



REVIEW ARTICLE

EFFECTIVE SERVICE DELIVERY IN THE HEALTH SECTOR IN NIGERIA: CAUSES OF LOW PRODUCTIVITY AND ITS PUBLIC HEALTH IMPLICATION

*Asiton-a Solomon Ibama

Public Health Department, School of Health Technology, Federal University of Technology, Owerri, Imo State, Nigeria

ARTICLE INFO

Article History:

Received 18th January, 2017
Received in revised form
10th February, 2017
Accepted 06th March, 2017
Published online 30th April, 2017

Key words:

Effective, Service delivery,
Productivity, Performance,
Health System, Infrastructure,
Material, Equipment,
Human Resource,
Availability, Accessibility,
Affordability, Utilization,
Coverage, Population,
Public Health.

ABSTRACT

This is a review paper intended to bring to focus the concept of effective service delivery as applicable in the health sector and the seemingly causes of low productivity in the context of our country, Nigeria vis-à-vis its attendant public health implication. The objective of this review work is to determine the extent to which the basic components of health services delivery could contribute to meeting the health care needs of the population or otherwise in our circumstance as a nation. The methodology applied were traditional review of published literatures concerning the subject and bringing to fore the connecting issues to form basis for policy formulation as well as further empirical studies as much as possible. This paper takes a look at the most occurring factors and /or components of effective health services delivery, under three (3) broad components, namely; Health System Infrastructure component, Material and Equipment component and Human Resource component, then, bringing to fore the overbearing feasible causes of low productivity in the health sector in Nigeria, such as poor awareness creation on available services, high cost of services, unavailability of drugs/basic equipment, attitude of health care providers, poor working environment, poor remuneration and sitting of health facilities, by using performance in its various dimensions as the measurable tool in these perspectives. The public health implication of low productivity in the health sector may mean that the spectrum of activities geared toward prevention and control of diseases and or health conditions of public health importance are incapable of achieving or promoting optimal health of the population. In conclusion, it is very necessary that components/factors of effective health services delivery are adequately harnessed in a synergistic approach to solving issues of low productivity at every facet of our development as a nation, state, local government and community.

Copyright©2017, Asiton-a Solomon Ibama. This is an open access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

Citation: Asiton-a Solomon Ibama, 2017. "Effective service delivery in the health sector in Nigeria: Causes of low productivity and its public health implication", *International Journal of Current Research*, 9, (04), 49230-49236.

INTRODUCTION

"Effective Service Delivery in the Health Sector in Nigeria: Causes of Low Productivity and its Public Health Implication", is auspicious in every agenda of government, because it provides the basis for the formation of focused policy thrust of government as they transit from one administration to another. For better understanding of our discussion, it is necessary to separately define key words of the theme of this paper. We viewed effective in this presentation as being functional to produce expected results. Service delivery here means a system (health care system) that provides for the health care needs of the public. According to World Health Organization (WHO), (2010), Service provision or delivery is an immediate output of the inputs into the health system, such as the health workforce,

procurement and supplies, and financing. Increased inputs should lead to improved service delivery and enhanced access to services. Furthermore, WHO, (2010), stated that ensuring availability of health services that meet a minimum quality standard and securing access to them are key functions of a health system. Productivity; in our consideration means a measure of the health care needs of the public so provided in comparison to resources put in place to do so. By these reasoning therefore, it became very clear that effective service delivery in the health sector entails several factors and /or components that must be harnessed adequately in a synergistic manner to achieve the aims and aspiration of health care as encapsulated in its variable terms of Promotive, Preventive, Curative and Rehabilitative health care services. Health they say is Wealth and wealth is created and /or measured by factors of productivity which this paper attempts to bring to fore, those factors that are likely to cause deviation from the target. The World Health Organization in 1948 defined health as a "complete state of physical, mental and social well-being and

*Corresponding author: Asiton-a Solomon Ibama,
Public Health Department, School of Health Technology, Federal University of Technology, Owerri, Imo State, Nigeria.

