Nigeria and the Challenges of Medical Research

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Abstract.

Challenges are events that pose difficulties and limit the possibility of achieving set goals. In the field of medical research in Nigeria, clear goals have barely been set, hence glaring challenges seem unnoticeable in the sight of relevant authorities. The world does not wait for any particular region or sub-region in its quest for advancement, meaning that any microsomal part that cannot keep up with the pace is left behind. Our country’s poor performance in medical research is not debatable, but we must agree to reverse this trend without equivocation. History scores us low in our ability to correct the mistakes of the past as a nation, however, if we decide to change the course of history, it will have no choice. This article reviews the effects of the dormancy in medical research in Nigeria, its obvious dangers and a call to a changed, committed and proactive approach if we must develop and assure the safety of our population

Keywords- Medical Research in Nigeria, Nigerian Institute of Medical Research, NIMR, The Challenges, Brain Drain, Investment and Funding, Health Budget.

Introduction.

It is important to commence this piece by proffering a satisfactory concept for the key phrase, ‘Medical Research’. Satisfactory, because the understanding of these terms bring with it apparent dispositions to a range of generally correct and acceptable conclusions as to what medical research means. Hence, the definition consequently provided is aimed at guiding us through the entire probing and disquisite nature of this article.

Medical Research is therefore an aggregate of studious inquiry, examination, investigation and experimentation aimed at the discovery and interpretation of facts relating to the treatment of diseases, revision.
of accepted theories, and the practical application of these theories and laws.

From the foregoing, it is worth noting that medical research is a diligent exercise that involves earnest efforts. Established standards must be revisited periodically and discovered facts must be applied to the populace, without which medical research loses its purpose. It is not enough to reach conclusions and make recommendations, but it is monumental to ensure that these recommendations are implemented in such a way that is beneficial to humans. Also, it must be categorically stated that medical research is a continuous investigative process. Research as a matter of fact is an exercise that must be seen to be as important as the existence of any entity. For the assured survival of any organism, the history of its evolution must be known, so as to create a basis for its continued existence. Man in his very nature is an inquisitive being and this explains why scientists always ask salient questions relating to life, existence and the future. Unless these questions are asked and answers tendered, it is impossible to establish the theories of human evolution, diversity and taxonomy upon which most biological theories are founded.

Medical science, just as any other facet of life, survives on the basis of evolution and change [1]. Hence, if one must survive, he must evolve with the times. On this premise lies the factual background for the theory of “survival of the fittest”. As a Biologist, I must mention that this is arguably the most important theory of existence. Therefore, as individuals, communities or race, our survival is directly proportional to our fitness Vis a Vis environmental challenges. Organisms grow, societies expand, technologies expound, infrastructure develops and in the same way, medical science and research evolves.

Any country that neglects medical research ultimately breeds an unfit and regressing population. This disadvantage is bound to reflect on the social and economic development (or otherwise) of such nation.

“You cannot do anything about diseases, if you cannot do anything about research”; those where the exact words of Dr. Anne Eneji, a preventive medicine practitioner in an interview with the News Agency of Nigeria in Abuja, and I beg to say that every word of that sentence stands true. Research must be carried out to determine the most effective way to deal with diseases. Importantly, the broad scope of medical
research is hugely a capital intensive venture. A country as a matter of necessity must invest enormously in science infrastructure and personnel development. The value of training and retraining of specialists in this field cannot be overemphasized.

Diseases of public health concern always tend to advance new strategies of infecting their hosts whilst evading diagnosis and treatment. This is characteristic in many viral and bacterial communicable diseases responsible for community epidemics in developing nations. In order to deal effectively with these pathogens, we must as well devise potent preventive, diagnostic and treatment patterns to check their metabolism. It is common knowledge that the antibiotic penicillin which was first introduced in 1943 for the treatment of bacterial infections is now virtually ineffective against these bacteria. Overtime, more bacterial species have developed resistance to a wider range of therapeutic agents, reflecting the evolutionary process that take place during antibacterial drug therapy.

