

# Healthcare Costs Associated with Specific Dog Breeds

## Veterinary Costs Owners Should Anticipate for Purebred dogs

**Tag Words:** Veterinary costs, Dog Breed, Canine Disorders, Pedigree

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### Summary:

The health of canines and their likelihood of developing diseases based on selective breeding as well as genetic linkages are discussed. The most common 35 breeds in the USA and the diseases they are most susceptible to acquiring, perhaps due to selective inbreeding are examined. We have estimated the veterinary costs associated with owning specific dog breeds and have provided this information on top search internet sites so individuals wishing to own a purebred dog would have some idea of what veterinary costs to expect.

### Video Link:

[https://www.youtube.com/watch?v=BxPmElKB0hA&list=UUts4\\_1WyqXMmVDfu9ZffstA](https://www.youtube.com/watch?v=BxPmElKB0hA&list=UUts4_1WyqXMmVDfu9ZffstA)

## The Breeding from Wolf to Dog to Pedigree

### Background Information

In today's society, dogs are a common household pet that are admired for their personalities and appearances based on their breed. There are about 400 breeds that can be identified today that all descend from the genus *Canis*; also known as the wolf. However, when you look at the wolf's appearance and then look at some of the breeds today, such as pomeranians and poodles, or even larger breeds, such as great danes or bernese mountain dogs, they do not seem to bear any resemblance to their most recent ancestor.

This is due to the fact that over the past 200 to 300 years there has been this phenomenon of selective breeding that has taken place, which has produced the breeds that we see today (1). From the outside selective breeding appears to have been beneficial. It has yielded many different breeds for different purposes and allowed people to pick the traits each breed exudes. However, this unnatural selection of traits and characteristics has actually put these breeds at a huge disadvantage health wise; putting the welfare and wellbeing of the animal in jeopardy, all for the aesthetic appearances that define each breed. The standards for each breed are determined by The Kennel Club and are based on the animal's appearance, so each breed is clearly identifiable when they are viewed. These standards do not take into account the breeding that has gone on as well as if these sets or standards are what is best for the animal's health. But because this is the standard, every breeder tries to replicate this image in the pursuit of producing the best offspring in

that breed. In retrospect they are actually producing more at risk offspring with higher probabilities of disorders instead of exemplar, healthy animals to continue to breed.

### **Selective Breeding**

Selective breeding is a type of breeding that can be used in anything from plants and agriculture to animals. It is a type of artificial selection where humans choose the traits that will be passed onto the next generation, based on the outcome they are trying to achieve. Selective breeding in dogs has been going on for over 200 years and it is the reason that there is such diversity of breeds seen today (1). Originally, many dogs were bred for purposes such as hunting or guarding and were used by farmers and hunters to aid them in their life as well as serve as a companion.

However, this changed in the mid 1800's when breeding became more of a hobby than for a purpose (1). This change brought about the first dog show, where all the dogs who were being presented had to look a particular way based on which breed they were. From this day forward, the idea of aesthetic breeding began. In moderation, this technique of breeding would not have any major health risks to the animal. Small changes in appearance to make them more productive and efficient would actually improve their health, not diminish it. However, breeders have emphasized certain traits to an extreme level and it has compromised animal health and welfare in a lot of breeds.

Depending on the breed, some traits have been emphasized to the point where they limit behavior, mobility, and quality of life. The big knock against selective breeding is that it reduces genetic diversity within a breed and therefore increases the susceptibility and popularity of breed specific diseases that are inherited genetically (2). Within a certain breed, if there are two dogs that are bred to accentuate the same specific traits, the gene pool between those two animals is going to be very similar and the genetic diversity will be low. Therefore with this little of genetic diversity, any two individuals within the breed can be related to each other on some genetic level which leads to an increased risk of inherited genetic diseases within the breed (2). This also creates a problem once a disease or problem enters the breed because it is hard to get out without introducing it to another breed.

It is interesting to note that those dogs that still have a more wolf-like appearance are overall healthier than those that have been completely changed such as the toy dogs; like pugs (2). Pugs have been selectively bred to have a flattened face, which was selected based on appearance; not functionality. The consequence of this choice is that this breed has significant breathing problems since their nasal cavities have been made extremely short. Researchers have also found a correlation between the size of an animal and the prevalence of orthopedic problems, but dogs are being bred too big for their own good and are at risk of hip dysplasia (3). Dogs that are too small for their own good are at risk of luxating patella's or elbows. It all comes back to what traits are being selected for. It is pretty clear through multiple exams that the traits being selected for are not improving the welfare or health of these animals so what are we selecting for? In a New York Times

article about the bulldog, a woman was asked why she was attracted to a breed that was known for having one of the highest health issues (4). Her response demonstrated what we select for; anthropomorphic selection (4). Anthropomorphic selection is when human mental states such as thoughts, feelings, and motivations are attributed to non-human animals. This principle relates to dogs because they are being bred for what humans desire to look and interact with, which is “cute”. The women described the adult bulldogs as “plump little babies” completely disregarding all of their health problems that come with being so plump and little. And although these problems are associated with the confirmation of the bulldog, owners and breeders wouldn’t have their breed any other way, because that look is the bulldog (4).