not merely the absence of disease or infirmity". Whilst criticized as too utopian and unachievable by some, (Nutbeam, 1986; Sax, 1990), it aptly presents the broad nature of health in its many meanings, influences, and outcomes, guiding its conception away from the purely biomedical perspective. This clearly shows the complexity involved in the provision of health care needs of the public and hence its measurement in terms of productivity as earlier defined which are bound to vary depending on the aspect that is being viewed and the associated pattern of interpretation at the circumstance, because health is dynamic in nature. According to Tanahshi, (1978) and Shenghelia, *et al.*, (2003), some concepts that have frequently been used to measure health services remain extremely relevant and are part of the key characteristics. For instance, terms such as access, availability, utilization and coverage had often been used interchangeably to reveal whether people are receiving the services they need. In the explanation of WHO, (2010), *Access* is a broad term with varied dimensions: the comprehensive measurement of access requires a systematic assessment of the physical, economic, and socio-psychological aspects of people's ability to make use of health services. According to Berman, *et al.*, (2011), at the level of health service delivery organizations, relevant dimensions of access include physical, financial, linguistic, and information access; service availability/allocation; and nondiscriminatory service provision (equitable treatment regardless of age, gender, race, ethnicity, religion, and class). Sample measures of access include geographic distance to a facility, availability of transport to a facility, hours of operation of a facility, absenteeism of health care workers from a facility, affordability of services, availability of culturally and linguistically appropriate services.

Availability is an aspect of *comprehensiveness* and refers to the physical presence or delivery of services that meet a minimum standard. *Utilization* is often defined as the quantity of health care services used. *Coverage* of interventions is defined as the proportion of people who receive a specific intervention or service among those who need it (WHO, 2010). This paper, therefore looks at the various factors and /or components of effective health services delivery, feasible causes of low productivity in the health sector in Nigeria, its attendant public health implication, then recommendations and conclusion in these perspectives.

Components of effective health services delivery

We shall look at the factors of effective health services delivery under three (3) broad components, namely; Health System Infrastructure component, Material and Equipment component and Human Resource component.

Health System Infrastructure Component

This involves the basic physical and social amenities as well as services that are needed to ensure effective health services delivery. According to Agency for Healthcare Research and Quality, (2014), the components are not necessarily health care aims/attributes in themselves, but are a means to those aims since they are elements of the health care system that better enable the provision of quality care... health systems infrastructure are of interest to the extent that they improve effectiveness, safety, timeliness, patient-centeredness, access, or efficiency. It is important to make further highlights on this component as discussed here under;

Physical Structure

The physical structure, wherever, health services are delivered, must be designed specifically for that purpose with all the facilities (lighting, adequate space, water supply system, etc.) put in place to achieve the goal of provision of health care needs of the public in a sustainable manner. According to Health and Care Infrastructure Research and Innovation Centre, (2011), most healthcare systems, have insufficient knowledge to optimize interacting variables such as lighting, heating, ventilation, optimal room size, layout, location and access, infection control and energy efficiency. Furthermore, some facilities are out of date, some are inappropriate, some are unused or underused. It is in this light we advocate that government and indeed development partners should not just provide physical structures but should more importantly put in place mechanisms that will ensure maintenance culture to propagate sustainability of the lifespan of such structures and facilities.

As a matter of fact, the epidemiological transition from acute to chronic disease condition makes sustainability in health services even more important for continuity of care and effective disease management over time. As an intermediate outcome of organizational performance, sustainability refers to the organization's ability to continue delivering needed and valued services. It addresses both the organization's existing support and its efforts to secure future support, so it can continue to provide services (Berman, *et al.*, 2011). Berman, *et al.*, (2011), further argued that, relevant measures of sustainability include the involvement of community leaders in facility planning and monitoring; the use of strategic management processes to promote organizational fit with environmental conditions; timely, useable, and monitored data on facility financial status;...

Good Road Network and Transportation System

One cardinal principle of health care delivery system is accessibility of services to the public in need. It is only when available health care services are utilized by those in need and in the required magnitude that we can consider such health care system as being effective. Effective health care delivery is not easily achievable in the midst of poor road network and transportation system which had been known and classified as the cause of second delay in accessing health care, therefore good road network and transportation system is needed prominently in making health care services accessible to the public to promote productivity.

