

THE Irish Wolfhound Foundation



Focus

Summer 2016

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Focus

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Going Forward with Heart Testing, The Life Cycle Study II and OFA's New Advanced Cardiac Database

submitted by Frances Abrams PhD

The IWF study comparing Echocardiographic and Electrocardiographic Screening Methods (Echo/EKG Study) was complete with the clinic at the IWCA National Specialty. Almost simultaneously the OFA announced a new "Advanced Cardiac Database" and there were some changes to the LCSII forms. Those who had their dogs tested at the National Specialty met with the new forms and procedures. Some of you might also have noted that we were a little less organized than usual, if that is possible. Fortunately, Dr. Steven Rosenberg was there to help Drs. Tyrrell and Dentino deal with the new processes. Bill's daughter Ella helped us prepare the OFA forms (in triplicate) in time for the clinic. We tested about 89 dogs in two days and the data is still in the works.

Changes to the LCSII questionnaire included a short survey on nutrition provided by Dr. Lisa Freeman of Tufts University. Dr. Freeman is a noted expert in canine nutrition and is interested in the relationship of diet to cardiac disease. She is a friend of Dr. Tyrrell's. One more change is coming to the LCSII form. The only question in the Echocardiographic Study form that was not in the LCSII form was a list of medications so that is being incorporated into LCSII and future clinics will involve only two forms, LCSII and OFA Advanced Cardiac Database form.

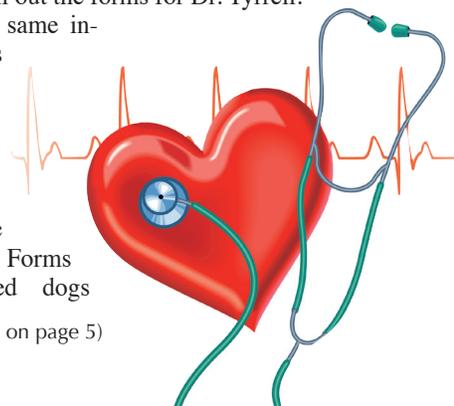
The OFA Advanced Cardiac Database (ACA) HYPERLINK "http://www.offa.org/pdf/ACA_Announcement.pdf"http://www.offa.org/pdf/ACA_Announcement.pdf represents several improvements in record keeping and is more appropriate for the types of cardiac disease seen with Irish Wolfhounds, and many other breeds. First, the implementation of the three part form (similar to eye testing) means all dogs tested will be recorded in

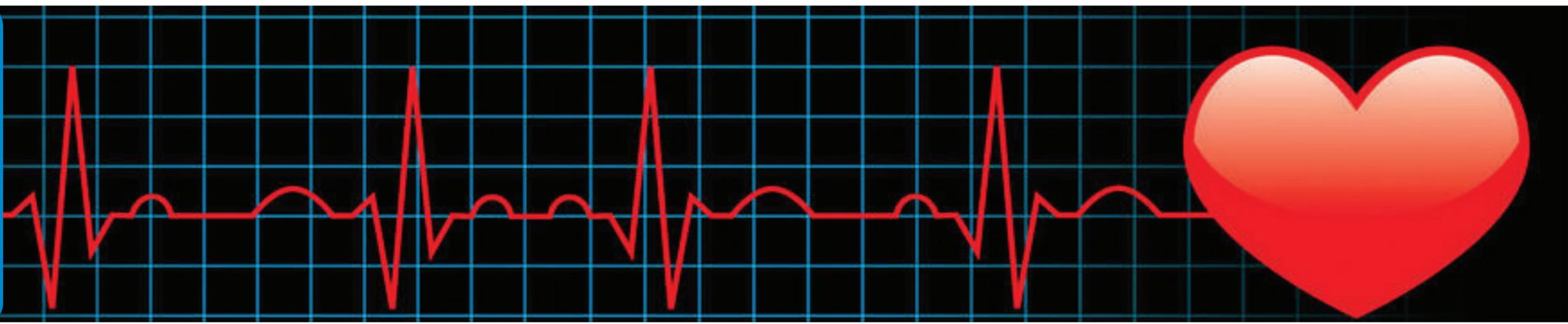
the statistical database and provides much more detail for collecting data on breed specific measurements. The measurements are similar to what the IWF had collected under the Echo/EKG study. The owner still has control over submission to the open database. A dog can be cleared for congenital defects and for adult onset cardiac disease, a clearance that is good for one year. There is also a class for equivocal findings.

