



TRAINING MANUAL



for PRECLINICAL COBES POSTINGS



Prepared by

**W.H.O. COLLABORATING CENTRE ON COMMUNITY
BASED EDUCATIONAL PROGRAMMES**

and

**COMMUNITY BASED
EXPERIENCE AND SERVICES (COBES) UNIT
COLLEGE OF HEALTH SCIENCES
UNIVERSITY OF ILORIN, ILORIN, NIGERIA**

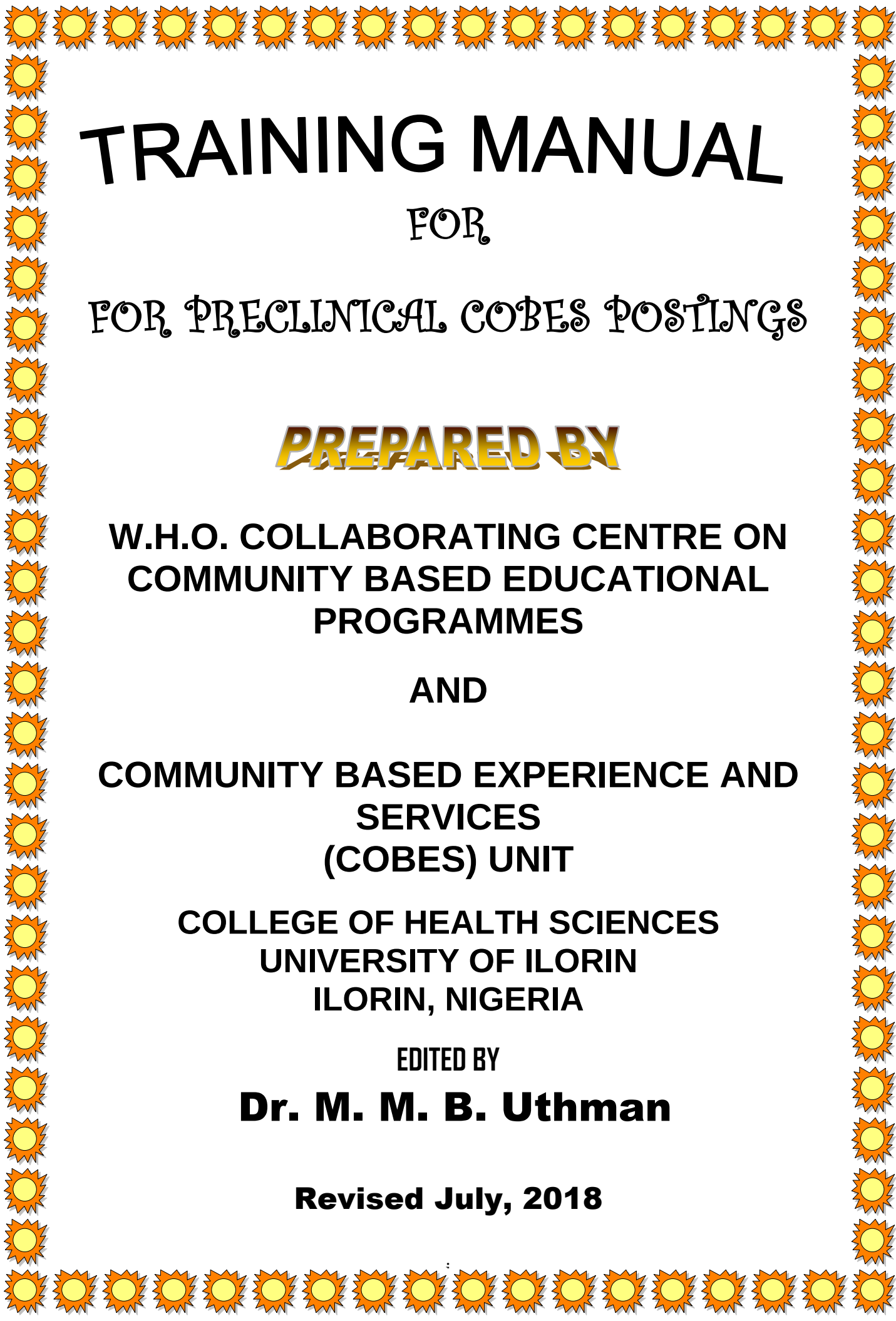
Edited by

Dr. M. M. B. Uthman

Revised July, 2018



Lecture Hall



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FOREWORD

The College of Health Sciences, University of Ilorin was designated in 1987 a WHO Collaborating Centre for Innovative Medical Education and Manpower Development. Although the College, which then was a Faculty, has retained this prestigious status ever since it was first designated, the training activities of the Centre remained low. This was mainly due to funding difficulties. However, early in 2003, the Centre in the College received a grant from WHO to train COBES site supervisors. The grant made it possible to prepare this document.

The document itself was the product of a workshop in August 2003. The College is grateful to COBES Academic Planning Committee, the team of dedicated College staff including the immediate past COBES Coordinator for this document. The document traced the history of COBES programme from the early humble beginning in 1977. It is comprehensive enough to provide information on the mission of the founding fathers, the constraints, the achievements, the way forward and many more. It is our hope that this document will guide students during the COBES posting. I am optimistic that this document will be of enormous benefit to new converts to the COBES programme outside our College.

Finally, this publication will not only enrich our COBES library, it will be an important resource material for sister institutions overseas.

Prof. W.B.R. Johnson

Provost, College of Health Sciences

INTRODUCTION

COBES means Community Based Experience and Services. It is a programme designed to introduce students to the community at the very earliest phase of their medical education with the view to sensitizing them to the community health needs. This exposure presents health problems through which the students can learn actively.

The programme over the last forty years has passed through the formative stages to maturity. However, the burning vision to document all relevant information about the programme, other identified experts input that will strengthen it, any relevant on-job experiences that will enrich its implementation and to present this document as a training module for students and our site supervisors only received a boost with a technical services agreement with WHO to fund the project in 2003.

The ever-increasing recognition of this innovative medical education programme worldwide, the need to adequately train new academic staff members of this college that did not have previous experience of similar programme and the need to assist up-coming medical schools wishing to adopt this training programme form the basis for this document.

The College of Health Sciences, University of Ilorin being a WHO collaborating Centre on Community Based Educational programmes through her COBES Unit organised a three – day workshop between 19th and 22nd of August 2003 that midwifed this document. A section on evaluation and feedback has been added to this manual to form basis of possibly improvement of the programme. In addition, this manual has been revised to follow the College status. It is my sincere belief that proper usage of this training module will guide the students during their COBES postings, enhance the effectiveness of our site supervisors and at the same time make a valuable document available for other sister institutions.

Dr. M. M. B. Uthman

COBES Coordinator.

1.1 HISTORY OF COBES

1.1.1 Introduction

The College of Health Sciences, University of Ilorin at its inception in 1977, decided to pursue a curriculum that is different in its approach from the older medical schools in Nigeria. The curriculum was to be

- Student-centered
- Community-based
- Problem-solving

The students were to be encouraged and stimulated to be actively involved in their own learning process rather than be passive recipients of information. In other words, didactic classroom lectures would be de-emphasized in favour of self-learning and small group tutorials. The curriculum would be oriented to studying medicine in the community that is, using the community as a teaching laboratory. The students start their COBES programme in the second month of the 200 level. This is NOT the same as Community Medicine.

As every form of good education is problem solving, medical education is even more so in the demand for the application of knowledge, thought and skill for the proper clarification, acceptable solution and satisfactory management of a health problem. This approach may be new in Nigeria, but has been practiced with success in Beersheba in Israel, Pahlavi University in Iran, McMaster in Canada, Chicago, Mexico, Thailand, Australia and the Philippines. The general principles in all these areas are the same; viz, to create awareness in the student, to form a hypothesis, collect, analyse and synthesise data, suggest solutions and to evaluate methods, fellow students, college and programme. Finally, something must be given back to the community i.e. service.

1.1.2 Justification

There is need all over the country for good health care. The country adopted the Alma Ata Declaration for health for all by the year 2000, and in 1976 the National Council of Health accepted the Justice Mohammed Commission and decided that all new medical schools must develop a curriculum that is community-oriented, with a strong sense of service to the community. New medical schools must have as their main objective the training of doctors capable of working in any part of Nigeria to assist community health efforts no matter the cultural and socio-economic situations of such community. In other words, we must train doctors who can manage and promote the health of a person, family or community and who can plan follow-up actions aimed at producing a permanent impact on identified health problems.

COBES tries to integrate basic and clinical sciences horizontally and spirally, stimulate medical students to self-discover their abilities as well as offer some service to the community. It also seeks to maintain continuity with the community over a long period after which health improvements can be measured.

1.1.3 Notable contributions at the beginning

- Prof. E. H. O. Parry, the first Dean of Faculty of Health Sciences, initiated the need for a rethink of the medical curriculum to reflect new ideas and concepts that are different from the older medical schools.
- Prof. J. D. Hamilton, Head of Medicine Department, Unilorin, who came from McMaster Medical School to Ilorin, gave necessary support and information on the successful McMaster experiment. This necessitated the modelling of Ilorin COBES programme after that of McMaster University, Canada.
- A successful educational workshop took place from March 6 – 10, 1978, in New Bussa. This was attended by 21 persons from WHO, McMaster University, ABU Zaria, University of Ife, Egypt, etc.

- The help and co-operation of Dr. C. Quenum, Regional Director of WHO made it possible for Dr. Jean-Jacques Guilbert, Chief Medical Officer for Educational Planning at the Health Manpower Development Division of WHO to attend and he served as the Chief Co-ordinator of the workshop.

