Elevating the practice of Pathology in Nigeria to the 21st Century standard

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The Beginnings

Indigenous training of medical specialists in Nigeria commenced following the establishment of the NPMCN in 1979 by the Federal Government through Decree No. 67 of September that year. The Faculty of pathology was one of the initial 13 foundation faculties of the College. Of course, quite a number Nigerian doctors had obtained pathology training abroad from such far-flung places as the United Kingdom, USA and West Germany. These were the pioneers of the pathology practice and a number of them became the foundation fellows of the fledgling Faculty of Pathology, and responsible for the training that most of us in this room were privileged to have had in Nigeria. The early expatriate pathologists such as Professors George Miller Edington, Fleming, Discombe, David Montefiore, gladly their worked along these Nigerians pioneers. The Nigerians included such patriarchs as Professors Akin Olufemi Williams, Ayinla Abioye, J. Smith (Boy Joe), Etim Moses Essien, Wilson Oniugbo, George Afolayan Esan, Babatunde Osunkoya, Ed'B. Attah, Thamradeen Abisogun Junaid, Patrick Uwaezuoke Aghadiuno, Babatunde Osotimehin, E. O. Odunjo, to name some of them. They provided service and training for a long period of time and laid the firm foundations that our ongoing efforts stand on.

A Personal Odyssey

Then, many of us, the first generation of indigenous trainees, wondered into the field somewhat blindly, or with little awareness of we were getting ourselves into. If I am to use myself as an example, my choice of pathology as a postgraduate was fortuitous, driven by my overweening feeling of a need to get into some postgraduate training because by 1986, I had spent six years after qualifying from medical school, and I had by then explored and exhausted a number of opportunities that became open to me immediately after graduation.

Immediately after my National Youth Service, then at Anambra State, where I served with the Police College, I joined a thriving private practice in Zaria, where I stayed for about 18 months but quickly felt inferior anytime I meet with my former school mates who were already pursuing various residency training programmes in the ABUTH, located in the same town as our clinic. Up to that time I had not made up my mind to go for postgraduate studies. I soon left that practice and joined the services of the then Kaduna State Ministry of Health, where I was posted to Funtua General Hospital about 100 kilometers from Zaria. I was appointed the Medical Officer-In-Charge of the hospital, after the Indian holding the position left. The feeling of inadequacy never left me but was rather accentuated anytime my mates

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from ABUTH, Zaria. I finally took the plunge and travelled to Ibadan sometime late in December 1985, for the first time in my life, where I went straight to the Head of Department's office at the University College Hospital Ibadan (UCH), Professor TA Junaid. To my astonishment, I was given my letter of appointment on the same day as an honorary resident to start on 2nd of January 1986. That is how my own story in this business began. Incidentally, I started on the same day as Professor Effiong Akang of the University of Ibadan. Not long after wards Professors Olufemi Ogunbiyi, Phillip Olatunji and Faye Abbiyesuku joined us.

Apart from the feeling of being left behind by my erstwhile contemporaries, the second factor that motivated me to join pathology, and not any other medical specialty, was the motivation to be like the late Professor G M Edington, who taught us pathology at ABU Medical School. Then, we students always marveled at how one individual can be so knowledgeable in the most important and widest field of medicine.

Specialisation Training in West Africa: The National Postgraduate Medical College of Nigeria (NPMCN) and the West African Postgraduate Medical College (WAPMC)

The NPMCN and the WAPMC are statutory bodies set up to oversee medical specialisation training in the West African sub-region and they share similar characteristics.

The NPMCN is now 35 years old and has 15 component faculties from the initial 13. At the last convocation (the 32nd) held on 18th September 2014, it graduated 247 fellows, nearly all of them Nigerians. Records show that by 2011 the NPMCN had certified a total of 3556 fellows.[1,2]

The NPMCN has the following statutory functions:

(i.) Accreditation of training institutions for professional postgraduate training in medicine and dentistry, and the periodic publications of the list of such institutions;
(ii.) Organization of professional postgraduate training programs and curricula;
(iii). Conduct of Continuing Professional Development (CPD);
(iv.) Conduct of professional postgraduate examination;
(v.) Any other activity necessary for the furtherance of postgraduate medical education in the country (Nigeria).

