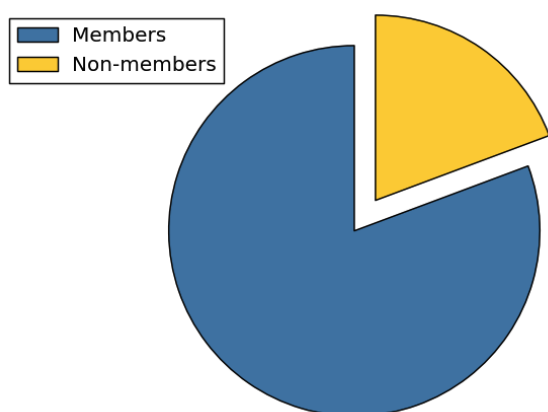


# Norfolk Terrier Club of Great Britain Breed Health Survey 2019/20

The 5 years since the last health survey have gone in a flash, and here we are again. Once again, the purpose of running a Health Survey is to assess the current state of the breed health-wise, to monitor ailments and health issues identified previously, and to identify any new health trends in order that the Club can make plans to ensure the health of the breed going forward.

Before we move on to analysing the data, I'd like to say a big thank you to everyone who took part in the Survey, either online or via pen and paper. The introduction of an online version for this edition was generally well received, and allowed for the Survey to run much more efficiently at every stage. The Club is aware that not everyone is comfortable or willing to input their data online, so for this reason we opted to maintain the pen and paper option in order to gather as much data as possible. However you responded, again thank you.

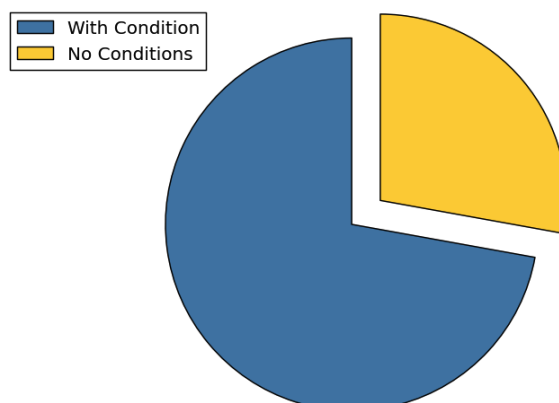


Overall, we received 259 responses, from the owners or breeders of 679 Norfolk Terriers. This represents a drop in responses of over a third when compared to the 2015 edition of the Survey (424 responses, down 38%).

Of those responses, 209 were from Club members, and the other 50 from non-members. *Fig.1*, left, gives a visual representation of these figures.

*Figure 1: Proportion of responses from Club members*

Moving on to the Norfolks themselves, of the 679 we have data for, 189 (27.8%) had not been to the vet for anything other than routine visits in the last 5 years – see *fig.2*, right. This number may even be higher, as it covers only those 98 households where none of the Norfolks had encountered any health issues in the last 5 years.



*Figure 2: Proportion of dogs with no reported conditions*

In terms of the sex of affected dogs, with the exception of conditions which can only affect one sex, we don't have enough information to present an accurate picture. Although this information was provided in many responses, it was not provided in enough to be used reliably to draw conclusions.

## Health Conditions: An Overview

We start with a look at the raw numbers – *fig.3*, below, shows the number of dogs diagnosed with (or treated for) each of our listed conditions. This is a straightforward bar chart or histogram, where the height of each bar represents the number of cases reported. We'll delve into many of these in more detail in later sections of this report.

