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Review

Infrastructural distribution of healthcare services in Nigeria: An overview

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Discussions of health-care infrastructure in Sub -Saharan Africa in general and in Nigeria in particular have recognized the existence of different types and practices. This paper examines the biomedical or western orthodox healthcare with its expansive bureaucratic ethos within the context of hospital struc-tures in Nigeria. The study observed that from the colonial period, the distribution of medical care deli-very in Nigeria has favoured the urban population at the expense of the rural settlers and that the health services in the country has tended to be placed specifically on three pedestals of primary, secondary and tertiary health institutions for rural, mixed population and urban elite respectively. Also, in terms of infrastructural distribution of healthcare, the rural areas (that is, the rural majority) in Nigeria are being neglected to satisfy the urban areas, where the educated, the rich and government functionaries reside. The paper therefore suggests the need to redistribute the provision of this infrastructure to benefit all, irrespective of where they live.

Key words: Healthcare delivery, health infrastructure, public health, equity.

INTRODUCTION

Health infrastructure is understood in both qualitative and quantitative terms to mean the quality of care and accessibility to health care delivery within a country. It is judged by the quality of physical, technological and human resources available at a given period. Physical structure entails the buildings and other fixed structures such as pipe borne water, good access roads, electricity and so on within the healthcare environments, whilst the technology is about the equipments meant specifically for hospital use including surgeries (Erinosho, 2006).

This also includes computer equipments and consumables while human resource comprises the health professsionals including doctors, pharmacists, nurses, midwives, laboratory technologists, administrators, accountants and other sundry workers. All these put together form the structure upon which the healthcare delivery is anchored in any society and the determinants of its infrastructure.

Health infrastructure is a part of a larger concept of the health system which contains the health policy, budgetary allocation, implementation and monitoring (Adebayo and Oladeji, 2006) . This is larger in concept and more robust than a mix of facilities, medical consultation in terms of diagnosis, treatment and compliance. It also involves the healthcare consumers and other factors associated with or adjunct to health-care delivery.

Furthermore, health infrastructure, from these all- inclusive criteria, has to do with people, institutions and legal framework, all interacting systematically to mobilize and allocate resources specifically for health management, prevention and care of diseases, illnesses and injuries. On one hand, it can be inferred that the structure of he-althcare delivery intricately intertwined with the quality of health personnel, efficient management, effective finan-cing and communication. An equally crucial factor is a willing government in active support of and participation in the health system for the overall benefit of the society.

Discussion of healthcare infrastructure in sub-Saharan Africa and Nigeria in particular has recognized the existence of different types and practices. There are tradi-tional, biomedical/orthodox and synthetic types. However, our focus in this paper is on the bio-medical or Western orthodox healthcare with its expansive bureaucratic ethos within the context of hospital structure. After this intro-duction, the paper is divided into four sections. The first section focuses

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on the history of healthcare and hospitals in Nigeria, the second section sheds light on the infra-structure distribution for healthcare consumption system in the country, while the issue of equity and dichotomy in health and the Nigeria's society is discussed in section three. The paper ends with concluding remarks.

HISTORY OF PUBLIC HEALTH AND HOSPITALS IN NIGERIA

There exist a variety of health-care types and services in Nigeria. There are traditional, bio-medical or western orthodox, synthetic healers, bone settlers, etc (Erinosho, 20 06; Owumi, 1995). This variety provides insight into its history, infrastructure in terms of delivery, maintenance and management. The existence of the various types is a constant source tension, conflict and mistrust among the practitioners (Owumi, 2005). This however, is outside the purview of this discourse.

To recollect, the 19th century Industrial Revolution had a profound influence not only on the development of modern healthcare delivery, but also on other areas of socio-economic development. The Revolution occasioned a shift from rural/community subsistence economic patterns and strategies which were rooted in particularism that is, face to face relationship to urban/metropolitan specialized economy based on universalism or what is known as bureaucracy where relationship is basically official. Here, there is emphasis on division of labour, specialization, bureaucracy and expansive skill acquisition through long training and higher studies (Park, 2000; Onokerhoraye, 1982). This shift impacted and later informed the progressive development of public health, hospital and its infrastructure. Fendall (1986) recalled that:

> " …. Public health is believed to have developed formally though, progressively, as a consequence of the excesses on Industrial Revolution (p. 16)."

The excesses resulted in abysmal poor quality of health and life chances owing to the failure of industrial environment to assuage sustainability. Thus, a huge array of diseases and injuries unknown to rural people emerged with its burden on new urban governments.