The NPMCN now has the following component 15 faculties:

1. Anaesthesia
2. Dental surgery
3. General Dental Practice
4. Family Medicine
5. Internal Medicine
6. Obstetrics and Gynaecology
7. Ophthalmology
8. Oto-Rhino-laryngology
9. Paediatrics
10. Pathology
11. Psychiatry
12. Public Health
13. Surgery
14. Orthopaedics
15. Radiology

The College is an examination body, an accrediting body, and a supervisory one all rolled into one. Compared to parallel organisations in other parts of the world, it is rather unusual for one agency to have such wide-ranging powers. To complicate matters further, it is also an agency of government. Although in the Nigeria context, this is not unusual, as there are similar bodies like the National Universities Commission (NUC), and the National Board for Technical Education (NBTE).

The sister College to the NPMCN, the West

African Postgraduate Medical College (WAPMC) (set up in April 1981) and College of Pharmacists (set up in February 1991), has a wider mandate serving nearly the whole of the West African Sub-region. It has also done this service with distinction. The College of Surgeons and the College of Physicians had predated the NPMCN. The College of Surgeons has seven Faculties - Anaesthesia, Dental Surgery, Obstetrics and Gynaecology, Ophthalmology, Otorhinolaryncology, Radiology and Surgery. While the College of Physicians has six Faculties - Community health, Family Medicine, Internal Medicine, Laboratory Medicine, Paediatrics and Psychiatry.

Quality Assurance, Professional Practices and Clinical Governance

In this Section 1 intend to discuss quality assurance issues; professional issues like consultant workload, appraisal and revalidation schemes, clinical and university appointments; current developments in the subspecialties; and issues of clinical governance. For some of these topics we will further discuss them under the following - definition, the current status on the international scene, the current status on the Nigerian pathology scene, and steps we need to take in order to remedy any deficiencies we may have.

External Quality Assurance and Quality Control

Accreditation of our laboratories will require that we maintain acceptable standards for which certain **Key Performance Indicators (KPI)** need to be met.[9]

We will make reference to the ISO 15189 Medical Laboratories, and list some of the KPI recommended to medical laboratories in the UK by RCPath., as below:

1. *Staffing issues*

The following must be made available for inspection.

a. List of clinically qualified staff at consultant level, clinical scientists, and senior trainees.
b. Evidences of annual appraisals for all staff who offer clinical or laboratory service including scientists.

2. *Evidences of Continuing Professional Development (CPD)*

Evidences of Continuing Professional Development (CPD) annually by all staff.

3. *Training and education*

(a) A high quality, sustainable service should provide educational opportunities for current and future laboratory staff, and users of the service, for national and local use. It is expected that a certain proportion of staff in training grades be maintained in sufficient numbers to maintain the stability of the service, but not so high as to affect the quality of service or training.

Category of these trainees:

I. Medically qualified staff
II. Clinical staff
III. Biomedical staff.

(b) Small laboratories that may not have resources for training are expected to show commitment to training by the release of staff to other laboratories for training.
(c) Undergraduate, postgraduate and primary care teaching

Laboratories shall provide evidence of their commitment to above. To detail the educational activities of laboratory staff teaching medical undergraduates, non-medical under graduates, and

postgraduate medical and non-medical staff. The number of hours allocated should be reflected for such commitment.

4. ***Repertoire of tests and integrity of reporting results***

a. A repertoire of all the tests offered by the laboratory should be available to users.

b. Point-of-care-testing (POCT). Documentation of the repertoire of available POCT and their oversight.

c. Incident and error reporting. A log shall be maintained for documenting laboratory based errors, and evidences of measures aimed at minimizing them.

5. ***Engagement with patients and users***

a. Pathology services must provide important information for patient benefit. In some instances results are given directly to patients, parents, or carers. In such instances the laboratory must have guidelines for this, and show the percentage of results delivered directly to patients.

b. Sampling of patients opinions on the quality of the laboratory service.

