UNIVERSITY OF ILORIN

THE ONE HUNDRED AND FORTY-SECOND (142ND)
INAUGURAL LECTURE

"POPULATION WITH ILL-HEALTH BURDEN; FACED WITH A SICK HEALTH SYSTEM"

By

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Preamble

My Vice-Chancellor Sir, with gratitude to God, I stand before this audience today to present the 142nd Inaugural Lecture of the University of Ilorin. The journey thus far has certainly been by the special grace of God and to Him be the glory and honour. This inaugural lecture is the 2nd in the Department of Epidemiology and Community

Health in this University. The first Inaugural lecture in the department was delivered in 2012 by Prof. A.O. Awoyemi.

I got guided by my late Uncle Chief Leslie Akande to read medicine at Ahmadu Bello University, Zaria and qualified as a medical doctor in 1984. After Internship and Youth Service, I worked at Katsina and Dutsin-Ma General Hospitals. As Medical Officer in-charge of Dutsin-Ma General Hospital I was very comfortable practising medicine at this level where I was almost 'all in all'. I did not think of having further training until I met the then Miss Oluremi Adegboye and we planned to get married. It occurred to me that I needed to move down to settle in Ilorin where she was and where my parents were. I applied to University of Ilorin Teaching Hospital (UITH) for Residency training in 'General Medical Practice' because I wanted to remain a general practitioner but I could not get the only space in the department at that time. As fate would have it, I ended up in Department of Epidemiology and Community Health where there was space. Ladies and gentlemen, this I often refer to as an 'accident that should happen over and over'. It was really a divine choice for me from God into a discipline I will always love to be. That was the beginning of my sojourn in Public Health. This inaugural lecture is titled "**Population with ill-health burden; faced with a sick health system**"

Introduction

Every citizen is entitled to enjoy good health, protection from diseases and proper medicare for survival, personal growth and development. Ill-health is a threat to the harmonious functioning of the body system and thus the need for protective mechanism to remain healthy and to

avoid sickness. Good health does not only contribute to better quality of life but is absolutely essential for a virile labour force for socio-economic development of the individuals and nation (Akande TM, Owoyemi JO, 2009; World Bank 1994). Health is basic and important just like the need for shelter, clothing and food. Yet, most of the countries in sub-Saharan Africa lag far behind in the vital task of improvement of health (Akande TM, 1999a). Diseases abound among Nigerians and sadly the health system to help out is also sick. The disease burden is from communicable and non-communicable diseases. The health system is unable to provide the much needed health promotion, preventive, curative and rehabilitative health care. Several factors are responsible for this unfortunate situation and they affect virtually all aspects of the health system

Ill-health and related factors

As countries develop non-communicable diseases replace communicable diseases as the main source of ill-health. However, evidence has shown that developing countries face a triple burden of communicable diseases, non-communicable diseases and socio-behavioural illnesses. Communicable diseases flourish in Nigeria because of the poor environment which facilitates transmission of infective agents. Malaria is Africa's leading cause of under-five mortality and contributes 10% of the continent's disease burden. It accounts for up to 50% of out-patient visits and almost 90% of all malaria deaths in the world today occur in sub-Saharan Africa. Malaria kills an African child every 30 seconds. Very young children and pregnant women are at the highest risk for malaria

morbidity and mortality. About 50% of Nigerian population experience at least one episode of malaria each year (Akande TM, Musa IO., 2005).

The safety of food consumed should be of concern. Food borne diseases are major health problems in Nigeria. A study of food vendors in secondary schools in Ilorin showed that none of the respondents had ever attended any training on food hygiene or food safety. Only 40% of them practised food reheating before or during sales, about two-thirds of the food vendors were observed to be talking continuously while serving or preparing food. Also, 15% and 12% were picking nose and coughing or sneezing without handkerchiefs respectively (Musa OI, Akande TM. 2002). All these potentially spread food borne diseases.

Reproductive health

Reproductive health implies that people are able to have a responsible, satisfying and safe sex life and that they have the capability to reproduce and the freedom to decide if, when and how often to do so. Among secondary school students in Ilorin there is evidence of risky sexual behaviour. More than a quarter (26.8%) of the students studied were sexually active, among them 46.7% had multiple sexual partners and only about half (53.3%) use condoms. The students were exposed to sexuality education mainly from electronic media (Musa OI, Akande TM, Soladoye OM., 2007). Only 12.1% of the students reported getting first information from parents on sexuality. Females are more likely to have such discussion with family members than males. Gender differences in the family communication about HIV / AIDS as reported in the study is a reflection of the African Culture (Musa OI, Akande

TM, Salaudeen AG, Soladoye OM., 2008). Similar findings were reported among rural secondary school students (Akande AA, Akande TM, 2007). To reduce the health hazards from such risky sexual behaviour, parents and teachers need to have the relevant knowledge and communication skills for sexuality education.

Teenage pregnancy is a major public health problem and it is also a social problem that is on the increase. With poor sexual education, low contraceptive use, the consequence is unintended pregnancies. Among secondary school students in Ilorin 5.7% of sexually active females had ever been pregnant and 17.0% of sexually active male students had impregnated a girl. All the females who had pregnancy in the study population had ever had abortion and 87.5% of the males that had ever gotten a girl pregnant told the girls to abort the pregnancy. Sadly, all abortions were induced and done by unqualified personnel (Aderibigbe SA, Araoye MO, Akande TM, et al 2011).

Maternal mortality is a major health problem in Nigeria. One of the preventive measures to reduce maternal mortality is family planning. Among mothers in the immediate peuperium (within 6 weeks of delivery) studied in Ilorin, almost of all of them were aware of family planning. However, only 43% had ever used family planning methods, 54.2% of them intended to have more pregnancies and among them, 31.8% wanted the next pregnancy within 2 years of last delivery. Only a little more than half (59.2%) of the mothers had intention to use family planning methods. The study concluded that poor use of family planning methods was not due to lack of awareness but has to do with attitude of people towards family planning which needs to be addressed to reduce

maternal mortality (Akande TM, Fawole AA, 2001). In a health education intervention study among students of public secondary schools in Ilorin a significant increase in knowledge and use of contraceptives among the students was reported after the intervention (Aderibigbe SA, Araoye MO, Akande TM, et al 2010).

Antenatal Care is another important measure to reduce maternal mortality. From the records of 5,079 women who delivered at UITH between 1995 and 1998, majority (79.4%) of them attended antenatal clinic. Among those that attended antenatal clinic, only 8.7% of them booked before 20 weeks gestation and as much as 39.2% booked late at gestational age of 30 weeks or more (Fawole AA, Akande TM, 2003).

Risky sexual behaviours promote the spread of Sexually Transmitted Infections (STI). About half (45.5%) of Nigerian soldiers engaged in pre / extramarital sexual activities and it was significantly more among the younger ones aged 18 – 34 years, those that participated in foreign military operations and those not living with their spouses. Unfortunately, this behaviour is further compounded by low (61.5%) use of condoms for protection by those who engage in pre/extramarital sex. The need for intensive health education on safe sex behaviours in this group is high (Hussain NA, Akande TM, 2009). More than three-quarters of soldiers studied in Ilorin were found to have considerably high knowledge of Human Immunodeficiency Virus / Acquired Immunodeficiency Syndrome (HIV/AIDS). About half (51.1%) believed they were not at risk of HIV. A quarter (25.9%) of them had been treated for STI in the past (Hussain NA, Akande TM, Olasupo ST, 2008).

As part of a strategy to prevent STI and AIDS among Commercial Drivers in Ilorin, peer education / counseling and social marketing were used. Knowledge of HIV and perceived risk improved significantly after the intervention in the study site but not in the control group. However, there was no significant change in the involvement in casual and commercial sex in both control and intervention groups. Use of condoms, however, increased significantly in the study group post-intervention. This shows that people will continue to indulge in risky sexual behaviours despite knowledge of the consequences, though the risk can be reduced through the use of condoms (Araoye MO, Kayode O, Akande TM, Ndom RJE, 1999).

