Chapter 2
Online Spatial HIV/AIDS Surveillance and Monitoring System for Nigeria

Peter Adebayo Idowu
Obafemi Awolowo University, Nigeria

ABSTRACT

HIV/AIDS has now become a big threat to the world generally, most especially the Sub-Saharan Africa region as it continues to increase drastically in the region. This disease has increased the poverty level of the countries in the region. In Nigeria, millions of people infected with this deadly disease are in their productive years between 15 and 49. This surge is having a negative effect on Nigeria and other Sub-Saharan Africa countries as it lowers life expectancy, slows population growth and social and economic effect on the country. Presently, health officers in Nigeria primarily rely on monitoring HIV/AIDS prevalence only among women attending antenatal clinics as that is the only source of getting data from HIV/AIDS patients. In the country, there is no electronic HIV/AIDS database, no electronic means of capturing HIV/AIDS data and no electronic monitoring of HIV/AIDS patients. This chapter presents a prototypical HIV/AIDS surveillance and monitoring system and the prototype was developed using Dreamweaver, PHP and MySQL. With this system, users could spatially query the pattern and distribution of any HIV/AIDS disease using any known location. Also, queries based on occupation, level of education, and gender among other things are possible with this system. Though the system was developed for Nigeria, it can also be extended to other countries within Sub-Saharan Africa region.

INTRODUCTION

HIV/AIDS has remained a global catastrophe that continues to threaten several nations around the world. The prevalence rate of HIV/AIDS has continued to increase drastically since the disease was discovered in the early 1980s. HIV/AIDS is globally recognized as an international disease as it spreads explosively across Asia and Africa. It is estimated that "90 to 95 percent of AIDS infections occur in developing

countries, primarily in Sub-Saharan Africa where some of the world's worst living conditions exist" (Enotes, 2012).

Globally, 34 million people were living with HIV/AIDS at the end of 2011. An estimated 0.8% of adults between aged 15-49 years worldwide are living with HIV/AIDS. One out of twenty adults (4.9%) is living with HIV/AIDS in sub-Saharan Africa accounting for 69% of people living with HIV/AIDS worldwide. Sub-Saharan Africa accounted for 71% of the adults and children newly infected in 2011 (UNAIDS, 2012).

HIV/AIDS has become a major problem in developing countries due to the fact that poverty has blocked the development of adequate health care facilities including problems with purchasing of HIV/AIDS drugs. In most developed nations, the high spread of HIV/AIDS has reduced because of their healthcare development, affordability of HIV/AIDS drugs, treatment and vast implementation of its preventive measures. While the risk of HIV/AIDS transmission is being controlled in the developed nations, the spread is increasing and worsening in developing nations with their limited public education about HIV/AIDS and the inability to fight the deadly disease.

Due to the magnitude of HIV/AIDS, nations throughout the world have developed National AIDS Programs (NAPs) based on the specific needs of the country's population. The World Health Organization (WHO), a United Nations agency, founded a global HIV/AIDS trust fund in 1987 to help fund the NAP programs. The NAP program focuses on the prevention of the transmission of HIV/AIDS through sexual intercourse, blood and blood products and unsterilized objects such as injection needles. The initiative has supported programs that reduce the transmission of the disease from mother-to-child and also fought against the stigmatization of HIV/AIDS patients (Ruxin *et al.*, 2005).

In Africa, the impact of HIV/AIDS is cumbersome on some of the poorest countries. Nine countries in Africa have about one tenth of their adult population infected with HIV/AIDS. At least one adult out of five is living with HIV/AIDS in three countries on the southern part of the African continent (Kembol *et al*, 2011). In the Sub-Saharan Africa region which is heavily affected by HIV/AIDS than any other region in the world, "an estimated 22.9 million people are living with HIV/AIDS in the region which is about two thirds of the global total. In 2010, over 1.2 million people died from AIDS in sub-Saharan Africa and 1.9 million people became infected with HIV/AIDS" (Avert, 2012).

The HIV/AIDS epidemic in sub-Saharan Africa has been both a cause and consequence of underdevelopment in many African countries. It is still one of the most significant health problems in many developing countries despite several control efforts. It remains a major cause of mortality in the region. The socio-economic problems of the HIV/AIDS epidemic are widely felt not just in the health sector, but also in the agricultural, educational, industrial and the economic sectors in general. The effects of the disease on the people have rolled back years of development progress achieved in the regions.

HIV/AIDS is a contributing factor to the level of poverty in some countries. The relationship between HIV/AIDS and poverty is most obvious when one looks across the countries; almost all the countries with the highest prevalence are poor. Africa, the poorest of all the continents, is the epicenter of the epidemic. The HIV/AIDS epidemic is often concentrated in marginalized populations and among people driven by economic need to engage in professions that increase the risk of the HIV/AIDS infection.

Poverty increases the vulnerability to HIV/AIDS and the denial of access to the antiretroviral therapy for those already infected with the disease. In affluent countries, most of those who need the treatment are receiving it, but in poor countries mostly in the sub-Saharan region, only a few who could afford to pay have received the treatment. As poverty fuels HIV/AIDS, so is the epidemic increasing poverty and threatening the economic growth and development of affected nations, thereby creating financial hardship

Related Content

Internet Banking Service Quality, Customer Satisfaction and Customer Loyalty: The Case of Vietnam
Pham Longand Phan Dien Vy (2016). *International Journal of Strategic Decision Sciences (pp. 1-17).*
www.irma-international.org/article/internet-banking-service-quality-customer-satisfaction-and-customer-loyalty/149659

Human-Computer Cloud and Its Applications in E-Tourism
Andrew Ponomarevand Nikolay Shilov (2021). *Research Anthology on Decision Support Systems and Decision Management in Healthcare, Business, and Engineering (pp. 1143-1176).*
www.irma-international.org/chapter/human-computer-cloud-and-its-applications-in-e-tourism/282634

Missing Data Imputation: A Survey
Bhagyashri Abhay Kelkar (2022). *International Journal of Decision Support System Technology (pp. 1-20).*
www.irma-international.org/article/missing-data-imputation/292446

Unlocking the Potential of Smart Logistics by Enhancing Business Leadership Through Human Capital in the Horn of Africa
Shashi Kant, Aynetu Terefe, Zerihun Kinde Alemuand Gebre Sorsa Takaro (2025). *Understanding Human Decision-Making in Economic Models (pp. 81-110).*
www.irma-international.org/chapter/unlocking-the-potential-of-smart-logistics-by-enhancing-business-leadership-through-human-capital-in-the-horn-of-africa/379154

Analytical Hierarchy Process (AHP) based Decision Support System for Urban Intersections in Transportation Planning
Yetis Sazi Murat, Turan Arslan, Ziya Cakiciand Cengiz Akçam (2016). *Using Decision Support Systems for Transportation Planning Efficiency (pp. 203-222).*
www.irma-international.org/chapter/analytical-hierarchy-process-ahp-based-decision-support-system-for-urban-intersections-in-transportation-planning/135398