### **Pedigree Dogs**

In order to be called and registered as a “pedigree dog,” the animals mother and father must be registered and of the same breed (5). Therefore, pedigree dogs are an extension of selective breeding. The idea behind a pedigree is that there is a record of ancestry associated with a dog that proves that it is pure to the breed and has not been mixed with any other. Although there is a prestige that goes along with this name, due to selective breeding, pedigree dogs are actually at a higher risk and have a lower overall quality of health than those dogs that are mixed; a.k.a mutts (5). It all comes down to a genetic gene pool. In humans, it is unwise as well as illegal to reproduce with a sibling, parent, cousin or grandparent because the genetic pools are too close to each other and there is a higher probability of a problem or mutation resulting in the offspring.

However, in pedigree dogs, a lot of inbreeding has taken place in the past to ensure that the breed and is “pure.” This has caused a multitude of problems and is a big reason why some breeds are in problemated states today. We see a lot of examples of this in different breeds; one example is the Cavalier King Charles Spaniel (6). Major inbreeding took place where brother and sister were mated together. As a result, all of today’s cavaliers descended from 6 dogs (6). The breed is now highly susceptible to syringomyelia, a disease that is extremely rare in most breeds. Syringomyelia is a condition where the back half of the skull is too small for the dog’s entire cerebellum to fit, therefore it squeezes through a hole at the back of the skull (foramen magnum) and partially blocks the CSF; creating pressure (6). Researchers in the breed estimate that 95% of the dogs within the breed have the skull bone malformation and that 50% of those animals have syringomyelia (6). This condition is an autosomal recessive trait; therefore in order to get this condition you have to have the mating of two animals that both carry the recessive alleles. To have a breed that has 50% of its animals infected with a recessive condition, it speaks to the amount of genetic diversity there is. This low diversity comes from practices such as inbreeding, so this just goes to show the real effect this type of breeding can have on a population.

### **Inherited Diseases**

There are a number of inherited diseases based on breed. Here we will discuss the most prominent of the disorders based on class that they animals compete under in shows.

Working Group: This group is composed of dogs that were bred to guard property and pull sleds. After researching the top 35 most common breeds in the US, the breeds that fall under the working group from they are the: *Boxer, Bernese Mountain Dog, Mastiff, Rottweiler, American Bulldog, Doberman Pinschers, Siberian Huskies and Great Danes* (7). Although some breeds have their own specific disorders, the common ones throughout this class of dog are hip dysplasia, progressive retinal atrophy and cataracts (8). In all but huskies there is prevalence for hip dysplasia, and in all but huskies and Bernese Mountain dogs there is a high incidence of cardiomyopathy (8).

Sporting Group: This group is composed of dogs that were bred to participate in hunting and other field activities. After researching the top 35 most common breeds in the US, the breeds that fall under the sporting group from they are the: *Brittany, Cocker Spaniel, German shorthair Pointers, Golden Retriever, Labrador Retriever, Weimaraners an English Spaniels* (7). For this group not all disorders are as evenly distributed, but there are still multiple breeds affected by the same disorder. Labs and golden's are susceptible to hip and elbow dysplasia as well are very prone to cancer (8). They are both susceptible to heart disease as well along with cocker spaniels (8). The German shorthaired pointer and the Brittany are the least at risk within this group, only being susceptible to entropion and hip dysplasia (8). The English springer spaniel is prone to disc disease while the Weimaraners can suffer from a condition called osteodystrophy (8).

Hound Group: This group is composed of dogs that were bred for their stamina in order to be usefully in the pursuit of the hunt. After researching the top 35 most common breeds in the US, the breeds that fall under the hound group from they are the: *Beagles and Dachshunds* (7). The common problems between these two breeds are eye disorders such as cataracts (8). The problems associated with dachshunds have to do with their low back and slung spines which can end up in a pitched, herniated or ruptured disk if they have an off movement (8). Beagles can suffer from intervertebral disk disease but are overall a fairly healthy breed (8).