Non-Communicable Diseases

Eighty percent of global cardiovascular disease (CVD) mortality occurs in low - and middle -income countries (LMIC). Studies showed that modifiable risk factors such as hypertension, obesity, smoking, and diabetes, account for the majority of CVD in LMIC. Hypertension was the most prevalent risk factor for CVD in 4 Sub-Sahara Africa (SSA) populations; rural Nigeria and Kenya and in urban Namibia and Tanzania. The crude prevalence of hypertension ranged from 19.0% in Tanzania to 32.0% in Namibia. The age adjusted prevalence was 19.3%, 21.4% 23.7% and 38.0% in Nigeria, Kenya, Tanzania and Namibia respectively. (Hendriks ME, Wit. NM Ferdinand, Roos MTL, Brewster LM, Akande TM, et al. 2012).

A retrospective study of the outcome of medical admissions of the elderly in UITH showed that the common causes of hospital admissions in this age group include

Hypertensive heart failure and Cerebrovascular accident (CVA). The high proportion of medical admissions due to non-communicable diseases, more so in developing countries, supports the global trend of increasing burden of non-communicable diseases (Sanya EO, Akande TM, et al 2008).

Our environment is also fertile for non-communicable diseases burden. Studies among commercial grinding machine operators and music recording and retail centres operators in Ilorin, showed high awareness of the hazard of noise induced hearing loss (NIHL) to themselves and their neighbours. However, most of them were not aware of protective measures to take and majority did nothing to protect themselves from noise. Very few of them had ever had hearing test done. A quarter of the commercial grinding machine operators already had symptoms of NIHL. Unfortunately, hearing loss is insidious and often asymptomatic until it is advanced. This study also shows the dichotomy between awareness / knowledge of health hazards and behavioural change to prevent health hazards (Akande TM, Ologe FE, 2001; Ologe FE, Okoro EO, Akande TM, 2005). Similar findings were found among workers of a Steel Rolling Mill in Nigeria. In the Steel rolling mill 53% of the factory workers were exposed to noise levels above 85dB (Ologe FE, Akande TM, Olajide TG., 2005 & 2006). Nearly all industrial hearing loss can be prevented by proper measures. The cost of hearing conservation is far less than the cost of hearing loss in terms of human suffering, financial costs of rehabilitation of the hearing impaired, and the cost of workman compensation claims (Akande TM, Ologe FE, 2003).

Electricity supply in Nigeria is erratic and grossly inadequate. This has forced many Nigerians to use electric generators as alternative source of power supply. In Anyigba, Kogi State 73.2% of the respondents use generators, majority (78.2%) of the respondents who owned generators were aware of the social and health hazards associated with generator use. More than half, 183 (56.6%) of the respondents felt that they were prone to hazards from generator use, while (85.5%) felt neighbours of generator users are exposed to noise hazard (Akande T.M, Owoyemi JO, 2008).

Workers in Steel industries are also exposed to metal chips and welding arc rays that can cause eye injury. Among workers in the same Steel Rolling Mill, only half possessed eye protective devices and among them only about a third ever used it. Uncorrected visual acuity $\leq 6/18$ was found in about half (54.2%) of the workers. Ocular risk can be reduced in such industries by provision of modern well maintained machinery, specific training in safety measures and ensuring compliance to the use of protective devices (Ademola- Popoola DS, Akande TM, Ayanniyi A. 2005).

Unhealthy Practices

Smoking is one of the lifestyles that have serious health consequences. This is usually indicated on the tobacco packs, nevertheless people still engage in smoking. Among soldiers in Nigeria, prevalence of smoking was found to be 20.3%. Majority (93.4%) of the soldiers knew that smoking is hazardous to health but less than one-fifth knew that it can lead to hypertension, cerebrovasular accidents and chronic cough which are the common

immediate health problems of smoking that could hamper physical performances (Hussain NA, Akande TM, Adedayo O., 2009). Among students of two Colleges of Education in Kwara State, a quarter of them had ever smoked out of which 80.9% of them were current smokers. Sadly, as much as a third of these students started smoking before the age of 15 years. These are potential teachers who will have influence on young students in schools. This portends great danger in view of the health problems associated with smoking (Salaudeen AG, Akande TM, Musa OI. 2009b).

Use of psychoactive substances is a risk factor for road traffic accidents in Nigeria particularly among long distance drivers. Among long distance vehicle drivers studied in Ilorin, we found 56.1%, 53.6% and 37.7% of them had ever used mild stimulants, cigarettes, alcohol respectively and 31.9%, 30.9% and 15.9% were current users of mild stimulants, cigarettes, and alcohol respectively. A third (33.3%) of the current users of psychoactive substances used cannabis (Indian hemp). Studies have shown association between substance use and road traffic accidents, poor mental and physical health (Makanjuola BA, Oyeleke SA, Akande TM, 2007). Distraction of drivers can lead to road traffic accidents and injuries. A study among non-commercial drivers showed that despite the high awareness of the dangers in using phones while driving, about a quarter (25%) non-commercial drivers admitted that they use their mobile phones while driving. Studies have shown that there is higher risk of road traffic accidents from users of mobile phone during driving than non-users (Akande TM, Ajao MS., 2006).

Prevention of Ill-health

Immunization is a proven tool for controlling and eliminating life-threatening infectious diseases and is estimated to avert between 2 and 3 million deaths each year. Vaccine Preventable Diseases (VPDs) are still largely prevalent in Nigeria. Mothers' knowledge of the preventable diseases and vaccines are quite low in Nigeria. Only 13.6% of mothers attending immunization clinics in Ilorin were able to mention all the childhood VPDs. The study was conducted in an urban area with fairly educated mothers. Predictably, the situation in rural settings where mothers do not take their children for immunization is likely to be far worse (Akande TM, 1996).

Inadequate vaccine supply and delay in commencement of vaccination were found to be responsible for an epidemic of meningitis in Baruten LGA, Kwara State. The delayed mass vaccination in February 2001 contributed to the situation where 92.7% of reported cases did not receive any vaccination. The epidemics could have been prevented if adequate vaccines were provided and vaccination commenced early enough (Akande TM, Monehin JO, 2004a). In Nigeria, like many developing countries, measles is one of the major preventable childhood diseases. Although national immunization programmes prevent over 80 million cases of measles and 4.5 million deaths annually, it is estimated that over 30 million cases and 875,000 deaths still occur every year. Despite high vaccine coverage, transmission of measles is high in developing countries for reasons which include; poor sero-conversion, questionable potency of vaccines due to problem with cold chain. Second dose of measles vaccine policy in Africa was proposed to take care of

vaccine failure (Akande TM, 2007). Vaccine failure as a result of problem with cold chain maintenance is a major issue in Nigeria where electricity supply is erratic and few health facilities can afford to run alternative power supply to keep vaccines potent.

Hepatitis B infection is a universal health problem and health workers are at risk. Around 300 – 400 million carriers are estimated worldwide. Hepatitis B vaccination of health care workers and optimal health care workers' practices regarding management of sharps can minimize these risks. Among 884 health care workers who took the first dose of the vaccine in UITH, only about three-quarters (76.5%) reported back for the second dose and less than half (48.6%) took the third dose for full immunization. This shows that, even among health workers, there is poor compliance to vaccination as a preventive measure to disease (Akande TM, Aderibigbe SA, 2010). Poor response and compliance to vaccination in developing countries calls for concern and certainly affects the control of diseases.

Polio eradication initiative is a global initiative taken during the World Health Assembly in 1988 to rid the world of Poliomyelitis. Supplemental immunization campaigns have achieved significant impact in most countries through quality mass campaigns. Quality campaigns can be strengthened through rapid assessment of the process. Rapid assessment was shown to be a vital evaluation tool for Polio National Immunizations in a study conducted in Ghana. Rapid assessment conducted during the mass campaigns enabled timely intervention in covering missed children (Akande TM, Eshetu M, Bonsu G., 2005**).** Currently, only 3 countries Nigeria, Pakistan and Afghanistan are Polio endemic countries globally

(WHO 2013). The major setback to Polio eradication effort in Nigeria was the controversy based on unfounded rumours that trailed the use of Polio vaccine in Northern part of the country. This eroded the achievements earlier made in the effort to eradicate Polio and results in enormous additional financial resources as well as re-infection of the previously Polio free areas within and outside Nigeria (Akande AA, Akande TM., 2006).

