**Internship Abstract**

**Title:** Arbovirus Repository Database Analysis

**Name:** Ashwini Varghese

**Preceptors:** Dana Woell, MPH

**Agency:** Molecular Virology Unit, Public Health and Environmental Laboratories (PHEL), New Jersey State Department of Health - Ewing, NJ

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**Purpose:** To create a database while integrating and analyzing the diagnostic results and retention of the arbovirus specimen repository to be used to participate in future, collaborative research projects

**Significance:** Arboviral diseases can be responsible for up to one million deaths yearly on a global level. The PHEL in New Jersey has a mosquito surveillance system that works with individual county mosquito control units to survey the prevalence of arboviruses in the mosquito population. JerseySurv, an online software, is used to keep track of specimens that are being received and tested. However, all positive samples of all tested diseases, except Eastern Equine Encephalitis (EEE), are kept in cryostorage freezers without an organization system to facilitate a process to look up specimens. This project will create a digital database of the arbovirus specimens to facilitate in research projects such as whole virus genome sequencing to observe variations in virus strains over time.

**Method/Approach:** An assessment of online platforms and templates was performed to choose the best option for a new database. An online Microsoft Excel template by STEMCELL Technologies was selected for its simplistic yet functional format and altered to match the structure of the freezers and specimen boxes. The compilation of the database then began by inputting the titles of the specimens of the 2019 Arbovirus samples, arranged by county, into the online template. Simultaneously, each specimen was cross analyzed with the demographic information and testing results posted on the online diagnostics platform, JerseySurv, to perform a quality analysis of specimen retention in the lab. After the analysis, all samples were compiled so that each row contained samples from only one county to preserve freezer space; all negative/miscellaneous samples were removed and placed in the last box. Finally, this information was condensed into a single database sheet that contained all applicable testing data, including sample name, test results, location, etc.

**Outcomes/Results:** The 2019 Arbovirus samples were rearranged from 20 boxes, each box storing samples collected from one of the counties of New Jersey, excluding Cape May county, to a total of 6 boxes. There were a total of 10 misplaced negative/miscellaneous samples. There were 424 positive samples detected for this season. Of these, 345 samples were retained. Of the 79 unstored samples, 64 were positive EEE samples, 14 were positive West Nile Virus (WNV) samples, and 1 was unaccounted. The successful retention rate was 96%.

**Evaluation/Conclusion:** The results of the cross analysis showed a very high retention rate. This reflects high consistency in collecting and storing specimens. The database created will be used as a guide to integrate all existing and future specimens and its data in a similar manner. Virtual procedures will also continue to be investigated for the future.