6. ***Interpretative clinical advice and engagement with multidisciplinary teams (MDT)***

a. Pathologists are the core members of cancer MDTs and important contributors to many non-cancer MDTs (dermatology, clinical haematology, orthopaedics infections, etc.) the decision making process of the MDTs should be supported by pathological advice and interpretation of diagnostic reports. Laboratories are expected to have a list of MDTs they support and record of attendance at such meetings.

b. Cellular reporting of cancer resections using recommended formats and templates.

c. Documentation of cellular pathology second opinions (internal and external).

7. ***Timeliness of reports and clinical advice***

a. Critical results communication. Critical results are those that require clinical action as soon as possible, usually within one hour. There must be a policy on this with clearly defined lines of action.

b. Communication of isolates of potential significance for infection prevention and control, including alert-organisms and multi-drug resistant isolates.

c. Timeliness of responding to requests for clinical advice. Laboratories must issue clear written guidelines with risk stratification for the urgency of response, and list which members of staff are able to deal with different levels of requests. For haematology, biochemistry and microbiology areas urgent clinical advice should be available within 30 minutes. For histocompatibility and immunogenetics 30 minutes is recommended.

d. Cellular pathology reporting and turnaround times. Expectations are that 80% of cases would be reported within seven calendar days, and 90% within ten calendar days. This excludes cases sent outside for second opinions or those requiring

decalcification or molecular tests. Cases not reported after 20 days must be documented and a system of managing and reporting them must be put in place.

e. A&E blood specimens' turnaround times

Specifically for the following:

- Renal function tests
- U&E
- Troponin
- Liver function tests
- Full blood counts.

It is expected that such results should be available within one hour.

HLA typing of deceased donors for solid organ transplantation.

It is expected that deceased donor HLA typing results should be available within eight hours of the sample being taken in 80% of the cases.

HLA typing for hematopoietic stem cell transplantation. For related recipient/donor pairs HLA typing must include high resolution Class I and/Class II matching.

For unrelated recipient/donor pair must include as a minimum requirement low resolution HLA-A/B/C typing and high-resolution DRB1 typing by DNA methods.

f. For routine antenatal screening tests for Hepatitis B, HIV, syphilis and rubella 90% compliance is required.

Late presentation antenatal screening. Results for HBV, HIV and syphilis should be available and communicated to the requestor within 24 hours, that of rubella within 5 days of the sampled being taken.

8. ***External quality assurance***

In order to ensure that laboratories perform specific tests to nationally acceptable standards they should enroll in available EQA schemes. These assess local performance against national standards, usually involving an element of peer review. Analytical and quantitative EQA schemes typically assess the performance of one area of the laboratory service, while interpretive schemes assess the performance of individual healthcare professional.

Most parts of the developed world quality assurance and quality control issues are strictly adhered to without compromise, otherwise the laboratory concerned will los its accreditation.

In Nigeria, quality assurance and quality control issues are still in their rudimentary stages. Only few laboratories have any form compliance with ISO 15189 Medical Laboratories. Our laboratory managers must as a matter of urgency takes steps to organize a national scheme that all our medical laboratories will need key into, in preparation to the full compliance with ISO 1589 Medical Laboratories.

Consultants' Workload[10]

Consultants are ultimately responsible for and delivery of expert clinical care, usually within a team. This includes diagnosis and management of complex cases and spending time and effort reflecting on and reviewing patient care activities so that quality and safety improve continuously. Consultants should also be involved in teaching, training, researching, managerial decisions, running departments and developing local services.

In Nigeria today, medical consultants are not held accountable by their employers in terms of workload they offer over a defined period

of time. In our laboratories, one needs only to look at the number of tests, surgical slides, post mortems, and other parameters of workload in the laboratories to realize that such highly skilled staffs are underutilized. It is necessary each consultant to justify his employment in this regard. Our professional bodies should not only be demanding for better condition of service but also must insist on value for money from us.

Consultant staffs usually undertake the following activities in the course of their work (components of a job plan):

i. Direct clinical care
ii. Supporting professional activities
iii. Additional hospital responsibilities
iv Academic activities
v. External duties.

