

Effects of Location of Accredited Hospitals on Enrollee of National Health Insurance Scheme (NHIS) in Kaduna Metropolis, Nigeria

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ABSTRACT

This study analyzes the location and spatial distribution of the accredited hospitals of the National Health Insurance Scheme within Kaduna metropolis with a view to assessing the effectiveness of service delivery. It located and mapped the accredited medical service delivery centers within the study area and their area of influence. Data needed for the study were collected using maps analyses, questionnaire administration, direct field observation and literature review. The study reveals that almost 60% of the 145 hospitals in the study area were accredited by NHIS to administer medical services to patrons. These accredited health facilities were found to be clustery in terms of spatial distribution (0.62); and with sphere of influence that was not, or less, affected by distance. It is therefore recommended that authorities charged with NHIS responsibility need to increase the number of the NHIS accredited hospitals within the study area and as well ensure better service delivery at these centers by inaugurating an empowered and effective monitoring team.

Keywords: Health, Insurance, Accredited, Hospitals, Enrollee

INTRODUCTION

Health is central to community well-being as well as to personal welfare. It is fundamental to people's ability to enjoy and appreciate all other aspects of life (Knox, 1979). The World Health Organization (1971) defines health as a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity. Thus the concept of health encompasses all human endeavors. To sustain improvement in health-care delivery, attention is being paid to the expansion and strengthening of the primary health care system throughout the country. To achieve this, the Federal Ministry of Health developed and implemented policies and programs, and as well, undertook necessary actions that will strengthen the National Health System. This will help to deliver effective, quality and affordable health services to all Nigerian (Arizona and Adeyi, 2006). It is in light of this vision of the Federal Government of Nigeria that the National Health Insurance Scheme (NHIS) was established with, but not limited to, the following objectives: to ensure equitable distribution of health facilities within the

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federation, to ensure efficiency in health services, to limit the rise in the cost of healthcare services, and, to ensure that every Nigerian has access to good healthcare services. Therefore, health insurance is a social security system that guarantees the provision of needed health services to person(s) on the payment of a token contribution at regular intervals. Health issues covered by the NHIS under the 3 classes of health providers included primary, secondary and tertiary services. However, though a lot of work has been done on the problem of how best health facilities could be spatially arranged to enhance their optimum utilization. Christaller (1966) cited in Okafor (1984) stresses the aspect of demand and supply, distance and accessibility with little attention to pattern of distribution and other related variables. Therefore, the major concern in geography is the analysis of spatial pattern of activities and how such patterns in turn affect utilization. Hence, this study aims at evaluating the location efficiency of the accredited hospitals of the National Health Insurance Scheme within Kaduna metropolis especially by:

- Evaluating spatial distribution of healthcare facilities within the study area
- Using nearest neighbour analysis method to empirically examine pattern of distribution of these accredited hospitals its implication (s) in the study area (random or scattered).
- Making implementable recommendations for a much better service delivery in the study area.

STUDY AREA

The study area (Kaduna metropolis, fig. 2) which lies within latitudes 10°25'N and 10°40'N and longitudes 7°25'E and 7°30'E and have a total land area of 9,036/km² is made up of Kaduna North and South Local Government Areas, part of Igabi Local Government Areas (Sabon Gari, Gwari, parts of Kawo, Farin Gida, Rigasa, and part of Chikun Local Government Areas (Narayi, Kudanda 1 & 2, Nassarawa, Ungwan Romi, Ugwan Yelwa, etc). Kaduna metropolis, found in Kaduna State, Nigeria (fig. 1) has an estimated total population of 1,159,323 (National Population Commission, 2006) and characterized with tropical continental climate that is defined with two seasons (rainy season with average annual rainfall of 1000mm to 1500mm and dry seasons with cold, dry and dusty weather; Ibrahim, 1994) and fluctuating annual temperature of 27°C. The study area consists of rolling terrain with general height of about 640m above mean sea level (Ibrahim, 1994).

The drainage system of Kaduna is hinged on the River Kaduna and its tributaries such as River Mashi and River Romi. The study area serves as administrative, commercial, educational and industrial centers. Few of such activities found within the study are include trading, transportation (taxi and motor-cycle riding), animal/poultry farming, brick and furniture-making, higher institutions like Kaduna State University, Federal Research Institutes, both federal and state ministries and parastatals, Kaduna Petroleum Refinery and Petrochemical (KRPC) Industry, etc. Social facilities found in

Kaduna metropolis ranges from electricity to parks and gardens, pipe borne water, Primary, Secondary and Tertiary Health Care Centers, and railway, etc). Hence, all ethnic nationalities (both national and foreigners) reside within the study area (Kaduna metropolis).