1.1.4 Guidelines used

1. The health needs of Nigeria and the plans of the Federal Government as outlined in the Third National Plan
2. Current educational theory and practice
3. The philosophies, methods and experiences of a wide range of medical schools in Africa and elsewhere
4. The requirements of the Nigerian Medical Council
5. The Academy Planning Group and the Working Party on Medical Education (March 1977) of the National Universities Commission which recommended that:
 - i. New medical schools be “oriented to the environment” and “produce students with a great sense of service and a strong inclination to broad community care and preventive medicine”
 - ii. Clinical teachers take part in the same basic training
 - iii. Ultimately pre-medical courses should become an integral part of medical training.

1.1.5 BRIEF SUMMARY OF COBES POSTING SITES 1978-2018

The programme commenced with 4 sites namely; Babana, Shao, Mopa and Okelele. Presently, there are 10 COBES sites spread across Kwara State.

- In 1978 COBES had 4 sites, highest number of sites visited in a year was 13 in 2004 and currently there are 6 COBES sites.

- A total of 84 communities have been used as COBES sites between 1978 and 2018 distributed across three States as follows:
 - **Kwara State:** A total of 15 out of the 16 LGAs in Kwara State have been visited.
 - **Niger State:** Babana in Borgu LGA
 - **Kogi State:** Mopa in Mopa LGA

1.2 PHILOSOPHY & MANAGEMENT OF COBES PROGRAMME

1.2.1 Philosophy of COBES

The main objective of the College of Health Sciences, University of Ilorin is the training of doctors who will be fully prepared to work in any part of Nigeria in particular and the world at large. In fulfilment of this objective it designed a programme of Community Based Experience and Services (COBES) for its students. It is a medium of expression of the College and its Teaching Hospital in an outreach to the community in which they will eventually live and serve. Some of the cardinal objectives of COBES Programme are to:

- (1) Sensitise the students to community Health needs and enable them to identify themselves with such health needs
- (2) Assist community health efforts and be able to work in any community regardless of the cultural and socio-economic peculiarities.
- (3) Develop team spirit towards promotion of community health and to develop individual habits to study.
- (4) Encourage students to learn and put into practice basic and applied principles of Epidemiology, statistics and preventive medicine.

The focus of the COBES programmes starts with the preparation of a survey map, estimation of community population, familiarization with the community and epidemiological surveys. Students are divided into groups in a number of postings, and under the guidance of Supervisors, identify problems for investigation, develop a study design, collect and analyse data and draw scientific inferences, in the selected community. They equally discover and

appreciate local attitudes, traditions and beliefs. Based on the aforementioned undertakings in their respective communities, students should be able to:

- (1) Plan and effect a simple estimate of the population in a given area.
- (2) Conduct community surveys and use findings to identify the health needs of communities
- (3) Analyse the data (of 2 above) to design a plan of priorities for action to improve the health of the community.
- (4) Carry out community-wide measures or campaign with the help of relevant members of the health team
- (5) Monitor the effects of health measures or campaigns and modify these as necessary.
- (6) Communicate the findings of his work and relate them to the development of medical care and scientific advances.

The essence of COBES posting in the clinical years is to provide a continuous community health experience. It also provides an opportunity to evaluate and observe objective improvement in the community, as part of the COBES posting, the students will be required to;

- (1) Run clinics and perform home visits on patients with social problems and report on them
- (3) Advocate necessary supplies for a clinic and work with the relevant health authority and community to achieve this.

Through the COBES postings students are encouraged to:

- (1) Gather information about prevailing attitudes to health disease in any community and use it when planning the health care for individuals or the community
- (2) Identify climatic and seasonal factors that affect the patterns of disease, nutrition, work and movement of people in any area and use such data in health planning.
- (3) Identify the relationship between occupation and disease on the one hand and the effects of disease on productivity on the other.

1.2.2 Management of COBES

A) Management structure

The COBES Unit is under the Provost's office with its own complement of staff. This programme demands considerable organization, planning and funding for an effective outcome. The University's Vice-Chancellor appoints an academic staff of the College of the status not less than a Senior Lecturer as the Coordinator for the programme.

Two college based COBES committees are charged with responsibilities of curriculum design and general planning of the COBES programme. They are:

- a) COBES Academic Planning Committee (APC) that is responsible for the academic content of the COBES posting; whose Chairman is Dean's nominee.
- b) COBES Field Logistics Committee (FLC) that arranges logistics such as transportation, feeding, housing, medical needs and other materials of each of the postings; whose Chairman is the COBES Coordinator.

B) The roles and responsibilities of the COBES Coordinator include:

- To collaborate with COBES Academic Planning Committee that is responsible for the academic content of the COBES Programme.
- To organise COBES programmes using the guidelines formulated by the COBES Academic Planning Committee.
- Overall coordination of the COBES postings and inter-posting activities at the COBES sites.
- The Coordinator should not be less than the rank of a Senior Lecturer.
- Chairs the COBES Field Logistics Committee (FLC) to plan, budget and arrange the logistics of each of the postings.
- To head the COBES Unit
- To collaborate with all departments concerned and coordinate the end of COBES posting examinations and all relevant examinations.

1.3 COBES Postings & the Objectives of Each Posting

There are four COBES Postings, spanning the entire duration of undergraduate medical curriculum. Two of these postings take place during the pre-clinical years at 200 and 300 levels. The 200 level posting usually takes place approximately eight or nine weeks into the pre-clinical year. The 300 level posting usually marks the beginning of the 300 level year. It is expected that students would have had relevant lectures from concerned departments before they commence the 200 level COBES. These departments are Epidemiology & Community Health, Microbiology, Behavioural Sciences and Pharmacology.

The remaining two COBES postings, which are, the clinical COBES postings, take place during the second and third clinical years, i.e. at 500 and 600 levels, respectively.

The broad objective of the COBES programme is to strengthen the Community Health Oriented philosophy of the College on Medical Education and thereby enriching and broadening the experiences of Students and teachers required for the promotion of good health in the community.

Each COBES posting is designed to have its set of objectives:

1.3.1 Minimum learning objectives of the 200 level COBES posting

1. To demonstrate skills in entering a new community with the view to assessing the community health status.
2. To make a simple map of the Community and carry out its census in order to determine the socio-demographic characteristics of the community.
3. To determine the life pattern of the people and relate its relevance to health.
4. To identify the existing health facilities in the community and verify their level of utilization.
5. To identify the social facilities in the Community and determine their relevance to health.
6. To identify the common health problems in the community and the factors that may be responsible for such problems and to prioritise the identified health problems.
7. To appreciate man and his environment and how the environment is related to health.
8. To carry out health education which is relevant to the community's health needs.

9. To carry out one or two optional projects which are relevant to the community.
10. To present a properly written report and orally present the same to the College.

1.3.2 Minimum learning objectives of the 300 level COBES posting

Unlike the standardized 200 level minimum learning objectives, the objectives for 300 Level COBES are usually based on the World Health Organization (W.H.O) theme for each year in question. For example, the W.H.O Theme for the year 2001 was Mental Health: Stop Exclusion. Dare to Care. The W.H.O theme for a particular year is usually released by April, 7 of that year, in commemoration of the founding of the World Health Organization. Thus, the 300 level COBES objectives vary from year to year, depending on the W.H.O theme for the year.

1.3.3 Minimum learning objectives of the 500 level COBES posting

From experience we have come to appreciate the fact that problems relating to maternal and child health need the most urgent attention in most Nigerian communities. Accordingly, the overall, but not exclusive, objectives of this posting generally focus on maternal and child health, and they are as follows:

- 1 To identify maternal child health problems in the community (to which students are posted).
- 2 To prioritise these problems in the particular community.
- 3 To manage maternal and child health problems in the assigned clinics and make a record of these as indicated in the logbook.
- 4 To assist the medical officer of health (or, where there is no medical officer, the most senior health official in the health centre) in treating common ailments and in carrying out other activities, particularly immunization at the health centres.
- 5 To assist junior students who are on the site.

1.3.4 Minimum learning objectives of the 600 level COBES posting

The 600 level COBES posting, which comes up towards the tail end of the undergraduate medical curriculum, when practically all postings in Medicine, Surgery, Epidemiology and

Community Health, Pathology, Pharmacology, Obstetrics and Gynaecology and Child Health would have been completed, has the following objectives:

1. To sensitise medical students to the clinical needs of the communities they intend to serve.
2. To develop a spirit of teamwork towards the provision of both preventive and curative health care in the community.
3. To identify and make recommendations for the correction of inadequacies in the various health facilities and health delivery systems in a given community.
4. To work harmoniously with other health personnel from other professions and other sectors.
5. To catalogue all managed cases during the posting.
6. To give detailed reports of two cases using the guidelines given at the beginning of the posting.

In order to realize these objectives, students are expected to carry out the following activities:

- Appreciate the magnitude of health problems in order of importance.
- Identify and consult with the leaders of each community in order to plan, execute and promote health-related activities taking into consideration the culture and socio-economic status of the community.
- Identify the factors militating against the health of the community.
- Establish a relationship, between patients and the communities from which they come and to educate the community in its pursuit of good health.
- Investigate community health problems with a view to prescribing rational and realistic solutions based on the socio-economic level of the community.
- Understand the organizational structure and functions of the various health institutions in the community and to understand their relationship to the overall health facilities in the state.
- Identify and correct inadequacies in the various health facilities and health delivery system in a defined community.

- Work harmoniously with other health personnel and workers from other sectors involved in health care delivery and various other socio-economic development activities in the community and thus be able to plan a comprehensive health programme for a community.

1.3.5 Evaluation and Feedback

By the end of every posting, each student is expected to fill evaluation form to assess the following;

1. Instructional materials,
2. COBES site provision,
3. Supervisory support from the college staff,
4. Host community support,
5. Transportation to the site and back to the college.

The evaluation will serve as feedback to identify areas for possible improvement of the programme.

