

YORKSHIRE TERRIER CLUB OF AMERICA FOUNDATION, INCORPORATED

HEALTH SURVEY DATA REPORT

Report has been drafted for the Board and later Distribution

by

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INTRODUCTION

The Yorkshire Terrier Club of America Foundation, Incorporated (The Foundation) exists to promote improved health issues for the Yorkshire Terrier breed. As such, it has two driving missions:

1. To further understanding of the diseases, defects, injuries, and other ailments afflicting dogs in general and Yorkshire Terriers in particular; and
2. To support and promote study of and research on the history, character, varieties, breeding, genetics, and particular health problems of Yorkshire Terriers.

In order to accomplish these goals, The Foundation needs to begin to put stakes in the ground to help us all answer the questions of “Where are we?” and “Why are we there?” Doing that will then lead us to first ask and then answer the questions of “Where do we want to be?” and “How can we get there?” As we would plan for a vacation or a trip, we need three things here: a destination, a road map and a dashboard of gauges to tell us how we are doing.

The Foundation recently designed a membership survey to gather an initial collection of data. This could be viewed as the first gauge on our dashboard. Indeed, this one gauge will not allow us to know our end destination, nor the highways we will take to get there, but it will help us to begin to start the engine and turn the steering wheel in the direction that we need to go.

The author will present the information gathered from the survey in four sections: The Methodology; the Data; Interpretation of the Data; and Discussion.

THE METHODOLOGY

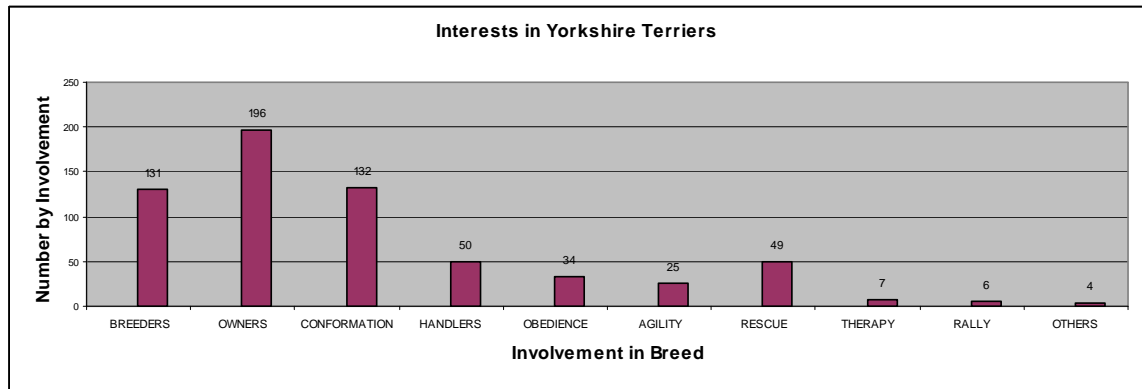
A Health Survey was designed to gather pertinent information about Yorkshire Terriers. Both a veterinarian and a statistician were consulted to review the survey's design prior to distribution to assure the necessary areas of concern were properly addressed. It is important to note that because this was a survey, the data gathered cannot, nor should it, be used in attempting to make any conclusions about the Yorkshire Terrier; it is merely a means of gathering information necessary to begin working on The Foundation's mission.

On August 7, 2006 the survey was mailed to 508 members of the Yorkshire Terrier Club of America, Incorporated, (YTCA); followed by activating the survey on the Foundation's website; distributing it at the August 2006 specialties; and publishing it in The Yorkshire Terrier Magazine. The YTCAF engaged an independent statistician, who is not involved with Yorkshire Terriers, to receive the returned surveys and to computerize the information in a database. This was done to provide anonymity to the respondents. As there were only three surveys returned after the October 31, 2006 deadline, all three were included in the database making a total of 220 returned surveys. The survey is in Appendix I and the Summary of data collected is in Appendix II.

THE DATA

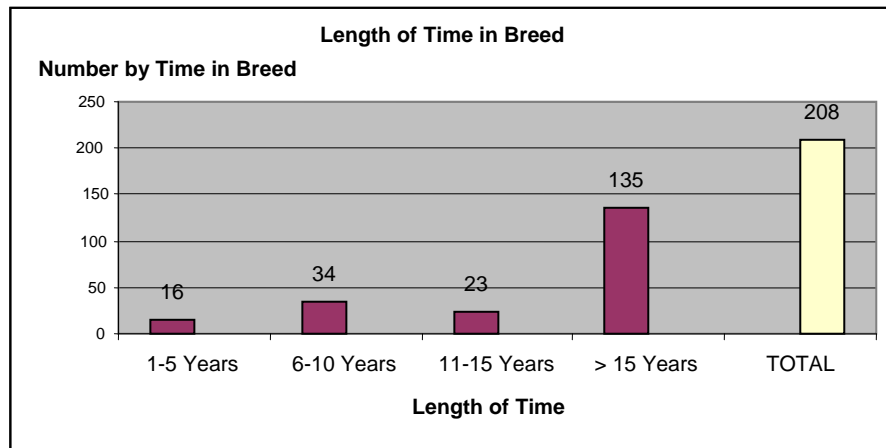
The Health Survey initially asked for "General Information" about the respondents themselves, specifically both their interests in the Yorkshire Terrier and how long they have been in the breed. The following two graphs provide this information which then is followed by a comment from our statistician based on the information in these two graphs.

GRAPH I- INTERESTS IN YORKSHIRE TERRIERS



and

GRAPH II- LENGTH OF TIME IN BREED



(Note that only 208 or the 220 noted this information on their surveys)

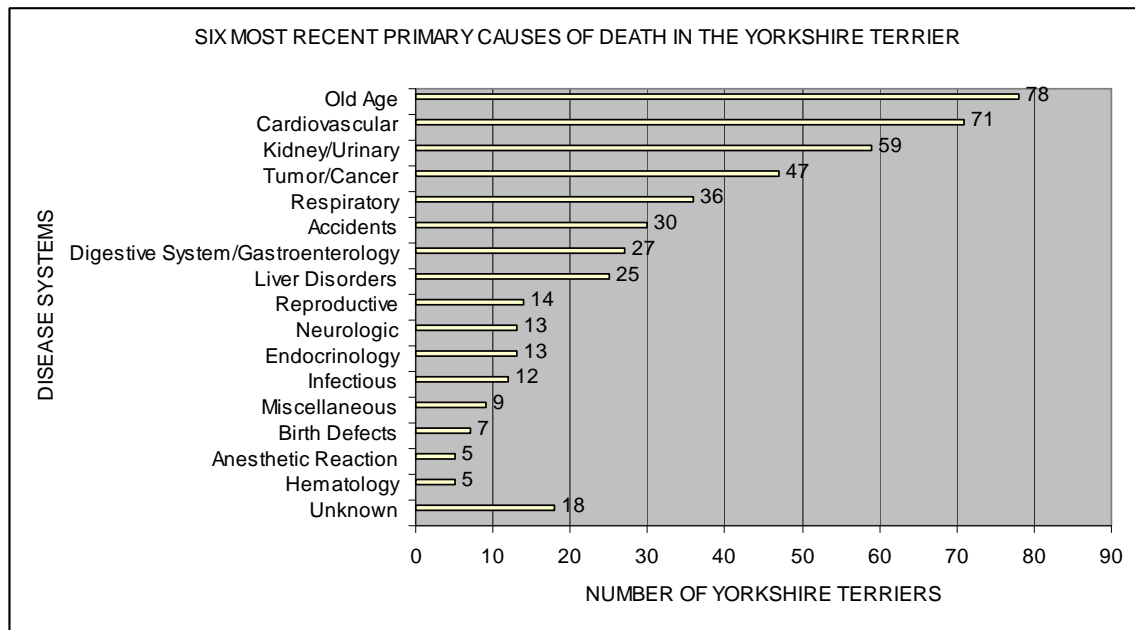
With the above information, our statistician made the following comments:

“the combination of having the majority of your respondents being breeders and the length of time the respondents have been involved with the breed could, potentially, yield responses that are not representative of the average Yorkie. One would hope that breeders have the healthiest dogs that they have kept for the breeding pool. Additionally, with the longevity of time in the breed being over 15 years for so many respondents, you might have diseases seen more frequently in the past being over-represented in this survey. For that reason, I’d recommend weighting the cause of death data more heavily in any decision making activities than the results of the general health condition data.”

