Characterization of Advertisements for Puppies Sold Online:
Determinants of Cost and a Comparison with Parent Club Breeders

Thesis

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By

Hillary Claire Voris, B.S. and A.B.

Graduate Program in Veterinary Preventive Medicine

The Ohio State University

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Thesis Committee

Linda K. Lord, Advisor

Thomas E. Wittum

Päivi J. Rajala-Schultz

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Abstract

Each year, hundreds of thousands of puppies are bred and sold in the United States. The newest market for puppy sales is the Internet. Consumers can view multiple advertisements for puppies in just minutes but there is no information available regarding what information is standard in online advertisements. In addition, within a breed, puppies vary widely in cost. It is difficult for a consumer to determine why one puppy might cost so much more than another. The goal of this project was to characterize the online market for puppies by documenting the contents of Internet ads for five common breeds (Labrador Retriever, Yorkshire Terrier, Bulldog, Boxer and Shih Tzu) over a period of three months.

Traditional breeders, for example American Kennel Club (AKC) breeders, have been around for generations. The services these breeders provide are well documented. Internet breeders are less well understood. The second part of this study compared puppies sold by Internet breeders with puppies sold by AKC Parent Club breeders.

In a period of 14 weeks, 3,485 advertisements were reviewed. Small breed puppies were most frequently advertised with 35.2% (1,228/3485) of advertisements for Yorkshire Terriers and 23.0% (802/3485) for Shih Tzus. Almost one quarter of Internet breeders 768/3,474 (22.2%) advertised four or more different dog breeds. Champion

bloodlines increased the cost of a puppy of all breeds. AKC Parent Club breeders 21/25 (84%) were more likely to mention breed-specific health screening tests when compared to Internet breeders 7/25 (28%). The Internet is a large and growing source for puppies. Currently, breeders who sell puppies online directly to consumers are not subject to any type of regulation. As this industry grows, some type of oversight will be important. The most important difference between Internet and AKC Parent Club breeders is the knowledge and use of breed-specific health screening tests. Internet breeders are less likely to perform these screening tests on their breeding dogs and may breed dogs with undesirable heritable health risks.

Dedication

Dedicated to all the puppies that have touched my life.

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I could not have completed this project without the assistance and encouragement of Linda Lord. I do not think I can thank her enough. I have to thank my husband for his continued support even when I didn't want it. Lastly, I want to thank my parents for always being there when I look back.

Vita

June 20002.....Notre Dame de la Baie Academy
2005.....B.S. and A.B. in Zoology, Miami
University
2006 to present.....D.V.M. and M.S. in Veterinary Preventive
Medicine, The Ohio State University

Publications

Folz HC, Wilder SM, Persons MH, Rypstra AL. 2006. Effects of predation risk on vertical habitat use and foraging of *Pardosa milvina*. *Etiology*: 112 (12), 1152-1158.

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Chapter 1: Literature Review

It is difficult to obtain an estimate for how many puppies are bought and sold in the United States each year. The American Kennel Club (AKC) registered over 300,000 litters of puppies in 2009¹. The American Veterinary Medical Association (AVMA) estimates that the total U.S. dog population is about 72 million dogs and approximately 37.2% of all U.S. households own a dog². Data from the American Pet Products Manufacturers Association, Inc. annual survey in 2006 supports these numbers. The survey reports 39.4% of U.S. households owned approximately 74.8 million dogs³. Dog-owners are invested in the health of their dogs with dog-owners having spent an average of \$356 in 2006 on veterinary care for their dogs².

With the relative success of veterinary spay/neuter campaigns the traditional neighborhood source for puppies has significantly diminished. From 1996 to 2006 dogs obtained from a friend/relative decreased from 35% to 27% in the annual survey of pet owners performed by the American Pet Products Manufacturers Association, Inc³. In the same time period dogs acquired from a shelter decreased from 17% to 10%. Anecdotal evidence provides support for this trend as well. For example, the Faulkner County (Arkansas) Humane Society routinely ships dogs and puppies to “forever homes” in the Northeast due to high demand in that area⁴. PetSmart created a charity effort, the Rescue Waggin’, for the specific purpose of transporting pets from areas of relative overpopulation to areas in the North and Northeast where puppies and dogs are difficult

to find in shelters⁵. Even with these efforts, there remains a large demand for puppies in the United States. Sources for puppies include a breeder, a pet store, newspaper advertisements, humane societies/shelters, and a new source, the Internet. In the APPMA survey only 0.5% - 1% of puppies were purchased over the Internet from 2000 to 2006³. However the market is still relatively new. An Internet search for puppies reveals a number of websites designed specifically for sale of a variety of breeds. Terrificpets.com has approximately 1,500 ads for puppies at any given time⁶. Animaroo.com has over 500,000 unique visitors within the first five days of May, 2010⁷. Additionally, a number of courier companies are available to assist in the transport of puppies from breeders to buyers. Unfortunately, no studies have looked specifically at the Internet as a source for puppies.

The purchase of a puppy results in the beginning of a commitment with the potential to last 10 or more years. As a result there are numerous recommendations on how to pick a puppy. The American Veterinary Medical Association (AVMA) advises consumers to choose a reputable breeder⁸. Of course, this recommendation leads to further information on how to choose a reputable breeder. The Humane Society of the United States (HSUS) states that a reputable breeder meets the following requirements. A reputable breeder houses dogs inside the home, not in outdoor kennels, breeds one or two types of dogs and is familiar with the “breed standard,” has a strong relationship with a veterinarian, explains the potential genetic problems inherent in every breed, provides references from other families who have purchased puppies, and provides a written contract. Additionally a reputable breeder makes requirements of potential buyers as

well⁹. As a result of this advice, it can take a lot of time and effort to purchase a puppy from a reputable breeder.

Recently, there has been a flurry of media attention around large-scale commercial breeders (puppy mills) as a source for puppies¹⁰⁻¹². A puppy mill is defined as a commercial dog breeding facility that emphasizes profit over animal welfare, maintains dogs in substandard conditions, and provides little opportunity for puppy socialization¹³. Puppy mills can sell puppies directly to owners through the Internet, to brokers at puppy auctions, or to pet stores. The HSUS specifically warns against purchasing a puppy from the Internet, stating that many puppy mills sell puppies over the Internet and make false claims about the puppies' environments¹⁴. While there is anecdotal evidence to support this claim, the Internet has not been studied as a puppy source.

A growing concern is the lack of regulation for breeders that sell puppies directly to consumers over the Internet. Any breeder who sells to pet stores or brokers and has three or more breeding bitches is required to be USDA licensed and subject to inspection¹⁵. In June 2010, the USDA licensed 3,495 breeders. Almost one-third of these licenses were in Missouri (1,101/3,495)¹⁶. AKC Parent Club breeders are held to the AKC breeder standards and subject to inspection above and beyond the USDA requirements. In 2009 the AKC performed over 5,000 kennel inspections. While the AKC does not have legal authority over these kennels, AKC privileges can be revoked and fines imposed¹⁷. Any breeder who sells puppies directly to consumers is not regulated in anyway. A consumer who purchases a puppy over the Internet often does not have a chance to visit the facility to decide if the breeding practices are acceptable.

This loophole allows for an opportunity for potentially unscrupulous individuals to breed dogs and sell puppies in an unhealthy manner.

To date, there have been few studies assessing the health of a puppy. Ruble et al. (1993) found the rate of congenital defects in puppies arriving at a pet store to be 15%¹⁸. Defects ranged from cryptorchidism to patellar luxation. Scarlett et al. (1994) demonstrated that there were few differences in the health of puppies from different sources in the first two weeks of ownership. Puppies purchased from pet stores had an increased frequency of respiratory tract disease but fewer external and internal parasites than puppies from private sources. The risk for intestinal tract disease was highest amongst puppies from pet stores and shelters¹⁹. Since the study was limited to the first two weeks of ownership, many congenital diseases, such as heart defects, may have been missed. Similarly, Hird et al. (1992) found that morbidity associated with “kennel cough,” diarrhea, and internal parasites was higher in pet store puppies compared to puppies from private sources²⁰. All of these studies were completed prior to the advent of the sale of puppies via the Internet. None of these studies were able to evaluate the lifetime health and behavior of puppies from various sources.

