THE BASIC TRAINING OF A MEDICAL DOCTOR: A perspective from Otorhinolaryngology

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ABSTRACT

How does the content and competences of training in Otorhinolaryngology at the basic medical education level impact on the practice of the specialty and in the subsequent specialist training of Otorhinolaryngologist Head and Neck Surgeon? These are the focus and issues that this article addressed.
This article examines the requirements for the basic training of a medical doctor including assessing the prospective trainees' motivations, the regulatory guidelines especially the approved curriculum and the effects these will have on the practice of Otolaryngology and the later impetus to choose the specialty as a preferred discipline for specialisation.
The method adopted was to evaluate published documents on the subject matter and analyse them from the point of personal experiences gained over decades of practicing and training medical students and residents in the sciences and art of otorhinolaryngology in the Nigeria health system. Recommendations for improving the outcomes were also made.
Key Words: basic medical education, curriculum, otorhinolaryngology, head-and-neck surgery

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INTRODUCTION

Driving forces behind aspiration to study Medicine

Many people aspire to study medicine and to practice it as a profession. Success in such life ventures has several pathways before the goal is attained. The aspiration to train as a medical doctor may have the following driving forces behind it. It may originate from:

1. Personal inspiration,
2. The love of the professional respect it carries,
3. The love for caring for the sick,
4. Pressure of family members and society,
5. Urge to prove a point or settle a score,
6. To make an impact in science and technology,
7. To solve a challenging problem caused by human disease to a family or community

Some of these options will drive the passion, determination, and zeal for the accomplishment of that vision while others who really do not have the passion for the profession are studying under compulsive impulses.
It is advisable to have counsellors or academic advisers to guide students at every level of their study in order to address discordant issues early and redirect their passions appropriately.

NATIONAL OBJECTIVES OF BASIC MEDICAL EDUCATION

It is important to emphasize the fact that broad objective of medical education vary from country to country, and certainly between the developed and the developing countries of the world [1].
The overall objectives of basic medical education in any country will depend on the answer to the basic question: **"What is the role expected of the medical doctor upon graduation?"** "Will he be a general practitioner, a future research worker, a future medical teacher, a future specialist practitioner or all of these? The answers will depend on many variables such as the needs for
the country, its available resources, its medical geography, among other considerations [1].

In Europe and North America for instance, where the doctor/population ratio is high and specialization in one branch or another forms the main pivot for professional practice, the nature and amount of professional responsibility of the doctor at graduation differs significantly from that in African countries or in any developing country with similar problems. However, the objectives of medical education in the various countries of the world can be classified into two broad categories [1]

(a) The first category is concerned with the preparation of persons for practical professional functions after graduation from the Medical School.
(b) The second category is aimed mainly at the establishment of a scientific foundation, sufficient for understanding the principles of medical practice as well as the acquisition of new knowledge through meaningful postgraduate studies and active research.

Both elements are present in all patterns of medical education but in different proportions and with different degrees of emphasis [1]. Urgent needs of a social nature sometimes result in putting greater emphasis on the practical preparation of the student, but there is also a universal acceptance of the need for the solid scientific basis even in less developed countries which do not want to compromise on the scientific quality of the doctor.[1]
The world has become a global village with skilled labour migrating from one country to another. The products of a country will mandatorily pass a licencing examination to be eligible to practice in another country. Hence a training curriculum must take cognisant of such global requirements [1].
The specific objectives of the medical education curriculum in Nigeria should be:

a. To provide a sound scientific and professional basis for the training of doctors capable of working anywhere in Nigeria, and globally with other health workers.
b. To provide such training as would equip these health personnel to render primary health care (PHC). In this regard, there is a definite need to re-orientate the curriculum to give greater emphasis to primary health care.

c. Teaching of *Primary Health Care* should be multi-disciplinary, involving all
clinical and some pre-clinical departments.
d. The training of doctors should be more community based. In keeping with the concept of social responsibility, all health training institutions should make a definite commitment to provide health services to their communities.
e. To produce medical doctors who would satisfy internationally recognized standards, and who could undertake further training towards specialization anywhere in the world.
f. To produce medical doctors with sufficient managerial ability to play leadership role in health care delivery.

ADMISSION ENTRY REQUIRMENTS INTO MEDICAL TRAINING INSTITUTIONS [1-3]

Admission Requirements into medical schools

The minimum pass at credit level in the West African School Certificate or the Senior Secondary School Certificate Examination or any equivalent examination are deemed prerequisite for prospective candidates to enter medical school in the five subjects of Biology, Physics, Chemistry, Mathematics and English.

