

Spatial Epidemiology of Typhoid Fever in Meknes City, Morocco

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Background: With an annual incidence above the national average, typhoid fever is a major public health problem in Meknes City (Morocco). The factors influencing the spatial and temporal distribution across the city are poorly understood.

Methods: This study aimed to analyze the epidemiological and spatial pattern of typhoid fever in Meknes City over the period 2008-2013. Case occurrences data were collected from 30 health centers, geocoded to infra-communal level, and used in epidemiological and space-time analysis together with demographic, socio-economic, and environmental variables.

Results: The epidemiologic profile has brought out the influence of age (children between the age of 5-14 years are the most affected) and time (number of cases increases during summer period) on the distribution of typhoid fever; but sex has no significant influence on it. The spatial patterns showed the aggregation of areas with high risk of typhoid fever infection in the northwest of the city and characterized by the proximity to fields irrigated by wastewater. With a spatio-temporal approach, the said pattern occurs during the summer season. This finding was supported by the negative correlation between the incidence of disease and proximity to irrigated areas. No statistical association was found with illiteracy rate and basic amenities variables.

Conclusions: A better understanding of the distribution of typhoid fever in Meknes City, and the study of its relation to potential environmental risk factors is an important step towards an efficient system for monitoring and preventing this type of food and waterborne diseases.