The ACA also records EKG, echo and holter data if those measurements are made. All examinations, however, need to be done by a ACVIM board certified cardiologist. This is where a couple of changes will probably have to be made to the IWF process for LCSII. The cost of having a cardiologist do an EKG and auscultation will increase the price the IWF charges for EKGs (when a cardiologist is present). This allows us to store the data in both the OFFA research database and the IWF LCSII database that is linked to the IWF DNA collection. The IWF was planning on doing EKGs and sending them to a cardiologist for reading for the LCSII. Finally, since the OFA forms will no longer be available on the internet (the three part forms are sent only to cardiologists) we will be asking for some additional information so that we can have someone fill out the forms for Dr. Tyrrell.

Fortunately this same information allows me to fill out the basic dog and owner information on the LCSII forms. This should save everyone time. Forms for preregistered dogs

(Continued on page 5)





Cardiac Lessons from the Lifetime Cardiac Study Data

Submitted by Mariellen Dentino MD

Beginnings

In 1986 a group of breeders invited Dr. Serena Brownlie to record EKGs on Irish Wolfhounds at shows and at kennels in the United Kingdom. She found an overall 11% incidence of atrial fibrillation in the tested population and a very high prevalence of other electrocardiographic abnormalities.

In 1992 Phillipa Crowe helped Dr Neil Harpster begin EKG testing of American hounds at the National Specialty.

A total of 821Ekg's were done at the National from 1992-2000. The population tested was asymptomatic hounds traveling to the National and overall 8.9% of these hounds were in atrial fibrillation with 22% having some abnormality on their EKG.

There was a striking rise in the incidence of afib with increasing age. Only 3.9% of hounds 2-3 years (often breeding age) were in afib and only 17% had any EKG abnormality. In the 7 year old hounds 29.2% were in afib and 50% had some abnormality on their EKG.

In humans many of these EKG abnormalities have clinical significance but their importance was unknown in Iws. Thus many EKG abnormalities were identified in the hounds but there was no advice to offer owners and breeders.

Lifetime Cardiac Study

In 2000 enrollment for the Irish Wolfhound Lifetime Cardiac Study opened. The Framingham Study which had enrolled citizens of a small NE community and followed them for their lifetime was providing new insights on cardiovascular disease for humans at an astonishing rate and it was hoped this could be accomplished for Irish Wolfhounds.

Owners were asked to complete an entry questionnaire and EKG and to provide a yearly EKG and report for each entered hound. Entry closed with 1242 entries. Unfortunately the questionnaire was lengthy



and many hounds had "gap years" in their data. There was at least intermittent follow up and cause/date of death data available for 819 hounds.

Prognosis of EKG Abnormalities in Irish Wolfhounds

There are many EKG abnormalities of conduction (a quirk in the way the beat travels through the heart). Hounds with these abnormalities were followed through their lifetime and did not develop cardiomyopathy or have a shorter life span. The only non-arrhythmia EKG abnormality that led to cardiac disease was AVBlock. Hounds with this abnormality were more likely to develop atrial fibrillation.

OF ALL THE ABNORMALITIES SEEN ON EKG'S ONLY ARRHYTHMIAS WERE PREDICTORS OF ANY CARDIAC DISEASE AND ONLY ATRIAL FIBRILLATION PREDICTED IW CARDIOMYOPATHY.

Arrhythmias of Concern

VPCs are beats that occur early and originate in the pumping chamber of the heart. This is a sporadic arrhythmia and thus the incidence is uncertain. In screening studies they have been reported to occur in 2.6-4.8% of asymptomatic Iws. In Boxer/Doberman they are associated with progressive DCM and sudden death. In the IW (when they are the only rhythm abnormality) they are not associated with progressive cardiomyopathy. However the incidence in sudden death in hounds with VPCs is twice that of the overall population. Please see the Summer 2015 Focus for in depth report of VPCs. (Past issues can be viewed on the IWF web site).

APCs are beats that occur early and originate in the top part of the heart (atria). These are also intermittent and the incidence is not known. Fifty eight percent of hounds with these beats on an EKG progressed to atrial fibrillation and in both the English and our population they are felt to be precursors to atrial fibrillation.