In the agriculture industry multiple studies have been dedicated to the topic of how to improve the breeding and rearing of healthy calves, piglets, and foals²¹⁻²⁴. Many of the situations that affect commercial livestock do not necessarily apply to dog breeding but data investigating puppy health is still valuable. Studies are needed to determine if and how puppy health impacts the lifelong health of a dog, the relinquishment rate of a dog, and the behavioral health of a dog.

Chapter Two: Internet and Phone Survey

2.1 Introduction

There are approximately 72 million dogs living in the United States². Dogs are a major part of the American lifestyle with billions of dollars spent on canine companions each year^{2,3}. Availability of dogs and puppies in many U.S. shelters has decreased. The wait-lists for a purebred puppy from a breeder can be months to years long⁹. As a result, there has been a demand for a new source of puppies. In recent years, the Internet has become a popular way to meet this need because it offers quick, easy access to many puppies at one time.

Very little information is available about what types of puppies are sold over the Internet. Puppies sold this way (even puppies of the same breed) vary widely in cost. It can be difficult for a consumer to decide why one puppy costs more than another. Additionally, breeders who sell puppies online directly to consumers are not subject to USDA regulation¹⁵. There is no data on the health and general characteristics of puppies sold this way.

The American Kennel Club (AKC) is a registry of purebred dogs that has been in existence since 1884. The general objectives of the AKC are to promote ownership of purebred dogs, improve canine health and welfare, and support responsible dog ownership. In those efforts, the AKC recognizes Parent Clubs for each breed. An AKC

Parent Club is the national organization dedicated to each breed. Each Parent Club works to maintain breed standards, organizes shows, and assist breeders with improving the health of the breed²⁵.

The goals of this study were to describe puppies sold over the Internet, assess what characteristics contribute to the cost of a puppy, and to compare puppies sold on the Internet with puppies sold by AKC Parent Club breeders. The hypotheses were that no characteristics of puppies would correlate to puppy cost and that AKC Parent Club bred puppies would be of a higher quality and a lower cost than Internet bred puppies.

2.2 Materials and Methods

2.2.1 Internet Survey - To find popular online puppy sale sites, a Google search including “breed-name puppies” was performed for each of the top ten AKC registered breeds of 2008. The top ten websites were recorded. Sites that were returned repeatedly over each search were tallied. Sites were examined to determine the quality of advertisements listed. Internet sites were chosen based on priority in search schemes employed. A pilot study was used to determine which puppy Internet sales sites would provide the most numbers of puppies to be useful in the study. For two weeks the number of puppies listed as eight weeks of age for each of the top ten breeds for sale on these three sites was recorded. Puppy for sale advertisements were analyzed when the puppy was eight weeks of age because puppies are typically sold to new homes at this age and the standard age helped to avoid evaluation of duplicate ads. For each litter of puppies encountered, only the first puppy in the litter that the website listed was included in the study. All subsequent puppies from the same litter were excluded. Puppyfind.com and

Nextdaypets.com were chosen because they advertised the greatest number of puppies each week. Both websites also listed puppies by age or birthday so puppies could easily be tracked. Five of the top ten breeds were selected for use in the study: Yorkshire Terrier, Shih Tzu, Labrador Retriever, Bulldog and Boxer. These breeds were chosen for variety in breed function, size, and number of advertisements.

For 14 weeks, from the week of June 23rd to the week of September 22nd, 2008 advertisements for puppies listed as approximately eight weeks of age for sale on Puppyfind.com and Nextdaypets.com were surveyed. Each week advertisements were selected based on listed birthday or an age of eight weeks old.

Advertisements were uniquely identified by the phone number of the breeder and the litter number. Data from each advertisement was collected in the following categories: Puppy Characteristics, Health Characteristics, and Policies. The Puppy Characteristics section included the name of the puppy, breed, cost, sex, color, form of permanent identification if any, registration status, champion bloodlines if any, champion sire if any, and pedigree if given. Color was recorded as either “breed standard” or “non-approved” color. Breed standard colors are those colors of a particular breed that are recognized by the AKC. The Health Characteristics section included data on vaccination status, deworming, whether a health certificate was offered, health guarantee if any, veterinary exam before sale, breed-specific health screening tests performed, and if a copy of the health records were provided. The Policy Section included data on whether a return policy was mentioned, whether “pet home” was mentioned, whether a spay/neuter requirement was mentioned, whether a contract was mentioned, whether the breeder sold mixed breed dogs, and whether the breeder was available for assistance after the sale.

For each advertisement data was also collected on the number of other breeds advertised by that breeder. All data was entered into standard database software^a. State population data was obtained from the U.S. Census Bureau²⁶. The number of breeders per state was converted to the number of breeders per 100,000 by dividing the number of breeders by the state population and multiplying by 100,000.

2.2.2 Phone Survey – To directly compare Internet breeders with AKC Parent Club breeders, a phone survey was used to obtain detailed information.

Internet Breeders - Once the Internet survey was finished, the list of advertisers surveyed during weeks 13 and 14 of the project was copied into a standard spreadsheet program^b. Advertisers from the last two weeks of the Internet survey were chosen to reduce recall bias. A random number generator was used to assign a random number between 0 and 1 to each breeder for each breed. Breeders were called and interviewed starting with the lowest random number until five interviews had been completed for each breed.

AKC Parent Club breeders – For three of the five selected breeds (Yorkshire Terrier, Labrador Retriever and Bulldog), a list of breeders was obtained from the National Breed Club^{cde}. This breeder list is publicly available online at the National Breed Club website. The online list published on September 12th, 2008 was copied and used for the remainder of the study. The Bulldog Club of America only provided the email address contact for each breeder listed online. The American Shih Tzu Club (ASTC) does not provide a list of breeders online but a list was provided directly from the Membership Secretary after contacting the ASTC for assistance with this project. The American Boxer Club (ABC) does not provide a list of breeders online. The ABC

provided the number of breeders willing to participate (58) and 15 were randomly chosen using a random number generator. The ABC provided the contact information for those 15 breeders only. Each list of breeders was copied into a spreadsheet^b. A random number generator was used to assign a random number between 0 and 1 to each breeder for each breed. Breeders were contacted and interviewed starting with the lowest number until five interviews had been completed.

For all groups of interviewees (except the AKC Bulldog breeders), an attempt to contact each breeder was made up to eight times. After the third unsuccessful contact a voicemail was left if the breeder had an answering machine. After the eighth non-contact the breeder was considered a non-response. Attempts were made to reach breeders at various times of day (morning, afternoon, and evening). Typically the contact attempts were made over a period of 10-14 days. For the AKC Bulldog Breeders, email was the only contact information available. Each breeder was emailed up to three times requesting an interview. If no email response was received, a follow-up email was sent the next week. If no response was received in a one-month period after the third email the breeder was considered a non-response.

