WHAT TO DO WITH A POUND PUPPY?

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The ideal protocol for handling puppies in the shelter should maximize puppy live release rate and minimize the time every puppy spends in the shelter. Puppies are considered to be dogs less than 18-20 weeks of age. This particular age chosen because maternal immunity wears off by 16-18 weeks of age. All handouts and the associated PowerPoint are downloadable at http://www.wendyblount.com.

"Pathway Planning" in the animal shelter is the process of identify the most likely outcome for a particular animal and guiding that animal there as soon as possible. Pathway should be identified at intake and reassessed daily. Excellent pathway planning minimizes turnover time, the time from intake to outcome for a shelter animal. Minimizing turnover time is important for all shelter animals because there are only so many animal care days available. The fewer animal care days spent on every animal in the shelter, the more animals that can be helped. Minimizing turnover time for puppies and kittens is especially important, because puppies and kittens are most susceptible to disease, and the longer the time spent in the shelter, the greater the likelihood of contracting infectious disease. Infectious disease commandeers precious resources, decreases likelihood of adoption and increases likelihood of euthanasia.

Foster to Surrender Programs

Puppies or kittens too young or too ill for adoption are at great risk of euthanasia at shelters. In order to ameliorate that risk, Richmond ASPCA began a "Foster to Surrender" program which encourages individuals who bring puppies and kittens to the shelter for surrender to foster them until they are old enough and well enough to be put up for adoption. In a Foster to Surrender Program, puppies and kittens are indeed surrendered to and owned by the shelter, but they are cared for by a foster home. The most successful programs provide all supplies and services needed to care for the puppies and kittens, including training for orphan care if necessary. These programs are relatively inexpensive to implement and have tremendous public appeal.

Intakes

On intake, the foster puppy or kitten should be examined by a veterinarian, who provides vaccines, dewormer, prescribed medications and a plan for follow-up care. Ideally, fecal examination would be done, and feline leukemia and FIV tests performed on kittens. Shelter staff then provides supplies including food, formula, litter boxes, litter, and even crates, beds and toys if needed. Many foster caregivers are happy to provide their own supplies, and those donations are always welcome.

Before taking the foster puppy or kitten home, the care giver signs contract agreeing to return the puppy to the shelter for adoption when they are old enough and well enough for adoption, ideally at 10--12 weeks of age. At that time, the puppy is spayed or castrated, and then put on the adoption floor. Healthy puppies and kittens are highly adoptable and often make way soon for the next in line. Though there is a designated date for return, during kitten/puppy season, the care giver may need to be on a short waiting list for cage space. It is desirable for the contract to provide a final date at which the foster care giver can return the puppy regardless of space, ideally are 12-14 weeks maximum. This can eliminate the worry of "getting stuck" with the puppies or kittens, and increase participation in the program.

Resources Required

Minimum staff is required to implement the program. One person tracks fosters in the program, scheduling and monitoring puppy medical visits and following up on missed return dates. Providing in house veterinary care is ideal, and minimizes cost. Bu outside veterinary care can be utilized by negotiating a Memorandum of Understanding with in independent veterinarian. Shelter staff dispenses supplies as needed. Shelter staff time to support puppies in "Foster to Surrender" programs is likely significantly less than would be required to care for them at the shelter for many weeks.

Program Benefits and Challenges

Benefits of "Foster to Surrender" programs are numerous. Infectious disease is minimized, and body condition is improved, because there is decreased infectious disease exposure and environmental stress. This results in lower puppy euthanasia and death rates, improved puppy immunity when returned to the shelter and increased puppy adoption rates. Caregivers often help find homes for the puppies and occasionally even adopt a few. As well, "Foster to Surrender" programs improve staff relations with the public. As each build trust with the other, shelter staff begins to see citizens as "foster homes" rather than "puppy dumpers." The public begins to see shelter staff as "puppy savers" rather than "puppy killers." Animal welfare becomes more of a community concern rather than a just a shelter concern. These programs can raise public awareness of pet surplus and other animal sheltering issues, and even garner financial support for donation funds to support the program. And example of a presentation of such a shelter fund in Texas (The Rex and Sammy Fund) can be reviewed at http://www.omalleypet.org/rexsammy.php.

