



DEMAND FOR AND USES OF GEOSPATIAL MAPPING IN HIV PROGRAMS

DOCUMENTING THE EXPERIENCES OF END-USERS IN MPUMALANGA PROVINCE, SOUTH AFRICA

Brief

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Geospatial analysis of epidemiological and health service data can generate maps of hotspots—locations where HIV prevalence is concentrated—and existing medical and social services and infrastructure. Using this method of data visualization, program planners can easily determine where HIV resources and services are lacking and where they should be deployed to have the greatest impact.

With support from the President’s Emergency Plan for AIDS Relief (PEPFAR) and in collaboration with the Global Fund, the U.S. Agency for International Development (USAID)-funded Health Policy Project (HPP) is providing technical assistance to ten high-impact countries in Africa and Asia to strengthen their use of geospatial analysis in HIV policymaking and strategic, financial, and program planning.

In 2013, as HPP was designing its approach, the team learned of a related mapping and dissemination activity that had taken place in South Africa. HPP saw this as an opportunity to learn about users’ perspective at the most crucial point of HIV intervention: community-based

service delivery. The following case study documents local demand for geospatial analysis of HIV and service data, how health providers use this information, and decisionmakers’ eagerness to use this tool to leverage scarce resources for strategic impact.

How a South African District Improved HIV Services Using Maps

The South African province of Mpumalanga commands the attention of the national government and international donors because its HIV incidence and prevalence rates are increasing rapidly; prevalence stood at 26.0 percent in 2012. The province also shares borders with two countries, Mozambique and Swaziland, which increases the vulnerability of cross-border migration and requires a coordinated national response.

To address this challenge, in 2012, the USAID-funded Sexual HIV Prevention Program (SHIPP) collaborated with experts from the University of KwaZulu-Natal to produce maps of service delivery points and HIV prevalence in Mpumalanga Province using data from



Photo by: Health Policy Project

The Director of Community Services and her team review a map of Nkomazi Municipality that shows HIV prevalence in relation to the location of health facilities.

South Africa’s Department of Health, the Local AIDS Council (LAC) of the Nkomazi Municipality (Ehlanzeni District), and the District Health Information System (DHIS) on population distribution. In 2013, SHIPP and the University of KwaZulu-Natal delivered a set of large printed maps to district-level stakeholders and discussed its nature with policymakers, service providers, and members of the LAC.

HPP had no role in this activity but, with support from SHIPP, sent an assessment team to visit the Nkomazi Municipality and conduct key informant interviews. The aims were to strengthen understanding of how mapping and spatial analysis are used at the most granular level, determine how the maps were being used, and ascertain if they have made a difference in the delivery of HIV and AIDS prevention, care, treatment, and support services.

The LAC’s director of community services, her team of volunteers, and a district HIV/AIDS coordinator reported that they were using the maps to visually diagnose service gaps and devise programmatic solutions to meet the needs of the municipal and district populations.

“Before the map, we just focused on Nkomazi Municipality, without looking at the needs of other communities. But looking at the map, and looking at how services were channeled, we realized we needed to change how we were conducting outreach.

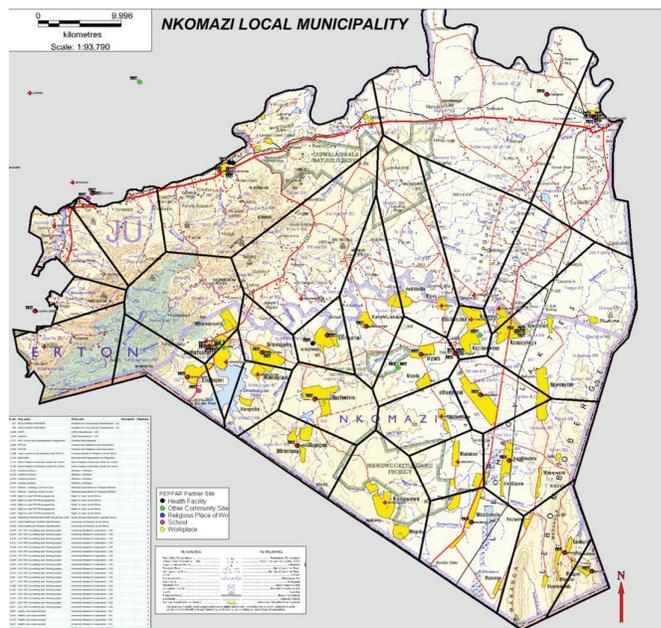
“With the map, we could see that services were sufficient in one area, but in some other areas people had to travel 56 kilometers to get health services. These maps really helped us understand that we need to find a new way of working.”

—District HIV/AIDS Coordinator

“If you look at the map, you can see where the services are. You can easily consider the distance that people need to travel to access services.”

—LAC Community Services Director

The maps helped the LAC team understand how to allocate scarce financial, human, and material resources more effectively and efficiently. For example, to improve access to medications and clinic-based services for those living in high-prevalence and remote areas, the LAC and clinic teams coordinated mobile outreach and facility-based services.