This led to far-reaching social and public health decisions that eventually culminated in Public Acts of 1848, 1875 and 1936 in Britain (Fendall, 1986). The bills essentially were brought about to compile social and medical statistics and to analyze social pathology of the times with specific focus on environmental, social and econo-mic conditions of the working population (Gill, 1975). At same time, it was also meant to control, prevent and care for diseases, illnesses and sicknesses.

From the above, the state, that is, Britain [including all the colonies] had automatically assumed direct responsebility for the health of the individuals. This led to the provision of basic health services through the medium of health centres or hospitals (Park, 2000). The evolution of health centres brought into effect tremendous specializetions in responses to advances in medical technology, new development and the nature and distribution of health and disease pattern. However, prevalence of diseases in this regard was not uncommon, all because of convergence of people with different backgrounds in the urban centres to work in the factory.

Development in Nigeria as one of the British colonies reflects the above, that is, colonization foisted this epoch on us until its termination in October, 1960. Also, our developmental strategies for growth have not departed significantly from those bequeathed to us by the former colonial masters. Thus, from the colonial period, the pattern of the medical care delivery favours the urban population in particular at the expense of the rural settlers (Pearce, 2001).

This is because health services are hospital-based with its technology being propelled by two main factors, namely bureaucracy and specialization. Bureaucracy spells out rules and mechanism of its operation while specialization entails acquisition of expertise and mastery of specific areas in health care dispensation. Although the first medical centres in Nigeria were established in the rural areas by Christian mission (Onokerhoraye, 1982), this however, was not without surreptitious support from the colonial masters to expand Christianity.

The medical centres established by the missionaries were largely concentrated in the rural areas because of the goal of evangelism, which was to get the rural "pagans' to embrace the new religion. These medical centres, however, were merely mobile clinics and at most community dispensary out-posts to treat primary health problem, snake bites and minor injuries. It was in later years, when the British rule had been well established that the administrators promoted the creation of medical centres in the real sense of hospitals to take care of epidemics, such as sleeping sickness, small pox, malaria and other primary health concerns (Onibonoje, 1985; Aluko-Arowolo, 2006).

However, hospitals were concentrated only in the urban areas where there was a high concentration of Europeans and government officials (Akin-Aina, 1990; Home, 1983). Official residential quarters such as Government Reserved Areas (GRAs) Ikoyi in Lagos, Jericho in Ibadan, etc. were reserved for government senior workers. Such reserved areas were also called European Quarters. Such quarters existed in Lagos (Ikoyi/Victoria Island), Ikeja, Ibadan, Kaduna, Jos, Enugu and other major towns.

Two distinct spin-off effects could be deduced immediately from this particular arrangement, first a total neglect of rural areas in matters of healthcare and second, an established inequality in the urban centres between the colonialists including their black associates and general citizenry. Even in spite of independence, almost fifty years

Table 1. Health establishments in Nigeria (1987 - 1991).

Establishments	1987	1988	1989	1990	1991
General Hospital	763	987	987	897	897
Pediatric	-	-	-	-	1
Maternity	3090	3172	3172	3331	3349
Orthopedic Specialist	3	3	3	3	3
Medical Health Centres	-	-	-	-	985
Dispensaries	-	-	-	-	8405
Teaching Hospital/Specialist	14	14	14	14	14
Others	8764	9471	9471	9716	9962
Total	12,734	13,647	13,647	13,961	23,616

Sources: Adebanjo and Oladeji, 2006.

ago, these residential patterns are still very glaring in our towns and cities (Mabogunje, 2007; Home, 1983). Apart from these, there was no emphasis on the traditional healthcare type(s) and a huge vacuum was created that further entrenched inequality between the haves and have-nots and between the rural and urban settlements.

The dichotomy brought to the fore, the challenges in the healthcare system and other associated services, in that infrastructure and personnel that are very essential to efficient hospital system like food, roads, pipe-borne water and electricity for storage of drugs and surgical operation etc were not provided for (Aluko- Arowolo, 20 05). This later influenced the health policy of subsequent governments in Nigeria (Mabogunje, 2007). From the above, a 'roadmap' was designed for health system and sundry services in Nigeria which placed health services specifically on three pedestals: the primary, secondary and tertiary institutions for rural, mixed population, and urban elite respectively.