Obstacles to the programs of this sort are mostly in the mind of the beholder, and solutions are found in overcoming fear. As shelter staff learns to trust the public and the public learns to trust staff, both parties "Feel the Fear and Do it Anyway" (Susan Jeffries). With time, shelter staff comes to terms with dealing with the rejections. Some individuals surrendering puppies and kittens say, "No" to the program. But many also say, "Yes." As well staff will become accustomed to dealing with occasional failure. At Richmond ASPCA, only 1.7% of the puppies and kittens entering into the "Foster to Surrender" program were ultimately lost to follow-up, or died in foster care. The rest (98.3%) were returned to the shelter for adoption.

Contract

The "Foster to Surrender" contact should be as brief as possible, but should make clear that the puppy is owned by the shelter, but cared for by the volunteer. Appointment dates, times and phone numbers for puppy visits should be included, in addition to maps and directions to the veterinary clinic if outside veterinary services are used. Instructions should be provided on when and where to get needed supplies, and who to call with questions or emergencies. Veterinary services provided for foster animals should be provided only by veterinarians with whom a Memorandum of Understanding has been negotiated. The caretaker should understand that they are financially responsible for any veterinary care they seek out which was not pre-approved by shelter staff.

Other Foster Programs

Additional foster homes should be developed to care for as many puppies as possible that are either too young or too ill to be adopted. No matter how hard shelter staff tries, puppies are occasionally born in the shelter. If puppies born in the shelter are to have the greatest probability of survival, both dam and pups should fostered out as soon as possible, with a foster agreement signed to return the dam to the shelter 6 weeks after parturition, or as soon as she is well enough for adoption. The litter of puppies should be returned ideally at 10-12 weeks of age, or sooner if the foster home requires it or

puppies are in demand at the shelter. The goal is to have all puppies less than 10 weeks of age in foster care with their littermates, to maximize adequate socialization and good health. Singleton puppies can be combined with other singletons or small litters of similar age. Puppies less than 6 weeks in the shelter if it can be avoided, as they are highly susceptible to infectious disease and shelter stress, and fatality rate for young pups is higher in shelters as compared to foster homes. Though these are the goals, there is likely little danger of empty puppy cages when adopters come calling. There are nearly always puppies in the shelter that have nowhere else to go. If the program is highly successful, empty puppy cages can easily be filled by calling in foster puppies 6-10 weeks old as needed. In highly successful communities, puppies can be transported from the many shelters that have many more puppies than they can place.

Shelter Puppy Intakes

Microchips

All dogs and cats entering animal shelters should be scanned for microchips, even puppies. Many Breed Registries require that puppies be chipped, and backyard breeder that do not register their puppies also sometimes chip pets they perceive to be valuable. It has been estimated that on average 20-25% of dogs at animal shelters are purebred dogs. Ideally, foster puppies should be microchipped when they leave the shelter for the first time – either to go to a foster home, or an adoptive home.

Photographs

If not able to microchip due to financial constraints, shelter staff must remember that if photographs are used as unique identifiers, they must be update at least monthly until 6-9 months of age, and then yearly. The appearance of a puppy changes a great deal over a period of weeks, and it might not be possible to identify a puppy using a photo that is more than 30 days old. An ideal opportunity for updating photos is at the time of puppy vaccination visits. The best photos include the entire pet in the photo, and are taken from several views. Be sure to capture any especially unique identifying features in the photos. Photos taken for identification purpose can serve the dual purpose of providing exposure to potential adopters by posting on sites such as www.petfinder.com, www.petange.com, www.dogindanger.com and shelter websites. When determining whether photos are acceptable, shelter staff should ask the question, "Would I recognize the puppy from the photo if it were my puppy?"

Assigning Date of Birth

It's important to estimate a date of birth on intake, so that shelter staff can determine when puppy visits are needed, which medications can be given safely to each puppy (many have recommended age minimums), and when the puppy is old enough for adoption or spay-neuter. The eyes typically open at 2 weeks. Shortly thereafter (at 3 weeks) shelter staff can begin using dentition to estimate age and date of birth, according to the chart below.

