A study of the dengue epidemic and meteorological factors in Guangzhou, China, by using a zero-inflated Poisson Regression Model

Abstract:

The aim of this study is to develop a model that correctly identifies and quantifies the relationship between dengue and meteorological factors in Guangzhou, China. By cross-correlation analysis, meteorological variables and their lag effects were determined. According to the epidemic characteristics of dengue in Guangzhou, those statistically significant variables were modeled by a zero-inflated Poisson regression model. The number of dengue cases and minimum temperature at 1-month lag, along with average relative humidity at 0- to 1-month lag were all positively correlated with the prevalence of dengue fever, whereas wind velocity and temperature in the same month along with rainfall at 2 months' lag showed negative association with dengue incidence. Minimum temperature at 1-month lag and wind velocity in the same month had a greater impact on the dengue epidemic than other variables in Guangzhou.

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Resource Description

Exposure: weather or climate related pathway by which climate change affects health

Ecosystem Change, Meteorological Factor, Precipitation, Temperature

Geographic Feature: resource focuses on specific type of geography

General

Geographic Location: resource focuses on specific location

Non-United States

Non-United States: Asia

Health Impact: specification of health effect or disease related to climate change exposure
Infectious Disease

**Infectious Disease:** Vectorborne Disease

**Vectorborne Disease:** Mosquito-borne Disease

**Mosquito-borne Disease:** Dengue

**Resource Type:** Research Article

**Cross-cutting Themes:** Adaptation