Terrier Group: This group is composed of dogs that were bred to hunt and kill vermin. After researching the top 35 most common breeds in the US, the breeds that fall under the terrier group from they are the: *West Highland White Terrier and Miniature Schnauzer* (7). Both breeds are susceptible to Legg-Calvé-Perthes disease, which is a deformity of the ball of the hip joint, which causes the bone to eventually degrade due to lack of blood supply (8). Miniature Schnauzers are very prone to a number of eye disorders such as entropion and retinal atrophy (8). West Highland's are prone to luxating patellae due to their small frame as well as Westie Lung disease, which can cause serious progressive breathing problems (8).

Toy Group: This group is composed of dogs that were bred to be companionship animals for humans. After researching the top 35 most common breeds in the US, the breeds that fall under the toy group from they are the: *Cavalier King Charles Spaniel, French Bulldog, Havanese, Chihuahua, Maltese, Shih Tzu, Pug, Pomeranian, Yorkshire Terrier and the Poodle* (7). Within this group every breed except the poodle is susceptible to

luxating patella's due to their small form as well as dental issues such as periodontal disease from their crowded small mouths. Yorkshire Terriers, Shih Tzu, Pomeranian, Havanese, French bulldog, and Pugs all suffer from Legg-Calvé-Perthes disease as well as most of these breeds have respiratory problems due to their short-headedness and compressed facial bones and tissues (8). Cavalier King Charles Spaniels can suffer from syringomyelia, which is not a common disorder but is very prevalent within the breed (8). Pugs and French bulldogs can also be born with a spinal cord condition where the bones are deformed due to the shortness of their body and their tails (8).

Non-Sporting Group: This group is composed of a very diverse group of dogs of different sizes and coats. After researching the top 35 most common breeds in the US, the breed that falls under the non-sporting group is the: *Boston Terrier* (7). Just like many other small breeds, the Boston terrier is at risk for a number of eye disorders due to their bulging eyes and flat faces, as well as the same spinal cord conditions pugs are susceptible to, hemivertebrae, due to corkscrew tail (8).

Herding Group: This group of dogs is composed of dogs that were bred for their ability to control the movement of other animals. After researching the top 35 most common breeds in the US, the breeds that fall under the herding group form they are the: *Collie, Pembroke Welsh Corgi, German Shepherd, Australian Shepherd and Shetland Sheepdog* (7). All except for the collie can suffer from hip dysplasia (8). All of these breeds are susceptible to many different genetic eye disorders such as progressive retinal atrophy and different types of cataracts (8). Both the German shepherd and the Pembroke Welsh corgi can possess degenerative myelopathy, which leads to a slow creeping paralysis of the hindquarters (8). The collie, Australian shepherd and the Shetland sheepdog also all are prone to a genetic mutation (MDR1), which makes them sensitive to a number of common veterinary drugs and vaccinations (8).

## Solutions

It is no secret that there are a lot of different health problems that have arisen over the years due to selective breeding practices that have also lead to inbreeding in order to get the pedigree lines that we see today. However, there have been actions and initiatives taken in order to try and make sure that breeding becomes cleaner, and that we try and breed away from these harsh diseases and disorders.

<u>Disorder</u>	<u>Screening Option</u>	<u>Notes</u>
Hip Dysplasia	X- ray of the hip	This screening should be done by the breeder, and should keep track of the prevalence of this in their lines
Cardiomyopathy (Cardiac Disease)	Cardiac Exam, potentially followed by other tests to exclude all other diseases	There is no way to prevent this disease, but early screening can help identify changes in the dog before early onset occurs. This screening should be done by the breeder and no dogs should be bred with this condition

