocytes, macrophages and eosinophilic background material. Taking samples for culture/susceptibility is not a bad idea, but treatment requires anesthesia and debridement. Ideally, prior to surgery, the patient will be stabilized by initiation of antibiotics, fluids and supportive care for 3-4 days.

Hypovitaminosis A:

- Signs: blepharodema, lethargy, anorexia, weight loss, and nasal or ocular discharge. Middle ear/respiratory tract infections and egg retention are common in box turtles with this condition. Treatment: Vitamin A- 10,000 IU/kg PO vs 1000-2000IU/kg IM/SQ. For mild cases you can give the subcutaneous dose once a week for 2 or more weeks. Dosing correctly is important in order to avoid hypervitaminosis A. Clinical signs should resolve gradually within 2-6 weeks.

- If respiratory signs present, enrofloxacin 5mg/kg SQ every 24 hours for 3 weeks.
- Shallow warm water soaks for several hours daily will help with rehydration. Turtles will not start eating again until their eyes open. Even in severe cases, box turtles have a relatively good prognosis with treatment. Once eating, encourage consumption of vegetables rich in vitamin A (dark leafy greens).

Iatrogenic hypervitaminosis A: Initially begins as dry, flaky skin which then sloughs. If this occurs, treatment involves daily soaks and topical Neopolybac application.

Metabolic bone disease: This occurs when there is a deficiency in Calcium, Vitamin D, or sunlight or an imbalanced Ca: P ratio. For juveniles this causes abnormal carapace/shell development.

Turtles are more resistant to this than lizards so when they are affected, it is normally a chronic process. Radiographs may reveal overall decreased bone opacity.

Appendix 3: Ringworm Treatment Dipping Protocol

Lime sulfur dips are done **twice** weekly on Mondays and Thursdays. As new cases are introduced, they are cultured and ideally dipped before entering ringworm ward and will then be integrated into the next scheduled dip day.

How to Dip:

1. PROTECT YOURSELF: Never dip cats without wearing the proper garments. Always wear a blue isolation gown, double latex gloves (waterproof tape will keep lime-sulfur from leaking into gloves/gown), and a face mask.
2. Prior to dipping, make a fungal culture for each animal, record each animal's weight, visible hair loss lesions, and whether they fluoresce under the Wood's lamp.
 - a. Fungal cultures should be labeled with the animal's name, A#, and the date on the underside of the culture (the side containing the media)
 - b. Record each new fungal culture using the "Ringworm Tracking Sheets." There should only be one tracking sheet per animal.
3. Lime sulfur concentrate should be used at *8 oz. per gallon*. 8 oz. = 1 cup = 240 ml. Shake concentrated lime sulfur solution very well before use. Add lime sulfur to the container first & then add *WARM* water for the correct dilution.
4. For one animal, an appropriate smaller volume of lime sulfur solution can be mixed up in a bucket. If more than one animal is to be treated, use the pressurized garden sprayer.
5. Only use warm water to ensure that we are keeping the animals as warm as possible. Never use cold water. Do not pre-wet the animals and do not rinse off the solution after dipping.
6. Using the garden sprayer: *soak each animal to the skin. The solution must penetrate to the animal's skin and not just the hair coat.*
7. Use a different small rag or gauze soaked in lime sulfur to gently coat each animal's face, ears, & nose. These areas are the most important & tend to be the most difficult to resolve.
8. Have a Yorker bottle with water on hand for rinsing out eyes if lime sulfur gets in an animal's eyes.
9. *Do not* put animals back into a dirty kennel. Either put them in carriers to dry off, or return them to their clean kennel with nothing more than newspaper on bottom of kennel. Inform the shelter technician when this has been done, so we can ensure the cats are placed back in kennel when they are dry. Make sure that their kennels are appropriately bedded once they dry.
10. Discard any unused lime sulfur solution and thoroughly rinse out garden sprayer when done. Create a new solution every time you dip the animals.