For all participants a standard survey questionnaire was used. Breeders were asked a series of questions relating to breeding practices and puppy health. The survey included questions regarding breeds bred, the number of litters of the breed of interest in the past year, whether or not the breeder sold mixed breed or “designer dog” puppies, cost of puppies, whether or not shipping was available with cost and how puppies were advertised. A “designer dog” is a deliberate cross between two purebred dogs, bred as companions or pets, and referred to by a portmanteau word²⁷. A few examples of

designer dogs are Puggles, Labradoodles, Yorkipoos, Schnoodles, and Maltipoms. Closed-ended questions regarding vaccination and worming protocols, visitation, veterinary exams and health certificates were also included. Questions about health guarantees, return policies, spay/neuter requirements and breed-specific health testing were open-ended and respondents were allowed to comment at length. Answers to open-ended questions were later categorized as “yes” or “no” for statistical purposes. Recommended breed-specific health tests were accepted based on the AKC’s breed-specific health screening recommendations. Responses about breed-specific health screening were categorized in two different ways. The first categorization was either “yes, any breed-specific health testing was mentioned” or “no, no breed-specific health testing mentioned.” The second categorization was as a percentage of the total number of breed-specific health screening tests recommended. For example, there are four breed-specific health screening tests recommended for Labrador Retriever Retrievers. If a breeder mentioned two of the four they were classified as 50%. This categorization process was completed separately for each breed. All data were recorded by hand and entered into standard database software^a. The survey was given exempt approval status by The Ohio State University Institutional Review Board. A copy of the survey used is provided in the Appendix.

2.2.3 Statistical Analysis – Median, range, and quartiles were calculated for responses that consisted of continuous data, and proportions were calculated for responses that consisted of categorical data. Comparisons were made among categorical variables by use of a χ^2 test. The Fisher exact test was used for categorical variables when the expected value of a given cell in the comparison was < 5. The student’s t-test was used

to compare puppy cost between AKC Parent Club breeders and Internet breeders. Mixed-effects linear regression was used to evaluate general, health and, puppy characteristics that were potential predictors of puppy cost, with breeder treated as the random effect in the model. Due to the significant interaction between breed and other variables in the overall cost model, individual models of cost for each breed were developed. Residual analysis was used to test normality assumptions for cost for each model. Subsequently, puppies with extremely low or high costs were excluded from each model in order to not violate normality assumptions. No more than five percent of observations for each model were excluded. Variables with values of $P \leq 0.25$ in the univariate analyses were included in the multivariate mixed-effects linear regression analysis for each breed. Variables were removed one at a time from the full multivariate model on the basis of results of the Wald test. Interactions between the main effect variables in the model were tested for inclusion in a similar manner. For all analyses, values of $P \leq 0.05$ were considered significant. Standard statistical software was used for all analyses^f.

2.3 Results

A total of 3,535 ads were viewed and evaluated. Of these, 50 ads (1.4%) were from foreign countries and excluded from the analysis. Of the 3,485 advertisements 605 (17.4%) were from nextdaypets.com, 2,550 (73.2%) were from puppyfind.com, and 330 (9.5%) were listed on both websites. Yorkshire Terriers 1,228/3,485 (35.2%) and Shih Tzus 802/3485 (23.0%), the two smallest breeds, had the largest number of

advertisements. The remaining advertisements by breed were for Bulldogs 560/3485 (16.1%), Boxers 471/3485 (13.5%), and Labrador Retrievers 424/3,485 (12.2%).

2.3.1 Cost of puppies – Median cost of a puppy of any breed was \$700. Median cost for each breed, 25th percentile, and 75th percentile are listed in **Table 2.1**. Bulldog puppies were advertised at the highest median cost of \$1,795. Labrador Retrievers and Boxers were advertised at the lowest median cost of \$500.

2.3.2 Characteristics of Puppies – General characteristics for puppies are summarized in **Table 2.2**. Advertised puppies were more likely to be male ($p=0.010$) in all breeds except for the Boxer, which was split evenly between sexes. The majority of puppies 3,361/3,485 (96.4%) were advertised as a breed standard color. Colors that are not AKC approved as breed standard showed up most frequently in the Boxer 38/468 (8.1%) and Labrador Retriever 28/422 (6.6%). Puppies of all breeds were rarely advertised with any type of permanent identification, 251/3,484 (7.25%). Almost all puppies advertised in any breed were either already registered or were registry eligible (390/424 (92.0%) – 541/559 (96.8%)). English Bulldogs 422/560 (75.4%), Labrador Retrievers 238/424 (56.1%), and Boxers 195/471(41.4%) were more often advertised as having champion bloodlines when compared to Yorkshire Terriers 566/1218 (25.5%) and Shih Tzus 325/786 (29.1%) ($p<0.001$). English Bulldogs 106/560 (18.9%) and Labrador Retrievers 61/424 (14.4%) more often had a champion sire compared to the other breeds 323/802 (4.0%) – 32/471 (6.8%) ($p<0.001$). More puppies were advertised with a champion bloodline (25.5% - 75.4%) than were advertised with a champion sire 32/802 (4.0%) – 106/560 (18.9%). Yorkshire Terriers were much less commonly advertised as having a

pedigree available 351/1228 (8.6 %) compared to all other breeds 251/801 (31.3%) – 277/560 (49.5%) ($p<0.001$).

2.3.3 Health Characteristics – Puppy health characteristics are summarized in **Table 2.3**.

Almost all 402/424 (94.8%) – 547/559 (97.8%) puppy advertisements indicated that the puppy received vaccination of some kind. Less than half 138/560 (24.6%) – 198/471 (42.0%) of advertisements mentioned that the puppy received any type of deworming treatment. Most puppies were advertised with a health certificate 177/424 (41.2%) – 833/1227 (66.3%) and/or health guarantee 285/424 (67.2%) – 444/560 (79.3%). Health guarantees were more commonly advertised in all breeds. The majority of puppies received a veterinary exam prior to sale 252/424 (59.4%) – 504/560 (90.0%). English Bulldog puppies were most frequently 504/560 (90.0%) advertised with a veterinary visit and Labrador Retriever puppies were least frequently 252/424 (59.4%) advertised with a veterinary visit ($p<0.001$). Very few puppy advertisements mentioned any type of breed-specific health screening 146/3,484 (4.2%). Advertisements for Labrador Retriever puppies were most likely 99/4242 (23.3%) to mention breed-specific health screening ($p<0.001$). Very few advertisements 217/3482 (6.2%) mentioned that puppies would be sold with a copy of the puppy health record.

2.3.4 Policy Section - Very few advertisements mentioned any sort of return policy, “pet home”, spay/neuter requirement, contract, or assurance for the buyer of support from the breeder after sale (**Table 2.4**). Numbers did not vary dramatically by breed. However, with regard to the sale of mixed breed dogs, breeders advertising small dogs - Yorkshire Terrier 305/1,225 (24.9%) and Shih Tzu 184/797 (23.1%) - were more likely to also advertise a mixed breed dog for sale than breeders advertising larger dogs – English

Bulldog 48/559 (8.6%), Boxer 4/470(8.9%), and Labrador Retriever 40/424 (9.4%) ($p < 0.001$). There was no difference in the total number of breeds advertised between the different breeders. For all breeds, just over half of breeders were only offering one breed for sale 1,802/3,474 (51.9%). Sixteen percent of breeders (556/3,474) were advertising two breeds and 348/3,474 (10.0%) were advertising three different breeds. Almost one-quarter of breeders 768/3,474 (22.2%) advertised 4 or more different breeds, with a range of 4 – 79 different breeds for sale.

2.3.6 Distribution of Area Codes – Each area code was classified according to the state it represented. The number of phone numbers for state was calculated (**Table 2.4**). There was an advertisement with a phone number from every state in the Union. There were only a small number of advertisements for which an area code could not be determined or was not within the United States (3.1%). The five states with the most advertisements were: Missouri (14.1%), Oklahoma (7.6%), California (6.9%), Texas (6.5%), and Arkansas (4.5%).