After studying the data, this observation certainly is a valid observation and needs to be kept in mind as the reader looks at the rest of the data.

The next question the survey asked was the age and primary death of the six most recent Yorkshire Terriers owned by the respondents. These are listed in a series of graphs by the number of Yorkies within each of the particular disease systems that were included on the survey. There were 468 Yorkies included in this part of the survey data. It should be noted here that in this report that this was the only question that provided for a “real” number of the number of dogs involved in any of the categories. The survey questions were not designed in such a way as to allow for counting the number of dogs being represented by the other data.

**GRAPH III- SIX MOST RECENT PRIMARY CAUSES OF DEATH
IN THE YORKSHIRE TERRIER**



Next, the survey asked for “Testing Information” --- Whether or not a respondent tested their Yorkies for

the following:

<u>TEST</u>	<u>YES</u>	<u>NO</u>
Hip Radiograph*	5	96
CERF	25	178
Patellas	193	19

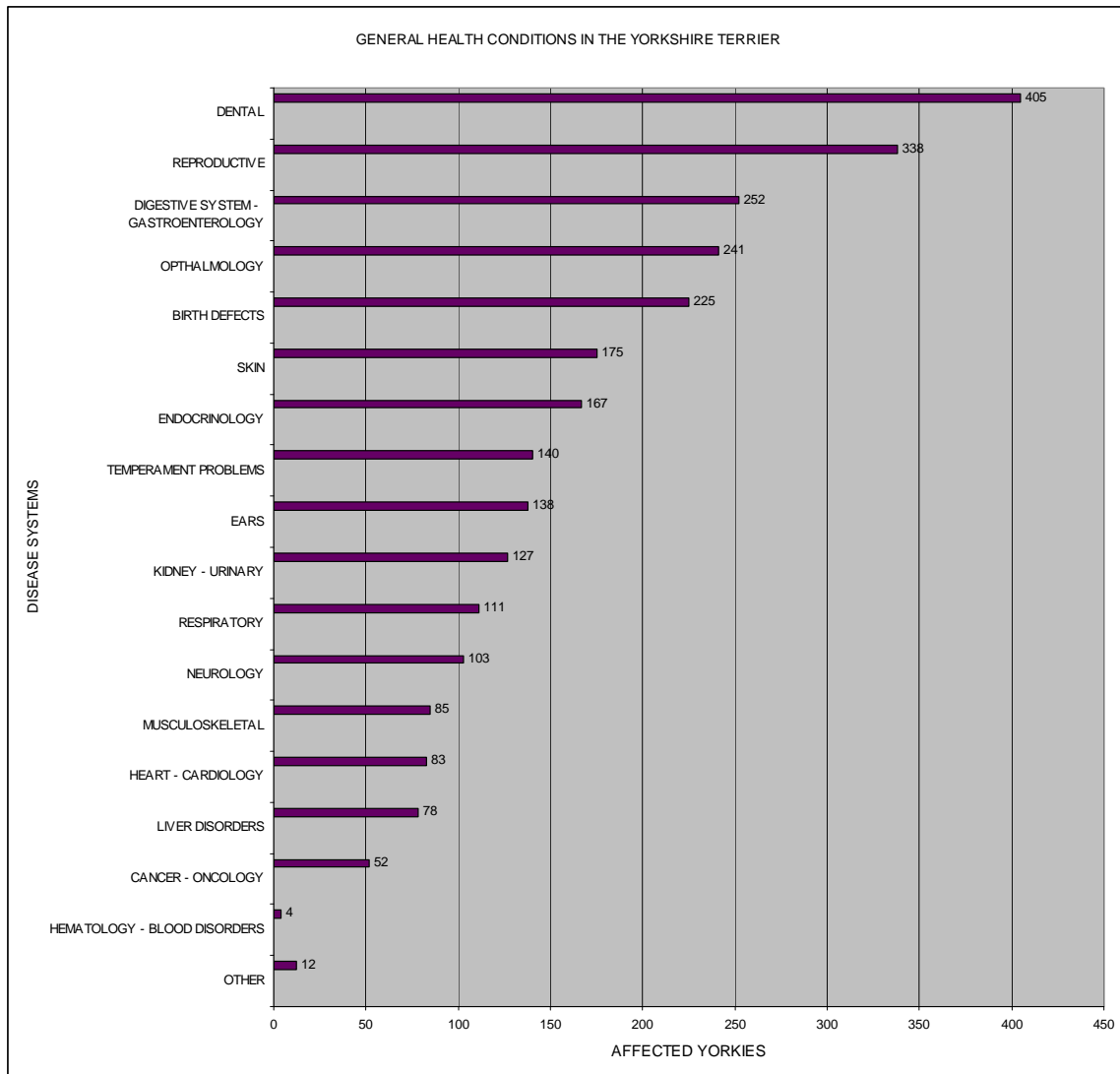
Preventive Tests

Heartworm	151	46
Fecal	182	22
Dental Checkup	206	5
Blood Work	193	15
Other	22	100

* 107 only tested if there was a problem

The Health Survey asked respondents to provide information on the General Health Conditions of the Yorkshire Terrier that had been documented and that were personally experienced in the Yorkshire Terriers that they had bred or owned. This information was noted in the survey by identifying the various canine diseases by the particular body system involved. The tabulation of this data by system is presented in the next graph.

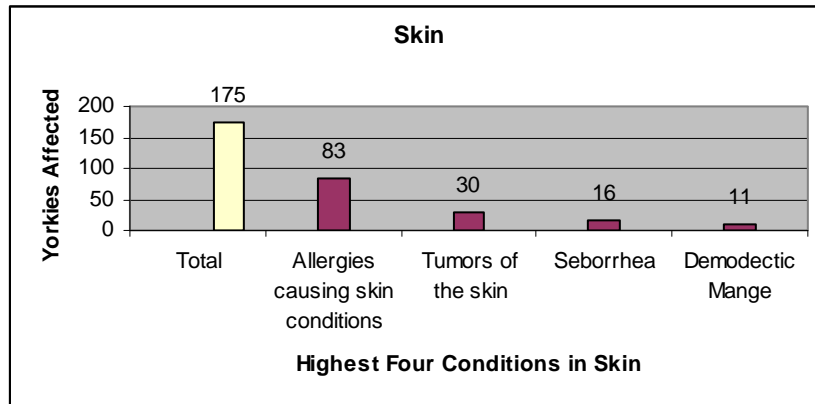
GRAPH IV- GENERAL HEALTH CONDITIONS IN THE YORKSHIRE TERRIER



The data presented in **GRAPH IV** has been broken down by the system group and each of these system groups is being presented in the following series of individual graphs. All of these individual graphs include only the most significant pieces of data in each of the conditions with the remaining ones noted

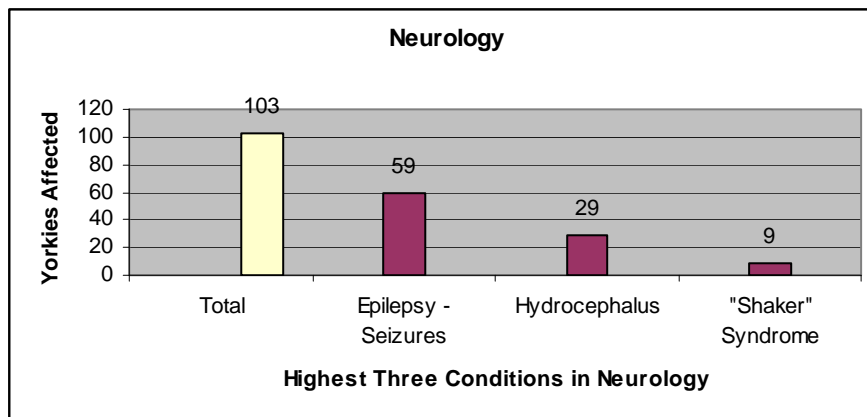
below each graph. This was done so that the presentation was easier to read, as well as to be able to look back at the data individually if needed in the future. A complete summary of all the data received is included in Appendix II.

