

MEDICAL AND DENTAL COUNCIL OF NIGERIA

Guideline On
Minimum Standards

Of Medical and Dental Education in Nigeria.

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Guidelines on Minimum standards
Of
Medical and Dental Education
In
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for

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CHAPTER I

INTRODUCTION

Preamble:

One of the statutory functions of the Medical and Dental Council of Nigeria is to approve the institutions at which courses of training are to be given for persons who are seeking to become members of the Medical and Dental professions as well as the courses of instruction prescribed and the qualifications to be granted by such institutions. Council also has the responsibility for supervising the nature of the instructions and the examinations leading to the qualifications to be granted in these cases (vide Medical and Dental Practitioners Decree No. 23 of 1988, Sections I (2a) , 8(I a & b) and 9 (1,3 & 4), after several reviews, the enabling Act is now CAP M8. In pursuance of these duties, the Medical and Dental Council of Nigeria sends visitation panels from time to time to inspect newly established medical schools with a view to approving formally their training programmes as required by the law. Thus in I 974, and again In 1977, visitation panels from the Council inspected the clinical facilities and programmes of the College of Health Sciences, of the University of Ife (now Obafemi Awolowo University). Similar visitations had also been made subsequently to the medical schools of the Universities of Maiduguri, Port Harcourt, and Calabar, and .also medical Schools of Olabisi Onabanjo and Nnamdi Azikwe Universities.

These Panels duly submitted their reports to Council. Arising from the experience of these visitation panels and discussions of their reports by the Council. It became very dear to Council that the time had come to spell out clear guidelines on the development and maintenance of minimum standards of Medical Schools, old or new, in all aspects of training considered by the Council, to be essential for the efficient practice of medicine and dentistry In Nigeria. Recent developments, such as further increase In the number of medical schools, increased attrition of medical academic personnel, global advancement in the professions of Medicine and Dentistry and economic policies of government have made it necessary to further revise these guidelines.

DEFINITIONS:

It is necessary to explain the use of the terms "Medical School, Medical Education" and "Standard" for the purpose of this exercise. The terms "Medical School". "School of Medicine", "Faculty of Health Sciences", "College of Medicine" and "College of Health Sciences" are used synonymously in Nigeria, sometimes in a restrictive sense, with reference to institutions which cater for the education of medical doctors or physicians and dental surgeons only, at other times in a comprehensive sense with reference to institutions which cater for the training of a wide range of health personnel doctors, dentists, nurses, pharmacists, physiotherapists, etc. The Medical and Dental Council of Nigeria is concerned with the training of doctors and dental

surgeons only. Therefore, its statutory functions as regards training relate to that part of the Medical School, Faculty or College of Health Sciences, which deals with the education of the physicians and the dental surgeons, though it recognizes the desirability of such schools, faculties or colleges to train other cadres of health personnel to maximize their potentials and meet national needs.

Two dictionary definitions of the term "Standard" are relevant to this exercise. The Concise Oxford Dictionary defines the terms as "Degree of Excellence etc, required for a particular purpose, things recognized as model for imitation". Webster's Third New International Dictionary defines it as "Something that is established by authority, custom or general consent as a model or example to be followed; a definite level or degree of quality that is proper and adequate for a specific purpose".

Two major themes run through these definitions. The first is that of a model of excellence which is to be imitated or followed. The second is that the model of excellence is accorded such recognition for specific purpose. This implies that STANDARDS must therefore be related to defined OBJECTIVES, and any attempt to prescribe standards must begin with a statement of objectives. In a comment on medical education, Mosha Prylwes wrote in 1973 "Medical Education is not an aim itself, it is a mission oriented endeavour that can be judged only by its contribution to society predominantly by improving a nation's health and by developing new models of medical care". Thus, standards in medical education must be related to the needs of Society, needs which may vary with time and from one part of the world to another. The same concept was aptly expressed by the General Medical Council of the United Kingdom of Great Britain and Ireland when it stated that: "The Council's responsibility lies in its duty to indicate the general requirements and the standards which in contemporary conditions, ought to be achieved and maintained in the public interest".

Thus, it is clear that although there are fundamental requirements of medical education which may be considered to be universal in their applicability, much cognizance must be taken to the health needs of a nation and of the organization of health services to provide those needs in any attempt to prescribe the standards of medical education within the nation.

Case for Collaborative Effort in the Planning of Medical Schools in Nigeria

In Nigeria for the foreseeable future, both Universities and Medical Schools or Colleges of Medicine/Colleges Health of Sciences, are likely to continue to be conceived, planned, developed and financed by the Government, be it Federal or State even though few private medical schools, are on board now. The Medical and Dental Council of Nigeria is an agent of Government, performing its statutory functions by the authority of the Government. In practice therefore, it is undesirable for Council to exercise its powers to deny recognition to a Medical College conceived, planned, developed and financed by the same Government. In the last analysis therefore, in

respect of its functions of approving and recognizing Medical Schools and Colleges within the .country, there is a danger that the Council may become a mere rubber." stamping agent.

To avoid such an undesirable development, it is essential that the Council's style or operation in respect of this particular function must change from one of inspection, report and judgment, to one of active involvement In the planning process of these Medical Schools and Colleges in order to ensure, In a prophylactic way, that its guidelines of minimum standard are followed. To this end, two things must happen:

- (a) These guidelines of Minimum Standards which Council expects all prospective Institutions to attain must be clearly defined and widely circulated within all Government and University circles.
- (b) A machinery must be devised for involving the Medical and Dental Council of Nigeria along with other relevant agencies in the initial plans of every Medical School. In the current administrative line up these agencies are:
 - The University Faculty, Senate and Council.
 - The National Universities Commission:
 - The Federal Ministry of Health and Social Services to which should now be added the Medical and Dental Council of Nigeria.

Rather than expect the University/Institution to deal with each of these bodies in turn in any expedient order as currently happens, a National planning machinery involving all of them together is desirable, may be mandatory for efficient, effective planning.

CHAPTER II

DEVELOPMENT OF THE BASIC PHYSICAL AND OTHER TRAINING FACILITIES: HISTORICAL PERSPECTIVE

One of the three major critical factors on which the question of adequacy or otherwise of the standard of training in any medical school depends on the availability of physical facilities in the form of buildings and equipment, both in terms of capital as well as recurrent costs. The other factor being availability of teachers, and the quality of students selected. This last factor (student selection) will be discussed later, but this chapter and the next will examine the issue of basic physical facilities that are adequate for the standards expected of the graduates at the end of their training. In this connection, it is pertinent to recall that when the Ibadan Medical School was established in 1948, the original intention was to expand and to improve the physical facilities of the Government Hospitals in Ibadan (Adeoye, Jericho General, Jericho Annex and the Infectious Diseases Hospitals) to a standard acceptable to the University of London and the General Medical Council of Great Britain whose degrees were expected to be awarded to the students due to be trained at these institutions. The proposed improvements and expansions were duly carried out, but a visitation from London in 1950 found, after due inspection, that the physical facilities were below the standards required for students training for the London MBBS and it was the report of the visitation that forced the Ibadan students to be transferred to teaching hospitals in London and other centres in the U. K. for their clinical training for a number of years until the time when an entirely new 500 bed teaching hospital now University College Hospital (UCH) Ibadan was built and opened in April, 1957.

The joint responsibility of the University Authorities in Nigeria and the Medical and Dental Council of Nigeria in ensuring that the standards of the institutions intended for the training of medical students in Nigeria are adequate for the purpose is no less today than that of their counterparts when faced with Ibadan situation in the 1950's. Between them, they share the onerous duty of making sure that the desirable objective of establishing more and more medical schools in different parts of the country is matched with the provision of sufficient funds to guarantee the maintenance of the same appropriate standards of medical education already got by older schools such as Ibadan and Lagos. In fact, the Medical and Dental Council of Nigeria had, as far back as 1972 laid down a set of minimum requirements which a teaching hospital must have by way of physical facilities with the same objective in view. This list has served as useful guide up till 1984 when it was revised, especially in situations where Government General Hospitals have had to be taken over or use as teaching hospital, and pressure has been put on the authorities to convert such institutions quickly into teaching hospitals almost overnight. Thus Enugu Teaching Hospital, Ahmadu Bello University Teaching Hospital University of Calabar Teaching Hospital, University of

Ilorin Teaching Hospital, University of Port Harcourt Teaching Hospital, Obafemi Awolowo University Teaching, Hospital and Ogun State University Teaching Hospital have had to be developed in this fashion. It has become necessary, however, to review this list and update the requirements, in the light of experience to enable the new medical schools currently being established, to draw readily from the experience of the older medical schools in the planning and development of the basic physical plan of their medical schools.

Basically, there have been two approaches, to the problem. IBADAN, BENIN and later MAIDUGURI medical schools have had the unique advantage of having new teaching hospitals that were specifically planned, built and equipped for the purposes before the first set of clinical students were ready to start their clinical training. On the other hand, Ahmadu Bello and Enugu Medical Schools have been turning out medical graduates since 1971 and 1975 respectively, while the arguments about building new teaching hospitals for them have gone backwards and forwards, and are still doing so till the present time. It is more than likely that the latter approach namely that of asking the new medical schools to take over existing hospitals in their, immediate neighbourhood and to modify them to suit their requirements is the one that will commend itself more readily to the policy makers in the immediate future for; various reasons. Therefore, a very clear duty devolves on the Medical and Dental Council of Nigeria to lay down clear and unequivocal guidelines and conditions which will safeguard standards of medical education in the country in such circumstances.

The second major critical area which has a bearing on the question of minimum standards of medical education in Nigeria is the problem of recruitment of teachers. The problem of the lack of teachers in some vital areas of the training programme in some of our medical schools is very acute, and is likely to get worse as more and more new schools are established. These vital areas include the basic and pathological sciences, forensic medicine, the public health disciplines and many of the surgical and medical specialties such as anaesthesia ENT; Psychiatry and Pathology.

B. GUIDELINE OF DEVELOPMENT

In view of the hard lessons of history outlined above, Council is of the firm opinion that medical schools must not be subject to adhoc establishment by political decision without adequate planning. As indicated above, a planning machinery involving the Institution, the National Universities Commission, the Federal (State) Ministry of Health-Directorate of Planning, Research and Statistics, and Medical and Dental Council of Nigeria must be a sine-qua-non of the genesis of any medical school. Furthermore, in the Nigerian context, it is necessary to insist that realistic planning of medical schools must be based on "Two fundamental data base:

(a) POPULATION BASE

An Ivory Tower Medical School with no involvement in or commitment to service has no place in the Nigerian scene, bearing in mind the practical bias incorporated in the

National objectives of medical education. In order therefore to ensure the achievement of this objective and to ensure the relevance of the medical school, functionally and developmentally to the problems of health care. The Teaching Hospital should relate to the local population through the State Health Advisor Committee as scheduled in Chapter 7, section 9 of the National Health and Strategy to achieve for all Nigerians (1988 Edition).

On this basis, the service, teaching and research programmes within the medical school organization would remain actively relevant to the health problems and needs of the target population.

Ideally all institutions within the network should be administered together but flexible arrangement should permit of varying patterns of relationship. The teaching hospital administered separately may work out contractual agreements enabling its team of students and teachers to work within the basic Health Units and Secondary Care general hospital administered independently of the medical school, etc.

(b) STUDENT INTAKE

The second fundamental data base that should guide the size and developmental sequence of any medical school is the population it is expected to hold.

Both criteria together (target population base, and maximal student intake) would determine the size of the medical school in respect of both teaching and service facilities. Availability or resources will of course then determine the rate and sequence of development starting from the minimal viable beginning to the optimal maximum size.

Assuming that a very large medical school would train different cadres including doctors, dentists, nurses, pharmacists, laboratory technologists, physiotherapists and public Health Personnel of various categories, at the diploma, undergraduate and post-graduate level, the attached scheme gives a maximum student population of approximately 3,000 with 320 in prelim, 2, 150 undergraduate and 350 post-graduate and diploma students.

	Prelim	1	2	3	4	4	Total
Medical	100	150	150	150	150	150	850
Dentistry	20	50	50	50	50	50	270
Nursing	60	100	100	100			360
Physiotherapy	20	50	50	50			170
Med. Lab.Tech.	20	50	50	50			170
Pharmacy	20	50	50	50			170
Postgraduate & Diploma	80	100	100	100			380
	"	"	"	"			

MINIMUM PHYSICAL FACILITIES

As indicated under the discussion of Medical Curriculum, the mere presence of physical facilities is not enough. They must be seen to subserve the objectives of medical education, i.e. they must be such as to ensure the delivery of the subject matter in the time required to the level desired. Their adequacy must be assessed in relation to the minimum standards demanded in relation to these aspects of curriculum as well as the relation to the user population of students and patients.

BASIC FACILITIES

Student accommodation

A certain amount of political policy decision goes into the consideration here. However, there is no denying the necessity for students in certain stage of various clinical clerkships being resident within the hospital premises so as to be available to function as part of a caring team round the clock.

- (i). All medical students should be accommodated in the University hostel. Not more than two students should share a room for health reasons.
- (ii) There should be provision of hostel accommodation in the hospital for clinical students.

2. Student Transportation.

There should be provision of transport to convey the students to their primary Health Care and other postings.

3. Recreation Facilities.

Sporting and recreational facilities should be provided for the students. Active social life should be encouraged through provision of appropriate facilities.

4. Lecture Room

There are advantages in organizing teaching in small group discussion and simulation techniques, using a fair number of small rooms.

- (i) A minimum of two lecture halls, each large enough to accommodate an annual intake is mandatory.
- (ii) There should be at least three small discussion rooms (capable of taking fifteen to twenty students) for each year of the curriculum.
- (iii) One large auditorium, preferably in a hospital site, large enough to take all clinical students (i.e. annual intake x 3 postgraduate students and clinical teaching staff, should be provided). The halls should have audiovisual facilities.

BASIC MEDICAL SCIENCE LABORATORIES

For every subject listed, there should be at least 2 (two) square metres of laboratory space provided with worktop and equipment cupboard space for every student. These of course need not be separated for each subject thus making it possible to maximize the use of facilities by sharing occurs either on account of lack of funds or because of a deliberate educational policy. The appropriateness of such sharing should be clear e.g. Histochemistry, Histology, Histopathology, Haematology may well share the same laboratory space, with appropriate equipment for each being stored and laid out only when needed for use. Appropriate store and preparation rooms then becomes an essential part of the requirement. It would be inappropriate to use the same laboratory space for microbiology, gross anatomy and/or human physiology. Each medical school should have its own separate department of Medical BioChemistry, Physiology and Anatomy.

Laboratories

1. Teaching laboratory for students
2. Multipurpose laboratories. This should be specially planned right from the beginning
3. Service laboratories.

Anatomy and Embryology

This should contain body store, preparation room, prosecution room, embalming room, museum, dissection room for 8-10 students per cadaver, tutorial room, general store, staff offices, etc. There should also be:

1. Embalmed bodies - 1 cadaver per set of 8 students
2. Equipment Trolleys
3. Electric Embalming Machine
4. Bone cutting equipment - Electric saw/drill
5. Articulated and unarticulated skeletons
6. X-ray viewing boxes
7. Air-conditions for the dissecting rooms and air extractors.
8. Models
9. Slide of sections
10. Slide projectors
11. Toilet facilities
12. Changing room
13. Shower Room etc.

(ii) Histology

There should be an air-conditioned store where consumable material should be kept, preparatory room, teaching laboratory for student, microscope store or

underbench cupboards. wash up room work benches with zinc or Formica shelves for glass ware. burners etc.

1. Microtome (2) Rotary/Sledge
2. Microtome Knives (3)
3. Light Microscopes I per 2 students
4. Vacuum Pump
5. Dissecting Microtome
6. Cryostat with Microtome (I)

(iii) Animal House

There should be for all the laboratories. a common and properly maintained animal house with an adequate number of animals.

(iv) Biochemistry

There should be an air-conditioned store where consumable materials should be kept preparatory room teaching laboratory for students etc. There should also be:

- | | | | |
|----|-------------------------|---|-------------------|
| 1. | Centrifuge | - | 6 |
| 2. | Ultracentrifuge | - | 2 |
| 3. | Electronic Balances | - | 2 |
| 4. | Heating Block | - | 8 |
| 5. | Vacuum Pumps | - | 2 |
| 6. | Spectrophotometer | - | 1 per 20 students |
| 7. | PH. Metres | - | 1 per 20 students |
| 8: | Thermostatic Water Bath | - | |

(v) Physiology

The physiology department should have a small laboratory for animal experiments and a large laboratory for human experiments. There should be an air-conditioned store. a preparatory room wash room material store. etc. The laboratory should be equipped with a polygraph.

- | | | | |
|-----|----------------------|---|-------------------|
| 1. | Spirometre | - | 1 per 20 students |
| 2. | Vitalograph | - | 1 per 20 students |
| 3. | Peak Flowmetre | - | 1 per 20 students |
| 4. | Gas Metre | - | 2 |
| 5. | ECG Machine | - | 4 |
| 6. | Spectrophotometres | - | 1 per 20 students |
| 7. | Physiograph Recorder | | |
| | Transducers | - | 1 per 20 students |
| 8. | Oscilloscopes | - | 4 |
| 9. | Centrifuges | - | 6 |
| 10. | Blood Gas Calipers | - | 2 |

11.	Audiometer	-	2
12.	Water Baths	-	2
13.	Electronic Weighing balance.	2	
14.	Flame Photometer	-	
15.	Microcentrifuge	-	
16.	Water Distiller	-	
17.	Bicycle ergometer	-	
18.	Snelle's chart	-	

(vi) Research Laboratories

These laboratories should have integrated research facilities and should be multidisciplinary. They should be centrally and supervised. They should serve as alternative to separate specialty laboratories.

**(vii) Learning Resources Unit
Library**

There should be an air-conditioned separate medical library located in the medical school with at least 5,000 volumes of medical books, and a minimum of 50 current journals covering the various specialties and including local medical publications. Provision should also be made for photocopying services for the students and for inter-library book loan. There should be air-conditioned reading facility to sit a minimum of one class of medical students at a time. Reading facilities may also be provided in other places outside the library.

(viii) Audio Visual Production Unit

The unit should be provided with Hard and Soft wares

(a) Hardware:

Soft ware production equipment, public address system, magnetic tapes, tape recorders, slide projectors (at least two, video cassette recorder (VCR), Cine camera, overhead projectors, screen etc.

(b) Software

Each Institution should be able to produce its own soft wares and to acquire commercially available teaching soft wares. It is advisable that the whole learning resources should be housed together and run as a central unit. However, where this is not possible, every unit could be run on its own.

(ix). Teacher Education Unit:

This should serve as a special unit for staff training in production of teaching materials, teaching techniques, examination techniques etc.

ADMINISTRATION FACILITIES

A minimum provision should consist of:

- 1 . A reasonably spacious .suite of offices for the Dean and his staff including those looking after staff and students welfare such as Accounts staff. educational administration staff, engineering staff and those looking after the physical facilities and plants.
2. Office and laboratories for teaching staff related numerically to the minimum staff/student ratio as laid down in another part of this document.

LEARNING RESOURCES FACILITIES

A medical library with designated and functioning section:

- (a) Reference Books.
- (b) Periodicals
- (c) Circulating Textbooks
- (d) Library Loan Service
- (e) Audiovisual materials
- (f) Back stack

It should not be enough to have a reading room with a collection of textbooks, periodicals, etc, with no effective library service.

When a medical school has multiple hospital bases or a hospital separated from the main teaching areas, the medical library should visibly extend, at least its periodicals and library loan service, to every hospital in the complex.

STAFF REQUIREMENT

There must be at least two full time academic staff of the minimum status of Reader (Associate professor) and senior lecturer in each department and at least one technical staff for a student population of not more than 30 per class. This is necessary to ensure that the minimum staff on ground will be able to ensure adequate development of the department. For classes larger than 30 students, there must be one additional academic staff for every 20 additional students and one additional technical staff for every 30 additional students. A minimum of two academic staff of at least the status of reader and senior lecturer and one technical staff, is mandatory ab initio.

By Council's regulations all departments are to be headed by appropriately qualified academic staff. In this regard, all clinical departments must be headed by medically qualified persons who are appropriately registered with, and licensed by the Council. Non-medically qualified persons may not head clinical departments without the risk of the institution losing its accreditation automatically.

Council also requires that the head of a medical training institution, by whatever name called; Provost or Dean shall be a registered and licensed Medical or Dental Practitioner of appropriate seniority. This is because it is to the Provost or Principal of a medical school that Council delegates the responsibility for the proper training of medical and dental practitioners and such a person must logically be answerable to Council.

LENGTH OF INSTRUCTION

Council requires a minimum of 18 calendar months of instruction, excluding period for holidays for the completion of Basic Medical Science courses.

HOSPITAL FACILITIES

Physical Facilities

Wards: The basic requirements for safe ventilation, easy access, professional medical functions, ward surgical functions, prevention of cross infection, patient's, physical comfort and social needs must be provided. Ward facilities should include Nurse~' station, sister's office, doctors' office, side room laboratory, linen store, splint room (where necessary) treatment room, kitchenette, maximum care facility, patients' day room, clean utility/sterilizing room, dirty utility room, slide room, as well as toilets and shower rooms.

Functional Provisions:

Adequate lighting, night lighting, circulation space between beds, adequate passage ways and doors, patients' eating facilities visitor's reception facilities, patients' movement facilities, wheel chairs and stretchers, medical record trolleys, drug trolleys, drug cupboards, D.D.A. cupboards, dressing trolleys, linen trolleys, medical procedure trolleys and appropriate equipment (e.g. for sigmoidoscopy, lumbar puncture, venopuncture, cut down, thoracocentesis, paracentesis, catheterization, wound dressing, percutaneous biopsies, etc). There should be a minimum of two doors in a ward. Provision should also be made for corridors.

