

# **AN INNOVATIVE APPROACH TO UNDERGRADUATE MEDICAL EDUCATION IN NIGERIA**

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## LIST OF ACRONYMS

COBES	Community-Based Medical Education and Services
COBMES	Community Based Medical Education and Services
GIMS	Graduates of innovative medical schools
GTMS	Graduates of traditional medical schools
IMS	Innovative Medical Schools
IPHCME	Innovative Primary Health Care Medical Education
NPHCDA	National Primary Health Care Development Agency
PHC	Primary Health Care
RUCO	Rural Community-Oriented Educational Programme
SIMS	Students in the innovative medical schools
STMS	Students in traditional medical schools
TMS	Traditional Medical Schools
UCPI	University-Community Partnership Initiative
WHO	World Health Organisation,

## **SUMMARY**

This study aimed at assessing the impact of innovative, community-based Primary Health Care (PHC) educational strategies on medical education and practice in Nigeria. The study started with the development of a conceptual model for the evaluation of the Innovative Primary Health Care Medical Education (IPHCME) and a review of essential information from existing records, reports and programme plans on medical education in Nigeria, in general, and IPHCME in particular. Two IPHCME institutions in the South-Western part of the country were selected for the study and two traditional medical institutions that operated conventional curricula, and matched for location and age, were selected as controls. Self-administered questionnaires were developed and used for the collection of data from a random sample of final year students in the innovative medical schools (SIMS), students in traditional medical schools (STMS), graduates of innovative medical schools (GIMS) and graduates of traditional medical schools (GTMS).

In-depth interviews of selected medical leaders and teachers in the innovative medical educational institutions and interviews of policy-makers in governmental and non-governmental institutions were conducted. Focus group discussions were conducted among selected members of the target communities for IPHCME to gauge community reactions to the programme.

Case descriptions of IPHCME strategies revealed some critical factors responsible for their continuous and apparently successful operation. These include: (i) the establishment of a coordinating unit for the programme; and (ii) quality of leadership provided for the programme.

Findings also revealed that the graduates of the innovative medical schools had more community-based exposure to PHC education and more positive attitudes to their community-based PHC postings than those from the traditional medical schools. Community perceptions of the programme varied. Attitudes of faculty members to the programme also varied, from total commitment to mere lip service and, in a few cases, even hostile attitudes.

The study concluded with recommendations for initiating, sustaining, and expanding PHC education of medical and other health science students in Africa.

# AN INNOVATIVE APPROACH TO UNDERGRADUATE MEDICAL EDUCATION IN NIGERIA<sup>1</sup>

## INTRODUCTION

The relevance of traditional education of medical undergraduates to the essential needs of the community has been an issue of intense debate in Africa. Traditionally, basic medical education in African countries was mainly hospital-based, high-technology-oriented, and focused on the cure with little attention given to preventive and promotive care (Andreopoulos, 1974; Fendall *et al*, 1980; Daramola, 1984). Such training programmes could only produce medical doctors who could serve effectively in secondary and tertiary medical hospitals, leaving the primary health care (PHC) level underserved or not served at all.

Following growing criticism of this type of medical education in Nigeria as well as the West African sub-region, various attempts have been made to reorient medical education towards the needs of the population.

One of the main objectives of basic medical education in Nigeria was to train doctors with a strong orientation towards priority health problems and community programmes (Medical Education Working Party, 1977). How this laudable objective should be achieved, however, appears to be inadequately specified in most of the curricula of country's medical schools. However, there are some medical schools in the country, whose curricula were community-oriented, community/problem-based and PHC-focused from their inception. These schools (Ife, Ilorin, Bayero, Maiduguri and Ogun) were also members of *International Network of Community-oriented Educational Institutions for Health Sciences*, whose primary objective was to promote innovative community-based and problem-based learning as a contemporary educational strategy for addressing the issue of the relevance of health sciences education world-wide. Their curricula were therefore different from the conventional medical curricula in scope and mode of delivery. While some reports on their programmes have appeared in the literature, outlining their educational objectives and strategies, and expected outcomes and constraints (Alausa, 1988; Aiyedun, 1992; Omonisi *et al.*, 1992; Jinadu *et al.*, 1992; Omotara *et al.*, 1992), there has not been a systematic and comprehensive evaluation of their programmes. Since most of these innovative schools are over ten years old and can be considered mature, a systematic evaluation of their programmes will provide useful insights into their operations and expected impact on the population and other health science institutions.

The development of educational strategies for increasing the interest of medical undergraduates in PHC in Africa is a matter of considerable policy significance. At issue, in this study, is the basic question of whether the innovative approach of rural, community-oriented and problem-based educational strategy for orienting the medical undergraduates

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towards PHC in Nigeria has an impact on their attitudes, choice of careers and practice. Other questions which this study will address are: in what ways are students in the innovative programmes different from those in the conventional programmes? What has been the impact of these programme on the parent institutions and other educational institutions?

