Predictive Analysis of Socio-spatial Disparities of Childhood Diarrhea in Yaoundé (Cameroon)

Antoine BANZA-NSUNGU, PhD.

United Nations Population Fund (UNFPA), Kinshasa (DRC)[1]
Mail: abanza@unfpa.org

Context of application

The number of cases of childhood diarrhea remains high in Yaoundé (capital of Cameroon) and unevenly distributed in the various residential areas in the city. Indeed, our study (Banza-Nsungu, 2004) showed that the prevalence of diarrhea in children (0-4 years) was 14.4% in 2002 in this city, with socio-spatial disparities between areas of dense housing (15.8%) and less dense (11.4%). The application highlights these disparities in the level of living of households and extrapolates the results of spatial analysis at the urban scale.

Source data and applied spatial methods

The application uses data from a sample survey (sample of 20 sectors of residence from 105 in total) conducted among 3,034 households in Yaoundé. These data were integrated into the GIS and transformed into grids, which allows the application of spatial autocorrelation test and predictive analysis of the distribution of infant diarrhea in different urban residential areas (logistic regression ARCGIS).

The indicator of the standard of living of households was constructed from a combination of the amount of economic value of goods available, luxury accommodation and state of the surrounding housing. The application evaluates the effect of this indicator on the risk of occurrence of childhood diarrhea in the previous 15 days.

Main achievements and challenges

The application shows a breakdown of diarrhea indicating a real health problem in poor neighborhoods. It emerges as a 'spatial polarization' between these neighborhoods and residential areas. The fact that this latter type of area is furnished (as planned and / or consisting essentially of units built real estate companies), which is not the case for the other type, may explain the appearance of the results of analysis.

Insights gained

The application of the spatial logistic regression allows the identification of areas potentially health risks in urban areas, from the triangulation method. For a good accuracy in the extrapolation of spatial data, this method still requires a sample of sufficiently large size and high dispersion data on the urban perimeter.

---

[1] The views presented in this paper are those of the author and do not represent those of its institution.