THE STRATA OF HEALTH CARE INSTITUTIONS

There are three health structures in Nigeria, which are arranged in a hierarchical order. These are primary, secondary and tertiary health institutions. Primary Health Care (PHC) by policy arrangements is within the purview of Local Government, based on the residual operation of Local Government Authority. Primary health structures are unarguably the first points of call for the sick and injured persons. They undertake mild healthcare cases like treatment for malaria, fever, cold, nutrition disorder, among others. They are specially for milder health problems and health education. They also handle infant, maternal and pregnancy matters.

Other health issues in their care are family planning and immunization (Badru, 2003). Finally primary health centres emphasize health care and are involved in record keeping, case reporting and patients referral to higher tiers. Primary health centres are known within the system by content of health centre, maternity home/clinic and dispensaries.

Primary healthcare centres refer complicated cases to secondary general hospitals. According to Medical and Dental Council of Nigeria (MDCN) in Badru [2003], primary health centres are also to undertake such functions as health education, diagnosis and treatment of common ailments, through the use of appropriate technology, infrastructure and essential drug list.

Secondary health centres are involved with not only prevention but also all treatments and management of minimal complex cases. However, the more complicated cases are referred to the tertiary or specialist hospital. Examples of secondary types are comprehensive health centres and general hospitals. The comprehensive health centres are often owned by private individuals(s) or a group of individuals e.g. Gold Cross Ikoyi, Lagos; Victory Hospital, Ijebu-Igbo etc, while general hospitals are owned and funded by government. Examples are general hospitals in Ijebu-Ode, Ikeja, IIesa, Oluyoro in Ibadan, Abeokuta etc.

General hospitals have provisions for accident and emergency unit and diagnosis unit [including X-ray, scan machines and other pathological services] among other services (Badru, 2003). The status of being a second layer of health institutions imposes certain acceptable standards and level of infrastructure.

According to Medical and Dental Council of Nigeria, there should be a minimum of three doctors who are to provide medical, surgical, pediatric and obstetric care in any general hospital. Furthermore, the general hospital incorporates the facilities of the primary healthcare into its own to play its role as a second tier health institution. As a matter of fact, to be so qualified, it should provide simple surgical services, supported by beds and bedding for minimum of 30 patients. There should also be ancillary facilities for proper diagnosis and treatment of common ailments (Tables 1, 2 and 3). General hospitals are often within the control of state governments and private individuals or group of individuals.

A tertiary health institution, also called specialist/teaching hospitals, handles complex health problems/cases either as referrals from general hospitals or on direct admission to its own. It has such features as accident and emergency unit, diagnostic unit, wards units, treatment

Table 2. Hospital beds by types of hospital [1990].

Type of Hospital	No of Bed	Proportion (%)
General Hospital	56,688	53.0
Maternity	20,370	19.0
Teaching	7,130	6.7
Orthopedics	733	0.7
Others	22,025	20.6
Total	106,946	100.0

Sources: Adebanjo and Oladeji, 2006.

Table 3. Number of Doctors in Nigeria 1960 - 1992.

	Non-Nigerian		Nigerian		Total	
Years	No	Percentage	No	Percentage	No	Percentage
1960	730	67.7	349	32.3	1079	100
1970	1301	48.5	1382	51.5	2683	100
1980	1845	23.0	6192	77.0	8037	100
1989	2879	16.0	15,075	84.0	17,954	100
1990	2965	14.7	17,245	85.3	20,210	100
1992	2995	14.0	18,330	86.0	21,325	100

Source: Federal Ministry of Health and Erinosho, 2006.

unit and out patient consultation unit. All these units are to be equipped with the necessary facilities and staffed by skill-ed personnel. Teaching hospitals also conduct resear -ches and provide outcomes to the government as a way of influencing health policies. This explains why this type of health institution is often a university-based. Examples are Lagos University Teaching Hospital [LUTH], Universi-ty College Hospital (UCH), Ibadan, The National Orthope-dic Hospital, Igbobi Yaba, The Psychiatric Hospitals in Aro, Abeokuta and Yaba in Lagos. Others are National Hospital in Abuja, University of Nigeria Teaching Hospi-tal, Enugu, etc.

Furthermore, teaching hospitals are supposed to be fully developed and accredited for teaching of various medical disciplines. They are to conform to international and acceptable standards. It should be stressed also that apart from the provision of infrastructure for health matters, there is also the need for availability of teaching materials and specialists in such fields as surgery, general medicine, pediatrics, obstetrics, dentistry, otolaryngology and psychiatry among other disciplines (Erinosho, 2005; Badru, 2003). To this end, each department should have a certain number of consultants with its own out patients, consultation sessions, ward units, surgical sessions and skilled personnel and auxiliary staff to man these units.