### Health Problems of Nigeria

The major challenge facing Nigeria is how to improve the health of the growing population. Infant mortality rates (an index of health and socio-economic development of a nation) remain very high (about 100 per 1,000 live births) while life expectancy at birth is still very low -- about 45 years. Complications of pregnancy occur in about 15% of women and the maternal mortality rate is about 16 per 1,000 deliveries (FMOH, 1995). Table 1 shows the incidence of some major killer or crippling diseases in the country<sup>2</sup>. These are preventable diseases which can be eradicated by immunisation, health education, improvement in environmental sanitation, especially the provision of adequate and potable water, as well as adequate and safe disposal of refuse and human waste (Morley, 1963; Morley, 1975; Ransome Kuti, 1981; Lucas, 1991). It has also been realised that 85% of the ill-health conditions afflicting the majority of the population can be prevented and treated outside the hospital system, within the PHC settings (Ransome-Kuti, 1981).

Table 1: Ten Major Causes of Morbidity from Notable Diseases in Nigeria, 1991-1993 (rates per 100,000 population)

<b>Disease</b>	<b>1991</b>	<b>1992</b>	<b>1993</b>
Malaria	1027.70	1337.40	1045.68
Dysentery	523.30	608.95	518.96
Pneumonia	154.80	152.30	171.51
Measles	49.70	94.30	58.29
Gonorrhoea	49.40	45.30	35.46
Pertussis	21.10	24.30	25.34
Leprosy	15.40	16.30	15.66
Tuberculosis	22.20	16.20	12.35
Schistosomiasis	15.20	18.70	12.76
Cholera & Gastroenteritis	69.60	9.50	4.26

Source: Federal Ministry of Health, Department of Planning, Research and Statistics.

### Primary Health Care

Nigeria adopted Primary Health Care (PHC) as the cornerstone of its National Health Policy in 1987. According to the Policy, PHC in the country shall provide general health services of preventive, curative, promotive and rehabilitative nature to the population at the entry point of the health care system. The provision of care at this level is largely the responsibility of

<sup>2</sup> These include malaria, diarrhoeal diseases, measles, respiratory infections, tuberculosis and tetanus.

local governments, with the support of the State Ministry of Health and within the overall national health policy (FMOH, 1988; Ransome-Kuti *et al*, 1990). The basic principles underlining the Alma Ata Declaration of 1978 - equitable distribution, community participation, focus on prevention, appropriate technology, and multi-sectoral approach (WHO, 1978) - have guided the national policy and plan of action.

One of the basic problems constraining adequate development of PHC programmes in the country is shortage of adequately trained health professionals, including medical doctors. Medical doctors are expected to play a prominent role in the planning, programming, delivery and evaluation of PHC. To this end, the majority of newly-graduated doctors are posted to PHC facilities in rural communities for one year National Youth Service Corps. However, it is doubtful whether these doctors can perform according to expectation, without adequate orientation to PHC.

### **OBJECTIVES OF THE STUDY**

The main objective of this study, is to assess the impact of the innovative community-based PHC educational strategy on medical education and practice in Nigeria. The aim is to take stock of what has been learned from past approaches, what has been achieved by these approaches, and what operational policies regarding PHC education should be pursued in the future.

#### **Specific Objectives**

The specific objectives of the study are to:

- i. identify the planning, implementation and evaluation processes of innovative PHC medical curricula in Nigeria - their course content, teaching methods and attitudes of students and staff to the programmes;
- ii. assess the impact of the IPHCME strategy on the orientation of the programmes' graduates towards PHC, as well as their attitudes towards community health programmes and problems;
- iii. assess community exposure to graduates of the IPHCME programmes and community reactions to these programmes; and
- iv. identify options for improving the IPHCME approach in Nigeria.

### **OPERATIONAL DEFINITION OF TERMS**

- i. Innovative Primary Health Care Medical Education (IPHCME): This is a community-based education programme which utilises problem-based and self-directed learning strategies, through organised exposure of students to community health problems and programmes. Investigating community health problems and proposing, implementing and evaluating interventions are the main feature of the learning process.
- ii. Innovative Medical Schools (IMS): These are medical schools operating IPHCME programmes.
- iii. Traditional Medical Schools (TMS): These are medical schools operating conventional medical education programmes.

## **SOME THEORETICAL PERSPECTIVES AND A FRAMEWORK FOR THE EVALUATION OF INNOVATIVE MEDICAL EDUCATION**

Studies of innovative medical education programmes world-wide have provided some insight into factors limiting evaluation of medical programmes and how they can be overcome. Three basic questions have been identified as the central focus of such evaluations: (i) differences in abilities of students; (ii) impact of the programme on the health institutions and (iii) the impact of the programme on the health of the population (Stewart *et al*, 1992; Woodward, 1992).