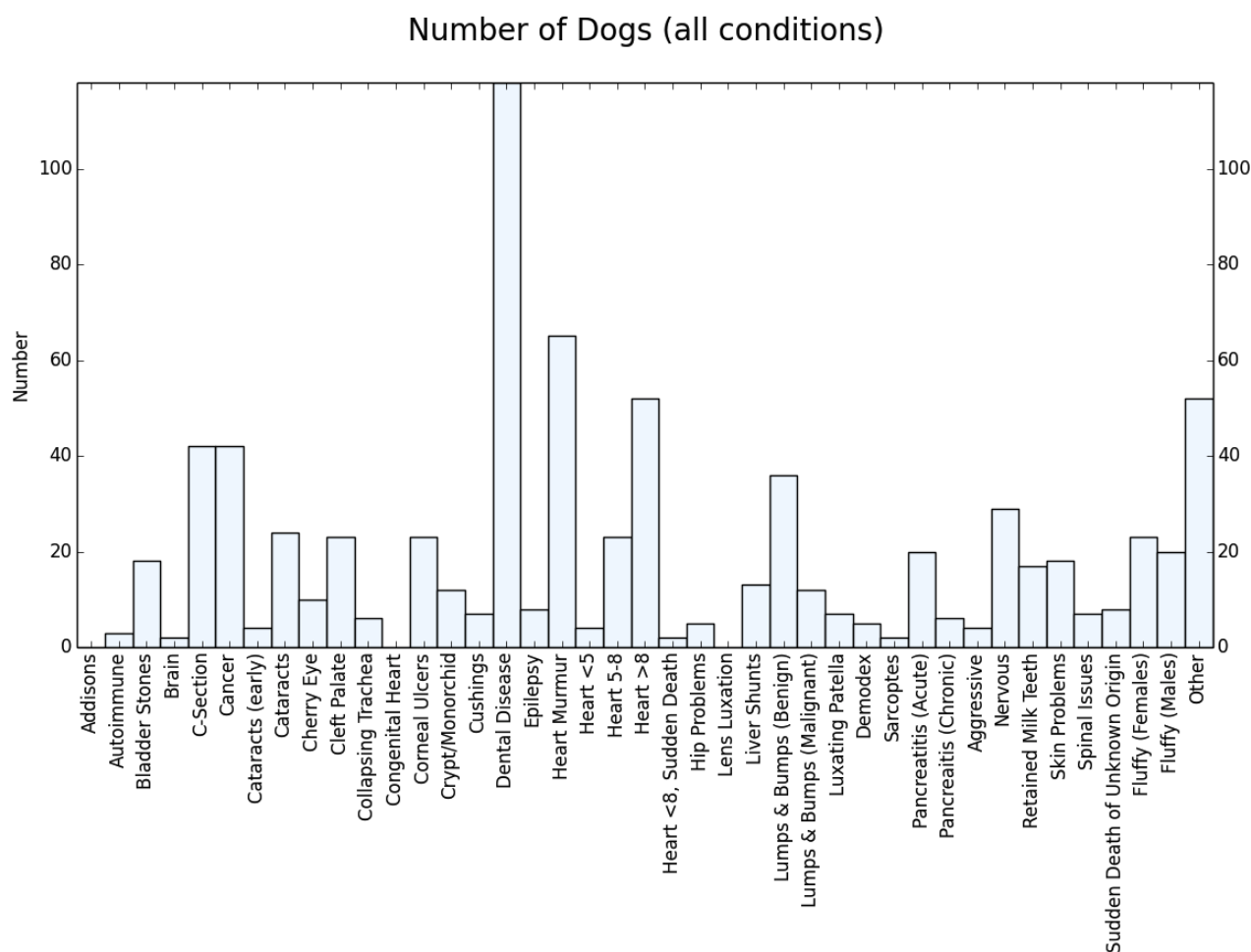


Figure 3: Number of responses for all conditions

As before, heart issues collectively remain conditions of note, affecting just over one-fifth of all dogs in one form or another. This is followed by dental disease, an issue added this time around owing to a number of reports in the last survey, with 118 instances in this Survey. Taking into account that this covers each case that required an anaesthetic to treat, and that several dogs needed more than one treatment through their lives, this covers somewhere in the region of 100 dogs (~15%).

While those represent some of the more common reported conditions, we saw low numbers of autoimmune conditions (3), brain diseases (2), collapsing trachea (6) – although one respondent was told by their vet it was a common problem with the breed, our figures do not support that at all – mange, of both types (5 demodectic and 3 sarcoptic) and spinal issues (7), along with no cases of Addison's disease, congenital heart problems, nor lens luxation.

## Changes from the Health Survey 2015

Comparison of the data with that from our previous Survey can give us a snapshot of how the health of the breed has changed in that period. With the variation in the response levels between the 2 Surveys, direct numerical comparisons are not useful; for that reason this section will consider proportional changes – any large changes can be assumed to be likely representative of a change in the overall prevalence, while small changes suggest actual numbers across the breed are likely broadly similar to last time.

Although we can identify probable trends, the variation in data numbers makes it difficult to draw any definitive conclusions. These trends, however, provide a good base for the Club to plan its health programs going forward.