The most important arrhythmia in the IW is atrial fibrillation. This is the only EKG abnormality that leads to IW cardiomyopathy. Normally the heart beat begins in the atria or top part of the heart and progresses to the ventricle or pumping chamber of the heart in an orderly manner. In atrial fibrillation the beats from the top part of the heart are sporadic and

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Longevity Data from the Lifetime Cardiac Study

Submitted by Mariellen Dentino MD

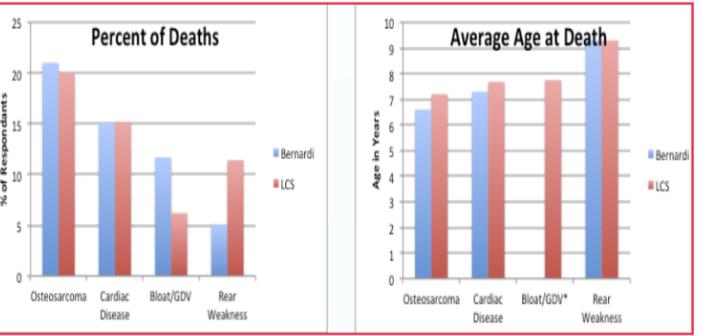
Alex Comfort utilized meticulous records for 189 hounds from a kennel in Ireland to report a life span of 5.8 years. These hounds died between 1927-1945. Mortality was very high for young males. But males living longer than 10 years (4 of the 75 who survived past 3 years) died of heart disease with no cancer reported. Specifically there was no reported osteosarcoma in either dogs or bitches in this kennel.

In 1974 Darling also reported a life span of 5.8 years- not much progress. Gretchen Bernardi reported lifespan of 6.47 years in hounds dying 1966-1986. The main cause of death was cancer with 21% of all hounds dying from osteosarcoma.

Data from the LCS showed life span of 7.45 years in hounds dying 2000-2015 main cause of death was cancer with 20% of all hounds dying from osteosarcoma.

There are also many reports of longevity available from European populations of hounds.

Major Killers Over the Years



Bernardi (1966-1986) & LCS (2000-2015)
*Bernardi did not report an average age at death for Bloat/GDV
Both studies included sudden death as "cardiac"

Overall changes in the 20 year interval include a marked decrease in death from bloat. This does not document a lower incidence of bloat, just lower incidence of death from bloat and may reflect, earlier diagnosis and better surgical techniques and anesthesia.

The percentage of hounds dying from osteosarcoma and cardiac disease is stubbornly similar but there has been a small increase in life span for hounds with these major killers.

Rear weakness has become the third leading cause of death.

Heavier hounds? Less exercise and fitness? Just a larger population of older hounds? The age at death for euthanasia for rear weakness or "hound could not get up" is 9.3 years.

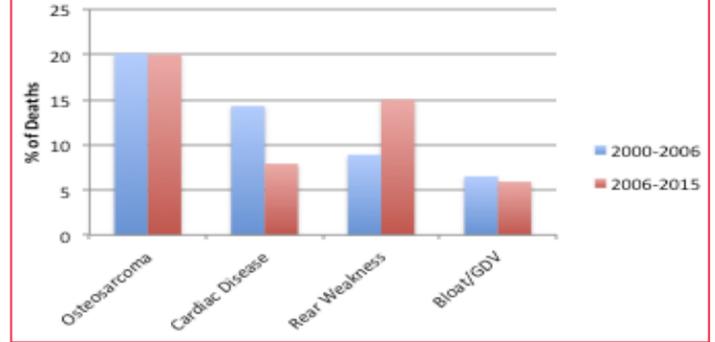
It is proclaimed common knowledge that bitches live longer than dogs. Yet Bernardi found it was only .5 years with bitches dying 6.55 years and dogs 6.0 years. This study had a nearly even population gender split with 291 males and 274 bitches.

Twenty years later the LCS data showed bitches still lived only .55 years longer than dogs. This data had more bitches in the population(452 bitches and 367 males).

Changes During LCS

Data was also examined from 2000-2006 and compared to 2006-2015. There was a decrease in deaths from cardiac disease but no decrease in deaths from osteosarcoma.

In the later half of the study death from rear weakness surpassed death from cardiomyopathy.



Killers of our hounds

Cancer is the major killer of our hounds with no decrease in incidence in the last 20 years (36.6%).

Osteosarcoma is **BY FAR** the most common cancer in IWs and kills 20% of **ALL** our hounds This incidence has not decreased although the average age at death is slightly improved 6.6-7.0 years.