Most of the evaluative studies of innovative medical education programmes have been in Europe and North America and have produced conflicting results. While some studies have shown that students in innovative programmes tend to perform as well or better during residency training than those in the conventional programmes (Woodward *et al*, 1983; Santoz-Gomez, *et al* 1990), others have not detected major differences in clinical skills and clinical performances (Kaufman *et al*, 1989; Neufield *et al*, 1989). Others still have identified differences in the attitudes and level of stress of those in innovative programme (More-West *et al*, 1989). These studies have been conducted for different purposes and have therefore used different models of evaluation.

However, there is general agreement among experts that community-based education should be problem-based, self-directed and student-focused (Richards 1989; Schmidt, 1983; Schmidt *et al*, 1987;). According to Schmidt and others, the problem-based, self-directed and student-focused learning approaches are based on the observation that when students are confronted with community health problems, rather than bits and pieces of fact learning, they are highly motivated to acquire the necessary skills for problem solving. According to Friedman and others (1992), for a medical education programme to qualify as innovative it must possess certain important characteristics. Namely, it must:

- i. operate on the scale of the entire curriculum leading to the degree in medicine or a significant fraction of it;
- ii. be guided by some clearly stated, coherent sense of purpose; and
- iii. involve all medical students or an identifiable subset of students at a school.

A model of experiential community-based education, proposed by Jinadu (Jinadu, 1992) suggests a rational and systematic approach to problem-based, student-focused and self-directed community-based PHC education. Since adequate development of PHC must involve the entire community process, information for learning about PHC in the experiential model of community-based education must be derived from the entire socio-cultural environment of the community. In the model, the role of the teacher is to aid the students in an inductive learning process rather than the traditional deductive approach.

According to Stufflebeam and others (1980), an educational programme has three distinct characteristics: (i) structural arrangement, (ii) a process of implementing the programme and (iii) outcomes. Since programme evaluation in higher education is a systematic collection and

interpretation of information about the programme with the aim of improving, rather than merely probing, its development and management, the design of evaluation must follow certain steps. Rotem (1992) identified ten steps, based on the above listed characteristics, in the design of programme evaluation. However, only the first five of the ten steps are necessary for the development of our evaluation model. They are:

- i. clear description of the programme to be evaluated;
- ii. identification of the stakeholders, who have different concerns, claims and interests in the programme;
- iii. clarification of each stakeholder's areas of concern;
- iv. formulation of specific questions in relation to each area of concern; and
- v. development of methods of data collection.

### **Identification of Stakeholders**

The stakeholder approach to evaluation has been proposed by Weiss (Weiss, 1983). Stakeholders of a programme are people or institutions who want to know about the programme and whose need for evaluative information we wish to address (Rotem, 1992; Weiss, 1983). Examples of stakeholders of medical education programmes are the students, programme staff, community, health authorities, and funding agencies. The stakeholders of the IPHCME programme can be grouped into two broad categories:-

- i) Internal stakeholders
  - (a) internal policy-makers - university staff
  - (b) internal policy-executors - programme staff and students, both current and past.
- ii) External stakeholders, including government and governmental agencies (the NUC), non-governmental organisations, WHO, Nigeria Medical Council (the Accreditation Body) and the community.

Since stakeholders may have different and even conflicting concerns about the IPHCME programme, the next step in the development of an evaluation model is to classify their areas of concern. This must be done in such a way that these can lead to the development of questions and data collection methods which are appropriate for achieving the objectives of the study. Table 2 identifies critical areas of concern for each stakeholder category about the organisation, the process of planning and implementation and the outcomes of the programme that need to be evaluated.

**Table 2: Identifying and Clarifying Critical Areas of Concern for Stakeholders of Innovative Medical Education Programmes**

<b>Stakeholder</b>	<b>Structure</b>	<b>Process</b>	<b>Outcomes</b>
Governmental organisations	Efforts that have been made to establish structures	NSC	Quality and quantity of training; impact on PHC; impact on priority health problems
Non-governmental organisations, WHO	Efforts that have been made to establish structures	NSC	Quality of training; impact on PHC; impact on priority health problems
Nigeria Medical Council	Efforts that have been made to establish structures	Process of delivery	Clinical skills & attitudinal aspects
Practice community	NSC	Community involvement and participation resource contributions	Impact on community health problems and health development programmes
Policy makers and implementors in Medical Schools	Past and current organisational structures	Logistics; adequate duration; resource support; staff, student and community participation	Clinical skills- what and how much? & attitudinal aspects
Current students	Current organisation of programme	Duration; resource support; staff participation	Relevant clinical skills for examinations
Past students	Current and past organisation of programme	Duration; resource; support staff; participation	Clinical skills for practice

NSC = No significant concern

Major questions emanating from the stakeholders' concerns about the structures, processes and outcomes of the innovative medical education programme are shown below:-

- (i) Description of the Programme (Structure):-
  - What is the Programme?
  - When was it started?
  - How was it started (historical background of how it come about)?
  - Major objectives of the Programme?
  - Target participants?
  - Contents and scope of the Programme?
  - Areas to be covered, knowledge base, etc?
  - Learning methods and activities?
- (ii) Organisational Settings (process):-
  - Duration of the Programme?
  - Logistics for implementation/implementation strategies

- Who are the implementors?
- Site for implementation and methods used?