Eruption of Teeth in Dogs		
	Deciduous Teeth	Permanent Teeth
Incisors	3-6 weeks	12-16 weeks
Canine	3-5 weeks	5-6 months
Premolars	4-12 weeks	5-6 months

Molars (2/3)	n/a	5-7 months

Thumb rules for estimating puppy age to schedule care include: if the eyes are open but there are no teeth erupted, the puppy is about 2 weeks old, and it is time for the first deworming; if deciduous premolars have erupted, they are at least 4 weeks old and old enough for the first vaccine; if permanent incisors have erupted, they are old enough for a rabies vaccine; if permanent canines have erupted, they are old enough for a heartworm test.

Puppy Health Care

Vaccination

American Animal Hospital Association (AAHA) Vaccine Guidelines for Shelters (2011) recommend that all shelter puppies 4 weeks and older receive a modified live DHPP vaccine on or before intake, or according to provided vaccination records. The puppy is to be given a booster every two weeks thereafter until 18-20 weeks of age, as maternal immunity which can block response to vaccination wears off by 16-18 weeks in almost all cases. Recombinant vaccine (rCDV, Recombitek – Merial) and measles/CDV vaccine break through maternal immunity 2 weeks earlier than MLV vaccines for distemper. rCDV and MLV are equally effective for dogs >20 weeks.

AAHA recommends that an intranasal vaccine containing *Bordetella bronchiseptica* (Bb) and canine parainfluenza (CPi) (canine adenovirus 2 optional) be given to shelter puppies 3 weeks of age and older before or on intake. Intranasal vaccines are preferred because a response is mounted within 24 hours, intranasal vaccines bypass maternal antibody interference to vaccination, and intranasal vaccines produce a more formidable protection against respiratory pathogens via local immunity in the nasal and oral cavities. The intranasal route is the only vaccination route by which canine parainfluenza immunity develops. Bb CPi vaccine should be repeated in 2 weeks or at 6 weeks of age, whichever is later, if the first dose is given at less than 6 weeks of age. The subcutaneous vaccination route is recommended in the shelter setting only when intranasal vaccines cannot be administered safely. Puppies are only rarely too aggressive or otherwise difficult to handle to administer IN vaccine. Two doses of subcutaneous vaccines given at least 2 weeks apart are required for immunity, no matter the age of the dog. Parenteral administration of CPi vaccine is not effective.

Rabies vaccine not indicated for pups <12 weeks, and per AAHA Guidelines, not necessary for pups 12-16 weeks, as risk of exposure while at the shelter is minimal. AAHA recommends vaccination on release from shelter for all puppies older than 12 weeks, and on intake if long a shelter stay is anticipated. Texas law requires vaccination by 16 weeks, and there are no exceptions for shelters.

Canine Influenza (CIV) is considered an optional vaccine for shelters by AAHA. One dose of CIV vaccine carries little benefit, so vaccination for CIV is not recommended if turnover time is known or highly suspected to be less than 2 weeks. Vaccination for CIV should be considered for dogs in shelters in areas endemic for CIV or if animals are transported to or from shelters in endemic areas. The CIV vaccine can be given to puppies as young as 6 weeks of age, ideally the second dose being given at or before intake. Accomplishing two doses two weeks apart would be difficult even for shelters that make appointments for surrenders. Two doses two weeks apart are required for immunity.

The following vaccines are “not recommended” by current AAHA Guidelines for routine use in shelter-housed dogs: leptospirosis; canine coronavirus; Lyme borreliosis (Borellia burgdorferi); Crotalus atrox (rattlesnake); and parenterally administered CPiV. Vaccines listed as “not recommended” for shelters category are for diseases that do not represent a significant threat to the

population of dogs residing in shelters, would not provide protection because there is inadequate time for immunity to develop, or that have limited efficacy against clinical disease.