One of the major health problems in Nigeria today is the scourge of HIV/AIDS. Some religious institutions are responding to these challenges by mandating intending couples to undergo HIV screening before they are joined in marriage. A study among students of three tertiary institutions in Ilorin showed that 85% agreed that pre-marital HIV screening is necessary, 57.2% were in support of enforcement of pre-marital screening for HIV. However, only 11.1% of the students have ever had HIV screening test and just a quarter (24.4%) expressed willingness to undergo pre-marital HIV screening test (Musa OI, Akande TM, Olatinwo AWO, 2003). Among clinical medical students, majority considered themselves at risk of HIV infection. Despite the high awareness of the advantages of HIV testing, 85.4% of them were never screened for HIV even though 78.2% showed willingness to undergo HIV screening without paying for it (Akande AA, Akande TM, Odunayo MS, 2004).

Health workers in developing countries are exposed to needle stick injuries more than in the developed countries. Needle stick injuries expose health workers to more than 20 pathogens including HIV and Hepatitis. Awareness of risks associated with needle stick injuries among health workers in UITH was high but practice of

safety measures was poor and a high incidence (57.8%) of needle stick injuries was reported among respondents (Medubi SA, Akande TM, Osagbemi GK., 2006). In another tertiary health facility in Nigeria, it was found that a third of the health care providers had one form of accidental exposure or the other and in two-third (64.8%) of these cases, HIV test was done on the source patient. Out of the ones that were exposed to HIV patients, only 23.1% received Post Exposure Prophylaxis (PEP). The non-use of PEP among the rest (76.9%) suggests grave danger to health workers. The main reason for not receiving PEP was ignorance (Owolabi RS, Alabi P, Ajayi S, Daniel O, Ogundiran A, Akande TM, et al, 2011).

While it is true that health workers can be infected by patients, health workers can also infect patients with HIV. Screening of health workers for HIV is a sensitive issue. Almost all (97.4%) health workers in a Teaching Hospital felt they were at risk of HIV in the workplace. However, only three-quarter (74.3%) of the respondents were willing to undergo free HIV Screening. While only 18.4% of the health workers felt they were adequately protected against HIV in the hospital, very low proportion of them (16.1%) claimed they had been tested for HIV. The main reasons for non-willingness to be screened were fear of testing positive and the fact that there is no cure (Akande TM, 1999b).

Medical Advances have shown that one-third of all cancers are preventable and a further one-third, if diagnosed early is potentially curable. One of the preventive measures of early detection is screening. Breast Self Examination (BSE) is one of the simple cost-effective measures for early detection of breast cancer. Almost all

(95.6%) female Secondary School Teachers in Ilorin were aware of Breast Self Examination but the practice of BSE was low (54.8%) among the respondents. Similarly practice of BSE was found to be low among undergraduates in Ilorin. This calls for intensive health education programme to increase practise Breast Self Examination among women (Kayode FO, Akande TM, Osagbemi GK. 2005; Salaudeen AG, Akande TM, Musa IO, 2009a).

Practice of Periodic Medical Examination (PME) is important for early detection, control and treatment of diseases. Unfortunately, PME is hardly practiced by people in developing countries despite exposure to health hazards. Among health workers in a Nigerian Teaching Hospital, while 86.7% considered it necessary only 20.6% ever had PME. For employees whose mean period of employment was 9.8 years the mean number of times they ever had PME was 2.1. This is a group of the population that has ready access to health care and should be models in the practice of PME (Akande TM, Salaudeen AG, 2004). The situation in the general population can be imagined. From my experience, even when some Nigerians are requested to undertake medical examination for job, school entry or travels they will expect the doctor to issue a medical report without being examined because they assume they are healthy.

Health Care Delivery

Several factors are involved in health seeking behaviour among households in Nigeria. These factors include; severity of symptoms of the illness, socio-cultural influences, distance, place and cost of treatment, income, level of education and quality of health care facilities. In a

study conducted in Anyigba, Kogi State the average delay period before seeking treatment for illness was 9.9 days. The major reason for delay in seeking treatment as reported by more than half of the respondents (56.9%) was the possibility of getting over the ailment without treatment and about a quarter (25.4%) of them delayed because of lack of money for treatment. Only 5.1% delayed because of distance (Akande TM, Owoyemi JO, 2009).

In many African countries including Nigeria, the reality is that the health care system is not providing cost-effective services in ways that would have the greatest impact on the major causes of death and illness (Akande TM, 1999a). Nigerian Health System operates three levels of care: Primary, Secondary and Tertiary levels which interact through a referral system. Primary Health care (PHC) which is the entry point to the health care system should provide majority of the essential and basic health care services. The secondary level hospitals are to provide general out-patient and in-patient care accepting referrals from the primary level while the tertiary level is to provide specialized care and services taking referrals from the secondary level. Ordinarily, referral centres should only deal with referred cases except in emergencies.

In a study at UITH outpatient department; only 7.1% of the patients were referred from other health facilities. The implication is that 92.9% of the new patients were using a tertiary health facility as first point of contact with the national health system. Other studies have shown that the lack of human and material resources as well as the lack of confidence in the lower levels of care is responsible for this practice. The out-patient departments in Teaching Hospitals in Nigeria are overcrowded and most often with

simple ailments that can be treated at the lower levels of care (Akande TM, 2004). A study among adults resident in Ilorin revealed that only 6.0% of the respondents were aware that the Primary Health Centre should be the first point of entry into the national health system when ill (Abodunrin OL, Akande TM, Osagbemi GK., 2010). The inadequacy or absence of primary health care facilities is often the reason for the bye-pass of this level to the secondary or tertiary levels of care. This results in the cost-inefficient use of highly skilled staff and expensive facilities (Akande TM, 1999a).

Patients with chronic illnesses and some acute illnesses usually need to be followed up after the initial diagnosis and treatment. The most common reason for default was financial challenges faced by patients. Other reasons include; forgetting appointment dates, travels and engagement with other things like work. Default in attending clinics contributes to increase in disease burden and mortality and a source of inefficiency and waste of resources in health facilities (Akande TM, Abdulraheem IS., 2005).

Use of drugs in health care delivery

Rational use of medicines requires that "patients receive medications appropriate to their clinical needs, in doses that meet their own individual requirements, for an adequate period of time, and at the lowest cost to them and their community". Irrational use of medicines is a major problem worldwide. WHO estimates that more than half of all medicines are prescribed, dispensed or sold inappropriately, and half of all patients fail to take them correctly (WHO, 2011a)

Expenditures on drugs due to irrational use have been a strain on the meager health budgets of several developing countries. In a secondary health facility in Ilorin we found a range of 1 – 9 and mean of 3.99 ± 1.55 prescribed drugs on a prescription sheet. Over 60% of the prescription sheets had at least 4 drugs prescribed. Only 36.3% of the prescribed drugs were in generic names and 40% of the prescriptions contained antibiotics. Sadly, only about 40% of the patients got all the prescribed drugs from the hospital pharmacy. These are symptoms of a sick health system. Poly-pharmacy, non-prescription of drugs in generic names and non-availability of drugs in health facilities remain a problem of health facilities in Nigeria (Akande TM, Ologe MO, 2007). This study corroborates the common finding of poly-pharmacy prevalent in developing countries.