## **RESEARCH METHODOLOGY**

The study relied on three data collection instruments: in-depth interviews schedule (for medical leaders, teachers and policy makers); focus group discussion (FGD) guides (for community leaders); and self-administered questionnaires (for medical students and medical graduates).

Two IPHCME institutions in the South-Western part of the country were selected for the study. Two traditional medical institutions, *i.e.*, medical schools teaching a conventional curriculum, in the same part of the country were also selected as controls. Each of the two IPHCME institutions were matched for location and age of the institutions. A random sample of 50 final year medical students in the innovative medical schools (SIMS), and 50 final year medical students in the traditional medical schools (STMS) were selected for the study. Additionally, 50 medical graduates of the innovative medical schools (GIMS) and 50 medical graduates of the traditional medical schools (GTMS) within the towns where the medical schools were located and surrounding towns were purposively selected for interviewing. The majority of the GTMS were undergoing internship training in the university teaching hospitals, some were undergoing one year compulsory national youth service programmes after the internship period and others were either general practitioners or consultants. Response rates were as follows: 44 of the SIMS, 40 of the STMS, 40 of GIMS and 35 of the GTMS.

In-depth interviews were conducted among purposively selected medical leaders and teachers in the innovative medical educational institutions and policy-makers in governmental and non-governmental institutions. The policy-makers included officials of Federal Ministry of Health and the National Universities Commission.

Finally, focus group discussions were conducted among selected members of the target communities for IPHCME to gauge community reactions to the programme. The focus group consisted of eight discussants. The discussions, which lasted for about one hour each, were guided by a facilitator and tape-recorded.

**Data Analysis** Epi Info software was used for entry and editing of data from the questionnaire. Frequency distributions and means statistics were used for summarising the data. Content analysis was used to analyse the focus group discussions.

## FINDINGS AND DISCUSSION

### Case Studies of Selected Innovative Medical Education Strategies in Nigeria

#### 1. College of Health Sciences, Obafemi Awolowo University, Ile-Ife.

The Faculty of Health Sciences of Obafemi Awolowo University (formerly University of Ife) was started in 1972 with a community-oriented medical educational programme for its medical and other health science<sup>3</sup> students.

The educational objectives of the programme included the ability to:

assess the health status of the community, define its major health problems, allocate priorities and formulate plans for dealing with them; work in or lead a health team; undertake community health education; and tailor his/her activities in respect of the health needs of the community so that they can reflect the social, economic, psychological and ecological factors of the area. (Jinadu, et al 1992).

This programme was unique because it was the first of its kind in the country. It was planned and co-ordinated by academic staff from the Faculty of Health Sciences as well as other faculties in the university. A Community Health Committee was established for the planning and allocation of resources for the programme.

The basic structure of the programme is shown in Table 3. Student postings into the community for a duration of two weeks began in the pre-clinical year (level 200). Other postings occurred in the clinical years. During the pre-clinical posting the students would be assigned to selected rural communities to conduct community-based investigations for the purpose of understanding the socio-cultural and demographic structures of the communities. During the clinical years, the students would be posted to the same or similar communities and their health facilities for community health diagnosis and prioritisation of health problems, including developing, implementing and evaluating health interventions.

Table 3: Structure of the Community-oriented Medical Education at Obafemi Awolowo University (University of Ife)

PERIOD	DURATION	ACTIVITIES	LOCATION	ORGANISATION
Pre-clinical Year (Year II)	4 weeks block posting	Demographic survey & community sensitisation	Rural & urban communities	Students are divided into small groups and assigned to communities of about 5000 inhabitants
Clinical years (Years IV, V, IV)	6-8 weeks posting	Health survey; community health diagnosis; health centre activities	Communities; PHC centres	Individual projects and assignment

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3 These include Nursing, Environmental Health and Medical Rehabilitation.

A few years after the establishment of Ife medical education programme, a Department of Community Health was established. New staff who had never been orientated towards the original philosophy and objectives of the programme were recruited into leadership positions. The centralised approach to planning and allocation of resources for the programme was abandoned. The programme became the responsibility of the Department of Community Health, which did not have the human and material resources to implement it. The innovative aspect of the medical education of the faculty was therefore abandoned.