There must be separate wards for each of the main specialties: Medicine. Surgery. Obstetrics & Gynecology and Pediatrics, separate male and female wards in medicine and surgery.

STAFF-STUDENTS-BED RATIO

STAFF-STUDENTS-BED RATIO

MINIMUM NUMBER OF CLINICAL DEPARTMENTS	MINIMUM NO. OF FULL TIME CONSULTANTS PER DEPARTMENT	MINIMUM NO. OF SENIOR RESIDENTS. PER DEPARTMENT	MINIMUM NO. OF JUNIOR RESIDENTS PER DEPARTMENT	MINIMUM NO. OF S. H. O PER CONSULTANT
1. Gen Surgery including Trauma! Orthopaedics, Ophthalmology, Orthorhino-laryngology	5	3	2	2
2. Obstetrics and Gynaecology	3	3	2	2
3. Internal Medicine	3	3	2	2
4. Paediatrics	2	2	2	2
5. Mental Health	1	1	2	1
6. Accident and Emergency		1	3	2

MINIMUM NO. OF CLINICAL DEPARTMENTS	MINIMUM NO. OF OFFICE PER CONSULTANTS	MAXIMUM NO. MEDICAL STUDENTS PER BED	MAXIMUM NO. of BEDS PER CONSULTANT	MAXIMUM NO. OF BEDS PER CONSULTANT
I. Cen Surgery including Trauma! Orthopaedics, Ophthalmology, Orthorhino-laryngology	2	5	10	20
2. Obstetrics and Gynaecology	2	5	10	20
3. Internal Medicine	2	5	10	20
4. Paediatrics	2	5	10	20
5. Mental Health			10	15
6. Accident and Emergency			10 (Observation Beds)	

I. THEATRES

The entrance to operating suite must be adequately secluded from general hospital traffic. The patient and staff flow within the suite must be such as to eliminate contamination of the operating rooms, and sterile trolleys (e.g. A sterile preparation room should serve adjacent operating room(s) only, and not entail transport of sterile surgical trolleys through general traffic zone).

The theatre suite should feature male and female entrances and changing rooms opening into the "clean area". The "clean area" of the theatre should feature a circulation corridor having the surgeons lounge, nurses lounge, theatre coordinating centre, recovery room and the "sterile area". The "Sterile area" should consist of the operating room and its feeder anesthetic room/corridor, the scrub sink, and the preparation room as well as an exit through a dirty utility area to a service corridor. A theatre suite with a viewing gallery is desirable.

The patient's entrance and trolley bay should also open into the clean circulation corridor on the one hand, and the recovery room on the other, for the exit of post operative patients from the theatre area. Functional provisions in theatre should at least include:

- General Surgical facilities
- Urological Surgical facilities and standard anesthetic and cardio respiratory resuscitative equipment and supplies.

- For every operating room in use there should be two recovery beds in the recovery room.
- Constant supply of running tap water, sterile distilled water, anesthetic gases and drugs, surgical gowns, gloves, shoes, masks, c drapes, swabs and suture materials are essential and Institutions seeking accreditation should have a demonstrably viable mechanism for ensuring continuity of these supplies.

2. CSSD

Full CSSD facilities should be provided.

3. OUT-PATIENT SERVICES

Each major discipline should have a minimum of 2 clinic sessions per week, and each minor discipline at least 1 clinic session per week.

There should be a minimum of 5 clinic attendances per student per session, and a maximum of 30 (the learning potentials of an overcrowded clinic is considerably diminished). Adequate space should be made available to the medical students.

4. RADIOLOGICAL SERVICES

The Radiological Department in a medical school at the minimum, must be capable of

the following diagnostic services:

- (a) Routine plain radiogram of any part of the body.
- (b) Routine skeletal films
- (c) Gastroenterological contrast studies with screening
- (d) Genitourinary contrast studies
- (e) Simple angiographic studies
- (f) Ultra sonography

When there are multiple hospital bases each hospital must be able to provide these services or Council must be assured of reliable referral services (transport and communication logistics) to bring these services to those units without a full complement of facilities.

It would be desirable but not mandatory to have cine studies, angiocardiology and tomography.

The size of the department should be related to the volume of diagnostic services. There should be at least I X-ray unit per 100 beds (not counting MX II and portable units).

5. PATHOLOGY SERVICES

Every medical school should provide at the minimum, the following laboratory service on a routine basis.

(A) Haematology and Blood Transfusion

Blood transfusion services.
Simple haematological diagnosis.
Haemoglobin genotype and H.I.Y. Screening.
G6-PD determination

(B) Chemical Pathology

Serum Electrolytes and Creatinine estimation, Protein Electrophoresis. Blood Sugar and Urea, Acid and Alkaline phosphates and Liver function tests ate.

(C) Immunology

Basic Serum immunoglobulin determination and complement fixation test.

(D) Medical Microbiology

Simple smears and staining of all of bacteria.
Culture, identification and antibiotic sensitivity of all Parasitology.

(E) Histopathology

Autopsies

Histopathological diagnosis with routine and special techniques. Again, where a medical school has many hospital bases, every hospital must be able to provide these routine services, or Council must be assured of reliable referral logistics to bring these services to the units without a full complement of facilities.

In any case, diagnostic tests that are usually required on a 24 hour emergency basis e.g. blood typing and crossmatching, sickling test, CSF studies, PCV and WBC, Serum Electrolytes and simple smears and staining of microorganisms, must be provided in every hospital.

6. NURSING SERVICES

Whether or not it uses the services of student nurses, a teaching hospital must have the following complement of nursing personnel.

- (A) There should be an adequate number of nurses as would be determined from time to time
- (B) Every major clinical department in each hospital, (i.e. surgery, Medicine, Pediatrics, Obstetric and Gynecology), should have at least one supervisory staff of Senior Nursing Sister etc.
- (C) Whatever, its staff complement of nurses or Aids, every service area, such as: out-patient clinics and theatres, should have at least one senior supervisory nurse of a senior nursing sister cadre, to establish and maintain acceptable standard of nursing practice in the area.

7. PHARMACY SERVICES

Every hospital, be it sole, or a component of a complex, must have a Pharmacy department. The staff strength should be a factor of the service load, at least one registered pharmacist per 50 beds.

Every hospital pharmacy, must at least have a list of essential drugs (if not a Hospital formulary), agreed by clinical staff to be in common use and which therefore must be in constant supply. Council must be satisfied on the logistics for ensuring the constant supply of all essential drugs.

8. MEDICAL RECORDS DEPARTMENT

Every medical school must have a medical records department featuring at least:

- (a) A reception/registration area
- (b) A record audit room.
- (c) A record compilation room, (ideally, but not necessarily, provided with dictating machines).

- (d) A pool of record Clerks and typists.
- (e) A medical records library
- (f) One trained medical records officer.

Irrespective of how many hospital bases a medical school has, each one must have facilities of (a) and (e) above.

- (g) Computerization of the department.

9. CATERING SERVICE

A catering service providing for both the patients as well as students and staff must be part of the minimum features of any teaching hospital, be it sole or part of a complex.

10. A SOCIAL WELFARE SERVICE

An active medical and psychiatric social welfare service must be present both for teaching and especially, for service in any teaching hospital. The staff complement must be a function of the service load. There should be one medical social worker for every 100 bed hospital, (ideally, it should be a factor of the population being served).

11. HOSPITAL LAUNDRY

An efficient linen and laundry service is required. It is possible for this to be provided on contract by private organization. Council must be satisfied that function is ensured whatever the logistics.

12. A CENTRAL PURCHASING AND SUPPLIES UNIT

Ample storage space and an effective logistic support for purchasing and supply of equipments, drugs and supplies must be in evidence.

13. PHYSICAL WARDS

The physical structure of the wards must be such as to lend itself to efficient and effective nursing practice, and cleanliness.

There should be good ventilation, provision of water, wash hand basins, toilet facilities and mechanism for effective and sanitary disposal of human waste.

There should also be facilities for staff and students doctors' room, nurses' room and student work-up room.

14. ACCIDENT AND EMERGENCY UNIT

Every teaching hospital, whether sole or part of a complex, must have an adequate and effective Accident and Emergency unit featuring:

- (1) Reception/Registration area
- (2) Ample Triage Room
- (3) Treatment Rooms. equipped with treatment coaches.

- (4) A minor operating theatre
- (5) A fracture-setting room (ideally with an adjoining X-ray unit).
- (6) A resuscitation room.
- (7) A recovery room
- (8) Emergency drugs stocks
- (9) Ambulance service

Such a unit must also have demonstrable logistic support for providing 24 hour coverage.

15. PRIMARY HEALTH CARE FACILITIES

In Nigeria Post 1975, every medical school accepts and contributes to the national concept of Basic Health Services. Every medical school must therefore, adopt at least one local government area or, better still, its population base, and supervise and coordinate its primary health service facilities, using such facilities as physical basis for the schools.

There should be no need for the concept of a hospital general out-patients department if this basic health service programme is well developed and adhered to.

CHAPTER III **NATIONAL OBJECTIVES IN 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.

The overall objectives of medical education in any country will depend on the answer to the basic question: "What is the role expected of the doctor after graduation?" "Will he be a general practitioner. a future research worker. a future teacher. a future specialist. or all of these? The answer will depend on many variables such as the needs of the country. its resources its medical geography etc. 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:

- (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 practically all patterns of medical education but in different proportions and with different degrees of emphasis. Urgent needs of a social nature sometimes result in putting the 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.

The realities of the Nigerian situation are that almost immediately after graduation the Nigerian doctor is required to assume professional responsibilities far in excess of those which his/her counterpart in the more developed countries would be expected to carry immediately after graduation.

Nigeria has the largest population in Africa. It has a very high rate of population growth, a low doctor population ratio, and relatively low per capital income. The vast majority of the people are illiterate and live in rural areas. These facts notwithstanding, the Federal Government has committed itself to a policy of making primary health care available to the entire population. Consequently, it is necessary to reflect these realities in our national philosophy and objectives of medical education, and to take them fully into account in the formulation of minimum standards in our medical training programmes. The aim of medical education in Nigeria must be to develop a careful balance between the two categories of objectives stated above, emphasizing clear and unmistakable responsibilities which the doctor will be expected to assume soon after graduation. This, therefore, must be the national goal in medical education. It is not good enough in our circumstance for a medical school to train doctors only, without reference to the need for supporting staff, such as laboratory scientists, radiographers, public health inspectors, nutritionists, health educators, etc.

The specific objectives of medical education in Nigeria should be:

- (a) To provide a sound scientific and professional basis for the training of doctors capable of working anywhere in Nigeria 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 community service.
- (e) To produce doctors who would satisfy internationally recognized standards, and who could undertake further training towards specialization anywhere in the world.
- (f) To produce doctors with sufficient managerial ability to play a leadership role in

health care delivery.

CHAPTER IV

ACCREDITATION AND MONITORING PROGRAMME

Having laid down the guidelines on minimum standards, and mindful of the prophylactic rather than judgmental role it must now play, Council stipulated the following yardsticks, sequences and procedures for assessing the compliance with these established guideline in the operation of the medical schools.

A. Time Table of Assessment: This should best be conceived as the timetable of the prophylactic involvement of Council in the development of medical schools.

Step I

Once the proposal to establish a College of Medicine in a University is formalized, the Vice Chancellor should communicate this proposal to the Medical and Dental Council at the same time as to the National University Commission (NUC) and the directorate of planning of the Federal Ministry of Health and Social Services.

Step II

The Registrar of the Council sends the copy of the Council's Guidelines of Minimum Standard (this document) to the Vice Chancellor and at the same time initiates consultation with the National Universities Commission and the Directorate of Planning at the Federal Ministry of Health and Social Services.

Step III

Continuation of detailed planning operations in concert by the University, the Medical and Dental Council, the National Universities Commission and the Federal Ministry of Health and Social Services, in coordination with the national planning machinery.

Step IV

In the light of the development in Step III, the Registrar of Council arranges the visitation time table (or the medical Education Committee of Council, in consultation with the Dean of the Medical School concerned, and according to the following sequence.

1st Visitation

Before the first set of students are admitted for pre-clinical course. Usually called Advisor. Visit.

2nd Visitation

During the 2nd Pre-clinical year, before writing first MB examination.

3rd Visitation

During the first clinical year of the first set of students, to evaluate facilities for clinical training. after writing second MB examination in basic clinical sciences subjects of Pathological sciences and Pharmacology.

4th Visitation

During the final year of the first set of students before writing final MB examinations. In the course of this visitation the examination/assessment of this first set of students should be observed by appointed Council observer.

Subsequent Visitation

Every 5th year following the 4th visitation, but Council may arrange visitation to an institution when there is good reason for doing so. Such as infringement on minimum standards.

Any accredited institution which willfully foils as scheduled visitation by Council and fails to accept visitation within ninety days of the date previously given by Council, shall automatically lose its accreditation status.

Therefore, whenever dates of accreditation visitation proposed by Council are not suitable for the authorities of any institutes, the members must proffer new date acceptable to Council within the above time limit. Should they fail to do this the institution would stand disaccredited.

The accreditation of new medical school would be effective from the date accreditation is granted and not from the date such a school decided to be admitting students without due .accreditation.

The process of each visitation should feature:

- (i) The completion of specific questionnaires seeking Information on the state of the art in the institution in respect of the specific criteria outlined in these minimum standards.
- (ii) Inspection of the facilities In the school
- (iii) Interviews with the staff;
- (iv) Interviews with students, at the discretion of the visitation panel.

The completed questionnaires and a summary of the findings would then be presented to Council (through Medical Education Committee) after each visitation to enable it decide on the fate of the institution.

In practice, more often than riot, the decision on the minimum level of general education required of students wishing to enter medical schools, is not optimally related to the medical school curriculum, but to the general format of secondary school education in the country.

The following secondary school subjects are deemed prerequisite to medical education: Biology: Physics: Chemistry: Mathematics and English.

Prospective medical students must pass the West African School Certificate or the Senior Secondary School Certificate Examination or any equivalent examination, Such as National Examination Council (NECO), with at least Credit level passes in the above five subjects.

They must then either:

1. Pass the JAME Joint Admission and Matriculation Examination) for admission into the University preliminary (premedical) year or
2. Secure exemption from the JAME 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.
3. Subject to the co-ordinating regulations of the JAME, it shall be the right of the Medical School to select candidates for final admission to their institutions from among eligible candidates who possess these minimum requirements. The selection of the students should take into consideration, not only the academic performance as indicated above, but also the character, aptitude and personality of the candidates visas-vis the requirements of the future practitioners of medicine. Council considers a successful performance at the aptitude, character and personality evaluation interview a necessary requirement for a student wishing to enter a medical school.
4. At the end of the pre-medical programme, a definitive selection for admission to the Medical Schools would be determined as follows:
 - (1) Students must obtain a pass mark of 50%
 - (2) A creditable performance should also be obtained in attitudinal structure rating. (Institutions must be able to demonstrate, or show evidence of, how this is being done by them).Those who fail to meet these requirements may be encouraged to pursue a degree course in the sciences.

Curriculum Planning:

The planning and evaluation should be designed in such a way that there should be clear cut objective which must be in evidence and should be evaluated from time to time.

Course Unit System:

Examination by Course Unit System is not considered feasible under the present condition and so should not be made compulsory and this guideline does not encourage credit unit system.

CHAPTER VI

SUBJECT MATTER, CURRICULUM AND COURSE CONTENT

Some medical schools follow the traditional pattern of arranging their subjects under Pre-Clinical and Clinical programmes with definite time allotments to each area, the latter taking at least 36 months. Some others tend to follow an integrated pattern in which there is a definite overlap between the two and students may begin to be exposed to the clinical area from their first year.

The Medical and Dental Council of Nigeria recognizes that there is a clear distinction between the Basic Medical Sciences, Basic Clinical Sciences and the Clinical Sciences. It properly and prefers to specify the disciplines which must be included in the curriculum of an approved medical school as follows:

- A. BASIC MEDICAL SCIENCES**
Human Biology(including Anatomy, Histology, Physiology, Organic Chemistry/Biochemistry, Genetics, Medical Sociology, Psychology).
- B. BASIC CLINICAL SCIENCES**
Medical Biology which includes Pathology; Morbid Anatomy or Histopathology, Microbiology and Immunology, Haematology, Chemical Pathology, Epidemiology, Biostatistics including computer appreciation and Environmental Health.

GENERAL OBJECTIVES

The Curriculum for the Basic Medical Sciences should include all science subjects basic to the practice of medicine with special emphasis on those areas which are relevant to clinical medicine.

- 1. ANATOMY**
The anatomy curriculum: include the following:
- i. General anatomy.
 - ii. Regional/gross anatomy
 - iii. Microscopic anatomy/Histology
 - iv. Developmental anatomy/embryology
 - v. Genetics

Throughout the course structure must be related to function. The course of gross anatomy should be taught synchronously with Embryology and Histology in order to emphasize the morphological and functional integrity of the body as a whole appropriate clinical correlation will be emphasized to form the basis of clinical procedure in the practice of medicine. Understanding normal structure and function

must be to permit recognition of disturbances in such function as well as understanding of the developmental process of such disturbances.

- i. General Anatomy- Anatomical position, terminology of anatomy in particular and medicine in general study of skin, fascia, bones, joints, muscles, nerves and blood vessels.
- ii. Regional/Gross Anatomy- includes the study of:
 1. Upper limb
 2. Thorax
 3. Abdomen; Pelvis/Perineum
 4. Lower limb
 5. Neuroanatomy
 6. Head, face and neck

The students will be taught 'Living Anatomy' as an introduction to physical examination. Emphasis will be placed on dissection of the cadaver, study of osteology, kinesiology, position extent and functional integrity of organs and systems, and the anatomical basis of clinical problems where such exists.

iii. Microscopic Anatomy/Histology

- a. General Histology
Cell structure and function, basic tissues of the body epithelium, connective tissue including specialized connective tissue of cartilage, bone and blood, muscle and nervous tissues.

- a. Systemic Histology.
Structure and function of the following systems:
 1. Cardiovascular
 2. Respiratory
 3. Digestive
 4. Urinary
 5. Female genitalia
 6. Male genitalia
 7. Lymphoid
 8. Skin and its appendages
 9. Endocrine
 10. Special senses
 11. Nervous

Emphasis must be placed on relation of function to structure. Practical classes should include demonstration slides and slides to be handled by students individually. Not more than four students should share one microscope.

iv. **Embryology/Developmental Anatomy**

a. **General Embryology**

- I. Sperm, ovum, gametogenesis, division (mitotic and meiotic) fertilization
2. Pre-embryonic period week 1,2,3
3. Embryonic period weeks 4 to 8 folding of embryo, development of systems, development of placenta and foetal membranes
4. Foetal period weeks 9 to 40
5. Factors affecting normal embryogenesis nutritional, endocrinal, pharmacological, infectious, occupational, climatic and intrinsic factors: twinning, anaemia, etc.

b. **System Embryology**

Development and congenital abnormalities of the following systems
explanation of genesis of congenital abnormalities:

1. Musculo-skeletal including ossification
2. Cardiovascular
3. Respiratory
4. Digestive
5. Genito-urinary-both male and female
6. Bronchial/Pharyngeal apparatus and its derivatives: face, tongue, palate, thyroid gland.
7. Nervous system and Endocrine glands
8. Special areas of development twinning. teratogenesis.

Lectures in embryology should normally coincide with the gross anatomy programmes of that system and should be supplemented by practical demonstration of models, slides and soft parts.

4. **Genetics**

- a. Structure of Nucleus, DNA
- b. Chromosomes. structure, number aberration -genes
- c. Division mitotic and meiotic
- d. Inheritance: Mendel's law.
- e. (a) Common genetic problems. due to change in number and structure of chromosome. autosomal dominant, autosomal recessive, X-linked and Y-linked inheritance.
(b) Mode of transmission of above
- f. Basic genetic Counseling: Premarital counseling in sickle cell disease. Counseling of elderly parents etc.

2. BIOCHEMISTRY

COURSE I Basic concepts in organic chemistry, organic reactions, aldehydes, ketones, alcohol, acids. etc, basic concepts of PH, buffers and their application.

COURSES II Chemistry of Biomolecules: classification and structure of proteins and Amino-acids. nucleoside, nucleotides and nucleic acids. Enzymes. Elementary enzymology and bioenergetic. Vitamins and coenzymes.

COURSE III: Metabolism of Biomolecules: metabolism of the above biomolecules. Metabolic interrelationship and metabolic regulations in inborn errors of metabolism.

COURSE IV: Applied Biochemistry (Special Topics)

1. Biochemistry of hormones and special organs and tissues. Neurochemistry, Biochemistry of muscle contraction.
2. Body fluids, blood clotting mechanisms Haemoproteins (haemoglobin, myoglobin and cytochromes) structure and functions haemoglobin metabolism.
3. biomembranes, basic knowledge of membrane structure and functions.
4. Introduction molecular biology: terminology, Basic concepts and regulation of gene expression, polymerase chain reaction (PCR). Recombinant DNA Technology and its medical application, molecular and biochemical basis of inheritance, chromosomal, aberrations (haemoglobinopathies, sickle cell disease etc) common genetic problems and their modes of inheritance. Gene replacement therapy and diagnosis of genetic diseases. Genetic engineering: basic concepts.
5. Detoxification mechanisms, metabolism of foreign compounds (xenobiotics) forensic biochemistry.
6. Immunochemistry: basic concepts of immunology and application.
7. Nutrition: principles of human nutrition, food and dietetics, biochemical basis of nutritional disease and remedies, mineral and vitamin metabolism.