It is well known that appropriate drug utilization has huge contribution to global reductions in morbidity and mortality with its consequent medical, social and economic benefits. Sadly it is poor countries that are wasting funds most on irrational prescriptions. World Health Organization (WHO) figures gathered through surveys in 2000 showed that about 60% of antibiotics prescribed in Nigeria were unnecessary while the global figure is about 50% (WHO, 2004). In a study on antibiotic prescription pattern in UITH, of the 639 sampled prescriptions in the hospital, 83.5% of the prescriptions had at least one antibiotic prescribed. The mean number of antibiotics prescribed was 1.03 ± 0.67 as compared with the mean number of drugs of 2.99 ± 1.47. The mean total cost of drugs on a prescription was N 1108.69 ± 976.73 (USD 9.25) and the mean cost of antibiotics was N802.83 ± 734.81 (USD 6.72) which

implies that averagely antibiotics make up to 72.7% of the total cost of drugs prescribed. Rational prescription of antibiotics will therefore save a considerable proportion of expenditure on health care particularly in Nigeria (Akande TM, Ologe M, Medubi GF, 2009).

Drug promotion contributes to the prescription habits of doctors in developing countries. Among doctors in a Teaching Hospital in Nigeria almost all (89%) had attended a drug promotion forum 6 months prior to the study. Half of the doctors prescribed the promoted drugs within 6 months to the study period for the first time while over two-thirds agreed that the materials (pen, jotters, etc) provided to them during the drug promotion served as incentives to prescribing promoted drugs in preference to their alternatives. Most importantly, all of them agreed that the drug promotion affected their prescription pattern. More than two-thirds of the doctors did not prescribe in generic names making them susceptible to prescribing the branded promoted drugs. The situation, though beneficial to drug companies, may not necessarily be cost-effective or beneficial to the patients. Studies have shown that multinational and national drug companies often grossly exaggerate indications for the use of drugs and minimize or ignore associated side effects. Physicians in developing countries are more prone to the negative consequences of drug promotion (Akande TM, Aderibigbe SA., 2007). The implication of this is that the poor patients are made to procure expensive drugs when cheaper alternatives may be equally effective, unfortunately cheaper alternatives are not frequently promoted by drug companies. De-emphasizing the use of expensive drugs and their substitution for cheaper medications that are just as effective should be the

major concern particularly in developing countries where affordability of health bills is a major problem.

For decades, Nigeria was plagued by counterfeit and poor-quality medicines. In 2002, WHO reported that 70 percent of drugs in Nigeria were fake or substandard, National Agency for Food and Drug Administration and Control (NAFDAC) also estimated that 41% of drugs were counterfeit (Yankus, 2006; Akunyili, 2007). In 2011 WHO estimated that 64% of Nigeria's imported antimalarial drugs were fake. Nigeria is Africa's largest drugs market, and over 70% of its drugs are imported from India and China, considered the 'biggest source of fakes'. Thousands of deaths have resulted from fake drugs as well as increasing the burden of disease. Some progress is however being made in the control of the fake drugs as recent estimate by NAFDAC put the prevalence at about 10% (Orhii, 2013).

Human Resources for Health

Human Resource for Health is identified as one of the core building blocks of a health system. They include physicians, nurses, midwives, dentists, pharmacists and other allied health professions as well as those involved in health management and support personnel. Apart from Egypt and South Africa, Nigeria has one of the largest stocks of HRH in Africa. The doctor: population ratio in Nigeria is 4:10,000, compared with 8:10,000 in South Africa and 33:10,000 in Europe (WHO, 2011b).

While it appears Nigeria has large stock of health personnel, there are lots of shortages in health facilities and yet quite a large number are unemployed. In Nigeria, there is poor and inequitable deployment of health staff. A large majority of health workers like doctors, nurses, pharmacists and laboratory scientists are largely found in cities and

urban settlements neglecting the inhabitants of the rural areas. Sadly Community Health Workers are also found more in these cities and towns than in the rural areas where their presence is supposed to be felt most (Akande TM, 1999a).

Quality of Care

Treatment outcome for diseases is hinged on providing quality health care. While all levels are expected to provide quality health care, the tertiary health care ideally should offer the best quality health care. In 2004 about half of UITH patients (48.7%) reported that they did not get the required service from the pharmacy and 20.9% were unable to get the required service from the hospital laboratory. About 42.2% preferred to obtain laboratory services outside the hospital and another 20% would prefer pharmacy outside the hospital. The quality of health care services in health institutions in the country is short of meeting the needs of patients (Akande TM, Musa IO, Hussain N, 2005).

In our society when an individual is ill, many other people play one role or the other in the care of the sick person while in health facilities. Some of the roles should naturally be played by the hospital staff but in developing countries most of the hospitals do not have sufficient human and material resources to play this role. Some of the reasons given by the visitors who are mainly relations for non-compliance with visiting time in UITH include; the positive role they play in the management of patients in the form of washing, bathing, feeding as well as providing their patients some comfort. As much as 38% of those that did not comply, believe that their patients will suffer if they do

not stay around to care for them while more than half (53.6%) were visiting at the wrong time because they must stay around to provide the needs of these patients (Akande TM, Saka MJ. 2007). This situation is the result of the sick health system in the country where the desirable Patient: Health worker ratio is hardly met for most health facilities. In a study conducted at a Teaching Hospital we reported that child ill-health in itself is stressful to mothers; the hospital environment, staff attitude and behaviour worsened the stress mothers go through during hospital care. The reported attitude of hospital staff included poor reception and poor communication (Musa OI, Akande TM, Adebayo VT, 2005).

Of recent, health workers particularly doctors have suffered various forms of physical abuse from patients' relation who cannot understand why they had the undesirable outcome from services received. While poor quality of healthcare is largely responsible for this, poor doctor-patients/relations communication is also a factor. Deficiency in excellent communication and information dissemination is mostly in the field of health particularly in developing countries. Study in a teaching hospital found that only two-third of the patients knew the diagnosis or nature of their ailment despite most (85.2%) of them being seen by doctors for at least a week. Less than half (42.2%) felt they received adequate information about the nature of their ailment and only 24.2% were told the likely outcome of their illness. Almost all (93.9%) of the respondents were interested in knowing the findings from their laboratory test but only 52.2% were told the findings (Akande TM 2002 & 2004)..

The problem of communication does not lie with the doctors alone as only 18.6% of those who were interested in having information from their doctors bothered to ask for such information. Patients have the right to be well informed to make informed choice on management of their illness. Adequate communication is often hampered by congestion of patients in the clinics and heavy workload. The tertiary health facilities provide extensive primary and first referral care to clients and are therefore usually overwhelmed with patients which make adequate attention difficult to achieve. Poor doctor-patient communication is also a symptom of the sick health system (Akande TM 2002 & 2004).

In another study in the same hospital among patients receiving eye care, even when 89.4% of the respondents reported long waiting time in the hospital, mostly for consultation, as much as 94.3% were satisfied with the quality of eye care. This brings to the fore the perception among patients that long waiting time is considered normal in tertiary health facilities. About two-thirds (61.7%) of the patients bought prescribed drugs outside the teaching hospital even when 82.9% of them were bothered about the quality of drugs they buy outside. Another feature of a sick health system is evident in the finding that about a third (32.8%) of respondents reported ever missing clinic appointment for which the major reason was health workers strike. Health workers strike disrupts services. It is quite frequent in Nigeria and this certainly has effect on quality of health care. Patients' rating of the quality of care as satisfactory in developing countries despite short comings cannot be compared with developed countries where the presence of such short comings would

have attracted low level of satisfaction rating (Ademola-Popoola DS, Akande TM, Idris A., 2005).

Planning and evaluation of the health system

Planning and evaluation in Nigerian Health System is largely hampered by availability of data. Vital events data in Nigeria is largely deficient. In a semi – urban settlement in middle-belt Nigeria though awareness of birth registration in the population was relatively high that of death registration was low. Three-quarter (74.8%) of births among children aged less than 11 years were registered but only 57.1% of these could produce the birth certificate. Among the deaths that occurred in the households, within 10 years to the study period, only 11.8% of them were registered. Birth and death registration is largely deficient and coupled with the non-reliability of census figures in Nigeria it makes effective planning for health programmes a major challenge (Akande TM, Sekoni OO, 2005).

