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Accessibility Analysis of Healthcare Delivery System within Enugu Urban Area Using Geographic Information System

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ABSTRACT

The problem of accessibility of health institution, with respect to the available facility to serve the entire population leaving in an area, can be solved using GIS. This paper presents an analysis on accessibility of healthcare facilities in Enugu urban area in a GIS environment. This was achieved through acquisition of a base map of Enugu State showing geographic extent of Enugu Urban, determining the geometric positions of health institutions in Enugu urban using handheld GPS, Creation of a spatial database of existing healthcare facilities and demonstrating through various analyses the potentials of GIS in measurement of accessibility to healthcare facilities in Enugu urban Area. The analysis includes network analysis, used to determine the closeness of a facility and shortest route to these healthcare facilities. ARCGIS 9.3 was the main software used. This was supported by Geocal for coordinate conversion and Microsoft office packages. The result of the study showed the spatial distribution of health institutions, closest facilities in case of emergency and route to those health institutions within Enugu urban Area. It was noticed that most of the healthcare facilities were located within Enugu North local government area (LGA). Other settlements and LGAs had fewer healthcare facilities. Areas deprived of healthcare facility were also identified. Routes and closest facilities to those deprived areas were identified in the settlements/area. The analysis showed the efficacy of GIS in determining accessibility of healthcare institutions in Enugu urban area. The study is thus, recommended as a spatial decision support system for decisions regarding spatial accessibility of healthcare facilities in an urban area.

KEYWORDS

GIS; Accessibility; Database; Healthcare Facilities; District Health System

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