Source: Dr. Frank Tanser/University of KwaZulu-Natal

Map 1. Illustrates service sites in relation to roadways and administrative boundaries within Nkomazi Local Municipality.

“Before, resources were just allocated without looking at the needs of communities. Looking at the map, you see that HIV prevalence is very high in places where there aren’t enough clinics. Now with this mapping, it helps.... We understand there are some gaps.”

–District HIV/AIDS Coordinator

The maps also provided evidence for LAC staff to use in advocating to the district government for pressing needs.

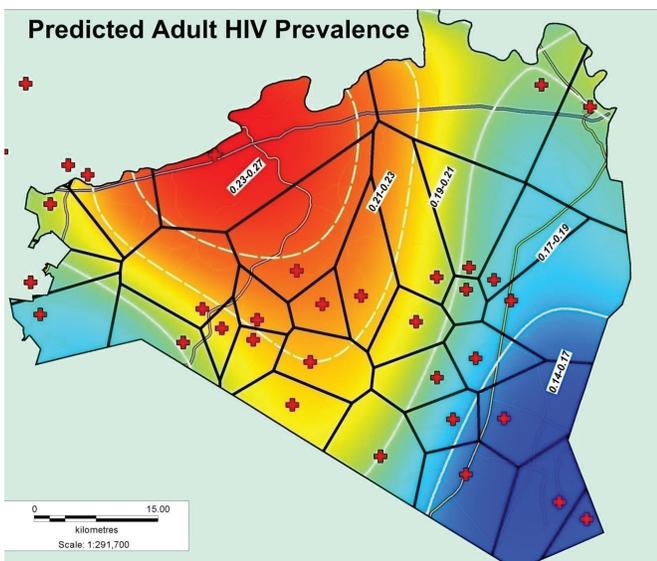
“The number of people accessing health services is growing every day; [the number of] people who need access to antiretroviral drugs grows every day. This map helps us advocate for adequate services to reach the community, and to avoid the duplication of services. We have successfully advocated for additional service sites and outreach routes. Also, now if a new HIV prevention program comes to our region, we can tell you where that service is needed.”

–LAC Community Services Director

Although the district government and LAC have made significant strides in planning and implementing local solutions, the LAC team wants more maps and updated information, which will allow for continuous improvements in the quality of the HIV program.

The USAID Sexual HIV Prevention Program (SHIPP) worked with the University of KwaZulu-Natal to produce this and other geospatial data maps for the Ehlanzeni district, in the Mpumalanga Province of South Africa, using data from the following sources:

- Geolocated prevalence data related to the prevention of mother-to-child transmission of HIV, from the National Antenatal Sentinel HIV & Syphilis Prevalence Survey in South Africa
- Population distribution data from LandScan™ High Resolution global Population Data Set (2009), copyrighted by UT–Battelle, LLC, which operates Oak Ridge National Laboratory under contract with the United States Department of Energy
- Geographical distribution of health service providers, from the District Health Information System (DHIS)
- Administrative data such as roads and towns



Source: Dr. Frank Tanser/University of KwaZulu-Natal

Map 2. Illustrates service sites (using red markers) in relation to geographic areas with varying levels of HIV prevalence.

“Traditionally, we rely on national prevalence data for planning. Instead, we want to produce a map with information about the number of people accessing antiretrovirals [at] different facilities and the communities where they reside. For those communities where the map shows no health services, we need to understand where people are going so we can design programs to target these communities.”

–LAC Community Services Director

Geospatial data maps related to clinical services beyond those specifically for treating HIV were proposed, as well.

“HIV can go together with TB [tuberculosis]. We also need to link HIV testing with cervical cancer screening. We are losing many clients not to HIV itself but to other diseases, such as cancer and TB.”

–LAC Community Services Director

Furthermore, interviewees noted that geospatial data maps could reveal indirect opportunities to improve public health and reduce HIV prevalence. According to the community services director and the HIV/AIDS coordinator, political will to use geospatial data maps for planning and resource allocation is strong in many sectors of the South African government. To illustrate how this relates to HIV, the community services director pointed to an area of one of the SHIPP/University of KwaZulu-Natal maps showing high HIV prevalence and no roads. She said: “You can look at a map and see the need for infrastructure to a remote community. There is still much that can be done.”

Documenting the experiences of these South African service providers revealed the depth of demand for this type of data visualization, the potential to make hidden challenges more visible, and the readiness of decisionmakers to overcome these challenges once they are revealed.

For more information about how the Health Policy Project is leveraging South Africa’s experience to help country programs systematize their linkages of HIV and service data to geospatial mapping and analysis, please contact Anita Datar at adatar@futuresgroup.com.

Examples of useful data sources that can be geo-referenced and used for spatial analysis and informed decision making:

- Survey data (e.g., Demographic Health Survey, and Integrated Biological and Behavioral Surveys)
- Routine surveillance data
- Coverage data (e.g., population, ART, commodities, health and social services)
- Administrative data (e.g., roads, towns)
- Service facility data (e.g., Master Facility Lists)

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