Policy makers, managers and care providers require adequate information on which to base decisions. The Health Information System in most developing countries fails to provide adequate support for health planning and management. In Nigeria, some of the factors militating against an effective National Health Management Information System (NHMIS) include lack of coordination and poor basic infrastructure. Collection, collation, analysis and interpretation of data in heath facilities particularly primary health centres are often unsatisfactory. In Nigeria, the little available health data largely originate from public health facilities whilst it is well known that a high proportion of people patronize the private health facilities. The data from private health facilities is largely not

captured within the NHMIS. Among private clinics in Ilorin, 67.6% of medical directors were aware of the National Health Information System and almost all considered data collection in health facilities important. However, only 29.7% of these facilities had ever been supplied with NHMIS forms and only 16.2% had these forms during the visits to the clinics. Worse still only 10.8% of the private clinics ever made data returns to the appropriate authority (Akande TM, Monehin JO, 2004b).

Information support for effective health care planning and implementation is a major challenge in Nigeria. At all operational levels; the home, the community, the health centre, local, state and federal government, health information management is critical. Unfortunately, in Nigeria there is paucity of data at these levels because data are not well captured, collated, analyzed or disseminated. The appropriate materials for capturing and collecting data are hardly available. The result is that the little available data is grossly insufficient for any planning purpose. For this reason, the country largely relies on data from surveys instead of routine data collection. The data from these surveys are as varied as the number of groups involved in the survey (Akande TM, 1999a).

Nigeria is rated 187th out of 190 countries in health indices. The Under 5 mortality rate is 124 per 1000 and Maternal mortality ratio (MMR) in Nigeria is 545/100,000 live births **(**WHO, 2012). Only one in three births in Nigeria is attended by skilled personnel, less than 20% of children are fully immunised at age one, and 36% of pregnant women do not receive antenatal care (NPC, 2009).

These indices as well as those shown on Table 1 below are sad reflections of the sick health system in our nation.

Table 1. Life expectancy and Adult Mortality Rate of Selected countries

Country	Life expectancy at birth (years)	Adult Mortality Rate per thousand
Nigeria	49	411
Ghana	62	273
Algeria	71	132
Males in Sweden	79	69.0
Females in Sweden	83	40.9

Source: WHO 2010

Health Care Financing

Health is good entry point for breaking the vicious circle of ill-health, poverty and under-development and for converting it to the vicious circle of improved health status, prosperity and sustainable development (Saka MJ, Isiaka SB, Akande TM, et al 2012). Health sector funding in Nigeria is grossly inadequate and far below the minimum recommended by WHO. The poor are at the receiving end of this low health care funding. Over the period of 2009 - 2011, the average Household Health Expenditure (HHHE) was 68.45% of Total Health Expenditure (THE), up from 64.25% over the period 1998 to 2002. The burden is even worse at state level, where the average HHHE contribution to STHE was above 72%. With high poverty incidence in the country, poor households are definitely more adversely affected. Government has a responsibility to lessen the

burden of health expenditure on poor households (Soyibo et al, 2009).

Only 13.7% of the respondents in a study conducted at Anyigba, Kogi State reported that they could afford more than 2500 Naira on drugs for an episode of ill-health. About two-thirds (64.3%) of them reported using their savings to pay health bills while the rest one-third had to borrow money, sell properties or get assistance from people to settle hospital bills (Akande TM, Owoyemi JO, 2009). Among in-patients in UITH, only 8.9% of the respondents reported that they could cope easily with the hospital bills and only 23% of them settled hospital bills from their savings. As much as 37.2% had to take loans, 11.5% got assistance from individuals and organizations while up to 9.4% had to sell properties. There are concerns that the user fees as option for health care financing can deny the poor access to modern health services. However, health care is often purchased despite financial difficulties if the illness is perceived to be severe, which is usually the case with patients on admission. The assumption that willingness to pay is synonymous with ability to pay must be questioned because payment for care may have serious financial consequences on the household (Akande TM, Ogunriola EO, 1999).

In a survey conducted in 2009 in Afon and Ajasse areas of Kwara State it was found that the poor spend disproportionately more than the 'rich' on health care. The poorest quintile spends on average 9% of their annual per capital consumption on out-of-pocket for health care and 1.5% on transportation to health facility as compared with the richest quintile that spends on average 1.8% of their annual per capital consumption out-of-pocket and 0.3% on

transportation for health care (Janssens W, Akande TM, Aderibigbe SA, et al 2012.)

Health insurance as an option for health care financing can largely take care of this challenge. The rising cost of health care services as well as the inability of the government to cope with people's demand necessitated the establishment of National Health Insurance Scheme (NHIS). The need for it was recognized in 1962; it was approved by the Federal Government in 1997, signed into law in 1999 and officially launched in June 2005. The scheme was therefore on the drawing board for about four decades!!! The vision of NHIS is to secure universal coverage and access to adequate and affordable health care in order to improve the health status of Nigerians. (Akande TM, Olugbenga-Bello O, 2002). Unfortunately, the coverage of the National Health Insurance Scheme in Nigeria is still very low (about 7%).

As desirable as health insurance scheme is, the country has not done enough to ensure smooth operations of the scheme. In a study conducted among medical practitioners in Ilorin 2000 (a year after the scheme was signed into law) only 23% of the respondents felt they have sufficient information on the scheme. The implication is that the major stakeholders were not sufficiently mobilized or carried along in the planning and pre-implementation phase of the scheme (Katibi IA, Akande AA, Akande TM, 2003). None or low level involvement of major stakeholders in policy formulation, planning and implementation of health programmes are also indicators of a sick health system and the result is obvious.

Generally health insurance is found to increase the intensity of utilization and reduce out of pocket spending on health

care. A four-year review of records in UITH Staff clinic showed that the mean attendance of patients per month in the clinic before introduction of NHIS rose significantly by 144% after commencement of NHIS (Akande TM, Salaudeen AG, Babatunde OA, 2011). In a related study in the same clinic, the mean estimated amount spent on health service before NHIS was 3040.4 ± 2552.8 Naira (19.0 ± 15.95 US Dollars) per month and after NHIS it reduced significantly to 782.2 ± 637.4 Naira (4.89 ± 3.98 US Dollars) (Akande TM, Salaudeen AG, Babatunde OA, Durowade KA, et al 2012).

Despite the immense benefit of health insurance scheme, willingness to pay particularly in the rural areas of Nigeria remains a major challenge. In a study in rural communities in Ilorin South, 87.0% were willing to pay and the mean amount respondents were willing to pay was 522.0 ± 266.3 Naira per annum per household member (3.26 ± 1.66 US Dollars). The factors that affect willingness to pay were age, sex, educational attainment, income, household size, and past health expenditure of household heads (Babatunde OA, Akande TM, Salaudeen AG, et al 2012).

Public Health Expenditures

In Nigeria public health expenditure per capital is less than 8USD as compared with minimum of 34USD recommended by WHO. In the 2001 Abuja declaration of Organization of African Unity (OAU), countries pledged to allocate at least 15% of budget to health. The allocation to the health sector in Nigeria is far too low and that which is allocated is poorly and inefficiently utilized (Akande TM, 2012). The chart below shows the budgetary allocation to

the health sector in Nigeria. Health Sector budgetary allocation has never been up to 6% of the total budget and never above 1.0% of the Gross Domestic Product (GDP).