Figure 1: Map of Nigeria Showing Kaduna State
 Source: Adopted and modified from map of Nigeria

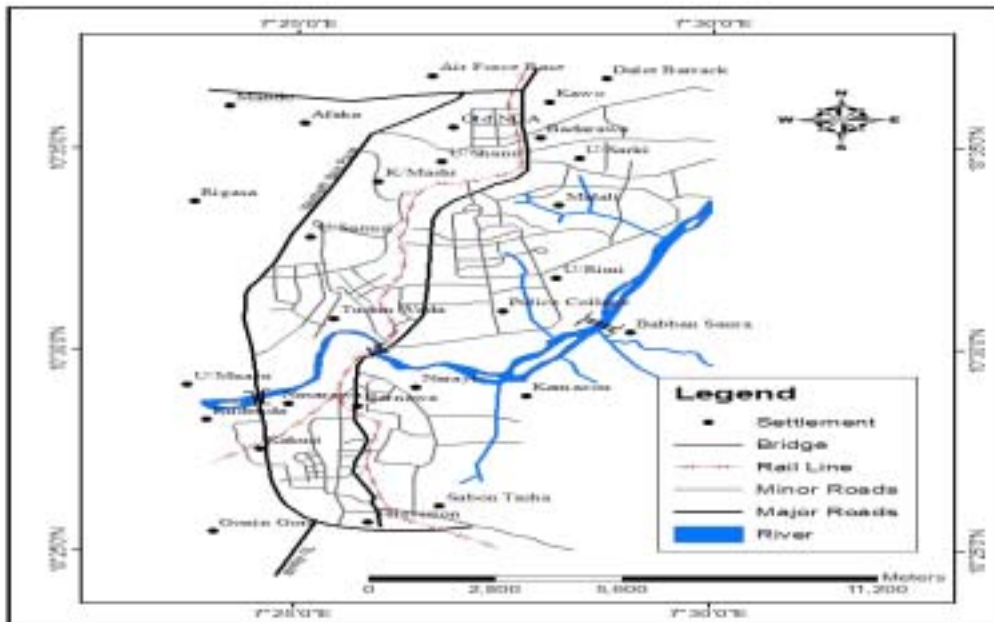


Figure 2: Map of Kaduna Metropolis
 Source: Adopted and modified from administrative map of Kaduna State

MATERIALS AND METHOD

In order to achieve the aim of this study, materials collected for the study include data on the location and pattern of distribution of the accredited hospitals of the National Health Insurance Scheme (NHIS) within Kaduna metropolis; opinions and suggestions on how to have a much better service delivery in the study area; the nearest neighbour distances between the accredited hospitals; and the population figure of Kaduna metropolis. While some relevant information were sought through literature review (including 1:25,000 street guide map of Kaduna metropolis), information about the number and addresses of all the registered hospitals within the study area were obtained from the State Ministry of Health; that of NHIS accredited hospitals were obtained from Kaduna zonal office of the scheme. National Population Commission supplied the population information of Kaduna metropolis. To collect data for the study, 3 field assistants, who were all professionals in Geography, were used. Consequently, data collection was done in phases (3phases) using literature review, and direct field observations and measurements/upgrading of maps. In the first phase (preliminary phase) field survey to locate the accredited hospitals was done; testing of the suitability and validity of the data collection instrument (s) was done in phase 2 (the pilot study phase), and the real data collection was the last to be done in the field survey phase. Maps were used to summarize and present the obtained data for analysis and Nearest Neighbour Analysis Technique was applied in determining the pattern of spatial distribution of the accredited NHIS hospitals. Below is the formula:

$$R_n = r_A / r^E$$

Where, r_A = the observed mean (average distance between neighbour settlements)
 r^E = the expected mean distance between the neighbour.

RESULTS AND DISCUSSION

Table 1 presents data on the distribution pattern of the hospitals accredited by National Health Insurance Scheme to provide health care service(s) for people within the study area. According to the data studied and analyzed, although, not less than 50% of the registered facilities in each of the zones that made up Kaduna metropolis were accredited by National Health Insurance Scheme (Kaduna North LGA = 50.8%, Kaduna South LGA = 54.1%, Part of Chikun LGA = 84%, Part of Igabi LGA = 66.6%), most of them were located/concentrated in the less populated areas. The areas with the highest population and the highest number of registered medical centers (Kaduna North and Kaduna South, Table 1) have the least number of NHIS accredited hospitals. This makes most of the residents of the area to spend more (both money and time) to get adequate medical care because they would either have to travel a long distance to other areas with more NHIS accredited medical facilities in order to access these government subsidized medical service(s), or result to using other non-accredited and highly expensive hospitals in their neighbourhood. For such patrons who could not afford to travel far, more productive and precious time would be used in waiting on the

queue for medical attention at such overcrowded centers. Contrarily, a look at the situation in the other parts of the metropolis (part of Chikun and part of Igabi LGA) shows that these areas have the lowest population, less medical centers, but more accredited centers to cater for the medical needs of a reduced number of enrollees. Besides other implications, the effect of location on the utilization of health facilities is always known to be a very strong determinant of the service area of any health establishment. According to Jutting (2003), relative position or the location of the service center and consumers in space often determines the rate of awareness, attractiveness and the utilization of these service centers. If services are not located in a central place where they can be reached by all, then the aim of setting up these hospitals would have been defeated (Oriakhi and Onemolease, 2012). Result of a research studied in Sweden on the location of medical centers affirms the need for proximal location of medical centers so as to achieve effective service delivery at minimum cost and increasing accessibility to users (Akande and Bello, 2002; Cohen and Sebstad, 2003; NHIS 2012). Hence, level of productivity both in terms of such medical centers, staff and even the patrons would be highly affected as some hospitals were overstretched both in terms of manpower and equipment due to high number of patients that patronized the facilities while others were under utilized as a result of low patronage. Such situation is counterproductive.