Bloat/ Gastric Torsion	No Screening	There are no screening options. Animals that have a history in there pedigree of this condition are at a higher risk. Larger animals have a higher risk.
Aortic/ Subaortic Stenosis (Cardiac Disease)	Murmur, Radiograph, Echocardiograph	It is inherited in virtually all cases. If it runs in the lines of a litter, all of the dogs should be tested. Any animal affected with this should not be bred
Progressive Retinal Atrophy (PRA)	Prcd-PRA Test	This is a genetic test done on a small sample of blood, and it tests the specific DNA mutations that lead to prcd-PRA. It is a homozygous recessive gene, so only animals with both recessive alleles are affect.
von Willebrand's disease	VetGen Test- vWD	DNA test that allows you to distinguish if the animal is a carrier, clear or affect. Screening should be done in lines if it is prevalent.
Disc Disease	No Screening	This type of disease occurs due to a force applied to the spinal cord. Different breeds are more susceptible to this due to the conformation of their back and spine.
Autoimmune Hemolytic Anemia (AIHA)	CBC (complete blood count)	Seems to be a genetic disposition to this condition, therefore all dogs should be tested if it is in the line of a breed.
Hypertrophic Osteodystrophy	Physical Exam, X-ray at the end of the ulna, radius or tibia	The cause of this disease is unknown. Pedigree should be taken into consideration if this is within a line. Usually affects young, rapidly growing large breeds.
Hyperuricosuria	VGL DNA test	The test is collected from buccal swabs to understand who is a carrier, clear or affected. If there is history of kidney stones or bladder stones than this test is recommended as well.
Legg-Calve-Perthes disease	Physical Exam, Radiographs	Dog may show signs of lameness, can be confused with hip dysplasia. Affects a number of small breeds. It is an inherited disorders so compromised animals should not be bred.
Addisons Disease	No Screening	This is a chronic disease, so it develops gradually with increasing signs. If you run tests at a young age you may find nothing but as the animal matures signs could start appearing. There is a genetic disposition to this disease so infected lines should be monitored.
Syringomyelia	MRI	Experts believe this is a genetically inherited trait; therefore all lines that are affected should be tested. Any animal found to have this condition should not be bred.
Cognental	Ultrasounds, CT, MRI	Exact cause is unknown, however there is a predisposition to it in some breeds. No animal with this defect should be bred.
Multiple Drug	MDR1 Test	Can get your animal tested at Washington State

Sensitivity		University. The sensitivity results from a mutation of the MDR1 gene. Certain breeds are predisposed to this disorder such as Collies and related breeds, therefore they should be tested.
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Having screening testing and making breeders and potential buyers more aware is only half the battle. The problems these breeds have are coming from the breed standards, which are dictating what is selected for in these animals. More emphasis needs to be placed on health rather than aesthetic features. The Kennel Club has put more emphasis on this and has actually rewritten some of the standards for certain breeds in an attempt to try put the health of the breed before the appearance. However, it is the breeders and the breed organizations that must be convinced that by focusing more on the health instead of the features, that they'd be improving the wellbeing of the breed without actually losing or changing the breed.

**Community Action: Providing the Consumer with Information on the Veterinary Costs Associated with Owning Specific Breeds**

Disease is not something that has occurred simply due to poor breeding techniques. Even with the best of practices, animals can still develop different problems based on other factors such as diet and the environment they are exposed to. However, there are some diseases/disorders that are known to be hereditary. This means that if an infected animal is bred, it will pass along its problem to the next generation. The diseases and disorders that are passed along this way come down to breeding. A reputable breeder is someone who takes advantage of screening and knows the problems in their lines. Along with that, they are someone who would never breed an animal who has one of these hereditary disorders, in order to make sure that it is not passed on to the next generation in their breeding practice.

This seems very intuitive; do not breed an unhealthy animal. However, there are many instances that the animal has an extremely beautiful conformation, temperament and colours but has an underlying problem. A questionable breeder would prioritize the animal's aesthetic features over their overall health, and the overall health of their lines. As a consumer, you have to be smart in deciding which breeder you are going to be selecting an animal from. Aesthetically the animal could be the prettiest you have ever seen, however, that does not guarantee health and overall happiness in its life.

Disease and problems with a pet is not only taxing on the animal, but it is also taxing on the owner, emotionally as well as financially. The emotional stress of watching an animal suffer helplessly is something that you cannot put a price on. It is extremely heartbreaking and for anyone who has watched his or her own pet go through an experience like that, and it is something that can never be forgotten. Financially however, a price can be put on poor breeding.

The following charts will attempt to demonstrate the price associated with poor breeding practices. The most popular 35 breeds in the USA were selected and the most common

hereditary disorders for each breed are listed beside them. The vet price is a compilation of treatments used in order to treat these multiple disorders, which can be seen in the second chart.

The point of this is not to compare each breed to see which has the lowest cost. The chart will demonstrate that some breeds are susceptible to less hereditary disorders than others and therefore have a lower cost even if poor breeding techniques are used. However, this chart is to bring awareness to the consequences of poor breeding based on breed. By being aware of this and doing research to find a reputable breeder, the financial cost associated with each breed will go down, as well as the longevity and health of the dog should go up. At the end of the day, the relationship between owner and dog is a special bond. By picking a breeder dedicated to the animals health first and aesthetic appearance second, that bond has a much better chance of living out its time; instead of becoming interrupted with complications followed by high financial and emotional stress.