In 1987, the faculty re-examined the PHC aspect of its curriculum in view of the fact that PHC had become a major health policy of the nation and also because the programme which Ife started, and then abandoned, had spread to other universities in the country. In addition, the need for the medical school to maintain its membership of *International Network of Community-Oriented Medical Institutions*, motivated it to establish another rural community-oriented educational programme (RUCO). The main objectives of RUCO were:

- (i) to provide organised rural exposure to trainees in health sciences;
- (ii) to provide facilities for individual and interdisciplinary research relevant to the needs of the community;
- (iii) to achieve a measurable impact, on an on-going basis, on the health of the community.

The Department of Community Health was again given responsibility for the implementation of the programme. Students spent part of their pre-clinical and clinical postings in the RUCO programme. Their activities included demographic and health surveys and provision of PHC services in the area. Again, after some years of implementation, the programme was abandoned due to the Department's lack of human and material resources.

#### University-Community Partnership Initiative (UCPI) for PHC Education, Research and Service

In 1992, all medical schools in Nigeria were invited by the National Primary Health Care Development Agency (NPHCDA) of the Federal Ministry of Health and Social Services to develop PHC education and service with local governments of their choices. Another community-based educational and service programme (UCPI) was therefore initiated at the University (Jinadu et al, 1997). The main objectives of the programme were:

- i. to establish and strengthen LGA/community/university collaboration in PHC education, research and service;
- ii. to improve facilities for the community-based PHC education, research and service;
- iii. to strengthen the PHC health information system in the LGA; and
- iv. to strengthen university/LGA collaboration in health systems research.

Strategies for the planning and implementation of the UCPI included community mobilisation/participation and capacity building. Although the PHC education of students under this partnership initiative was planned to take place at various levels of their medical education, this was not possible because of the inability of the clinical departments to allocate some of their crowded clinical periods to this community-based PHC education.

## 2. University of Ilorin Innovative Medical Education Programme

The University of Ilorin's innovative medical education programme, known as COBES (Community-Based Medical Education and Services) programme was established in 1976 with the inception of the medical school. The programme was guided by a well-articulated philosophy which aimed at:

- i. making medical education relevant to community needs;
- ii. sensitising medical students to community needs very early in their training and throughout the entire programme;
- iii. producing doctors who could work as members of health teams; and
- iv. developing problem-solving and self-directing skills in medical students.

### Organisational Structure of COBES

COBES programme was a unit within the office of the Dean with the following staff structure:

- i. A Coordinator and Assistant Coordinator - who were academicians;
- ii. two experienced Nursing Officers; and
- iii. a typist;

The Unit was responsible for the day-to-day implementation and evaluation of the COBES programme. COBES was also administered by two committees.

I. *COBES Academic Planning Committee* was responsible for the planning of its academic programme. Its members included:

- i. a Professor/Reader who was a representative of the Dean as Chairman;
- ii. Head of Department of Epidemiology and Community Health (member);
- iii. Dean (ex-officio member);
- iv. A representative of the State Ministry of Health;
- v. three members of academic staff and the COBES Coordinator;
- vi. a representative of Faculty of Engineering; and
- vii. a Secretary (from Deans' Office).

II. *COBES Field Logistics Committee* was responsible for arranging for students' accommodation, transportation, catering and similar matters. Its members were:

- i. COBES Coordinator (Chairman);
- ii. One representative each from all the departments of the Faculty as members;
- iii. A secretary from the Deans' Office.

### COBES Postings

There were four COBES postings spanning the entire medical training period (see [Table 4](#)). Two of these postings took place during the pre-clinical years and the other two postings took place during the clinical years.

Each COBES posting was designed to address specific objectives. For example, objectives of the 200 level COBES included demonstrating skills in entering a new community, carrying out a demographic survey, determining patterns of life of the community, identifying common health problems and their causal factors, and acquiring skills in conducting health

education. Similarly, the specific objectives of the 500 level COBES posting focused on maternal and child health problems and how to manage such problems in assigned clinics. The level 600 COBES postings were designed to sensitise students to the clinical needs of the community they served and to develop a team approach to the provision of both preventive and curative health care.

Table 4: Structure of Community-based Education for Ilorin Students

<b>Year</b>	<b>Duration</b>	<b>Activities</b>
200 Level Pre-Clinical	4 Weeks	Demographic survey; community survey of health facilities and utilisation patterns, common health problems; and written reports.
300 Level Pre-Clinical	4 Weeks	Varies depending on theme for the year.
500 Level Clinical	4 Weeks	Survey and prioritise specific health problems, community diagnosis, Assist in management of maternal and child problems in clinics, immunisation
600 Level Clinical	8 weeks	Assist in running clinics, involve in health education and home visit.