Direct clinic care is the work directly related to the prevention, diagnosis or treatment of illness, as listed below:

1. Emergency duties
2. Operating sessions
3. Ward rounds
4. Outpatient activities
5. Clinical diagnostic work
6. Other patient treatment
7. Public health duties
8. Multi-disciplinary meetings
9. Administration directly related to above.

Supporting professional activities

These are activities that underpin direct clinical care, e.g.

a. Participation in training
b. Medical education
c. CPD
d. Formal teaching
e. Audit
f. Job planning
g. Appraisal
h. Research
i. Clinical management
j. Local clinical governance activities

External duties and additional clinical responsibility

Examples:

1. Chairman, Medical Advisory Committee (CMAC)
2. Head of department
3. Head of unit
4. Undergraduate or postgraduate deanship
5. Ad hoc duties for government, MDCN, NUC, NPMCN or WAPMC
6. Trade union activities related to the medical profession

Code of Conduct on Private Practice (PP)

In principle where intramural PP is allowed, its provision should not prejudice the interest of the regular hospital patients or disrupt the routine work of the public hospital where the consultant is engaged. The consultant must identify and notify the authority on any regular private commitments and provide information on planned location, timing and broadly the type of work delivered, and any out-of-office cover. Conflicts of interest must be minimized, including not undertaking private work when on-call. Consultants are not expected to provide private care during official hours, nor should they instruct any other hospital staff to undertake same on their behalf. This, however, does not include other members of the health team like junior medical staff, nurses, etc, in cases where the private care is delivered in a public hospital, as they would normally be doing their routine hospital work in such cases.

In developed countries clinical consultants are expected to sign contracts with their employer, usually the health authority where he/she practices, these contracts take into account the following factors:

a. What work does the consultant do for the hospital, and in case of clinical

academic consultants, what work do they do for the university;
b. The objectives to be achieved by the consultant and supported by the employer;
c. When and where the work is done;
d. How much time the consultant is expected to be available for work;
e. What this work in quantifiable terms will deliver for the employers, employee and patients;
f. What resources are necessary for the work to be achieved;
g. What flexibility is allowed;
h. What working relationship and interaction, if any, that the consultant may have outside his primary role for the employer.

In places where the annual contract system operates (it started in the UK in 2003) the consultant and the employer will set out the objectives and a work plan, which the consultant is expected to follow through, a form of executive timetable. The overall aim is to find new ways of working together that will lead to improvements in the service, through innovation, audit and improvements of the existing way of working. Improving the quality and safety of patient care, and the overall patient experience is vital, not only as this is increasingly expected by the patients, but also for the efficiency and future stability of the system and the wider health economy.

Cases of Consultant Staff Holding Clinical (Hospital) and Academic Positions[11]

The provision of medical education requires close cooperation and collaboration between the university that owns the students and employs the academic staff delivering medical education, and the hospital authority where the clinical aspect of the medical education is delivered. The arrangement that binds the two independent institutions is sometimes unclear, with serious consequences. The incident of storage of organs taken from babies following postmortem examination at The Royal Liverpool Children's Hospital without proper consent of those concerned, raised public anger, which led the then Secretary of State to set up a committee of enquiry which led to the setting up of The Follet Committee on the Appraisals, Disciplinary and Reporting Arrangements for Senior NHS and University Staff with Academic and Clinical Duties in 2001. The report of this committee is useful for who share clinical and academic responsibilities in a hospital setting. I present some of the key recommendations from that committee that may be of relevance to us:

a. University and NHS partnership responsible for medical education and research should establish joint strategic planning bodies;
b. Universities and hospitals should formally make all senior hospital and university staff with clinical and academic responsibilities fully aware to whom they are accountable for separate facets of their jobs; Hospital and university staff involved in medical education and research should be *'joint working to integrate separate responsibilities';*
c. Substantive and honorary appointments documents of senior hospital and university staff should be explicit about separate lines of responsibility, reporting arrangements and staff management procedures, and should be consistent and be cross-referred and issued as a single package.

Appraisal and Revalidation for Physicians[12]

In the UK (commencing December 2013), most of Europe and the USA, physicians are required to have an appraisal of their job annually and have to revalidate their status as physicians with the regulatory authority after a number of prescribed years. This is in addition to the yearly CPD requirement.