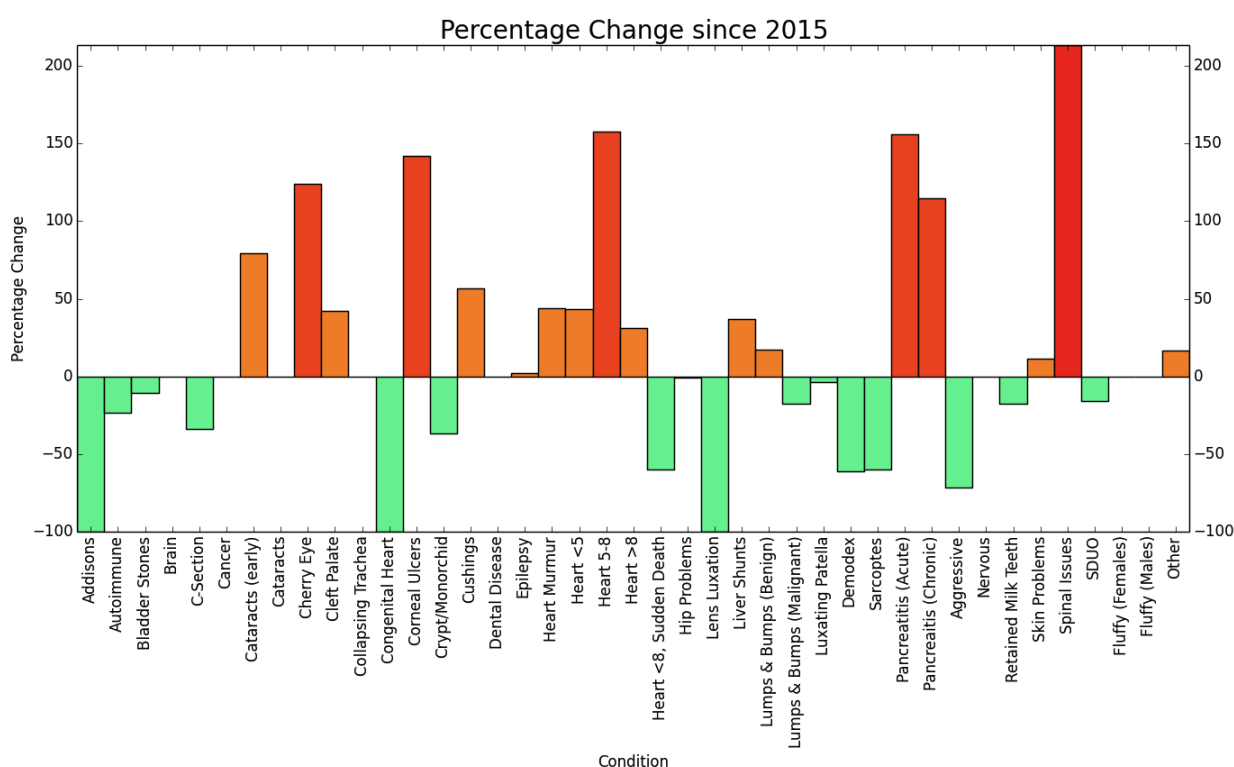


Figure 4: Percentage change since 2015 – green represents a proportional reduction in cases, red an increase with deeper shades showing a higher increase than paler

This section will look at what *fig.4*, above, means, and we'll go into greater detail on specific conditions later in this report.

Looking at a comparative list, such as *fig.4*, shows which conditions have become more prevalent, which have remained roughly stable, and which have improved over the last 5 years.

### No reports:

Addison's disease, congenital heart conditions\* and lens luxation were absent from all responses this time around, therefore all 3 showed a 100% decrease. All 3 were low last time, but a complete absence is nevertheless positive.

### Proportional Rises:

In terms of proportional rises, spinal issues have seen a comparatively large jump, but still affect very few dogs – just over 1% of the total. Pancreatitis, in both acute and chronic forms were higher in absolute numbers despite the lower response, but each affect a relatively low number of dogs so are issues worth monitoring more than anything of particular concern at the current time.

### **Proportional Reductions:**

While some conditions have risen, proportionally, since last time, there were also some noticeable reductions: no reports of Addison's disease, congenital heart conditions\* nor lens luxation; fewer crypt- and monorchid dogs (those with neither or only one testicle descended); much lower incidences of both forms of mange (each down over 60%); and a third fewer caesarian sections. Given C-sections were the largest single issue reported five years ago, this can be considered a success. Behaviourally, we saw a big drop in cases of aggression, although some of this can be put down to the inclusion of a separate category for 'nervous' dogs in this year's survey. Nevertheless, fewer classifications of 'aggressive' can only be a good thing.

### **Condition-Free Norfolks:**

In other good news, 98 respondents – owners of 189 Norfolks – said they had had no cause to take their Norfolks to the vets for anything outside of the routine visits over the last five years. That's over one-quarter of all of the dogs included in the survey (27.8%), and while some of these will be puppies and juveniles, we also had comments from owners of Norfolks in double-digits with no health issues to report.

Put another way, more Norfolks in our survey have been healthy throughout the last 5 years, than have been diagnosed with or treated for any one single condition (including 'heart conditions' in total). That's certainly something to be proud of.

*\*See Heart issues, under 'Issues of Most Concern', later in the report for more details*