<b>Breed</b>	<b>Disorder(s)</b>	<b>Vet Price (via. Treatment Table)</b>
Labrador retrievers	Elbow dysplasia Hip dysplasia Retinal dysplasia	<b>\$ 5,569.98 - \$ 11,869.98</b>
German shepherd	Degenerative myelopathy Exocrine pancreatic insufficiency Hemophilia Hip dysplasia Nodular dermatofibrosis Pannus Panosteitis Perianal fistula	<b>\$4,669.48 - \$10,669.48</b>
Beagles	Pulmonic stenosis	<b>\$4,017.49</b>
American Bull Dogs	Brachycephalic syndrome Hip dysplasia Keratoconjunctivitis sicca Pulmonic stenosis Ventricular septal defect	<b>\$8,657.49 - \$14,647.49</b>
Yorkshire terriers	Patellar luxation Portosystemic shunt Retinal dysplasia Tracheal collapse	<b>\$7,047.49 - \$7,547.49</b>
Boxer	Aortic stenosis Cardiomyopathy Corneal dystrophy	<b>\$4,120 - \$4,160</b>



Poodles	Gastric dilatation-volvulus Sebacous adenitis	<b>\$4,517.49</b>
Rottweiler	Aortic stenosis Elbow dysplasia Hip dysplasia	<b>\$ 9,629.98 - \$15,929.98</b>
Dachshund	Acanthosis nigricans Intervertebral disk disease	<b>\$5,077.99</b>
Shih Tzu	Exposure Keratopathy syndrome	<b>\$1,580 - \$2,080</b>
Doberman Pinscher	Cardiomyopathy Cervical vertebral instability (Wobbler syndrome) Intervertebral disk disease von Willebrand's disease	<b>\$11,150 - \$11,190</b>
Miniature Schnauzer	Extrahepatic portosystemic shunt Sick sinus syndrome	<b>\$9,557.49</b>
French Bulldog	Cataract Distichiasis Hemophilia A (factor VIII)  ***these can be inherited but occur sporadically in the breed; there are no disorders that are relatively common within this breed that breeders need to be careful about***  relatively healthy	<b>\$2,500 - \$3,600</b>
German Shorthair pointer	Hip dysplasia	<b>\$2,017.49 - \$8,017.49</b>
Siberian Husky	Degenerative myelopathy Epilepsy Lupus erythematosus Ventricular septal defect Von Willebrand's disease ***These can be inherited but occur sporadically in the breed; there are no disorders that are relatively common within this breed that breeders need to be careful about***	<b>\$2,12.49</b>
Great Dane	Cardiomyopathy Cervical vertebral instability (Wobbler syndrome) Gastric dilatation-volvulus Hip dysplasia	<b>\$12,607.49 - \$18,647.49</b>

Chihuahua	Patellar luxation	<b>\$3,000</b>
Pomeranian	Patent Ductus arteriosus	<b>\$4,500- \$5,000</b>
Cavalier King Charles Spaniel	Mitral valve disease	<b>\$60- \$100</b>
Shetland Sheep dog	Collie eye anomaly Deafness Dermatomyositis Patent Ductus arteriosus Von Willebrand's disease	<b>\$4,585 - \$5,095</b>
Australian Shepherd	Deafness Hip dysplasia	<b>\$2,062.49 - \$8,072.49</b>
Boston Terrier	Brachycephalic syndrome	<b>\$2,530</b>
Pembroke Welsh Corgis	Cystine Urolithiasis Dermatomyositis Epilepsy Progressive retinal atrophy ***these can be inherited but occur sporadically in the breed; there are no disorders that are relatively common within this breed that breeders need to be careful about***	<b>\$1,950</b>
Maltese	Patent Ductus arteriosus	<b>\$4,500 - \$5,000</b>
Mastiff	Hip dysplasia Pulmonic stenosis	<b>\$6,034.98 - \$12,034.98</b>
Cocker Spaniel	Retinal dysplasia Seborrhea	<b>\$17.99</b>
Havanese	Progressive retinal atrophy Retinal dysplasia	<b>\$0</b>
English Springer Spaniel	Hip dysplasia Phosphofructokinase (PFK) deficiency Retinal dysplasia Seborrhea	<b>\$3,535.48 - \$9,535.48</b>
Pug	Keratoconjunctivitis sicca	<b>\$110</b>
Brittany	Retinal dysplasia Ventricular septal defect	<b>\$0</b>

Weimaraners	Hip dysplasia	<b>\$2,017.49 - \$8,017.49</b>
Bernese Mountain Dog	Aseptic meningitis Elbow dysplasia Hip dysplasia	<b>\$5,569.98 - \$11,869.98</b>
Collie	Collie eye anomaly Dermatomyositis	<b>\$40</b>
West Highland White Terrier	Craniomandibular osteopathy (Westie jaw) Keratoconjunctivitis sicca Seborrhea	<b>\$2,177.99</b>

Treatment Table:

Each hereditary disorder can have either a surgical or medical option and in some cases both. There is an average price associated with each option, and in order to get the total price associated with each breed, both must be accounted for and summed up.