GRAPH V – SKIN



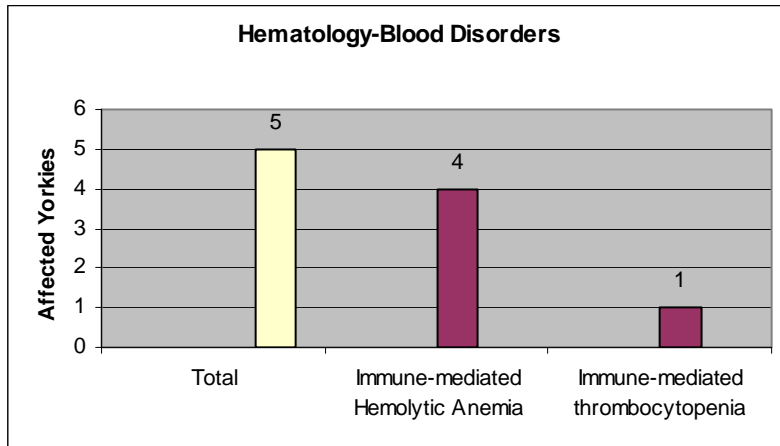
80 % of the data on Skin Conditions is represented above
 20% included color-mutant/color dilution alopecia, autoimmune skin disease, contact dermatitis, cysts on back, dry skin, nodular panniculitis, sebaceous adenitis and other-not specified.

GRAPH VI – NEUROLOGY



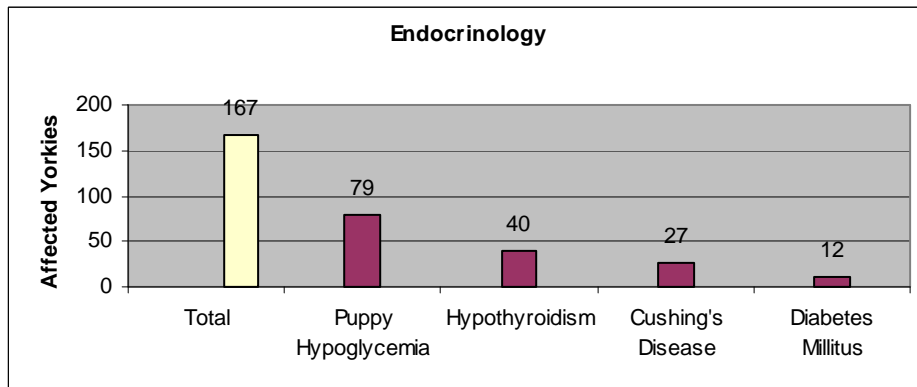
94 % of the data identified the above three Neurology Conditions
 6 % included brain aneurysm, dementia, GME and Laryngeal paralysis

GRAPH VII – HEMATOLOGY – BLOOD DISORDERS



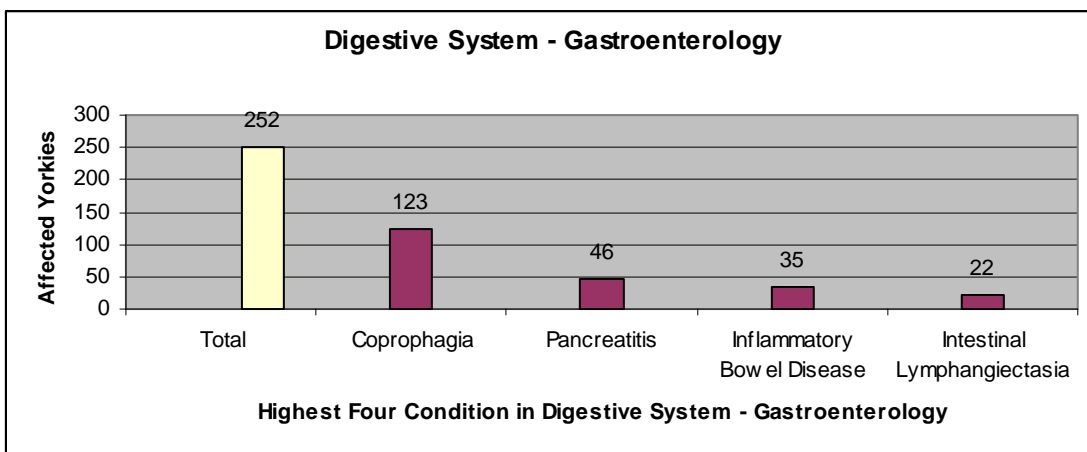
All five of the data are represented above

GRAPH VIII – ENDOCRINOLOGY



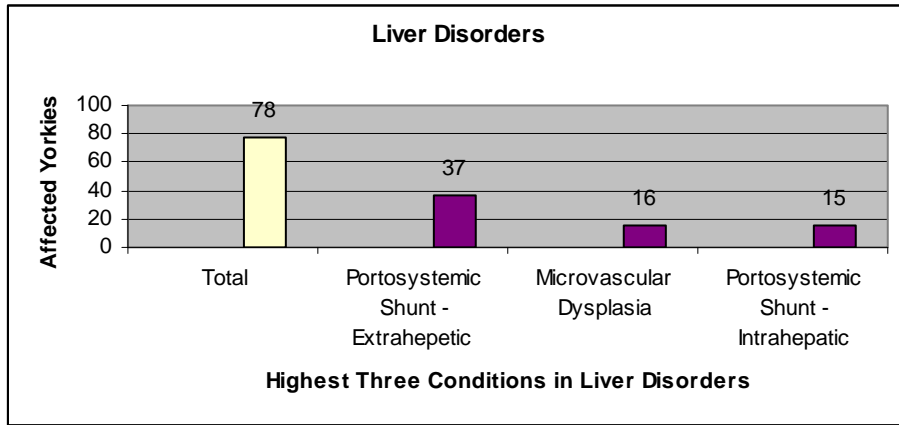
94.6 % of data represented above
 5.4 % included Addison's Disease, adrenal, and polydypsia

GRAPH IX – DIGESTIVE SYSTEM – GASTROENTEROLOGY



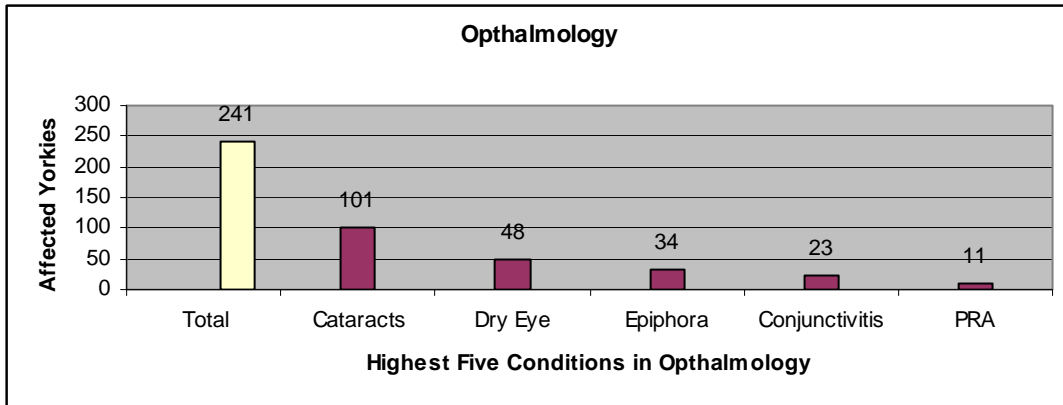
89.7 % of data included in above graph
 10.3 % included coccidia, gall bladder, H G E, irritable bowel Megaesophagus, obstructed bowel and P L E