# Age Ranges for Each Condition

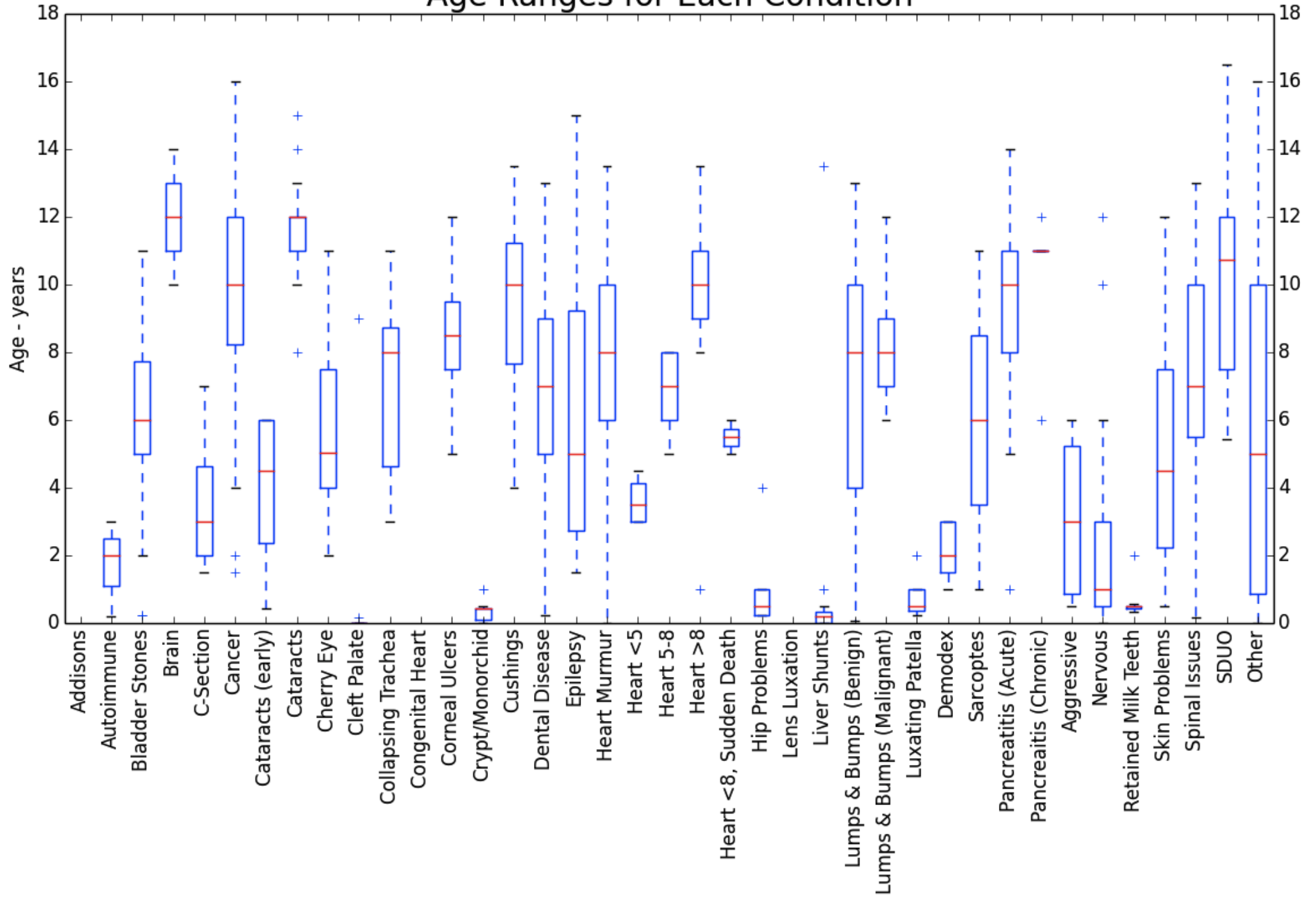


Figure 5: Age spread for each condition

## Conditions by Age

*Figure 5*, on the previous page, shows the spread of the ages at which the Norfolk Terriers in the survey were diagnosed with, or treated for, each listed condition.

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Firstly, for those unfamiliar with box-and-whisker diagrams, a brief overview to help decipher the graph:

The red line represents the median value – that is, the middle value when all data are placed in numerical order.

The box surrounding the red line shows the how far spaced the core of the data is from the median; the smaller the box, the more closely grouped the data. A large box means a wide spread of the data, so these are usually unhelpful in finding useful information.

Finally, the dotted lines above and below show how spread the rest of the data is – again, smaller spread means more closely-grouped data. In some cases, outliers (those well outside the majority of the data) are displayed as plus symbols (+).

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Looking at *fig.5*, the most striking thing is that there is at least one condition affecting Norfolks of any age, but that the youngest are least prone overall.

Some conditions, such as crypt/monorchidism (more details in section 'Improvements from 2015' later in this report), and retained milk teeth are almost always going to be diagnosed in puppies as they are routinely checked for at early vet visits, and will often be resolved at around 6 months of age; some naturally, others with veterinary intervention.

It should come as no surprise that as Norfolks age, the number and range of issues they encounter tends to increase. This is a pattern seen across breeds, and indeed species, as we humans find the same. Brain diseases, malignant lumps and bumps, and sudden death of unknown origin all seem to be much more common in older Norfolks, with the overall 'cancer' also seemingly more likely in older dogs (though it is also an issue in younger dogs).

The majority of conditions appear to occur before the age of 12 (although the graph includes diagnoses in dogs over 16-years-of-age), but with an average lifespan in the region of 14 this is to be expected.