**Medical Research in Nigeria.**

Medical research in Nigeria is as old as human existence in this region. History has it that people always found a way to combat ailments through the use of crude concussions prepared mostly from plant sources. Going from the definition that medical research is an aggregate of experimental processes, this exercise can be termed as such. Again, on the discovery of the therapeutic properties of these mixtures, they never halted inquisition. As time went on, more treatment plants were discovered and more diseases were cured. Before the European invasion of Africa, practices such as the use of plants with salicyclic acid for the treatment of pain (as in aspirin), kaolin for diarrhea (as in kaopectate), and extracts that were confirmed in the 20th century to kill gram-positive bacteria was already rampant [2]. What is today known as homeopathic medicine, anchored on traditional practices involving herbalists, divine healers, bone-setters, spiritualists etc. all employ some form of research. Even with the advent of modern, western-style medicine, these native practices strongly exist with accompanying results.

In 1988, a casual survey in Benin City revealed that for every sign-post indicating a Western-style clinic, there were three that indicated a traditional doctor. The first record of modern medical services in Nigeria can be traced back to the European expeditions of
the 19th century. In the expedition of 1854, Dr. William Balfour Baikie introduced the use of quinine for the treatment of malaria fever which greatly decreased mortality and morbidity among the European expeditioners [3]. However, the first health care facility in the country was a dispensary opened in 1880 by the Church Missionary Society in Obosi, Anambra state [4]. In 1885, the Roman Catholic Mission built the first hospital in Nigeria; the Sacred Heart hospital in Abeokuta, (the capital city of the present day Ogun state). Other small dispensaries followed in Onitsha and Ibadan in the year 1886 [4]. Throughout the ensuing colonial periods, the religious missions played a major role in the supply of modern healthcare facilities in the country. The Roman Catholic mission is recording to have contributed immensely in this development, accounting for about 40 percent of the total number of mission-based hospital beds by independence in 1960. By this time, mission hospitals were slightly more than government owned hospitals in number. It is recorded that by independence, the country had about 118 mission hospitals, compared to 101 owned by the government [4]. Beyond building and equipping medical structures, the missions also played an important role in medical personnel training and education, providing training for nurses and paramedical personnel, as well as sponsoring basic education in Europe.

The British colonial government began providing formal medical services, solely for the use of Europeans in the 1870s, with the construction of several clinics and hospitals in Lagos, Calabar and other coastal trading centers. The first and second World Wars had resulting detrimental effects on medical services in Nigeria because of the number of personnel pulled out to serve in Europe. After the Second World War, the colonial government decided to extend medical services to much of the Nigerian population. A ten year development plan was announced in 1946, and the University of Ibadan was founded in 1948 subsuming the country’s first full faculty of medicine and University hospital [5]. This same health plan established the Ministry of Health to coordinate health services throughout the country, budget funds for hospitals and clinics, and appropriate facilities across the southern and northern regions.

At the turn of the century, medical services became centralized and was controlled by the colonial office in London. This was also the case in Gambia, Sierra Leone and the Gold
Coast. The colonial office regionalized the central administration of health care services in West Africa, and this birthed the West African Council for Medical Research in 1954 [6]. In Nigeria, national development plans were drawn up periodically with short-term targets. During the period of the Third National Development Plan from 1975 – 1980, the Federal government established the Nigerian Institute of Medical Research (NIMR) in 1977 to promote national health and development. This institution was set up “to be an institution of excellence in basic, applied and operational research for the promotion of national health and development in Nigeria”. It has different divisions including the Human Virology division and laboratory, Human Diagnostic laboratory, Biomedical and Cancer research center, as well as the Microbiology division which carries out broad spectrum investigation of communicable diseases with respect to study of bacteriology, virology and mycology of reported diseases. Since then, various research institutes and related parastatals have been established, each having a clear mandate and statutory duties. Examples include:

- The National Institute for Pharmaceutical Research Development (NIPRD). This institute is mandated to carry out research and development of drugs and pharmaceutical substances from locally available natural resources. They also serve as a national center for drug information, and ensure that the quality of drugs in circulation in the country encourages the development of herbal and traditional medicines by proper documentation, verification, and standardization of such preparations.
- The Nigerian Institute for Trypanosomiasis Research (NITR). In 1947, the Nigerian Institute for Trypanosomiasis Research was established to conduct research and development for the control and eradication of Trypanosomiasis and Onchocerciasis in all the geo-political zones of the country, in order to promote food security, rural development, improve human and animal health, and facilitate sustainable agricultural practice through optimum land use.
- The National Centre for Genetic Resources and Biotechnology (NACGRAB). NACGRAB is
mandated to ensure the development of facilities, the identification of national research needs and priorities, and the conduct of research in conservation and utilization of genetic resources. They are also burdened with the acquisition, maintenance, exchange and utilization of microbial cultures. Acquisition of germplasm, their conservation for posterity and immediate utilization to rapidly transform industry, improve local sourcing of drugs that are of plant origin and help in the amelioration of harsh environments.

- The Institute for Advanced Medical Research and Training (IMRAT). This institute comprises of eleven units. Importantly, the Medical and Genetic Research Unit (MGRU) of the institute focuses its research attention on population genetics of sickle cell disease, the thalassaemias and other factors which modify the pathology of these diseases; identification of genetic factors modifying the incidence and prognosis of Hypertension, Pre-eclampsia and Diabetes; Molecular Epidemiology of the genetic markers which affect the prognosis resistance and treatment of malaria. Etc. The Malaria Research Unit (MRU) focuses on studies on pharmacological and clinical efficacy of antimalarial drugs; Basic Laboratory Research on Chemotherapy, Parasitology and Biology of malaria parasites; Application of social sciences in tropical disease control, etc.

- The National Veterinary Research Institute (NVRI). The research summary and institutional mandate of this body is to conduct research into all aspects of animal diseases, their treatment and control; To develop and produce animal vaccines, sera and biological components to meet the national demand; To provide surveillance and Diagnosis of animal diseases; To introduce exotic stock for improved egg, meat and milk production; To provide extension services to poultry and livestock farmers; To train intermediate manpower in veterinary laboratory technology and animal health and production technology.
The National Agency for Food and Drug Administration and Control (NAFDAC). NAFDAC conducts appropriate tests and ensure compliance with standard specifications designated and approved by the council for the effective control of quality food, drugs, cosmetics, medical devices, bottled water, chemicals and their raw materials, as well as their production processes in factories and other establishments.

The National Biotechnology Development Agency (NABDA). In 2001, the Federal Executive Council approved the National Biotechnology Policy, which led to the establishment of the National Biotechnology Development Agency to implement the policy aimed at promoting, coordinating and setting research and development priority in biotechnology for Nigeria.

Opinions are largely divided as to the success of these institutions in carrying out their mandates. While some of them have over the years achieved laudable milestones and embarked on vigorous campaigns in pursuance of their vision, others have been almost non-existent since their inception. Beyond their research mandate, some of these institutions also have regulatory and oversight functions which must be taken seriously. In the case of the National Agency for Food and Drug Administration and Control (NAFDAC), much of its achievements have come in its ability to exercise its regulatory powers to curb the nation of sub-standard and fake drugs, food supplements and the likes.