1.4 ACHIEVEMENTS SO FAR

- Early exposure of students to Health Problems
- Maturity of our students as demonstrated by confidence exhibited at clinical and scientific presentations.
- Aroused interest of the community, local staff, traditional schools, Town & Gown interaction through 200, 300, 500 & 600 level COBES posting.
- Community awareness of Health problems through dissemination of yearly WHO themes.
- Membership of the NETWORK
- Products are community friendly, work anywhere: LGA, State, National & International
- The posting heightened the commitment of the students' participation in special health programmes e.g. Guinea worm eradication campaign, mectizan distribution for the prevention of river blindness.
- WHO recognition as Centre of Excellence in 1987, hence finding important roles in the NETWORK.

- Assistance to other schools (Bayero, MOI, Kenya & Zambia)
- Electives for foreign students
- Staff as Ambassadors to other institutions in Africa e.g. Prof. Ogunbode (Lusaka) and Late Prof. Aiyedun (Yaounde, Cameroon).
- Exchange programmes for Staff and Students.

1.5 CHALLENGES AND CONSTRAINTS

- Resistance from the College staffs, staff of other medical schools and the communities to accepting this innovation, which is not conforming to traditional curriculum of the existing schools.
- Inadequate funding from the onset till date.
- Inadequate logistic support; the programme started with one bus and to date transportation remains a problem. ICT – Computer, Multimedia projectors, Library services (Real & Virtual) are inadequate.
- Persistent use of same COBES site: Leads to saturation
- Problems of new College staff not understanding what COBES is all about.
- Unsolved health problems identified during previous COBES postings.
- High growth rate in admission into the College.
- Inadequate interaction with other schools and International agencies.

1.6. PLANNING FOR FUTURE PROGRESS: *The way forward*

1.6.1 Capacity building

- Training and re-training of Staff, Students, Community Workers
- Strengthening of COBES APC (membership, curriculum review, planning)
- Regular College Workshops (Students, New staff, LGA workers, others)
- College interaction with other agencies through workshops etc at Local, National, WHO, NETWORK etc levels.
- Improve funding by stakeholders – LGA, State, MOH, NUC, ETF, NGOs
- Regular Assessment (Staff and Students)

• 1.6.2 Capacity utilization

- Sponsorship of students for electives overseas.
- Sponsorship of staff and students to conferences (National & International).
- Improved coverage of more States and LGAs.
- Assistance to other medical schools in Africa.
- ICT improvement & COBES programme field services, virtual library, COBES presentation, Internet access, Improve transportation for Staff and students. e.g. provision of buses and 4-wheel drive.
- Staff motivation (Reward system, Award, fellowships, cash and kind)
- COBES centre: Coordination of activities, museum

CHAPTER TWO

COBES IMPLEMENTATION

SITE SUPERVISORS, LOGISTICS, ASSESSMENT AND REPORTING FORMAT

Contributors:

- | | |
|--|-------------------|
| 1. <u>Checklist for COBES site supervisors</u> | Dr. S. A. Adebisi |
| 2. <u>Reporting format for COBES postings</u> | Dr. S. A. Adebisi |
| 3. <u>COBES presentation assessment and scoring system</u> | Dr. S. A. Adebisi |
| 4. <u>COBES logistic support</u> | Dr. S.B. Agaja |

2.1 CHECKLIST FOR COBES SITE SUPERVISORS

2.1.1 Definition of a COBES site supervisor

A COBES site supervisor is an academic staff member of the College of Health Sciences, appointed to serve as a resource person for a group of students for a specified COBES posting. Irrespective of the discipline of the staff, the appointee should see this as part of his/her primary assignment. Such a supervisor must have been adequately briefed by the COBES coordinator on the COBES programme.

NOTE: The assignment should be considered as part of his/her administrative experience towards the promotion exercise.

2.1.2 Background Information

The need for specific guidelines on the roles and responsibilities of the site supervisors has over the years become obvious. In addition, an appointee may not have had a previous experience or familiarity with the COBES programme. The above informed the need for the development of this checklist.

2.1.3 Working Philosophy

The interaction of the site supervisor with the students should be guided by the College training principles of:

A) Student centered learning: This utilizes active student self-learning and small group tutorials rather than traditional didactic teaching.

B) Problem solving: Here, a demand for the application of knowledge, thought and skills for the proper clarification, appropriate and acceptable solution, and satisfactory management of health problem encountered at the COBES site.

C) Integrated learning: The students will be encouraged to accept the challenge of science for the understanding of basic concepts as well as of application in his/her subsequent practice of medicine.

D) Community based: Here the community is used as a teaching laboratory.

E) Result oriented: Graded responsibility will be introduced and as the students learn, they will serve and support the communities.

2.1.4 Site supervisor's roles

The site supervisor's roles and responsibility will begin before the posting and end with the submission of the student's field evaluation report.

A) Preposting

- 1) Secures an authentic list of the students for his site.
- 2) Familiarizes himself with the detailed information in the letter to the supervisors from the COBES Co-coordinator and the training manual.
- 3) Facilitates the appointment of a competent student group leader.

- 4) Holds at least one meeting with his students and arrives at a work plan for the group.
- 5) Attends the pre-posting briefing by the Provost of the College and the COBES Co-ordinator.
- 6) Ensures that all members of his/her group depart together to the COBES site.

B) During the posting

- 1) Makes himself accessible and available to the students during the posting.
- 2) Books his visiting arrangements to the site with the COBES unit well in advance.
- 3) Vets the questionnaire to be administered by the students.
- 4) Visits the students on site at least twice during the posting.
- 5) Is familiar with the specifics of his assessment of the students on site.
- 6) Works out an effective and objective system to monitor students' attendance, participation and team spirit on site.
- 7) Serves as a contact person in the event that the assistance of any other academic staff member is required by the students.

C) COBES presentation

- 1) Facilitates the compliance of the students with the COBES Report writing format.
- 2) Is conversant with, and reminds the students of the essential aspects of the presentation.
- 3) Actively monitors the preparation of the students for their presentation.
- 4) Observes at least two rehearsals of the students before the actual presentation.
- 5) Encourages the students on the use of audio-visuals for their presentation.
- 6) Physically identifies with and morally supports them on the day of presentation.

D) After the posting

- 1) Identifies with them in the immediate post presentation period to ensure that their success or otherwise during presentation is well handled.
- 2) Carries out field assessment on all the students in his group and submits the scores to the COBES unit within 72hours of the presentation.
- 3) Encourages the group leader to submit all relevant items to the COBES unit.

2.2 REPORTING FORMAT FOR COBES POSTINGS

2.2.1 Essence

One of the minimum learning objectives of each of the pre-clinical postings is the presentation of a properly written report, which accounts for 20 out of the 100 marks obtainable for the COBES presentation.

This written report affords the College the opportunity of keeping an authentic record of her activities at the various COBES sites. It also offers the students the opportunity of learning how to scientifically present the report of their findings.

2.2.2 Content of 300 level posting report

- A) Title page
- B) An acknowledgement page
- C) Group list page
- D) Attestation page
- E) Table of contents page
- F) Summary
- G) Relevant background information on previous level posting
- H) Introduction
- I) Chapters in the report
- J) References/Bibliography (If necessary)
- K) Appendix/Questionnaire used

A) Title page: This should carry both the University of Ilorin and the WHO logos, the WHO Theme for the year, name of the COBES group (with respect to their site), the year of posting, an appellation stating that “**A WRITTEN REPORT SUBMITTED TO THE COLLEGE OF HEALTH SCIENCES, UNIVERSITY OF ILORIN IN PARTIAL FULFILLMENT OF THE MINIMUM LEARNING OBJECTIVES OF THE 300 LEVEL COBES POSTING**”.

B) An acknowledgement page: This offers opportunity to the students to appreciate those that made significant contributions to the success of their posting.

C) Group list page: This should give the names of the students in the group. It should also indicate the name(s) of their site supervisor(s).

D) Attestation page: The attestation page should be in the following format;

This is to attest that the work contained in this report was carried out by the..
.....COBES group under our supervision.

.....
(Supervisor's Name & Signature)

.....
(Supervisor's Name & Signature)

.....
COBES Coordinator's name & Signature

E) Table of contents page: This should indicate the title of the various components of the report and their corresponding pages in the report.

F) Summary: This is to contain the overall objective of that particular posting and brief information on the findings of each minimum learning objectives.

G) Relevant background information on previous level posting: A brief account of their previous experience in the community will be stated here. Since 300 level posting is expected to build on 200 level posting, this background information summary will help them to remain focused.

H) Introduction: This is an introductory chapter. It should contain a brief account of the students' understanding of the COBES programme. A brief account of their understanding of WHO theme for the year. The minimum learning objectives that they are to fulfill.

I) Chapters in the report: Each minimum learning objective should have a chapter devoted to it. In each chapter, the steps taken in fulfilling each minimum objective and their findings should be documented.

J) Reference/Bibliography: This contains a list of references cited and should be based on the Vancouver system.

K) Appendix/Questionnaire used: A copy of the questionnaire administered should be attached to the report as appendix.

Note: Each group is to submit three copies of its report.

2.2.3 Content of 200 level posting report.

- A) Title page
- B) An acknowledgement page
- C) Group list page
- D) Attestation page
- E) Table of contents page
- F) Summary
- G) Introduction
- H) Chapters in the report
- I) References and bibliography (If necessary)
- J) Appendix/Questionnaire used

The reporting format for 200 level is similar to that of the 300 level. The difference between the two is that the 200 level report does not have the following content;

1) **Title page:** The title page does not carry a WHO theme. Its appellation should read; “**A WRITTEN REPORT SUBMITTED TO THE COLLEGE OF HEALTH SCIENCES, UNIVERSITY OF ILORIN IN PARTIAL FULFILLMENT OF THE MINIMUM LEARNING OBJECTIVES OF THE 200 LEVEL COBES POSTING**”.

2) **Introduction:** No account on WHO theme for the year.

3) **Relevant background information on previous level posting:** No report on any previous posting since there was none.