Communication Network (Technology)

For effective health services delivery to be achieved practically, reliable communication technology is required to facilitate effective case management for better result by the health team wherever such personnel may be, particularly in emergency situation. In most cases, large sums of money are being used or earmarked to be used to procure health Information, Communication and Technology (ICT) gadgets as well as Health Information Systems (HIS), within the public health system in most countries, Nigeria inclusive. However, such had not been seen to meeting the requirements to support the operation processes of the health system, hence, rendering the healthcare system incapable of adequately producing data and information for proactive management, monitoring and

evaluation of the performance of the health system at whatever level, particularly, the national health system. This according to Negotiated Service Delivery Agreement (NSDA, 2010-2014), is basically attributable to lack of an overarching technology policy framework and supporting regulations to inform ICT procurement and management processes.

Public Water Supply

Much of the ill-health which affects humanity, particularly, in the developing countries could be traced to lack of safe and wholesome water supply (Park, 2007). In such situation, available health services could be overwhelmed and so compromise effective health services delivery. Safe water supply is an essential component of sanitation practice.

For instance, it had been estimated that 94% of disease burden due to diarrhoea is associated with risk factors such as poor sanitation and hygiene behavior among others. Globally, it had equally been estimated that 2.6 billion persons were without adequate sanitation (Amadi, 2014). Diarrhoea in children under five years, which is largely a sanitation and hygiene related disease, is the second main cause of infant mortality and the third main cause of under-five mortality in Nigeria. It had equally been estimated that over 200,000 deaths occur annually among children due to diarrheal diseases in Nigeria. A child dies every 3 minutes in the country, mainly due to poor sanitary conditions (Amadi, 2014). Suffice to say that by taking safe public water supply a major concern by successive government, supported by environmental hygiene measures and practice a major attitude by significant population, particularly the rural poor the highlighted disease burden will be largely reduced and we can confidently say our health services delivery is effective.

Power Supply System

Effective and efficient power supply system is needed in providing conducive environment through optimization of other implied factors of the health care system for the discharge of effective health services delivery by the health team. However, what is observed of recent times in Nigeria is what can be described as crazy electricity bills and increased tariff from the National Electricity System without corresponding improvement in power supply. Such situation had significantly compelled health institutions/facilities to resort to alternative means of generating their own power which definitely will impact on the cost of health services delivery. The resultant effect of this may not be different from low morale of health care providers and or poor utilization of available services in a dwindling economy such as ours, thereby compromising effective health service delivery to the deserving population.

Relevant Legislation

Appropriate legislation is needed in promoting effective health services delivery through ensuring that basic infrastructure and adequate budgetary allocation are provided for health care services as well as role definition of all cadres of the health team to avoid role conflict as do observed. In Nigeria, the signing into law of the National Health Bill on 9th December, 2014, intended to providing framework for the regulation, development, and management of a national health system is a welcome development. The National Health Act creates a Basic Health Care Provision Fund to ensure Nigerians have access to basic health care services as a strategy to universal

health coverage. However, what is more important is the sincere implementation of the law as enshrined therein to ensure effective health service delivery. In all of these, what is quite obvious is that, inadequacies in health system infrastructure may limit access and contribute to poor quality of care and outcomes, particularly among vulnerable population groups that include racial and ethnic minority groups and people residing in areas with health professional shortages (Agency for Healthcare Research and Quality, 2014). This is the picture that seems to characterize our context, Nigeria, requiring urgent attention to ensure meeting the condition for effective health services delivery.

Material and Equipment Component

Adequate and cost effective material and equipment that are suitable to the circumstance and environment of health care delivery setting is most needed to ensure available and affordable health care which are measures of effective health services delivery. However, one fundamental issue is adequate or inadequate budgetary provision, release of funds as provided for material and equipment in the budget, needed for the provision of required health care services. This is because when a health care delivery system operates under insufficient budgetary provision and unnecessary bureaucratic bottleneck in securing fund will compromise supply of adequate consumables and basic equipment which will definitely affect the quality of care and creating room for families to bear higher out-of-pocket cost. Such circumstance is a deviation from what effective health care delivery system stands for.

