

# MAPPING TRENDS AND DETERMINANTS OF UNDER-FIVE MORTALITY (U5M) AT SUB-NATIONAL LEVELS IN KENYA: 1970-2015

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## Introduction

Despite, substantial decline in U5M, 2.8 million children under age five died in sub-Saharan Africa and 74,000 in Kenya in 2016 falling short of MDG 4. The decline rates varied between and within-countries due to geographical inequalities in the distribution and use of resources. To accelerate U5M decline and achieve SDGs requires assessment of what led to the observed decline and which interventions are needed and where needed. This demands innovative approaches to harmonize and analyze multiple data sources at resource-allocation and decision making geo-political-units. We model levels and trends of U5M, its determinants and their contribution to U5M variability in Kenya at county level from 1970 to 2015

## Methods

We assemble household surveys, census, health information system and environmental data available in Kenya after 1989. We apply five demographic techniques to estimate U5M and use a Gaussian Process model (GP) to harness spatio-temporal structure, account for sampling error to obtain an annual estimate for each county. We collate determinants of U5M from the assembled data, quantify prevalence at each county and synthesize using GP framework. We estimate the contribution of these determinants to U5M variability via counterfactual analysis, population attributable fraction and decomposition analysis between 1970 and 2015.

## Results

The study is ongoing and we present the results so far. U5M declined heterogeneously between 1970 and 2015 with periods of increasing levels. A great variability exists between counties; those in Western and Coastal regions having consistently high U5M levels compared to Central. Synthesized determinants depict similar spatial-temporal trends with burdened counties corresponding to those with high U5M.

## Conclusion

The results should prove useful in the current devolved system of government where decisions are based at the county and for tracking inequalities relevant to achievement of SDGs. Poorly performing counties should be benchmarked with better performing counties through targeted resource allocation.