In a general context, there isn’t much to celebrate as accomplishments in the area of medical research in the country, especially taking into consideration the image of Nigeria as a pace setter in regional advancement. These government agencies with the mandate of scientific and medical research have not churned out novel breakthroughs in drug development and disease treatment options. However, this is not to say that the sector is in a total deplorable state, rather it is to stress, that with the depth of academically brilliant and qualified individuals we possess, more treatment procedures ought to have been devised, disease causative organisms unearthed, drugs developed, equipment fabricated, and better diagnostic practices employed in our medical services such that
citizens wouldn’t need to scamper out of the country in drones in search of these services. One thing is sure, a lot more needs to be done in this field, and the business of medical research must be taken more seriously if we are to deal with the increasing population and its impending environmental and health challenges. Current international regulatory and ethical guidelines are reviewed to illustrate the requirements for improved standards of professional practices. We the developing nations have the bigger burden to fight insurgent health challenges because we are largely on the receiving end of most diseases of public health concern. Need I mention the recent cases of the Ebola Virus Disease and Avian Influenza? Or the recurring cases of Tuberculosis, Cholera, Lead poisoning, Schistosomiasis, and even the infamous Malaria. Therefore as time, discoveries, operations, methods, facilities and organisms evolve, we also must evolve with them.

The Challenges.

The challenges bedeviling Medical Research in Nigeria are almost innumerable and its consequences on the nation’s health indices are worrisome to say the least. In fact, the president of the Nigerian Medical Association is quoted to have said that ‘Nigeria’s health care indices remain among the poorest in the world’. However, if we must overcome these challenges and ultimately ensure the physiological wellbeing of our population, we must identify them and face them head-on. Also, it is important we adopt a proactive approach on issues of medical sciences. The world over, professionals are constantly involved in research and review activities to identify looming challenges before they become chaotic and eventually lethal. Sadly, here the reverse is the case as disease causing pathogens, microbes and toxins are allowed to infect individuals and sometimes result in death before we begin investigation to ascertain the cause of fatality.

I will be highlighting these challenges in four different categories, namely;

1. Investment and Funding.
2. Infrastructural Inadequacy.
4. Information, Communication and Implementation.

Investment and Funding.

I cannot stress enough the need for substantial monetary investment in Medical Research. But I must also point out that the burden of funding medical research doesn’t
lie solely on the government. The private sector also has a responsibility of funding. Research drives development and it is indeed the bedrock for national policies formation.

Over the years, the Federal Government’s budgetary allocation to the Ministry of Health has been irregular, as it’s been abysmal. In 1996, the percentage of the total annual budget appropriated for health was a mere 3.6 per cent. The following year it increased to 5.0 per cent, then in 2000 it declined to 2.7 per cent. Recently in 2013, 5.5 per cent of the Federal budget went to the health sector, and in 2014 this dropped to 4.4 per cent. This difference of about 1.1 per cent represents about 20.73 per cent in actual value (270 billion naira in 2013, compared to 216.40 billion naira in 2014). This year 2015, the health budget is 257 billion naira, representing about 5.5 per cent of the national budget which is a far cry from the 15 per cent standard stipulated by the World Health Organization. Of this allocation, the Nigerian Institute of Medical Research (NIMR) which is under the health ministry has a total allocation of 876,164,637 naira. Again, only about 6 per cent of this (50 million naira) covers total Capital Expenditure. The remaining 826,164,637 naira is apportioned for Recurrent Expenditure, including personnel and overhead costs. All these analysis point to poor monetary investment.

Other related health and medical research agencies face almost the same ordeal. The National Institute for Pharmaceutical Research and Development (NIPRID) is allocated 730,143,127 naira of which 680,143,127 naira (93.2 per cent) accounts for total recurrent expenditure. National Agency for Food and Drug Administration and Control (NAFDAC) has zero capital expenditure budget of the 5,045,840,542 naira appropriated for the institution. Same goes for the National Arbovirus and Vector Research Institute where zero naira out of its total budget of 100,045,307 is earmarked for capital expenditure.