Note: Other details remain the same as for the 300 level format.

2.3 COBES PRESENTATION ASSESSMENT AND SCORING SYSTEM

2.3.1 Introduction

The assessment of COBES at 200 level is quite similar to that at the 300 level. Student evaluation at those two pre-clinical levels includes a **Field Assessment component** (30%), the **Oral Presentation of the COBES report** (20%) and **A Written Examination** (50%). The field assessment comprises student’s attendance at all activities, participation and development of team spirit. The criteria used for the assessment of the COBES presentation are in the table below:

Criteria used for the assessment of COBES presentation

	Criteria	Marks
1	Appearance	10
2	Team Approach	5
3	Use of Audiovisual resources	10
4	Meeting minimum learning objectives	20
5	Clarity of presentation	10
6	Conclusion drawn	5
7	Optional studies	10
8	Problems encountered and solutions to them	5
9	Handling of questions	5
10	Quality of written report*	20
	TOTAL	100

Note: Assessing the *quality of written report is to take cognizance of the following:

- Degree of compliance with College approved format
- Quality of type writing
- Freedom from typographical and editorial errors
- Quality of data presentation.

Written examination at the end of the 200 and 300 level postings focus on the lecture inputs into the Body System Teaching (lecture) programmes by the Departments of Behavioural Sciences, Epidemiology and Community Health, Medical Microbiology and Parasitology and the COBES unit. Details of the departmental inputs are to be found in the academic programmes of each department concerned.

The written examination comprises multiple-choice questions, short-and-long-answer questions. These assessments respectively constitute the progressive assessments for the end of 200 level comprehensive and the 300 level First Professional Examinations.

Starting with the 1994-97 clinical students, in conformity with 1991 New Bussa resolution, the clinical (500 and 600 level) COBES assessment will constitute a separate evaluation and passing this will become a prerequisite for graduation.

2.3.2 200 Level COBES assessment format

The following items will be considered in the 200 level assessment;

- Attendance at all activities
- Participation and development of team spirit
- Satisfactory demonstration of right attitudes knowledge and skills in each of the minimum learning objectives
- Written examination

A) Field Assessment Scheme

Activities Examined	Scores by Staff Supervisor
(i) Attendance (20)	
(ii) Participation (20)	
(iii) Team Spirit (20)	
Total Score (60)	

Very good **40>**, Good **30>**, Poor **20>**

B) Final COBES assessment scheme

	Max Score	Student Score
Filed Assessment	60	
End of Posting Presentation	40	
Written Examination	100	
Total	= 200	<u>% Score.....</u>

Overall marking Scheme

Above average	60% >
Average	50 - 59%
Below Average	< 50%

(Circle as appropriate)

2.3.3 300 Level COBES assessment format

The following items will be considered in the 300 level assessment;

- Attendance at all activities
- Participation and development of team spirit
- Satisfactory demonstration of right attitudes knowledge and skills in each of the minimum learning objectives
- Written examination

A) Field Assessment Scheme

Activities Examined	Scores by Staff Supervisor
(i) Attendance (20)	
(ii) Participation (20)	
(iii) Team Spirit (20)	
Total Score (60)	

Very good **40>**, Good **30>**, Poor **20>**

B) Final COBES assessment scheme

	Max Score	Student Score
Filed Assessment	60	
End of Posting Presentation	40	
Written Examination	100	
Total	= 200	<u>% Score.....</u>

Overall marking Scheme

Above average	60% >
Average	50 - 59%
Below Average	< 50%

(Circle as appropriate)

CLINICAL COBES

2.3.4 500 & 600 levels COBES assessment format

These postings add a clinical dimension to their previous experiences and they must take it as an opportunity to increase their knowledge and skills in clinical diagnosis as well as improve their overall attitudes to diseases in terms of individual cases as well as its population perspectives. They should be sure they study all the cases they encounter, making use of the library, and other learning resources, which may be available on site.

Their assessment will be based on:

- Attendance at all clinics punctually
- Team spirit
- Willingness to learn from seniors and colleagues
- Attitudes towards patients and their relations
- Clinical attitudes and behaviour

- Clinical skills as assessed by the officer in-charge of the Health Centre. They may undertake any special study.

They will be expected to:

- Catalogue all their managed cases during the posting
- Write in detail, 2 case reports using guidelines distributed at the beginning of the posting.
- The above must be submitted for assessment within a week after the posting.

The overall objectives of the 500 level posting will focus on Maternal and Child Health:

- Identify maternal and child health problems in their community.
- Put these problems in priority setting.
- Manage maternal and child health problems in their assigned clinics and make a record as indicated in their log book.
- Assist the Medical Officer of health in treating common ailments and other activities particularly immunizations at the health centre.
- Assist junior students who are on their site.

The 600 level COBES posting is the final posting. The objective of this posting is to finally help the students to sharpen their population perspectives of disease spectrum. This will help them bear the community situation in mind at whatever level of health care they are operating. Another objective is to help them solve clinical problem with minimal equipment and resources. Clinical skill and judgment become crucial in such situations.

No	Date	Patients names & diagnosis	Treatment given	Supervisors signature
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				

Note: Each student is expected to participate in the management of the main health problems seen at the health centre. Not more than 2 cases of one condition may be listed.

2.3.5 Progressive assessment records

A) 200 Level

Name..... Matric No:.....

COBES Site.....

Dates: From: To:

	Marks obtainable	Mark obtained
Attendance, Team Spirit	20	
Daily activities, Achievements	20	
Knowledge, skill and attitude in selected areas	20	
Presentation	40	
Written Examination	100	
Grand Score	200	

College Staff Team Leader.....Date:.....

COBES Coordinator..... Date:.....

B) 300 Level

Name..... Matric No:.....

COBES Site.....

Dates: From: To:

	Marks obtainable	Mark obtained
Attendance, Team Spirit	20	
Daily activities, Achievements	20	
Knowledge, skill and attitude in selected areas	20	
Presentation	40	
Written Examination	100	
Grand Score	200	

College Staff Team Leader.....Date:.....

COBES Coordinator..... Date:.....

C) 500 Level

Name..... Matric No:.....

COBES Site.....

Dates: From: To:

	Marks obtainable	Mark obtained
Attendance, Team Spirit, willingness to learn, attitude towards patient and relations	20	
Clinical Skills	20	
Case Catalogue	20	
Case Reports	40	
Grand Score	100	

Medical Officer/COBES Coordinator's Grading of Students Performance:

Below average (<40) Average (40-60) Above average (60>)

Assessment:

	Above average	Average	Below Average
(i) COBES Coordinator			
(ii) HOD- Obstetrics & Gynaecology			
(iii) HOD- Paediatrics & Child Health			
(iv) HOD- Pathology			

Note: Overall score goes to each of the following departments to be included in their progressive assessment (10% P. A.).

- Obstetrics & Gynaecology
- Child Health
- Pathology

D) 600 Level

Name..... Matric No:.....

COBES Site.....

Dates: From: To:

	Marks obtainable	Mark obtained
Attendance, Team Spirit, willingness to learn, attitude towards patient and relations	20	
Clinical Skills	20	
Case Catalogue	20	
Case Reports	40	
Grand Score	100	

Medical Officer/COBES Coordinator's Grading of Students Performance:

Below average (<40) Average (40-60) Above average (60>)

Assessment:

	Above average	Average	Below Average
(i) COBES Coordinator			
(ii) HOD-Medicine			
(iii) HOD-Surgery			
(iv) HOD-Epid. & Comm. Health			

Note: Overall score goes to each of the following departments to be included in their progressive assessment (10% P. A.).

- Medicine
- Surgery
- Epid. & Comm. Health

2.4 COBES LOGISTIC SUPPORT

2.4.1 What are the logistic supports for COBES programmes?

These include:

A) University administration

- To provide annual budgetary allocation (subvention) for COBES programme
- To assist with transportation of students to and from the COBES site
- To provide generators, mattresses and other relevant materials required by the students at the COBES sites.

B) College administration

The Provost is the Chief Coordinator of the COBES programme and he is;

- To ensure that site supervisors perform their expected roles
- To forward to the University Administration relevant recommendations made by the various student groups with respect to the COBES programme.
- To make appropriate recommendation in respect of the appointment of the COBES Coordinator
- To solicit for collaboration, financial, moral and logistic support from the State Ministry of Health and relevant LGAs.
- To source for funds from the three tiers of government, NGOs, Philanthropist and donor agencies
- To formulate and ensure implementation of a code of conduct for students on the COBES site
- To see to the overall welfare of the student at the COBES site

C) COBES unit

This is the life wire of the COBES programme

Pre – COBES Programme

- Make budgetary provisions for the COBES programme through the College to the University Administration

- Identify possible COBES sites taking into consideration the following criteria
 - Availability of suitable accommodation for the students in the community
 - Availability of basic social amenities such as potable water electricity, motorable road.
 - Willingness of the community and the superintending local government to accept the students in the community
 - Prevailing atmosphere of peace, political stability, freedom from epidemics and other disasters.
 - Community needs assessment for the purpose of prioritizing choice of sites.
 - Programme or projects-targeted selection of site(s).
- Prior visit to the local government chairmen for their financial, logistic and moral support.
- Visit the proposed COBES sites to ascertain its suitability and readiness as well as the welfare needs of the students.
- Procurement of all needed items for the posting
- Distribute the students to the chosen COBES site without bias and discrimination

During COBES Posting

- Release materials to the group representatives
- Supervise departure of the various groups to the COBES site
- Carry out regular visits to the COBES site
- To see to the welfare of the students on site

COBES Presentation and End of COBES Examinations

- Make necessary arrangement for the presentation exercise
- To send invitation to relevant officials and individuals to be invited for the oral presentation
- Send invitation letters to experienced academic staff to act as judges
- COBES Coordinator should contact the HODs of Community medicine, Microbiology and Parasitology, Behavioural Science and Pharmacology for questions for the end of posting examination on the Friday following the oral

presentation. All the logistics about the examination must be concluded even before the oral presentation.