The next two most common cancers are lymphoma which killed 4.7% of all hounds and at a younger age (average age at death was 6 years) and hemangiosarcoma which was diagnosed in 2.3% and killed older hounds (8.5

(Continued on page 5)

Cardiac Lessons (Continued from page 2)

often very fast with not all of the beats reaching the ventricle to cause contraction of the pumping chambers. If the rate of the abnormal beats in the atria is slow the hound may tolerate this well although the overall efficiency of the cardiac output is decreased.

In the LCS population of 819 IWs 164 or 20.02% were affected with atrial fibrillation.

Characteristics of hounds with Afib

In the LCS data the mean age of onset of afib in males was 5.14 years and females 5.64 years- usually after breeding age.

61.7% had a known close relative with afib.

55.3% were on treatment for their cardiac disease.

All hounds with afib need rate control. Dr Jan Bright (Colorado State University) using LCS study hounds showed the heart rate at the study site and at home (using 24 hour holter monitoring) did not correlate thus making it important for owners of afib hounds to monitor heart rates.

As cardiomyopathy progresses other meds are helpful.

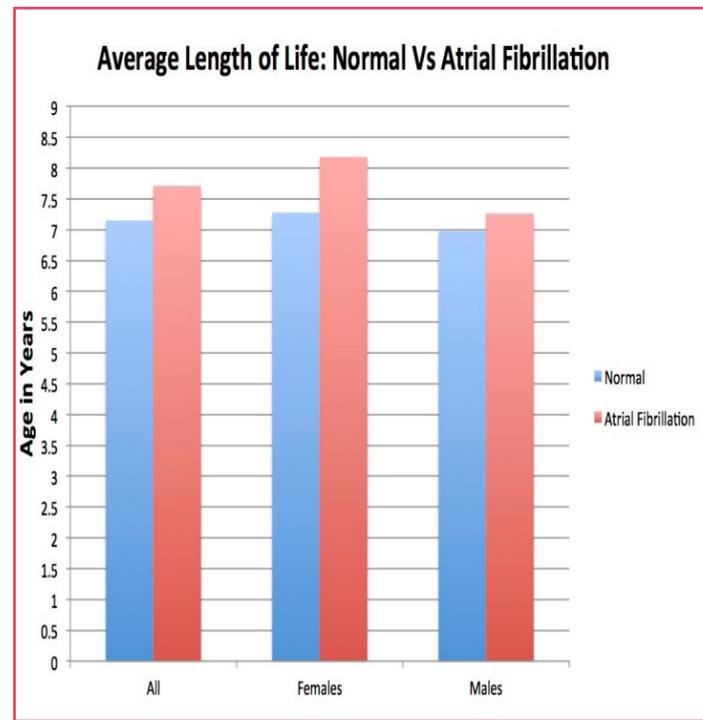
42.6% of hounds with afib died of cardiomyopathy thus about 10% of hounds overall die of cardiomyopathy.

Mean survival time after the diagnosis of afib in the males was 2.64 years- but the range was 1-6 years. Mean survival for bitches after diagnosis of afib was 2.80 years with range 1-7 years.

Over half (57.4%) of hounds diagnosed with afib died of non cardiac related ailments.

The mean survival time for these hounds after the diagnosis of afib was 2.33 years (range 1-8 years). Most of the hounds dying less than 2 years after the diagnosis of afib were 7 or older when the diagnosis of afib was made. Certainly the afib may have played a role in the non cardiac deaths, ie: surgery complications for bloat, decreased stamina, and muscle strength in rear weakness. However the diagnosis of afib did not condemn all hounds to a death from progressive cardiomyopathy.

Effect of Afib on Longevity



Note that the hounds with atrial fibrillation actually live longer than the population with normal EKGs.

Eighty percent of hounds were euthanized and this may help to explain the difference in life span.

The trigger for euthanasia may be different for hounds with car-

diomyopathy. Medications are effective, well tolerated, and usually affordable. Hounds with normal EKGs die mainly from cancer and fear of poorly tolerated treatments and pain for the hound may trigger earlier euthanasia.

Atrial fibrillation and cardiomyopathy do not result in a reduced life span for the IW.

EKG /Echo Screening in Asymptomatic North American Irish Wolfhounds

After years of following IW EKGs we had seen very few hounds with symptomatic heart disease without previous atrial fibrillation. In most giant breeds dilated cardiomyopathy develops and afib comes later. This did not seem to be the case in the IW.

To determine if the EKG (less expensive and more easily available) was an adequate screening test for heart disease in the IW 576 different hounds were screened with simultaneous EKG and Echocardiogram.

