

Health geographic information system and HIV/AIDS

Sir,

One of the most unexplored issues is the ability to identify and predict the spread patterns and the capability to improve the effectiveness of the methods that are used in curbing future spread patterns of HIV. Geographic information system (GIS) is one of the most useful techniques in analyzing and mapping AIDS spatial distribution patterns.

GIS is a system of hardware and software used for storage, retrieval, mapping, and analysis of geographic data.^[1] GIS allows viewing, understanding, question, interpreting, and visualizing data in many ways that reveal relationships, patterns, and trends in the form of maps, globes, reports, and charts. A GIS can use information from many different sources, and the requirement for the data is the locations (longitude, latitude, and elevation). The capabilities of GIS make it applicable to any problem involving geographical data. Three important stages of working with geographic data are data entry, data analysis, and data presentation.^[1]

The first stage in which data about the study phenomenon are collected and prepared to be entered into the system is data entry. The second stage is data analysis (Database query, Attribute Data Queries, and Spatial Queries) in which collected data are carefully reviewed and attempts are made to discover patterns like networks. GIS can determine the distance one can take to reach a particular health facility from his/her home.^[2] The final stage is presenting the results in an appropriate way.

One of the most useful abilities in GIS is its power to produce graphics on the screen (Digital maps,

Bar graphs, Pie charts, and Line graphs) or on paper that convey the results of analysis to people who make decisions about resources. Graphical and statistical information can be generated thereby allowing the viewer to visualize and understand the results of analysis. A GIS to handle data relating to HIV or other diseases should have hardware, software (Arcview, Arcinfo, Arcmap, Idrisi, and Ilwis), and data.^[3] Data are the results of measurements and can be the basis of maps (maps use three basic shapes to present real-world features: polygons, lines, and points), images (aerial photographs and satellite images), or observations of a set of variables.

Two types of data are used in GIS: spatial data (known as geospatial data or geographic information) and attribute data that describe the properties of a point, line, or polygon record in a Geographic Information System. For example, population statistics, HIV/AIDS statistics (for example, eight person infected with HIV per area), and NGO information. The attribute data that accompanied this coverage would record more detailed information about each site.^[3] GIS techniques are suitable for analysis of HIV occurrence patterns and planning of punctual preventive measures to mitigate it. An expert system developed among other methods will be able to make decisions about HIV and be able

to give instructions from fore facts and explain its procedures.

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