Spatiotemporal Property Analysis of Birth Defects in Wuxi, China[1]

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Objective To describe the temporal trends and spatial patterns of birth defects occurring in Wuxi, a developed region of China. **Methods** Wavelet analysis was used to decompose the temporal trends of birth defect prevalence based on the birth defect rates over the past 16 years. Birth defect cases with detailed personal and family information were geo-coded and the relative risk in each village was calculated. General G statistic was used to test the spatial property with different scales. **Results** Wavelet analysis showed an increasing temporal trend of birth defects in this region. Clustering analysis revealed that changes continued in the spatial patterns with different scales. **Conclusion** Wuxi is confronted with severe challenges to reduce birth defect prevalence. The risk factors are stable and show no change with spatial scale but an increasing temporal trend. Interventions should be focused on villages with a higher prevalence of birth defects.

Key words: Birth defects; Spatio-temporal characters; Wavelet analysis; General G statistic; Wuxi

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