GRAPH X – LIVER DISORDERS



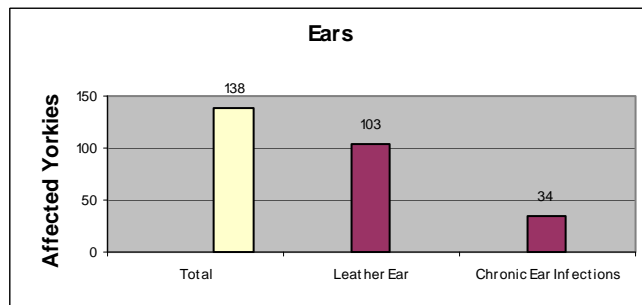
87 % of data included in above graph
 13 % included active hepatitis and portosystemic shunt-unknown

GRAPH XI – OPHTHALMOLOGY



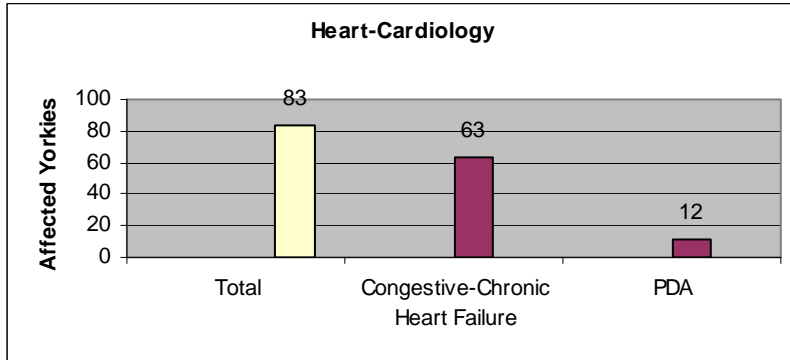
90 % of the data is represented in the above graph
 10 % included blindness, corneal dystrophy, ectropion, eyelash disorder, Glaucoma, micro opthalmia, prolapsed gland of the third eye lid, retinal dysplasia, and ulcerated eye

GRAPH XII – EARS



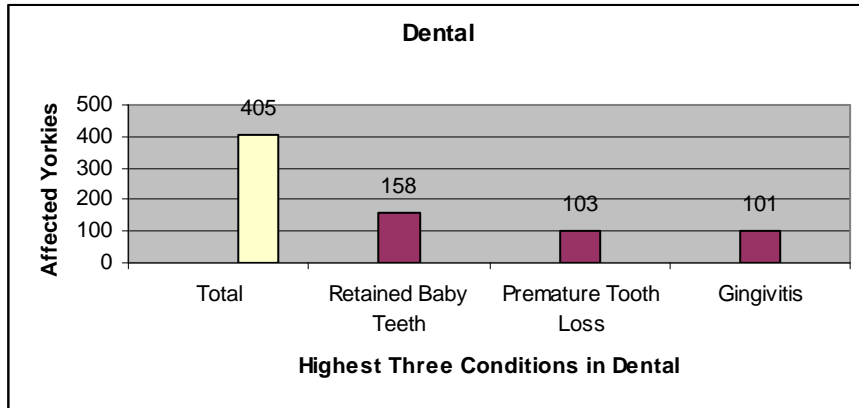
99.3 % of the data represented above
 0.7 % was included in deafness

GRAPH XIII – HEART – CARDIOLOGY



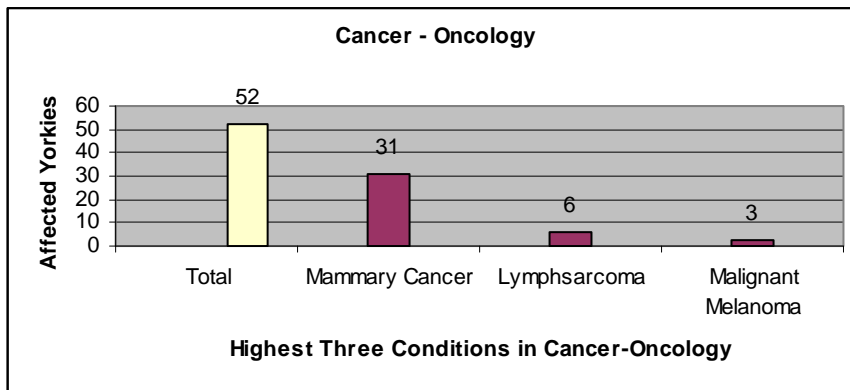
90.4 % represented in the graph above
 9.6 % included heart attacks, defects, cardiomyopathy and COPD

GRAPH XIV – DENTAL



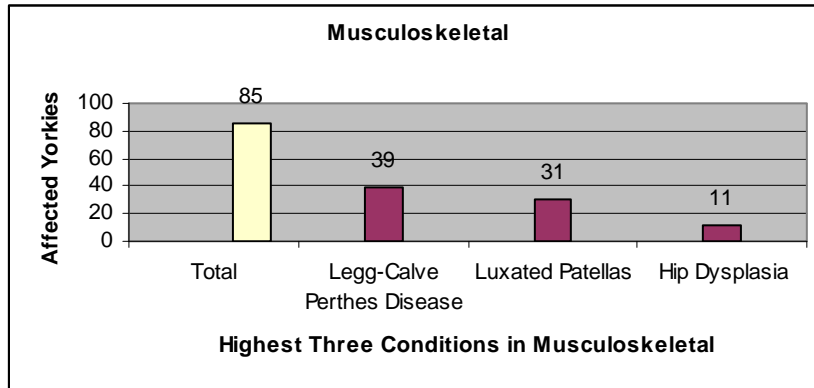
89.4 % of data represented in graph above
 10.6 % included blocked saliva gland, brachygnathia, lack of full dentition and nasal fistula

GRAPH XV – CANCER – ONCOLOGY



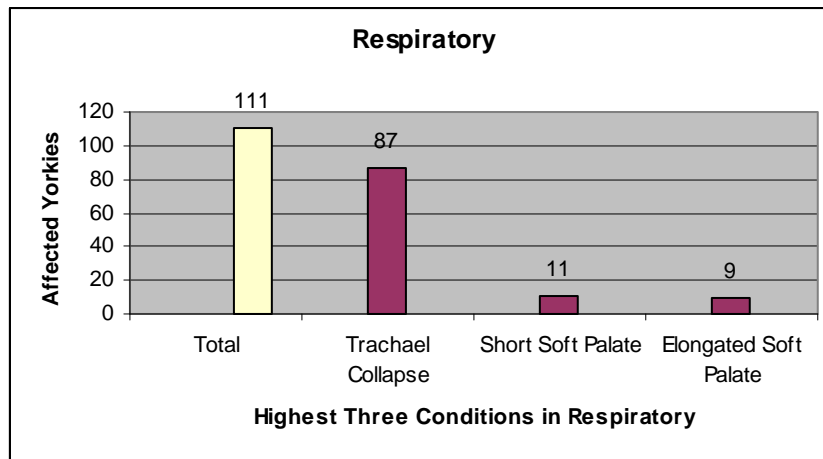
76.9 % of data is represented in the above graph for Cancer-Oncology
 23.1 % included adenocarcinoma of the intestines, bladder, brain tumor, Carotid artery, liver, mast cell, stomach, testicular and other-unknown type

GRAPH XVI – MUSCULOSKELETAL



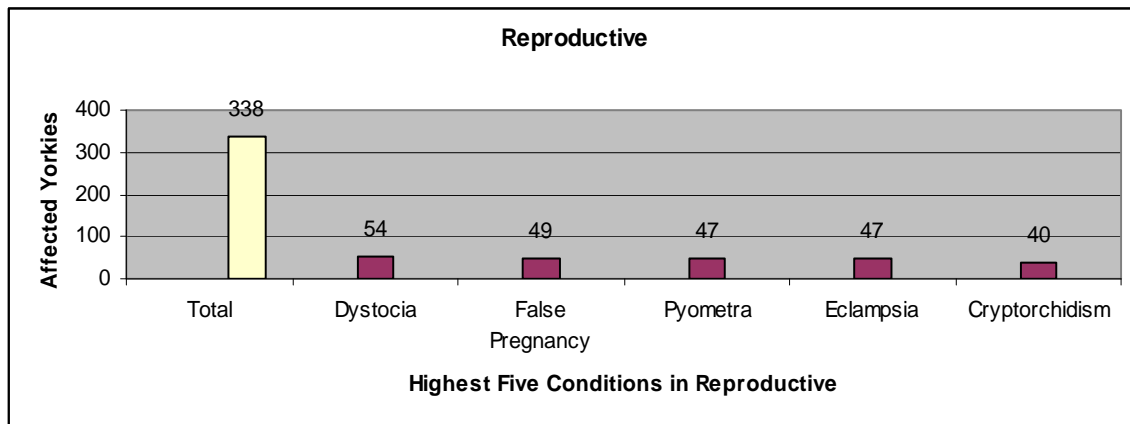
95.3 % of data is represented above
 4.7 % included arthritis, arthritis-Rheumatoid, and back problems