2.3.7 Models of Cost – Models for each breed of puppy are given in **Tables 2.6 – 2.10**. For each breed model, puppies with costs on the extreme high and low end of the model were excluded. For Yorkshire terriers 62/1228 (5.0%) were excluded, for Shih Tzu 39/802 (4.9%) were excluded, for English Bulldogs 21/560 (3.7%) were excluded, for Boxers 9/462 (1.9%) were excluded and for Labrador Retrievers 9/424 (2.1%) were excluded. In all cost models, champion bloodlines was a factor that increased the advertised cost for a puppy from an increase of \$93.71 in Labrador Retrievers to an increase of \$303.43 in Bulldogs. A Champion Sire increased the cost of a Yorkie puppy by \$269.77, a Bulldog puppy by \$218.48, and a Boxer puppy by \$199.21 but did not

affect the other breeds. An AKC approved color increased the cost of a boxer puppy by \$91.86 but decreased the cost of a Labrador Retriever (-\$298.45) or Yorkshire terrier puppy (-\$649.85). A veterinary visit prior to sale increased the cost of Shih Tzu puppies by \$49.01 and Bulldog puppies by \$140.24 but did not affect cost of other puppy breeds. In Labrador Retriever puppies, an eye-screening test performed on breeding dogs increased the cost of the puppy by \$121.43. An advertised spay/neuter requirement increased the cost of a Boxer puppy by \$566.05.

2.3.8 Phone Survey - Attempts to call 80 different phone numbers were required to achieve the goal of 50 completed interviews. One call each was placed to a wrong number, a broker, and a disconnected number. Twenty-seven calls were placed to phone numbers where the breeder declined to participate in the survey. Of those 27, 16 (59.2%) were to Internet breeders and 11 (40.7%) were to AKC Parent Club breeders. Of the 16 refusals from Internet breeders, 2 (12.5%) were from Yorkshire terrier breeders, 4 (25%) were from Shih Tzu breeders, 2 (12.5%) were from English Bulldog breeders, 4 (25%) were from Boxer breeders, and 4 (25%) were from Labrador Retriever breeders. Of the 11 refusals from AKC Parent Club breeders, 1 (9.1%) was from a Yorkshire terrier breeder, 9 (81.8%) were from English Bulldog breeders, and 1 (9.1%) was from a Labrador Retriever breeder. Puppies sold by Internet breeders cost an average of \$736 while puppies sold by AKC Parent Club breeders cost an average of \$1,396 ($p < 0.0015$). Summary of differences between Internet and Parent Club breeders are given in **Table 2.11**.

2.3.9 Breeding Practices –Among Internet breeders, 14/25 (56%) sold no other breeds besides the breed of interest, 4/25 (16%) sold one additional breed, 2/25 (8.0%) sold two

additional breeds, three additional breeds, or four additional breeds, and 1/25 (4.0%) sold six additional breeds. Of the AKC Parent Club breeders, 22/25 (88.0%) sold no other breeds and just 3/25 (12%) sold one other additional breed. Among the Internet breeders, 8/25 (33%) bred only one litter in the past year while 4/25 (16.7%) bred two litters, 5/25 (20.8%) bred three litters, 4/25 (16.7%) bred four litters, and 1/25 (4.2%) bred eight litters, 12 litters, and 15 litters each. Among AKC Parent Club breeders, 3/25 (12%) bred no litters in the previous year, 7/25 (28%) bred one litter, two litters, or three litters, and 1/25 (4%) bred four litters. Of 24 Internet breeders, 6 (25%) bred “designer dogs” while no AKC Parent Club breeders bred “designer dogs” ($p=0.008$). AKC Parent Club breeders 19/25 (76%) more frequently stated that they had a “return any time” policy for puppies they have bred and sold compared with Internet breeders 10/25 (40%) ($p<0.001$). AKC Parent Club breeders more frequently sold their puppies with a contract 24/25 (96%) than Internet breeders 17/25 (68%) ($p=0.010$).

2.3.10 Health Characteristics – Puppies bred by either Internet breeders 18/25 (72%) or AKC Parent Club breeders 19/25 (76%) were likely to have a veterinary exam before sale. Only 7/25 (28%) of Internet breeders mentioned any type of breed-specific health screening performed on breeding bitches and sires compared to 21/25 (84%) of AKC Parent Club breeders ($p<0.001$). Only 7/25 (28%) of AKC Parent Club breeders and 1/25 (4.0%) of Internet breeders mentioned all of the recommended tests in the interview (**Figure 2.1**). AKC Parent Club breeders 20/25 (80.0%) more frequently had some type of spay/neuter requirement for puppies sold to consumers compared to Internet breeders 6/25 (24.0%) ($p<0.001$). Both groups of breeders were likely to sell puppies with

vaccinations ($p=1.0$) and some form of deworming ($p=0.490$). Both groups were likely to provide support for the buyer after the sale ($p=1.0$).

Breed	25th Percentile	Cost	
		Median	75th Percentile
Yorkshire Terrier	600	800	1200
Shih Tzu	350	500	700
English Bulldog	1500	1795	2000
Boxer	400	500	700
Labrador Retriever	350	500	700

Table 2.1 – The 25th percentile, median, and 75th percentile for the advertised cost for 3,485 puppies advertised on two internet sites, nextdaypets.com and puppyfind.com, between 23 June and 22 September 2008 by breed.

Puppy Characteristic	Yorkshire Terrier	Shih Tzu	English Bulldog	Boxer	Labrador Retriever
Female	566/1218 (46.5%)	325/786 (41.3%)	233/546 (42.7%)	232/455 (50.1%)	173/393 (44.0%)
AKC Color	1181/1215 (97.2%)	799/801 (99.7%)	557/557 (100%)	430/468 (91.9%)	394/422 (93.4%)
Permanent ID	106/1228 (8.6%)	51/802 (6.4%)	49/559 (8.8%)	20/471 (4.2%)	25/424 (5.9%)
Registered or Registry Eligible	1137/1226 (92.7%)	740/801 (92.4%)	541/559 (96.8%)	435/471 (92.4%)	390/424 (92.0%)
Champion Bloodlines	313/1228 (25.5%)	233/802 (29.1%)	422/560 (75.4%)	195/471 (41.4%)	238/424 (56.1%)
Champion Sire	61/1228 (5.0%)	32/802 (4.0%)	106/560 (18.9%)	32/471 (6.8%)	61/424 (14.4%)
Pedigree	351/1228 (8.6%)	251/801 (31.3%)	277/560 (49.5%)	148/471 (31.4%)	208/424 (49.1%)

Table 2.2 – The number of puppies advertised with various characteristics on either nextdaypets.com or puppyfind.com during a 14 week period between 23 June and 22 September 2008.

Health Characteristic	Yorkshire Terrier	Shih Tzu	English Bulldog	Boxer	Labrador Retriever
Vaccination	1166/1225 (95.2%)	766/802 (95.5%)	547/559 (97.8%)	450/471 (95.5%)	402/424 (94.8%)
Deworming	474/1228 (38.6%)	310/802 (38.6%)	138/560 (24.6%)	198/471 (42.0%)	169/423 (39.9%)
Health Certificate	813/1227 (66.3%)	452/802 (56.4%)	442/560 (79.0%)	247/470 (52.5%)	177/424 (41.2%)
Health Guarantee	938/1228 (76.4%)	619/802 (77.2%)	444/560 (79.3%)	319/471 (67.7%)	285/424 (67.2%)
Veterinary Visit	922/1228(75.1%)	572/802 (71.3%)	504/560 (90.0%)	358/471 (76.0%)	252/424 (59.4%)
Breed-Specific Screening	17/1227 (1.4%)	11/802 (1.4%)	1/560 (0.18%)	18/471 (3.8%)	99/424 (23.3%)
Health Records	109/1227 (8.9%)	47/801 (5.9%)	28/560 (5.0%)	11/470 (2.3%)	22/424 (5.2%)

Table 2.3 – The number of puppies advertised as having a specific health related characteristic on either nextdaypets.com or puppyfind.com during a 14 week period between 23 June and 22 September 2008.