In the UK doctors undergoing the appraisal process have to provide four information groups:

1. General information on all aspects of work;
2. Keeping up to date;
3. Review of one's practice and quantification of professional work;
4. Feedback on the doctor's practice by patients and peers.

In the UK six groups of information needed to be provided during the process of five-year appraisal: –

1. CPD;
2. quality improvement activity;
3. significant events;
4. feedback from patients;
5. feedback from colleague's;
6. review of complaints and compliments of patients;

Doctors in specialist practice do the appraisal and revalidation from through their professional colleges or faculties. For those in non-clinical work, there are special provisions for them to undertake the same process.

It is not unlikely that regulatory authorities in Nigeria in the near future may introduce similar revalidation in order to maintain license to practice.

Laboratory Automation and Laboratory Information Management System (LIMS)[13]

Laboratory automation is a multi-disciplinary strategy to research, develop optimize and capitalize on technologies in the laboratory that enables new and improved processes. It comprises many different automated laboratory instruments, devices, software algorithms, and methodologies used to enable, expedite and increase the efficiency and effectiveness of scientific research in laboratories. The application of technology in today's laboratories is required to achieve timely progress and remain competitive.

Hospital laboratories in Nigeria have embarked on varying degrees of automation with limited success, as the process is usually haphazardly applied without necessary institutional commitment and funding. It is important that the managers of our laboratories in conjunction with the hospital administration carry out automation of our laboratories at all levels in order for us to achieve the level of efficiency and effectiveness which this system can confer. Laboratory Information Management System (LIMS) is a software-based laboratory and information management system that offers a set of key

1. Instrument calibration and maintenance
2. Inventory and equipment management
3. Manual and electronic data entry
4. Method management
5. Personnel and workload management
6. Quality assurance and control
7. Report generation
8. Time tracking
9. Traceability
10. Workflows of a sample or a batch of samples, or a lot of batches through its lifecycle

The computerization of the laboratory will allow the storage, organization, processing and retrieval of large amounts of information, which can measurably enhance the efficiency of the laboratory, improve the quality of the pathology service, monitor turnaround times and other quality assurance parameters, aid in research and teaching, and reduce cost of operation. However, in order to maximize these benefits, the process of automation must be carefully planned and carried out in order that it matches the needs of the pathologists, the institution and the budget available for it. In many cases the implementation is results in a system that is a glorified word processing system with rudimentary patient registration system, or it is compounded by costly attempts

at in-house development of software applications.[16]

Automation in anatomical pathology laboratories has lagged behind that of the other subspecialties because of relatively low volume of specimens, the complexity of the tasks involved, the nonquantitative nature of the textual data and the reluctance of many of pathologists to alter their work habits.

Biotechnology, Molecular Biology, Bioinformatics and Genomics

Biotechnology, molecular biology, bioinformatics and genomics are presently the cutting edge of medical practice. Scientists in basic medical sciences in collaboration with physicians are bringing the results of laboratory researches into the realm of applied research. This has resulted in remarkable advances in the medical practice. Nigerian medical community has not been actively participating in this new and interesting field largely because of inadequate modern laboratory facilities and trained personnel. Additionally, we have neglected the issue of specialising in basic medical science; therefore we cannot such type of researches. It is time we begin to address these issues by redefining our training at postgraduate level, while at the same time we advocate for modern facilities and equipment in our laboratories and seeking more collaboration with institutions in friendly advanced countries.

Biotechnology

Biotechnology is the use of living systems and organisms to develop or make useful products, or any technological application that uses biological systems, living organism or derivatives thereof to make or modify products or processes for specific use. Historically, man had been manipulating and altering crops and animals with a view to improving productivity through selective breeding and in the fermentation of beer. The discovery of the production of penicillin by a mold *Penicillium* by Alexander Fleming in 1928 is now considered a form of biotechnology.