PRACTICALS.

1. Practical on Course I and II: Acid-base chemistry PH and buffers; qualitative analysis of biomolecules: carbohydrates, protein, lipids and nucleic acids. Enzymology practical. K_m and V_{max} determination and applications. factors affecting enzyme activity Including I inhibitors.
2. Practical on Course III and IV: simple metabolic experiment, glucose tolerance test, diagnostic enzymes determination e.g. SGOT, SGPT etc, body fluids chemistry/analysis.
3. Nutrition Project: e.g. nutrient deficiency state, experiment using animal model or mimicking a particular disease state in blood/urine and detection.

3. **PHYSIOLOGY**

AIMS:

The course is designed to give an introduction to the physiology principle~ governing normal function of the human body and to indicate the objectives of this study. Thus the factors, which determine the organization and integrative action of the system of the body will be analyzed and discussed.

The Objectives of the Course are:

- i. To indicate the core physiology knowledge upon which medical practice is based.
- ii. To indicate the experimental basis of this knowledge.
- iii. To relate basic knowledge to an understanding of common abnormalities.
- iv. To use this basic knowledge to explain common pathological disturbances, especially failure of certain functions.
- v. To use the description of these disturbances to reinforce basic knowledge.
- vi. To encourage the student to think of disease in terms of disturbed functions.

Content of Curriculum:

- i. **Introduction to Physiology**
General Principles of Physiology, mechanisms, Homeostasis cell physiology, cell membrane transport
- ii. **Blood and Body Fluids**
Fluid compartments, composition of blood, RBC, 'WBC. Platelets, Haemostasis, Blood Groups, Body Defense and immunity
- iii. **Respiratory System**
Organisation, mechanics of breathing, transport of respiratory gases, pulmonary functions, hypoxia, special environments, controls of respiration.
- iv. **Cardiovascular System**
Organisation, Cardiac muscle, Cardiac cycle, electrical and mechanical events, ECG, Cardiac output, Arterial pressure, Peripheral resistance, Circulation in special regions (Heart, Brain, Skin). Control of cardiovascular functions.
- v. **Gastrointestinal Tract and Nutrition**
Organization of GI system, motor functions, digestion, absorption, accessory organs (salivary, pancreas, liver, gall bladder).
- vi. **Reoal System**
General plan, clearance, urine formation, composition of urine, osmolarity, fluid and electrolyte balance, acid-base balance.

- vii. Endocrinology
Principal organs, control mechanisms actions,. neuro-endocrines (Hypothalamus), pituitary, adrenals, pancreas. gonadal hormones, other sources of hormones.
- viii. Reproduction
Developmental stages (puberty etc) , male and female reproductive systems and functions, ovarian cycles, pregnancy, parturition, (action contraception).
- ix. Neuro-Iocomotor
Excitable tissues, membranes, biologic potentials (action potentials, etc) neurons, synapses, neurotransmitters, muscles, divisions of the nervous systems, receptors, reflexes, functions of spinal cord, brain system, cerebellum, basal ganglia and cerebrum, control of posture and movement. EEG, Sleep, conditioned reflexes. Higher functions of the cerebrum special senses especially vision, hearing.

4. **HUMAN DEVELOPMENT**

- (A) Physical development
- (B) Intellectual development
- (C) Emotional (Psychological) development
 - Personality formation (motivation theory) and personality types.
 - Maladaptation of defence mechanisms in making up for abnormalities in personality development
 - Normal sleep and sleep problems
 - Grief
- (D) Sexuality - Male & female responses
 - Ageing and sexuality
 - Sexual problems and dysfunction.

PATHOLOGY:

Principles of General Pathology: Special aspects of Pathology Morbid Anatomy, Chemical Pathology, Microbiology, Immunology, Parasitology and Haematology).

- The Pathological basis for the common problems seen in Medicine.
- Carrying out of common, simple and basic tests.
- Interpretation of tests of body functions: normal values of tests of body functions:
- Blood grouping and cross-matching.

6. **SOCIOLOGY:**

- Patient-Doctor Relationship
- Communication Signals and problems
- Population Structure, Growth Policy

- Illness and Good Health. .

7. **VITAL STATISTICS AND STATISTICAL METHODS**

- Data Collection: Records, Surveys etc

- Methods of computation and analysis of numerical data.

(i) Summarization and presentation of data.

(ii) Data Interpretation

8. **ENVIRONMENTAL HEALTH**

Attitude to disease in the community Marriage

The family and its influence on illness

Factors affecting the morale of the community Urbanization and economic factors

Alcohol, Tobacco and Drugs

Alternative medicine

Public Health Administration:

Course Content:

History of Health Services Administration Concepts, Principle and Functions of Management Comparative Analysis of Health Care System in Different Countries.

Political Commitment to Health Policy and Administration.

Organization and Management of Health Services in Nigeria.

Management of Human, Material and Financial Resources

Pattern of Health resources distribution.

The Economics of Health Care.

The Health Planning Process.

Evaluation of Health Services: Health Information System.

Evaluation Indicators.

MEDICAL PSYCHOLOGY

COURSE OBJECTIVE AND CONTENT .

The course should be taught with the basic medical sciences in the first or second year of study. At the end of the course, the student should be able to:

1. State the role of Psychological factors in general medical practice.

2. Identify and differentiate between various fields and schools of thought in Psychology.

3. Name the components of behaviour

4. Identify and describe the mechanisms implicit in the following cognitive processes:

- (a) Learning
- (b) Perception
- (c) Thinking
- (d) Memory
- (e) Intelligence

5. Describe personality in terms of 'Traits' and 'Types'
6. Discuss the Dynamics of Personality
7. Identify the determinants of personality
8. Describe and differentiate the various theories of personality development."
9. Identify the ways in which culture, environment and personality are related.
10. Define ('Attitudes': Opinions' and 'Prejudice).
11. Describe and differentiate between various types of groups: and identify the dynamic factors implicit in these types.
12. Name the different types of variable used in behavioural research.
13. Identify the different types of variable used In behavioural research.
14. Differentiate between descriptive and inferential statistics and identify the functions of each in the context of behavioural research.
15. Design and carry out a simply study, including collection and analysis of data.
16. State features that distinguish 'normality' from 'abnormality'.
17. Identify and describe basic psychopathological mechanisms, such as frustration, conflict and anxiety.
18. State the role of Ego defence mechanisms in the context of normal and abnormal patterns of behaviour.
19. Name the major types of psychopathological conditions.
20. Briefly describe major features of each type of psychopathological condition and be familiar with the following:
 - (1) Introduction to Psychology: Definition and History of Psychology.
 - (2) Relationship of Psychology to Medical practice. .
 - (3) Field of Psychology: An introductory orientation to various fields and specialties of Psychology such as Clinical, Educational, Organisational etc, pure and applied aspects of Psychology.
 - (4) Schools of thought in Psychology: Introductory orientation to major theoretical approaches to Psychology, viz: Structuralism, Functionalism, Psychoanalysis, Gestalt Psychology, Bahaviourism and Humanistic/Existential Psychology.
- (5) Psychology as a science.
- (6) Behaviour: Conative /Cognitive / Affective aspect. Stimulus Response paradigm
- (7) Motivation: various theoretical approaches ranging from 'Drive' to 'Self-Actualization.
- (8) Moods, Emotions and Feelings and their relationship to behaviour.
- (9) Learning: S-R and Insight oriented approaches; Problem solving.

- (10) Memory: Neuro-chemical and Psychological approaches.
 Perception: Mechanism: normal and deviant modes of perception:
 illusions: Extrinsic/intrinsic factors affecting perception. .
 Thinking: Definition; dimensions of thinking; Convergent-Divergent;
 Lateral-Vertical: Cognitive Styles. .
 Intelligence: Definition; Intelligence Quotient; Structure of intelligence (factorial model): Assessment of Intelligence.
 Cognitive Development: Theories of Jean Piaget
 Cognitivity: Definition: Aptitudinal and non aptitudinal aspect of creativity
 Definition and description of Personality.
 Dynamics of personality.
 Determinant relative contribution of heredity and environment.
 Personality development: theories of Freud, Erickson; Bowlby, etc. Introduction to Social Psychology.
 Culture, Environment and Personality.
 Psychology of attitudes, opinions and prejudices.
 Social Psychology of groups; Group dynamics; types of groups.
 Introduction of Behavioral Research.
 Introduction to research design, sampling, data collection, data analysis.
 Types of research: types of variable: experimental and non experimental research. Use of statistics in behavioural research:
 Descriptive and inferential statistics
 Fundamentals of Psychopathology.
 Normality and Abnormality
 Basic mechanisms: Frustration, Conflict and Anxiety.
 Psychic apparatus and defence mechanisms: their normal and pathological manifestations.

Types of Psychopathological condition..

B, CLINICAL SCIENCES

Medicine, Surgery, Obstetrics and Gynaecology, Paediatrics, Mental Health, Community Health (Public Health), Dentistry and Oral Surgery, Radiography, Dermatology, Pharmacology and Therapeutics, Otorhinolaryngology (ENT), Orthopaedics, Ophthalmology, Anaesthesiology, General Medical Practice, Medical Jurisprudence. Principles and Practice of Management. Communication acts (Educational Methods and Technology) and Medical Ethics.

PERIOD ALLOCATED FOR THE CLINICAL SCIENCES

Medicine	30 weeks
Surgery	30 weeks
Obstetrics and Gynaecology	18 weeks

Paediatrics	18 weeks
Community Healthy & Primary Health care	20 weeks (6, Premedical)
Pharmacology and Therapeutics	8 weeks
Haematology	4 weeks
Microbiology & Parasitology	4 weeks
Chemical Pathology	4 weeks
Pathology	8 weeks
General Medical Practice	4 weeks
TOTAL	148 weeks

MEDICINE

INTERNAL MEDICINE (INCLUDING DERMATOLOGY)

INTRODUCTION

The course in Medicine is strenuous and the syllabus is as wide as the diseases afflicting man. However, in the interest of orderly progression of the learning process, it is best to divide it into distinct stages which allow the student time to assimilate and consolidate his newly acquired knowledge and skills before progressing to the next stage.

COURSE OUTLINE

- | | | | |
|----|-----------------------------------|---|----------|
| 1. | Introduction to Clinical Medicine | - | 1 week |
| 2. | Junior Clerkship | - | 7 weeks |
| 3. | Intermediate Clerkship | - | 8 weeks |
| 4. | Senior Clerkship | - | 10 weeks |

INTRODUCTION TO CLINICAL MEDICINE

1.1 Objectives:

At the end of this course, the student should be aware of the ideal composition of the health care team and should understand the roles and responsibilities of the various members of the team, understand the relationship that should exist between doctors and the different cadres of the health care team, be able to relate positively to members of the health care team in the best interest of patients, understand the basic ethical requirements in his dealings with patients and in the doctor-patient relationship.

1.2 Teaching Methods:

Occupational therapy, medical social work, laundry, mortuary, diagnostic laboratories and radiodiagnosis.

patient.

Identify common abnormalities on ECG and list their clinical significance.

Understand the indications for aspiration of and safely aspirate, pleural effusions and ascites.

Examine specimens of body fluid aspirates. such as CSF. pleural and peritoneal effusions and be able to interpret correctly the result of laboratory investigations on the specimens.

Explain the clinical manifestations of diseases on the basis of the underlying pathophysiology of the lesions.

Understand the principles of writing medical prescriptions and be able to write prescriptions for common manifestations of disease, such as pain, fever, nausea, vomiting, diarrhoea, constipation and insomnia.

Understand the use of chemotherapy and chemoprophylaxis to combat infections caused by bacteria, plasmodia, viruses and mycoplasma.

3.2 Teaching and Learning Methods Lectures and seminars.

Tutorials

Constant practice on allotted patients Participation at ward and Grand Rounds.

Use of self instructional materials Textbooks and audiovisual aids.

3.3 Evaluation

Written papers, (MCQ and Essay), and Clinical.

4.0 SENIOR CLERKSHIP

Objectives

At the end of the course. the student should be:

- able to carry out all the objectives of the junior and intermediate postings proficiently and with greater confidence.
- able to receive and manage appropriately medical emergency cases, involving any system of the body including coma, cerebral seizures, shock, sickle cell crises, ischaemic heart disease, pulmonary embolism, Pneumothorax, bleeding disorder, acute thrombosis, myocardial failure, massive haemorrhage, severe anaemia, hyperpyrexia, hypertension, fulminating infection, tetanus, anaphylaxis and erythroderma.
- able to fully understand the diagnosis, prevention, treatment and prognosis of locally important endemic diseases.
- able to clinically diagnose and manage patients with malignant Diseases, including their referral for appropriate specialized treatment.
- fully conversant with the principles of ethical medical practice.
- aware of the role of medical practitioners in the society and their responsibility in promoting and maintaining the good health of the \ Populace at all times.

- able to diagnose psychosomatic and psychiatric diseases and treat or refer as appropriate.
- well aware of the role of research as a tool for continuing improvement in health care delivery.

4.2 LECTURE/SEMINAR/CLINICAL CONTENT

Areas to be covered include pathology, pathogenesis, aetiology, clinical manifestations, natural history, treatment and prognosis.

GENERAL

Fever, pain, Coma, Acute poisoning, Anaphylaxis.

CARDIOLOGY

Rheumatic fever: Rheumatic heart disease. Infective endocarditis

Ishchaemic heart disease

Hypertension

Dysrhythmias and cardiac arrest Pericarditis

Cardiomyopathy

Heart failure

Investigation of cardiovascular disease

DERMATOLOGY .

Parasitic and viral skin infections

Filariases and Guinea worm disease

Eczema/dermatitis

Pruritus

Leprosy and other granulomas

Drug eruptions

Pigmentary disorders

Skin manifestations of systemic disorders

ENDOCRINOLOGY

Diabetes mellitus

Disorders of the Thyroid

Parathyroid disorders

Adrenal disease

Disorders of nutrition in the adult Disorders of Hypothalamo-pituitary axis Endocrine disorders of ovaries and testes

GASTROENTEROLOGY

Jaundice

Diarrhoea diseases Amoebiasis

Hepatitis
Intestinal Helminthiasis Schistosomiasis
Peptic Ulcer Disease
GIT Malignancies Diverticular disease
Liver Cirrhosis
Liver Carcinoma
Liver Cell Failure

HAEMATOLOGY.

Nutritional Anaemias
Haemolytic'Anaemias and G-6-P Deficiency
Sickle Cell Disease
Hypoplastic and Myeloplasic Anaemias
Haemorrhagic Disorders
Polycythaemia and Myeloproliferative Disorders
Malignant Lymphomas
Multiple Myeloma
Thrombotic Diseases

RHEUMATOLOGY

Autoimmunity and Connective Tissue Diseases
Lupus Erythematosus
Gout
Rheumatoid Arthritis
Osteoarthritis

INFECTIOUS DISEASES

Malaria
Typhoid
Viral and related Diseases
Acquired Immune Deficiency Syndrome AIDS
Amoebiasis
Tetanus
Septicemia
Sexually Transmitted Disease STD

ONCOLOGY

Clinical effects of malignant disease
Management of malignant disease
Management of dying patients and of their relatives

RESPIRATORY MEDICINE

Respiratory infection Upper and Lower tract
Pulmonary Tuberculosis
Sarcoidosis

Pneumothorax and Pleuritis (Wet and Dry)
Pulmonary Abscess and Emphysema
Bronchiectasis
Bronchial Asthma
Obstructive Airway Disease and Respiratory Failure
Pulmonary Embolism
Pneumoconiosis

NEUROLOGY

Cerebrovascular Accident
Neuropathies
Epilepsy and other seizures
Meningitis and Encephalitis
Parkinsonism and Motor Nerve Disease
Dementia
Myasthenia Gravis and Muscular Dystrophy

RENAL MEDICINE

Water, electrolyte and hydrogen balance
Urinary tract infections
Glomerulonephritis and acute renal failure
Nephrotic syndrome
Chronic renal failure

GENERAL THERAPEUTICS

1. Prescription of drugs: Principles ethical considerations and practice.
2. Fever
3. Pain
4. Nausea and vomiting
5. Diarrhoea,
6. Constipation.
7. Use and abuse of Hypnotics Anxiolytics and Tranquillizers
8. Antidepressant Therapy.
9. Use and abuse of Antibacterial, Medications.
10. Chemotherapy of Malignant Disease .
- II. Chemotherapy of infections
12. Approach to management of substance abuse including alcoholism and drug addiction

SURGERY (INCLUDING MAJOR AND MINOR SPECIALITIES) COURSE **OBJECTS**

The surgery programme in undergraduate medical training is:

- (a) to introduce students to the methodology of ascertaining correlating symptoms and signs of surgical illness.
- (b) to co-ordinate previously acquired knowledge in surgical anatomy, surgical pathology and physiology and relate same to the symptoms and clinical presentation of surgical illness.
- (c) to acquire and possess cognitive and psychomotor skills in the care of surgical patients, including the ability to identify relevant investigation. and Surgical procedures in the management of surgical patients and be capable of performing basic tests and procedures.
- (d) to be able to initiate management in surgical patient and discern the indications for seeking appropriate support.
- (e) acquire the appropriate skill to act objectively in emergency situations to have the basic skills to fit in today's changes in the practices of Surgery:

COURSE STRUCTURE

The undergraduate training programme in surgery will be conducted through the following instructions:

- (a) Lectures .
- (b) Tutorials
- (c) Clinic attendance.
- (d) Clinico-pathological conferences
- (e) Bedside teaching

- (f) Seminars
- (g) Journal reviews
- (h) Use of computers/computing as it affects surgery
- (i) Minimal access surgery
- (j) Lasers/molecular Biology and surgery
- (k) Introduction to management, planning and administration
- (l) Communication skills in surgery

As appropriate, the following teaching aids will be utilized:

- (i) Audio-visual aids
- (ii) Clinical models
- (iv) Simulations
- (v) Side lab.
- (vi) Computer informatics

- (m) Inpatient Care which is to involve the student in:
 - (i) Patient clerkship
 - (ii) Correlation of nursing care with medical management
 - (iii) Investigatory concept and practice

- (iv) Therapeutic decisions, modifications and applications.

To achieve the cognitive and psychomotor skills for inpatient arrangement, the student will take on patients in symbolic role of in-loco-surgeon without actually exercising the decision-making role of the patient. He will clerk patients as if he were the doctor. He will follow them up from day to day in the course of treatments until discharged or disposed off.

COURSE WORK IN SURGERY

The course work in surgery is in complete harmony with the course objectives of the clinical training programme, but is specific to the discipline of surgery and the related minor specialties, that is, anesthesia, ophthalmology and otorhinolaryngology.

The course objectives are to be attained, using the course structure in four postings that are interrelated within the clinical programme of training. The recommended postings are:

1. Junior Surgery posting
2. Intermediate Surgery posting
3. Senior Surgery posting (Major Surgical Sub-Specialties).
4. Senior Surgery (Minor Sub-Specialties: Anesthesia posting. Ophthalmology and Otorhinolaryngology).

JUNIOR SURGERY POSTING

This is a sequential follow-up of the previous training in human and medical biology. The objective is to introduce students to the method of collating the clinical features of common surgical problems, utilizing the deductions so obtained to determine relevant investigatory and treatment procedures in the management of surgical disease.

JUNIOR SURGERY LECTURES

- The development of surgery
- Concept and History of Surgery
- Surgical Anatomy, Symptoms and Physical signs
- Surgical Physiology, Symptoms and Physical signs
- Homeostasis: Bodily changes in Trauma and Surgery
- Shock: Causes and management of Circulatory Collapse
- Fluid and Electrolyte Balance in Surgical Patients
- Principles of Pre-operative preparation of the surgical patient.
- Wound Healings: Biological and Clinical Features
- Blood Transfusion and Disorders of Surgical bleeding
- Metabolism and Nutrition in Surgical patients
- Fever in Surgical patients
- Principles of Operative Surgery: Antisepsis, techniques, sutures and Drains.

- Surgical Infections and Choice of Antibiotics
- Surgical complications: Principles of Post-operative management. Hernias
- Trauma: Management of the Acutely Injured Patient
- Surgical Diseases of the breast
- The Thyroid Gland
- Scrotal Swelling
- Surgical Disease of the Stomach and Duodenum
- Hepatobiliary Disorders
- Pancreatic Disorders
- Surgery of the spleen
- Molecular Biology and Surgery
- Use of Computer/Internet
- Basic Principle of Business management, Planning and Administration

INTERMEDIATE SURGERY POSTING

The aims are:

- (a) To consolidate the knowledge which the student had obtained in the course of the Junior Surgery Posting and
- (b) Simultaneously, to enhance his skill in the correlative application of pathology, clinical and investigative diagnosis and the treatment of general disease.

GENERAL SURGERY

1. The face, mouth and tongue
2. The Neck
3. The thyroid gland
4. Surgical diseases of the Breast
5. Oesophageal Disorders
6. Acute Abdomen
7. Intestinal Obstruction
8. Surgical diseases of the Stomach and Duodenum
9. Hepatobiliary Disorders'
10. Pancreatic disorder
11. surgery of the Spleen
12. The small intestine and appendix
13. Surgical Disorders of the Colon rectum Anal Canal
14. Urology
 - Urological Anatomy and Physiology
 - History and Physical examination in (Surgical) Urology
 - Diagnostic procedure and instrumentation in Urology
 - Congenital Anomalies of the Genito-Urinary Tract Genito-Urinary - Genito-Urinary Tract Trauma
 - Surgical aspects of Urinary schistosomiasis
 - Urinary tract infection
 - Urinary tract obstructions: renal stones

- Paediatric Urology
- Genito Urinary Neoplasm
- Renal Failure
- Congenital anomalies of the small intestine
- Communication skills in surgery.
- Basic principles of Business Management. Planning and Administration II
- Use of Computer/Internet (2)
- Weekly Journal Review
- Communication Skills in Surgery

SENIOR SURGERY POSTING MAJOR SURGICAL SPECIALTIES

This posting is designed to enable the student absorb the biological concept. as. it is applicable to the clinical management of surgical diseases in the sub-specialties of General Surgery Urology Orthopaedic Surgery, Paediatric; surgery. Dentistry, 0 Plastic and Reconstructive Surgery, Thoracic and Vascular Surgery as well as in Neurosurgery.