## Issues of Most Concern

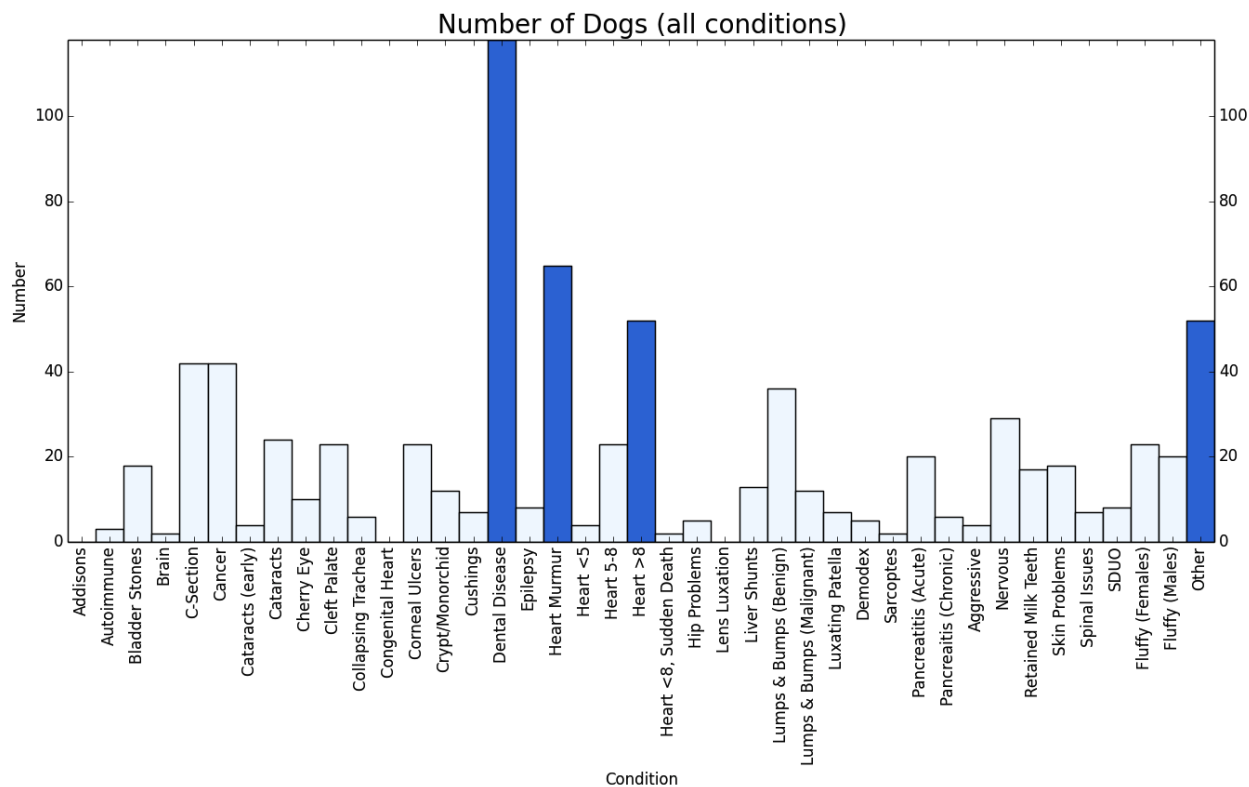


Figure 6: Number of cases of all conditions, with those over 50 incidences highlighted

Although *fig.4* showed proportional increases in certain conditions, looking at the absolute numbers shows these are not necessarily as concerning as those figures make them look; it's important to consider both before drawing conclusions.

In the case of spinal issues, we saw a marked increase in the proportion of cases, but looking at the actual numbers shows they affected fractionally over 1% of all Norfolks included within the survey. Although certainly worrying for the owners of those few dogs that are affected, spinal issues are not conditions of concern for the Club at current numbers.

The darker blue bars in *fig.6* highlight the conditions most affecting the Norfolk Terrier as a breed over the last 5 years, and as in 2015 we see heart problems appearing relatively frequently, along with dental disease, followed by caesarian section, cancer and lumps & bumps not far behind.

### Heart Issues

As mentioned on the previous page, heart issues remain the most common condition found in Norfolk Terriers. The total number of reported cases was higher than in the last Survey, and when the lower response rate this time is factored in, this represents a proportional rise of 57.9%.

In order to know whether the numbers we see suggest a breed susceptible to heart problems, we can compare our figures with those of a breed where heart disease and heart issues are common - the Cavalier King Charles Spaniel.

A recent study of the breed by the Royal Veterinary College<sup>(1)</sup> found that almost half (448.83 per 1000, or 44.9%) of all Cavalier King Charles Spaniels had some form of cardiovascular condition or defect, with 30.9% being diagnosed with a murmur during their lifetime. It was not clarified how many of these dogs required treatment for their murmurs, and how many lived happily without intervention.

In our Survey, we found 21.5% of Norfolks were affected by a heart condition, compared with ~15% last time around, so it's likely the actual figure lies between  $\frac{1}{5}$  and  $\frac{1}{6}$  in the Norfolk Terrier. Just less than half (9.57%) of all the reported heart conditions were murmurs which did not require treatment, meaning just under 12% of the Norfolk population were diagnosed with a heart condition that required treatment over the last 5 years.

We've seen that the Norfolk does not suffer heart issues on the scale of a breed known to be susceptible, but it's still one of the most prevalent conditions we see. *Fig.7*, below, shows the spread of the various heart issues across the life of the Norfolk Terrier.

