# Establishing Normal Reference Intervals for Radiographic, Echocardiographic, and Cardiac Biomarker Values in Healthy Kittens

**Project title:** Establishing Normal Reference Intervals for Radiographic, Echocardiographic, and Cardiac Biomarker Values in Healthy Kittens
**Organization:** University of California Davis
**Project lead(s):** Karen Vernau, DVM
**Project completed:** 9/30/2019
**Grant amount***:* $13,444
**Project Type (Basic, Phase 1-4):** MIL Basic
**Topics: Medicine, Surgery & Sterilization**

**Project Summary:** This study aims to define the true normal reference intervals for kittens' hearts by radiographs and basic echocardiographic exam, as well as for cardiac biomarker testing.

**The objective of the project was:** to generate reference intervals for normal heart size in healthy kittens. This data will be used to guide practicing veterinarians and shelter/rescue veterinarians to appropriately evaluate kitten heart status and discern kittens that are likely to be normal/adoptable from those that would require additional diagnostic evaluation.

**Methods:** The study enrolled 80 clinically healthy kittens aged 8 to 16 weeks. Analysis was done on blood and plasma samples. Auscultation, radiography and echocardiography were performed and recorded, and all images were analyzed offline by an investigator.

**Results:**
This project is being submitted for publication. Results will be shared when they are available.

**Conclusions:** References may be utilized when evaluating heart size in this population.
**Tags:** Kittens, heart size, EKG, chest, X-ray, reference intervals, biomarkers
**Audience:** Executive Leadership, Shelter/Rescue Staff & Volunteers, Veterinary Team