*\*\*\*Figures were provided by Red Bank Veterinary Hospital, NJ. These are ballpark estimates. Exact amounts vary by weight and breed combination as well as the specific veterinary hospital. Contact your veterinary hospital to get exact prices for your animal. \*\*\**

Treatment	Surgical	Avg Price	Medical	Avg Price
Elbow Dysplasia	1. Surgery	1. Bilateral: <b>\$3500- \$3800</b>	Low impact water exercise (swimming); special weight control diet; non- steroid anti-inflam pain drug	Purina Healthy Weight: <b>\$ 17.49</b> • 30 min session in pool/h <b>35\$</b>
Hip Dysplasia	1. Triple Pelvic Osteotomy (TPO): >10 months 2. Juvenile Public Symphysiodes is: (must be done before 20 weeks of age) 3. Hip Replacement: For chronic hip dysplasia 4. Femoral Head and Neck	<b>1. \$4000 2. \$2000 3. \$8000 4. \$2500</b>	Can control diet, exercise, supplements, anti-inflam drugs and pain relief drugs can be used to decrease the progression of the disease	Purina Healthy Weight: <b>\$17.49</b>

	Excision: (weigh less than 40 lb's for best result)			
Retinal dysplasia	NONE	N/A	NONE	N/A
Degenerative myelopathy (DM)	NONE	N/A	Supportive care is the only option; physical therapy can slow the progression, as well as water- based techniques	- 30 min pool session - <b>\$35</b>
Exocrine pancreatic insufficiency	NONE	N/A	Successfully treated with a combination of enzyme supplementation, antibiotics, B12 injections, dietary control	- Purina Healthy Weight: <b>\$17.49</b> - Viokase- V Powder enzyme supplement: <b>\$ 149.95 (8oz)</b>
Hemophilia/ VWD	- Becomes relevant after a dog has had a surgery or are injured due to the inability to clot	N/A	Blood transfusion, replacement of blood products if needed, medication	N/A
Nodular Dermatofibrosis	1. Nodules surgically removed	<b>1. \$1800</b>	Monitor kidney function, if kidney disease develops needs a special diet and <b>fluid therapy</b>	Lab work - <b>\$200</b> Price of Fluids per month - <b>\$40</b>
Pannus	NONE	N/A	Topical corticosteroids are used as well as antibiotics sometimes if infection develops	Topical corticosteroid - <b>\$40</b> Anti-inflam drugs - <b>\$60/ week</b>
Panosteitis	NONE	N/A	Anti-inflam drugs are prescribed for pain and to encourage walking; steroids can minimize inflammation in bones	Anti-inflam drugs - <b>\$60/ week</b>

Perianal Fistula	NONE	N/A	Mild cases: cyclosporine, ketoconazole are prescribed for 16-20 weeks; topical tacrolimus Other: increase ventilation, careful bathing is a palliative measure	Topical Tacrolimus - <b>\$250</b> per bottle
Pulmonic Stenosis	1. Balloon valvuloplasty 2. Balloon Catheter dilation	<b>1. \$4000</b> <b>2. \$4000</b>	Diet restrictions, stress free environment; dependent upon how severe the form is	- Purina Healthy Weight: <b>\$17.49</b>
Patellar Luxation	1. Patellar luxation correctional surgery (Grade 4)	<b>1. \$3000</b>	Grade 1: kneecap can be manipulated out of its groove and returns to normal position Grade 2: kneecap moves out of groove and can be replaced by manipulation Grade 3: Kneecap rides out of groove most of the time but can be put back via Manipulation	N/A
Portosystemic shunt	1. Enema	<b>1. \$30/</b> <b>enema</b>	Usually stabilized with special diets and medications to control toxins produced and absorbed in the large intestines	N/A
Tracheal Collapse	1. Surgery 2. Placing a Stent	<b>1. \$4500</b> <b>2. \$4000</b>	Weight loss, medications to reduce airway spasms and inflammation, sedation to reduce coughing and anxiety	- Purina Healthy Weight: <b>\$17.49</b>
Aortic Stenosis	1. Cardiac catheterization	<b>1. \$4000</b>	Mild cases: no specific treatment other than avoiding	Beta-blockers - <b>\$60</b> per month

