

# MEASURE Evaluation's Use of GIS in HIV/AIDS Programs



## MEASURE Evaluation Fact sheet M&E Capabilities: GIS Services

At MEASURE Evaluation, we know that improved analysis and use of data leads to better health program decision making and, ultimately, improved health outcomes. This fact sheet introduces one of the innovative toolsets created for monitoring & evaluating public health interventions.

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To learn more about MEASURE Evaluation and our current activities, visit us on the Web at [www.cpc.unc.edu/measure](http://www.cpc.unc.edu/measure).



**Overview:** Whether HIV intervention programs reach the populations in need and where facilities are providing antiretroviral therapy are examples of the important questions that geographic information systems can help address.

There is an intimate link between public health and location. For example, geographic accessibility to health facilities is an important factor in ensuring patients receive necessary care. The spread of diseases, such as HIV and malaria, can be affected by geographic factors or spatial clustering. Geographic information systems (GIS) supported by a strong spatial data infrastructure and vibrant routine health data can give planners valuable information to address these issues and support monitoring and evaluation (M&E) and planning.

MEASURE Evaluation has been at the forefront among those using GIS for M&E and program planning. MEASURE Evaluation has developed methods and tech-

niques for effective use of GIS in support of the U.S. President's Emergency Plan for AIDS Relief (PEPFAR) and U.S. Agency for International Development (USAID).

MEASURE Evaluation also has assisted USAID missions in building in-country GIS capacity, in addition to supporting program planning and M&E needs at the mission level.

**Improved Spatial Data to Support Decision-Making:** With support from the Office of the U.S. Global AIDS Coordinator (OGAC), MEASURE Evaluation has helped the USAID mission in Tanzania identify locations of HIV interventions. MEASURE Evaluation produced a series of maps showing

the location of health facilities in Tanzania. When these maps were combined with data from the World Health Organization, it was possible to show the locations of those facilities that provided such HIV/AIDS treatment options as antiretroviral therapy, prevention of mother-to-child transmission of HIV, and voluntary counseling and testing services. Sub-national HIV prevalence values were also calculated using the GIS. These maps were then combined within a GIS to show the location of HIV interventions within the geographic context of the populations in need. The result was a map that allowed planners to identify areas with high prevalence and limited services, allowing them to coordinate limited resources with target populations and to develop more effective interventions.

**Improved Spatial Data Infrastructure:** The key to producing useful maps is good source data. Having high-quality data about the location of health facilities and the services they provide is vital. MEASURE Evaluation has helped strengthen the link between routine health information and spatial data through the development of specialized applications for analysis of routine health information and decision support systems that include a mapping component. Additionally, MEASURE Evaluation has produced global positioning system (GPS) data collection guidelines that provide standardized protocols for the collection of GPS locations.

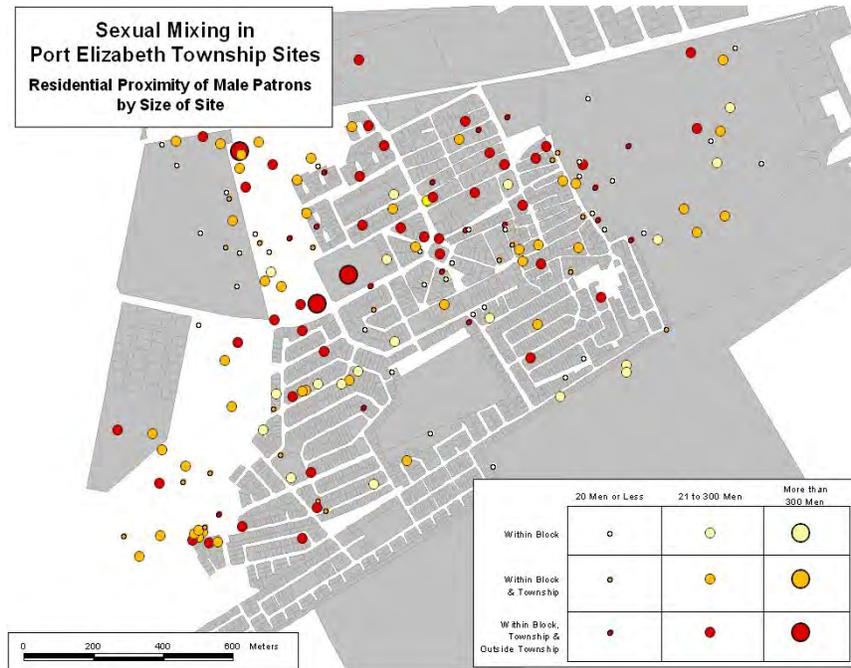
In addition to reliable health-related data, it is important that current and accurate information about administrative boundaries, village locations, and other ancillary geographic data are available. In cooperation with the Humanitarian Information Unit at the U.S. Department of State, MEASURE Evaluation is helping develop a spatial data repository for selected countries. This repository will serve as a clearinghouse for spatial boundary files for the PEPFAR target and focus countries.

**Improved Methods and Techniques:** MEASURE Evaluation has been the lead for the MEASURE GIS Working Group, which meets twice a year and is made up of MEASURE partners. The group seeks to improve collaboration and communication among the partners

with regard to the use of GIS and to explore appropriate methods and techniques. The working group has fostered the development of methods and techniques such as the use of kernel density estimation to assess health care accessibility, and calculation of sub-national HIV prevalence. Given the sensitive nature of the data, confidentiality is a prime concern. The MEASURE GIS Working Group is exploring best practices and guidelines

for the use of health-related spatial data, and will provide GIS guidance and best practices for all MEASURE partners.

There has been considerable growth in the use of GIS in M&E over the last several years. Planners, program managers, and decision-makers have all benefited from seeing the geographic distribution of services and populations. MEASURE Evaluation is committed to improving and facilitating the use of this powerful tool.



## For more Information

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