GRAPH XVII – RESPIRATORY



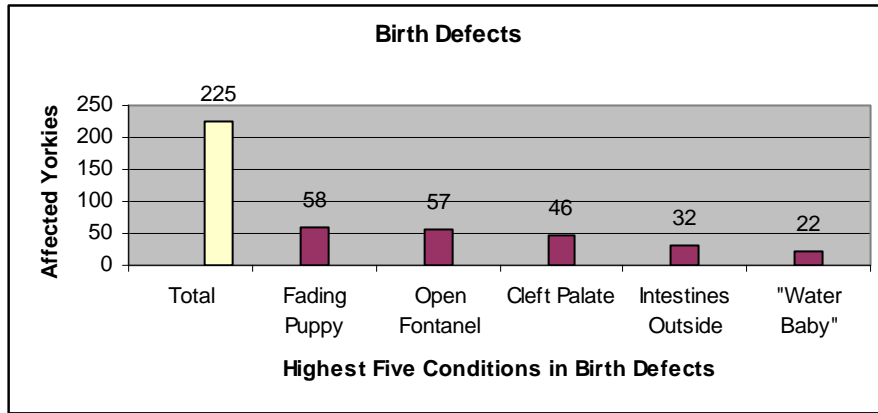
96.4 % of data in represented in Graph XVII for Respiratory Conditions
 3.6 % included deviated septum due to trauma, pulmonary stenosis, reverse sneezing, and other-not specified

GRAPH XVIII – REPRODUCTIVE



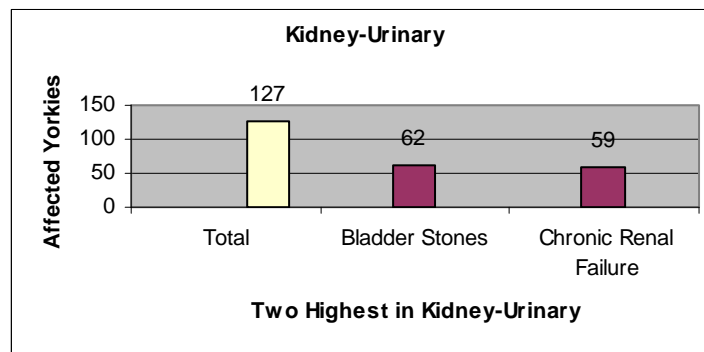
70 % of data in Reproductive is represented above
 30 % included abortion-spontaneous, breech birth, herpes virus, infertility-female, infertility-male, inguinal hernia, mastitis, and small litters

GRAPH XVIX – BIRTH DEFECTS



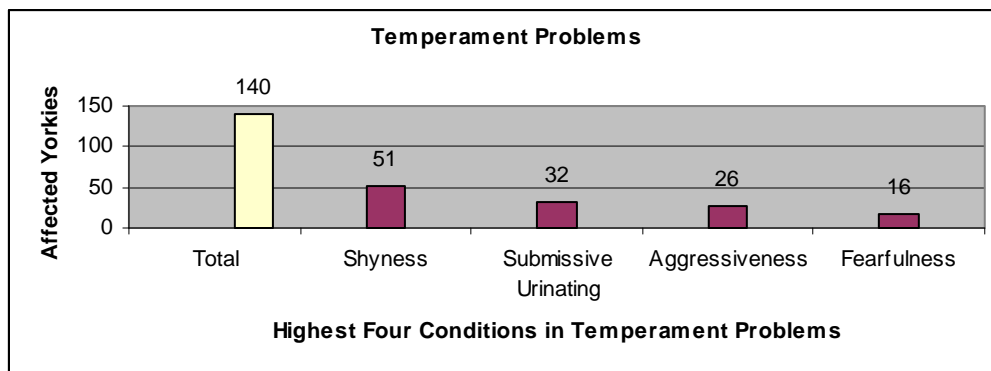
95.6 % of data is represented above
 4.4 % included born blue puppy, puppy born without anus and underdeveloped kidney

GRAPH XX – KIDNEY – URINARY



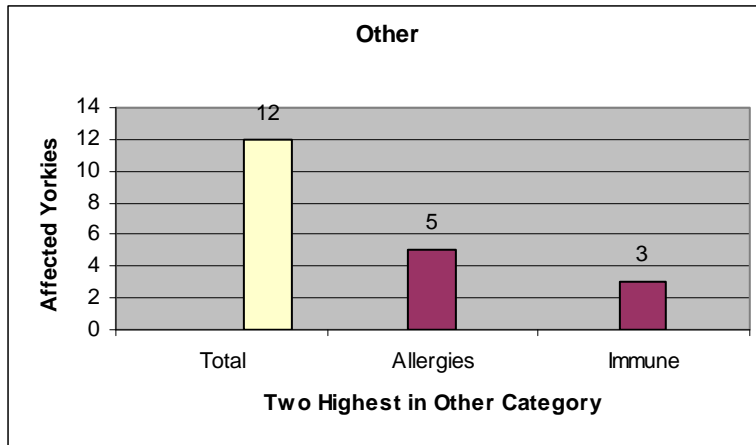
95.3 % of data represented above
 4.7 % included Glomerulonephritis, kidney stones and polyurea

GRAPH XXI – TEMPERAMENT PROBLEMS



89.3 % of data in represented in the above graph
 10.7 % included fear biting, female urinating and then licking it up, and separation anxiety

GRAPH XXII – OTHER



66.7 % represented in above Graph
33.3 % included parasite infection and pneumonia

INTERPRETATION OF THE DATA

The reader should agree, after looking at all of the data, that there certainly are concerns that are now documented in a way that can be useful for further investigation and follow up. After going through this information and brief analysis by the statistician, it appears that enough data was gathered to allow insight into the breed concerns that need to be explored further as well as to educate in some important areas. The Foundation Board members also learned that the design of a survey or other information gathering tools needs to be specific and clear in how it is presented.

The statistician presented a couple of comments that are worth considering as we move ahead. The first comment was addressed above when she remarked about the information as she was entering the data into the computer. She commented that:

“the length of time the respondents have been involved with the breed could, potentially, yield responses that are not representative of the average Yorkie.”

This is a valid observation because according to the responses, 76 % of the respondents had been in the breed more than eleven years. This fact alone could skew data because of longevity, a respondent could potentially have seen some disease more frequently than someone not involved as long. Therefore in making an assessment of this data, one needs to, as the statistician suggests, weight “the cause of death data

more heavily in any decision-making activities when considering the results of the general health conditions data.” Later in her report, the statistician observed one of the short comings of the survey design, that being that the end result of the data collected “indicate the number of respondents who have personally experienced ... conditions, and not the number of affected dogs.” This, too, is a valid observation which confirms what was said earlier about “numbers” that cannot necessarily be compared with any of the other data to make any conclusions; the numbers remain as information only. One last comment by the statistician was:

“it should be noted that even though almost half of the respondents have seen cataracts, very few CERF their animals.”

These are three items that need to be addressed and explored further. The statistician was not asked to analyze the information that she collected and entered in the database, but as she did this, the above mentioned observation became clear to her and she shared these concerns with the Board.