SENIOR SURGERY LECTURE 1

A. ORTHOPAEDICS:

- Fractures and dislocations 6 lectures
- Infections of Bones and Joints Bone Tumors 2 lectures
- Congenital disorders of musculo-skeletal system
- Rheumatic disorders of the Muscle-skeletal system
- Amputation and limb substitution
- Replantation of the extremities
- Multiple injured patient
 - at the site
 - Removal
 - Transit Hospital/ Rehabilitation
- Triage, Blood and Blood Conservation
- The Hand
- Infections of the Musculo skeletal system in tropics

B. PEADIATRIC SURGERY

- Paediatric Surgery
- Respiratory Distress
- Congenital Disorders in the new-born and childhood
- Acute Abdomen in children
- Neoplasm in children
- Surgical Care in Sickle Cell Disease
- Early Diagnosis of Congenital Lesions.

C. PLASTIC AND RECONSTRUCTIVE SURGERY

- Diagnosis and management of Burns
- Pathological processes of the Epidermis
- Malignant Tumours of Fibrous Tissue
- Cancer of the skin
- Superficial Lumps
- Principles of skin grafting and skin transportation
- Alternatives to skin cover

D. THORACIC AND VASCULAR SURGERY

- Disorder of the Lymphatic system
- Disorders of the Veins
- Pulmonary Embolism
- Surgery of the Arteries
- Aneurysms
- Thrombo-Obliterative disease of the Aorta and its branches.
- Surgical Disorders of the lungs, pleura and chest wall
- Bronchoscopy
- Thoracic Trauma
- Lung Abscess: Bronchiectasis
- The Pleura and Empyema
- Surgical treatment of Pulmonary Tuberculosis
- Tumours of the Respiratory system
- Thoracic outlet syndrome
- Congenital Disorders of the chest wall
- Surgical Disease of the Mediastinum
- Cardiac Surgery
- Cardiac Catheterisation
- Cardio-respiratory arrest: Prevention, Diagnosis and Management
- Congenital Anomalies of the Heart and Great Vessels
- Acquired disorders and Cardiac Valvular Disease
- Cardiac Neoplasms
- Cardiac Pacemakers
- Assisted circulation

E. NEURO-SURGERY

- Diagnostic techniques in neuro-surgery
- Spontaneous Intracranial Haemorrhage
- Cranio-cerebral Trauma
- Intracranial Infections
- Intracranial Tumours
- Spinal Disc Disorders
- Spinal Infections

- Spinal Trauma
- Peripheral Nerve Injury
- Congenital Disorders in neuro-surgery
- Neuro-surgical relief of pain
- Neuro-surgical treatment of Epilepsy.
- Principles of Stereotactic neuro-surgery

BASIC PRACTICAL SKILLS IN SURGERY

- Cut-down, venostomy and camulation
- Setting up I.v. drip and management of I.v. infusions
- Insertion and removal of urinary catheters
- Suturing of Lacerations
- Incision and drainage of superficial abscesses
- Preparation of patients for colonic and ano-rectal operation
- Establishment, management and removal of chest tubes
- Aspiration of fluid from the plelural space
- Aspiration of fluid from the pericardial space
- Application and removal of P.O. P. cast
- Application of temporary splints
- Making an electro cardiographic recording (ECG recording)
- Endo-tracheal intubations
- Aspiration of fluids from joint spaces
- Intra-articular instillation and injections
- Preparation of patient for surgery
- Electromyography
- Tracheal aspiration
- Laryngoscopy
- Cystoscopy
- Tonometry
- Tuberculin test
- Ultrasonography
- Bone marrow aspiration
- IVU
- Gastric intubation lavage
- Gastroscopy
- Liver biopsy
- Abdominal Parecentesis
- Protoscopy
- Bladder Catheterisation
- Renal Biopsy
- Sigmoidoscopy
- Lumbar Puncture
- Peritoneal Haemodialysis

- Excision biopsy of simple lumps

SENIOR SURGERY POSTING (MINOR SURGICAL SPECIALTIES)

During this period, the student will be methodically exposed to acquire knowledge relevant basic skill in the diagnosis, investigation and treatment of disease in the specialties of anaesthesia, ophthalmology and otorhinolaryngology

For a period of eight weeks, he will perform duties as a 'Junior House Surgeon' in the care of patients in the wards and as a Junior Casualty Officer" in the reception and care of surgical emergencies.

It is a period for the student to consolidate fully the knowledge and skill he has acquired in surgical training to enable him emerge into the profession as a confident and competent house surgeon. Thus, all other relevant factors being fulfilled, he will be fit to be granted provisional registration by the Medical and Dental Council of Nigeria.

During the various courses of training in Surgery, the student would be expected to acquire skill in the following procedures:

ANAESTHESIA

- Introduction to anaesthesia including the roles of the anaesthetists in Resuscitation, operative management, intensive care and pain management
- Pre-operative assessment, Preparation and Pre-medication
- Principles and uses of Anaesthetic Equipment and Breathing Systems.
- Techniques of maintaining the Airway
- Anaesthetic Techniques: General Anaesthesia including Inhalational and Intravenous Methods.
- Anaesthetic Technique: Regional Anaesthesia including Surface, Nerve blocks, Spinal, Epidural, etc and pharmacology of local Anaesthetic drugs.
- Choice of Anaesthetic method and Technique as influenced by Concurrent Medical Diseases and Patients Conditions.
- Monitoring during Anaesthesia and patient Transport
- Post Anaesthetic Care, Complications and Management
- Management of Acute and Chronic Pain
- Ambulatory (Day case) Anaesthesia
- Administration of fluids electrolytes and Blood
- Intensive Care Therapy including Nutrition in the Critically ill Patient and Oxygen Therapy.
- Cardiopulmonary Arrest, Resuscitation and Ethical Issues.

OTORHINOLARYNGOLOGY

- Ear Diseases:
- Applied anatomy and physiology
- History taking and examination in E.N.T.
- Diseases of the external ear
- Otitis media
- Complication of otitis media Haematoma allays
- Eartrauma Foreign body, temporal bone fracture
- Deafness and audiology
- Tinnitus
- Vertigo and balance disorders
- Turmours of the ear
- Nasal Diseases:
- Applied anatomy and physiology of the Nose and the paranasal sinuses
- Radiographic examination of the Nose and Sinuses
- Nasal Injuries: Foreign bodies. Septal Haematoma; Nasal Fractures.
- Rhinitis and Rhinosinusitis
- Nasal Polyps and Nasal Allergy
- Complication of Rhinos in us it is Epistaxis
- Naso-antral tumours

Throat Diseases (Larynx, Pharynx and Oesophagus)

- Applied anatomy and physiology of the throat
- Radiographic examination of the throat
- Traumatic conditions Foreign bodies in the Oesophagus, Larynx and Pharynx
- Penetrating neck injuries e.g. gun shot, arrow and stab wounds. ENT manifestation in HIV/AIDS patient
- Adenoids
- Tonsillitis
- Peritonsillar Abscess (Quinsy)
- Retropharyngeal abscess
- Tonsillectomy and adenoidectomy
- Stridors and Hoarseness
- Tracheostomy
- Respiratory Papillomatosis
- Tumours of the Larynx and Pharynx

OPHTHALMOLOGY

- Applied Anatomy and Physiology of the Eye and -Orbit.
- The Red Eye: Conjunctivitis, Corneal Ulcer, Iritis, Choroiditis.
- Eye Injuries: Contusion, Penetrating, Burns (Chemical and Thermal), Foreign bodies.

- Lesions of the Eyelids: Chalazion, Styne, Trichiasis, Entropion, Ectropion.
- Gradual Loss of Vision: Cataract, Glaucoma
- Sudden loss of vision: Vitreous Hemorrhage, Central Retinal Arterial Occlusion and Venous Thrombosis, Retinal Detachment.
- Strabismus
- Optic Nerve disorders: Neuritis, Papilloedema, Atrophy.
- Errors of Refraction: Myopia, Hypermetropia, Astigmatism and Presbyopia
- Community Eye Care: General Ocular Hygiene, Harmful Traditional Eye Medication including couching.
- Nutritional Eye Disease: Vitamin A Deficiency.

During the course of training in Ophthalmology, the student would be expected to acquire skill in the following procedures;

- Visual Acuity testing with Snellen's Chart
- Eye Drops and Eye Ointment application
- Foreign body removal (General and Conjunctival)
- Direct Ophthalmoscopy

OBSTETRICS AND GYNAECOLOGY OBJECTIVES

At the conclusion of his programme in Obstetrics and Gynaecology, the medical student would have acquired knowledge, skills and attitude which would enable him to:

- (a) Appreciate the principles and practice of the specialty of Obstetrics and Gynaecology on the basis of the biology of human pregnancy, labour and puerperium .
- (b) Collate the symptoms and physical findings, record, name methodically and analyze the corpus of information towards objective care in obstetric and gynecological patients.
- (c) Acquire knowledge to become familiar with the common gynecological illnesses.
- (d) Understand the principles and practices of ante-natal care.
- (e) Become familiar with various Obstetric situations and be capable of making accurate clinical decisions followed by appropriate action in such cases.
- (f) Understand the principles of preventive gynaecology, especially as they relate to primary health care in Obstetrics and gynecology and reproductive health.
- (g) Be sufficiently competent to be granted provisional registration by the Medical and Dental Council of Nigeria.

LECTURES IN GYNAECOLOGY

1. Anatomy of the female genital tract
2. Ovarian structure and function

3. Clinical aspects of ovarian function: puberty, menstrual cycle and menopause.
4. Aids to diagnosis of ovarian dysfunction
5. Development of the female genital tract: congenital anomalies, intersexuality
6. Amenorrhoea
7. Uterine bleeding
8. Tubo-Ovarian infection
9. Diagnosis and management of infertility
10. Disorder of the Pelvic floor: Utero-vaginal Prolapsed, Incontinence of Urine.
11. Vesico-Vaginal Fistula and Recto-Vaginal Fistula
12. Gynaecological Neoplasms
13. Trophoblastic Disease
14. Sexually Transmitted Diseases
15. Chronic Vulval Diseases.
16. Gynaecological Emergencies
17. Endoscopy and Ultrasonography in Gynaecological practice.
18. Principles and ethics of assisted reproductive technology.
19. HIV/AIDS
20. Family Planning
21. Abortion
22. Ectopic Pregnancy
23. Post Abortion care

LECTURES IN OBSTETRICS

1. Diagnosis of pregnancy
2. Reproductive Physiology
3. Ante-natal care
4. Physiological changes in pregnancy
5. The Placenta, Amniotic fluid
6. The Physiology of Lactation
7. Anaerilfain pregnancy,
8. Malaria in pregnancy
9. Sickle Cell disease in pregnancy
10. Pre-Eclampsia and Eclampsia
11. Hypertension in pregnancy
12. Hydramnios and Oligohydramnios
13. Diabetes Mellitus in pregnancy
14. Cardiac disorders in pregnancy
15. Chronic Renal disease in pregnancy, Renal failure
16. Endocrine disorders and pregnancy
17. Infections in pregnancy
18. Premature labour
19. Post-maturity

20. Intra-uterine death, destructive procedures
21. Anti-partum Haemorrhage
22. Coagulation disorders in Obstetrics
23. Nausea and Vomiting of pregnancy
24. Physiology and conduct of normal labour and delivery.
25. Abnormal labour and delivery: dystocia; use of par tog ram
26. Trial labour; management of prolonged labour
27. Abnormal foetal presentations
28. Obstructed labour
29. Multiple gestation
30. Induction of labour
31. Post-partum Harmorrhage
32. Normal puerperium
33. Puerperal morbidity
34. Maternal mortality and safe motherhood
35. Biological and Social factors in Obstetrics
36. Post-natal examination
37. Organization of Maternity Services in a community
38. Radiography and image studies in Obstetrics
39. Assisted delivery
40. Caesarean Section
41. Anesthesia in Obstetrics
42. Pain relief in labour
43. Pre-natal and Post-partum detection of congenital abnormalities in the body.
44. Birth trauma
45. Neonatal Resuscitation
46. Perinatal mortality
47. Sexually Transmitted Diseases and H IV/AI DS in pregnancy.

Basic Practical Skills in Obstetrics and Gyneacology. These are:

1. Setting up IV drip and management of iv infusions
2. Insertion and removal of Unirary Catheters
3. Preparation of patients for minor and major operations.
4. Passage of various forms of Vaginal Specula
5. Culdocentesis and Paracentesis
6. Parthographic monitoring of labour
7. Conduct of a normal vaginal delivery
8. Conduct of breech delivery
9. Conduct of a twin delivery
10. Repair of Episiotomies and Perineal tears
11. Repair of Cervical lacerations
12. Insertion of Intrauterine Contraceptive devices
13. Induction and Augmentation of labour

14. Manual removal of the Placenta
15. Management of third stage of labour to prevent Postpartum Hemorrhage.
16. Administration of appropriate Oxytocics in labour to treat Postpartum Haemorrhage.
17. Administration of drugs (Sedatives Anti-convulsants and anti-hypertensives) to prevent and treat Eclampsia:
18. Management of incomplete abortion with normal vacuum aspiration.
19. Assist in Caesarian section delivery.

PAEDIATRICS"AND CHILD HEALTH

MINIMUM STANDARDS FOR UNDERGRADUATES TRAINING

AIMS AND OBJECTIVES

- (a) General
 - (i) To introduce the student to the global principles and practice of Paediatrics and child health, with particular emphasis on practice in the Tropics.
 - (ii) To equip the students with the cognitive knowledge, technical skills and clinical judgment, to enable them achieve some measure of competence and reasonable confidence in the practice of paediatrics.
 - (iii) To enable the students have a good working relationship with all those involved in health care delivery especially with respect to maternal and child health, and to appreciate the need for this team work.
 - (iv) Students must have some knowledge of the Epidemiology of childhood diseases in Nigerian society.
- (b) Specific: At the end of the course, the student should be able to utilize and attitude acquired to perform the following: .
 - (i) Take and record a good history
 - (ii) Carry out a thorough physical examination of a child
 - (iii) Demonstrate common abnormal physical signs and interpret them.
 - (iv) Carry out simple side laboratory tests and routine Paediatrics procedures.

The students' ability to appreciate the usefulness of the skills he or she has acquired, presupposes a theoretical background to enable him or her:

- (i) Recognise childhood disease, with particular reference to those prevalent in the Nigerian environment.
- (ii) Formulate a reasonable diagnosis based on history and physical examination.
- (iii) Confirm his diagnosis by selecting and carrying out appropriate investigations.
- (iv) Have a sound knowledge of therapeutics in order to be able to treat his patient.
- (v) Manage common paediatric conditions and know when and where to look for

help and when to refer them safely to the care of a specialist.

COURSE CONTENT INTRODUCTION TO PAEDIATRICS

(a) lecture/Tutorials

These are aimed at providing the student with basic knowledge of the discipline for general practice. These lectures cover a wide range of selected topics in Paediatrics to include general principles and practice of Paediatrics, preventive Paediatrics, growth and development (from infancy to adolescence) including growth condition monitoring and pathological states in paediatrics in all systems.

(b) Clinical Paediatrics

- (i) The students are taught the art of paediatric patient clerking in the out patient clinics and in the children's emergency and wards. A student is expected to clerk and if possible present, at least 6 cases per posting.
- (ii) Instructions in diagnostic and therapeutic skills e.g. Simple examination of the different body systems and eliciting the relevant physical signs.
- (iii) Reasonable competence in clinical procedures i.e. venepuncture, setting up of intravenous infusions, performance of lumbar punctures, resuscitation of patients and respiratory cardiac failure, and exchange Blood transfusions.
- (iv) Each student is expected to perform simple laboratory procedures on specimens obtained from his/her patients, e.g. CSF. urine and stool such as microscopy and chemistry, and acquire therapeutic and Diagnostic skills including basic competence in principles of Radiology, and other imaging techniques. The student, on ward Round Day, should present the patient he/she clerked to the Consultant, and follow up the patient's Progress till discharge. He/she is also expected to write a discharge summary.

C. CHILD HEALTH AND PRIMARY CARE

Students should visit Child Health Clinics and should be instructed in the care of health infants. They also must pay visits to the under five Clinic, where they are individually expected to perform such functions as:

- (i) Immunization procedures
- (ii) Assessment of nutritional status of children
- (iii) Anthropometry, and giving nutritional advice to mothers.
- (iv) Conduct seminars on environmental and social factors related to child health.
- (v) Acquire competence in the rudiments of prevention and management of physical handicap in children as well as rudiments of management and competent referral of children who have significant variations in intelligence.

Lectures: Poisons and Accidents

- (i) Kerosine ingestion
- (ii) Household accidents & Burns
- (iii) Drug poisoning (Salicylate; Barbiturate, Insecticide poisoning etc)
- (iv) Dog and snake bites
- (v) Reasonable investigation of the accident prone family.

Miscellaneous

- (i) The handicapped child
- (ii) Neurosis and psychosis in childhood.
- (iii) Child abuse
- (iv) Child rearing and behavioral problems
- (v) Immunization in general for the Nigerian Child
- (vi) Weaning normal and abnormal habits

D. Nutrition/Growth and Development

Compulsory attendance of the Nutrition Clinic for instruction on the nutritional needs of normal children and those with disorders such as protein-calorie malnutrition, and marasmus. Technical skills of Anthropometry should be taught and instructions giving on the use and value of the growth charts. Factors affecting growth and development of children should also be highlighted.

- (i) Anthropometry
- (ii) Factors affecting growth and development
- (iii) Failure to thrive/causes and management
- (iv) Puberty
- (v) Adolescence and its problems
- (vi) Vitamin deficiency
- (vii) P.E.M.

Diseases of Specific Organ System

1. Diseases of the Cardiovascular System

- (i) Nomenclature: sequential chamber analysis
- (ii) Examination investigation of the CVS
- (iii) Congenital Heart Diseases
- (iv) Rheumatic heart disease and infective endocarditis.
- (v) Heart failure in infancy and childhood

2. Diseases of the Respiratory System

- (i) Acute infections of the respiratory tract
- (ii) Chronic respiratory conditions
 - (a) Bronchial asthma
 - (b) Pulmonary tuberculosis
 - (c) The wheezing child
 - (d) Lung abscess and bronchiectasis

- (e) Congenital anomalies of the respiratory tract: Tracheoesophageal; Respiratory distress syndrome. Congenital lobar emphysema

3. Diseases of the Digestive Tract

- (i) Acute diarrhoea and vomiting
- (ii) Fluid and electrolyte imbalance
- (iii) Oral Rehydration Therapy (ORT)
- (iv) Jaundice
- (v) Hepatitis
- (vi) Intestinal Parasites
- (vii) Abdominal pain
- (viii) Malabsorption
- (ix) Gastro-intestinal tract bleeding
- (x) Conjugated hyper-bilirubinaemia

4. Disease of the Genitourinary Tract

- (i) Developmental and structural anomalies of the genitourinary tract.
- (ii) Urinary tract infections.
- (iii) Glomerulonephritis
- (iv) Nephrotic syndrome.
- (v) Renal failure (acute and chronic)

5. Endocrine and Metabolic Diseases

- (i) Hypothyroidism
- (ii) Hyperthyroidism
- (iii) Diabetes mellitus
- (iv) Hypoglycaemia
- (v) Hypovitaminosis: Rickets
- (vi) Precocious Puberty
- (vii) Delayed Puberty
- (viii) Congenital Adrenal Hyperplasia

6. Diseases of the Central Nervous System

- (i) Acute infections: meningitis, encephalitis etc
- (ii) Hydrocephalus: causes and complications
- (iii) Microcephalus: causes and complication
- (iv) Convulsions in infancy and childhood
- (v) Coma
- (vi) Cerebral Palsy
- (vii) Variations in Intelligence
- (viii) Mental subnormality
- (ix) Superior intelligence
- (x) Disease of neuromuscular system

7 Diseases of Muscles and Bones

- (i) Osteomyelitis
- (ii) Pyomyositis
- (iii) Leukaemia
- (iv) Bleeding disorders

8. Miscellaneous

- (i) Specific Infection:
- (ii) Measles, Pertussis and Mumps
- (iii) Malaria
- (iv) Tuberculosis
- (v) Salmonellosis
- (vi) Giardiasis
- (vii) Schistosomiasis
- (viii) HIV/AIDS

b. Genetics:

- (i) Types of genetic disorders
- (ii) Monogenic disorders
- (iii) Chromosomal abnormalities
- (iv) Congenital malformations
- (v) Prenatal diagnosis
- (vi) Genetic counseling
- (vii) Ethical issues in Genetics

c. Paediatric Oncology:

- (i) Burkitts Tumour
- (ii) Nephroblastoma
- (iii) Neuroblastoma
- (iv) Hepatoblastoma
- (v) Tumors of the Central Nervous System Craniopharyngioma, Retinoblastoma
- (vi) Reticulo-endothelial malignancies
- (vii) Soft tissue sarcomas

d. Neonatology .