Remember the EKG will diagnose rhythm problems but an echo is needed to see if the chambers of the heart are enlarged or weakened or if heart valves are malfunctioning. This study included hounds brought to the National or Regional Specialties and was sponsored by the IWF.

After official publication a more detailed summary of this important data will be in Focus.

IW cardiomyopathy begins with atrial fibrillation and then progresses to enlargement of the left atria and then the left ventricle. The left ventricle initially retains fairly preserved pumping performance- unlike the usual Dane/ Doberman dilated cardiomyopathy.

In the hounds evaluated in this study only one had the usual giant breed heart disease and had an abnormal echo without atrial fibrillation. We do have outside data of two other such hounds- so it does occur- but is very infrequent.

Atrial fibrillation as a predictor of IW cardiomyopathy showed a sensitivity of 98.7% (low false negatives) and a specificity of 97.05% (low false positives). Thus in the IW an EKG is an adequate screening test for IW Cardiomyopathy. Very few hounds will have cardiomyopathy with a normal EKG.

Insufficient closing of the mitral valve is very common in hounds with atrial fibrillation. Non pathological valve abnormalities are very common in normal hounds. Significant valve disease was infrequent but was found in a small number of hounds.

Summary

Although the population screened was small, results of the EKG/ECHO study showed the EKG to be an adequate screening test for IW cardiomyopathy. Because of the increase in atrial fibrillation with age the EKG needs to be done yearly. If the EKG is normal an echo is not needed to diagnose occult DCM in the Irish Wolfhound.

IW cardiomyopathy is not the same as the DCM in most large/giant breeds.

There were some hounds with clinically significant valve abnormalities and hounds need at least one auscultation by a cardiologist and an echo if a non trivial murmur is heard.

One in four north american IWs has some abnormality on screening EKG. Of all these abnormalities only the arrhythmias were of concern.

Atrial fibrillation is the only arrhythmia that predicts IW cardiomyopathy.

There was a 20% overall incidence of atrial fib in the LCS study.

The average age of onset of atrial fib is 5 years.

Hounds with atrial fib do not have shortened life span.

Only half of these afib dogs die of cardiac disease, living 1-8 years after diagnosis.

The incidence of death from cardiac disease has decreased in the last 10 years.

There is a male preponderance of cardiac death which is most marked in young hounds.

More than 60% of hounds with atrial fib have a known close relative with afib. Thought to be a autosomal dominant trait with varied expression and modifiers.

Heart Testing (Continued from page 1)

will be brought to the clinic so the owner can check the information, fill out the health information and take them into the clinic for the cardiologist to complete. LCSII data is entered into a database by an independent contractor for use by our researchers.

Since there is no longer any IWF study requiring echo data on healthy, young dogs, the IWF will no longer be subsidizing the cost of such echoes. Owners can still get an echo on a healthy 2-7 year old if they wish, at the IWF cost of \$200/dog. The IWF will continue to subsidize dogs over 8 and dogs with atrial fibrillation or previously diagnosed heart disease. We are asking that owners contribute \$120 towards echoes for those dogs. We need more data on affected dogs and how heart disease progresses and we also feel these dogs need more detailed follow up. A study in that area is being designed and will be announced shortly.

Mary and I are also making some changes to the on-line signup form so that I will not have to send quite as many e-mails asking for additional information on your dog. We are trying to avoid having to attach forms. For you who managed the filling out and attaching of forms, thanks! You have no idea how much time it saves, and how many errors are avoided. This process should make it even easier.

Finally, in cooperation with the IWCA, we have changed the CHIC requirements to bring them in line with some of the recommendations from the Echo/EKG study for cardiac testing. Hounds will need to be tested annually but, for most dogs, that will be an EKG and auscultation only. Dogs need to be 24 months old. Echoes may still be required to clear up equivocal findings on auscultation. It is important to remember that CHIC stands for Canine Health Information Center and the information in that database is only a part of the information a breeder needs to make decisions. Most of our breed will eventually go into atrial fibrillation and we cannot afford to eliminate all of these dogs from our gene pool.

The data from the original Lifetime Cardiac Study is still providing new insights but the only reason is because dedicated owners took the time to get their dogs tested and to fill out questionnaires, year after year, even on the dogs that were no longer going to shows.