Nevertheless, in Nigeria, the provisions of the National Health Act stipulated that, the basic health care provision fund shall be financed from Federal Government Annual Grant of not less than 1% of its Consolidated Revenue Fund and grants by international donor partners. The funds shall be managed by three national entities namely;

- The National Primary Health Care Development Agency which will manage 45% of the fund to be disbursed through each state and the FCT Primary Health Care Development Board for the provision of essential drugs, vaccines and consumables as well as equipment, transportation and human resource for health.
- The National Health Insurance Scheme which will manage 50% of the fund for the provision of basic minimum package of health facilities (eligible primary and secondary facilities).
- The Federal Ministry of Health will manage 5% of the fund for the provision of basic minimum package of health facilities (emergency medical care).

However, in the present circumstance, Nigeria is yet to achieve, the recommended 15% of the Total Annual Budget to health care services and this may mean deviation from what could contribute to effective service delivery in the health sector.

Human Resource Component

Until and unless we have adequately trained and required number of health manpower, the earlier highlighted factors/components will remain meaningless in health care services. This is so because all other factors/components so highlighted must be coordinated and controlled by the human resource component to translating actions of the other components into measurable quantity that enable one to define

Table 1. Status of Health Professionals in Nigeria as at 2006

Cadre	Total Number.	Ratio of Health Workers/100,000 populations
Doctors	39,210	30.0
Dentists	2,773	2.0
CHO/CHEW/JCHEW	117,568	19.0
Pharmacist	12,072	11.0
Medical Lab Scientist	12,860	12.0
Physiotherapist	769	0.62
Midwives	88,796	68.0
Nurses	124,629	100.0
Health Records Officers	820	0.66
Environmental Health Officers	3,441	3.0

Source: Federal Ministry of Health, 2006

such health services as being effective or not, increasing in productivity or not. To optimize health system performance (acceptable productivity), workers should be recruited from, accountable to and supported for work in their community where feasible. Nigeria, as at the year 2006 as shown in Table 1 had one of the largest stocks of human resource for Health in sub-Saharan Africa, comparable only to South Africa and Egypt (FMH, 2006).

In our consideration, these numbers of the various health professionals in Nigeria may mean the health professionals trained by the various training institutions and regulated by the respective regulatory councils, but may not necessarily mean the number engaged in meaningful health services delivery due to high unemployment rate. Also, quite fundamental in human resource component in health services delivery is training and retraining, this is considered to be imperative because, there is usually shift in disease burden, changes in environmental condition that can provoke disease pathogen multiplication, propagation and transmissibility, therefore new epidemics may emerge, and even reemergence of previously controlled disease conditions.

Noting that improved health status is not a static outcome, health service delivery organizations must be able to acquire and utilize new knowledge continuously. This gives rise to several dimensions along which to examine learning as an intermediate outcome (Berman, *et al*, 2011). They further stated that the first in this direction is the existence and quality of data audit and feedback processes, to both capture data and return feedback to the organization. A second dimension concerns the adoption of innovation, whether within an organization from one staff member to another, from one department to another, or between organizations. A third dimension is the provision of training and continuing education for the healthcare workforce. Example of measures of this outcome include the use of a balanced scorecard for organizational performance, the presence of a patient suggestions box, the existence of a system for health professionals to report errors to hospital management/health establishment, and the use of quality improvement methods. However, in the midst of these, the planning and management of Human Resource for Health (HRH) still poses a major challenge to health development in our country, Nigeria for several observed reasons such as;

- Migration within and outside the country, mal-distribution, poor skill mix and limited production capacity.
- Poor motivation, differential conditions of service, poor remuneration and work environment; negative attitude to work and poor supervision are added challenges.

Causes of low productivity in the health sector in Nigeria

The root causes of an organization's poor performance are the underlying or systemic factors that precipitate the causal chain of behaviors and events that ultimately produce an observed shortfall in performance (Berman, *et al*, 2011). Performance in its various dimensions is the measurable tool for productivity. Although, our submission on causes of low productivity in the health sector in Nigeria, is not an outcome of empirical study, but widely historically observed processes and review of published literatures that have been a menace militating against effective health services delivery in our context at various levels. This may form basis for further studies for comprehensive empirical evidences. We shall, therefore, look at these causes hear under.

