

# NTCA Health Committee: 2022 Annual Report

September 16, 2022

Submitted by: Jane R. Schubart, Chair

The following is an update of Health Committee activities since our Fall 2021 report.

## **NEW PROJECTS**

### **Reproduction Health Breed Survey**

The goal of this survey is to gather information from NTCA member-breeders about their experiences breeding Norwich terriers. Questions focus on breeding the bitch, pregnancy, whelping and taking care of puppies for the first 3 weeks. We distributed the survey this summer and approximately **85 breeders responded!** Jane will analyze the results and prepare a report in the next month or so.

### **Exercise Tolerance Test (ETT)**

This pilot study was conducted by NTCA members in Texas to examine the feasibility of the 3-minute ETT as a simple, noninvasive screening test for NTUAS. Dr. Kelley Thieman (Texas A&M) is leading this study and evaluated 19 Norwich terriers on Saturday May 14th. Joan Jung provided the facility and Rhonda Krupp, Karen Vaughn, and Barbara Einspruch coordinated this successful event. Future pilot studies are planned to modify the ETT for Norwich by speeding up the pace or increasing the duration. The logistics of conducting an ETT screening worked well. We are grateful for the interest expressed by Dr. Thieman and consultation of Dr. Lynelle Johnson (UC-Davis)

### **AKC Gazette columns 2022**

Two articles related to health were published in AKC Gazette Breed Columns. In the February 2022, the article *"How long will my Norwich live? Insights from the breed health survey,"* provides mortality data and draws attention to the high proportion of overweight dogs in the sample. The August 2022 column also relates to health: *"Seeking health care on social media: probably not a good idea."* All Norwich terrier breed columns are available on the NTCA website:

<https://norwichterrierclub.org/about-norwich/akc-gazette-breed-columns/>

## **ONGOING PROJECTS**

### **Characterizing Developmental Lung Disease as a Cause of Sudden Death in the Norwich Terrier**

CHF Grant # 02507

Project Lead: Kurt Williams, DVM (Oregon State)

We reported in October 2022 that the initial GWAS attempts failed to identify a genetic basis. Since then, genomic DNA from 4 Norwich terriers were sequenced to ~30X coverage using the Illumina Novaseq60. Variants in 2 candidate genes were found, however, these variants were present in only 1 affected dog and present in control dogs. In noncoding exons of the candidate genes, 3 variants in 2 genes were found which were unique to only 1 affected dog (not in control dogs but also not in the other 2 affected dogs).

### **Norwich Terrier Upper Airway Syndrome (NTUAS Study)**

Characterization of Upper Airway Syndrome in Norwich Terriers (CHF Grant 02232-MOU)

Project Lead: Bryden J. Stanley, BVMS

This study characterized NTUAS in detail through comprehensive history, oral examination and upper airway endoscopy in 150 Norwich terriers, and provided a severity scoring system. The CHF study is complete. The manuscript will be submitted to *Veterinary Surgery*, the top journal in the surgical fields.

Dr. Stanley's presentation "*Upper Airway Syndrome: Results of a Cross-Sectional Study in Norwich Terriers*" is available at VetVine **Canine Health Bytes On Demand**:

<https://www.vetvine.com/article/673/akcchf-upper-airway-syndrome-results-of-a-cross-sectional-study-in-norwich-terriers>

This webinar summarizes the study findings: signs of upper respiratory compromise, importance of a full upper airway exam; components that appear to contribute to NTUAS; how the NTUAS Score was developed and what it means; and the nature of progression of NTUAS over time. The webinar is 1 hour and approved for *1 hour of CE credit by AAVSB RACE, NY State, and the NJVMA for veterinarians and veterinary technicians. CE credit is free* (paid for by NTCA). Your local veterinarians may be interested!

### **NTUAS Genetic Study (MSU)**

***This study is conducted under the auspices of Michigan State University***

In preliminary work, 22 dogs were genotyped and GWAS conducted. Some interesting regions emerged but nothing was significant. Subsequently, the MSU team genotyped DNA samples collected in Dr. Stanley's study for the mutation in *ADAMTS3* and found the same pattern reported by Marchant et al. (2019). Next, they identified 8 dogs from the study and did whole genome sequencing. Since the last report, this data has been analyzed, but nothing obvious emerged. The geneticist with help from trainees focused on this project over the summer. NTUAS appears to be a complex disease, and the analysis is muddled by *ADAMTS3*. The next step involves sequencing additional dogs, specifically families.

**Next step:** The geneticist needs families with both affected and unaffected siblings – that is to say, littermates where at least one has NTUAS and at least one does not. Confirmed diagnosis will be needed and blood samples. Please contact Jane Schubart ([ascot.js@gmail.com](mailto:ascot.js@gmail.com)) if you have Norwich terriers who might meet this criteria and are interested in helping, or have questions.

Committee Members: Jane Schubart (Chair), Jan Birchall, Rhonda Krupp, Rainee Johnson, Susan Miller Hall, Deb Lang, Amy Clark