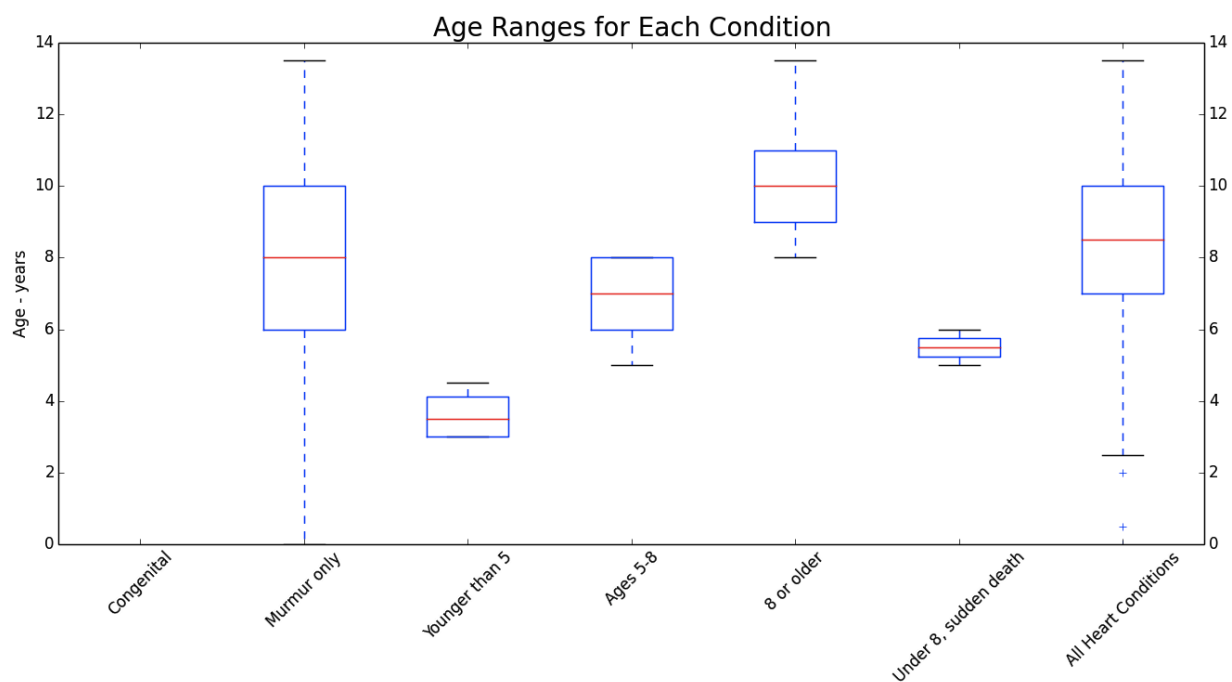


Figure 7: Age ranges for all heart conditions

#### *Congenital Heart Issues:*

Although several respondents included information in this box, we were looking for 2 specific conditions which would commonly lead to either death or euthanasia shortly after birth, and thankfully neither of these conditions were mentioned. As a result, we saw no reports of congenital heart defects over the last 5 years, and all of the reported conditions were transferred to the relevant groups below.



#### *Murmur only, no treatment:*

65 cases, with an average age just below 8, although the spread was relatively wide, and there were cases reported across the lifespan of the Norfolk. Accounting for almost half of all heart issues in the breed, the fact no treatment was deemed necessary is a positive, but it is nonetheless something the Club should continue to monitor closely.

#### *Treated heart conditions:*

Under 5 years-of-age, we saw very few cases – 4 in total, and none before the age of 3.

Between the ages of 5 and 8, although affecting relatively few dogs (3.39%), we still saw a definite rise from the 1.32% affected in the last survey (an increase of 1.6x, clearly shown in *fig.4*), and even though we had fewer responses overall this time around, we had more cases reported so this is certainly something to monitor going forward. The average age was just under 7-years-old.

Over the age of 8 is again the bracket where we see the highest incidence of heart issues, with a similar percentage to the previous survey, and an average age just over 10.

#### *Below 8, leading to sudden death:*

Sadly, we had 2 respondents whose dogs fell into this category. Although this is a proportional reduction from last time, which is positive, it's no less stressful for the owners. We did have several other responses to this question, but the dogs were older than 8, so were transferred to the 'Heart conditions after the age of 8' category above.

#### *Overall heart conditions:*

Combining all the data gives us an overall picture. From *fig.7*, we can see the most common point at which a Norfolk Terrier will be diagnosed with a heart condition is just over 8 years old, with most in the range of 7-10. As we can see from the other bars, there were cases at almost every age (although very few before the age of 3, and all of these were murmurs that did not require treatment). There were also relatively few diagnosed between the ages of 4 and 6, although there's no clear reason for this, and it may just be a quirk of the data.

### **Dental Disease**

A new category included this time around, after a significant number of respondents last time raised it as an issue they thought worth recording. There are many other factors that can affect the standard of a dog's oral health aside from genetics, but given this was the single most-reported condition in the survey (excluding the overall grouping 'heart conditions'), covering approximately 15% of the dogs in the survey, it is certainly something that warrants further investigation.

## Caesarian Section

Appearing in fifth position in the numbers tally (*figs.2 & 6*), at first glance this may seem like a major concern. Looking at *fig.4*, we see that there has actually been a proportional decrease of over one-third since last time, meaning we are seeing fewer births needing veterinary assistance. If we also consider that several of these are repeat sections for bitches who gave birth to subsequent litters, the number of Norfolks involved drops around a third. According to Kennel Club statistics, the annual number of litters has remained relatively steady over the last 5 years<sup>(2)</sup>, and given that Kennel Club-recorded caesarians number approximately 20 per year (suggesting our figures are likely representative), this suggests that the breed is better able to cope with natural birth than 5 years ago, which may be a natural improvement, or may represent the efforts of breeders to select for traits more suited to natural birth. Whatever the reason, fewer Norfolks needing veterinary intervention to give birth is good for the breed as a whole.