Poor Awareness Creation on Available Services

When the population that are to utilize and benefit from the services provided by the health care system are not adequately aware of the range of services and activities as well as service provision time, will definitely lead to poor utilization and therefore result in low productivity. According to Berman, *et al*, (2011), the intermediate outcome of utilization refers to the volume of services delivered or clients served and that setting universally applicable standards for the right level of utilization is difficult because of the influence of diverse and variable client demand patterns. Furthermore, utilization is better conceived as a relative measure, that is, utilization rates relative to organizational capacity or population health characteristics. Benchmarking utilization across organizations serving similar populations is therefore an important method for assessing this intermediate outcome. They further argued that for the purposes of measuring performance, utilization may be captured as patient or procedure volume relative to capacity or relative to population health characteristics. Examples of relevant measures might include occupancy rates, outpatient visits per provider, and the percentage of pregnant women receiving antenatal care.

Nevertheless, in the works of Amadi, (2011a), it had been stated as thus; "The level of awareness about the menace of non-communicable and chronic diseases is increasing because of the number of preventable deaths occurring from this class of diseases. However, the overwhelming burden of infectious diseases in Nigeria tends to mask the peoples' awareness of chronic diseases in this part of the globe, in spite of the fact that deaths from chronic diseases is fast overtaking those from infectious diseases and this trend may continue in the next ten years except campaign for awareness is stepped up." In our opinion, such campaign should trickle down to the population that needed it more, particularly the rural poor.

High Cost of Services

One issue is quite obvious, and this is that, even when health services are available and seems to be accessible, if such services are not affordable to the generality of the population, utilization of the services will still be low and this will lead to low productivity. Therefore, affordability of services is among the indicators for assessment of level of performance in health services delivery at any level of concern.

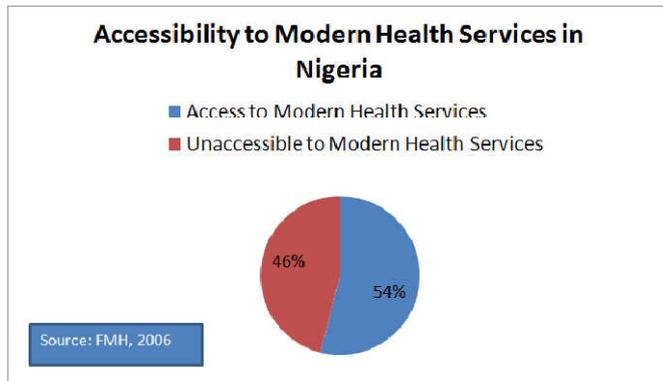


Figure 1. Accessibility to Modern Health Services in Nigeria

According to Federal Ministry of Health, (2006) official documents as shown in figure 1, only an estimated 54% of Nigerians have access to modern health services. The document also recognizes that “rural communities and the urban poor are not well served”. The issue in question is access to available care, what happens to the 46% of the population without access to modern health, probably medical care (Ibama, 2015).

Unavailability of Drugs/Basic Equipment

Lack of essential drugs and basic equipment in our health facilities is a bane of effective health services delivery as the population in need of health services in such facilities will not be satisfied and so will be discouraged in utilizing such facilities. This is because insufficient budgetary provision or poor/non functional drug revolving fund system for supply of consumables will result in asking patients/clients to purchase inputs outside, which will invariably affect the quality of care and families bearing higher out-of-pocket costs. This invariably will lead to poor health service performance and the outcome is low productivity.

Attitude of Health Care Providers

Attitude of health care providers by being cordial with their clients/patients or not is an important factor in effective health service delivery. When clients/patients right/personality is not respected by health care providers will lead to loss of confidence in the health care system and such clients/patients may patronize alternative medicine providers. In this sense, poor utilization is inevitable and the outcome will be low productivity. Also, quite important is the issue of absenteeism by health professionals, for instance in studies in six countries as reported in Berman, *et al.*, (2011), of the presence of health workers in their assigned posts found that, on average, 35 percent of workers were absent at the time of an unannounced visit during official working hours. Most of these workers were employed and being paid by their governments, but many of

them not doing the work. This situation is widespread and largely tolerated. What is its impact, and what is the solution? These and many similar reports suggest the frequency of both low performance levels and large performance gaps between better and worse performing health facilities of the same type. Performance in these examples can be expressed in terms of measurable such as service coverage, reaching poor or disadvantaged groups, appropriate quality of care, or resource productivity - intermediate results that are steps on the pathway to health outcomes. Berman, *et al.*, (2011), further stated that low performance levels, for health care delivery systems as a whole means that, performance indicator averages are below what could be attained and is actually being attained by other, comparable systems. In many low and middle income countries, where Nigeria is located, the overall level of health service delivery performance is not what it could be. For example, the Countdown to 2015 on Maternal, Newborn, and Child Survival noted in its decade report (2000–2010) that, of the 68 countries monitored for progress in priority infant and young child mortality goals, 19 were on track to achieve Millennium Development Goal 4. But 49 countries were not on track, and 12 countries have experienced slowdowns in their progress.