As a point of emphasis, the primary type of health institutions are associated with rural and semi-urban environments or mixed population, while general hospitals are located in the state capitals and a few other big towns. Tertiary health institutions are controlled and funded by the Federal Government and by some states that have and run state universities. Therefore, specialist or teaching hospitals are mainly urban-based.

From Tables 1 and 2, the total number of all types of hospital including dispensaries, psychiatric hospitals, leprosaria and others was about 23,616. The general hospitals and maternity centres alone had 897 and 3349 respectively. We can compare these figures with number of infrastructures provided for effective delivery services (Table 2). To take beds, for instance among others, there were 106,946 beds. However, with 56,688 bed spaces, this translates to 63 spaces for each hospital in 1991.

This is far above the minimum number of 3 spaces recommended by Medical and Dental Association of Nigeria (MDLAN). But this may be far away from reality because the 987 general hospitals would be served with a minimum of 2691 medical doctors (that is, 877 x 3) but between 1991 and 1992 (Table 3) only 17,788 doctors were available to service the hospitals and attend to patients.

This calculation however, does not include the primary and tertiary health institutions. It is therefore, unlikely, that all the doctors for this period would be working in the general hospitals only. The inadequacy of personnel is also noted to be an offshoot of inadequate general hospitals with only 53% of the populace being served. As Adebayo and Oladeji (2006) noted:

> "….professional medical personnel are disproportionately distributed to teaching hospitals, urban based hospitals are relatively better stocked with different kinds of medical practitioners, which are far above the average obtained (p. 389)."

Table 4. Distribution of healthcare facilities by tiers in Nigeria's Geopolitical Zones in 1999.

	Primary			Secondary			Tertiary		
	Private	**Public**	**Total**	**Private**	**Public**	**Total**	**Private**	**Public**	**Total**
South-West	1290	1848	3138	191	253	444	0	6	6
South-East +	1195	617	1812	515	36	551	0	6	6
South-South ++	680	1259	1939	490	145	635	0	7	7
North-Central	1882	3099	4981	195	209	404	1	3	4
North-East	333	2126	2459	20	80	100	0	2	2
North-West +++	364	3235	3599	37	104	141	0	4	4
Total	5744	12,184	17,928	1448	827	2275	1	28	29

Source: (National Health Management Information System, in Erinosho, 2005)
+ Excluding data for Anambra and Ebonyi States.
++Excluding data for Cross River state.
+++Excluding data for Kebbi state.

For instance, states with urban status like Lagos enjoy more patronage than those with rural status like Jigawa (Table 4).

From Table 4 above, Secondary Health Institutions or General Hospitals of 253 and 209 are more in Sourth-West and North-Central Regions respectively where there are urban Centres like Lagos, Ibadan, Abeokuta, etc. In the South-West and Kaduna, Kano, Zaria, Makurdi etc. In the North-Central Region than other regions with predominantly rural settlements.

Though, there was negligible increase in subsequent years (Adebayo and Oladeji, 2006) the trend, however, shows that apart from primary health workers and nurses including midwives who may likely work in the rural areas and in general hospitals, others are specialists working mainly in the urban centres. Professional healthcare workers like doctors and other highly skilled ones would prefer to stay in the urban areas, especially where there are infrastructures, to practise their trade.

Apart from this, life chance resources like water, energy (electricity) good roads, shelter, school for children, employment for spouses which are likely to attract these personnel to sub-urban and rural areas, shanties/ghettos in urban outskirts and blighted environments or slum areas in the urban areas, are not generally provided. And where they are provided, they are grossly inadequate (Akin-Aina, 1990; Aluko-Arowolo, 2005).

Table 5 shows the total number of key health personnel in Nigeria in 2002. This perhaps sheds more light on the human resources/infrastructure distribution for healthcare consumption system in Nigeria. The section below on equity and dichotomy in health and Nigerian society would provide further illumination.

EQUITY, DICHOTOMY, HEALTH INFRASTRUCTURE AND NIGERIA SOCIETY

Health system all over the world is none the least immune to existing societal ideological positions as influenced by the world's dominant ideologies of right and left (Erinosho, 2006; Aluko-Arowolo, 2005; Jegede, 2002, Mooney, 1987; Navarro, 1976). Thus, the types of infrastructure, the healthcare system provide and its quality, quantity, character and management are often pre-determined by the extant ideology in place in any society. Erinosho [2003:84] observes 'healthcare deliveries, systems in their different contents are more or less reflections of distinct ideologies, which are variously labeled as capitalism, welfarism, socialism or communism'.