Indeed our nation is suffering a cancer in financing health care. Poor leadership and myopic visions have led to irrational budgetary choices especially in biomedical research and the eminent decay will take years to fix. Life expectancy stands at 54 years (which ironically is being celebrated in the political stratosphere). Preventable infectious diseases such as malaria, pneumonia, diarrhea and HIV/AIDS still account for more than 70 per cent of the estimated Under-5 age deaths in Nigeria. A worrying 1 in 13 women die from
complications in child birth. These and more can be greatly managed with better health services and research methodologies. Investment in biomedical research is vital not only for improving health and quality of life, but for its contribution to a stronger economy, jobs, regional and international competitiveness.

**Infrastructural Inadequacy.**

If funding is poor, infrastructure will equally be poor. This is simply because funds are needed to build and maintain structures, as well as purchase facilities and upgrade existing ones. Nigeria, a country of approximately 170 million people sadly cannot boast of 5 standard medical research centers functioning at full capacity. The resultant effect is that we cannot carry out comprehensive data collection and analysis for research within the shores of the country. Many cases where laboratory samples have had to be flown outside the country for examination because we lack the requisite facilities have been reported. This amounts to a huge and avoidable financial burden on the country. It is reported that Nigeria loses about 800 million dollars a year in capital flight to other countries due to medical tourism. We must begin to put structures in place and we must start now.

Equally worrisome is the fact that we seem condemned to make perpetual economic goofs in our planning systems. For instance, of the over 257 billion naira health sector budget of 2015, only a merge 20 billion naira is allocated for capital expenditure, representing just 7.6 per cent of the total budget. No country survives on the basis of huge recurrent and overhead costs. The private sector on the other hand haven’t done much to help the situation. Corporate organizations haven’t provided the needed support in developing research infrastructure in the country.

**Brain Drain.**

This is a regrettable but true conclusion. Brain drain is simply the loss of intellectual and technical labor through the movement of such labor to more favorable geographic, economic or professional environment. This sequence transcends almost all professions in the country. We continue to experience a mass exodus of our best brains to other viable countries because we have refused to take the necessary measures to keep them within. Sadly, there is poor commitment to training indigenous researchers to keep them abreast with current global practices. An end to this challenging scenario seems as far as eternity.
In the health sector, Nigeria endures a huge human capital flight to America, Europe, Asia and even neighboring African countries. In 2007, it was estimated that a total of 3,567 doctors migrated overseas from Nigeria for professional practice [1]. In 2012, the General Medical Council reported 3,564 Nigerian medical doctors practicing in the UK. By 2013, this number had risen to 3,936 as reported by the Daily Mail. In October 2014, the Business Day Online published that over 10,000 Nigerian medical doctors practice in the United States of America alone. These indices call for worry as the country has only about 27,000 doctors out of the 71,740 registered with the Medical and Dental Council practicing within the country [3]. These numbers have gotten worse over time as the country had about 39,210 practicing doctors in 2005. Other health practitioners have inadequate numbers also. Pharmacists were about 21,072 while medical technicians and scientists were about 3,059 in the same year. Bearing in mind that our region of the world has 25 per cent of the global disease burden and only 3 per cent of global health workforce, the continued effects of this brain drain is scary.

Nigeria’s population is growing exponentially, but the number of medical practitioners isn’t following accordingly. There are a total of 26 accredited medical schools in the country, which graduate between 200 to 300 physicians annually. Only half of this number can be accommodated by the existing medical institutions for housemanship upon graduation. If people are willing to train and study, but the system limits them, it is only natural that they seek alternative environments to pursue their ambitions. Upon study outside overseas, most of these professionals do not return for practice.

In the peculiar case of medical research in the country, scientists cannot attain their full potentials as they lack the necessary technological requirements for groundbreaking achievements. Another reason is the financial appeal of practicing outside Nigeria. Professionals in the country are not by any means paid as well as their counterparts abroad. Doctors for instance are better paid in Canada, Saudi Arabia and South Africa. In 2004, the then Lagos state commissioner for Health Dr. Leke Pitan admitted that more than 30 doctors emigrated from the state in that year alone. This figure he buttressed did not include those from private practice. The situation continues to
look precarious in the nearest future as the trend doesn’t look like coming to an end.