AAHA Guidelines recommend use of modified live vaccines (MLV) rather then killed for fastest and strongest immunity. Killed vaccines may be used wither when no MLV is available, or in puppies less than 4 weeks of age who have not nursed from and adequately immunized dam. All animals coming into the shelter should be vaccinated, regardless of health status. Lack of ideal response is a legitimate concern in practice when the vaccine can be given later with no harm to and little risk of exposure to the animal, but in the shelter environment, risk of infectious disease which is life threatening due to euthanasia in addition to actual disease far outweighs possible diminished response. Once mixed and stored at room temperature, MLV should be administered within 1 hour. Single dose vials are preferred, to reduce vaccine contamination and to ensure proper mixing and dosage of antigen and adjuvant. Special packaging (Bb ADT - Nobivac, Intervet) allowing mixing and administering the vaccine without using a syringe prevents inadvertent SC injection of IN Bb vaccine which can result in severe adverse reaction.

Association of Shelter Veterinarians 2010 Guidelines explain that vaccination protocols used for individual pets in homes are not adequate in most shelter settings, and that pregnancy and mild illnesses are not contraindications to vaccination with MLV vaccine in shelters. Because risk of disease exposure is often high in shelters, animals must be vaccinated at or prior to intake. Shelters that do not vaccinate all animals immediately on intake are more likely to experience deadly outbreaks. Protocols for managing adverse reaction must be provided by a veterinarian and be readily accessible to shelter staff.

Parasite Control

Companion Animal Parasite Council (CAPC) Guidelines recommend administration of a broad spectrum dewormer at intake and that puppies and kittens be dewormed very two weeks until 6 weeks of age, then monthly thereafter. Clinical experience in Texas suggests that it is not uncommon for shelter puppies to be persistently infected despite multiple dewormings with Pyrantel pamoate. Manufacturer's label indicates that fenbendazole should not be given to puppies less than 6 weeks of age. The author's current recommendation based on clinical experience is that pyrantel should be used to deworm puppies at 2 and 4 weeks of age, and then fenbendazole at 6 weeks of age and as needed thereafter. ASV Guidelines recommend "deworming on intake and regularly to prevent environmental contamination and zoonosis." Dogs and cats should not be allowed on the grass or dirt until dewormed twice. Puppies should be exercise on grassy areas separate from other dogs. Animals in quarantine and isolation should not be allowed access to grassy areas at all. If dogs in healthy hold and adoption are allowed access to grass and dirt, they should have access to separate areas.

The author is unaware of specific official guidelines for external parasite control in shelters. Fleas can be deadly to puppies and kittens in Texas, and ticks can carry diseases which are potentially life threatening for animals and people. Ticks and fleas can infest a shelter and its grounds. One of the Five Freedoms of the ASV Guidelines is Freedom from Disease. Capstar on intake for all animals 4 weeks of age and older is a favorite for flea control, and fipronil spray or a dip is often used for ticks. Some shelters divide tubes of Extra Large Dog imidacloprid or Frontline to use on smaller dogs and cats. All evidence shows this is safe and effective, if the ingredients in tubes of different dog and cat sizes are equivalent. However, keep in mind that to do this is in violation of federal law (Environmental Protection Agency, EPA) which requires use of pesticides according to instructions on the label, with no exceptions allowed for veterinarians to use pesticides in an off label manner as there are with FDA approved drugs and USDA approved vaccines.

If routinely dewormed, most shelters perform fecal exams on new intakes only if problems exist indicating the diagnostic test, including abnormal stool. Multiple studies show low sensitivity of fecal flotation, so empirical deworming for all is considered best practice at the animal shelter. If a shelter is

dealing with problems with infectious diarrhea, fecal tests on intake might become routine for periods of time, including *Giardia spp* (zinc sulfate flotation, PCR or SNAP test), Coccidia spp. Administration of a single dose of ponazuril at 50 mg/kg is indicated for puppies and kittens dealing with endemic coccidiosis in the respective population. According to a recent informal survey of ASV veterinarians on its listserve, lower doses don't seem to work as well, and using this dose 2-3 days in a row does not seem to increase effectiveness, while apparently increasing incidence of diarrhea. Feedback of this informal survey included unpublished study results. When managing protozoan outbreaks, shelter staff should not forget the importance of bathing infected animals and paying careful attention to sanitation in order to prevent re-infection by exposure to parasite cysts.