			strenuous exercise, especially in hot weather Can be prescribed beta-blockers (protect heart muscle and reduce that amount of irregular heartbeats)	
Cardiomyopathy	NONE	N/A	May be treated with a combination of (Furosemide, Enalapril, Digoxin, Beta-blockers, Nutritional supplements)	Furosemide, Enalapril, Digoxin, Beta-blockers, Nutritional supplements can range from <b>\$60-\$100</b> per month
Corneal Dystrophy	NONE	N/A	No medication	N/A
Gastric Dilation – Volvulus	1. Surgery (full exploration of abdomen and de-rotation of stomach)	1. <b>\$4500</b>	Stabilization of the animal is most important. Intravenous fluids and oxygen therapy followed by gastric decompression.	N/A
Sebaceous Adenitis	NONE	N/A	Frequent administration of shampooing and antimicrobial solution. Fatty acid supplements may be recommended	Synergylabs Vet formula Antiparasitic/ Anti-seborrheic shampoo - <b>\$17.99</b>
Acanthosis nigricans	NONE	N/A	Regular bathing with anti-seborrheic shampoos,	Synergylabs Vet formula Antiparasitic/ Anti-seborrheic shampoo - <b>\$17.99</b>
Intervertebral disk disease	1. Stage IV – surgery 2. Stage V – surgery	1. <b>\$5000</b> 2. <b>\$5000</b>	Stage II/III – treated with anti-inflammatory drugs, pain relievers and limited exercise	Anti-inflam drugs - <b>\$60/ week</b>
Exposure Keratopathy syndrome	1. Surgery (to correct eyelid abnormalities/ improve function)	1. <b>\$1500-\$2000</b>	Eye drops to improve tear quality or quantity	Eye drops are <b>\$80</b> per bottle
Wobbler Syndrome	- 21 different types of surgery	1. <b>\$6000</b>	Use of anti-inflammatory drugs	Anti-inflam drugs - <b>\$30</b> per month

	due to several factors that must be taken into account (Please give the amount based on the surgery that is used the most/ if there is not one, the most expensive surgery)		with restricted activity	
Portosystemic Shunts	1. Surgical attenuation or full ligation of abnormal shunt vessel	1. <b>\$4500</b>	Need to be stabilized in order for surgery to become an option; use low protein diet, antibiotics and lactulose	Purina Vet Diets NF kidney function Dog Food (18lb) - <b>\$57.49</b>
Sick Sinus Syndrome	1. Pacemaker implantation	1. <b>\$5000</b>	Certain medications may temporarily improve heart rhythm	N/A
Cataract Distichiasis	1. Surgical removal of defective lens	1. <b>\$2500/</b> one lens <b>\$3600/</b> both lens	N/A	N/A
Epilepsy	NONE	N/A	Physical exam, phenobarbital/ potassium bromide can be prescribed to control seizures	Phenobarbital/ potassium bromide about <b>\$80</b> per month
Lupus Erythematosus	NONE	N/A	Serious: may require hospitalization Mild: enforce rest, if kidneys are affect – protein restricted diet enforced, immunosuppressive drugs, corticosteroids	Topical corticosteroid - <b>\$40</b> Purina Vet Diets NF kidney function Dog Food (18lb) - <b>\$57.49</b>
Ventricular septal defect	Surgical options are used <b>seldom</b> 1. Pulmonary Artery Banding 2. Open- Heart Surgery (only done in 10 veterinary centers world wide – high risk)	Both options are going to require a lot of time and effort to find hospitals that will perform the	Special diet and medications are being given, exercise restriction	N/A

		procedure		
Patent Ductus Arteriosus	1. Surgery	<b>1. \$4500-\$5000</b>	Ease coughing or breathing difficulties prior to surgery	N/A
Mitral Valve Disease	NONE	N/A	Drugs/ treatment to improve heart function: (ACE inhibitors, Diuretics, Nitroglycerin, Digitalis, Vasodilators, Beta-blockers, Low salt diet)	These medications can range from <b>\$60-\$100</b> per month
Collie Eye Defect	NONE	N/A	Monitoring	N/A
Deafness	NONE	N/A	Wax build up – clean daily with a prescription wash, can also remove the hair, infections should be treated with medications	Trip to examine ear at the vet - <b>\$45- \$55</b>
Dermatomyositis (DM)	NONE	N/A	Usually treated with steroids	Steroids - <b>\$40</b> per month of supply
Brachycephalic Airway syndrome	1. Surgery (stenotic nares can be corrected/ everted laryngeal saccules can be removed)	<b>1. \$2500</b>	For mild/ intermittent symptoms: control exercise level, avoid hot/humid weather, anti-inflammatory medications to relieve respiratory stress	Anti-inflam drugs - <b>\$30</b> per month
Cystine Urolithiasis	1. Surgical removal of stones	<b>1. \$1800</b>	Drugs to increase pH of urine (enhance solubility of crystals), fluid therapy, urohydropulsion	Anti-inflam drugs - <b>\$30</b> per month
Progressive Retinal Atrophy (PRA)	NONE	N/A	NONE	N/A
Seborrhea	NONE	N/A	Omega-3-fatty acids, antiseborrheic shampoos, moisturizers, oral cyclosporine, antibiotics - for bacterial infections	Synergylabs Vet formula Antiparasitic/ Anti-seborrheic shampoo - <b>\$17.99</b>