The objectives of COBES were achieved by ensuring that students had adequate exposure to problems commonly found in local communities during their entire programme. Like other innovative approaches to medical education, the Ilorin COBES placed a strong emphasis on integrated teaching, problem-based learning, and the active mobilisation and participation of the community. The latter was achieved through the formalisation of Local Committees which had already played an active and keen role not only in the planning of COBES activities but also in organising and mobilising community health resources for the programme.

#### Student Evaluation During COBES Postings

Assessments of students during pre-clinical postings into COBES include:

- i. field assessment of students by the lecturers, field supervisors and coordinators, which carries 30%;
- ii. oral presentation of COBES report, which carries 20%; and
- iii. written examination, which carries 50%.

During clinical postings into COBES, assessment of students constituted a separate evaluation and passing was a pre-requisite for graduation. COBES became so popular that the World Health Organisation (WHO) recognised Ilorin as a collaborating centre for research and health manpower development in Community-Based Medical Educational Programme. Ilorin was also a prominent member of the International Network of Community-Oriented Medical Institutions. When Ogun State University, in 1982, and Bayero University, in 1984, were about to establish new medical schools, Professor A. K. Alausa, one of the medical leaders in Ilorin who had played a prominent role in the

development of COBES, was called upon to assist in their establishment. This provided the opportunity for further experimentation and spread of the programme to other parts of the country.

### **3. The Obafemi Awolowo College of Health Sciences of Ogun State University**

The Obafemi Awolowo College of Health Sciences of Ogun State University was established in 1982 and its IPHCME programme was modelled after the successful Ilorin programme. The University Medical School is the first state, government-owned accredited medical school in the country. Its innovative programme, known as COBMES (Community Based Medical Education and Services), was guided by an explicitly stated philosophy aimed at producing medical graduates with broad-based, community-oriented, team-focused, problem-solving and self-directed learning abilities. The entire curriculum leading to the degree in medicine provided students with an opportunity to develop and utilise community-oriented and problem-based learning abilities.

#### Organisational Structure of COBMES

Like the Ilorin programme, COBMES programme was placed within the Provost's office, headed by a Coordinator and assisted by experienced Nursing Officers. A Unit was responsible for the day-to-day implementation and evaluation of COBMES programme.

COBMES was also administered by the following committees:

I. *The Academic Planning Sub-Committee of COBMES* was responsible for the planning and evaluation of the programme. Its members included:

- i. Provost (Chairman);
- ii. Deans of Faculties;
- iii. Co-ordinator of COBMES programme;
- iv. Representatives of the Faculties of Basic and Clinical Sciences;
- v. A representative of the Faculty of Management and Social Sciences;
- vi. Representatives of the State and Teaching Hospitals; and
- vii. A Representative of the Medical Students.

II. *COBMES Field/Logistics Sub-Committee* consisted of the following members:

- i. COBMES Coordinator (Chairman);
- ii. One representative each from all the departments of the Faculty as members;
- iii. Community Health Nurses;
- iv. Representatives of the Medical Students.

This sub-committee was responsible for the implementation of the COBMES programmes, as defined by the academic planning sub-committee. It was also responsible for the organisation of the logistics of student field postings.

### COBMES Postings

Like the COBES, there were three COBMES postings spanning the entire medical training period. As depicted in Table 5, the students were expected to participate repeatedly in community-based primary health care activities during both the pre-clinical and clinical years of their medical education. For instance, during the pre-clinical years, students conducted community health diagnosis, which helped them to gain appropriate insight into common community problems, available health care facilities and their utilisation patterns. During the clinical years, students were rotated to experience community-oriented, problem-based learning. This consisted of eight weeks spent in health systems research during the second year of clinical posting and four weeks in the third year of clinical posting (i.e. 6<sup>th</sup>/final year).

These included involvement in PHC programmes during which students took increasing responsibility for patient welfare and the design of intervention programmes for identified community problems.

Table 5: Structure of Community-based education in Ogun State University

<b>Year</b>	<b>Duration</b>	<b>Activities</b>	<b>Location</b>
2nd Year Pre-clinical	5 Weeks	Demographic data collection in the community health systems. Situational analysis, community health diagnosis and group projects/presentation.	Community (Ijebu-North Local Government)
Year 5 (2nd year Clinical)	8 Weeks	Health systems research health service research, individual and group projects/presentation.	Community (Remo Local Government PHC's Facilities)
Year 6 (Final year)	4 Weeks	PHC activities, implementation of intervention strategies, individual projects.	Community (Ijebu-North Local Government)

Another innovative aspect of the programme was that it encouraged active community participation in the planning, implementation and evaluation of health programmes in the practice areas. This practice is in line with the implementation strategies of PHC which emphasise active community participation and the use of appropriate technology.

### Students' Evaluation During COBMES Postings

The following three criteria were used for the assessment of students during COBMES postings:

- i. field assessment of students by the lecturers;
- ii. health services research projects by individual students; and
- iii. written examinations at the end of the postings.