- (i) Students should spend sometime (recommended period 7 -14 days (minimum) in the Newborn Unit to acquaint themselves with normal newborns. The problems of the newborn infant and their Prevention

e. Lectures:

- (i) Normal newborn feeding

- (ii) Low birth weight babies
- (iii) Haematology of the newborn
- (iv) Birth asphyxia
- (v) Intra uterine infections
- (vi) Acute and chronic infections of childhood including H!V/AIDS
Temperature control
- (vii) Metabolic problem

MENTAL HEALTH

General Objectives

Every Medical School should aim at establishment of a Department of Psychiatry or Mental Health and have attached to it a separate ward facility for short term care of acute psychiatry patients. Such facilities help to give students the general orientation to psychiatric care liaison practice and interrelatedness of disciplines and to stimulate appropriate faculty development.

Departments of Psychiatry should play an active role in the teaching, research and development of communication skills and interpersonal relationships especially of the doctor-patient relationship and in the provision of Mental Health Services at the Primary Health Care level.

Departments of Psychiatry should also establish links with long stay psychiatric institutions in the locality, so as to offer students exposure to the full range of mental health services.

Training Facilities

Every medical school should have:

1. A department of Psychiatry (or Mental Health)
2. A separate ward facility for short term care of acute patients.
3. Collaborative mental health practice with a primary health care centre.
4. Link with long stay Psychiatric Institutions in the locality.

Course Duration:

The Clinical Psychiatry posting should last between. 4.6 weeks. Eight (8) weeks are required to teach Psychiatry. It should be taught after the Junior Clerkship in medicine and surgery. .Students should have had a course in Medical Psychology (or Behavioural Sciences) in preclinical years.

Exposure during training:

Students should participate in clerking, physical and mental status examinations.

psychological testing and laboratory investigation of patients.

Students should see a range of patients including those typically managed in primary care, general hospital. And community, based clinics as well as those treated in psychiatric: facilities. They should have the opportunities of visiting long stay Psychiatric Institutions and Institutions for mentally handicapped children.

Student should participate in the clinical' management and community based care of patient.

COURSES OBJECTIVES

1. The acquisition of appropriate attitudes is of primary importance. It is important that the objective of imparting these attitudes is in the teacher's mind throughout his interaction with student. However, each school should have a clear plan that ensures that the necessary attitudes have been acquired by the time the student graduate. It is important that student develop appropriate attitudes to psychiatry as a medical discipline. These attitude\$ will be encouraged particularly during the teaching of psychiatry but it is important that they are not negated during the teaching of other subject.
2. The knowledge objectives of psychiatry include psychiatric symptoms and syndromes. psychological aspects of medical disorders. ("Psychological Medicine") and Psychosocial issues including stigma. Psychiatric symptoms and syndromes. and their treatment are to be taught and learned in the context of an integrate biological psychological and social approach.
3. **Acquisition of appropriate and relevant skills.** They include the \$kills of: "active listening"
 - Empathy
 - Non-verbal communication
 - Opening controlling and closing an interview
 - Information gathering skills
 - Take the history of patient's complaints and a life history.
 - Carry out a physical examination
 - Also includes skills necessary to assesses the functioning of:
 - The patient's family and
 - The family's ability to contribute to the patient care.
 - Information evaluation skills
 - Select the crucial pieces of information for making a diagnostic formulation and undertake a differential diagnosis.
 - Make a personality assessment.
 - Evaluate the role of personal and social factors in the patient's behaviour.
 - Formulate a plan of management which includes the points at which referral to a

specialist will be appropriate.

Information-giving skills

- Pass information to patients to promote health
- Explain the implications of a diagnosis
- Inform patients about the beneficial and potential adverse effects of treatment.

Reporting skills

Report verbally or in writing to:

- Medical colleagues. lay people including the relatives of patients.
- Non-medical agencies involved in the care of patients.
- Promoted public education
- Treatment skills
- Promote compliance with prescribed treatment
- Basic prescribing skills for the psychiatric disorders commonly encountered by non psychiatrists.
- Recognize adverse effects of treatment and distinguish them from symptoms of illness.

Learning skills.

- Sustain self-directed independent learning such that the student will be able to keep abreast with new advances in psychiatry and psychological aspects of medical disorders.
- Medical practice throughout professional life.

Team work skill

Co-operate with:

- Medical colleagues
- Other health care workers
- Patient and family organizations
- Community services
- The general public in arranging the care of patients with psychiatric problems and. promoting mental health.

Core lectures

1. Historical and Theoretical Trends in Psychiatry

The contributions of the following:

Hippocrates. Paracelsus. Philippe. Adeoye Lambo etc

2. The Brain and the Mind

Review of the anatomy. physiology and chemistry of the central nervous

system. The Limbic system emotions. Genetics and Psychiatry.

Etiological issues in mental health predisposing and precipitating factors.

3. Classification and Diagnosis of Mental disorders ICD 10 and DSM IV
4. Psychopathology-Psychiatric symptoms. Disturbances of motor' functions, disorders of thinking. disturbances of perception, disturbances of cognition.
5. The Clinical Interview
Including physical and mental status examination. Laboratory investigation. Diagnostic formulation and recommendations.
6. Organic Psychiatric disorders:
Delirium. dementia and amnesic disorders
Other Psychiatric disturbances secondary to underlying general medical conditions.
7. Psychoactive substance use related disorders:
Different patterns of presentations Abuse; dependence, induced psychosis and intoxication Psychological and biological theories of substance use. Psychosis, Schizophrenia and related disorders includes differentials and methods of management of chronic and resistant cases.
8. Mood disorders,
Classification and diagnosis
9. Methods of management
Emphasis on prevalence and management. of depression in primary health care settings.
10. Stress related disorders: Acute stress reaction, Post traumatic stress disorder, Adjustment disorders.
Neurotic disorders Phobic disorders, Generalized anxiety disorder, Panic attack/disorder, Obsessive-compulsive disorder, Diagnosis and Management. Presentations in Primary health care settings. somatoform disorder

Dissociative disorders:

- 11 Disorder of eating, sleeping, and psychosexual functions
Gender identity disorders, Transexuality, Paraphilias.
12. Concept of personality: Defence mechanisms and Personality Disorders.
13. Mental retardation: Classification, Assessment. Management.
14. Childhood psychiatric disorders: examination of the child, adjustment reactions
Hyperkinetic disorders, conduct disorders, Autism, Enuresis, Encompresis and sleep walking.
15. Old age psychiatry: Care of the elderly, Psychiatric diagnosis in the, elderly, use of medication.

16. Deliberate self-harm and suicide. Dangerousness and the management potentially violent people physical abuse of children and adults Psychiatric emergencies.
17. Psychopharmacology: Basic science of Psychopharmacology Antipsychotic drugs: typical and atypical anti psychotics, side effects and methods of prevention and treatment. Antidepressants other Psychotropic drugs. Other forms of physical treatment: Electroconvulsive therapy: Psychosurgery; abreaction.
18. Principal methods of psychological treatment: Supportive psychotherapy, cognitive behavioural psychotherapy, individual and group psychotherapy. Introduction to psychoanalysis: Psychodrama
19. Principles of psychiatric care in non-psychiatric settings and in the community. Highlight possible roles of the religious homes and the native healers. Community mental health services. Primary health and mental health services. Evaluation of community mental health care.
20. Forensic Psychiatry: Principles of Justice, Expert witness, Privileged communication, Involuntary admission, competency and civil rights, criminal responsibility, competence to stand trial.
21. Psychophysiological disturbances:
Peptic ulcer, essential hypertension, bronchial asthma.
22. Research in Psychiatry: methods in behavioural research, biostatistics and current trend in psychiatry research. Evidence based practice.

COMMUNITY HEALTH AND. PRIMARY HEALTH CARE

For effective functioning, the training of medical under-graduates must be community based, community oriented and integrated on problem solving basis, bringing together, as much as possible, all disciplines in the field of Medicine.

AIMS AND OBJECTIVES

The overall aims of the undergraduate training in Community Health must be:

- To introduce to the students the concept of community health and its relevance in the health care delivery system of Nigeria.
- To equip the students with the knowledge and skills to be able to carry out epidemiological studies to identify the prevalent health problems in the community and also to determine ways and methods of alleviating these problems.
- To equip the student with the knowledge and skills to be able to plan, organize and evaluate appropriate health programmes (promotive, preventive, curative and rehabilitative) in collaboration with other members of the health team in order to reduce mortality and morbidity in the community and also to improve the quality of life generally.
- To develop in the student the spirit of team work in promoting health in all population groups of Nigeria.

PRE-CLINICAL 2nd Year History of Medicine, Human Ecology/Medical Sociology and Introduction to Descriptive Biostatistics

3rd Year Environmental Health, Introduction to Primary Health Care, Introduction to Demography, Health Education and Field activities.

CLINICAL 4th Year Principles of Epidemiology, Health Management. Maternal and Child, Health Care, School Health Services, Inferential Biostatistics. Occupational Health Infectious disease Epidemiology and Medical Ethics.

5th Year Research Methods in Public Health. Non-communicable disease Epidemiology Public Health Nutrition, Health Economics, Epidemiology of Zoonoses, Education posting, Endemic Disease and STD clinics'

6th Year Social Medicine, International Health, Family Life and Reproductive Health, Clinic. Dietetics, Group Dynamics, Integrated Primary Health Care posting, Seminars. and Tutorials

SECOND YEAR TEACHING PROGRAMME

History of Medicine

Paieomedicine

Primitive medicine

Ethnomedicine

Alexandria and Rome (300 Be)

Medieval medicine (500 to 1,500 AD)

Renaissance medicine (15th to 16th Century AD)

History of Medicine in Nigeria.

Human Ecology/Medical Sociology

Ecological concepts

Components of the environment: (Physical, Biological and Social)

Man's interactions with the environment: (Adaptation process, Balance and es).

Human organizations and systems

Traditional and Modern Health systems

Description of Human population

Behavioural Concepts in Public Health

Classification of Health Behaviour and practices

Change processes

The community as a laboratory

Introduction to Biostatistics

Role of statistics in Human Biology and Medicine; collection and organization of data, scales of measurement. "

Presentation of Data

Measures of Central Tendency and Location

Measures of Variability

Introduction of Probability Theory and Inductive Statistics

Estimating Population values

THIRD YEAR TEACHING PROGRAMME

Environmental Health.

The Physical Environment of Man and Health

Components of environmental sanitation. Water supply and Wastes Disposal

Control of Vectors

Control of Air Pollution

Residential Environment and Health

Town Planning

Food Hygiene.

Public Health Legislation on Environmental Health

Introduction to Primary health Care Concept:

Objectives.

To introduce the students to the objectives concepts and organizing of primary health care, within a global social movement of "Health for all by the year 2000"

History Primary Health Care

Objectives of Primary Health care

Components of Primary Health Care

Organization of Primary Health Care

Organization of Primary health Care

Implementation machinery for Primary Health Care.

Introduction of Demography

Sources of population data

Sources of health and vital statistics

Measurement of fertility and mortality

Standardization of vital rates

Population dynamics structure and growth

Health and population growth.

Principles of Methods in Health Education

The Identification of learning needs planning health education for individual groups and committee

The principles of communications.

Selection and production of appropriate audiovisual, aids.

Field Activities

Objectives

To introduce the students to the community and sensitize them to community health needs problems whilst also displaying to them the ecological interplay between man and his total environment.

Specific Learning Objectives of the Field Activities.

Identify and interview the important people in the community. Produce a simple map of the area. Produce a simple census and construct the demographic characteristics of the community. Survey the existing social facilities available in the community.

Health facilities, including data on disease pattern;

Educational institutions

Religious institutions

Water supplies, environmental sanitation facilities and electricity supplies.

Road network. Recreational facilities, social clubs and organizations

Observe the life pattern of the people and their major occupation.

Survey health problems/health needs of the people.

Describe the various relationships between man and his environment in the community. Conduct (optional) health-related studies, with the guidance of the faculty supervisors. Write a report of the community-based experience.

Present the report to a joint student/staff/community meeting.

FOURTH YEAR TEACHING PROGRAMME

Principles of Epidemiology

History and definition of Epidemiology

Spectrum of Health and Disease

Measures of diseases frequency prevalence and incidence rates.

Descriptive Epidemiology Distribution of diseases in relation to Person, time and Place. Sources of morbidity: and mortality data

Concept of Epidemicity, Endemicity, and Pandemicity

Epidemiological orientation of Health and Disease.

Health Management

The functional management

Organizational structure

Integration of services for Primary Health Care

Problem-solving in management.

Management of staff, transport, drugs, equipment and supplies in Primary Health Care.

Budgeting and Accounts

Basic operations analysis techniques for monitoring

Maternal and Child Health Care.

Lecture and visits of Primary Health Care Clinics

School Health Administration

Objectives of School Health Administration

Components of School Health Programmes

The healthful School Environment

Schools and the Community Health System.

Inferential Biostatistics

Introduction to probability theory and inductive statistics;

Tests of significance.

Normal Distribution Z-test.

Students t-test

Binomial test

Chi Square test

Association, Correlation and regression.

Occupational Health

History of Occupational health.

The environment of working places

Common Occupational Health Problems in Nigeria and their control. The Health problems of Agricultural workers'

National and International Regulations relating to Occupational Health. Health Implications of lakes, Dams, and River Basins.

Infections Diseases Epidemiology

Concept of Epidemiologic Triangle of Agent, Environment and Host.

Principles of Disease Control.

Principles of Disease Eradication.

Epidemiology and Control of locally endemic Communicable Diseases

Point source verses Propagated Epidemic.

Medical Ethics

The importance of the Community in Medical Education. The components/sub-specialties of community health.

History and Evolution of Medical Ethics.

International code of medical ethics.

Duties of doctors.

Ethics of medical research.

The doctor and the law, judicial coroner's court.

The Nigerian Medical Council and Dental Council Professional Negligence/Responsibility/Confidentially/ Misconduct.

Medical Indemnity/Professional Practice Insurance

FIFTH YEAR TEACHING PROGRAMME

Research Methods in Public Health

Formulation of Hypothesis

Testing of Hypothesis

Prospective/Cohort, Retrospective/Case

Control, Longitudinal, Cross Sectional,

Intervention Studies.

Casual and Non Casual Association

Estimation of Risk Odds Ratio (OR), Relative Risks (RR), Attributable Risk (AR).

Sampling design simple Random, systematic, Stratified, Cluster and Multi-stage. Sampling.

Design of Health Surveys.

Questionnaire Design and Data collection, Analysis and Interpretation.

Critique of Scientific papers.

Non-communicable Diseases Epidemiology

Principles of Non-Communicable Diseases.

Prevention and control of Non-Communicable Diseases:

Hypertension, Diabetes, Mellitus, Cardiovascular diseases, Malignancies, Sickle Cell Diseases, Road Traffic, Accidents etc.

Public Health Nutrition

Nutrition and Health

Epidemiology and Control of common problems in Nigeria

Infection and Nutrition

Nutrition Values of Common Nutritional problems in Nigeria

Infection and Nutrition

Nutritional Values of common Nigerian foodstuff

Food policy. Hygiene and Toxicology

Nutritional requirements during pregnancy, lactation, 'infancy and childhood through adolescent and relationship to disease conditions.

Assessment of Nutritional Status

Nutrition Education.

Health Economics

Sources of Health Care funding
National Health Care financing
National Health Insurance Scheme

Epidemiology of Zoonosis

Definition and types of Zoonosis
Prevention and Control of Common Zoonoses:
Rabies; Brucellosis, Anthrax. etc.
Principles of Disease Control
Principles of Disease Eradication
Epidemiology and Control of locally endemic Communicable Diseases.

WHO special programme for Tropical Diseases;
Malaria, Schistosomiasis, Filariasis, Leishmaniasis, Trypanosomiasis, and Leprosy

Vaccines of Public Health importance:
Types and characteristics

Storage requirements
Effectiveness
Mass Immunization Campaigns

Epidemiology and control of Hospital infections
Non-communicable Diseases: Hypertension, Diabetes Mellitus
Malignancies, Sickle Cell Disease, Road Traffic Accidents etc.

Educational Posting/Field Activities

This consists of lectures and guided public health educational visits to various public health programmes including the following:

Environmental health services; visits to Water Treatment Plants (Water Works), Sewage Treatment Plants, Markets, Abattoirs and other processing factories and Refuse Disposal Systems, Comfort Stations, etc.

Community Welfare Services, Lectures and visits to Remand Home, Homes for motherless and handicapped children, prisons, school for the deaf etc.

Public Health Department: lectures and visits to familiarize them with the activities of the department.

Public Health Laboratories: lectures and demonstrations on their activities including testing of water etc.

Control of Communicable Diseases: lectures and visits to Tuberculosis clinic, infectious disease clinics, endemic disease clinic for sexually transmitted diseases and parasitic diseases.

Occupational Health Services: lectures and visits to selected industries.

SIXTH YEAR TEACHING PROGRAMME

Social Medicine

History of Social Medicine

The underprivileged members of society

Classification and causes of Handicaps.

Programmes for the handicapped

Social Welfare Services in Nigeria and other countries.

International Health.

Origins and Development of International Health

The World Health Organization

International Health Regulations

Other Government and Non-governmental Organizations involved with International Health.

Family Life and Reproductive Health

Concept, components and objectives of Family Health

Measurement in Family Health

Health problems of mothers and children in Nigeria

Determinants of Health of Mothers and Children

Objectives and organization of MCH Programmes

Practice of Family Health

Immunization Programmes

Population dynamics and Family Planning

Evaluation of Family Health Programme

Clinical Dietetics . .

Nutritional basis of disease

Renal, Liver G.I., Diabetes, Hypertension etc.

Application of Nutrition to the management of clinical problem.

Parenteral Nutrition

Review of different methods of infant feeding in Nigeria and other developing countries. Micronutrients Deficiency.

Group Dynamics

Concepts of Group Dynamics

Group Interaction
Selection of Group Leaders
Selection of Group Members
Selection of Research Topics

Integrated Primary Health Care Posting

All Clinical Departments in the Medical School should contribute towards the successful implementation of this posting, with the Department of Community Medicine as the Coordinating Unit.

Objectives

To introduce the students to the concept of Primary Health Care and to instill in them the technical and managerial skills, attitude and knowledge to operate at the primary health care level.

COURSE CONTENT

Each student on qualification must have:

(a) A thorough understanding of the principles and concepts of primary health care and how to apply them in the provision of the services.

(b) An understanding of, and must have participated in the process of setting up a primary health care system as follows:

Define a target population

Mobilise the community in the target population so as to achieve their full participation in and ownership of the system to be developed.

Carry out a situation analysis of the target population.

Using the analysis, design the service system that will be accessible to everyone in the community where they live and work. The design will include:

Structure, for example the levels of the service, the need for health facilities, number and type etc.

Health team, composition, disposition and functioning

Process of providing health services of good quality (quality assurance)

Management of the health system.

Financing of the health system

Development, installation and use of the health information system

Processes of supervision, monitoring and evaluation of the services

Process of identifying and providing the training needs of health personnel \

Principle, method and use of operations research in health care delivery. Design.

Implementation, through the system of these services that will tackle the primary health

problems so as to have the greatest measurable impact on reducing mortality and..

morbidity in the community. These include stating the skills to perform the tasks required

at community and health centre levels and the staff required to carry them out.

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Family Health, (reproductive and child health including planning. Immunization'

General Medical practice

Environmental Health, including provision of potable water Nutrition

Health Education

Early diagnosis and treatment of common diseases.

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Course Duration

Course duration will be at least eight weeks

This posting is to last for a period of 8 weeks which should be spent in selected urban/rural settings. .

During the period, students shall be required to gain experience in the following areas:

Family Health (Maternal and Child Health/Family Planning)

Immunization against common communicable diseases

Health Management

General Medical practice (Curative medical services)

Community Mobilization and Health Education

Environmental Health including provision of potable water and hygienic disposal of all wastes.

Promotion of Nutrition, including Agricultural Extension Activities.,

Collection of relevant data, and organization and Evaluation of Health Programmes.

Acting as a medical officer in charge of a health post.

Health Education

Carrying out of specific community health research

Home visiting (including home Economics)

Community Mobilization

Training and Supervision of Auxiliaries and other Health Professionals.

Referral Services.

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GENERAL MEDICAL PRACTICE/FAMILY MEDICINE.

The aim of the course in General Medical Practice is to make the medical students aware that a properly trained doctor is basically equipped to initiate appropriate and effective management of human ailments irrespective of which ever specialty the patient would eventually end up in. Any doctor should be able to accurately diagnose and conclusively manage, simple ailments in all specialties and also, capable of detecting those disease conditions or developments and progressions in any ailment which demand a reference to a specialist.

At the end of the course the medical student would be expected to have acquired skills in precise and concise history taking from patients, prompt diagnosis of disease conditions

appropriate use of investigations and effective drugs prescription. The student would also:

be able to appreciate the necessity of team work, effective leadership and prudent

resources management in Medical Practice.

COURSE The course in General Practice should last for a minimum of 4 weeks.

COURSE OUTLINE

(i) Introduction to general practice, including the history of general practice

Medical Practice and highlighting the need for the General Practitioner in contemporary society.

Characteristics of Primary Care.

(ii) Concise and Precise history taking and prompt diagnosis of illness and disease.

(iii) Cost effective Prescriptions

Principles of Holistic patient management;

Making a diagnosis from undifferentiated symptoms;

Management of Common Medical Ailments

Fever and Convulsion

Malaria

Arthritis

Helminthic Infestations

Meningitis

The unconscious patient,

Respiratory tract infection

Hypertension,

Sickle Cell Diseases

Anaemia

Diarrhoea and vomiting (in adults and children)

Salmonella infections

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Amoebiasis
Hepatitis(1\;.' " ,'.It,
Diabetes Mellitus,) Jc ,r." J.
Sexually Transmitted Diseases
HIV/AIDS
Urinary Tract Infection
Poisoning
Snake bites
Dog bites
Insect and ScorDion stim:rs
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Anxiety states and neurosis Management of Grief and Stress Palliative care of the termirially ill.

