Course	International Health Development (MPH)	Name	Maria Glofezita Opulencia Lagayan
Thesis Title	**Epidemiology, and Spatiotemporal Patterns of Rabies in Humans and Domestic Animals from 2014 to 2019 in Central Luzon, Philippines**		

Background:

Globally, the target of zero human deaths from dog-mediated rabies was set by 2030. The Philippines' National Rabies Prevention and Control Program has adopted the same target and already declared 8 out of 81 Provinces as rabies-free zones (DOH and DA, 2019). Case detection is an important part of this elimination program (DOH-DA, 2008) and priority regions would greatly benefit in understanding their area's rabies epidemiological characteristics and patterns to improve their planning strategies. However, this information is still lacking in Central Luzon. This study aimed to determine the baseline characteristics and temporal-spatial patterns of human and animal rabies in Central Luzon from 2014 to 2019.

Objective:

The main objective of this study was to describe the rabies epidemiology of Central Luzon (Region III) from 2014 to 2019.

Specific objectives:

(1) to describe the epidemiological characteristics of human and animal rabies cases, (2) to determine the temporal association of human and/or animal rabies cases, (3) to describe the spatial patterns of human and animal rabies cases in Central Luzon from 2014 to 2019

Methods:

Using secondary data obtained from the Department of Health and the Department of Agriculture-Bureau of Animal Industry, epidemiological characteristics of human and animal rabies were summarized. Both data were examined for any existing correlation, but only animal rabies data was further inspected for spatial association with relevant covariates. Temporal patterns were determined using GIS, and optimized hotspot analysis was conducted using Getis-Ord Gi* statistic.

＊ The abstract, containing the objective, method, result and conclusion should not exceed 300-500 words.

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Results:

From 2014 to 2019, Central Luzon reported 208 human rabies deaths, and 95.1% of the cases were due to exposure of suspected rabid dogs/pups, followed by cats (3.9%) A total of 1,193 animal samples (of 4,455) tested positive for animal rabies in Central Luzon. An important finding in this study was that the percent positivity of cases remained almost constant yearly (average of 26.8%; 95%CI 25-28%; range=26-27%) despite the yearly increase of samples submitted in the laboratory. The pooled analyses of the temporal association showed an increase in risk between animal rabies cases and the following covariates: *owned animals, human rabies cases, human population, and 1, 2-months lagged values of male animal count.* Spatial patterns showed clustering of cases near the animal diagnostic laboratories and road networks; and spatial statistic revealed statistically significant hotspots in all provinces, and a statistically significant coldspot (99% confidence) in the northern area of Pampanga near the diagnostic laboratory (RADDL III).

Conclusion:

This study was able to determine the epidemiology, temporal associations, and spatial patterns of human/animal rabies cases in Central Luzon from 2014 to 2019. With the results observed, an improved information campaign should be considered to increase rabies case detection for both humans and animals. Intensification of animal mass vaccination, especially during the dry season, for owned and roaming dogs is recommended. The region can also consider the control of free-roaming dogs and promotion of spaying/castration as population control.

(476 words)

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