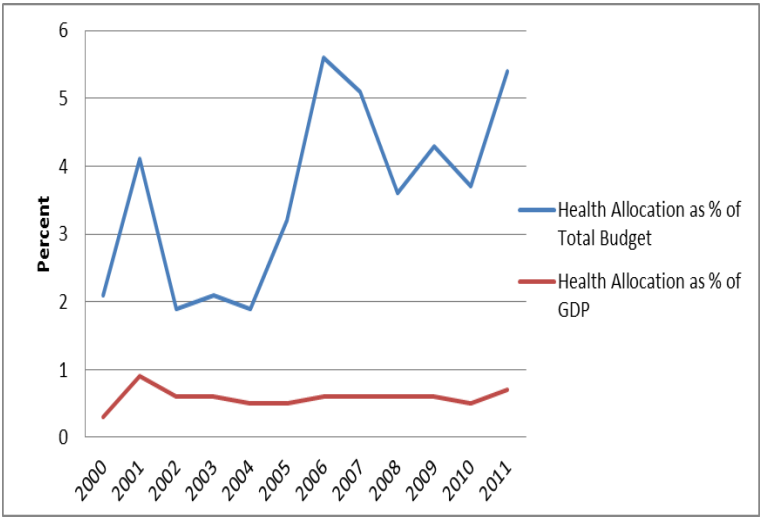

Fig 1. Budgetary allocation to the health Sector
Source PATH2. Nigeria Health Expenditure Review 2009 - 2011

The chart below shows utilization of the little allocated to the sector for capital expenditure is a major challenge. If an individual is sick and less than appropriate dose of medicine is made available and what is even available is not given appropriately there is hardly any room for recovery. This is the picture of funding of the sick health system in Nigeria.

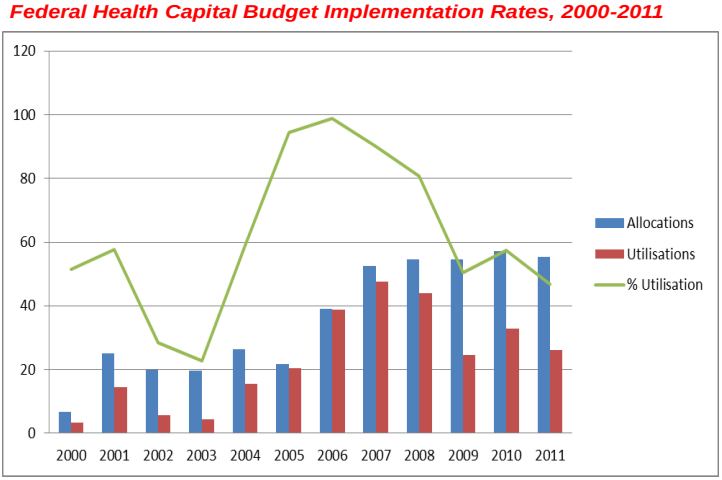

Fig 2. Capital Budget Utilization in Nigeria
Source: PATH2. Nigeria Health Expenditure Review 2009 - 2011

The main reason for the poor improvement in health in developing countries include; the fact that politicians focus on construction of health facilities rather than provision of services in those facilities. Politicians and leaders in this part of the world tend to believe they receive greater credit from the populace by embarking on construction of infrastructure. The infrastructures are often ill-equipped and with little or no attention to things required for the provision of sustainable health services (Akande TM, 1999a). It is sad that because government is unable to provide quality and readily accessible health care to its citizens, Nigeria loses about N81 billion annually to medical tourism as countries like India cash in on the sick health system in Nigeria (Akande TM, 2013). Quacks,

clerics and practitioners of alternative medicine are also cashing on the sick health system with great patronage from those that cannot afford modern health care. The result is that these same patients will end up in the hospitals with complications of their illness or medications / care received from those centres. This further increase morbidity and mortality.

Conclusion

Mr. Vice-Chancellor Sir, Nigeria is faced with heavy burden of communicable and non-communicable diseases so it has a population that is heavily burdened with diseases and ill-health and the health system that should be of help to reduce this burden is also sick. Several factors are responsible for this double tragedy. Generally, in Nigeria there is poor geographical, financial and cultural access to health care facilities in the rural areas where majority of the populace live. Improving health services in Nigeria and other sub-Saharan African countries hinges on ability of households and communities to obtain quality health services at less cost and to use them more effectively.

My Vice-Chancellor Sir, I have contributed to knowledge through 110 publications in peer reviewed local and international journals. I have trained and supervised projects of more than a hundred medical students, supervised dissertations of more than 30 Master students as well as 15 Fellows in Public Health. I am currently supervising three PhD students in the department and two students of Amsterdam University as co-supervisor.

I have contributed to the health sector in Nigeria by serving in various teams and committees of Federal

Ministry of Health and National Primary Health Care Development Agency. I served as Board member of Kogi State Specialist Hospital and was a member of the Technical Committee for the establishment of College of Medicine, Kogi State Univeristy. At international level I served as Consultant to the World Health Organization and United Nations Children Fund in Polio eradication, measles control and integrated disease surveillance in Ghana, Liberia, East and South African Region. I am currently a member of the World Health Organization African Region Technical Advisory Group on Measles and Rubella.

Recommendations

1. A strong political commitment to improve health by government which should be demonstrated through the passing of the Health bill and signing it into law without further delay. The bill has enough provisions to heal this sick health system.
2. Health financing should be improved considerably in Nigeria at all levels to meet up with at least the minimum recommended by World Health Organization and the 2001 Abuja declaration of African Countries – at least 15% of the total budget allocated to health.
3. There should be a rapid scaling-up to increase coverage of Nigerians enrolled in Health insurance Scheme by all stakeholders.
4. Holistic effort to improve health care through development and implementation of human resource for health policies at all levels of government with equitable distribution of health resources in the country. Incentives should be

provided to pull health workers to the underserved areas of the country.

5. Preventive health measures should be promoted among Nigerians to ensure healthy lifestyle practices and desist from those things that can constitute health risk/hazard to them. In addition the poor health seeking behaviour of Nigerians must be properly addressed.
6. Regular monitoring and evaluation of quality of health care in health facilities should be institutionalized and the use of health watchdogs promoted.
7. Strengthening of the National Health Management Information System so that reliable data will be available for effective health planning, implementation and evaluation.

Gratitude

I am grateful to my Lord and saviour Jesus Christ who made me what I am and for the grace to present this inaugural lecture today. I cannot but God for taking me through infancy, childhood, primary, secondary and university education; and then climbing the ladder of academics to the top. But for you, the journey would have been terminated long before now.

I thank the University Administration for all the support towards making this day a reality. I appreciate my teachers from Primary, Secondary up to University education and all through medical practice. Permit me to mention a few of the names of those who made tremendous influence on me in Public Health Practice; Prof D.B. Parakoyi, Prof K. Alausa, Prof Dapo Adekolu-John, Prof T. Daramola, Prof. Akin Osibogun, Dr. Dere Awosika, Dr.

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To my parents; Late Chief David O. Akande and Mrs. Abigail Funke Akande, I want to thank you for nurturing me and sacrificing so much to bring me up. I am indeed very grateful to my Late Uncle Chief Leslie A. Akande who took up the bills for my University education and guided me through life. I thank all my siblings and other relations too numerous to mention for your support and prayers.

I thank all my in-laws and special thanks to mummy – Mrs F.O. Adegboye from whose womb God sent to the world an angel named Remi. You treated me as your first son and showered on us so much love and care.

I deeply thank REMI, the virtuous woman God gave me as a wife, sister, mother and great companion. God bless the day I met you. REMI, you have made my life worth living. I cannot imagine a home without you. Thank

you for everything. Describing your attributes calls for another lecture on a valentine day!!! Thanks to my children (The beautiful Tees); Dr. Oluwatosin Akande, Miss Atinuke Akande (Graduate of Mass Communication), Miss Oluwatomi Akande (Undergraduate Student of Economics, Unilorin). You are really precious gifts from God; you gave the peace of mind that made this day possible.

I will end by saying with boldness that I have seen the Lord's goodness, His mercy and Compassion. I want to appreciate all of you that have graced this occasion, God bless you all. Thank you for listening.

References

Abodunrin OL, **Akande TM**, Osagbemi GK. (2010). Awareness and perception toward referral in health care: A study of adult residents in Ilorin, Nigeria. *Annals of African Medicine* 9 (3): 176 – 180.

Ademola-Popoola DS, **Akande TM**, Ayanniyi A. (2005). *Central European Journal of Occupational and Environmental Medicine* 11(3): 163 – 168.