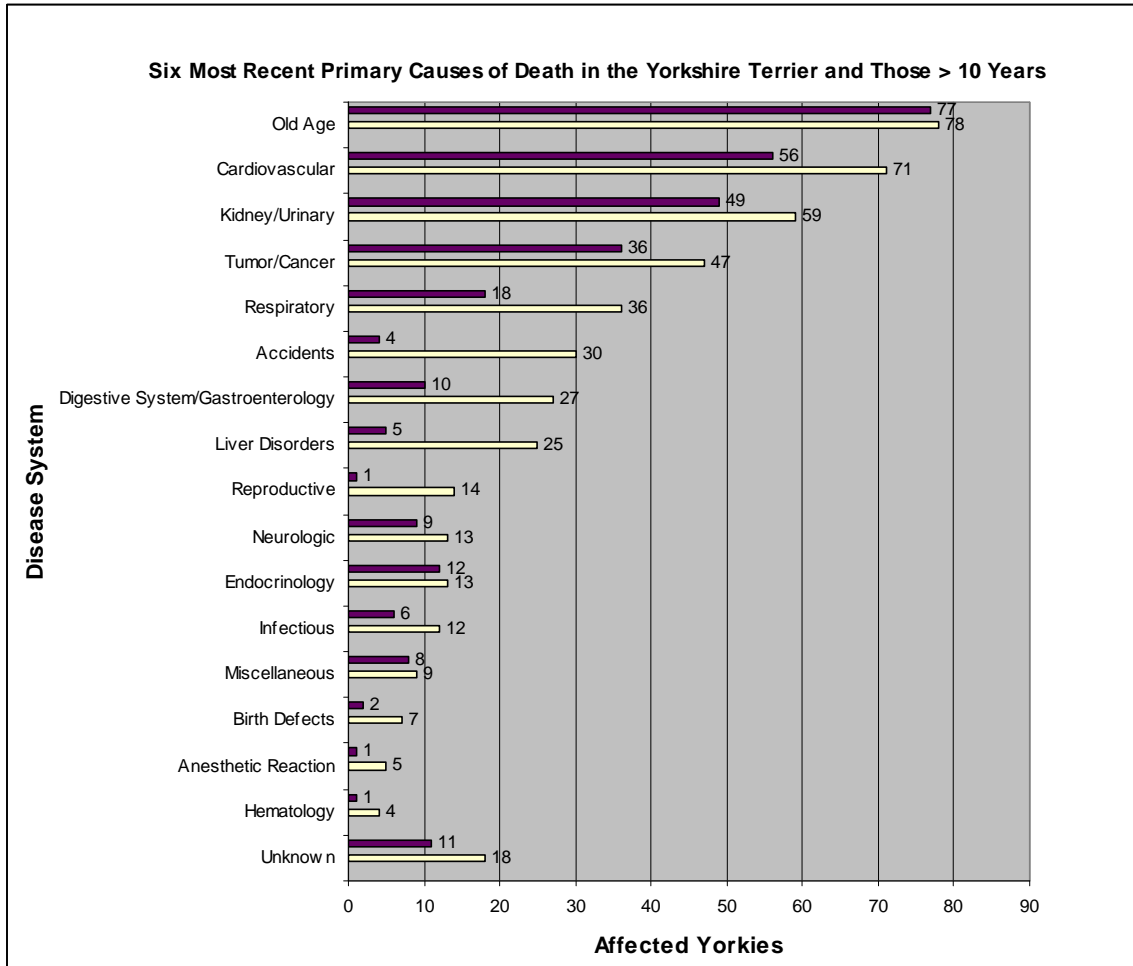
In studying this data collection and taking into consideration the observations by our statistician, some additional considerations have become evident. These are:

1. Whether or not a particular condition, produced a secondary or tertiary condition; and if so, which came first
2. Age at onset of an illness and/or disease
3. Did a disease present itself more in males or in females
4. What is the cost of treatment for a particular disease
5. Knowing the total number of Yorkshire Terriers represented by the data
6. Knowing how a diagnosis was made, i.e., veterinarian and/or tests, etc.

When looking at the information in **GRAPH III**, for example, where the first four conditions are old age, cardiovascular, kidney-urinary, and tumor-cancer the question needs to be asked whether age is a factor that these four conditions produced the highest numbers as the primary causes of death in the Yorkshire Terrier. To answer this question, the author has arbitrarily chosen ten year old or older dogs to show how it can change data just by looking at when a variable is controlled for age. To show this **GRAPH XXIII** has both the data from **GRAPH III** and is superimposed with the numbers of Yorkies that were ten years or more.

GRAPH XXIII

SIX MOST RECENT PRIMARY CAUSES OF DEATH IN THE YORKSHIRE TERRIER AND THOSE > 10 YEARS OF AGE

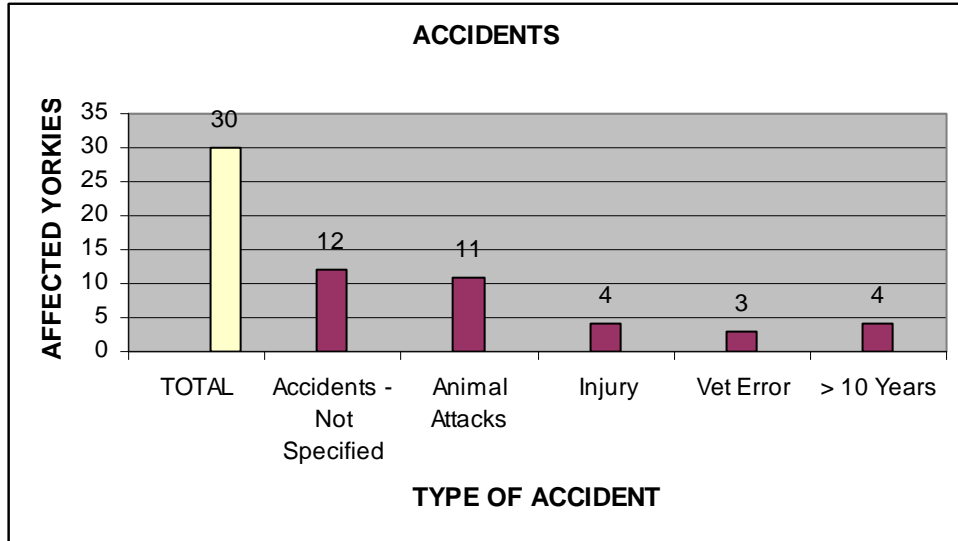


YELLOW – The Number of Deaths in the Particular Disease Category
PURPLE – The Number of Yorkies that were over 10 years old when they died

Another consideration when looking at the age the four highest causes of death above; in generalities, are these health conditions not a common part of the aging process? It is necessary to consider this when making decision on what and where to invest research funds. Additionally, it would be prudent to look within the data for each of those four conditions (actually this should be done in all the categories) and see if there is a condition that originated at an earlier age and with more defined treatment may have given the Yorkie a better quality of life. To address this point, we again look at this graph and note the section on Accidents. It was interesting to note when looking at the individual data on accidents as seen in **GRAPH**

XXIV below it can be seen that accidents would appear to occur most often in Yorkies under the age of ten years. It may be worthwhile to look into this situation further and determine what could be done to change

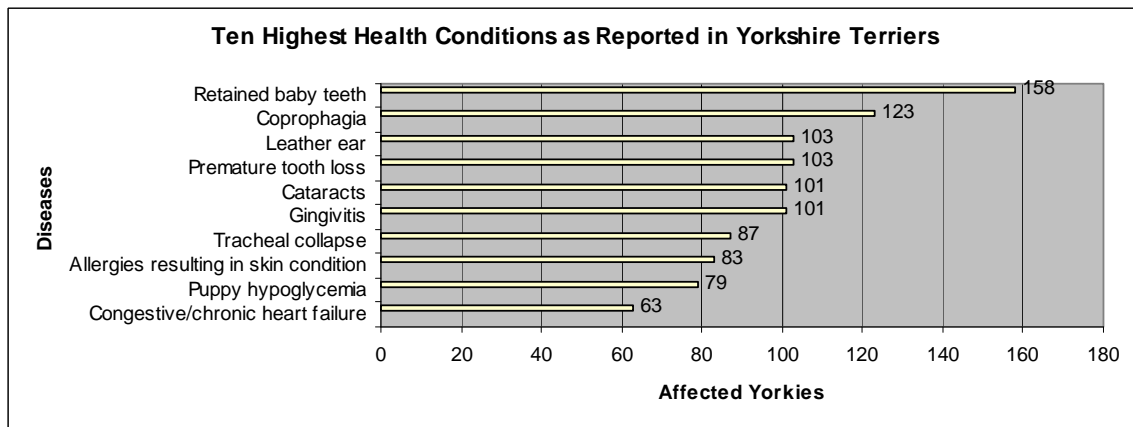
GRAPH XXIV – ACCIDENTS



this outcome, such as education on the care and safety of the Yorkshire Terrier could be an educational option.

