

# A geospatial approach to identifying causes of childhood diarrhea in West Africa

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Diarrhea is a leading cause of malnutrition in young children and is globally the second leading cause of death among post-neonatal children under five. A quarter of all global cases occur in Africa, with particularly

high burden countries in West Africa. This disparity led Drs. Gillian Dunn, of Hawaii Pacific University, and Glen Johnson of CUNY SPH, to identify where specific geo-spatial clusters of childhood diarrhea exist in West Africa, and to identify household and climatic factors that are associated with such clusters.

This research, which grew out of Dr. Dunn's dissertation as a DPH student at CUNY SPH, was recently published in the journal *Spatial and Spatiotemporal Epidemiology*.

Using data from the USAID Demographic and Health Surveys, the authors applied a spatial scan statistic algorithm to identify locations with statistically elevated risk, relative to the rest of the region; and further to identify household and climatic factors that are associated with such clusters.

The results support existing evidence on the importance of factors such as household wealth to [child health](#), but also introduce new evidence on the role of factors such as urbanicity and rainfall in West Africa. Furthermore, after controlling for household and [climatic factors](#), 23 statistically significant clusters of elevated risk (up to seven times the risk of the surrounding area) were detected.

Dr. Dunn, who has personally visited many of these high-risk areas in Western Africa, says special attention should be paid to these areas in order to protect child health.

**More information:** Gillian Dunn et al. The geo-spatial distribution of childhood diarrheal disease in West Africa, 2008–2013: A covariate-adjusted cluster analysis, *Spatial and Spatio-temporal Epidemiology* (2018). [DOI: 10.1016/j.sste.2018.06.005](https://doi.org/10.1016/j.sste.2018.06.005)

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