Use of GIS to map anti-retroviral need and accessibility case study: Nairobi County

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Abstract:
The social and economic consequences of the Human Immunodeficiency Virus (HIV) and Acquired Immune Deficiency Syndrome (AIDS) epidemic are widely felt, not only in the health sector but also in education, industry, agriculture, transport, human resources and the economy in general. The HIV / AIDS epidemic in sub-Saharan Africa and the world at large continues to devastate communities, rolling back decades of development progress. Anti-retroviral treatment (ART) is the main type of treatment for HIV or AIDS. Anti-retroviral drugs are given to people with HIV to suppress the virus in their blood. They are not a cure for HIV / AIDS but they help suppress the HIV viral load in the blood helping the immune system to recover. People taking anti-retroviral drugs have improved appetite, they pick up weight and problems they had, such as diarrhea or skin rashes, get better. If antiretroviral drugs are taken reliably and correctly, the medicines can reduce the HIV virus to an undetectable level. The study demonstrates the application of Geographic Information System (GIS) in mapping Anti-Retroviral Need and physical accessibility to health care facilities offering Anti-Retroviral treatment services in Kenya's Nairobi County. A GIS geo-data base has been created to help map the ART Need and a network analysis done with the considering of buildings of the area, road network in the area, administrative boundaries and the physical allocation of health facilities offering art services to be able to show the shortest routes to these health facilities. It is concluded that mapping using GIS is a flexible, time-efficient and cost-effective method for mapping not only ART indicators but health indicators at large. GIS network and proximity analysis methods have obvious benefits in capturing and maintaining accurate information on physical accessibility analysis of health care facilities service area and as a decision support system.