Policies	Yorkshire Terrier	Shih Tzu	English Bulldog	Boxer	Labrador Retriever
Return Policy	2/1228 (0.2%)	0/802 (0%)	0/560 (0%)	1/471 (0.2%)	3/424 (0.7%)
"Pet Home"	23/1223 (1.9%)	18/800 (2.2%)	8/559 (1.4%)	7/471 (1.5%)	7/422 (1.7%)
Spay/Neuter Requirement	13/1228 (1.1%)	10/802 (1.2%)	4/560 (0.7%)	4/471 (0.8%)	1/423 (0.4%)
Contract	19/1228 (1.5%)	2/802 (0.2%)	3/560 (0.5%)	13/471 (2.8%)	1/424 (0.2%)
Breeder Available After Sale	11/1228 (0.9%)	13/801 (1.6%)	3/560 (0.5%)	5/471 (1.1%)	7/424 (1.6%)
Mixed Breeds	305/1225 (24.9%)	184/797 (23.1%)	48/559 (8.6%)	42/470 (8.9%)	40/424 (9.4%)

Table 2.4 – The number of puppy advertisements mentioning specific policies advertised on either nextdaypets.com or puppyfind.com during a 14 week period between 23 June and 22 September 2008.

State	Number of Ads	Breeders per 100,000	State	Number of Ads	Breeders per 100,000
Missouri	490 (14.1)	8.18	Wisconsin	29 (0.83)	0.51
Oklahoma	264 (7.8)	7.16	Arizona	28 (0.80)	0.42
California	241 (6.9)	0.65	Toll Free	27 (0.77)	
Texas	227 (6.5)	0.92	South Dakota	25 (0.72)	3.08
Arkansas	156 (4.5)	5.4	Washington	24 (0.69)	0.36
Florida	155 (4.4)	0.84	Colorado	21 (0.60)	0.42
Ohio	154 (4.4)	1.33	Oregon	21 (0.60)	0.55
Georgia	141 (4.0)	1.43	Idaho	16 (0.46)	1.04
Pennsylvania	114 (3.3)	0.9	Massachusetts	16 (0.46)	0.24
Indiana	109 (3.1)	1.7	Montana	16 (0.46)	1.64
Kansas	101 (2.9)	3.58	West Virginia	16 (0.46)	0.88
Illinois	96 (2.7)	0.74	Utah	14 (0.40)	0.5
Alabama	89 (2.5)	1.89	Nevada	13 (0.37)	0.49
New York	83 (2.5)	0.42	Canada	12 (0.34)	
North Carolina	82 (2.3)	0.87	Connecticut	8 (0.23)	0.23
Iowa	80 (2.3)	2.66	Maryland	8 (0.23)	0.14
Kentucky	77 (2.2)	1.78	New Hampshire	8 (0.23)	0.6
Tennessee	76 (2.2)	1.21	Delaware	6 (0.17)	0.68
Michigan	72 (2.1)	0.72	Maine	5 (0.14)	0.38
Unknown Area Code	68 (1.9)		New Mexico	5 (0.14)	0.25
Louisiana	60 (1.7)	1.34	North Dakota	5 (0.14)	0.77
Mississippi	44 (1.3)	1.49	Hawaii	2 (0.06)	0.15
Minnesota	38 (1.1)	0.72	Puerto Rico	2 (0.06)	
South Carolina	37 (1.1)	0.81	Rhode Island	2 (0.06)	0.19
Virginia	37 (1.1)	0.47	Alaska	1 (0.03)	0.14
New Jersey	34 (0.98)	0.39	Vermont	1 (0.03)	0.16
Nebraska	29 (0.83)	1.61	Wyoming	1 (0.03)	0.18

Table 2.5 – Distribution of advertisements from either nextdaypets.com or puppyfind.com during a 14 week period between 23 June and 22 September 2008 across the United States by area code listed in the advertisement.

Characteristic	Coefficient	Standard Error	95% Confidence Interval	p-value
Gender				
Male	referent			
Female	253.36	26.14	202.12, 304.60	0.000
AKC Approved Color*	-649.85	96.14	-838.27, -461.42	0.000
Champion Bloodlines*	183.44	38.66	107.67, 259.20	0.000
Champion Sire*	269.77	70.71	131.17, 408.37	0.000
Dewormed*	-132.55	31.23	-193.77, -71.33	0.000
Pedigreed*	166.77	33.76	100.61, 232.94	0.000
Intercept	1411.34	97.69	1219.87, 1602.81	0.000

Table 2.6 – Mixed effects linear regression model with breed as the random effect for the cost of Yorkshire Terrier puppies sold online at either nextdaypets.com or puppyfind.com during a 14 week period between 23 June and 22 September 2008 across the United States *Denotes referent group as “no.”

Characteristic	Coefficient	Standard Error	95% Confidence Interval	p-value
Male with No Spay/Neuter Policy	referent			
Male with Spay/Neuter Policy	7.75	98.17	-184.66, 200.15	0.937
Female with No Spay/Neuter Policy	80.00	17.24	46.20, 113.79	0.000
Female with Spay/Neuter Policy	826.71	155.06	522.80, 1130.63	0.000
Champion Bloodlines*	131.68	22.31	87.95, 175.41	0.000
Pedigreed*	75.39	22.72	30.86, 119.92	0.001
Veterinary Visit*	49.01	23.37	30.86, 94.82	0.036
Intercept	429.86	21.31	388.09, 471.63	0.000

Table 2.7 – Mixed effects linear regression model with breed as the random effect for the cost of Shih Tzu puppies sold online at either nextdaypets.com or puppyfind.com during a 14 week period between 23 June and 22 September 2008 across the United States. *Denotes reference group as “no.”

Characteristic	Coefficient	Standard Error	95% Confidence Interval	p-value
Gender				
Male	referent			
Female	136.66	39.15	59.92, 213.39	0.000
Champion Bloodlines*	303.34	53.39	198.69, 407.99	0.000
Champion Sire*	218.48	57.32	106.13, 330.83	0.000
Veterinary Visit*	140.24	69.24	4.53, 275.96	0.043
Intercept	1308.6	79.5	1152.79, 1464.41	0.000

Table 2.8 – Mixed effects linear regression model with breed as the random effect for the cost of English Bulldog puppies sold online at either nextdaypets.com or puppyfind.com during a 14 week period between 23 June and 22 September 2008 across the United States. *Denotes referent group as “no.”

Characteristic	Coefficient	Standard Error	95% Confidence Interval	p-value
AKC Color*	91.86	33.61	25.97, 157.74	0.006
Champion Bloodlines*	151.55	24.11	104.29, 198.81	0.000
Champion Sire*	199.21	47.48	106.15, 292.27	0.000
Health Guarantee*	78.11	26.2	26.76, 129.47	0.003
Crate Provided for Shipping*	89.91	26.5	37.97, 141.85	0.001
Spay/Neuter Policy*	566.05	126.24	318.62, 813.49	0.000
Intercept	342.85	38.22	267.95, 417.75	0.000

Table 2.9 – Mixed effects linear regression model with breed as the random effect for the cost of Boxer puppies sold online at either nextdaypets.com or puppyfind.com during a 14 week period between 23 June and 22 September 2008 across the United States *Denotes referent group as “no.”

Characteristic	Coefficient	Standard Error	95% Confidence Interval	p-value
AKC Color*	-298.45	40.35	-377.53, -219.37	0.000
Champion Bloodlines*	93.71	23.28	48.08, 139.35	0.000
No Champion Sire with No Health Guarantee	referent			
Champion Sire with No Health Guarantee	-96.21	65.83	-225.25, 32.82	0.144
Health Guarantee with No Champion Sire	93.27	25.19	43.90, 142.65	0.000
Health Guarantee and Champion Sire	189.55	37.66	115.74, 263.36	0.000
Pedigreed*	71.02	21.99	27.92, 114.12	0.001
Multiple Breeds for Sale*	-88.1	25.01	-137.12, -39.08	0.000
Labrador Eye Screening*	121.43	43.74	571.71, 743.15	0.000
Intercept	657.43	43.74	571.71, 743.15	0.000

Table 2.10 – Mixed effects linear regression model for the cost of Labrador Retriever puppies sold online at either nextdaypets.com or puppyfind.com during a 14 week period between 23 June and 22 September 2008 across the United States. “Denotes referent group as “no.”