Inter-COBES Activities

- Carry out monitoring of COBES projects.
- Supervise Health clubs formed at the COBES sites.
- Follow-up on the recommendations made by the students to the Government.
- Prepare communities for the next COBES posting.

D) Role of academic staff of the College

- Full participation of all staff
- Familiarises self with the COBES programme through relevant briefs and COBES manual.

E) Students preparation and participation

- Obtain information relating to the COBES Posting
- To be ready to make some final contribution to the programme
- Abide by the code of conduct for students at COBES sites
- Be willing to provide service to the community in the area of the felt needs of the community within available resources.

F) Local government administrations

- Provide logistic and financial support for the COBES team.
- H.O.D (Health) to serve as liaison between the students and the LGA Administration.

G) Community support

- Co-operate with the students in the course of carrying out their various activities within the community.
- Show hospitality to students posted to their community.
- Collaboration with the students in the execution of optional projects e.g construction of pit latrines, incinerators etc.

H) Communication of COBES findings to relevant authorities

- State Government
- Local Government

- University of Ilorin
- College of Health Sciences
- NGOs and Donor Agencies e.g WHO, UNICEF.

2.4.2 Exit from a particular COBES site

Considerations include:

- 1) Saturation/ community fatigue
- 2) Unfavorable/unsuitable state of the community
- 3) Completion of the target programme/ project

Note: Letters of appreciation to be written to relevant stakeholders who have assisted in making a success of the particular COBES posting.

CHAPTER THREE

TECHNICAL INPUTS

FOR ENHANCED COBES PROGRAMME IMPLEMENTATION

Contributors:

- | | |
|---|-------------------------|
| 1. <u>Enhancing Community Participation in COBES</u> | Dr. Bode Kayode |
| 2. <u>Sampling Techniques, Data Analysis And Statistical Inferences</u> | Dr. (Mrs.) M. A. Araoye |
| 3. <u>Utilizing The Advances in Information Technology (IT) For COBES</u> | Dr. G. K. Osagbemi |
| 4. <u>Advocacy, Financing And Sustainability Of COBES Programme</u> | Dr. T. M. Akande |

3.1 ENHANCING COMMUNITY PARTICIPATION IN COBES

3.1.1 Definition of a community

A community can be defined as a *group* or sub-group of *people* living in a *defined area* and with a *peculiar lifestyle* for their survival. In other words, when people share common interests and take part in certain activities to demonstrate that they belong together, they have established a community.

There are fundamental structures, which make it possible for a community to be established. The basic structures are the individual, the family or household and the physical environment.

There are five (5) basic functions, which these structures must perform in order for the members to live and survive in their (chosen) environment. In other words, structures must participate in certain functions and guaranty continuity. The basic functions are:

- Economic
- Educational

- Socialization and Stabilization
- Sexuality
- Procreation

The sum of these functions can be referred to as the lifestyle of members of the community. From these lifestyles, there are bound to be results or outcomes and their consequences. Lifestyle(s) of a community can be influenced by socio-cultural, economic, political, health and religious practices with the attendant results and consequences.

Factors and variables which Influence a Community

These are the Predisposers, Enablers and Modifiers (PEM Factors)

1. Predisposes (or, Predisposing Factors): Socio-demographic variables such as Age, Gender or Sex, Occupation, and Behaviour.
2. Enablers (or, Enabling Factors): These are resources e.g. social facilities (housing, roads, special services such as health), skilled manpower and funds.
3. Modifiers (Modifying Factors): Time & events (include natural and man-made events).

These factors should be identified and used in planning health activities to enhance community participation.

3.1.2 How to Get Going

This is the stage also referred to as Implementation. That is, when action is taken and planned activities in the community are carried out. In order to get into action, the COBES team must do the following.

A) Make contact with the community at various levels.

There should be many visits to the community to meet the people and identify the geographical limits of their community. The intervention team may very well find out that the people are already talking about their situation. They may have some ideas about what is wrong and needs to be improved or changed. Sometimes, they organize “*special internal*

action group” (**SPIAGRO**) and give the group a mandate to find solution on behalf of the community. It is important for the Intervention Team to identify the community “Spiagro” (if any), and obtain necessary information about the members, their mandate and scope of activities, etc.

B) Community diagnosis

Obtain and analyze sufficient qualitative as well as quantitative data with which to develop a profile of the larger community, taking into account all the PEM factors. This study must be carried out with the active participation of the community-Spiagro. A Joint Action Group (consisting of the COBES team and relevant significant members of the community) should be formed – albeit on Ad-Hoc basis and if there is no opposition to the idea. At the end of this step, the Joint Action Group must determine the type of health need(s) desired by the community. By so doing, a synthesis of all perceptions and ideas would have been carried out. The basic types of Needs include:

- *Observed/Normative,*
- *Diagnostic,*
- *Felt,*
- *Expressed.*
- *Comparative*

It is believed that some measure of mutual trust would have been built at this point. This should help the COBES team to establish the much needed communication network for planned activities.

C) Develop a map of organizational potentials in the community

The Joint Action Group may wish to prepare a table and map of other organizations and groups with probable relation to the community.

The following example can be adopted if found useful;

Note: The COBES team must locate informal leaders because it cannot reach the entire

Name of Organization	Probable Relation to Project	Probable Role to Play	Probable Constraints to Participation	Criteria for Evaluation	Remarks
e.g. #1. Farmers Development Union, Market Women Association i.e. <i>Spiagro</i>	Active partnership In fund raising and community mobilization	1.Nominate members for the Joint Action Group. 2. Carry out door-to-door talks with people.	Policies of the <i>Spiagro</i> (Association). Leadership structure.	1. No. of activities carried out by the Joint Action Group. 2. Funds raised For the project. 3. % of the target pop. Mobilized.	1.Review feed backs from the community 2. Assess Public impact of the Joint Action Grp. 3. Accept short falls.
e.g. #2 Mothers Club i.e. <i>Spiagro</i>	1. Moral Support 2.Neutral or +ve bias	Public support for Door-to-door visits	Political clout of the <i>Spiagro</i> i.e. “Inner Force of Langbodo”	Degree of moral support from Inner Force of Langbodo	- ditto -

people of a community by depending on *Special Internal Action Groups* (*Spiagro*) alone. Some people are not members of either formal or informal organizations. Even when they belong, they may not take part in group activities on a regular basis. Hence, they can be classified as “inactive members”.

However, everybody belongs to some kinship and friendship groups, which are formed around family and household lines, occupational or other socio-cultural and economic activities.

(Re: P-E-M factors). Words and messages about events, community projects or problems are often passed through these existing communication networks. These networks often harbor influential leaders in whom many people have confidence. Their opinions are patronized by the mass media: radio, television and newspapers.

3.1.3 Penetrating the community for health actions

Two major steps should have been established before penetration

- a) Making contact with the community, i.e. identifying the community.
- b) Mobilization of the community, i.e. arousing the community for awareness.

A) Knowing when the community is ready

People in any community are not static. The population is ever dynamic and always experiencing contact with the outside world. For example, visitors come and go on market days. There are socio-cultural events, which bring permanent residents and visitors together. These include festivals and market days. Members of the community travel out to other places. Messages are received and sent through various media and communication networks earlier as described. For these reasons, there is no *bell point* when the people are ready for health action. It is left for the Joint Action Group to determine the take off point, based on the information analysed from previous and on-going interactions with various strata of the community. The basic flag off points are as follows:

- a) The Joint action group is allowed some time to study the identified health problems.
- b) The problems are then interpreted, prioritized and converted into health needs.

B) Phases of community actions for penetration

Community penetration may be thought of as progressing through several phases. These phases do not necessarily fall into chronological order or a particular sequencing.

However, they occur in one way or the other whereby members of the community are carried along on each of the activities mapped out. This is what is meant by *community participation*. Even when the pace of involvement is staggered, everybody feels being part of the actions. For example, the *early adopters* may evolve as co-owners and leaders of the project while the *late adopters* follow suit at their own pace

The following are the key phases;

1. Looking within the Joint Action Group and the Community to harvest ideas and feelings of members. At the end, it would be possible to identify the problems to tackle.

e.g. * The most important community problems would be identified.

* There will be ranking into their order of priority.

2. Assessing the Group and the community resources as they relate to the priority health problems. There may be re-ordering of priorities at this point.

3. Selecting one action target at a time. While capacity building is going on and the activities are gathering momentum, the Action Group is keeping everybody focused. Otherwise, distractions may cause detours or total derailment.

For example, socio-political activities may overrun and overwhelm health activities and break the initial cohesiveness in the community.

4. Planning the action steps.

The detailed plan of action must be clearly understood.

- Goal – what is the project aiming at?
- Objectives – how and by what time will be results come?
- Activities – actions required of the people, where and when?
- Resources – materials, equipment, facilities, manpower, funds which will be needed and in what quantity / quality / time, who will provide them & at what cost / risk to the project?
- Probable Constraints – what are the limitations to expect and why?
- Criteria for Evaluation – what are the landmarks for success?

Note: There must be objective considerations for the time required for a successful completion of the project vis-à-vis the resources.

3.1.4 Request for special services

Specialists' advice and services should be sought from within and outside of the community to solve identified problems and the information is disseminated for community mobilization. Basically, this is a continuous process of community study in relation to the needs and available / accessible resources. It should continue throughout the life of the project.

3.1.5 Redefining the next action target Or “EXIT”

- **Impact of the activities on the community**
- Crisis Resolution
- Cost benefit analysis of project outcomes
- Lessons learned from the various phases of implementation
- Deferment of continuation and / or Exit from the community due to Community apathy which may result from:
 - Bad planning,
 - Poor preparation,
 - Faulty sponsorship becoming a liability,
 - Poor timing,
 - Autocratic leaders and
 - Wrong approaches.