Take socialism/communism with centrally planned economy with the government providing everything free to the citizenry. The system is like a 'common wealth pool' in which citizens discharge their responsibilities to the state and the state reciprocates by discharging her obli-gations to the people. Economy is often tampered with to assuage the fear of the poor or plebeians in both the urban and rural areas (Appadorai, 1980). China and Cuba readily come to mind here.

Capitalism is the exact opposite with particular emphasis on economic of large scale, with forces of demand and supply dictating prices. The various ideological practices have tremendous influence on the structural distribution of health care facilities.

Navarro (1976) noted that healthcare provision in underdeveloped countries (e.g. Nigeria) serves the indigenous middle and upper classes more by providing them medical care that is a replica of those in developed countries, in that the forces of demand and supply are given a free rein. Here, the system often encourages division between the weak and the strong as well as between the poor and the rich. The capitalist economy is one in which government can only interfere minimally by providing the policy thrust.

This system is akin to the practice in Western societies, North America/USA and Africa. Others such as Latin America, Eastern Europe and Central Europe are also becoming capitalist societies due to unbridled suzerainty of globalization as being propagated by the Western Europe and USA. Developing countries rely on the imports of drugs, machinery, foreign medical personnel and technologists to man and maintain medical equipment so imported from the advanced countries. This pattern obviously

Table 5. Key health personnel in Nigeria in 2002.

S/N	Health Personnel	Number	Percentage
1	Physicians	34,923	9.40
2	Nurses and Midwives	210,306	56.60
3	Dentists and Technicians	2,482	0.67
4	Pharmacists and Technicians	6,344	1.70
5	Environmental and Public Health Workers	n.a.	n.a.
6	Laboratory Technicians	690	0.16
7	Other Health Workers	1220	0.33
8	Community Health workers	115761	31.14
9	Health Management and Support	n.a.	n.a.
Total		371,726	100.00

Source: World Health Orginisation (WHO), 2006.

brings about creditor/debtor relationship and encourages outflow of capital from developing to developed countries.

Certain deductions can be made from the above, that is, this pattern undermines the overall health interest of the common people in that healthcare, in this form, is for the highest bidder. Also, the healthcare system would benefit the elite more than the plebeians. No wonder, emphasis is always more on the curative than preventive healthcare. The curative serves the elite, whereas the preventive serves the poor (Pearce, 1984; Erinosho, 2006; Adebanjo et al., 2006).

For instance, from 1975 to 1990 a whopping 66.2% of the total budgetary allocation for healthcare was allocated to hospital or curative type as opposed to 21.8% allocated to primary health or the preventive type. Jegede (20 2) opined thus:

> "….the medical system which Nigerian government inherited from the colonial administration had the hospital as opposed to rural health (urban poor) as the cornerstone."

Not surprising other social amenities like water, electricity and good roads were also allocated in this manner (Aluko -Arowolo, 2005). For instance, a break -down of provision of potable water shows that 67% was allocated to urban centres, especially state capitals, 60% to other urban settlements, while 50% was to the semi-urban and 55% to rural areas (CBN, 2005).

The third point is that equipment imported from abroad depends in part on the consumables imported also from the same sources for maintenance. Apart from serving as an avenue for capital outflow, the maintenance may be obstructed or completely negated whenever there is economic downturn or political logjam between the recipient country and the manufacturing one. This was the exact situation in the 1980s, 1990s and even until recently when medical equipment was remained unmaintained and obsolete due to Nigeria's precarious economic situation. Thus, Buhari in 1984, Babangida in 1985 and Abacha in 1995 in explaining reasons for the respective military coups described the hospitals as mere consulting clinics (Jegede, 2002).

A critical look at the National Programmes on Immunization (NPI) in 2005, for instance, shows that there was more success in the urban areas than the sub-urban and rural areas because there are more health infrastructures to sustain the programme in the former than in the latter. The success rate was 25% for urban children and 7% for the rest (CBN, 2005; Owumi, 2002). No wonder Nigeria has one of the highest rates deaths of under five children (0 to 5 years) in the world. That is 178 per 1,000 births (CBN, 2005; Owumi, 2002).

Conclusion

The present lopsided distribution of health facilities between urban and rural areas in Nigeria is a carry-over from colonial era. The urban areas where the educated, the rich and the powerful live, received the lion share of the infrastructure. The irony of it is that majority of Nigerians live in the rural areas. This therefore suggests that there is the need to redistribute the infrastructure in such a way that all Nigerians have a chance of benefiting maximally.

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