Characteristic	Internet Breeders	AKC Parent Club Breeders	p-value
Cost	\$736	\$1,396	0.0005
Any Breed Specific Health Screening	7/25 (28%)	21/25 (84%)	0.000
Accepts Returns at Any Time	10/25 (40%)	19/25 (76%)	0.01
Contract	17/25 (68%)	24/25 (96%)	0.01
Designer Dogs Sold	6/25 (24%)	0/25 (0%)	0.008
Vaccination	25/25 (100%)	25/25 (100%)	1.0
Veterinary Exam	18/25 (72%)	19/25 (76%)	1.0
Pedigree Provided	15/25 (60%)	23/25 (92%)	0.018
Dewormed	25/25 (100%)	23/25 (92%)	0.49
Spay/Neuter Contract	6/25 (24%)	20/25 (80%)	0.000
Support After Sale	25/25 (100%)	24/25 (96%)	1.0

Table 2.11 – A comparison of breeding practices of Internet breeders and AKC Parent Club breeders selected randomly and interviewed over the phone between October, 2009 and February, 2009.

Figure 2.1 – A comparison of the number of breed-specific health screening tests mentioned out of the total number of recommended screening tests between Internet breeders and Parent Club breeders during phone interviews conducted between October 2009 and February 2010.

2.4 Discussion

The cost of a puppy sold over the Internet is highly dependent on the breed of dog being sold. The characteristics which determine why one puppy of a particular breed costs more than another are largely unknown. In this study of 3,485 puppies sold online, champion bloodlines increased the advertised cost of a puppy in each of the five breeds studied. The designation of a puppy with champion bloodlines indicates that there is at least one champion dog in that puppy's pedigree.

Championship status indicates that a dog has earned 15 points in conformation shows, which are intended to evaluate breeding stock. Champion dogs are theoretically from more sound breeding stock than non-championed dogs although this has not been evaluated in the scientific literature. Puppy buyers pay a premium price for a puppy with a champion dog in its pedigree. When purchasing a puppy over the Internet, a buyer has no way to verify that there is indeed a champion in the puppy's pedigree. Additionally, a distant relative that is a champion is much less relevant to the puppy than a close relative. It is much more difficult for a buyer to evaluate the champion line of a puppy over the Internet. If a consumer purchases a puppy in person they can easily request to see the championship documents. As a result the buyer may end up paying for something that is not all that relevant to the puppy's health.

One of the most important findings from this study is the difference in the breed specific health screening done by Internet breeders and AKC Parent Club

breeders. Every breed of dog has a list of genetic or congenital diseases that are prevalent in that breed²⁸. The AKC Parent Club breeders routinely demonstrated a more thorough understanding of this fact, as demonstrated by their specific mention of these tests in their interviews. Additionally, these breeders were far more likely to screen their breeding animals for the recognized diseases of their breed. Efforts to screen breeding dogs and sterilize those dogs that contribute negatively to the health of the breed are very significant differences between AKC Parent Club breeders and Internet breeders. Breeding dogs without regard to their genetic contribution to the breed is not only potentially detrimental to the breed but also may potentially hurt the buyer^{29,30}.

Besides knowledge and use of breed-specific health screenings, this study found several other differences between the two groups of breeders. AKC Parent Club breeders were more likely to accept return of a puppy at anytime for any reason. While purchase of a puppy is usually considered to be a commitment that lasts the life of the dog, this is not always the case. A divorce, loss of a job, or death in the family may result in a consumer being unable to keep the puppy or dog. Purchasing a puppy from a breeder willing to accept responsibility for that dog should provide comfort to the new owner. In the event the dog cannot be kept, a safe home is already available. Additionally, breeders who accept these returns reduce the number of dogs euthanized or relinquished to shelters because the family can no longer care for them.

AKC Parent Club breeders were also more likely to have some sort of spay/neuter policy in tact. These policies ranged from providing only limited registration to actually having the puppy fixed prior to sale. Breeders that discourage

consumers from breeding their new puppy through use of a spay/neuter requirement help to reduce the number of unwanted dogs. Spay/neuter requirements also help to prevent indiscriminate breeding that could result in undesirable traits being passed on.

The differences between these two groups of breeders may or may not be relevant or obvious to consumers. As veterinarians, the results of this study can be used to guide clients in the selection of a breeder and a new puppy. Veterinarians can discuss with clients the value of breed-specific health screening tests and why a puppy from a breeder who performs these tests might be of higher value.

Veterinarians can also use this information to encourage breeders to participate in breed-specific health screening and other forms of preventive care for puppies. In both groups, only about 75% of puppies received a veterinary exam prior to sale.

Veterinarians should discuss with their breeding clients the importance of assessing the health of puppy prior to re-homing.

The geographic distribution of Internet breeders was not proportional to state population with Missouri, Arkansas, and Oklahoma being overrepresented. This may lend support to the idea that many large-scale commercial breeders are concentrated in this area of the country. Oklahoma is already trying to combat the issue of a high number of commercial breeders residing in the state with the introduction of legislation to regulate breeders³¹. In recent years many states have started to consider legislation to restrict these large breeding operations³². For example a California bill introduced to the House of Representatives would require licensing and inspection of all breeders who sell and raise 50 or more dogs yearly³³. The results of this study

show that this type of legislation may affect a number of breeders selling puppies over the Internet.

At this time there are significant concerns about USDA enforcement of the Animal Welfare Act regulations that protect breeding dogs^{34,35}. A government audit by the Office of the Inspector General (OIG) reveals the USDA fails to punish repeat offenders and overlooks many infractions. The report discusses five areas of concern: ineffective handling of problematic dealers, failure to document violations to support action against a dealer, failure to assess maximum penalties, misuse of guidelines to lower penalties, and large breeders avoiding regulation by selling puppies over the Internet³⁶. This report corresponds with the findings of this study that large numbers of puppies are sold online with no oversight. In an attempt to combat this loophole, a bill known as the Puppy Uniform Protection and Safety Act, has been submitted to the U.S. senate. The bill would amend the Animal Welfare Act and require all breeders selling 50 or more puppies a year to be licensed and inspected³⁷. This study lends support to the idea that bill of this type is needed to regulate breeders not currently subject to USDA regulation. Of course, this study does not represent all breeders who advertise online and the Internet may be a very useful way to market puppies.

As consumers become aware of some of the problems associated with large-scale commercial breeding facilities, local attempts to address the issue are increasingly likely. In Albuquerque, New Mexico, West Hollywood, California, and South Lake Tahoe, California the sale of puppies in pet stores has been banned³⁸. These bans are an attempt to decrease the demand for so called “puppy mill” puppies

and increase shelter adoptions. Unfortunately these isolated movements are unlikely to have an impact on the large-scale breeders because puppies will still be available in pet stores the next city over. Additionally, if puppy sales in pet stores are banned there will still be a large demand for puppies. This demand will need to be met somehow.

In Boxers, Labrador Retriever Retrievers, and Yorkshire Terriers the color of the puppy had an impact on the cost. Boxer puppies of an approved AKC color cost \$91.86 more than puppies that were not an AKC approved color. In Boxers the most frequently encountered non-standard color is all white. White Boxer puppies are frequently deaf, are prone to sunburn, and may experience an increased rate of skin disease³⁹. As a result of this knowledge, Boxer puppies of an approved AKC color cost more than those of a non-approved color. In Labrador Retriever Retrievers the most frequently encountered non-standard color is silver. In Yorkshire Terrier puppies, parti-color (or tri-color) puppies are the most frequently encountered non-standard color. At this time, these color variants are not associated with any adverse health outcomes. Due to the uniqueness of the colors, these puppies sell for an increased price compared to the approved colors of these breeds (a \$649.85 increase for Yorkshire puppies and a \$298.45 increase for Labrador Retriever puppies). As more is learned about the health of puppies with these color variations, they may decrease in value.