In addition, they must then either:
1. Pass the Unified Tertiary Matriculation Examinations (UTME) of Joint Admission and Matriculation Board Examination (JAMB) for admission into the University preliminary (premedical) year or secure its exemption from JAMB and the University Preliminary year by passing the Advanced Level General Certificate (GCE 'A' Level). Higher School Certificate (HSC) or its equivalent examination in: Biology, Chemistry and Physics. Another pathway is through JUPEB program.

TRAINING CURRICULUM IN BASIC MEDICAL DEGREE

The curriculum requirements for the basic medical training in Nigeria are regulated mainly by Medical and Dental Council of Nigeria (MDCN) and the National University Commission (NUC) through their guidelines as contained in various publications such as the *Red book* and Core Curriculum and Minimal Academic Standard (CCMAS) (previously called the Basic Minimal Academic Standard: BMAS) respectively [1,2]. Various medical schools adopted these regulatory curriculum requirements and added more to it to suit their vision and mission objectives. As a matter of fact, the NUC recommended 30% of the CCMAS to be the local content introduced to it by the Universities.

ACCREDITATION REQUIREMENTS OF MEDICAL TRAINING INSTITUTIONS

Accredited medical schools are expected to meet prescribed requirements for training of medical students in terms of available infrastructures, personnel and learning resources. These also determine the number of students carrying capacity of the school. These are articulated by the NUC and MDCN. Governance of the institutions are also part of the requirements. The extent of compliance by the school all determines the quality of its products.
The MDCN currently recommended that a medical school should operate from a minimum of 3 Faculties namely, Faculties of Basic Medical Sciences (Human Anatomy, Biochemistry and Physiology), Basic Clinical Sciences (Pharmacology and Pathological Sciences) and Clinical Sciences (Internal Medicine and its subspecialties, Surgery and its Subspecialties, Obstetrics and Gynaecology, Paediatrics, Otorhinolaryngology, Ophthalmology, Orthopaedics and Trauma, Radiological sciences, Anaesthesiology, Community Medicine, Emergency Medicine, and others)
CHALLENGES OF BASIC MEDICAL TRAINING IN NIGERIA UNIVERSITY SYSTEM[4]

a. <u>Admission selection of the best prospective Students.</u>

However, admission into medical school has posed many challenges namely:

i. Many eligible candidates are denied admission based on admission policies created by many Universities such as catchment area, quota system, state of origin, religious and tribal sentiments, political influence, and financial pressure to meet the demands of several interest groups.
ii. The number of students admitted are hardly restricted to MDCN approved number but are usually oversubscribed irrespective of the limits set by the MDCN. This leads to an overwhelming situation both for the staff and the available resources for the pre-medical students which translates to poor learning environments and substandard education [3]. Secondly, institutions which understand they have exceeded their quota for admission into medicine cause students who do not meet a "created" cut-off at the first year (100 level) stage to be forced into unintended courses [3]. This leads to a delay in the academic journey of those still willing to pursue medicine. It also causes psychological and emotional trauma to students and families after such students had been accepted at the UTME/POST-UTME stage to study medicine, only to be denied progression on their chosen career path.
iii. Many eligible *desperate* candidates are usually diverted to other courses to fill the vacancies.
iv. A significant proportion of would-be medical students cannot afford to pay their school fees without easy access to a student loan scheme.

It is my considered view that the selection of the students should take into consideration, not only the academic performance as entrance examinations, but also the **character**, **aptitude**, and **personality** of the candidate's vis-a-vis the requirements of the future practitioners of medicine. Medical and Dental Council of Nigeria considers a successful performance at the aptitude, character and personality evaluation interview a necessary requirement for a student wishing to enter a medical school.[3,4].
Schools should be required to use similar admitting standards for both indigenes and non-indigenes while scholarship offers can be introduced to encourage the underrepresented ethnic groups among other affirmative action's [3]. This will ensure that the most deserving and passionate students get admitted to study medicine. However, the recent introduction by the Federal Government of Nigeria of Student Loan Scheme, if well implemented will help.

b. <u>Premedical Education (100) level Challenges</u>

The 100-level medical student academic program is usually not under the supervision of the medical schools. Some subjects like botany that are not directly relevant to the profession should be expunged and courses with links to the preclinical and clinical training should be introduced.
Faculty staff with clinical backgrounds should be encouraged to interact early with the new intakes of medical students from 100 level to stimulate interest in various areas of clinical medicine and surgery. The examination usually conducted at the 100 level is sometimes called the first professional examination. Examinations in first year of medical school is not usually considered as a medical professional one while in some schools, it is, depending on the school.

c. Basic Medical Sciences:

The foundation of medical knowledge is the basic medical sciences subjects of Anatomy, Biochemistry and Physiology. This phase of training lasts for 18 months in most universities in Nigeria in the past but has been reviewed upwards to 2 years by NUC in the recently launched CCMAS [2]. To maximize retention and subsequent application of this knowledge, it must be taught in a clinically oriented manner [3]. Medical education is a specialty on its own and most people who teach in medical schools are not formally trained in Medical Education [3]. This calls to question any flaws in the quality of performance of medical students in the clinical class and subsequently during residency training because the basic medical sciences were not taught in a clinically oriented manner [3].
The MDCN has maintained that Basic Medical Sciences must be taught by medically qualified persons who have the prerequisite qualifications [1,3]. The examination usually conducted is the professional examinations in the subjects of Anatomy, Biochemistry and Physiology.

d. Basic Clinical Sciences:

Basic clinical sciences culminates in professional examinations in Pharmacology and the Pathology Sciences of Histopathology Haematology and Blood Transfusion, Medical Microbiology, Chemical Pathology, and Morbid Anatomic Pathology. This phase is the start of clinicals, and it is the *shortest* of all programs and is integrated with attendance to the clinics for practical clinical service delivery to patients.

e. Clinical Sciences

This involves *clinical postings* to hospitals and will be presented with real patients having health problems. The training is in Internal Medicine, Surgery, Pediatrics, Obstetrics and Gynecology, Community Medicine. This will assess the knowledge of the medical student on how to conduct clinical clerkship, conduct physical examinations and document all treatments of the health conditions.
Most often students are examined in Paediatrics and Obstetrics and Gynaecology about six months before the final professional examinations. The major courses in the final professional MBBS program in Nigeria are Community Medicine, Internal Medicine, and Surgery. In internal Medicine, students would learn the medical practices in different subspecialties disciplines like cardiology, nephrology, gastroenterology, psychiatry, endocrinology, dermatology, neurology, respiratory medicine, and others.
In surgery, they learn all the surgical skills that are expected of any good medical doctor in General surgery, Cardiothoracic and vascular surgery, Orthopedics and Trauma, Pediatrics Surgery, Neurosurgery, Ophthalmology, Plastic and Reconstructive Surgery, **Otorhinolaryngology (ENT),** Radiology, and Anaesthesia,
Orthopedics and Trauma, Otorhinolaryngology, Anaesthesia, Ophthalmology and Radiology are often referred to as Special Postings in Surgery

f. Intercalated Medical Program.

Some medical schools have adopted this method of allowing a first degree in one of the human sciences before proceeding to study medicine. Some allows the students to pursue career in related disciplines up to masters or doctorate degree levels [1,3]

Continuing Professional Development This is beyond the scope of this presentation but is mentioned for completion and to point out that medical education does not end with graduation from the medical schools.[4]

OTORHINOLARYNGOLOGY IN UNDERGRADUATE CURRICULUM AND ITS IMPACT IN THE MAKING OF AN OTORHINOLARYNGOLOGIST

In considering the above provisions of basic medical training in Nigeria, how prepared is a graduate of a Nigerian medical school equipped to manage such patients in his general practice, assuming he did not go for specialist training in ORL? Or how does the training obtained at undergraduate level affect medical practitioners' desire to specialize in Otorhinolaryngology Head and Neck Surgery? I believe that these impact on the making of an Otorhinolaryngologist specialist practitioners.
The quality of care to be offered by a graduate of the Nigeria medical training system will be directly proportional to the quality and scope of academic and clinical exposures received during the basic medical training and the internship periods.
It will be noted that the specialty of Otorhinolaryngology Head and Neck Surgery has continued to evolve from an era where most practitioners are general otorhinolaryngologist as is the practice now to an era where practitioners will be subspecialists in fields such as:

i. Otology and neuro-otology.
ii. Rhinology.
iii. Laryngology.
iv. Paediatric Otorhinolaryngology.
v. Geriatric Otorhinolaryngology
vi. Primary/Community Otorhinolaryngology.
vii. Head and Neck surgery.
viii. Audio vestibular medicine.
ix. Fascioplastics and Reconstructive surgery in otorhinolaryngology
x. Skull base surgery
xi. Endoscopic and minimal access surgery.
xii. Transplantations in Otorhinolaryngology.
xiii. Robotics, Navigation, and computer assisted Surgery in Otorhinolaryngology.

A review of the recently launched Core Curriculum and Minimal Academic Standard (CCMAS) showed allocation of an average of 4 credit units for Otorhinolaryngology. Furthermore, Otorhinolaryngology alongside Dermatology and Radiology were referred to as ultra-short postings. This was only 70% of the curriculum, 30 % was to be developed by various departments as institutional addition without overloading the overall total credit units more than necessary of the existing 448 units. [2]. Otorhinolaryngology, therefore, has the least recommended exposure as a surgical super specialty placing it at a disadvantaged position for the training of the general medical practitioner and subsequently for choice by would be trainee specialists in the medical training system.
This is made worse, if the Otorhinolaryngological courses are taught by other surgeons when there are no available otorhinolaryngology specialists, or interns are not posted to otorhinolaryngology departments for practice exposure and experience during the mandatory one-year internship.
This calls for implementation of integrated curriculum as proposed by the present CCMAS document both vertically and horizontally. The institutional 30% addition will go a long way in addressing these deficiencies.