Distribution Pattern of the NHIS Accredited Hospitals in the Study Area

Fig. 3 shows the distribution pattern of the NHIS accredited Hospitals that were selected and analyzed for the study. Empirical prove pointed at clustered/nucleated pattern (0.68 value). These analyzed data revealed that there was no direct relationship between the number of registered hospitals and their spatial distribution in each local government area. The study reveals that the accredited facilities in the study areas were fairly and evenly distributed but with a greater percentage of concentration of such facilities within the heart of the study areas. Further analysis indicate that there is none of the local government areas that make up Kaduna metropolis that does not have a minimum of 2 accredited NHIS health facilities. Consequently, the implication of this distribution pattern on user's choice of NHIS healthcare centers, vis-à-vis distance to be covered by the patrons before assessing the service, indicates that distance has less influence on the resolve of the benefactors of the scheme to assess the service as they were prepared to travel for so long, they were sure of getting the best medical service in such healthcare center(s). This finding agrees with the conclusion of Scheppers, Van, Dekker and Geertzen (2006) that functional, rather than physical measures of distance are a more sensitive index of the effort involved in traveling for medical services. This is quite contrary to the principle of distance decay which believes that too much distance affects the number of trip(s) a patron could make to a service center. It also contradicts the findings of both Okafor (1980), Adejuigbe (1973), and Onokerhoraye (1976) who conclude that sphere of influence is likable to proximity to a given hospital; and that distance greatly influences patients attendances at health centers especially in the case of both Ondo, Ife and Kwara States respectively. However, the less privileged

Table 1: Spatial Distribution of Population and NHIS Accredited Hospitals within Kaduna Metropolis

Local Government Areas (LGA)	Total Population	No of Registered Hospitals	Percentage of Accredited Hospitals (%)	No of Enrolee/Hospital	
Kaduna South	402,390	48	26	54.1	15,476/ Hospital
Kaduna North	357,694	57	29	50.8	12,334/ Hospital
Part of Chikun	184, 299	25	21	84	8,776/ Hospital
Part of Igabi	151,604	21	18	85.7	8,422/ Hospital

CONCLUSION AND RECOMMENDATIONS

This study aims at evaluating the location efficiency of the accredited hospitals of the National Health Insurance Scheme within Kaduna metropolis. From the data collected and analyzed for this study, it is evident that healthcare centers are highly concentrated and clustered in the highly populated areas but most of them provided both primary and secondary medical services. But these never deterred medical patrons from patronizing those centers with improved and guaranteed service delivery. Therefore, in view of the forgoing, policy makers needs to double their efforts at putting in place a very effective service operational guideline, and centrally distributed accredited medical centers that will ensure reliable medical service delivery. This study has mapped, shown spatial distribution and analyzed the accredited hospitals of the NHIS in the study area; in view of the result the following recommendations are made:

- More registered hospitals should be accredited by the National Health Insurance Scheme in those areas with more population.
- Action should be hastened to complete and implement the on-going operational guidelines and posting of desk officers to all the accredited service providers so as to deal with issues as they originate.

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Health Insurance is basically, a social security system that guarantees the provision of needed health services to persons on the payment of token contributions at regular intervals, where the insured pays costs out-of-pocket and is then reimbursed by the insurer, or the insurer makes payments directly to the provider, all depending on the type of health insurance coverage the individual is. This write-up wishes to sensitize the public on what NATIONAL HEALTH INSURANCE SCHEME (NHIS) is all about and the benefits accrued to being part of the scheme. The study is on the impact of National Health Insurance Scheme on enrollees in Gombe metropolis. The study aimed at examining the problems and challenges of the scheme, determining the enrollee's level of satisfaction towards services provided and to proffer solutions to improve health service delivery. The research work adopted a survey research design where questionnaires were administered and interview was conducted so as to sample the views of the respondents and to draw conclusion for the study. The major findings of the study are: the NHIS was established against the poor state of the na... National health insurance scheme. Frequently asked questions and answers. (Share! Share! Share!) 1. What is NHI Scheme? The National Health Insurance Management Authority will implement the scheme which will be formed according to the National Health Insurance Act no. 2 of 2018. 10. How does one become a member? * You will be registered with the Authority and a card will be given to you * If you are an employee from the formal sector you will automatically be registered by your employer. * If you are an employee from the informal sector you will register through your association or directly with the National Health Insurance Authority.