Common Surgical conditions that can be handled in General Practice Appendicitis.

Abscesses
Simple fractures
Simple hernias
Wounds and injuries
Circumcision

Common Gynaecological and Obstetrical conditions that can be General Practice

Bartholin's cyst
Vaginal discharge
Sexually Transmitted Diseases
Ectopic pregnancy
Ante-natal care
Labour . .

Antepartum Haemorrhage
Postpartum Hacmorrhage
Neonatal Resuscitation
Neonatal Jaundice

Laboratory InvestiS!:.ations in General MedicalPractice

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Medical Ethics and Medical Jurisprudence. including

Rules of Professional Conduct and highlighting specific unethical Practices such as Advertising. Enticement etc.

Economics and Administration in General Medical Practices Procedures and Requirements for setting up and managing small scale practices.

Sources of funds and optimal fund utilization.

Basic principles of budgeting and budget control.

Costing and cost structures

Services pricing

Inventory and Inventory control

Medical records keeping

Basic principles of personnel management.

Staffing of private clinics and hospitals

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Laws and Regulations guiding Medical Practice

Decree 23 of 1988: Medical and Dental Practitioners Decree.

State hospital registration edicts

Rules of Professional conduct for Medical and Dental Practitioners in Nigeria.

Preventive medicine in General Practice

Environmental medicine in General Practice

Occupational Diseases and Industrial injuries and sports Medicine. Medical Insurance:

The Workmen's Compensation Act.

Society and the General Practitioner: The implications of alternative remedies.

Adolescent Health

RADIOLOGY I . Radiology as a medical discipline. cuts across all aspects of medicine.

Therefore, the importance of its full integration into the undergraduate curriculum cannot be over emphasized. .

PRE-CLINICAL Teaching of Radiology should be encouraged at the pre-clinical stage. At this level, a brief knowledge of the production of x - ray should be gained by the student and emphasis should be laid on .

basic radiologic anatomy. Radiologic anatomy should be taught side by side with gross.

Gross Anatomy'

Musculoskeletal System

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2.3

Vascular System Neuro-anatomy

Gastro-intestinal Tract

Radiologic Anatomy

As demonstrated on plain X-rays e.g.

Skull, Cervical Spines, Humerus, etc.

Angiography.

As shown on normal CT Scan.

As shown in Barium Swallow,

Barium Meal and follow through,

As shown In IVp, HSG, Ultra-Sonography

Genito-Urinary Tract

During the introductory course at the commencement of the clinical years, students should have lectures: .

(i) The principles of x-ray production and image formation;

(ii) An overview emphasizing the usefulness and comprehensive nature of the use of Radiology in Medicine.

The Physiological basis of procedures in radiology, which should be Stressed during lectures in physiology e.g. physiological basis of I.V.U. (G.F.R.. etc), oralCholecystography,I.V.U. etc.

During 2nd M.B. finals (First Professional Examination) examination radiology should be limited to radiological anatomy. which can be done as 0~1 and/or stipple-chase e.g. a plan radiograph of the chest could be mounted on a viewini' box and a marker Dlaced on anv structure for

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SPECIFIC COURSE OBJECTIVES'

It is expected that by the end of the undergraduate period, the student should have acquired the ability to approach with confidence, the reading of a Chest X-ray, which is the single most basic principle.

He should be able to identify:

gross change in the lung field e.g. Pneumonias, collapse, fibrosis, cannon ball secondaries, pneumothorax, pleural fluid collection, acute pulmonary oedema and the various presentations of tuberculosis.

Cardiac contour e.g. right and/or left side cardiac enlargement, left atrial enlargement, aortic arch unfolding, aortic aneurysm, etc.

Rib fractures; rib changes in rickets

Soft tissue change in the chest wall

He should also be able to identify, not only greenstick fractures, but the not so obvious greenstick fractures of childhood, which occur most commonly and will come to him as a casualty officer.

(c) He should be able to review a plain x-ray of the abdomen and recognize:

- (i) Normal bowel distribution pattern,
- (ii) Evidence of a pneumoperitonium (bowel perforation).
- (iii) Normal and enlarged liver, spleen and kidney;
- (iv) Various forms of bowel obstruction;

Upper small bowel obstruction.

Mid small bowel obstruction

Distal small bowel obstruction

Distal colonic obstruction

Mid-colonic obstruction

Proximal colonic obstruction

5. (a)

(i)

(ii)

(iii) (iv) (b)

(d) He should be able to identify

(i) Radioopaque gall stones, ureteric calculi and bladder stones.

(ii) Parasitic calcifications

(e) The student should be able to recognize:

(i) Degenerative changes in the spine

(ii) Vertebral collapse

(iii) Paravertebral abscesses

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(f) He should be able to assess contrast examinations for gross pathology in c Iud fluoroscopye.g: .

(i) Barium meal

(ii) Barium Enema

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Intravenous urography Cholecystography a~d Cholangiography Cystourethrography

Urethrograph,y

Myelograph .

Ventriculography. Cerebral Angiography

Arteriography Aortography Hysterosalpingography

He should be able to appreciate:

The use of radioisotopes in Radiology

Radiotherapy in the management of malignant disease

He should be conversant with radiologic examination of the extremities: Normal radiological anatomy of the upper and lower extremities.

the thorax, the spine and the pelvic girdle.

Appearance of ossification centres and bone age determination.

He should also be familiar with radiological anatomy of the skull

as seen in the following radiographic projections:

Anteroposterior

Lateral

Towne's

Submentovertical (SMV)

Occipitomenal

He should understand the principle of international radiography.

The student should be taught the importance of filling a request

form for radiological examination adequately. He should not

only know what to ask for, but also the appropriate sequence of requests till radiological examination is exhausted.

PHARMACOLOGY

CURRICULUM IN PHARMACOLOGY APPLIED

PHARMACOLOGY/THERAPEUTICS'

1.1 (a) (i)

(ii)

Aims and Objectives of Course:

General

To introduce the medical students to the principles of drug treatment in diseased states.

To impart knowledge of the understanding of properties of drugs and the mechanisms by which they produce their effects in

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(b)

diseased conditions.

To enable the medical students at the end of the course to be competent to select drug(s) rationally for any ailment diagnosed on a scientific basis.

To acquaint students with the National Drug Formulary and the Essential Drugs List

Decree of 1989.

To acquaint student with the "Guide to Good Prescribing" book produced by WHO
Specific:

At the end of the course, the student should be able to utilize the knowledge acquired to prescribe drugs, or remedies for diseased states in man. He will be able to understand the pathological condition or altered physiological state from his knowledge of pathology and other Clinical sciences and prescribe appropriate drugs from his knowledge of pharmacology.

. Duration of Course

The duration of the course in pharmacology and applied pharmacology should be two academic years after the students have finished their studies in Anatomy, Physiology and Biochemistry. The course should be so organized that the students are gradually exposed to the study of drugs used in different diseased states, as they progress through their clinical postings and have opportunity to see patients and study their management. This period may be divided into one academic year of basic principles of drug use in man and experimental animals followed by another year of clinical pharmacology during the rotation through the clinical and Community Health Departments.

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Course Content

The course should aim at providing the students with basic knowledge of drug action and extension of this knowledge to drug therapy. Systemic pharmacology should include wide areas of selected topics in different systems and organs.

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Topics for lectures/Tutorials

(A) General Pharmacology:

The scope of Pharmacology; Origin and Sources of Drugs; Routes of Administration of Drugs.

Pharmacokinetics, Absorption of Drugs, Distribution of Drugs; Biotransformation of Drugs; Excretion of Drugs; Clearance and Half life of Drugs Mode of Action in Man; Compliance; Individual Variations; Interactions with other Drugs concurrently or previously administered; Genetic effects; Tolerance and Tachyphylaxis; Effects of

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Diseases; Drug Toxicity; Adverse Drug Reactions; Drug Dependence.

(B) Systemic Pharmacology/Neurohumoral Transmission

(i) Review of Neurohumoral Transmission: Transmitters in the Central and Peripheral Nervous Systems; Cholinergic and Adrenergic receptors; Cholinergic Agonists and Antagonists; Adrenergic Stimulants and Blocking Agents. Autacoids: Histamine Receptors and Histamine Antagonists: 5-hydroxytryptamine, Renin-Angiotensin; Kinins-Bradykinin-Kallikrein; Substance P, Prostaglandins; Leukotrienes; Cyclic Adenosine monophosphate (c-AMP) and other mediators.

(ii) Drugs Acting on the Alimentary System: Vomiting-Antiemetics; Constipation-Purgatives, Ulcer Healing Drugs; Gastrointestinal Hormones-Pentagastrin, Secretin, Non-specific Antidiarrhoeal Drugs; Lactulose .Lipid Disorders-Cholestyramine; Pancreatin: Cholecystokin

(iii) Drugs Acting on the Respiratory System: Oxygen therapy; Bronchodilator drugs, Asthma and Status Asthmaticus, Cough Suppressants; Mucolytic Agents; Respiratory Stimulants.

(iv) Drugs Acting on Blood-Forming Organs: Anaemia; Iron Deficiency and other Hypochromic Anaemias; Megaloblastic Anaemia; Iron; Cobalamins; Folates; Anticoagulants; Heparin; Coumarins; Indandiones, Fibrinolysis Fibrinolysin; Thrombus~ Platelet Aggregation Inhibitors; Blood lipid lowering drugs.

(v) Drugs Acting on the Cardiovascular System: Heart Failure and its Drug Management, Anti-Anginal Drugs; Isehaemic Heart Disease and its Drug Management; Antiarrhythmic Drugs; Hypertention and its Drug Management; Vasodilators.

(vi) Drugs Acting on the Urinary System: Diuretics; Alteration of Urinary PH; Urinary Tract Infection~; Renal Failure; Immunity; Immuno-suppressive Ag~nts.

(vii) Antimicrobial, Antifungal and Antiviral Drugs and Drugs Against Human Protozoal Diseases: Sulphonamides; Antibiotics; Penicillins; Cephalosporins; Aminoglycosides .

Lincomycin; Peptide Antibiotics; Drug Treatment of Tuberculosis; Miscellaneous Antibiotics: Vancomycin, Spectinomycin, Fusidic Acid, Other Synthetic. Antimicrobial Drugs; Nalidixic Acid; Nitrofurantoin; Drug Treatment of Leprosy; Antifungal Agents; Polyene Antifungal Antibiotics; Imidazoles; Miscellaneous Antifungal Agents; Antiviral Agents; Methiasazone; Idoxuridine, Cytarabine, Adenine Arabinoside, Interferons; Humoral Immunoglobulins etc. Malaria; Amoebiasis; Amoebic Liver Abscess; Trypanosomiasis, Leishmoniasis, Giardiasis; Trichomoniasis; Ankylostomiasis; Ascariasis; Trichuriasis; Strongyloidiasis; Enterobiasis; Trichinosis, Filariasis, Loiasis, Onchocerciasis; Dracontiasis; Schistosomiasis; Fasciolopsis; Clonorchiasis; Paragonimiasis; Taeniasis;

Cystecercosis; Hydatid Disease; Diphyllbothriasis.

(viii) Chemotherapy of Malignant Disease: Major Features of Malignant Diseases; Review of Cell Kinetics, Cell-Cycle specificity; Cell-cycle Non specificity; Cancer cell versus Bacterial Infection; Principles of Cancer Chemotherapy: Adverse Effects of

. Antineoplastic Drugs; Alkylating Agents; Antimetabolites: Purines and Pyrimidines Analogues; Natural products; Anthracycline Antibiotics; other Antibiotics; Enzymes; Steroid, Hormones and Antagonists, Miscellaneous Anti-cancer Drugs; Agents for Immunotherapy; Radioactive Drugs.

(ix) Drugs Acting on the Central Nervous System: Special situations of Drug Action; Entry of Drugs into CNS.; Non-Narcotic Antagonists and Partial

Agonists; Antipyretic Agents; Sleep; Barbiturates and Non-barbiturate. Agents; Alcohol; Review of General and Local Anaesthetic, Drugs, Anaesthesia in persons already taking. drugs; Neuromuscular blocking Agents; Central Nervous system stimulants;. Anticonvulsant Drugs; Epilepsies; Principles of Antiepileptic treatment; Review of Different groups of Antiepileptic Drugs; Status Epilepticus; Epilepsy and special situations. Pregnancy, Contraception, Anaesthesia, Surgery; Miscellaneous Anticonvulsant Drug; Drug Treatment of Parkinsonism; Levodopa; Dopa Decarboxylase Inhibitors; bromocriptine; amantadine; Anticholinergics; Antihistaminics; Phenothiazines; Drug therapy of Spasticity; Dantrolene, Baclofen, Interneuronal Blockers; Drugs in Myasthenia Gravis; Drugs in Migraine.

(x) Drugs in Mental and Mood Disorders: Antipsychotics: Phenothiazines Thioxanthenes; Butyrophenones; Rauwolfia Alkaloids; Antidepressants; Monoamine Oxidase Inhibitors (Hydrazine and Non-hydrazine); Tricyclics; Tetracyclics; selective serotonin Reuptake Inhibitors; Antimanic-Dibenzazepines; Lithium; Anxiolytics Benzodiazepine; Pyrimidylbutylidione;

(xi) Drug Treatment of Joint Diseases: Inflammatory Arthropathy and Degenerative Joint Disease; Metabolic Disposition Arthropathy; Analgesics; Non-steroidal

Anti-inflammatory Drugs (NSAIDs); Corticosteroids, Long-term Antirheumatic Agents;. Gold salts, d-penicillamine; Chloroquine; Immunosuppressive Agents; Levamisole; Gout: Colchicine; Indomethacin; Probenecid; Sulphinpyrazone; Allopurinol.

(xii) Pharmacology of Endocrine System: Mechanism of action of Hormones, CNS-Hypothalamus-Adenohypophysis-Endocrine Glands; Anterior and Posterior Pituitary Hormones, Thyroid Hormones and Antithyroid Drugs. Parathyroid Hormones; Thyrocalcitonin; Diabetes Mellitus; Insulin; Oral Antihyperglycaemic; Adrenocortical Hormones; Glucocorticoids; Mineralocorticoids; Hyperaldosteronism, Sex Hormones:

Oestrogens; Androgens; Progestogens; Antagonists to Hormones.

(xiii) Drugs in Obstetrics and Gynaecology: Drugs in Pregnancy, Drugs affecting Uterine Motility; Ergot; Oxytocin, Prostaglandins; Tocolytic Drugs B2 Adrenoceptor

Stimulant, Pharmacologic Methods of Family Planning

(xiv) Drugs Acting on the Skin: General aspects of the Dermal Pharmacokinetic; forms of Topical application and systemic administration in Dermal conditions; topical Antifungal and Steroid preparations and their adverse effects.

(xv) Pharmacoepidemiology and Pharmacoeconomics: Essential Drugs List and Essential Drugs Programme; Rational Drug Use: Guide to Good Prescribing; Management of Drug supplies; Drug Revolving fund and user fees and how to recover costs that should have been paid by statutory exemptions; Drug utilization, Monitoring by periodic Audit Surveys.

(xvi) Practical Classes / Demonstrations

A reasonable number of practical classes and demonstrations should be organized to

make the students understand the nature of drug action and how drugs can affect organ systems, e.g. Heart, Kidneys, Respiratory and Vascular systems.

MEDICAL ETHICS

OBJECTIVES

The course should familiarize students with the following:

Major codes of Ethics relevant to medicine viz the Hippocratic Oath. The Physicians Oath or Geneva Declaration (1948 1968).

The Declaration of Helsinki (1964, 1975)

The Medical and Dental Practitioners Decree No. 23 of 1988
(now CAPM8 LFN)

The Medical and Dental Council Regulations for Professional Conduct and the National Health Policy.

The Relationship between law and Medical ethics and especially the concept of confidentiality and third party payment.

The appropriate doctor- patient and doctor- colleague relationship.

The principle of informed consent.

Nigerian Social and Cultural values and medical ethics.

Guidelines for counseling on such issues as eugenics, Contraception, Abortion, Sterilization, Infertility, Impotence, Deformity, Suicide, Dying; Euthanasia, Physician assisted suicide etc.

The responsibility of doctors to society.

The responsibility of Medical Ethics Committees.

Procedures for appearing in court. .

Involuntary treatment of mental disturbance and social control of deviance.

- Concept of professional negligence and infamous conduct in a Professional respect. .

Peer review.

GUIDE IN ON MIM CT. . . .

Medical audit.

Human rights advocacy.

METHODS OF TEACHING ,. Modeling 2. Lectures

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Teaching of medical ethics should start with the teaching of medical History during the first year of pre-clinical studies. ,

From then on ethics must be taught throughout the period of training until graduation.

. Ethics must be taught on a multi-disciplinary basis.

At some stage there must be an examination which must be passed by all students before graduation.

Case studies and tutorials.

Seminars.

LECTURES

There should be at least 10 hours of lectures during the course. Principles of the philosophical basis of moral discourse.

Ethics and Morals.

Theories of Justice.

Concepts of right and duty.

History and philosophy of medical ethics.

The codes of Medical Ethics and relevant national laws. Relationship between Religion and Medical ethics.

Influence of socio-cultural values on medical ethics. Confidentiality.

Informed consent and the right to refuse treatment.

Resource allocation and determination of priorities; patient selection.

Ethical aspects of drug treatment.

Doctor-patient, Doctor-doctor, doctor-medical team relationships. Ethical aspects of withdrawal of care and participation in civic disobedience.

Medical Ethics and fundamental human rights.

Peer review and medical audit.

Ethical issues involved in Primary Health Care.

Ethics of Dental Practice.

Ethical aspects of sexuality, contraception, abortion, assisted

reproduction and sex change operations.

reproduction and sex change operations.

Medical Ethics and private medical practice.

Psychiatric aspects of medical ethics; interview.

involuntary committal and treatment. labeling and stigma.

insanity. plea. sex therapy. appearing in court.

capacity. abuse of psychiatry etc.

Ethics of Organ transplant and genetic engineering.

Stages of dying and diagnosis of death.

Ethics, and Prenatal diagnosis of genetic disease.

Ethical aspects of medical research.

Genomics and the future of medicine.

Genomics and the future of medicine.

Ethical aspects of medical research.

Ethical aspects of medical research.

Ethical aspects of medical research.

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(j) **Immunology.**

3. TEACHING METH()DS" . ,J!DUB)J).,b~tin br!Gw",ri£~1'i0~)~

(I) **The undergraduate 'I~::~W~g~"~~d'Wf~~fil~(ft~!~tr~;~(8~1~;)~::~~ff~ctively carried out in departments of cliti;lical p<1~hol?gy.(inc!,u,d.iif~L~c;iC;t~ri2)8gyi ;lo,~Yirology)**

and Haematolo&¥:ah(f'glo6;d;;Tfr~n~fDkrgi\1.E):"; 1}!1U;; .!{'.' "(1;5<" ..," ,0} 'J,~'\~'- ,J,;; ..,<

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(ii) The teaching/learning experience needs should be integrated with introductory tutorial and bed-side clinical teaching in Medicine and Surgery: Obstetrics and Gynaecology and Paediatrics.

(iii) Undergraduate medical students should also watch and participate in Post Mortem Examinations. They are expected to learn the technique of performing safely the autopsy and should be taught the important ethical considerations and the explanations needed in the strengthening of the confidence of the deceased's relatives, so as to easily obtain "Permission for conducting post mortems".

(iv)The undergraduate medical student should also be taught the reasons for the legal requirement for conducting "Coroner's Post-Mortem Examination" in most cases of sudden deaths etc. This is an important overlap to their training in "Medical Jurisprudence and Toxicology".

(v)The course of instructions in Clinical Pathology, Haematology and Blood transfusion should last through the period of. clinical training exclusive of the last clinical year of intensive studies. (This period should be about one and half to two years).

(vi) Examination which should be held at the end of the course/training, should comprise; written, practical and oral, and for the medical student to satisfy the examiners, he/she must score a minimum of 50%.

(vii)Provisions for re-sit examination should be available within 3 months.

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COURSE CONTENTS

Introductory Lecture I: - Chemical Patholoi'

Quality Assurance, Quality Control, Precision and Accuracy in the laboratory.

Collection, preservation and processing of Specimens. Factors affecting laboratory results.

Reference values and their distribution.

Urinalysis (Principles, performance and interpretation).

Fluid and Electrolyte Balance and Disorders (Demonstration of

1. Flame Photometer and Ion Selective Electrodes).

2. Acid - Base Balance and Disorders

3. Blood glucose homeostasis

4. Examination of the Cerebrospinal fluid

BLOCK I POSTING (JUNIOR POSTING)

I. Glucose in body fluids.

1. Methods of determination in urine, CSF and blood with interpretation of results.

2. Glucose Tolerance Test and interpretation.

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II.

Protein in body fluids.

1. Methods of determination in urine, CSF and blood with interpretation of results.

2. Urine and serum albumin estimation.

3. Urine, CSF and serum electrophoresis and interpretation. Urine and serum Pre-albumin estimation.

4. Principles of Chromatography Paper and thin layer chromatography Other types of chromatography.

5. Enzymes in Diagnosis of Diseases Cardiac'

6. Liver

7. Pancreatic

8. Skeletal muscle

9. Prostate

10. Genetic diseases

11. Use as labels and Reagents.

12. Metabolism of Calcium, Inorganic Phosphorous and magnesium disorders.

13. Biochemical markers of Bone and Metabolic Bone Diseases.

14. Inborn Errors of Metabolism .

15. Bilirubin metabolism and Tests of Liver function

16. Tests of Renal function ~

17. Tests of Gastrointestinal Junction and Malabsorption Syndrome Diabetes Mellitus

BLOCK II POSTING (SENIOR POSTING)

I. Serum protein and disorders.

2. Lipid and ,Up9proteins and disorders,

3. , Trace elements and disorders.