## Cancer and 'Lumps & Bumps'

With 'cancer' being a new category for this edition of the Survey (expanded from just 'lymphoma and leukaemia last time'), we don't have direct data with which to compare. We did, however, opt to keep the 'lumps & bumps' categories, because although many overlap with cancers, we know owners do not always consider certain lumps and bumps as such, and we wanted data on as many cases as possible. It also provides us some data that we can compare, albeit with caveats that some cases will be transferred to the cancer category, hence why they've been grouped together here.

Overall, 'Lumps & Bumps' were roughly in line with the previous survey (*fig.4*), with a slight increase in benign lumps, coupled with a slight drop in malignant lumps, many presumably picked up by the 'cancer' category.

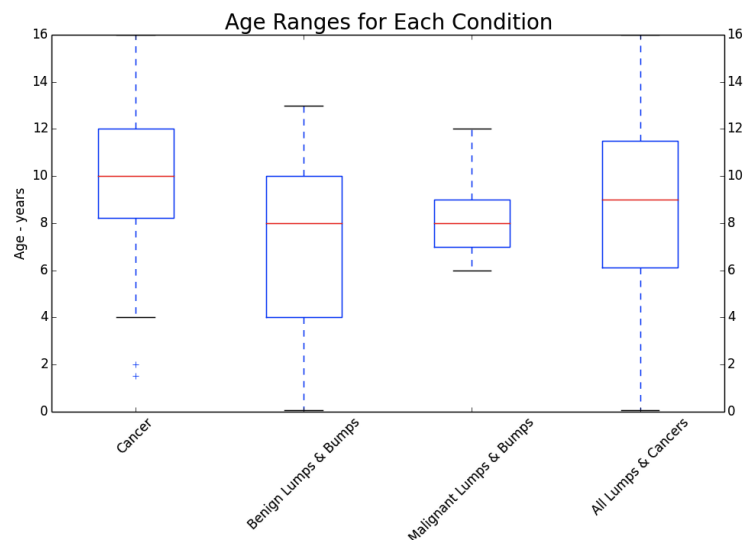


Figure 8: Age spread for cancers and lumps & bumps

In terms of diagnoses, there was no one type or location that particularly stood out, with a handful of cases of lymphoma, kidney and liver tumours and individual cases of several other types and at other locations around the body.

As can clearly be seen from *fig.8*, cancer and lumps and bumps of one form or another affect Norfolk Terriers of all ages; though the most common age is around 8 for all causes, with those specified as 'cancer' tending to come slightly later in life. Malignant lumps and bumps show a slightly tighter cluster for the age range, but this is likely solely down to the lower number of reported cases.

## Improvements From 2015

As has already been mentioned, along with issues of concern for the Club to monitor, we've also seen some reductions which represent the hard work the Club and its members have put in over the past half-decade.

### **Addison's Disease and Lens Luxation**

We saw no cases of either disease reported, and as we only had 1 case of each in the last Survey, we can consider these to currently be of no concern within the breed.

### **Crypt- and Monorchidism**

Similar to the other sex-specific condition (Caesarian section), we saw a decrease in the reported rate of cryptorchidism (where neither testicle descends from the abdomen into its usual position) and monorchidism (only one testicle descends normally). Under 2% of Norfolks were diagnosed with either condition, down from nearly 3% last time. Given the relatively low numbers in both Surveys, although it is possible this represents a reduction in prevalence, we can't be sure of this. We can, however, infer that the prevalence has not significantly increased, which is positive.

*fig.5* shows the average age to be very low (approx 4 months of age) in comparison to most other conditions, but this is because the testicles are generally apparent in the early age, and will have descended fully by the age of 6 months in the majority of dogs. By the age of 1, vets will generally recommend surgical removal of any still-undescended testicles, and many dogs not intended for breeding will likely have been castrated by this age anyway.

### **Mange**

Both forms of mange, Demodex and Sarcoptes, showed drops of just over 60% since 2015. As other skin complaints were roughly in-line with 2015, we can safely assume the rate of mange within the Norfolk population has dropped. Just 2 reported cases of sarcoptic mange is great news, and with several routine 'flea' treatments also effective in preventing and treating both forms of mange mites, we should continue to see these numbers staying low. Sarcoptic mange is highly contagious, both to other dogs and humans (and many other mammals), so it's important to treat any cases that do occur.

### **Aggression & Nervous Behaviour**

Reports of aggressive behaviour (defined as attacking and/or biting other dogs or people) were reduced over 70% from last time – a few of these will be accounted for in the new 'nervous' category, but not many – which is very good news for the breed. Although not a reputation the breed holds, the lower the number, the better.

We also had 29 dogs reported as having a 'nervous' temperament – timid or unsure of new people or situations – although many reported that this was short-lived and once given a chance to assess the situation in their own time, the Norfolks then came out of their shells and were much happier. 2 owners reported that newly-adopted Norfolks were very nervous until they settled in.