## COMPARING STUDENTS AND GRADUATES OF THE INNOVATIVE MEDICAL SCHOOLS WITH THE TRADITIONAL MEDICAL SCHOOLS

*Socio-demographic characteristics* Our findings from the questionnaire survey revealed that the students and the graduates of the innovative and traditional medical schools were of

similar socio-demographic characteristics. They were of similar ages and the majority were males. Most students were Christians and came from the Yoruba ethnic group<sup>4</sup>. The majority of the graduates of the two programmes were still undergoing one year internship training in hospitals and compulsory national service and had therefore not embarked on independent professional carriers. A small number were either general practitioners or hospital consultants.

*PHC Educational Environment* Students in the innovative medical schools had earlier, and longer, rural community-based, exposure to PHC education than those from the traditional medical schools. They travelled longer distances to the rural communities for community-based education and had more experience of rural community settings.

*Objectives of community-based education* Table 6 compares the perceptions of students in the innovative programmes with those of students in the traditional programmes regarding the objectives of community-based education. Identification of community health needs or community health diagnosis, and sensitivity to community health needs, were perceived by those in the innovative programme as the main objectives of the community-based postings. Those in traditional medical schools perceived the objectives of their community-based PHC programmes as centred around clinic-based activities. However, the two groups of students perceived health education activities as an important aspect of their functions in the community.

Our findings also revealed that students in the innovative programme had more positive attitudes to community-based PHC postings, which were mainly located in rural settings, than students in the traditional medical schools.

Table 6: Objectives of community-based posting by SIMS, compared with STMS

Objectives	SIMS		STMS	
	No	(%)	No	(%)
Identification of community health needs	29	(45.3)	4	( 4.3)
Sensitivity to community health needs	22	(34.4)	4	( 5.3)
Health education	6	( 9.4)	32	(42.7)
Conduct of health centre based activities	7	(10.9)	35	(46.7)
Total*	64	(100.0)	75	(100)

\* Multiple response

$X_2 = 67.41$ ,  $df = 3$ ,  $P = 0.000$

Differences in activities performed by the SIMS and STMS during community-based postings are shown in Table 7. Majority of students in the SIMS mentioned health surveys, while for their counterparts this was clinic-based activities. These differences are statistically significant ( $P = 0.000$ ).

<sup>4</sup> This was to be expected since the selected medical institutions were located in South-Western parts of the country.

**Table 7:** Activities carried out by SIMS compared with STMS during postings

Activities	SIMS		STMS	
	No	(%)	No	(%)
Health survey	30	(35.7)	4	(5.6)
Community development activities	20	(23.8)	12	(16.7)
Clinic-based activities	12	(14.3)	24	(33.3)
Health education	14	(16.7)	16	(22.2)
Total*	84	(100.0)	72	(100.0)

\* Multiple response

$X_2 = 23.54$ ,  $df = 3$ ,  $P = 0.000$

*Instructional Strategies and Learning Methods*

The main learning methods relied upon by the students in the innovative programmes during community-based postings were structured community observation and investigation. Those from the traditional medical schools relied more on lectures and seminars (see [Table 8](#)).

**Table 8:** Methods of teaching/learning by SIMS during PHC Postings Compared with STMS

Methods	SIMS		STMS	
	No	(%)	No	(%)
Lecture	5	(11.6)	20	(50.0)
Seminar	3	(7.0)	12	(30.0)
Specific assignment	2	(4.7)	-	-
Group project	19	(44.2)	8	(20.0)
Individual project	9	(20.9)	-	-
All the above	5	(11.6)	-	-
Total	43	(100.0)	40	(100.0)

A comparison of the students' scores on their levels of satisfaction with each of the teaching/learning methods ([Table 9](#)) shows that SIMS's scores on group projects, specific assignments, and seminars were significantly higher than STMS's scores, while STMS's scores on lectures and individual projects were significantly higher ( $P < 0.001$ ).

**Table 9:** Satisfaction with Teaching/Learning Methods: Comparison of SIMS and STMS Scores

	SIMS		STMS		(T Tests)				
	Scores	(%)	Score	Mean	Scores (%)	Score Mean	P		
Lecture	41	(21.0)	8.75	$\pm 6.37$	87	(29.7)	29.67	$\pm 26.8$	< 0.001
Seminar	110	(29.3)	24.75	$\pm 18.61$	51	(19.0)	14.25	$\pm 11.15$	< 0.001
Specific assignment	57	(29.2)	13.0	$\pm 7.7$	43	(23.9)	10.67	$\pm 9.45$	< 0.001
Group project	127	(21.5)	31.5	$\pm 27.0$	72	(16.0)	22.67	$\pm 9.45$	< 0.001
Individual project	33	(27.5)	11.0	$\pm 8.54$	70	(29.2)	23.33	$\pm 19.08$	< 0.001

### *Relevance of PHC education to present functions of the graduates*

The responses of the graduates to a question "How relevant is your PHC education to your present functions?" show that over half (52.5%) of the SIMS believed that their PHC education was very relevant and the rest perceived it as relevant. None of the SIMS perceived their PHC education as irrelevant. Among the STMS, about half (48.6%) perceived PHC training as very relevant, 42.9% as relevant and 8.6% as irrelevant.