3.2 SAMPLING TECHNIQUES, DATA ANALYSIS AND

3.2.1 Introduction

Students are required to carry out basic research during the COBES postings. This involves data collection, collation, analysis and interpretation. The findings are then presented in an approved format. Studies may involve taking samples from the population. This section describes sampling techniques, introduces data analysis and provides information on how to make inferences from sample statistics to population values, as well as the basic principles of hypothesis testing. More complex analysis of data that may be carried out is beyond the scope of this document.

A) What is sampling?

A sample is a subset of the target population. Sampling is the process of selecting such units from the target population. It is required that the sample is representative of the population from which it is drawn; hence care must be taken to ensure that this is achieved.

B) Why take samples?

- It could be impractical to observe all the individuals in the target population. For instance, studies of:
 - Potassium level in the blood where the whole blood volume cannot be withdrawn and tested.
 - Iron content of a water body.
 - Drug trials where for ethical reasons; only a sample must first be tested.
 - A very large population like children under five in Nigeria.
- To utilize available resources (personnel, time, money and material) most efficiently.
- For better accuracy of data collection and analysis, smaller volume of data will be more effectively handled than a heavy load.

However, sampling is not ideal in studies of rare conditions, in which (small) samples may not yield sufficient subjects.

C) How large should the sample be?

For the samples to adequately represent the study population, hence make the findings generalizable to that population, the sample size must be large enough for the following reasons:

- To allow for appropriate analysis such as cross-tabulations.
- To provide the desired level of accuracy in estimate of proportions.
- To allow validity of significance tests.

NOTE:

- The availability of resources sets the upper limit of the sample size. Samples however, should not be too large in which case; resources (which are usually limited) would not be conserved. Even if resources were not limited, it would not be good enough for the other reasons given for need to take samples.

- The required level of accuracy determines the lower limit of the sample size.

D) Calculation of sample size

There are various formulae for calculating sample sizes based on certain assumptions. These will be illustrated with Fisher's formula:

Assumption: study population is greater than 10,000.

$$n = \frac{Z^2 pq}{d^2}$$

where

n = the required sample size

z = the standard normal deviate, which is usually set at 1.96 (or simply 2.0). This corresponds to the 95% confidence level.

p = the proportion in the target population estimated to have a particular characteristic.

For instance:

- Prevalence of HIV/AIDS among adolescents
- Proportion of smokers among commercial drivers

This information on (**p**) can be obtained from literature review or previous studies by the investigator including pilot studies. If however, this information is not available and no reasonable estimate can be made, the value is set at **0.5**. This gives the highest possible value of pq in the formula.

$$q = 1.0 - p$$

when p is 0.5, q will be 0.5 and

$$pq = 0.5 \times 0.5$$

$$= 0.25$$

d = degree of accuracy desired and it is usually set at 0.05 or occasionally 0.02

Example: If contraceptive prevalence rate (p) among currently married women aged 15 - 49 years in Nigeria is 0.50, with z of 1.96 and desired degree of accuracy (d) of 0.05 then the sample size is calculated as follows:

$$\begin{aligned}
 n &= \frac{Z^2 Pq}{d^2} \\
 &= \frac{1.96^2 \times 0.5 \times 0.5}{0.05^2} \\
 &= 384
 \end{aligned}$$

E) Adjustment for non-response.

The calculated sample size is the minimum required. If the investigator anticipates non-response from some selected subjects, which usually occurs, the response rate can be estimated from experience or literature review. The sample size should then be adjusted to allow for a minimum response that will not be less than the actual sample size required.

Example: If sample size (n) required is 400, the actual sample size (ns) to be selected if the response rate of 80% is anticipated is as follows:

$$\begin{aligned}
 ns &= \frac{n}{0.8} \\
 &= \frac{400}{0.8} \\
 &= 500
 \end{aligned}$$

Often, investigators just decide to increase the calculated sample size (**n**) arbitrarily but in so doing, the selected sample must not be less than (**ns**), so as to achieve at least (**n**) at the end. Hence, it is better to be guided by the principle. The larger the actual sample selected, the more robust the sample. Non-response in itself could bias the findings if it is rather high, more so if it disrupts stratification of an important characteristic.

3.2.2 Sampling Techniques

There are probability and non-probability sampling techniques.

A) Non-probability sampling

Non-probability sampling is the selection of a sample not based on known probabilities. This includes accidental types (haphazard or convenience), and judgmental (purposive and quota). They are mostly suitable for pre-tests and qualitative methods such as Focus Group Discussion.

B) Probability sampling

In probability sampling, each unit in the population has a known probability (or chance) for selection. This probability need not be equal for all the units in the population. The sample can then be said to be representative of the population from which it has been selected. Probability sampling includes simple random, systematic random, stratified random, cluster and multistage. Probability sampling technique is more commonly used in quantitative studies.

Simple random sampling

Simple random sampling is a technique in which every member of the population has equal chance (same probability) of being selected. This is most suitable for homogeneous populations. This technique could be difficult if the sampling frame is large, such as in large-scale surveys. Minority sub-groups of interest in the population may not be present in the sample in sufficient numbers for the study. In that case, alternative methods such as stratified random sampling will be helpful as discussed below. The sample can be selected by the following:

- (i) **Balloting, casting die, tossing of coin, drawing lot, etc.:** These have limitations in terms of objectivity.
- (ii) **Use of random numbers,** which can be produced from a computer or obtained from the table of random numbers.

Systematic random sampling

It is the process of selection of subjects whereby following random selection of the first subject, others are systematically selected through a pre-determined sampling interval. There must be no periodicity in the population or sampling frame.

Systematic random sampling requires a list of subjects in the population which could be numbered. Some methods may not require prior listing e.g, the selection of every third patient admitted to a hospital.

Stratified random sampling

If a population is heterogeneous for certain characteristics that are important to the study e.g, ethnicity, occupation and age; stratification by the characteristics should be performed prior to sample selection. For instance, stratification by sex and class level may be required in a school before subject selection. From each stratum, samples are selected by any random method; usually simple random.

Cluster sampling

The population is first divided into clusters of homogenous population units such as wards, classes of a school and villages within an LGA. The sampling units are the clusters and the sampling frame is a list of these clusters rather than individual subjects. A simple random sample of such clusters is then selected. **ALL** the units in the selected cluster(s) are then examined. This method cuts down resources required especially since a sampling frame of all the individual subjects is not required and the distance to be covered between subjects is less. It is more convenient. However, the sampling error is usually higher than for simple random sample of the same size.

Multistage sampling.

This technique is commonly used in large-scale surveys. As the name implies, selection is done in stages, until the final sampling units are arrived at.

First stage: A random sample is taken from a list of a large sized population e.g, selection of 2 villages from an LGA.

Second stage: A random selection of wards from each of the 2 villages

Third stage: A random selection of households from each of the selected wards, etc.

Usually, different random methods may be used at any stage. This cuts down the cost of preparing a sampling frame. The sampling error is however increased compared with a simple random sample of the same size.

3.2.3 Data analysis

After the data have been collected there is need for collation. In the case of questionnaire surveys, the number of respondents who provided same responses to variables is determined. For instance, the numbers of respondents who say “yes” or “no” to the question “have you used the health facility before?” is determined.

After the data have been collated, analysis is required to provide information from the study. The types of analysis depend on the study objectives and hypotheses.

A) Summarization of data

Measures of central tendency

Information on a value cannot be meaningfully and adequately described by listing all the individual measurements. The “central” point for the most characteristic value is used. These are measures of central tendency.

$$\begin{aligned}\text{Arithmetic Mean } (\bar{X}) &= \frac{\sum X_i}{n} \\ &= \frac{\text{Sum of all observations}}{\text{Number of observations}}\end{aligned}$$

Median: The central most observation after all the observations has been arranged in order of magnitude.

Mode: The most frequently occurring observation

Measures of dispersion

This measures the variability or dispersion of the distribution. They include standard

$$\text{Standard deviation } (S) = \sqrt{\frac{\sum (X_i - \bar{X})^2}{n-1}}$$

deviation, range and inter-quartile range.

Range: Difference between the highest and the lowest observations in a distribution.

Inter-quartile range (IR): After dividing the data set into 4 (quartiles), the difference between the upper and the lower quartiles is the IR.

Proportions, Rates and Ratios

Proportion of an event (**p**) in a sample is the number of occurrence of the event (**r**) divided by the total number of units in the sample:

$$p = \frac{r}{n}$$

For instance, if the number of mothers of infants aged 0-6 months who are breastfeeding exclusively is 600 from among a sample of 1000,

$$\begin{aligned} p &= \frac{600}{1000} \\ &= 0.6 \text{ or } 60\% \end{aligned}$$

A rate is the amount of an event measured in a specified time. It is similar to proportions but with a time factor introduced, and usually a multiplier (**k**) to convert it to whole numbers rather than fractions. For instance, Infant Mortality Rate **IMR** (calculated as total number of deaths among children aged one year and below divided by the total number of live births in a year multiplied by 1000).

A ratio indicates the relationship in magnitude between two or more parts. The numerator is not part of the denominator. For instance, male: female ratio in a population.

Cross tabulations

This analysis involves pairs of variables and in its simplest form, a variable could be segregated by for example, sex, age-group or educational level. Cross-tabulations can be

performed for the purpose of describing the sample, comparing groups for differences and for exploring relationship between variables.

B) Statistical inferences

If a representative sample of the population has been studied, then the findings are generalizable.

- Sample mean ($\bar{X}$) is an estimate of the population mean (μ).
- Sample standard deviation (s) is an estimate of population standard deviation (σ).
- Sample proportion (p) is an estimate of population proportion (θ).