Biotechnology has four major areas of industrial application, including:

1. Healthcare (Red Biotechnology)
2. Crop production and agriculture
3. Non-food industrial uses of crops and other bioproducts (White biotechnology)
4. Environmental uses (Green biotechnology)

In Medicine, modern biotechnology finds applications in areas as pharmaceutical drug discovery and production, pharmacogenomics and genetic screening. Pharmacogenomics analyses how the genetic makeup of the individual responds to drugs, and it aims to develop rational means to optimize drug therapy, with respect to patient's genotype, to ensure maximum efficacy with minimal adverse effects (personalized medicines). Synthetic humanized insulin, gene therapy and the Human Genome Project are all examples of the medical application of biotechnology.

Molecular Biology

Molecular biology is the branch of biology that deals with the molecular basis of disease. It overlaps with other areas of biology and chemistry, genetics and biochemistry. It concerns itself mainly with the understanding the interactions between the various systems of a cell, including the interactions between the different types of DNA, RNA, and protein synthesis, and the regulation of their interactions.

Techniques of Molecular Biology

1. *Expression cloning:* This technique is used to study protein function, the DNA coding for the protein of interest is cloned into a plasmid

2. *Polymerase chain reaction*: This is a versatile technique for copying DNA.
3. *Gel electrophoresis*: This is used to separate DNA, RNA and proteins by means of electricity and size.
4. *Macromolecule blotting and probing*
5. *Southern Blotting*: For probing the presence of a specific DNA in a sample.
6. *Northern Blotting*: To study the expression patterns of a specific type of RNA molecule in a relative comparison among a set of different samples of RNA.
7. *Western Blotting*: This technique allows the identification of monoclonal antibodies by using chemiluminescent substrate.
8. *DNA microarrays*: This is a collection of spots attached to a solid support such a glass slide, where each spot contains one or more single stranded DNA oligonucleotide fragment. When multiple arrays are done it is possible to compare gene expressions of two different tissues, such as a healthy and cancerous one.

Genomics[19]

Genomics is an area of genetics that applies recombinant DNA, DNA sequencing methods, and bioinformatics to sequence, assemble, and analyze the function and structure of genomes. Advances in this field have triggered a revolution in discovery-based research to understand even the most complex biological systems. In contrast, the investigation of the role of single genes is a primary focus of molecular biology or genetics. The milestones in this area are some of those important points in the history of medicine:

1. discovery of the helical structure of DNA by Rosalind Franklin in 1948 and the publication of the DNA structure by James D. Watson and Francis Crick in 1953 (Nobel Prize 1962 for Physiology or Medicine shared by the two of them).
2. publication of the amino acid sequence of insulin by Frederick Sanger in 1955 (which won him the 1958 Nobel prize in Chemistry);
3. development of DNA sequencing technique by Frederick Sanger and his group around 1975 (which subsequently became known as the Sanger method, and won him half of the 1980 Nobel prize in Chemistry, which he shared with Walter Gilbert).

An important application of genomics is that the knowledge of the full genome has created the possibility for the field of functional genomics, mainly concerned with patterns of gene expression during various conditions, using microarrays and bioinformatics tools, especially in the understanding of the genetic bases of drug response and disease.

Contemporary Issues on the Nigerian Pathology Scene

The PhD Versus Fellowship Qualification

PhD is the highest academic degree. Most universities require all their academic staff to hold a PhD, and to engage in research activities to ensure that the staff concerned has sufficient expertise to teach advanced courses and to expect them to remain current in their field. In order to earn a PhD one must accomplish two things – master a specific subject in detail, and extend the body of knowledge about the subject. Each university establishes general guidelines that a student must follow to earn the PhD degree. The degree is evaluated by examination and dissertation and is examined by a committee of experts in an oral examination, each of whom must hold a PhD degree. The essence of the PhD, which distinguishes it from other academic or professional work, is research, which aims to extend the frontiers of knowledge by exploration, investigation and contemplation.

The Fellowship Qualification

The residency training programme is the most important scheme in the medical delivery service of our country, indeed since its introduction in 1979 through the NPMCN and its sister college the WAPMC they have trained thousands of specialists and consultants that man our health system and our medical schools. Many of the trainees have emigrated to greener pasture in Europe and America. It is without doubt one of the most successful national training programs. In recent times a crisis of confidence has been lucking in the background regarding the status of the fellowship alongside PhD offered in the universities. The fellowship has been recognized as been equivalent to the PhD as far as the employment of academic staff in our faculties of medicine, this is the only reasonable thing to do, and as is the practice worldwide.