Table 1: Comparing the recommended credit units per specialties trainings in the CCMAS of specialties of Otorhinolaryngology, Orthopaedics, Ophthalmology and Anaesthesia [2.]

	Otorhinolaryngology 4 credit units	Orthopaedics 9 credit units	Ophthalmology 9credit units	Anaesthesia 6 credit units
Lecture hours	45	60	150	45
Practical hours, clinics, ward rounds, Théâtre sessions	45	135	-	135
Tutorial hours	-	90	-	-
Total	90	285	150	180
Per 10hrs /day of contact	9days	28.5 days	15 days	18days
Per 8hrs/day of contact	11.25 days	35.625 days	18.75 days	22.5days
Per 6hrs/day of contact	15 days	47.5 days	25 days	30days

COMPARISON WITH ORL UNDERGRADUATE TRAININGS IN OTHER JURISDICTIONS

In a Canadian survey where a structured one-page survey was administered to the education directors of all 16 Canadian medical schools, Rotations in otolaryngology were highly variable across medical schools. Mandatory rotations in otolaryngology were identified in only six of the sixteen undergraduate curricula. The average length of clinical experience in schools with mandatory rotations was **4.6 days.** The study concluded that the majority of Canadian medical graduates complete their undergraduate training with minimal clinical experience in otolaryngology [5].

In a United Kingdom study, an online questionnaire was e-mailed, at National Health Service trust level, to 3,544 newly qualified doctors from 30 UK medical schools. Undergraduate ENT exposure, confidence and educational value were measured on a Likert scale. The mean undergraduate ENT exposure was 3.4 days of pre-clinical teaching plus 5.0 days of ENT departmental experience. However, 15.8 per cent of respondents reported no formal departmental ENT experience, and 65.8 per cent would have liked further undergraduate experience. Teaching modalities with a lower perceived educational value were offered more frequently than those with a higher perceived educational value. Graduates felt significantly less confident with ENT history-taking, examination, and management, compared with their cardiology clinical competencies ($p < 0.001$). These results highlighted the lack of UK ENT undergraduate education, and the significant effect this has on junior doctors' clinical confidence [6.]

In another study in UK a postal or online multiple-choice questionnaire with free-text options was distributed to deans of medical schools, to students who had completed their mandatory clinical training, and to ENT consultants in posts in major teaching hospitals as listed by the British Association of Otolaryngologists, Head and Neck Surgeons. The questionnaire aimed to: (1) evaluate the extent of provision of ENT education across UK medical schools; (2) explore students' attitudes towards their ENT experiences; and (3) address the role of ENT consultants in training provision, and their attitudes towards the ability of newly qualified doctors to manage common ENT problems [7.]

A compulsory ENT placement was available to over half (53 per cent) of the students. Ten of the twenty-six participating schools did not offer an ENT attachment. The mean mandatory placement was 8 days. Overall, 38per cent of students reported a satisfactory compulsory ENT placement. Most ENT consultants questioned considered that newly qualified doctors were not proficient in managing common ENT problems that did not require specialist referral. The study concluded that little improvement in the provision of undergraduate ENT teaching was demonstrated. An increase in the proportion of students undertaking ENT training is necessary. Time and curriculum constraints on medical schools mean that optimization of available resources is required.

CONCLUDING REMARKS

Despite the high volume of otorhinolaryngological patients many medical schools have downplayed on the training of undergraduate medical students in otorhinolaryngology. This has affected their capabilities in managing life threatening conditions that require emergency airway management such as foreign body aspiration, upper airway obstruction, wrongly treated as bronchial asthma, loss of hearing from harmful medications and infections and death from deep neck space infections.

RECOMMENDATIONS

1. Increase in duration of undergraduate rotation to a minimum of 4 weeks and maximum of 6 weeks.
2. To encourage elective posting in Otorhinolaryngology
3. To introduce otorhinolaryngology from the earliest clinical posting regularly until graduation
4. To promote research in otorhinolaryngology
5. To encourage community otorhinolaryngology out reaches with medical students.
6. To encourage participation in ORL scientific conferences
7. To provide simulators for several otorhinolaryngological procedures
8. To encourage internship rotation in otorhinolaryngology
9. To improve on teaching methods in Otorhinolaryngology
10. To create a full department of Otorhinolaryngology and develop subspecialty units in every training institution.
11. To encourage and implement postgraduate programs such as MSc and PhD in otorhinolaryngology.

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