Another example of the need to look critically at the numbers is evident when studying the information included in the following Graph XXV – The Ten Highest Health Conditions as Reported in Yorkshire

GRAPH XXV – TEN HIGHEST HEALTH CONDITIONS AS REPORTED IN YORKSHIRE TERRIERS



Terriers (ten was only used in this example to show why more than one variable needs to be considered when looking at raw data). For example, the highest is retained baby teeth. By looking at the numbers, one can say that over one half of the respondents reported retained baby teeth as a health condition, yet the survey does not tell us how many Yorkies this number actually represents. When this piece of information is considered with the length and type of involvement by the respondents, one would expect this number to be high, but does it really mean that retained baby teeth are the number one health condition that needs to be dealt with.

Continuing down the list of ten in **GRAPH XXV**, what would appear to be the most serious health condition? Should the most important health conditions be the ones that are life-threatening or those that affect a Yorkie's quality of life? Also, another variable that should be considered is, do any of these conditions shorten the life span of the Yorkie or are they just a condition that comes with the normal aging process.

There certainly are other areas of concern when looking at the information on **GRAPH XXIII**. These include, for example, the data in the respiratory, digestive system/gastroenterology, and liver disorders. These will be discussed briefly in the Discussion Section but only as *examples* of why each of the categories really need to be studied more in depth.

DISCUSSION

The Foundation is pleased with the response received from this survey. There now is a knowledge base to work with. The survey was the beginning piece in moving forward as the YTCA Foundation endeavors to find better and helpful ways to better the breed. Also, if any research is to be accomplished as we move forward, the numbers are going to be very important because research agencies required the documentation of "need" when considering whether or not they want to do research. The numbers now can be used in that way.

From the information presented in *Graph XXIII* the three *examples* that will be used here to show why a certain health condition needs to be explored and/or researched more in depth are respiratory, digestive system/gastroenterology and liver disorders and adding the variable of age of ten years..

RESPIRATORY

- Fifth highest on the list
- Half died before ten years
- 78.4 % are due to tracheal collapse

DIGESTIVE SYSTEM/GASTROENTEROLOGY

- 48.8 %, or about half of the data in category reported coprophagia
- Does this occur more, equal, or less in males or females
- Most of the other half have severe digestive conditions dealing with “proteins”
- Are these two types of conditions related somehow
- Is there something in or lacking in the food Yorkies are fed
- Is there a genetic factor
- Is there something going on that hasn’t been defined yet

LIVER DISORDERS

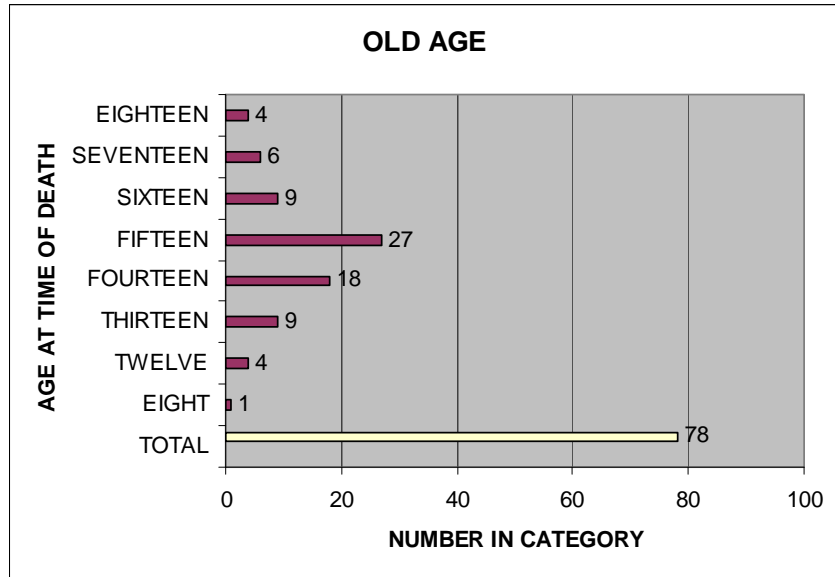
- Only 20 % of these dogs live to ten years
- Can something be done to change this outcome

It certainly would be prudent to look at all of the highest tallied numbers in each of the conditions that were presented in the individual series of graphs by disease categories.

Even though the statistician did not address the issue of old age as shown in the following *GRAPH XXVI – Old Age*, she did allude to it. Taking into account the characteristics of the respondents both in terms of longevity in the breed and as interests in the breed, she noted that they must be doing their breeding by keeping the best of the best. One certainly would have to believe this assumption as there are Yorkies who live to eighteen years and then, too, how many that are in this old age category alone that ranged from

twelve to eighteen years of age at time of death. It would appear that breeders must be doing something right.