**Communication, Information and Implementation.**

These are some of the most effective tools in disease prevention and control. It is assumed that if people knew better, they would do better. A large number of the populace do not have access to medical and health information. This is more evident in rural areas as most medical services are concentrated within urban settlements. Information dissemination is very important in biomedical sciences. The challenge herein lies in the fact that most rural dwellers cannot access major information platforms such as the electronic and print media; hence, information campaigns have to be taken physically to these places incurring more logistic cost. When discoveries are made, the news must be publicized, else it becomes worthless. Another unfortunate scenario is the fact that local researchers hardly get their works published in reputable international journals. Most of our research institutes do not even have intensely running publications where the institutions activities are publicized. It is important that citizens are kept in the know about the works of these bodies.

Education on preventive measures against many communicable diseases help to avert almost 70 per cent of possible infections. In this area, the nation has done creditably well, especially with the assistance of international health organizations in the area of advocacy such as WHO, UNICEF, UNFPA, etc. More people are now aware of safe hygienic practices, preventive measures and treatment centers. Barriers such as cultural practices, traditional beliefs, and illiteracy are better managed now. One success that stands out was the ability of the nation to curb the spread of Ebola virus within the country in record time. This was achieved in no small measure through the use of aggressive sensitization campaigns by government and private organizations.

In reference to the introductory definition, medical research is not complete without the implementation of established theories and recommendations. Policies have to be implemented by the government and treatment standards and guidelines have to be reviewed as is the case all over the world.

**Recommendations.**

- Adherence to the World Health Organization set standard of 15 per cent national health budgetary
allocation is non-negotiable. This might not be done immediately, but the irregular progression of the health budget is laughable and must stop. From the 5.5 per cent allocation this year, a steady progression aimed at meeting the set 15 per cent within the next 15 years must be outlined.

- The budget structure must be revised and credence given to capital expenditure over recurrent expenditure. Only in this way can a developing nation grow.
- The country must as a matter of urgency, revisit and implement every aspect of the National Strategic Health Development Plan launched in 2010, and begin to formulate successive policies and plans for the next 10 to 20 years in line with global health standards and practices.
- Equipping of existing medical research institutes, and the establishment of at least 3 of such institutions in every geo-political zone of the country must be pursued with vigor. This will greatly reduce the loss incurred from medical tourism. Local drug production programs must also be put in place so as to reduce the country’s drug import demands.
- Medical research in undergraduate and postgraduate education must be recognized as one the nation cannot do without. We must begin to value research and encourage corporate sponsorship of research programs in the country. We must also ensure training and retraining of the country’s researchers both locally and internationally.
- Beyond increasing salaries of medical personnel, deep seated nationalistic polices that ensure a conducive working environment for these practitioners across the federation must be implemented. Academic merit must once again be given its place of pride above federal character and ethnic distinctions.
- Corruption must be tackled with all sense of commitment and sincerity. Funds voted for developmental causes must be closely monitored to ensure the return of desired results.

**Conclusion.**

For an awful long time, medical research has been relegated to irrelevance in Nigeria.
Government has shown little commitment to investment in this sector and have paraded short-sighted decisions, leading to greater avoidable expenses as well as lost potential for health advancement. We have failed as a nation in setting our priorities right and this ultimately means that we jeopardize our citizen’s well-being and future. Promising careers in the area of research continue to be abandoned and brain drain is at an increase. Our most promising talents find safe-heavens outside the country and it may take decades for us to recover from the current insufficiency of professionals if we continue with the way we are going.

We cannot possibly quantify the significance of medical research in ensuring an increased lifespan while saving cost of treatment and reducing mortality as a result of early detection. Global economies will continue to fluctuate and the instability in national budget might never be fixed. However, we must recognize that medical research requires long term commitment and consistency to be effective. We have neglected this sector for too long, I only hope that it is not too late to make amends.

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References.