Developments in Osteosarcoma

There have been a couple of developments in the osteosarcoma research. First, the study at The Broad that so many have helped support is still going on. We have not had a report in awhile due to the illness of Dr. Lindblad-Toh. However, there has been a publication: This project has recently come under the guidance of Dr. Elinor Karlsson. She has been running the "Darwin's Dogs" project from the University of Massachusetts and these two databases are being combined. Look for additional updates soon.

Meanwhile, the IW Health Group in Great Britain has been working with Nottingham University Veterinary School on a survey for wolfhound owners on treatment options. This is a fairly simple survey and anyone who has or has had a dog with osteosarcoma is eligible to participate. The link to the survey form is: https://www.surveymonkey.co.uk/r/IWH_osteosarcoma_treatment_survey. The purpose of this study is to evaluate options for treatment, although it is doubtful any one approach will be best for all dogs or owners. If you wish more information on this study, you can contact Maura Lyons in England (mailto:mauralyons23@gmail.com) for additional information on how the results are to be used. Use OSA Study in the subject line. Please consider supporting this effort. Nottingham is also cooperating with the group of genetic researchers that we have been supporting through the Broad Institute.

Longevity (Continued from page 3)

years). These are followed by many other cancers including breast, stomach, prostate, lung.

The next leading cause of death overall is cardiac. In the LCS study documentation of cardiac disease was required and sudden death was excluded thus incidence may have looked lower than in other reported studies.

The third leading cause of death is rear weakness.

The 4th leading cause of death is other. This was a large number of 1 or less % with "incompetent vet" leading the way followed by post op complications, poison, volvulus, other GI problems etc etc.

Pneumonia continues to be a significantly killer of IWs at 4.49% of deaths.

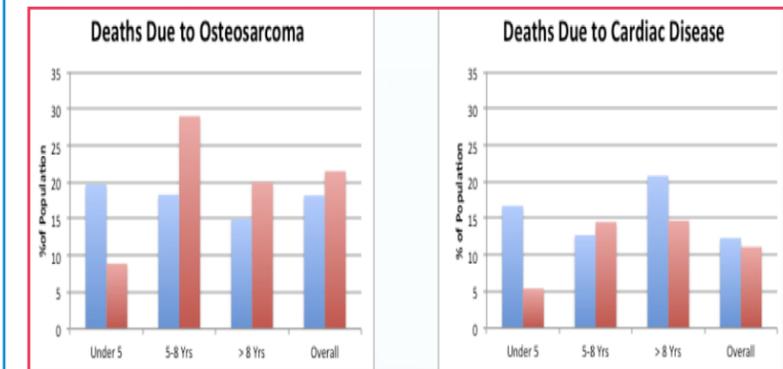
Overall sudden death was reported in 3.58% of hounds. These were dogs found dead unexpectedly without a known diagnosis of heart disease.

The difficulties in determining accurate cause of death have been previously described by Bernardi and have not improved in the last 20 years. Some diagnoses are clear such as osteosarcoma or mammary cancer or lymphoma while the diagnosis of hemangiosarcoma can be elusive so the reported incidence is probably low.

Despite all the difficulty with diagnosis and the passage of 20 years the killers of our hounds remain remarkably unchanged.

Other notes on Cause of Death

It has also been reported that males have a higher incidence of osteosarcoma than females. However neither Bernardi nor the LCS data verified this. In the overall osteosarcoma populations there were actually more affected bitches. However, when the data was broken down for age groups there is a marked preponderance of males in young hounds (under 5) which is lost as hounds age. The same holds true for cardiac death with a marked preponderance of males in the 5 and under population. This gender difference is not as dominant in the older hounds.



Blue = male red = female
Effects of Age & Sex ----- Osteosarcoma & Cardiac Disease

Summary

Over the past 20 years there has been an increase in the lifespan of the LCS-reported population of North American IWs.

The major killer of IWs is cancer at 36.6% (no decrease in the past 20 years). Osteosarcoma, responsible for 20% of all deaths, continues to be the number one killer of IWs.

Osteosarcoma also shows a marked male preponderance in young dogs (under 5) but overall incidence even dogs/ bitches.

Lymphoma and hemangiosarcoma are the second and third causes of cancer death.

In the LCS data heart disease was overall the number 2 killer of hounds but the incidence has decreased in the last 10 years.

The number of deaths from bloat has markedly decreased in the last 20 years.

Euthanasia for rear weakness or "hound could not get up" is now the 3rd leading cause of death.