From Sample to Population

Values of the sample statistics obtained are subject to sampling error when extrapolated to the population from which the sample was drawn. An adjustment is made for this error to obtain the true value in the population. It provides an interval of the true value, known as 95% confidence interval.

Interval estimation of mean:

$$95\% \text{ CI } \mu = \bar{X} \pm k \text{ ese } (\bar{X})$$

μ = Population mean; $\bar{x}$ = sample mean

k = A constant derived from a statistical table.

$\text{ese } (\bar{X})$ = Estimated standard error of the mean

Example: The mean height of ten randomly selected 5-year old school children in an LGA was 110.3cm and the standard derivation was 5.6cm. The interval of the mean heights of all the 5-years old school children is calculated as follows:

$$\begin{aligned} \text{ese } (\bar{x}) &= \frac{S}{\sqrt{n}} \\ &= \frac{5.6}{\sqrt{10}} \\ &= 1.77\text{cm} \end{aligned}$$

k is approximated to 2.

$$\begin{aligned} 95\% \text{ CI } \mu &= \bar{X} \pm k \text{ ese } (\bar{X}) \\ &= 110.3 \pm 2 \times 1.77 \\ &= 106.8\text{cm}, 113.8\text{cm} \end{aligned}$$

Interpretation: The mean height of 5year olds in the LGA is between 106.8cm and 113.8cm.

Interval estimation of proportions:

Similarly, for proportions,

$$95\% \text{ CI } \theta = p \pm k \text{ ese } (p)$$

Example: A survey showed that from 1000 randomly selected students in a polytechnic 200 smoked cigarettes regularly. To obtain the proportion of all students in polytechnics who smoked,

$$\begin{aligned} \text{ese } (p) &= \sqrt{\frac{pq}{n}} ; \quad (q = 1-p) \\ &= \sqrt{\frac{0.2 \times 0.8}{1000}} \\ &= 0.013 \\ 95\% \text{ CI } \theta &= p \pm k \text{ ese } (p) \\ &= 0.2 \pm 2 \times 0.013 \\ &= 0.2 \pm 2 \times 0.013 \\ &= 0.174, 0.226 \end{aligned}$$

i.e. 17.4%, 22.6%

Interpretation: Between 17.4% and 22.6% of students in Polytechnics smoke cigarettes.

Hypotheses testing

To explore the associations between variables or to compare groups, statistical tests are carried out. These are tests of significance. Examples are chi-square for categorical variables, Student's t-test for numeric variables and estimation techniques for both

categorical and numeric variables. The variables to be examined depend on the hypotheses of the study. For instance, to identify factors associated with an outcome, the investigator will tabulate the factors e.g, sex against the outcome e.g, knowledge of HIV/AIDS and carry out chi-square test. To test the difference between means and between proportions, statistical tests are also conducted.

Interpretation: Significance is interpreted along the line of occurrence of the findings by chance. The probability of the findings occurring only due to chance must be low and should be determined by the investigator. Conventionally, it is set at 0.05. If the probability is low, then the finding is said to be significant. However, it is important to note that an observation that is not statistically significant could be clinically important. Hence, the preference for the estimation technique, which in addition to testing the significance shows the magnitude of the relationship or difference between variables/groups that are being compared.

3.3 UTILISING THE ADVANCES IN INFORMATION TECHNOLOGY

3.3.1 Introduction

Today, we live in the information technology (IT) era. It is now possible for one to obtain almost any piece of information on virtually any subject of interest. This has been made possible by the combination of computer technology and high-speed communication networks linking organizations, universities, and other institutions both in the private and public sectors to create the so-called information super-highway or the Internet. Advances in IT parallel advances in computer technology as computers form the pivot around which the wheels of IT revolve.

From time immemorial, man has always had the need to communicate with fellow men. This he has been able to achieve using different tools and techniques. These tools have evolved over the years, determined by the prevailing level of technological advancement at each stage, from the use of smoke, fire, and drums by primitive societies, through wall markings and paintings by the Egyptians, to the use of paper, radio, camera, television, and more recently, to high-end multimedia systems.

COBES students, professionals, administrators, researchers, managers, etc. make presentations from time to time at seminars, conferences, workshops, and scientific gatherings as well as feedback to communities, requiring the use of modern audio-visual aids (AV) that have inherent features to jazz-up presentations. It is worthy of note however, that despite the fact that modern AV is available and within reach, a situation brought about by advances in IT, only few professionals take advantage of the benefits it has to offer with regards to scientific presentations.

This section therefore, aims to highlight the tools and techniques available for COBES. It focuses on the use of IT for data management, hardware and software requirements for presentations. While these may not be readily available, it is important to expose the students to the potentials and opportunities they offer.

3.3.2 General applications of IT in healthcare

- A) Laboratory instrumentation
- B) Research or surveys
- C) Disease surveillance
- D) Clinical management
- E) Administrative/clerical work
- F) Other internet facilities
- G) Data Presentation

A) Laboratory instrumentation

Microcomputers can reduce the amount of clerical activity involved in calculating, recording, and reporting of laboratory results. Most laboratory instruments now have output signals that can be captured by computers.

B) Research and surveys

Data can be entered, edited and correction made at source. Analysis may also be quickly performed. A laptop computer is desirable for fieldwork because of its portability and the presence of internal battery.

C) Disease Surveillance

Surveillance database can be created and information generated continuously from the peripheral levels to the centre. Feedback in form of results and publications may be provided from the centre through electronic means.

D) Clinical management

System networks between clinics, pharmacy and records departments enable quick information and data access. Networking also reduces man-hour loss and increase accuracy in information and data quality.

E) Administrative/clerical work

Nowadays, personnel records and other administrative work are done on computers. There is no significant resultant unemployment compared to the benefits derived in terms of cost effectiveness, man-hour utilization. Word processors are used to produce internal and external memoranda. In scientific writing and presentations, the initial proposal development including budget is carried out using any of the word processing programmes. Word processors also help us to produce the prose portion of our reports. In all the stages we can add colour and aesthetics to the writing. It is recommended that you work directly on the computer as the time spent on initial drafts on paper is saved.

F) Other internet facilities

E-mail, Medline Search, Telemedicine, Online interviews, teleconferencing, wireless communication etc enhance literature search and communication.

G) Data presentation

There are various methods available to present data using IT to aid quick and better understanding of the information being presented.

Prose: Data can be presented in prose forms but it has its limitations because of volume and the need to summarise.

Raw Figures: These give information on the magnitude of events but not in relation to the general population. Such informations are useful but limited in scientific applications. In clinical uses, we need to have a background knowledge of normal values before specific raw measurements could be meaningful. Percentages, ratios, rates and proportions provide more useful information on the data than raw figures. Reasonable scientific deductions can be made based on their values.

Tabulations : Tables depict the relationship between variables and compare the rate of change. Most word processing programmes e.g. Microsoft word and Excel can create table for us.

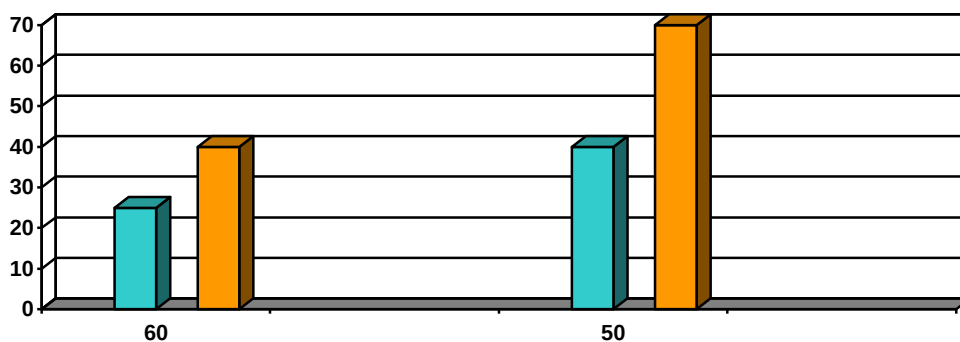
Remember to label the rows and columns, indicate the data source as well as dates where necessary. Titles should also be indicated. Table numbers should be in consecutive order as in the presentation.

Table X

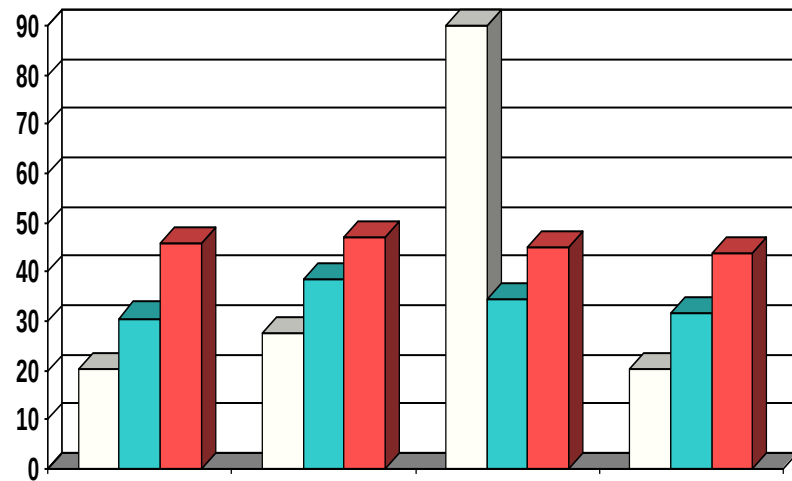
COLUMN	COLUMN	COLUMN	COLUMN	COLUMN
ROW				
ROW				
ROW				

Source of data and date

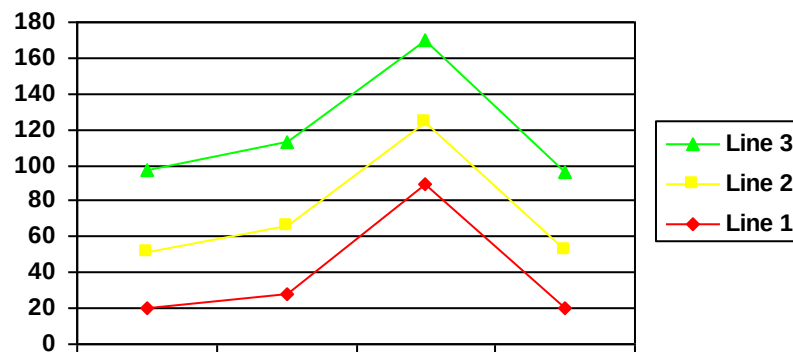
Bar Chart: This is used to present discrete variables such as the number of chairs, persons and houses. The bases are separated and the heights depict the magnitude of events. As with all figures and charts, proper labeling is required. Excel, EPI – INFO are examples of software for producing bar charts.