GRAPH XXVI – OLD AGE

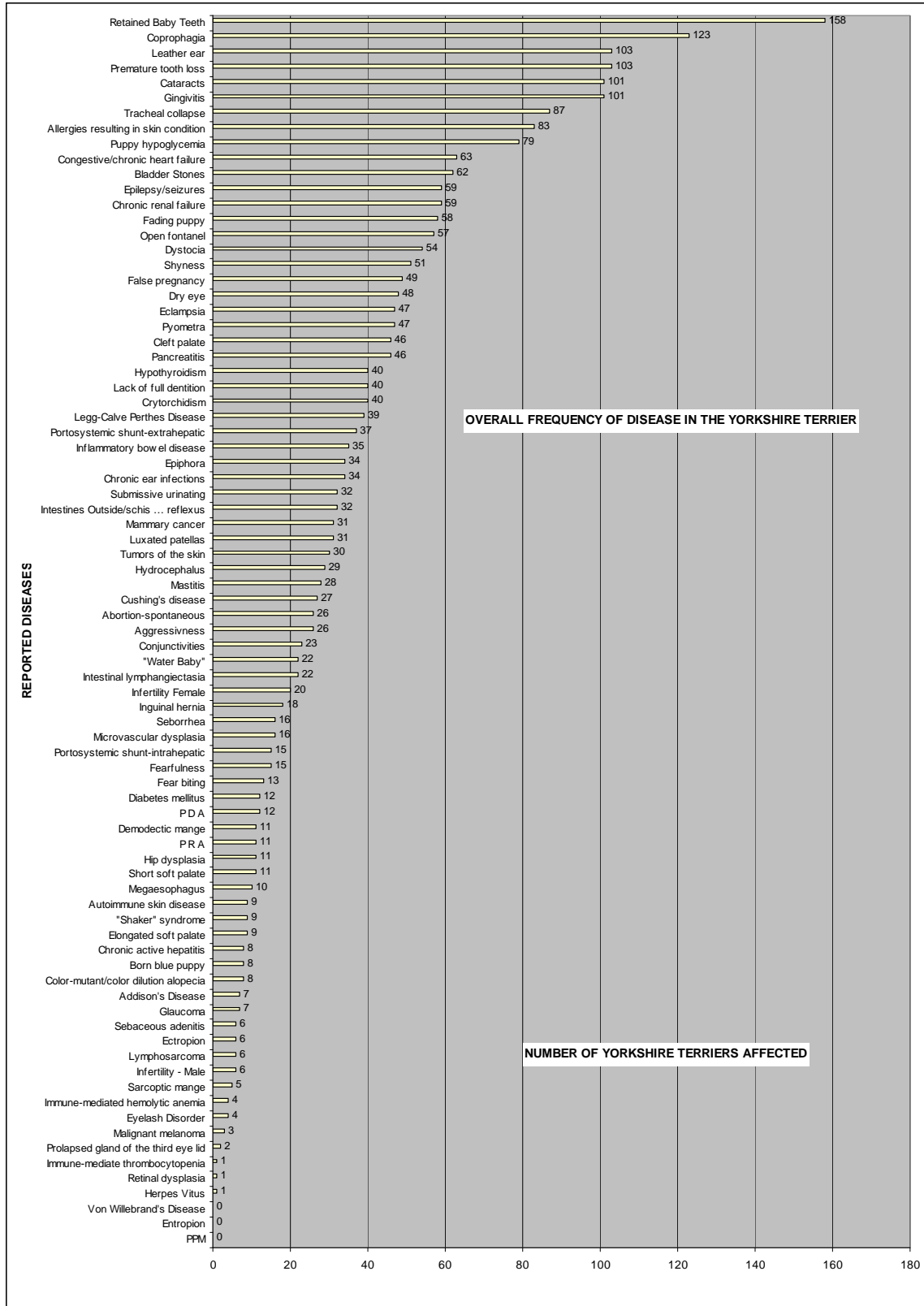


In conclusion, going back to the analogy of taking a trip, the survey data has put one gauge on our dashboard. In order to work on the next gauge and/or gauges, a meeting needs to be held in next ninety days to plot our course.

AKNOWLEDGEMENTS:

- All those dedicated people who took the time to respond to the Foundation’s Health Survey.
- All the Foundation Board Members who worked on designing, drafting, mailing of the surveys
- Thomas Graves, DVM, who helped with the questions design on the survey
- Rebecca Stanevich for receiving surveys and entering them into the data base
- Michael Maas who did and taught me how to do the graphics in Excel for this paper
- Nick Valenti, DVM who provided the information regarding the “Other” category
- Sharon McCadem who assisted with medical terminology
- Ronald Maas who helped with my Yorkies so that this paper could be written

APPENDIX I



APPENDIX II

YORSHIRE TERRIER CLUB of AMERICA FOUNDATION, INC.
2006 General Health Survey

The purpose of this general health survey is to gather information regarding the health and genetic issues of the Yorkshire Terrier breed. The YTCA Foundation is requesting this information directly from owners who have experienced health and/or genetic problems with their Yorkshire Terriers. To assure confidentiality, do not identify yourself or your dogs. The completed survey should be sent before **OCTOBER 31, 2006** to our independent statistician:

Rebecca Stanevich
RR4, Box 238-AA
Grafton, WV 26354

Please answer the questions as completely as possible. If you need help with clarification of a disease you have experienced with one of your Yorkshire Terriers, please contact any of the Foundation board members, try an internet search for the specific disease name, or consult your veterinarian.

I. General Information

- A. What are your interests in Yorkshire Terriers? (Circle all that apply.) Breeder, Owner, Conformation, Handler, Obedience, Agility, Rescue, Other: _____
- B. How long have you been involved in the breed?
 _____ 1-5 years _____ 6-10 years
 _____ 11-15 years _____ over 15 years
- C. Below please list the age and primary cause of death of the **six most recent** Yorkshire Terriers you have owned.

Year	Age at Death	Primary Cause of Death

II. Testing Information

- A. Do you radiograph hips for hip disorders?
 ___ Yes ___ No ___ only if a problem occurs
- B. Do you "CERF" eyes? ___ Yes ___ No
- C. Do you have a veterinarian check patellas?
 ___ Yes ___ No
- D. Which preventative tests do you perform?
 - Heartworm _____
 - Fecal _____
 - Dental checkup _____
 - Blood work _____
 - Other _____

III. General Health Conditions

This is a fact finding questionnaire and lists canine diseases grouped by body system. This list is not comprehensive but includes many diseases that are believed to occur in Yorkshire Terriers. Please identify with a check mark all documented health conditions you have personally experienced in Yorkshire Terriers you have bred or owned.

A. SKIN

- ___ Allergies resulting in skin condition
- ___ Autoimmune skin disease
- ___ Color-mutant/color dilution alopecia
- ___ Demodectic mange
- ___ Sarcoptic mange
- ___ Sebaceous adenitis
- ___ Seborrhea
- ___ Tumors of the skin

B. NEUROLOGY

- ___ Epilepsy/ Seizures
- ___ Hydrocephalus
- ___ "Shaker" syndrome

C. HEMATOLOGY / BLOOD DISORDERS

- ___ Von Willebrand's disease (reduced factor VIII in the blood resulting in a prolonged bleeding time)
- ___ Immune-mediated hemolytic anemia
- ___ Immune-mediated thrombocytopenia

D. ENDOCRINOLOGY

- ___ Cushing's disease (abnormal condition due to adrenal or pituitary hyper function)
- ___ Addison's disease (primary hypoadrenocorticism)
- ___ Diabetes mellitus (excessive sugar in the blood and urine due to inability to use insulin)
- ___ Hypothyroidism (deficient activity of the thyroid gland)
- ___ Puppy hypoglycemia

E. DIGESTIVE SYSTEM / GASTROENTEROLOGY

- ___ Coprophagia (stool eating)
- ___ Inflammatory bowel disease
- ___ Intestinal lymphangiectasia (a generalized inflammation of the lymphatics of the intestines)
- ___ Megaesophagus (abnormally dilated esophagus)
- ___ Pancreatitis

F. LIVER DISORDERS

- Chronic active hepatitis (chronic liver inflammation / infection)
- Portosystemic shunt - Extrahepatic shunt (liver disease caused by abnormal blood flow)
- Portosystemic shunt - Intrahepatic shunt (liver disease caused by abnormal blood flow)
- Microvascular dysplasia (Hepatic)

G. OPHTHALMOLOGY

- Cataracts
- Conjunctivitis
- Dry eye, keratoconjunctivitis sicca
- Ectropion (eyelids turning inward)
- Entropion (eyelids turning outward)
- Epiphora (excessive watering of the eyes due to excessive tear production or blocked tear ducts)
- Eyelash disorders (distichiasis)
- Glaucoma
- PRA (progressive retinal atrophy)
- PPM (persistent pupillary membranes)
- Prolapsed gland of the third eye lid (Cherry Eye)
- Retinal dysplasia (folds or geographic detachment)

H. EARS

- Chronic ear infections
- Leather ear (slick ear)

I. HEART / CARDIOLOGY

- Congestive / chronic heart failure
- PDA – patent ductus arteriosus

J. DENTAL

- Gingivitis (gum infection)
- Premature tooth loss
- Retained baby teeth
- Lack of full dentition

K. CANCER/ONCOLOGY

- Lymphosarcoma (cancer of the lymph glands)
- Malignant melanoma (a form of skin cancer)
- Mammary cancer (cancer of the mammary glands)

L. MUSCULOSKELETAL

- Hip dysplasia
- Legg-Calve Perthes disease
- Luxated patellas

M. RESPIRATORY

- Tracheal collapse (collapsing trachea)
- Short soft palate
- Elongated soft palate

N. REPRODUCTIVE

- Abortion-spontaneous
- Cryptorchidism
- Dystocia (whelping difficulty)
- Eclampsia
- False pregnancy
- Herpes Virus
- Infertility- male
- Infertility- female
- Mastitis (inflammation of the breast)
- Pyometra
- Inguinal hernia (groin hernia)

O. BIRTH DEFECTS

- Born blue puppy
- "Water Baby" – anasarca (congenital lethal edema)
- Intestines outside/schistosomus reflexus (skin & muscles failure to close over umbilicus)
- Open fontanel
- Fading puppy
- Cleft palate

P. KIDNEY / URINARY

- Bladder stones (cystic calculi)
- Chronic renal failure (kidney failure)

Q. TEMPERAMENT PROBLEMS

- Aggressiveness
- Fear biting
- Fearfulness
- Shyness
- Submissive urinating

R. OTHER (Please list diseases or conditions experienced in your Yorkshire Terriers that may not have been identified in the above lists. If necessary use an additional sheet but be specific.)

Thank you for participating in the 2006 YTCA Foundation's General Health Survey.

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