The cost of puppies sold by Internet breeders (\$736) was much less than the cost of puppies sold by AKC Parent Club breeders (\$1,396). The AKC Parent Club breeders were more likely to mention breed-specific health testing they performed on

their breeding stock. These tests are often expensive. Perhaps the puppies sold by AKC Parent Club breeders cost more because of the associated costs with screening breeding animals. These puppies may be of a higher value to consumers because of an increased value associated with testing the breeding animals and only breeding those with fewer genetic health problems. A potential buyer may also place more value on a puppy sold by a breeder who has evidence the puppy is less likely to be affected by some of the adverse health outcomes associated with the breed.

The twenty-seven refusals to complete the phone survey were split relatively evenly between Internet breeders 16/27 (59.2%) and AKC Parent Club breeders 11/27 (40.7%). AKC Parent Club breeders may have been more willing to complete the interview than these numbers suggest. Of the 11 Parent Club refusals, 9 (81.8%) were from English Bulldog breeders. E-mail was used to contact these breeders initially because phone numbers were not available. The additional steps required to participate in the survey may have resulted in a decreased response rate. If not for the increased refusal rate among AKC Parent Club English Bulldog breeders, the AKC Parent Club breeders may have had a much higher response rate suggesting more willingness to discuss breeding practices.

There is no perfect source for a puppy. The consumer needs to evaluate his/her needs and values in a puppy and then choose a source appropriately. Once a buyer has selected a source for a puppy, the source needs to be evaluated. One recommendation for consumers based on this study would be to ask many questions of your breeder. The breeder should be very knowledgeable about the breed and open to discussing their breeding practices. The buyer should also speak with the breeder

about the return policy. Establishing the return policy prior to purchase can eliminate stress in the unfortunate event the puppy cannot be kept. Finally, a consumer should inquire about the health of the breeding dogs. The health of the puppy's parents can have a large impact on the health of the puppy.

One of the limitations to this study was the sampling period was only during the summer months. There may be fewer puppies sold during the autumn and winter months, or, alternatively there could be a large spike associated with Christmas time. While the study provided some validation of survey data through the follow-up interviews, additional efforts to validate information collected from the websites would have improved this study. Another limitation is that breeders may not have advertised all of the characteristics associated with the puppies. For example, few breeders mentioned that puppies were dewormed in their Internet ads, but in the phone survey all of the Internet breeders stated they dewormed their puppies. It is possible that many breeders dewormed their puppies but simply failed to mention it in the advertisement. A recommendation for breeders from this study is to describe all of the work that goes into the puppies so that consumers can see all of the value associated with the puppy.

An ideal study to assess the health of puppies would be a prospective study that follows dogs from different sources over their lifetime. The study could compare the lifelong health and behavior outcomes for dogs from different sources. While this type of study would be difficult it is not out of the question. The Morris Animal Foundation recently announced a longitudinal study which will follow 1,000 Golden Retrievers over their lifetime to assess risk factors for cancer. Details of the study are

not yet available⁴⁰. An easier alternative would follow puppies from different sources through the first year of life. This sort of study would allow assessment of many congenital defects and behavior problems that might lead to puppy morbidity, mortality, and potential relinquishment to shelters. This information would be useful to guide consumers in making the best selection possible for a source to purchase a puppy.

Literature Cited

1. The American Kennel Club. Annual Report 2009. Available at: http://images.akc.org/pdf/2009_annual_report.pdf. Accessed May 17, 2010.
2. AVMA. U.S pet ownership & demographics sourcebook. Schaumburg: The American Veterinary Medical Association, 2007: pages 15-65.
3. The American Pet Products Manufacturers Association, Inc. APPMA National Pet Owners Survey 2007-2008. 1st ed. Greenwich: American Pet Products Manufacturers Association, 2009.
4. The Cabin website. Local Humane Society helping with shortage in Northeast. Available at: <http://thecabin.net/news/local/2009-12-18/local-humane-society-helping-shortage-northeast>. Accessed April 16, 2010.
5. PetSmart Charities Rescue Waggin' website. PetSmart Charities Rescue Waggin'. Available at: <http://www.petsmartcharities.org/rescue-waggin/>. Accessed April 16, 2010.
6. Terrificpets.com Website. Dogs for sale. Available at: http://www.terrificpets.com/dogs_for_sale/. Accessed May 16, 2010.
7. Animaroo.com website. Puppies for sale. Available at: <http://www.animaroo.com/puppies-for-sale.html>. Accessed May 5, 2010.
8. The AVMA website. Animal health: What you should know about selecting a dog. Available at: http://www.avma.org/animal_health/brochures/selecting/dog/selecting_dog_brochure.asp Accessed May 5, 2010.
9. The Humane Society of the United States. How to find a good dog breeder. Available at: http://www.humanesociety.org/issues/puppy_mills/tips/finding_good_dog_breeder.html. Accessed May 5, 2010.
10. Opposing Views website. Not Pretty: Animal Planet Investigates Petland. Available at: <http://www.opposingviews.com/i/not-pretty-animal-planet-investigates-petland>. Accessed May 16, 2010.

11. USA Today Paw Print Post. Dog protection: Missouri groups seek to end puppy mill cruelty. Available at: <http://content.usatoday.com/communities/pawprintpost/post/2010/05/dog-protection-missouri-groups-seeks-to-end-puppy-mill-cruelty/1>. Accessed May 16, 2010.
12. Fox23 website. Puppy mill bill set to make big changes. Available at: <http://www.fox23.com/news/local/story/Puppy-Mill-Bill-Set-to-Make-Big-Changes/Vb4VK43WRkqlQzH8hagl-w.csp>. Accessed May 16, 2010.
13. Wikipedia. Puppy mill. Available at: http://en.wikipedia.org/wiki/Puppy_mill. Accessed May 5, 2010.
14. The Humane Society of the United States. Consumer scan: Internet pet sales. Available at: http://www.humanesociety.org/animals/resources/facts/internet_pet_scams.html. Accessed May 5, 2010.
15. USDA APHIS Fact Sheet. Questions and answers on Animal Care's regulation of commercial animal dealers. Available at: http://www.aphis.usda.gov/publications/animal_welfare/content/printable_version/faq_animal_dealers.pdf. Accessed May 5, 2010.
16. USDA Active Breeders Data Sheet. Gibson, C. Personal communication. April 29, 2010.
17. The American Kennel Club website. Investigations and Inspections department. Available at: <http://www.akc.org/about/depts/investigations.cfm/>. Accessed May 16, 2010.
18. Ruble, Randall P. and Hird, David W. Congenital abnormalities in immature dogs from a pet store: 253 cases (1987-1988). *J Am Vet Med Assoc* 1993;202(4):633-636.
19. Scarlett, Jane M., Saidla, John E., and Pollcok, Roy V. H. Source of acquisition as a risk factor for disease and death in pups. *J Am Vet Med Assoc* 1994;204(12):1906-1913.
20. Hird, David W., Ruble, Randall P., Reagor, Stephen G. et al. Morbidity and mortality in pups from pet stores and private sources: 968 cases (1987-1988). *J Am Vet Med Assoc* 1992;201(3):471-474.
21. Fisher, MW and Mellor, DJ. Developing a systematic strategy incorporating ethical, animal welfare, and practical principles to guide the genetic improvement of dairy cattle. *New Zealand Veterinary Journal* 2008;56(3):100-106.

