

Spatio-temporal modeling of AIDS epidemic patterns in lower southern Thailand

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Abstract

Background

Thailand identified its first case of AIDS in 1984. The subsequent response from all segments of government and society helped to slow transmission. Thus, space-time information is necessary for supporting the health providers and related agencies that plan preventive and control activities against the spread of AIDS epidemics.

Objectives

This study aimed to model the spread of AIDS epidemic patterns based on spatio-temporal aspects.

Methods

A retrospective analysis of the AIDS incidence rates was conducted and data were obtained for 17,603 cases from AIDS case reporting system (EP 506/1), Bureau of Epidemiology, Ministry of Public Health. Factors containing aggregated data through 48 four-month periods and 20 super-districts in lower southern Thailand over the period 1993-2008 were constrained in an additive model.

Results

The overall annual incidence rate of AIDS was 25.8 cases per 100,000 populations. The highest peak of AIDS incidence rate was showed in 2000 and after 2005 the trend sharply decreased. The AIDS epidemic pattern started from the large urban city in the middle part then spread out in the lower part and expanded in the northern part of lower southern Thailand. Higher rates were observed in Trang city, Songkhla city and Pattani city-west in.

Conclusions

The large urban cities were originated of AIDS epidemic in each part of lower southern Thailand and the trend was decreasing in late periods. These findings could assist to improve the prevention and control measures of AIDS in lower southern Thailand.

Keywords: AIDS, Log-transformed linear regression model, epidemic, spatio-temporal modeling