Ademola-Popoola DS, **Akande TM**, Idris A. (2005). Patients Assessment of Quality of Eye Care in a Nigerian Teaching Hospital. *The Nigerian Postgraduate Medical Journal* 12(3): 145 – 148.

Aderibigbe SA, Araoye MO, **Akande TM,** Musa OI, Monehin JO, Babatunde OA. (2011). Teenage Pregnancy and Prevalence of Abortion among In-School Adolescents in North-Central, Nigeria. *Asian Social Science Journal* 7(1).

Aderibigbe SA, Araoye MO, **Akande TM**, Musa OI, Sanya EO, Adesina KT (2010). Effect of health education on Knowledge and Practice of Contraception among Students of Public Secondary Schools in Ilorin, Nigeria. *Research Journal of Medicine and Medical Sciences* 5(1): 100 – 105

Akande AA, **Akande TM,** Odunayo MS (2004). Perception and Willingness of Clinical Medical Students to Undergo HIV Screening. *Nigerian Medical Practitioner* 46 (3): 59 – 62.

Akande AA, **Akande TM**. (2006). Polio Eradication in Nigeria – Controversies and Way Forward. *African Journal of Clinical and Experimental Microbiology* 7(3): 175 – 179.

Akande AA, **Akande TM.** (2007) Knowledge and Perception of Sexuality Education among Students of Rural Secondary School in Kwara State, Nigeria. *Nigerian Medical Practitioner,* 52 (**3**): 55 – 59.

Akande TM (1996). Knowledge of Mothers attending EPI Clinics in Ilorin about Childhood Immunization. *Journal of Community Medicine and Primary Health Care* 8: 10 – 19.

Akande TM. (1999a). Health Services Management in Sub-Saharan Africa. *The Tropical Journal of Health Sciences* 6: 10 – 12.

Akande TM (1999b). Willingness of Health Workers to Undergo HIV Screening. *Nigerian Quarterly Journal of Hospital Medicine.* 9(4): 303 – 306.

Akande TM, Ogunriola EO (1999). Health Care Financing among In-Patients of a Tertiary Health Facility in Ilorin, Nigeria. *Nigerian Journal of Clinical Practice* 2 (1): 1 – 4.

Akande TM, Ologe FE (2001). Awareness of Commercial Grinding Operators in Ilorin to Noise Induced Hearing Loss. *The Tropical Journal of Health Sciences* 8: 28 – 31.

Akande TM, Fawole AA (2001). Attitudes of Mothers in Ilorin to Family Planning the Immediate Pueperium. *The Tropical Journal of Health Sciences* 8: 6 – 10.

Akande TM (2002). Patients' Perception on Communication between Patients and Doctors in a Teaching Hospital. *Sahel Medical Journal* 5(4): 178 – 181.

Akande TM, Olugbenga-Bello O, (2002). National Health Insurance Scheme in Nigeria. *Medilor Journal* 7(1): 21 – 26.

Akande TM, Ologe FE, (2003). Noise induced hearing loss in Middle Belt of Nigeria. *Postgraduate Doctor Africa* 25(4): 81, 82

Akande TM. (2004). Referral System in Nigeria: Study of a Tertiary Health Facility. *Annals of African Medicine* 3(3): 130 -133.

Akande TM, Monehin JO (2004a). Investigation of an Epidemic of Meningitis in Baruten Local Government Area of Kwara State, Nigeria. *African Journal of Clinical and Experimental Microbiology* 5(3): 247 – 251.

Akande TM, Monehin JO (2004b). Health Management Information System in Private Clinics in Ilorin, Nigeria. *Nigerian Medical Practitioner* 46(5-6):103 – 107.

Akande TM, Salaudeen AG (2004). Practice of Periodic Medical Examination among Hospital Workers in a Nigerian Teaching Hospital. *Nigerian Quarterly Journal of Hospital Medicine* 14(3-4): 206 – 210

Akande TM, Musa IO. (2005). Epidemiology of Malaria in Africa. *African Journal of Clinical and Experimental Microbiology* 6(2): 107 – 111.

Akande TM, Musa IO, Hussain N (2005). Perception of Patients to Quality of Health Care Services at a Teaching Hospital in Ilorin, Nigeria. *European Journal of Scientific Research*, 11(1): 86 – 96

Akande TM, Abdulraheem IS (2005). Study of defaulters in Consultant Paediatric, Medical and Surgical Out-patient Clinics at the University of Ilorin Teaching Hospital, Ilorin, Nigeria. *The Journal of Health Sciences* 12: 31 – 34.

Akande TM, Sekoni OO (2005). A Survey on Birth and Death Registration in a Semi-Urban Settlement in Middle-Belt Nigeria. *European Journal of Scientific Research* 8(2): 56 – 61.

Akande TM, Ajao MS. (2006). Awareness of Hazards and Use of GSM Mobile Phones among Non-Commercial Drivers in Ilorin, Nigeria. *Annals of African Medicine,* 5 (4): 166 – 169.

Akande TM (2007). A Review of Measles Vaccine Failure in Developing Countries. *Nigerian Medical Practitioner* 52(5/6): 112 – 116.

Akande TM, Ologe MO (2007). Prescription Pattern at a Secondary Health Care Facility in Ilorin, Nigeria. *Annals of African Medicine* 6(4): 186 – 189.

Akande TM, Aderibigbe SA. (2007). Influence of Drug Promotion on Prescribing Habits of Doctors in a Teaching Hospital. *African Journal of Medicine and Medical Sciences* 36: 207 – 211.

Akande TM, Saka MJ(2007). Factors influencing Non-Compliance of Hospital Visitors to Visiting Time in a Tertiary Health Facility. *The Tropical Journal of Health Sciences* 14 (2): 19 – 22.

Akande TM, Owoyemi JO (2008). Awareness and Attitude to Social and Health Hazards from Generator Use in Anyigba, Nigeria. *Research Journal of Medical Sciences* 2 (4): 185-189.

Akande TM, Owoyemi JO (2009). Healthcare Seeking Behaviour in Anyigba, North-Central Nigeria. *Research Journal of Medical Sciences* 3(2): 47 – 51.

Akande TM, Ologe M, Medubi GF (2009). Antibiotic Prescription Pattern and Cost at University of Ilorin Teaching Hospital, Ilorin, Nigeria. *International Journal of Tropical Medicine* 4(2): 50 – 54.

Akande TM, Aderibigbe SA (2010). A Study of Compliance to Hepatitis B Vaccination among Health Workers in a Nigerian Tertiary Health Institution. *Nigerian Hospital Practice* 5(1-2): 13 – 16.

Akande TM, Salaudeen AG, Babatunde OA, (2011). The effects of National Health Insurance Scheme on Utilization of Health Services at Unilorin Teaching Hospital Staff Clinic, Ilorin, Nigeria. *Health Science Journal* 5(2): 98 – 106.

Akande TM (2012). Health Care Financing in Nigeria: Challenges and way forward. Paper presented at University of Ilorin Medical Students (ILUMSA) Conference.

Akande TM, Salaudeen AG, Babatunde OA, Durowade KA, Agbana BE, Olomofe CO, Aibinuomo AO. (2012). National Health Insurance Scheme and Its Effect on Staff's Financial Burden In A Nigerian Tertiary Health Facility. *International Journal of Asian Social Science* 2(12):2175-2185.

Akande TM (2013). Breaking Barriers to Effective Health Care Delivery. Paper presented at Annual General meeting and Scientific Conference of Nigerian Medical Association, Kwara State Branch August 2013

Akinyuli D. (2007). Speech at the inaugural convention of the Nigerian Association of Pharmacists and Pharmaceutical Scientists in the Americas, Inc.

(NAPPSA) in Houston, Texas. http://allafrica.com/stories/200710250091.html

Araoye MO, Kayode O, **Akande TM,** Ndom RJE (1999). Strategies for Preventing STD/AIDS among Commercial Drivers. *Nigerian Medical Practitioner*, 38 (1-3): 5 – 10.