## Other Information

### Fluffy Coat

Although not a condition that affects the daily lives of Norfolk Terriers, the 'fluffy' coat is undesirable from a general maintenance point-of-view, as it

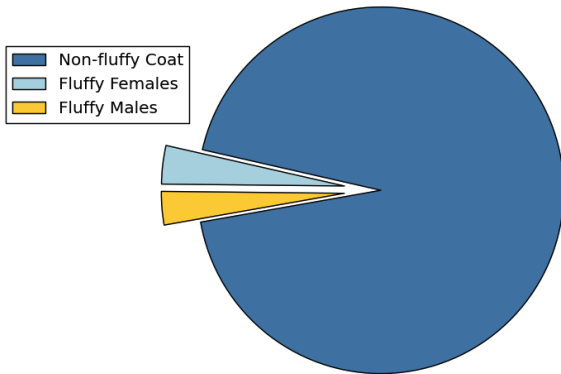


Figure 9: Norfolk Terriers with 'Fluffy Coat'

makes the coat difficult to strip and keep under control, and would be viewed negatively in the showing scene as it contravenes the Breed Standard. This means, from a Club perspective, it's worth tracking the prevalence in order to keep it under control, but at least two respondents stated that they loved their Norfolk's fluffy coat and wouldn't change it. For show dogs, the fluffy coat is not acceptable, but for Norfolks kept purely as pets it seems to be less of an issue.

Overall, as shown in *fig.9*, fluffy coat affected 43 dogs, representing just over 6% of all the Norfolks in the Survey (meaning ~94% had a normal coat). The split showed slightly more females than males affected, (*fig.s 9 & 10*), but given the numbers involved it's likely that it's equally prevalent in both sexes.

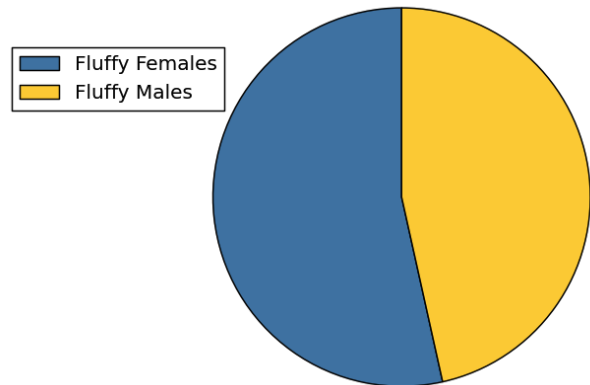


Figure 10: Fluffy Norfolks by Sex

### Other Conditions and Comments

The final section of the Survey, as last time, was left open for respondents to offer their thoughts on the Norfolk Terrier as a breed, and to provide us with information on any other conditions they had encountered.

- The most common unlisted condition was kidney disease/kidney failure, with 6 cases (<1% of the Norfolks in the survey).
- One breeder reported a litter of 5 suffering from HMD – a liver issue, also known as MVD - but with no other reported cases, it's likely just an unfortunate case, as it is known to affect other Terrier breeds moreso than non-Terriers.
- 3 different dogs suffered from reverse sneezing as puppies, but this often resolves itself without treatment.
- The rest were individual cases of various ailments but most were common injuries and issues with little-to-no hereditary involvement (meaning there's little the Club can do, through word or action, to materially affect them from recurring).

One condition that appeared several times in this section last time around was obesity – although there may be a small genetic component to this, it was felt this wasn't enough to include it in the Survey, and given there was no mention of it at all this time around, that decision proved correct.

## Conclusions

Having sorted through all of the data, analysed and compared it to 2015's responses, in general it seems the Norfolk Terrier lives up to its billing as a hardy breed.

There are some issues of concern, with heart conditions again topping the list (when taken as a combined group category, with congenital heart issues in particular showing a large rise), just topping dental disease.

There are also areas in which we have seen big reductions, with fewer crypt- and monorchid males, and fewer caesarians, along with fewer cases of mange, and  $\frac{2}{3}$  fewer reports of aggressive behaviour.

Looking at the ages Norfolks develop conditions and diseases, the range spans the entire lifespan of the Norfolk, with different issues more prevalent at different ages (see *fig.5* for more details), but when combined with the number of cases of each condition we see that the expected pattern of increased age leading to increased prevalence of illness is present.

As a final note, I'd just like to say thank you once again to everybody who took the time to respond to this Survey; your input is vital to the accuracy of the data, and for the future health of the breed. I hope your Norfolks remain happy and healthy for years to come, and I look forward to reading about it all in 5 years' time!

### **Richard Harle BSc (Hons)**

reporting for the Norfolk Terrier Club of Great Britain Health Survey 2019/20.

## References

<sup>(1)</sup> Infographics – Disease prevalence data for UK Cavalier King Charles Spaniel, Royal Veterinary College, University of London.

<https://www.rvc.ac.uk/vetcompass/learn-zone/infographics/canine/cavalier-king-charles-spaniel>

<sup>(2)</sup> Kennel Club-recorded registration totals, 2014-18, 2019