RESEARCH PROGRESS REPORT SUMMARY

Grant 02322: Analysis of the Health, Behavioral, and Longevity Data Collected in the 9/11 Medical Surveillance Longitudinal Study

Principal Investigator:	Cynthia Otto, DVM, PhD
Research Institution:	University of Pennsylvania
Grant Amount:	$37,672.02
Start Date: 2/1/2017	**End Date:** 1/31/2020
Progress Report:	End-Year 2
Report Due: 1/31/2019	**Report Received:** 2/25/2019

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Original Project Description:

Following the attacks of September 11, 2001 on the World Trade Center and Pentagon, the AKC Canine Health Foundation awarded funds to the only lifetime longitudinal study tracking the medical and behavioral impacts of a major national disaster on the health and behavior of search & rescue (SAR) dogs. On June 6, 2016, the last study dog was laid to rest and data collection for the 9/11 Medical Surveillance Study was concluded. With 15 years of data, including annual radiographs, bloodwork, and handler surveys (health, performance, and behavior), the opportunity for in-depth analysis and discovery of new best practices and protocols for SAR dogs has never been greater. Data collected from deployed dogs will be compared to data collected from control SAR dogs that underwent similar training and careers, but did not deploy to 9/11. The investigators will explore three key areas of data: behavior, occupational hazards, and longevity related to health and work. Critical information gleaned from this study will have major implications applicable to the development, training, and care of our nation's SAR dogs, other working canines, and even companion dogs. Results will improve our understanding of traits of successful SAR dogs and thus influence dog selection. Importantly, following characterization of trait heritability, this data could be critical to a focused breeding program. The complete analysis of the occupational hazards of SAR dogs will shape preventive practices to allow these dogs to safely and effectively fulfill their mission of saving human lives.

Publications:

Hare, E., Kelsey, K. M., Serpell, J., & Otto, C. M. (2018). Behavior Differences between Urban Search-and-Rescue and Pet Dogs. *Frontiers in Veterinary Science*, 5, 118. https://www.frontiersin.org/articles/10.3389/fvets.2018.00118/full

Presentations: None at this time.

Report to Grant Sponsor from Investigator:

Data collected over the 15 years of the 9/11 study represents a massive amount of never before available information on the short and long-term impacts of a search & rescue deployment on the health and behavior of the search dog. The data analyzed in this project cover three areas: behavior, occupational hazards, and longevity. With the ever changing and improving methods for data collection, the research team has spent most of the time tracking, organizing, validating and preparing the 15 years of behavior data to be analyzed. The foundations of data for all of the analysis is now in place and the remaining missing data has been tracked down and entered for the CBARQ, retirement and longevity. The health data is being reviewed to optimize the approach to the analysis. The creation of a master database has been an intense project, but now the majority of data is in a form that will allow efficient analysis and cross referencing for the several important questions regarding behavior, health and longevity that we have proposed. We have valuable information about behaviors that are associated with deployment status, neuter status, certification type and retirement status. At least one CBARQ from each of the 150 dogs is available for analysis, with a median of 6 completed CBARQs per dog and a range of 1-13. The population includes 65 females (43%) and 85 males (57%). The German shepherd was the most common breed (37%) followed by Labrador (27%) and Golden retriever (9%). Dogs still in their working careers accounted for 461 CBARQs (67%), 197 CBARQs (29%) were from retired dogs, and retirement status was missing for 29 CBARQs (4%). The categories of Trainability, Attention Seeking and Energy all decrease with age, independent of deployment status. Touch Sensitivity is not influenced by age. Excitability differed by deployment status. Deployed dogs started high and gradually decreased with age, Control dogs started low, increased to a peak and then decreased with age. No dog was retired in year 1, by year 10 all participating dogs were retired.