Irish Wolfhound Foundation – Rescue Grant Report

Rescue Reimbursements from December 14th, 2015 thru May 31st, 2016

(The figures below are strictly regular reimbursements *shared* between the IWCA & the IWF. They are not reflective of any Houston, TX rescue charges.)

Date	IW	Amount	State
December 14, 2015	Female	\$577.00	MI
Previous Balance for 2015 - \$1,749.80			
Reimbursement Total for 2015 - \$2,326.80			
March 30, 2016	Female	\$268.35	IL
March 30, 2016	Male	\$333.95	IL
March 30, 2016	M/F	\$154.50	IL

Reimbursement Total - \$756.80

Update on the Houston TX rescue hounds: Listed below, is the current number of hounds from the 2014 seizure.

RMIWA – 10, Mary Ryan – 4, PVIWC – 8, and SCIWC - 35

Sending a huge “thank you” to everyone who has supported both the IWCA and the IWF rescue funds. All of you make reimbursements possible. Thanks!

Jean A. Minnier – IWCA & IW Foundation – Rescue Chair

The Irish Wolfhound Foundation

The purpose of the Foundation is to promote the appreciation, knowledge, and understanding of Irish Wolfhounds by raising and allocating funds for research, education, and rescue.

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 Anne Janis, MS
 Nathaniel B. Sutter, PhD
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 William D. Tyrrell Jr., DVM, DACVIM
 Frances Abrams, PhD, Administrative Coordinator
 Frances.abrams@att.net

The Irish Wolfhound Foundation, Inc.

Treasurer’s Report Balances are as of 04/11/2016

\$167,636.67 General Fund
\$121,668.15 General Endowment Fund
\$27,384.72 Rescue Endowment Fund
\$316,689.54 Total Cash Accounts

Disbursements: \$24,438.66
\$3,914.48 - Health Research
\$14,516.86 - TX 72 Rescue

Presidents Message Spring 2016

Just back from another great IWCA National, a big thanks to Show Chair Sue McClure and all her hard working committees for putting on such an event. I would like to also thank Courtney Smith & Belle McCuskey for organizing another wonderful Auction, of which proceeds benefit the IWCA and the Foundation.

As some of you might already know that the Foundation Gift Shop is no longer. Our inventory reduction sale at the National was very popular with items flying off the shelves. The Foundation will have an on-line gift shop that will be activated later this year; items will include Foundation logo items only, stand by for more information on its launch. I would like to acknowledge the hard work that Dick & Jane Staudt have put into the gift shop for the last ten years. Thank you Staudt’s!

Have a great summer everyone!
 Regards,
 Doug Marx – IWF President

The Irish Wolfhound Foundation gratefully acknowledges contributions from the following supporters

- | | | | |
|--|---|---|---|
| Frances Abrams | Sheila Gill | Susan McGreevy | Sharon Scheidman |
| Beverly Alba | Jimmy & Jeri Glynn | Susan Montgomery | Deb Schmidt |
| Michelle Andrews | Eliza Gordon | Lesa Newbitt | <i>Dedicated to Risha Cuprit for her love of Irish Wolfhounds and concern for the welfare of all animals!</i> |
| Mindy Balingier | Linda Grado | Bill O’Brien | Sandra Shacklett |
| Gloria Barrick | Greater Twin Cities United Way | Harald Odenwald | <i>IMO: CH Liliput Scarlett Lilli</i> |
| Primrose A Barry | Donna & Larry Greene | Mary O’Malley | Debbie Sharpe |
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| <i>To my dear friend Frances & IMO the WONDERFUL Tabitha</i> | Maura High | <i>Celebrating Madame’s 10th</i> | Amanda Spencer |
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| <i>IMO: Ann Wilkins</i> | | | |



The Irish Wolfhound Foundation, Inc.

Focus

537 Hackman Rd.

Lititz, PA 17543

Change Service Requested



Photo by Mariellen Dentino

A needed rest after hard work!

THE Irish Wolfhound Foundation



**With your donations the IWF is taking steps
to insure your hounds will have a healthier future.**

Please use my contribution for the following:

Research Education Rescue Wherever it's needed most

Name: _____

Address: _____

City/State/zip: _____

Country: _____

Email: _____

All donations to The Irish Wolfhound Foundation are tax-deductable.

Make checks payable to: The Irish Wolfhound Foundation, Inc
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David Milne, Treasurer — 150 Creek Rd — Phillipsburg, NJ 08865