Also, as far as promotion purposes are concerned academic staff in the faculties of medicine have always used it as the terminal qualification and have risen to the position of professors for those qualified. Those who seek to bring dichotomy have not looked at the objectives of the two qualifications. PhD is primarily a research based higher degree, and its holders as mentioned above are expected to explore the boundaries of knowledge while working in their institutions or research institutes.

The fellowship, however, primarily aims to train the highest level of manpower in the delivery of health services, who may also participate in research. Holders of the fellowship have broken barriers in clinical research worldwide, but they need not depend on research activity before they can excel as specialist clinicians on their right. The fellowship has a special status shared by no other higher qualification; it is the only one with a professional and an academic component recognized as being equivalent to the PhD within the university system. The recognition of the importance of the need to expose young Nigeria academics pursuing higher degrees to the latest and the best made the Nigeria government to introduce several grants and scholarship for them, specifically the Special Presidential Scholarship Scheme for first class holders, and the Academic Training Scheme Abroad under the TETFund, which several hundreds of university staff are enjoying currently. It may be time for the medical profession to advocate for similar schemes in view of our contribution to the specialist care and medical education in the country. The same rationale is applicable to the young and upcoming fellows of our colleges for exposure to modern practices in medicine abroad. Rather than asking for the reintroduction of one year abroad, which is clearly not feasible, we should seek for a reasonable number of scholarships to be guaranteed annually, for those completing the NPMCN and the WACP programs, for our best and brightest.

The cutting edge of medicine is found in the basic sciences of biochemistry, physiology, biology and other biomedical sciences. All those who have made a mark in these areas are primarily researchers rather than clinicians. All the famous medical schools in the USA and Europe have very strong basic clinical sciences departments manned by top scientists who may be physicians or other scientists. But the bottom line is that they must have a PhD. Nearly all those who had won the annual Nobel Prize in Medicine or Physiology have been those in basic clinical medicine. It heartwarming to note that some of our universities and medical schools have taken note of this and have instituted clinical academics training schemes or are encouraging physicians to take a PhD or MD and come into research. The University of Ilorin and ABU are some of the universities that I know are taking a lead on this.

The Faculty of Pathology and the Future of Pathology in Nigeria

Our Faculty is one of the 15 faculties that make up the NPMCN, and any issue that affects the college is of a direct importance and relevance to us. Historically, the Faculty of Pathology had been one of those that had to struggle in order to get entrants into training positions, such that primary examinations were not needed before commencement of residency training.

On the issue of the problems we are having with the members of allied professions in many areas of medical specialty, we may need to consider other strategies in order to overcome this.

For those who are familiar with current practices abroad even in more developed countries, the doctor is always the leader of the health team under any circumstance, but there are developments that we may need to take note of:

1. Leadership or headship of medical institutions. In Europe and America, they now have Chief Executive Officers and General Managers manning health facilities. As these facilities are seen primarily from a business enterprise angle Accreditation programs are voluntary processes, which institutions can choose to have. There may be several bodies offering accreditation for a wide range of services and reasons.
2. We are on the verge of being challenged in terms of professional services we are offering in our country by conglomerates from abroad, with better funding, staffing and organisation. These are encouraged by free enterprise and patient demand.
3. Professional disputes may not be always resolved through the law courts, as the courts only interpret the law, and are not always dependent on rationality.

As time goes on, changes are inevitable, sometimes it is better to anticipate these changes and lead them, rather to be led by them.

Conclusion

I have rumbled along trying to cover so many areas, seemingly without focus, but it may not be totally my fault as the Faculty Board Executive Committee was very gracious in granting me total independence in choosing the topic of the lecture, and I thought that this was a golden chance for me to use this privilege and opportunity to share with my colleagues all those issues that had been in my mind any time I contemplate how lucky I was to make that fateful trip to Ibadan in December 1986.

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