Babatunde OA, **Akande TM,** Salaudeen AG, Aderibigbe SA, Elegbede OE, Ayodele LM. (2012). Willingness to Pay for Community Health Insurance and its Determinants among Household Heads in Rural Communities in North-Central Nigeria. *International Review of Social Sciences and Humanities* 2 (2): 133-142.

Fawole AA, **Akande TM.** (2003). Influence of maternal age and education on antenatal clinic attendance in Ilorin, Nigeria. *Centrepoint (Science Edition)* 11(1): 65 – 72

Hussain NA, **Akande TM** (2009). Sexual Behaviour and Condom Use among Nigerian Soldiers in Ilorin, Kwara State, Nigeria. *African Journal of Clinical and Experimental Microbiology* 10(2): 128 – 135

Hussain NA, **Akande TM,** Olasupo ST. HIV/AIDS (2008). An Assessment of Perception and Predisposing Factors among Soldiers in Ilorin. *Journal of Community Medicine and Primary Health Care* 20 (1): 13 – 24.

Hendriks ME, Wit. NM Ferdinanad, Roos MTL, Brewster LM**, Akande TM**, de Beer IH, et al (2012). Hypertension in Sub-Saharan Africa: Cross-Sectional Surveys in Four Rural and Urban Communities. PLOS One 2012, 7(3): 1 – 10 e32638

Hussain NA, **AkandeTM,** Adedayo O. (2009). Prevalence of Cigarette Smoking and the Knowledge of its Health Implications among Nigerian Soldiers. *East African Journal of Public Health* 6 (2): 168 – 170.

Janssens W., Aderibigbe SA, **Akande TM,** Mesnard A, Goedecke J. (2012). Does the Economic Status of Rural Dwellers in Nigeria affect Out-of-Pocket and Transportation Expenditures for Health? The Role of Geography Versus Poverty. Paper presented at MIcroinsurance International Conference in Twente University, Netherlands.

Katibi IA, Akande AA, **Akande TM** (2003). Awareness and Attitude of Medical Practitioners in Ilorin towards National Health Insurance Scheme. *Nigerian Medical Practitioner* 43 (2): 33 – 35.

Kayode FO, **Akande TM**, Osagbemi GK. (2005). Knowledge, Attitude and Practice of Breast Self Examination among Female Secondary School Teachers in Ilorin, Nigeria. *European Journal of Scientific Research* 10(3): 42 – 47

Makanjuola BA, Oyeleke SA, **Akande TM**. (2007). Psychoactive substance Use among Long Distance Vehicle Drivers in IIorin, Nigeria. *Nigerian Journal of Psychiatry* 5 (1): 14 – 18.

Medubi SA, **Akande TM,** Osagbemi GK. (2006). *African Journal of Clinical and Experimental Microbiology* 7(3): 183 – 108.

Musa OI, **Akande TM**. (2002). Effect of Health Education Intervention on Food Safety Practice among Food Vendors in Ilorin. *Sahel Medical Journal* 5(3): 120 – 124.

Musa OI, **Akande TM,** Olatinwo AWO (2003). Attitude and Perception of Students in Tertiary Institutions toward Pre-Marital HIV Screening in Ilorin, Nigeria. *Nigerian Medical Practitioner*. 44 (4): 85 – 89.

Musa OI, **Akande TM,** Adebayo VT (2005). Stressful events experienced by mothers with Children on Admission at the Emergency Paediatric Unit of a Tertiary Hospital in Northern Nigeria. *European Journal of Scientific Research* 10(3): 66 – 75.

Musa OI, **Akande TM,** Soladoye OM. (2007). Sexuality Education and Sexual Behaviour of Secondary School Adolescents in a Northern State in Nigeria. *African Scientist* 8(4): 203 – 208.

Musa OI, **Akande TM,** Salaudeen AG, Soladoye OM (2008). Family Communication on HIV/AIDS among Secondary School Students in Northern State of Nigeria. *African Journal of Infectious Diseases* 2 (1): 46 – 50

National Population Commission (NPC) (2009) ICF Macro. Nigeria demographic and health survey 2008. Abuja, Nigeria: National Population Commission and ICF Macro.

Ologe FE, Okoro EO, **Akande TM** (2005). Hazard of Noise Induced Hearing Loss (NHIL) among operators of music recording / retail centres in Nigeria. *Noise and Vibration Worldwide* 36(2): 17 – 20

Ologe FE, **Akande TM,** Olajide TG. (2005). Noise Exposure, Awareness, Attitudes and Use of Hearing Protection in a Steel Rolling Mill in Nigeria. *Occupational Medicine* 55: 487 – 489.

Ologe FE, **Akande TM,** Olajide TG. (2006). Occupational Noise Exposure and Sensorineural Loss among Workers in a Steel Rolling Mill. *European Archives of Oto-Rhino-Laryngology*, 263: 618 – 621.

Orhii P. Stemming the Tide of Fake Drugs in Nigeria: Its Economic and Health Consequences. Paper delivered at the Maiden Edition of the Public Enlightenment Day of the University of Ilorin Teaching Hospital, Ilorin, Kwara State 18th September 2013.

Owolabi RS, Alabi P, Ajayi S, Daniel O, Ogundiran A, **Akande TM,** Onafowokan T. (2011). Knowledge and Practice of Post-Exposure Prophylaxis (PEP) against HIV Infection among Health Care Providers in a Tertiary Hospital in Nigeria. *Journal of International Association of Physicians in AIDS Care.* http:jia.sagepub.com/content/early/2011/04/20/1545109711401409.

Saka MJ, Isiaka SB, **Akande TM**, Saka AO, Agbana BE, Bako IA. (2012). Health related policy reform in Nigeria: Empirical analysis of health policies developed and implemented between 2001 to 2010 for improved sustainable health and development. *Journal of Public Administration and Policy Research* 4(3): 50-55

Salaudeen AG, **Akande TM,** Musa IO (2009a). Knowledge and Attitudes to Breast Self Examination among Female Undergraduates in a State in Nigeria. *European Journal of Social Sciences* 7 (3): 157 – 165.

Salaudeen AG, **Akande TM,** Musa OI. (2009b). Cigarette Smoking Prevalence and Awareness of Health Problems of Tobacco Use among Students of Colleges of Education in a North-Central State of Nigeria. *Nigerian Medical Practitioner* 55(6): 101 – 105

Sanya EO, **Akande TM,** Opadijo G, Olarinoye JK, Bojuwoye BJ (2008). Pattern and Outcome of Medical Admissions of Elderly Patients seen at University of Ilorin Teaching Hospital, Ilorin. *African Journal of Medicine and Medical Sciences*, 37: 375 – 381.

Soyibo A., Olaniyan O., Lawanson A.O. (2009). National Health Accounts of Nigeria, 2003 – 2005

Incorporating Sub-National Health Accounts of States. Report Submitted to FMOH. *Health Policy Training and Research Programme, Department of Economics, University of Ibadan, Nigeria.*

WHO (2003). Fact Sheet on Safe Motherhood Revised 2003 Number 134.

WHO (2004). Promoting Rational Use of Medicines Saves Lives and Money. WHO experts say. WHO Press release 29-03-2004

WHO (2011a). The World Medicines Situation 2011 - Rational Use of Medicines. http://apps.who.int/medicinedocs/en/d/Js18064en/

WHO (2011b). Health Situation Analysis in the African Region Atlas of Health Statistics, 2011

WHO (2012). Nigerian Health Profile. http://www.who.int/gho/countries/nga.pdf. Assessed 5th Dec. 2013

WHO (2013). Global leaders support new six-year plan to deliver a Polio-free world by 2018 http://www.who.int/mediacentre/news/releases/2013/Polio_six_year_plan_20130425/en/

World Bank (1994). Development in Practice. Better Health in Africa: Experiences and Lessons Learned. *A World Bank Publication.*

Yankus W (2006). Counterfeit Drugs: Coming to a Pharmacy near You. American Council on Science and Health. Available: www.acsh.org/publications/pubID.1379/pub_detail.asp