

**EPIDEMIOLOGICAL ANALYSIS OF SPACE AND TIME PATTERNS
OF 2009-2016 MEASLES OUTBREAK IN WESTERN VISAYAS**

A Thesis

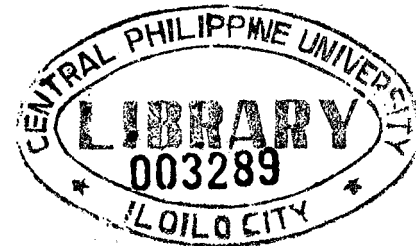
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EPIDEMIOLOGICAL ANALYSIS OF SPACE AND TIME PATTERNS OF 2009-2016 MEASLES OUTBREAK IN WESTERN VISAYAS

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ABSTRACT

This epidemiological study was conducted to analyze the epidemiological characteristics of measles cases in Western Visayas from 2009-2016. Specifically, it described the incidence of measles cases in terms of age, classification, and vaccination status.

Moreover, spatial and temporal variables of the cases were mapped using GIS Mapping Software to determine visual patterns that could describe the disease dynamics in the region. Space and time patterns were also explored with regards to age, sex, and vaccination status to determine significant associations of several important epidemiologic characteristics. Finally, linear regression analysis was conducted to analyze variations in space and time trends of the virus.

The study revealed that measles cases across the six provinces of Western Visayas had significantly increased from 2011-2014 and sharply declined starting 2015-2016. Over the eight-year period, Negros Occidental (N=602) registered the highest number of cases followed by Iloilo Province (N=352). In terms of age, more than half of the cases were among children aged 132 months and above (58.4%) followed by cases of less than nine months of age (14.6%). More than half of the total measles cases in the region were males (58.4%); majority (97.1%) of the cases were all laboratory-confirmed and 60.5 percent were unvaccinated. Mapping of the cases revealed that the spread of the virus followed a loose cyclical pattern that resembled clockwise dynamics in terms of

geographical spread across provinces in Western Visayas with seasonal peaks during hot-warm season notably in Q1 and Q2. When associations in space and time were reviewed, only age and vaccination status was noted to have significant association when grouped according to the provinces. Likewise, there was no significant relationship in terms of the variations in space and time trends of measles cases with the number of years from 2009.

Results of the study would warrant intensification of immunization among vulnerable cohorts especially during periods of low virus transmission, expansion of strategies to cover older age groups, and yearly analysis of susceptible cohorts to identify areas at high risk for establishment of outbreaks. Further studies using other statistical methods such as time series analysis of other covariates would also be beneficial.