Poor Working Environment

There is no doubt that a working environment that is conducive is a motivating factor that enhances performance of the workforce in any industry or establishment, the health care industry not an exception. Therefore, if the contrary is the case (poor working environment) the health workforce will be demoralized and this will make them exhibit some degree of lukewarm attitude in their services provision, thereby leading to low productivity.

Poor Remuneration

Poor remuneration of health workforce is considered the singular most frequent factor in the health industry leading to disagreement between labour unions and employers and subsequent disruption of services by way of work to rule or strike action. During such periods, health services delivery were either skeletal or halted entirely and as such, contributing to low productivity, noting that performance is inextricably tied to motivational circumstances, prominent of which is adequate and regular payment of salary in its total emolument.

Siting of Health Facilities

Health facilities in the context of effective health services delivery are expected to be sited close to the nucleus of population (within 5km distance to population concentration in the concept of Primary Health Care). Where this is not complied with, but rather being sited based on political reasons or expediencies away from the concentration of the population will lead to poor utilization and therefore low productivity will be the outcome.

It is quite pertinent to reiterate that, although, it was difficult to lay hands on substantial verifiable empirical data to substantiate the level of performance attributable to each of these factors as much as possible as elicited above to the presumed low productivity, it will go a long way to provoke research processes to provide documented evidences that will guide sustainable health care delivery policy/framework geared

towards enhanced productivity in our context. It is also important to state that all these factors enumerated above, may not be present at a time and in all places and in same magnitude, but the fact remains that they are established causes of low productivity due to their influence on effective health services delivery, measurable in terms of performance in our context, Nigeria.

Public health implication of low productivity in the health sector

Several erudite scholars have defined or given meaning to public health, however, we shall consider just two of such definitions or meanings in the context of our environment. Public health is defined as the science and art of preventing diseases, prolonging life, promoting health and efficiencies through organized community effort. It is concerned with the health of the whole population and the prevention of disease from which it suffers. It is also one of the efforts organized by society to protect, promote, and restore the peoples' health. It is the combination of sciences, skills and beliefs that is directed to the maintenance and improvement of the health of all the people through collective social actions (Okoronkwo, *et al*, 2015). Public health according to Abanobi, (1999), is the field of health science and practice that seeks to achieve prevention of premature death, disability and disease through organized community efforts designed to assure the promotion of optimal health and functioning of members of a community in the context of their environment. Therefore, the public health implication of low productivity in the health sector in our consideration may mean that the spectrum of activities geared toward prevention and control of diseases and or health conditions of public health importance are incapable of achieving or promoting optimal health of the population. Such situation may trigger shift in disease burden, changes in environmental condition that can provoke disease pathogen multiplication, propagation and transmissibility, hence new epidemics may emerge, and even reemergence of previously controlled disease conditions. Optimal health is said to mean a balance of physical, emotional, social, spiritual and intellectual health.

One may ask why should low productivity matter? It matters because, low productivity is associated with poor/non performance while high productivity invariably means performance in service delivery which translates to the potential of the health system to improve peoples' lives to meeting the opportunity to realize health gains. Better performance or productivity means mothers' lives saved, children cured or protected from disability and disease, fewer missed opportunities, and more effective use of money and technology. These are the fundamental mandate and focus of public health practice anywhere in the world, such that any missing link will cause deviation in this perspective. Raising performance or productivity within health care delivery system to levels already being achieved in a setting can significantly improve results. Raising it further, to achieve the full potential demonstrated in other similar settings can increase results even more.