Suggestions of the graduates of the innovative programmes for improving the programmes included the need for "adequate funding" of the programmes, the provision of "better accommodation" during community-based posting, the need to "extend the programme to other rural communities", the need to "extend the duration of the rural community postings", and the need for "adequate evaluation of the students".

### *Community Perceptions of the Programme*

Factors identified as influencing community perceptions of the programme included the approaches used by the medical schools for entry into the communities, how well the aims and the objectives of the programmes were explained to the community leaders and members, and the levels of education and urbanisation of the communities. These, in turn, determined the types of support provided for the programmes by the communities.

Our study revealed that even in medical institutions that were successfully operating IPHCME programmes, the attitudes of the faculty members varied from total commitment to the programme to lip service and, in a few cases, hostility.

## **SUMMARY AND CONCLUSIONS**

The following conclusions are drawn from the findings of this study:

- I. IPHCME programmes are more easily established and sustained in new medical educational institutions where programmes can be easily accommodated as part of their initial curricula. Programmes are also best sustained in institutions where a centrally-coordinated organisational structure for their planning, implementation and evaluation is firmly established.
- II. The programme has spread to second and third generation medical schools. This is due to the initial leadership provided for its take-off and sustainability in these second and third generation medical schools. However, the majority of the first generation medical schools still find it difficult to adapt their curricula to fully accommodate the programme, despite external pressure and financial inducements from government and non-governmental organisations.
- III. The study shows that students in the innovative programmes were more oriented towards PHC programmes than students in the traditional medical schools. The former were more sensitive to rural community needs and had earlier and longer rural

community-based, PHC education. Methods of teaching and learning about PHC were more experiential and inductive, rather than deductive.

- IV. Major deficiencies of the innovative community-based PHC education programmes in the country included inadequate funding of the programmes by the universities and an inadequate system for evaluating students.
- V. Community perceptions of the programme and support provided for it varied. Factors influencing community perceptions included the approaches used by the medical schools for entry into the communities, how explicit the aims and the objectives of the programmes were made to the community leaders and members, the level of education of community members, and the degree of urbanisation of the communities.
- VI. The most important factor that triggered changes in medical education in Nigeria was people's concerns about the relevance of medical education in the development of health. Unwillingness of medical doctors to serve in rural areas of the country and the uneven geographical distribution of medical doctors were the main concerns of not only of the medical leaders but of the "enlightened public" as well. The innovative medical education programme was conceived as the main strategy for dealing with these problems<sup>5</sup>.
- VII. Other factors that promoted and sustained the innovations include strong, committed and charismatic leadership, a core of committed staff, and promotional activities of WHO, the National Universities Commission (NUC) and the International Network Organisation.

## RECOMMENDATIONS

On the basis of the findings of this study, the following operational policies for the development of PHC education for medical and other health science students are recommended, not only for Nigeria, but also for other African countries:

- I. For basic medical education to equip medical doctors to function effectively in PHC settings of the country, there is a need for adequate orientation of their curricula towards PHC programmes. Organised rural and urban community-based approaches should be incorporated into their PHC education.
- II. A co-ordinating unit should be set up for PHC medical education programmes within a medical school; each school should be allocated adequate human and material resources for its effective functioning.

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<sup>5</sup> The extent to which the programme has been able to overcome these problems is beyond the scope of this study.

- III. The organisational structure of the programme should allow for the participation of key stakeholders. These should include not only members of the medical schools and the related faculties in the university, but also members of the community.
- IV. The programme should be introduced early in the medical education, during the pre-clinical years, and should span the entire medical curriculum.
- V. Effective methods for the evaluation of student performance during community-based postings should be devised.
- VI. There is a need for a national forum for the education of medical teachers about innovative medical education methodologies. This can be in the form of national seminars/workshops on the development of innovative medical education in the country. The forum should aim at energising those who are already committed to the programme and increasing the interests of the less committed.
- VII. Networking among institutions currently implementing the innovative programme in Africa should be actively encouraged, and financially supported by their governments and international agencies.
- VIII. There is a need for further evaluation of the innovative programme. The main questions which such an evaluation might address (a) what has been the impact of the programme on the health services in general, and PHC in particular? (b) to what extent are the graduates of innovative programme willing to serve in rural and under-served communities?

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