**Securing PHC for all: Applying GIS to Evaluate Siting of New Primary Health Facilities in Eswatini**

***Authors****:* Siyabonga Ndwandwe1, Katherine E. Battle2, Nontokozo Mngadi1, George Shirreff1, Bradley Didier 1, Sifiso G. Mamba3

1 *Clinton Health Access Initiatives (CHAI) Inc.*

2 *Malaria Atlas Project (MAP), University of Oxford*

3 *Ministry of Health, Kingdom of Eswatini*

**Background:**

The government of Eswatini, through the National Health Sector Strategic Plan (NHSSP II 2014-2018), had set a bold target to build one primary health care (PHC) facility in each of the four regions every year. However, this goal has not been achieved due to funding challenges. As the government continues to receive requests from communities for new PHC facilities, the prioritization of sites poses a challenge. Historically, the approval and siting of facilities has not been informed by a quantitative assessment. This analysis propose an approach for assessing new health facility requests based on geospatial analysis of access to care in order to optimise resource allocation by prioritizing construction of facilities in areas with the most limited access to care.

**Methods:**

The research team used ArcGIS to map out existing healthcare facilities and road networks across Eswatini using data collected by the Surveyor General’s Office. Travel times to the nearest health facility were calculated using a cost-distance analysis that assumed speeds of motorized transport within stipulated limits and modes of transport and walking speeds specific to the terrain. Accessibility thresholds were set at 8km Euclidean distance, per WHO recommendations and 30 minutes travel time per the literature. An additional cost-distance analysis was performed on proximity to maternity services, a proxy for specialized services generally not offered at lowest level of health system.

**Key findings:**

The majority of the population lives in close proximity to a health facility: 98 percent of homesteads are less than 30 minutes from a facility whilst 73% are within an 8 km radius. The government has 25 pending requests; only two sites are identified as needing a PHC facility using the 30 minutes threshold. Seven sites were identified using the 8 km threshold: five with pending requests and two without. Nine percent of homesteads are more than 30 minutes away from maternity services whilst 51% are beyond 8 km. Poor access to specialized care is concentrated in the north-east and south-west parts of the country.

**Conclusions and recommendations:**

Eswatini has a good network of existing facilities therefore the government does not need to build four primary health facilities per year to improve equitable access to healthcare service. However, PHC is more than physical facilities. The evidence highlights a need to revise the service package offered at facilities to ensure equitable access to specific services may serve as an instrument for the ministry to advocate for more resources.