Recommendation

- Scaling-up of awareness on range of health services available at the service provision points and provision time within the context of geographical locations and zones that

addresses risk factors, determinants and basic signs and symptoms of major communicable and non-communicable diseases in Nigeria to ensure early care seeking behaviour.

- Building capacity of health workforce through training and retraining programmes, joint cooperation projects and workshops, among others to major up with factors responsible in shift in disease trend and burden.
- Equipping our health care delivery facilities/points with basic and essential cost effective material and equipment to render quality health care services to the population.
- Harmonized and improved remuneration to health workforce to increase their zeal to render their all important roles in health care delivery services in Nigeria.
- Putting in place mechanisms for improved infrastructure and logistic system in reaching out to difficult-to-reach communities/settlements and the underserved population.

Conclusion

Having noted that "Health is Wealth", and wealth creation is a cardinal focus of every government, employer and indeed the entire nation. It is therefore, very necessary that components/factors of effective health services delivery are adequately harnessed in a synergistic approach to solving issues of low productivity at every facet of our development as a nation, state, local government and community.

REFERENCES

- Abanobi, O. C. 1999. *Core Concepts in Epidemiology and Community Health Practice*. 1st ed., Nigeria. Opinion Research & Communications Inc. Owerri.
- Agency for Healthcare Research and Quality, 2014. Health System Infrastructure. Rockville, MD. October 2014 <http://www.ahrq.gov/research/findings/nhqrdr/nhqr11/chap8.html>
- Amadi, A. N. 2011a. Environmental Health and Sanitation as a Panacea in Disease Control and Prevention. *Being a 24th Public Lecture of the Federal University of Technology, Owerri*.
- Amadi, A. N. 2014. Environmental Health: The Dynamics, Applications, Implications and the Way Forward in Nigeria's Health Care Delivery System. *25th Inaugural Lecture Federal University of Technology, Owerri, Imo State, Nigeria 4- 5 pp*.
- Berman, P., Pallas, S., Smith, A. L., Curry, L., Bradley, E.H. 2011. Improving the Delivery of Health Services: *A Guide to Choosing Strategies*. The International Bank for Reconstruction and Development / The World Bank 1818 H Street, NW, Washington, DC 20433
- Federal Ministry of Health, 2006. National Health Policy. In: Nnebe, H ed. *Policies of the Federal Republic of Nigeria (1999-2007)*, Quarterly Newsletter of the Health Reform Foundation of Nigeria, Abuja, Vol. 1, Number 1 (New Series), March-April 2012, p. 18.
- Health and Care Infrastructure Research and Innovation Centre 2011. How should we create 21st century ...
- Ibama, A.S. 2015. Strategies in Disease Control: The Role of Public Health Practitioners. *Being a Seminar Paper Presented in Partial Fulfillment of the Ph.D in Public Health Degree, FUTO, Nigeria*.
- Negotiated Service Delivery Agreement (NSADA), (2010-2014). Delivery Agreement for the Health Sector.

- <http://www.thepresidency.gov.za/.../Health%20Sector%20N%20SDA.pdf>
- Nutbeam, 1986. <http://www.forcedmigration.org/guides/>. Retrieved March, 15, 2010.
- Okoronkwo, M., Anetor, G.O., Ibrahim, S. and Azubike, S. O. 2015. Introduction to Public Health. *National Open University Course Material*. Lagos, Nigeria.
- Park, K. 2007. Park's Text Book of Preventive and Social Medicine. 19ed. India, M/s Banarsidas Bhanot Publishers.
- Sax, 1990. <http://www.forcedmigration.org/guides/fmo030/fmo030-9.htm#fmo030-bibl-58>. Retrieved March, 15,2010.
- Shenghelia, B. *et al.* 2003. Beyond access and utilization: defining and measuring health system coverage. In: Murray CJL, Evans DB, eds. *Health systems performance assessment: debates, methods and empiricism*. Geneva, World Health Organization, 2003:221–235.
- Tanahashi, T. 1978. Health services coverage and its evaluation. *Bulletin of the World Health Organization*, 1978, 56:295–303.
- World Health Organization (WHO), 2010. Health Service Delivery. http://www.who.int/healthinfo/.../WHO_MBHSS_2010_section1_web.pdf
- World Health Organization, (WHO) 2010. <http://www.who.int/en/> Retrieved March, 15,2010.