22. Drtiz, Steve S., Tokach, Michael D., Goodband, Robert D., et al. Effects of administration of antimicrobials in feed on growth rate and feed efficiency of pigs in multisite production systems. *J Am Vet Med Assoc* 2002;220(11):1690-1695.
23. Nath, Laura C., Anderson, Garry A., Savage, Catherine J., et al. Use of stored equine colostrum fro the treatment of foals perceived to be at risk for failure of transfer of passive immunity. *J Am Vet Med Assoc* 2010;236(10):1085-1090.
24. King, Michael E., Salman, M. D., Wittum, Thomas E., et al. Effect of certified health programs on the sale price of beef calves marketed through a livestock videotape auction service from 1995-2005. *J Am Vet Med Assoc* 2006;229(9):1389-1400.
25. The American Kennel Club. AKC Breeder Referral Contacts. Available at: http://www.akc.org/breederinfo/breeder_search.cfm. Accessed May 16, 2010.
26. State and County QuickFacts. U.S. Census Bureau State and County QuickFacts. Available at: <http://quickfacts.census.gov/qfd/index.html>. Accessed June 3, 2010.
27. Wikipedia. Dog hybrid. Available at: http://en.wikipedia.org/wiki/Dog_hybrid. Accessed May 5, 2010.
28. The American Kennel Club Canine Health Foundation. AKC Canine Health Foundation Searchable Grants Database. Available at: <http://www.akcchf.org/research/grants/search/index.cfm?search=breed>. Accessed May 16, 2010.
29. Hays, Laurel, Zhang, Zhiwu, Mateescu, Raluca G., et al. Quantitative genetics of secondary hip join osteoarthritis in a Labrador Retriever-Greyhound pedigree. *Am J Vet Res* 2007;68(1):35-41.
30. LaFond, Elizabeth, Breur, Gert J., and Austin, Connie C. Breed Susceptibility for Developmental Orthopedic Diseases in Dogs. *J Am Anim Hosp Assoc* 2002;38:467-477.
31. NewsOK. Oklahoma Gov. Brad Henry signs pet breeding regulation bill. Available at: <http://www.newsok.com/oklahoma-gov.-brad-henry-signs-pet-breeding-regulation-bill/article/3459351>. Accessed May 26, 2010.
32. The American Veterinary Medical Association Website. Revised state law goes after puppy mills. Available at: <http://www.avma.org/onlnews/javma/nov08/081115a.asp>. Accessed May 16, 2010.
33. The American Veterinary Medical Association Website. Federal law could increase scrutiny at dog breeding facilities. Available at:

<http://www.avma.org/onlnews/javma/nov08/081115b.asp>. Accessed May 16, 2010.

34. Googlenews. USDA fails to crack down on puppy mills. Available at: http://www.google.com/hostednews/ap/article/ALeqM5j_5pUfNNMDq7Knab1p-isxTdqgoAD9FU00A02. Accessed on May 26, 2010.

35. ASPCA News Alert. USDA fails to protect puppy mill dogs. Available at: <http://www.asPCA.org/news/national/05-28-10.html#1>. Accessed on June 3, 2010.

36. Summary Office of the Inspector General's (OIG) Report on Animal and Plant Health Inspection Service Animal Care Program Inspections of Problematic Dealers. Golab, G. Personal communication. May 31, 2010.

37. S. 3424. Puppy Uniform Protection and Safety Act. Golab, G. Personal communication. May 31, 2010.

38. msnbc.com No pups for sale? Cities ban pet shops. Available at: http://www.msnbc.msn.com/id/37359894/ns/health-pet_health/. Accessed June 3, 2010.

39. The American Boxer Club website. Coat colors in Boxers and the American Boxer Club. Available at: <http://www.americanboxerclub.org/white.html>. Accessed April 24, 2008.

40. The Morris Animal Foundation Website. National canine health initiative discussed. Available at: <http://www.morrisanimalfoundation.org/blog/category/dog/national-canine-health.html>. Accessed May 17, 2010.

Appendix: Phone Survey

Telephone Survey – Puppy Project – Parent Club/Internet interviews

Breed _____ Breeder Phone
Number _____

Internet vs. Parent Club breeder

Computer Entry date: _____

Introduction

Hi. My name is Hillary Voris. I'm a third year veterinary student from The Ohio State University in Columbus. We are conducting a research project to learn more about how puppies are advertised and sold.

Internet:

I saw your ad on Puppyfind.com or Nextdaypets.com. Do you have a few moments to answer some questions about your puppies?

Parent Club:

I found you through your club's breeder referral program. Do you have a few moments to answer some questions about your puppies?

Call Log

Date	Time	Result
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

Result Codes:

I Complete Interview
R Refusal / Breakoff (how, why)
CB Call Back (when – time to call back)
NC Non Contact (No Answer or Answering Machine)
O Other (answer phone but can't complete survey)
WN Wrong Number (no lost pet)
DISC Disconnect

Time Interview Began _____

Basic Info

1) What breeds of dog do you breed?

2) How many litters of puppies (of the breed of interest) have you had in the last year?

3) Do you sell mixed breeds/designer puppies?

Yes No

General questions

4) How much do your puppies cost?

5) Do you ship puppies? If NO skip to 6. If YES, what is the fee for shipment?

6) How were puppies advertised?

Internet

Newspaper

Word of mouth

Fancier magazines

Other _____

7) How old were the puppies when you sold them?

8) What colors of puppies do you sell?

9) Do you provide a copy of the parents' pedigrees?

Yes

No

9.a) Were the parents champions?

Yes -Both

No -Neither

Dam only

Sire only

10) Are the sire/dam on site?

Yes – Both

No – Neither

Dam only

Sire only

11) Are buyers welcome to visit?

Yes

No

Health Questions

12) Do you vaccinate your puppies before sale?

Yes

No

13) Do you worm your puppies before sale?

Yes

No

14) Do you provide a copy of health/vaccination records to the buyer?

Yes

No

15) Do your puppies get a veterinary exam before sale?

Yes

No

16) Do your puppies come with a health certificate?

Yes

No

17) Do your puppies come with a health guarantee? If NO – skip to 18. If yes, please describe.

18) Breed specific health questions (CHECK IF YES)

Shih Tzu – What health screening/testing do you have done on your breeding stock?

CERF Eye Clearance (annually) _____

JRD Mutation testing (once) _____

OFA Hip certification (after two years of age) _____

Additional optional tests: VonWillibrands, thyroid disorders and bile acid

Boxer – What health screening/testing do you have done on your breeding stock?

Hip/Elbow Dysplasia (once after two years/6 mos. of age) _____

Hypothyroidism (annually after two years of age) _____

AS/SAS (once after 2 years of age) _____

Boxer Cardiomyopathy (annually after 1 year of age) _____

Bulldog– What health screening/testing do you have done on your breeding stock?

Patellar Luxation – OFA evaluation after 1 year of age _____

Congenital Cardiac Database – OFA, exam using Echo preferred _____

Yorkshire Terrier – What health screening/testing do you have done on your breeding stock?

CERF Eye Clearance at 1, 3 and 6 years of age _____

Patellar Luxation – OFA evaluation _____

Additional optional tests: Legg-Calve-Perthes (OFA), Serum Bile Acid (OFA), Autoimmune Thyroiditis (OFA), Cornell DNA Bank, Hip Dysplasia (OFA)

Labrador Retriever– What health screening/testing do you have done on your breeding stock?

Hip Dysplasia (OFA or GDC) _____

Elbow Dysplasia (OFA or GDC) _____

CERF Eye Clearance _____

Optional: CNM evaluation

Contract Questions

19) Are puppies sold with a written contract?

Yes

No

19a) Do you require spay/neuter? If NO – skip 20. If YES, how do you enforce?

20) Do you sell puppies to pet only, show homes, or both? (circle)

21) Are puppies sold with permanent identification? If NO – skip to 22. If YES, what form?

22) Do you have a return policy? If NO – skip to 23. If YES, what is it?

23) Do you provide support for the buyer after the sale? If NO – END. If YES, how?

Time Interview Ended: _____

^a Microsoft Office Access 2007, Microsoft Corporation, Redmond, Wash.

^b Microsoft Office Excel 2007, Microsoft Corporation, Redmond, Wash.

^c <http://www.ytca.org/>

^d <http://www.thelabradorclub.com/>

^e <http://www.thebca.org/>

^f Stata, version 11.0, StataCorp, College Station, Tex.