4. Vitamins and disorders

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7.' 8. 9.

10.'

II. 12. 13. 14. 15. 16.

4.2

Dietary Fibres

Disorders of overernutrition (Obesity. Hyperuricaemia and gout) Disorders of undernutrition (Marasmus and Kwashiorkor). Introduction to Endocrinology

Hypoythalamus and Pituitary

Disorders of Thyroid axis

Disorders of Adrenal axis

Disorders of Gonadal axis

Chemical pathology of Pregnancy

Chemical pathology of hypertension

Biochemical tumor marker and Chemical pathology of Neoplasia. Demonstration of assay of each of the analyte in the Chemical pathology Laboratory.

BLOCK II LECTURES

Definition and classification of anaemias Water and Electrolyte Balance I

Water and Electrolyte Balance II Acid-Base Balance

Iron metabolism and Iron deficiency Anaemia Iron overload and sideroblastic

Anaemia Folate and Vitamin B 12 Metabolism Megaloblastic Anaemias

Renal function Tests

Acute and Chronic Renal Failure

Disorder of Carbohydrate Metabolism, Laboratory Diagnosis of Diabetes Mellitus

Glucose. Homeostasis

4.3 **HAEMATOLOTY AND BLOOD TRANSIFUSION**

Introduction:

I. Specimen collection. preservation and processing.,

2. Anticoagulants. preservatives and buffers

3. ,Reference values.

4. Estimation of Haemoglobin and Packed cell volume.

5. Red blood cell count and calculation of red blood cell indices.

6; Total white blood cell count and differential.

7. Platelet count

8., Blood film preparation and examination.

9. ESR 0

10. Reticulecyte count.

II . Sickling test and solubility test

4.4

12. Quality assurance and Quality control.

BLOCK I POSTING (JUNIOR. POSTING)

Development, morphology and functions of red blood cells. Development, morphology and function of white blood cells. Platelets, development, morphology and function.

Definition and classification of Anaemias

Iron metabolism and iron deficiency anaemia

Iron overload and sideroblastic anaemia

Folate and Vitamin B₁₂ metabolism

Megaloblastic anaemia

Haemolytic anaemias (classification and management).

Anaemia associated with systematic disorders

Structure, Function and Control of Synthesis of Normal Haemoglobin.

Haemoglobinopathies and Hb electrophoresis

Structural Abnormalities

Sickle Cell Diseases

Thalassaemias

Genetic Counselling and Antenatal Diagnosis of Haemoglobinopathies. Pancytopenias and Aplastic anaemias

Leukaemias (aetiology and classification)

Acute Leukaemias

Chronic Leukaemias

Classification, Clinical Presentation; and laboratory diagnosis of Haemolytic Anaemia.

Intracorporeal and Extracorporeal Defects in Haemolytic Anaemia.

CLINICAL PATHOLOGY (SENIOR POSTING I) Immunoglobulins I

Immunoglobulins II

Complement System

Immunology: Clinical Aspects I

Immunology: Clinical Aspects II

Autoimmunity and AIDS

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BLOCK II POSTING

- I. Blood groups, Red blood cell antigens and antibodies.
2. ABO and Rhesus grouping and crossmatching of blood.
3. Direct and indirect antiglobulin tests
4. Screening of donor blood for HIY, Hbs Ag, HCY, VDRL.
5. Indications and complications of blood transfusion.
6. Haemolytic diseases of the newborn.
7. Normal Haemostasis.

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Investigation of bleeding disorders.

Vascular and platelet disorders.

Inherited coagulation disorders.
Acquired Coagulation disorders.
Thrombosis (aetiology and management).
Lymphomas (Burkit's. Hodgkin's and Non~Hodgkins). Myeloproliferative disorders.
Multiple Myeloma and Paraproteinaemias. Splenomegaly and tropicalsplenolTlegaly syndrome.(TSS)

IMMUNOLOGY

Introduction

I I. Development. Morphology and function of Lymphocytes.

2. The CD classification of human lymphocyte differentiation antigens.
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3. The structure and function of immunoglobulins.
4. The Immune System.
5. The complement system.
6. The cytokines
7. Serology. vaccines and immunization.
8. Scre~ning tests for HIV and other autoimmune diseases.
9. Principles of immunological techniques.

BLOCK I POSTING (JUNIOR)

1. Mechanism of immune mediated damage to microbes or host tissue.
2. Allergies, Anaphylaxis.
3. Urticaria and angioedema
4. Systemic mastocytosis.
5. The major histocompatibiligy gene complex (HLA complex and its products).

Autoimmunity.

Primary immune deficiency disease.

Secondary immune deficiency disease

Humanimmodeficiency Virus (HIV).

Acquired Immunodeficiency Syndrome (AIDS) and ralated disorders.

6. 7. 8. 9.

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BLOCK II POSTING (SENIOR)

1. The spleen
2. Hypersplenomegaly and Tropical Splenomegaly Syndrome (TSS).
3. Systemic Lupus Erythomatosis (SLE)
4. Rheumatoid Arthritis.

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Scleroderma

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Sjogren's Syndrome / Ankylosing Spondylitis Sarcoidosis. .

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ANATOMICAL PATHOLOGY. . . INTRODUCTORY COURSE LECTURES

Introduction .to Pathology Role of Autopsy

Normal Cell, causes of injury. Cellular Adaptation

Cell death. ;

Body reaction to injury Tissue healing and repair Disturbance of haemodynamics

Genetic basis of diseases

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Cell growth and proliferation: Mechanisms.

Neoplasia: Mechanism of Carcinogenesis and tumour biology.

Metastasis/Classification of tumours.

Disorders of Nutrition

LECTURE

BLOCK I POSTING (JUNIOR POSTING)

Cardiovascular System I: Rheumatic heart disease,
endocarditis, Hypertension. i

Cardiovascular System II: Cardiomyopathies, Ischaemic -<
heart disease, Disease of blood vessels Central Nervous System

Central Nervous System I: Congenital. Inflammatory
and vascular lesions.

Central Nervous System II: Tumours. degenerative disease

Alimentary System I: Oesophagus, stomach and Pancreas.

Alimentary System II: Small and Large Intestine Cancer of colon.

Alimentary System III: Hepatobiliary System. . .

Endocrine System: . Disease of pituitary. adrenal~, thyroid and parathyroid.

Diseases of the male reproductive organs. . '

Respiratory System I- Pneumonia, lung abscesses. Bronchiectasis; . . Respiratory
System II: Tuberculosis, Chronic Obstructive Lung Disease. Respiratory System III:

Pneumoconiosis and Lung Cancer: Musculoskeletal System: 11'1-fections and
tumour. Haemoglobinopathies Disease of skin: Leprosy, Buruli ulcer, Deep mycoses.

Disease of Head and Neck including intraocular tumours

Urinary System I: Kidney- Congenital diseases of kidney, Renal failure.

Urinary System II: Kidney-Glomerulopathies and Nephrotic syndrome.

Urinary System III: Pyelonephritis and Disease of the bladder. Lymphoreticular
System I: Lymphomas and other causes of Lymphadenitis Disease of the bladder.

Lymphoreticular System II: Malaria and Tropical Splenomegaly Syndrome. Specific
infection: Typhoid, Schistosomiasis. .

BLOCK II POSTING

General Pathology I

Mechanism of Cellular Injury, Cell Death

General Pathology II

Cell Growth: Molecular events in Cell growth and control

General Pathology III

Oncogenesis and tumour Biology

General Pathology IV

Role of MHC in disease and Mechanism of autoimmune disease

General V

Acquired Immune deficiency states including AIDS

General VI

Genetic basis of disease and role of Molecular Biology in disease diagnosis

Specific Disease Pathology I

Malignant Lymphoma

Specific Disease Pathology II

Tumour of the breast and Cervix; Epidemiology and role of screening.

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Specific Disease Pathology III Nephrotic syndrome and glomerulonephritis

Specific Disease Pathology IV Tuberculosis and schistosomiasis

Specific Disease Pathology V

Typhoid fever and amoebiasis

Specific Disease Pathology VI

Cardiovascular disease: RHD, Hypertension, Cardiomyopathies. Practicals and autopsy demonstrations (including slides and Pots).

BLOCK I POSTING IN MEDICAL MICROBIOLOGY AND PARASITOLOGY

INFECTIONS:

Gram positive cocci; staphylococcus and streptococcus

Gram negative cocci; Neisseria etc

Gram positive bacilli: Corynebacteria, Listeria, etc

Gram negative bacilli: Enterobacteriaceae (Lactose and non Lactose fermenters).

Typhoid and other septicaemias Malaria.

Parasitic Blood infestations.

Intestinal parasitic infestations.

Intestinal Round Worm infestations.

Tissue Round Worm infestations;

Bacterial Diarrhoeal Diseases.

Myiasis.

Immunity, Infections and Immunodeficiency. Serological Diagnosis of infections.

Chlamydial and Rickettsial Infections. Venereology.

. Zoonosis.

Mycobacterial Infections.

Polio and other enteroviruses.

Yellow fever and other haemorrhagic fevers. Hepatitis Viruses.

SYSTEMIC INFECTIONS/HOSPITAL ACQUIRED INFECTIONS. Urinary Tract infections.

Central Nervous System Infections.

Soft Tissue Infections.

Endocarditis and Septicaemia

Respiratory Tract Infections.

Opportunistic Infections.

Control of Hospital Acquired Infections.

Principles of Chemotherapy.

Fungal Infection; Dermatophytes, yeasts, dimorphic fungi, dermatititious fungi.

Amoebiasis. Tapeworm Infestation.

Schistosomiasis.

Orthomyxoviridae: Paramyxoviruses.

Rhabdoviridae and other zoonotic viruses.

Hepesviruses.

Retroviruses (HIV/AIDS/HL 1V)

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FORENSIC MEDICINE

Course Content:

Introduction to Forensic Medicine-history, definition.

1. Medico-legal system Medical examination/coroner's cases.
2. Medical and Dental Council of Nigeria.
3. Medical Defence Unions.
4. The doctor's duty at the scene of death (natural and un-natural).
5. Signs of death estimation of the time of death.
6. Identification.
7. The Medico-Legal aspects of blood.
8. Sudden and unexpected death.
9. Circumstances and treatment of poisoning including investigations of death due to poisoning.

Some legal poisons.

Types of wounds: bruised, abrasion, lacerations; incisions, cut throat and stab wounds.

Injuries in road traffic accidents.

Firearms and firearm wounds.

Asphyxia: hanging, strangulations, suffocation etc.

Drowning, Burns, Electrocution, Deaths from lightning. Consent, Professional secrecy, medical negligence.

Writing a medico-legal report, the doctor In court; the coroner, and his duties.

Alcohol abuse.

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12. 13. 14. 15. 16. 17.

18.

PRACTICAL COMMUNITY HEALTH EXPERIENCE

Students should be exposed to at least 2 months practical experience of working in the field in the community to learn the strategies for Primary Health Care Delivery to such:

community. ~"'

TRAINING IN MANAGEMENT AND EDUCATIONAL METHODS

For reasons which had been stated earlier, a good knowledge of the basic principles and practice of Management, Educational methods and Educational Technology should form part of the undergraduate curriculum. The mode of implementations is left with the medical Schools.

LENGTH OF UNDERGRADUATE MEDICAL TRAINING

The minimum length of time which a student can spend on the course should not be less than 54 months from direct entry. In general, courses of instruction and methods of assessment of student performance must lay emphasis on problem solving and practical skills, required for the practice of medicine, and not mere recall, in keeping with the requirement for the young graduate to be able to assume independent responsibility soon after graduation.

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PART TWO

GUIDELINES ON MINIMUM STANDARDS OF DENTAL EDUCATION IN NIGERIA

CHAPTER VII INTRODUCTION.

I. Council recognizes that the curriculum of a dental school is normally designed and produced by the Board of Studies (or an equivalent body) of that school, subject to the approval of the appropriate University organ such as the University Senate. It is however the duty of the Medical and Dental Council to satisfy itself that the knowledge, skill and attitude derived from such a curriculum meet the standard required by Council before recognition can be accorded to the professional qualifications obtained after undertaking the prescribed courses of this curriculum.

(a) Nomenclature for the degree programme-Dental Medicine/Dental Surgery.

(b) Degree in .view-Doctor of Dental Medicine (DMD): Bachelor of Dental, Surgery (BDS).

(c) Basic Admission Requirements.

2. SELECTION OF STUDENTS

ADMISSION REQUIREMENTS

In practice, the decision on the minimum level of general education required of students wishing to enter a Dental School is not optil1)ally related to the Dental School Curriculum but to the general format of secondary education in the country. This period, of education should provide students with the foundation to undertake the biological and physical sciences of the dental curriculum. The following secondary

school subjects are deemed pre-requisite to dental education.

(a) (b) (c) (d) (e)

Biology

Physics Chemistry Mathematics, and English language

Prospective dental students must pass the West African School Certificate or its equivalent examination with at least a credit in the above subjects or they must pass the Senior School Certificate Examination (SSCE). Therefore, they must either pass the Joint Admission and Matriculation Examination and the University preliminary year by passing the Advanced level General Certification of Education or its equivalent examination in three of the following subject.

(I) (II) (III)

Biology or Zoology Chemistry and Physics

A candidate with a degree in any of the bio-medical and or biological sciences shall be eligible for direct entry provided he satisfies the other minimum requirements as specified by the admitting Institution.

The records of the students should take into consideration the academic performance of candidates vis-a-vis the requirement of the future practitioners of dentistry.

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Interviews are strongly recommended in the selection of candidates to the dental programme in order to determine each candidate's aptitude and suitability.

A minimum of 20 and maximum of 30 annual intake of students are recommended provided the admitting Institution can cope in terms of academic staffing and infrastructural provisions.

DURATION OF COURSE Minimum of five (5) years

CHAPTER VIII

PHILOSOPHY, AIMS AND OBJECTIVES

Philosophy for Training

A Nigerian trained general dental practitioner should be able to meet the vast majority of needs of the Nigerian society. This surgeon equipped with all the relevant clinical competencies should be able to adapt to changing local condition. The undergraduate training in dental surgery should prepare him adequately for the professional and administrative leadership role that will be expected of him as a practicing dental surgeon.

Besides, each product of the Nigerian dental school system should be exposed to routine processes of pedagogy so that he might be able to assist with further training supervision of the para-dental staff placed under him.

In summary, the Nigerian trained dental surgeon should have definite competencies in the areas of diagnosis and management of all common dental disorders as well as be able to effect on the job training and supervision of the para-dental staff under him.

Learning Outcome:

There are three aspects of the objective of dental education which the learning outcome seeks to accomplish. These are:

(1) The establishment of a scientific foundation sufficient for understanding the principle of dental practice;

The acquisition of knowledge, skills, attitudes sufficient for the performance of various tasks and roles of the dental surgeon in the community.

The acquisition of information technology, entrepreneurship skills and attitude for the performance of his tasks.

(2)

(3)

National Objectives of University Dental Education

Education is a process aimed at changing human behaviour and can be defined in terms of certain specific objectives. In arriving at the objectives below, attention has been focused on what the dental students, at the end of the training period, should be capable of doing when faced with any clinical situation.

The Objectives are:

(a) Capability of the dental graduate to undertake independent practice in any part of the country;

Relevance of the training to local environment;

(b)

(c)

; (d)

(e)

(Q)

Comparability of his standard of practice to that obtained anywhere else in the world;

Acceptance of appropriate professional ethics and conducts;

Possession of sufficient training to appraise research findings and apply the same to improve his practice.

Ability to identify and define oral health problems of the community. In addition, ability to educate the public on oral health and to advise upon and evaluate oral health practice of the community and the nation.

CHAPTER IX

3. REGIME OF SUBJECT KNOWLEDGE

Course Requirements

Institutions are free to follow either the pattern of arranging their subjects under pre-clinical programmes with definite time allotment to each area or to follow an integrated pattern in which a definite overlap between the clinical and pre-clinical programmes exists. The students may begin to be exposed to clinical dental medicine as early as possible and in any case, they should not have less than 4 semesters (24 months) of exposure in clinical dental medicine.

The following are recognized as the major disciplines to be included in the curriculum of a dental school:

- (i) Basic Science Subjects and General Studies;
- (ii) Basic Medical and Dental Sciences;
- (iii) Clinical Medical Sciences; and
- (iv) Clinical Dental Sciences.

All courses in this programme are compulsory.

It is the responsibility of individual university to arrange the courses to suit its aspirations and training. However, the design below is to act as a guide as minimum requirements.

BREAKDOWN OF SUBJECTS LEVEL BY LEVEL

YEAR I (200 LEVEL)

Gross Anatomy (all parts of the body) (Same as for medicine) Histology and Histochemistry. Physiology Same as for medicine Biochemistry)

General Pathology)

Pharmacology

Psychology)

Oral Biology (Oral anatomy, Oral physiology and Oral Biochemistry)

0

.. Same as for medicine

YEAR II (300 LEVEL)

SENIOR BASIC MEDICAL AND DENTAL SCIENCES AND OTHER RELATED SUBJECTS (PRE-CLINICAL)

Genetics -Same as for medicine

Gross Anatomy (all parts of the body)

Science of Dental Material~.

Dental Operative Techniques

Prosthetic Techniques

Dental Anaesthesia Techniques

Medical Biology: This includes:

Microbiology, Immunology, Haematology, Pathology, Chemistry, Physics, Mathematics, English, and Social Sciences.

Pathology (Morbid Anatomy & Histopathology)

Microbiology and Immunology)

Haematology)

Chemical Pathology)

Pharmacology) Epidemiology)

Biostatistics and Environmental Health! Community Health)

Oral Pathology)

Basic Clinical Skills)

YEAR III (400 LEVEL) (DENTAL CLINIC SUBJECTS. OPERATIVE TECHNIQUE, GENERAL MEDICINE AND GENERAL SURGERY)

INTRODUCTION TO DENTAL CLINICS- - .1st CLINICAL YEAR.

Basic Clinical Skills
Special Clinical Skills
Operative Technique
Prosthetic Technique
Local Anaesthesia
General Medicine
General Surgery
Oral Medicine and Dental Therapeutics Periodontology
Dental Practice
Conservative Dentistry
Paedodontics
Endodontics
Oral Radiology and Oral Diagnosis Oral Pathology
Oral Surgery
General Anaesthesia
Special Clinical Skills
Advanced Operative Technique Paedodontic Operative Technique Community
Operative Technique Orthodontics.
YEAR IV (500 LEVEL) (21m CLINICAL YEAR) Surgery and all subspecialties of
surgery Medicine and all subspecialties of medicine General Anaesthesia
Oral Medicine and Dental Therapeutics

a

. Oral Diagnosis and Dental Radiology
Periodontology
Community Dentistry/Preventive Dentistry Paedodontics
Orthodontics
Conservation (including Endodontics)
Prosthetic Dentistry
Oral/Maxillofacial Surgery
Primary Health Care
Introduction to Computer Science and Entrepreneurship Electives

YEAR V (600 LEVEL) JIm AND FINAL CLINICAL YEAR

Oral/Maxillofacial Surgery
Oral Pathology
Preventive Dentistry
Child Dental Health
Restorative Dentistry
Dental Practice'
Administration and Management Studies
Application of Computer to Dentistry and Entrepreneurship Dental Ethics and
jurisprudence

4. COMPETENCES AND SKILLS

The Dental Surgeon should:

- Possess the cognitive ability to diagnose and manage all common oral disorders.
 - Be able to train, supervise para-dental staff under him and exhibit adequate management and communication skills.
 - Possess the ability to evaluate, interpret and synthesize novel information and data processing.
 - Possess the ability to use the computer, information technology and entrepreneurship skills.
 - Have communication skills covering both written and oral communication interpersonal skills relating to the ability to interact with patients other health professionals and to engage in team work.
- Study skills needed for continuing professional development.

5.

BEHAVIOURAL ATTRIBUTES

Good knowledge of medical ethics and jurisprudence.

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CHAPTER X

.RESOURCE REQUIREMENTS FOR THE TEACHING AND LEARNING IN' PROGRAMME'

(a) Academic Staff

The academic members of staff should possess recognized postgraduate qualification; and adequate experience. Owing to the practical nature of dentistry, which requires extensive training in manipulative skills and operating on human subject a staff/student ratio of one to four (1:4) is recommended.

The following categories of Academic staff with the minimum qualification approved for the Faculty/School of Dentistry:

CATEGORIES OF STAFF/ QUALIFICATIONS

I. Lecturer Grade 18

Medical and Dental Council registrable undergraduate dental degree or equivalent (e.g. BDS, BCHD, DMD plus Fellowship FMCDS or FWACS or equivalent).

2. Lecturer Grade 1 Medical and Dental Council registrable

(appointment with undergraduate dental degree or equivalent (e.g. clinical responsibility) BDS, BCHD, DMD, LDS, etc). plus MDC

registrable post-graduate qualification or registrable post-graduate qualification or equivalent (e.g. FMCDS, FWACS, Fellowship

Royal College, UK and Ireland, Board Certificate in USA, etc) which the Medical and Dental Council (MDC) recognizes for appointment in consultant positions, adequate publication teaching and research, subject to other approved regulations of the University concerned.