Below is a summary chart of medications commonly used at animal shelters, and minimum age for administration on the package insert.

Minimum Age of Administration	
Advantage Multi – 7 weeks	Vectra 3D – 7 weeks, 2.5 lbs
Interceptor – 2 weeks	Advantage II – 8 weeks
Drontal Plus - 3 weeks, 2 lbs	Advantix – 8 weeks
Pyrantel – 2 weeks	Certifect – 8 weeks
Capstar – 4 weeks, 2.2 lbs	Frontline – 8 weeks
Program – 4 weeks	Iverhart Max – 8 weeks, 6 lbs
Sentinel – 4 weeks	Trifexis – 14 weeks, 5 lbs
Fenbendazole – 6 weeks	Comfortis – 14 weeks, 5 lbs
Heartgard – 6 weeks	Albon – no age minimum
Heartgard Plus – 6 weeks	Azithromycin – no age minimum
Revolution – 6 weeks	Ponazuril – no age minimum
Metronidazole – weaned	Doxycycline – enamel stains

Puppy Housing

Quarantine, Isolation, Healthy Hold and Adoption Floor

Puppies should be housed separately from adult dogs, regardless of vaccination status. Ideally, there should be four puppy areas: quarantine – for watching for signs of disease; isolation – for actively infected puppies, to protect the general population from exposure to disease; healthy hold – for puppies that are surrendered with medical records and unlikely to have infectious disease; and puppy adoption floor. Puppies in healthy hold and on the adoption floor are available for immediate adoption. The public should not have access to puppies in quarantine and isolation.

Appropriate foster homes that can be trusted to follow infectious disease control protocols can be designated for isolation and quarantine. In general, puppies infected with ringworm should not go to foster homes unless the environment can be adequately disinfected (i.e., no porous surfaces). Some shelters designate foster homes that are contaminated with parvovirus as appropriate places for puppies convalescing from the infection. Most homes contain many porous surfaces that are not easily disinfected, so that a foster home contaminated with parvovirus will likely remain infected for a minimum of many months.

Stray hold period and quarantine can also take place in approved foster homes, keeping in mind that homes contaminated with ringworm or parvovirus might need to be converted to isolation foster homes. Puppies assigned to healthy hold and adoption areas should be in the shelter, where foot traffic will maximize exposure for adoption. Alternatively, intermittent off site adoptions could be utilized. Littermates in Healthy Hold and on the Adoption Floor should be housed together in larger housing

units with room for play away from food and water. Some prefer to separate the puppies into smaller cages during adoption hours, in hopes that they will stay cleaner and "show" better to potential adopters. A pair of puppies per cage during the day is ideal. Some recommend choosing a male and a female from the same litter if possible. Two puppies allows observation of puppies at play, which can be downright charming and appealing, and occasionally the adopter will take both puppies alone in a cage together. Adoption of one female and one male rather than two for the same sex minimizes possibility of inter-female of inter-male aggression after the puppies mature into dogs.

Symptoms of infectious disease which indicate that a puppy need to go to isolation include: fluorescing ringworm lesions; any round skin lesions (isolation while culturing); patchy hair loss on feet and tail of puppies (often *Microsporum gypseum*); nasal discharge, ocular discharge, coughing or sneezing; vomiting or diarrhea; or fever.

Traffic Flow

Shelter traffic must flow from the most susceptible animals (puppies and kittens) to the least susceptible animals, to minimize transport of pathogens into immunologically naïve puppy areas by foot traffic. Foot baths and disinfectant mats are controversial, but two recent studies have demonstrated that peroxygen foot baths and foot mats do indeed reduce transport of pathogens within a veterinary clinic.

Environmental Enrichment

Housing puppies in foster homes with other puppies until 10 weeks of age optimizes socialization and reduces stress and exposure to infectious disease at the same time. Housing litters at the shelter, even if only at night or when puppies are not being viewed for adoption provides self enrichment by the puppies. Shelter volunteers and also be utilized to encourage puppy play time and begin puppy training. ASV Guidelines say that "enrichment should be given the same significance of other components of animal care and should not be considered optional."

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