Phosphofructokinase deficiency (PFK)	NONE	N/A	May require a blood transfusion during an episode of bleeding; avoid stressful/ exciting situations that cause animal to bark	Price of Blood Transfusion - <b>\$1500</b>
Keratoconjunctivitis Sicca	NONE	N/A	Treated with cyclosporine/ tacrolimus. Some require topical antibiotics or anti-inflammatory meds	Cyclosporine/ tacrolimus - <b>\$80</b> per bottle Anti-inflam drugs - <b>\$30</b> per month
Aseptic Meningitis	NONE	N/A	Treated with immunosuppressive drugs (prednisone)	Immunosuppressive drugs (prednisone) - <b>\$30</b> per month
Cranio-mandibular Osteopathy	1. Surgery (put in stomach tube) – for severe cases	1. <b>\$2000</b>	Pain relievers and anti-inflammatory drugs (prednisone)	Pain relievers and anti-inflammatory drugs (prednisone) for this- <b>\$50</b> per month

To make sure that this information targets audiences considering owning purebred dogs, a website has been created with all of the above information. The link is:

<https://sites.google.com/site/caninebreedinginformation/>

Due to the fact that the internet contains a multitude of information, the probability of people searching and finding this specific site is low. For this reason, other prominent websites that are top searched have been edited in order to feature this site as a reference or posted as a comment. This way, potential pet owners that use the internet to find out information about breeds and breeding will be able obtain this information in order to make an informed decision.

The websites edited/ commented on are:

<http://www.cesarsway.com/dog-behavior/basics/The-Ten-Best-Family-Dog-Breeds>

<http://www.dogreference.com/15-worst-dog-breeds-to-get-along-with-kids/>

<http://www.sheknows.com/pets-and-animals/articles/807366/top-10-dog-breeds-for-kids>

<http://www.outsideonline.com/outdoor-adventure/dogs/The-Best-Family-Dogs.html>

<http://www.dummies.com/how-to/content/checklist-for-responsible-dog-breeders.html#comments>

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## **Letter To the Editor**

Dear Editor,

Please consider publishing the letter below in the Star-Ledger. We believe that this is very important information that every potential pet buyer needs to be aware of. If you have any questions or concerns, please feel free to email or call us. Thank you.  
Attention! All breeders are not equal!

Most buyers and soon to be dog owners do not understand the importance of selecting a breeder. You cannot simply go to any breeder and purchase an animal because the repercussions can be extremely unforgiving, emotionally and financially. There are many different types of breeds that have all descended from a common ancestor due to two specific breeding techniques; selective breeding and inbreeding. These breeding practices have led to the development of a multitude of genetic and inherited problems that run throughout their lines. Despite that, there are now ways that the population can stop these breeding practices from occurring; by being informed, being selective buyers and taking their business elsewhere.

This is not to say that a pet from a reputable breeder will never encounter a problem, however the probability of that is far lower. Inherited diseases and disorders arise from breeding infected animals for their confirmation and aesthetic features rather than health. It occurs when breeders do not take the necessary steps to identify problems within their lines, or simply choose to breed an animal regardless of any health problems. Although an animal may look healthy and well kept, there could be a variety of inherited problems waiting to surface within a couple of years. To be an informed buyer, individuals need to research different breeders. Those breeders must: document the necessary test results for hereditary diseases, not breed animals less than two years of age, belong to a national or local breeding club, be knowledgeable of the breed, distribute spay/ neuter contracts upon sale of dog (if the animal is not going to be used as a show dog) and screen potential owners before selling.

By following these guidelines, as well as investigating background information on the breed, you as a potential pet owner can put yourself in a position to purchase a pet that has the best opportunity to live a long, healthy, happy life. When you limit the financial and emotional stress that's associated these preventable problems, you will be able to experience the unique bond found only between man and his best friend.

Sincerely,

Samantha Valliant and Julie Fagan Ph. D. Rutgers University 2014