A good First degree and in addition, a Master Degree or Doctorate. Adequate publication teaching and research, subject to other approved regulations of the

University concerned

4. Associate Professor I At least three (3) years Lecturer Grade I. Evidence of research Publications and othl approved regulations of the Universi' concerned. .

Three (3) years after Senior Lecturership. Research ability and adequate teachh experience and other approved regulations of tl University concerned. ,;!'

3. Senior Lecturer

5. Professor

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There shall be recognized teachers, full or part'time for each of the following majo~ areas, constituting core departments:

- (i) Oral and Maxillofacial Surgery
- (ii) Restorative Dentistry
- (iii) Preventive and Community Dentistry
- (iv) Child Dental Health
- (b) Non Academic Staff
- (i) Dental Technologist .

The dental technologist gives instructions and demonstrates to students in parts of the laboratory techniques involved in conservative dentistry, prosthetics, oral and Maxillofacial surgery, paedodontics and orthodontics. In the specialties of oral biology and oral pathology, a medical laboratory technologist/scientist is required for preparing teaching materials. There should be at least one dental laboratory technologist for each area except oral pathology which requires a medical laboratory technologist/scientist, The following career structure is based on the Federal Government circular on Technologists:

CATEGORIES OF STAFF	OF QUALIFICATIONS
1. Technologist Grade II	B.Sc. (Dental Tech.), or C & G Finals or LIBST Diploma
2. Technologist Grade I	-do-
3. Senior Dental Technologist	B.Sc. (Dental Tech.) or C & G Finals or LIBST Diploma
4. Principal Dental Technologist	B.Sc. (Dental Tech.) or C & G Finals or LIBST Diploma. "
5. Assistant Chief Technologist	B.Sc. (Dental Tech.) or C & G Finals or LIBST Diploma
6. Chief Dental	B.Sc. (Dental Tech.) or C & G

Technologist	Finals or LIBST Diploma
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(ii)

Dental Therapist: Dental Therapists are to be employed mainly in periodontics and preventive dentistry where they demonstrate oral health education techniques to students and patients in addition to performing routine oral prophylaxis.

(iii)

Nursing Services

The nursing services in the dental hospital must have a Matron as head, supported by Nursing Sisters, Staff Nurses, and Dental Surgery Assistants.

The Dental Nursing Staff should have been exposed to additional training in dental care and other supporting staff must be physically stationed in the dental hospital

(iv)

Radiographers

A fully qualified Radiographer with additional training in dental radiography required. The entry requirement (of ii, iii, and iv) shall be as laid down in the government career structure.

(c)

Senior Administrative Staff

There should be an adequate number of Senior Administrative Staff as per NUC guidelines for the offices of the Dean, Heads of Department and Academic Staff.

(d)

Junior Staff

An adequate and rationalized number of welfare officers, laboratory assistants, cleaners, orderlies and messengers as per NUC guidelines should be available. These are minimum requirements for various categories of staff in addition to existing regulations for recruitment and promotion of individuals.

CHAPTER XI

ACADEMIC / PHYSICAL FACILITIES

The standard of training given in a faculty of dentistry depends, among other factors, on the availability of physical facilities specifically designed and built for dentistry.,

(a) Office Accommodation for Academic Staff and Other Categories

The minimum should consist of:

(i) The Dean's offices complex

(ii) Office accommodation for each Head of Department and supporting staff

(iii) Office accommodation for Research Laboratory facilities for each member of staff.

(iv) Matron's Office.

(v) Equipment maintenance technicians office

(vi) A common room should be provided for each of the following:

Academic Staff Non Academic Staff and Students

(vii) There is need to provide changing rooms for students, nurses, and dental surgery assistants.

(b)

Lecture/ Seminar Rooms

There should be at least one lecture theatre or auditorium on the campus, large enough to accommodate 250 students at the same time. It is possible that some of these facilities may exist within an associated faculty, such as the School of Medicine and be shared.

In addition to the lecture theatre/auditorium mentioned above, a minimum of 3 lecture halls, each large enough to accommodate the minimum intake of 20 students are mandatory.

In principle, it is suggested that the design of building should be carried out with the greatest reasonable flexibility, tomorrow's needs may be quite different from today's.

(c)

Research Laboratory

It is desirable to have a common research laboratory for academic staff in the school of dentistry. This, however, should not be made mandatory.

(d)

Teaching laboratories

Special laboratory space of about 60 sq. meters including ancillary rooms, is needed in order to meet the demands of training students in dental technology.

There should be one teaching laboratory fully equipped for Prosthetics and another for Crown and Bridge.

The requirement of such a laboratory must meet the needs of the various cadres who will work there, such as:

Lectures in Prosthetics, Conservation, Orthodontics etc.

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(II) (III)

The Dental Technology Instructor with expertise in different specialties.

Dental students at various levels of training. dental technol-ist, and auxiliary laboratory staff.

It - should be emphasized that the laboratory environment must facilitate the demonstration and observation of procedures.

General Facilities For Professional Training

The clinical facilities and requirements for professional training in dentistry are both extensive and expensive and-to a large extent limited by the financial resources available. These facilities. a well-conceived curriculum and adequate staff, are all essential for providing a conducive environment for learning. While variations of the facilities may occur from one institution to another. the minimum should include the

following:

- (i) Dental operatories
- (ii) Laboratories for production of dental prostheses
- (iii) Laboratories for routine clinical investigations
- (iv) Radiological facilities
- (v) Theatre facilities
- (vi) Instrument storage and sterilization facilities.
- (vii) Accident and Emergency Clinic
- (viii) Patient beds
- (ix) Medical records.
- (x) A small Pharmacy unit to serve the dental hospital.
- (xi) Phantom head operatories

(e)

(f)

Dental Operatories

These constitute the most important clinical facilities in a School of Dentistry. These operatories, equipped with instruments and materials, are used by the students for treatment of their patients, under the supervision of members of staff.

The number of operatories should be such that there is one for two clinical students undergoing clerkship in each department.

The operatory should normally be about 11.5sq. meters, must be suitable for most types of operative procedures whether performed by left-or-right-handed operators working alone or with assistants. It should also allow easy supervision of students by staff and be sufficiently roomy to allow free movement of staff and students.

(g)

Laboratories for Production of Dental Prostheses There should be one production laboratory for Prosthetics and another for Crown and Bridge.

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Laboratory for Routine Clinical Investigations

There should be an adequately equipped oral Pathology Laboratory to carry out investigations relevant to dentistry.

Radiological Facilities

Adequate facilities for the teaching of the following Radiological techniques to dental students should be provided:

Intra-oral Radiology

Extra-oral Radiography, particularly, those of head and neck.

Pantomography

Cephalometry

Radiography of chest and other parts of the body. These x-ray

Equipments must be housed in radiation protected rooms.

Theatre Facilities

There should be one theatre attached to the dental school for out-patients' dental care under sedation/general anaesthesia.

There should be a main theatre within the Teaching Hospital Complex for major oral and maxillofacial surgical operations.

Instruments Storage and Sterilization Facilities.

There should be a main store to provide materials and instruments for the dental hospital. Sterilization of instruments can either be done centrally or in units. In either case, the necessary storage space, work-top space and accommodation sterilizers must be provided.

"

Accident and Emergency Clinic

Within the dental hospital, there should be an accident/emergency unit which should be opened 24 hours..

In-Patient Beds

There should be a clearly defined ward-space for the in-patient management of dental and maxillofacial patients. The bed complement shall be such as to offer clinical teachers the facilities to teach hospital dentistry. It is, however, realized that ordinarily, the bed complement for dental hospital is not very large. Nevertheless, it is important that the minimum complement be equitably distributed for male, female and paediatrics occupancy.

Medical Records

The medical records are important for: Proper care of patients;
Research data base, and

(iii) Medico-legal reasons.

The facilities should include a record department, which must be located within the dental hospital, and be manned by the trained record officers; The department must have a registration area, a filing section equipped with appropriate cabinets and racks, as well as a record library. Computerized records department will be preferable.

(O) Pharmacy unit

There should be a small Pharmacy unit within the dental school. Students' Residential Accommodation

It is essential for students, during the clinical years, to be resident within the teaching hospital premises and in any case not farther than 2 kilometers from the teaching hospital so as to be able to function as part of a health care team.

(p)

(q)

Phantom Head Operatories

There should be one complete phantom head with accessories for each pre-clinical student (Le. 25 ~30) for restorative procedures to be arranged 5 to 6 per table in a well illuminated room with Airconditioners. '

(r) Infrastructures for a Dental School Dental equipment are highly sensitive to fluctuations in voltage or electric power supply and to the presence of particle in water. They cannot function without the following:

(i) An uninterrupted supply of electricity of steady voltage.

(ii) Particle-free pipe-borne water with adequate pressure head.

Therefore, a stand-by generator as well as an adequate overhead water storage tank are mandatory.

Most dental equipments are powered by compressed air. The failure of an only compressor would mean a complete paralysis of the operation of the dental hospital. Therefore, in the installation of dental operatories, there should be a functional stand-by compressor.

Since dentistry as a profession is equipment-intensive, it is mandatory to have a team of equipment technicians for routine maintenance of all the equipment. Good access roads as well as internal and external communication facilities are necessary.

(iii)

(iv)

. CHAPTER XII

J

EQUIPMENT

. A. Pre-Clinical Dentistry

Each student shall have one complete phantom head unit with its accessories for operative techniques. He shall also have for prosthetic techniques the following:

(i) Dental motor and its hand piece and other accessories.

B. Clinical Dentistry

Complete dental operatories with its accessories, each clinical department shall have one dental operatories for two clinical dental students doing their clerkship in that department.

c.

Research

Each department shall have a complete dental operatories for research.

"LiBRARY AND INFORMATION RESOURCES

As the effectiveness of teaching is very much dependent on active research, facilities that encourage research are, therefore, essential components of a Faculty of Dentistry. There should be a well-equipped dental library, as part of an existing College of Medicine

Library, with sufficient reading space and adequate supply of up-to-date journals, periodicals and referenced textbooks, audio-visual facilities as resource for learning

may also be provided. Approximate floor space should be at least 150 sq. meters. A medical Librarian should head this library.

In addition, there should be adequate number of computers With internet facilities, med-line, CD Rom.

ATTAINMENT LEVEL

- Candidates are expected to satisfy the minimum clinical requirements as may be specified by each university.
- The degree to be awarded should be unclassified.

MAINTENANCE OF CURRICULAR RELEVANCE

There would be accreditation of degree programme and the review of the curriculum every 5 years.

PERFORMANCE OF EVALUATION CRITERIA

- (a) There should be several continuous assessments that should constitute 30% of the year's assessment. The evaluation may be in the form of written, clinical, practical and oral examinations.

GUIDELINES ON MINIMUM STANDARDS 1m

(b)

It is desirable to assess the quality of teaching both by peer and students. This could be by way of questionnaire.

In addition to the in-course assessment. there should be professional examinations as follows ' ,

First professional examination in Anatomy. Physiology, Biochemistry And Oral Biology.

Second professional examination in Science of Dental Materials, Operative Techniques and Prosthetic Techniques. ' ,

Third professional examination in Medical Microbiology and' Parasitology. Morbid Anatomy" Pharmacology, Hematology, Chemical Pathology, Epidemiology, Biostatistics and Environmental Health/Community Health.

Fourth professional examination shall consist of Medicine, Surgery (including the sub-specialties and general anaesthesia).

Fifth and final professional examination in clinical dental course.

Dental Ethics and Jurisprudence and the use of computers and entrepreneurship as applied to clinical practice.

The external examiner system shall be used In all professional examinations.

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CHAPTER XIII

HUMAN RESOURCES

13.1 ACADEMIC STAFF

Academic staffing is a major and critical determinant for the achievement of high standard of training. It is a well-known fact. however. that suitably qualified academic staff in Dentistry are difficult to recruit as there is a world-wide shortage of such staff. Therefore. the staffing of a dental institution in Nigeria must be seen as one of the most serious problems the institution will face in an effort to achieve the minimum standard of education.

The solution to the problems of staff shortage is to expand the postgraduate facilities in all the existing institutions and to encourage suitable candidates to undertake their training in this country. It is thus obvious that the National Postgraduate Medical College training programme is the biggest potential source of staff development for the country.

The academic members of staff should possess Council recognized postgraduate qualifications and adequate experience. Owing to the practical nature of dentistry. which requires extensive training in manipulative skills and operating on human subjects; a staff to student ratio of 1 to 5 is recommended for the clinical years.

SUPPORTING STAFF

Dental Technologists

The dental technologist gives instructions and demonstrate to students in parts of the laboratory techniques involved in Conservative Dentistry. Prosthetics. Oral and Maxillofacial Surgery and Pedodontics.

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In the specialties of Oral Biology and Oral Pathology. a Medical Laboratory Technologist/Scientist is required for preparing teaching materials. Therefore. there should be at least one dental laboratory technologist for each area and <at least one laboratory technologist/scientist for medical laboratory Oral Pathology.

2. Dental Therapists

Dental Therapists are employed mainly in periodontics and preventive dentistry, where they demonstrate oral health education technique to school, children and patients in addition to performing routine oral prophylaxis.

3. Nursing Services

The nursing services in the dental hospital must have a Matron as head, supported by Nursing Sisters. Staff Nurses and Dental Surgery Assistants. The Matron. who must be directly responsible to the Dean of the Faculty, should have .been exposed to additional training in dental care. and with her supporting staff. must be physically stationed in the dental hospital.

4. Radiographers

A fully qualified radiographer with additional training in dental radiography is required.

CHAPTER XIV

RELATIONSHIP BETWEEN THE TEACHING HOSPITAL AND THE DENTAL HOSPITAL OF THE SCHOOL OF DENTISTRY

It is essential that the Dental School should be located within the Teaching Hospital Complex. The teaching hospital should provide all the consumables for clinical services and should be solely responsible for patients matters.

14.1 FUNDING

Provision of adequate funds is one of the most important factors in the establishment of minimum academic standards for every university discipline, and most especially dentistry which is capital-intensive.

In order to permit quality instruction, dentistry must enjoy separate and direct funding from two sources, namely, the University and the Teaching Hospital. Funds for the provision of pre-clinical facilities should be provided by the National Universities Commission through the University, while those for clinical facilities should be provided by both the National Universities Commission and the Federal Ministry of Health. The recurrent budget for consumable dental materials should be the responsibility of the Federal Ministry of Health through the Teaching Hospital.

15.1

CHAPTER XV

ORGANIZATION STRUCTURE

Dentistry consists of complex but related specialties grouped into departments. The faculty of Dentistry, in terms of function and development, must enjoy the same status like any other Faculty within the University in order to be able to effectively organize its programmes.

Experience from abroad, and even here in Nigeria, has shown that dentistry cannot develop fully unless the various departments are constituted into a faculty or school. Indeed, in its report of March, 1977, the National University Commission Party on Medical Education recommended that each Department of Dental Surgery be developed into a full "School of Dentistry".

The Medical and Dental Council's requirement on the same issue is summarized as follows:

. Thus, a training institution for dental surgeons must be of the status of a school or faculty and should not exist, under any circumstances, as a department or departments in a school or faculty of medicine. Such a dental institution shall be headed academically and administratively by a Dean or a Provost who must be a dental surgeon as earlier stated.

There shall be a minimum of four (4) clinical departments with a minimum of 4 academic members of staff per department for the Faculty or School to take off.

The following major subject areas should constitute

(a) Oral and Maxillofacial Surgery

Oral Biology/Oral Pathology

Oral and Maxillofacial-Surgery

(b)

(c)

(d)

the four core departments:

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Restorative Dentistry Conservative Dentistry Prosthetic Dentistry

Preventive and Community Dentistry Periodontology

Oral Medicine

Oral Diagnosis

Child Dental Health

Orthodontics

. Paedodontics

CHAPTER XVI

I

ASSESSING STANDARD AND MONITORING PROGRAMME

Having laid down the guideline on minimum standards, and mindful of the regulatory role it must now play Council stipulates the following sequences and procedures for assessing the operation of dental schools.

Time Table Assessment:

This consists of the schedule of the Prophylactic involvement of Council in the development of dental school.

Step I

Once the proposal to establish a dental school in a University is formalized, the Vice-Chancellor should communicate this proposal to the Registrar of Council at the same time as to the National Universities Commission and Directorate of Planning at the Federal Ministry of Health

Step II

The Registrar of the Council sends the copy of the Council's Guidelines on Minimum Standards, (this document), to the Vice-Chancellor and at the same time initiate! consultation with the National Universities Commission and the Directorate of Planning at the Federal Ministry of Health.

Step III

Continuation of detailed planning operations in concert by the University. The Medical and Dental Council, the National Universities Commission and The Federal Ministry of Health in coordination with the National Planning Machinery.

Step IV

In the light of the development in step III, the Registrar of the Medical and Dental Council of Nigeria arranges the visitation time table for the Medical Education Committee of Council, in consultation with the Dean of the Dental School concerned and according to the following sequence.

I It Visitation: Before the first set of students are admitted for the dentistry course .

(Advisory visit).

2nd Visitation: During the second preclinical year.

3rd Visitation: During the first clinical year of the first set of students, to evaluate facilities for clinical and practical training.

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4th **Visitation:** During the final year of the first set of students. In the course of this visitation the final examination/assessment of his

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a visitation Jo an institution whenever there is good reason fQrdoiQg ~ Piiii,t. "

Any accredited institution which willfully foils a scheduled visitation by Council and fails to accept visitation within ninety days of the date previously given by Council.

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'automatically, lose its accreditation status. ,J:' "

Therefore, whenever dates of accreditation visitation proposed by Council are not suitable for the authorities of any institution, they themselves must propose a new

date acceptable to Council within the above time limit. Should they fail to do this the institution would stand discredited.

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The accreditation of any new dental school would be effective from the date accreditation is granted and not from the date such a school, decided to be admitting students without due accreditation.

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The process of each visitation should feature:

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(i) The completion of specific questionnaires seeking information on the part

of the institution in respect of the specific criteria outlined in these minimum standards.

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(iii) (iv)

'Inspection of the facilities in the school;

interViews with the staff"

:Interviews with students, at the discretion of the Visitation panel.

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The completed questionnaires and a summary of the findings would then be presented to Council (each visitor) to enable it decide on the fate of the institution.

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Full accreditation shall be granted to any dental school that has satisfied the guidelines on Minimum Standards of Dental Education (in Nigeria) and such accreditation shall be valid for

a period of five (5) years, after which there shall be a five year visitation.

On the other hand, any dental school which fails to achieve the standards stipulated in the guidelines on minimum standards of dental Education in Nigeria shall remain unaccredited

and may be considered for accreditation only when the relevant authorities have formally requested for Council's re-visit and the re-visit panel make a favorable recommendation to Council. Such a visitation will come after Council has highlighted all

the deficiencies observed at the last visitation and are due to the following reasons:

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CHAPTER XVII

REGULATION GUIDING REGISTRATION AND LICENSING OF GRADUATE OF MEDICAL AND DENTAL SCHOOLS FOR PRACTICE IN NIGERIA

The Medical and Dental Practitioners Acts CAP M8 2004 in Sections 8, II, 12 and I. stipulates the conditions that must be fulfilled by a medical or dental graduate before he may be registered and licensed to practice in Nigeria and the circumstances under which such a registration or licensure could be effected.

The Council considers it pertinent therefore to include in these guidelines relevant regulations which are necessary to be brought to the notice of all graduating medical and dental students to enable them achieve the appropriate type of registration within the stipulated periods and secure the licence to practice.

Provisional Registration: Internship

New graduates from medical and dental schools need to be registered provisionally before they can embark on their first stage of medical or dental practice. which is the internship training.

Every medical or dental graduate of a medical school must undergo a twelve month period of internship in a hospital recognized by Council for that purpose before he can be fully registered. This internship must be undertaken and completed within twenty four months of the date of graduation. A medical or dental graduate who fails to complete the internship within the stipulated period may be required to sit and pass Council's assessment examination before he can be fully registered.

Therefore, all new graduates must endeavour to obtain their provisional registration with minimum delay after passing their final examinations to enable them secure house jobs early enough to complete their internship within the stipulated period. Graduates who find it difficult to secure placements for internship should report without delay to the Registrar of Council. Doctors who are provisionally registered should note that the registration is valid for only two years.

Full Registration: All doctors who have successfully completed their internship training are required by law to obtain their full registration before further medical practice. It is illegal for a doctor who is not fully registered to practice on his own without a consultant's supervision.

Annual Practicing Licence: All doctors, irrespective of their status or age, are required to obtain an annual practicing licence. Any doctor who has not done this would be practicing
11111"

Registration of Foreign medical Graduates: Nigerian graduates of accredited Foreign medical schools are entitled to provisional registration upon their return to the country to enable them undertake their internship. However, Nigerian graduates of unaccredited foreign medical schools, as well as all expatriate medical doctors from all foreign medical schools, who do not possess recognized professional post-graduate qualifications, are required to sit and pass Council's assessment examination before they can be registered. The Nigerian who pass~s the assessment examination would be eligible for provisional registration to enable him do his internship while the expatriate who passes the assessment examination would be eligible for limited (Temporary) registration and would be renewable as specified on the certificate.

Temporary Registration: All expatriate doctors are by law allowed only limited Registration (Temporary Registration) which must be tied on a specific employment. A doctor on limited registration would be breaching the law if he opened or managed on his own a private health institution, be it a clinic or a hospital.

Registration of Additional Oualification: All doctor who have obtained additional Professional post graduate qualifications either in Clinical or Basic Medical Sciences are required to register them with the Council before they can put themselves forward as specialists. Doctors who fail to do this but continue to hold themselves out as specialists, are doing so illegally.

Dated 2006 Ag. Registrar MDCN