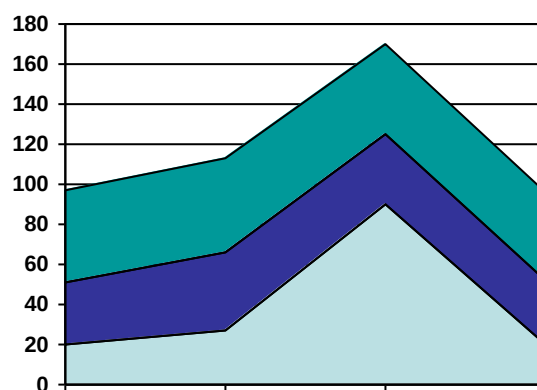
Histogram: This is used to represent continuous variables such heights, weights, ages and series of blood pressure measurements. The bases are joined and the areas of the bars represent the magnitude of the events.



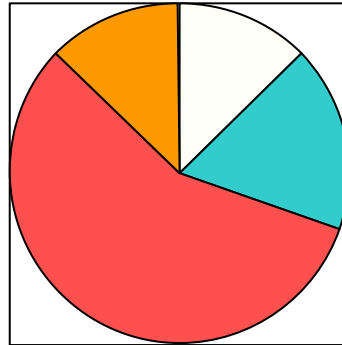
Frequency Polygon: This is obtained by joining the mid top points of histograms and represents variety of the information provided by the histogram.



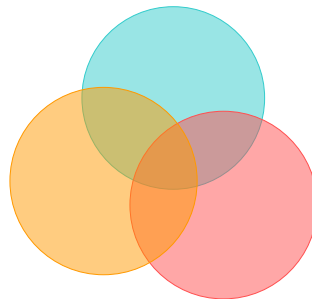
Graphs And Curves: The areas under the curves usually represent the distribution of the events in a given population.



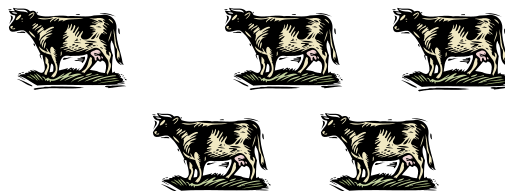
Pie Chart: This is used to display the contribution of each value in a set to the total. The proportions representing different values out of 360 degrees are represented by slices.



Venn Diagram: This shows overlap of events, attributes or variables.



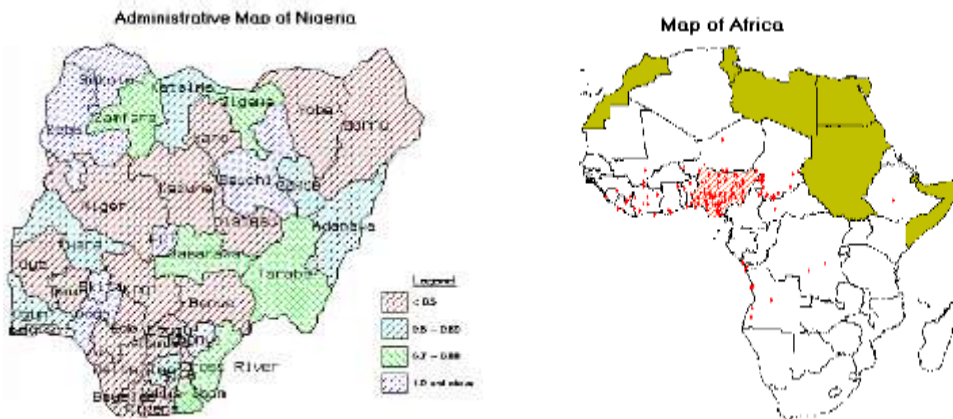
Pictogram: Pictures are used to represent the distribution of variables of interest. A single picture may represent more than one outcome in the number of variables. Pictures can be drawn using the computer or scanned from existing objects



Photographs: These may be used to represent events or depict concepts. For instance photograph of a lesion may be taken and included in a presentation:

Remember to obtain informed consent (verbal and written) to take photographs of people and scenes. In addition, it may be necessary to conceal the identity of subjects for ethical purposes.

Maps: These are diagrams showing geographical boundaries of an area.



3.3.3 Requirements

The needed requirements include desktops or laptops, printers, slide projectors multimedia projector, photographic camera and the various software packages. PowerPoint is one of the software necessary for presentations. It is important not to load too much information on a slide.

A clean and well-ventilated environment is adequate but an air conditioning system is desirable.

Consumables and supplies needed include paper, diskettes, ink, batteries etc.

3.3.4 Limitations

The cost of procurement and maintenance particularly in developing countries is a major drawback in the utilization of advances in IT for scientific work. Training and the necessary support also militate against its use so also is electricity supply.

3.4 Advocacy, Financing and Sustainability of COBES Programmes

3.4.1 Introduction

Health plays a major role in the socio-economic development of any nation. Health is no longer and cannot therefore be regarded as a by-product of economic development but a pre-condition for it.

Health advocacy aims at getting individuals or bodies' interest aroused or stimulated towards a health programme. It is a mobilization strategy towards getting desired attention. This is usually directed towards leaders at government and non-governmental levels.

The ultimate aim in health advocacy is to persuade individuals in positions, pressure groups and bodies to support a health activity or programme.

Health advocacy often arise from:

- Inadequate or lack of awareness on the part of the advocacy recipient on what is to be supported.
- Adequate awareness but inadequate or lack of necessary support
- Desire to get the individual or group to be part of the process for planning, implementation or evaluation.

3.4.2 Health Financing

There is a growing financial need to fund health care in almost all nations, with resources becoming limited because of the global economic recession; health financing now takes a major focus of attention. In Nigeria, in addition to financial difficulties there is also the problem of inefficient utilization of the available resources. Options for financing health services are now being widely considered. They may be grouped into 5 major categories.

A) Direct government financing

Direct government financing of health activities is the most widespread approach to health financing in the developing world. Government either provides periodic allocations from general government revenues or assigns the proceeds of a designated tax to the health sector or both. Public revenues are obtained from various sources and then generally are added together, in which case the source of financing for a particular public programme cannot be identified.

However in some cases governments dedicate the proceeds of a particular tax instrument to the health sector. For example in several countries in the Americas and in Asia lotteries have been organized to benefit social welfare programmes such as health care, primary education, etc.

Direct government funding of health activities alone has been inadequate in many countries particularly in developing countries.

B) User Charges

Another way of financing health care is by charging patients. These charges take a variety of forms. Fees for medical services are diverse. The definition of the item on which fees are to be charged varies widely. A fee may be required for an encounter with the health care provider, an episode of illness or a fixed number of contacts with the health care system.

A single encounter may be broken into items like laboratory test, drugs, procedures, etc. The fees for each of these vary. There may be a uniform price charged for all the patients or with the exception for the poor, children or some are exempted from paying. In some places, there are sliding scales of rates applied such that persons of lesser means pay lower fees.

User charges have the advantage of providing a link between financial responsibility and the provision of services. This link has generally enhanced willingness to contribute to the cost of health programmes and has encouraged both consumers and providers to be cost conscious. In addition, user charges help to control the use of health services by imposing financial disincentives to consumers.

The administration of user charges throws some challenges in developing countries where it is observed that the largest reduction in the use of services is as a result of charges particularly among the poor. This then calls to question the need for equity. However, if

charging for services enables money to be released for development of services for those not currently provided for, then equity is increased.

C) Community financing.

The emphasis of community support in most developing countries has been on providing resources, either financial or material and human for the establishment or improvement of health and sanitation infrastructure e.g. Health facilities, latrines, wells, etc.

Community financing of health activities requires community organization. The most serious problems have arisen in trying to sustain contributions to pay for the recurrent costs of programmes. People have frequently been unwilling to continue to pay for programmes from which they were not benefiting at the time.

Greater reliance on community financing of health care has been advocated for several reasons, which include:

- Individuals / households spend a lot of money purchasing modern and traditional health care from the private sector. It would not be an additional burden if this expenditure was redirected towards services that have a greater impact on health.
- Community financing will attract other unexploited resources like labor, land and contributions in kind.
- People will readily use and cooperate with services that they have helped to create and later help to maintain.
- It is a suitable mechanism for mobilizing contributions from the self-employed.

Community financing cover the following:

- Paying at full or preferential rates for health facilities organized through community efforts. The crucial feature is that the community rather than established market forces or individual negotiation has approved this form of payment.
- Paying for socially organized voluntary community insurance schemes e.g. prepayment for services that may be linked to income or production or a health care scheme for which standard charges are laid down.
- Giving of gifts in cash, labor, or kind for which no wholly individual benefit is expected but from which the donor may partake of the collective benefits.

- Paying for the creation and utilization of community capitalization schemes for the promotion of health care such as nutrition and sanitation funds from which grants or loans are given to members for health related activities.

D) Health insurance

Health insurance is a system in which prospective consumers of care make payment to a third party in the form of an insurance scheme, which in the event of future illness will pay the provider of care for some or all of the expenses incurred. Health insurance is a mixed source of finance as it often draws contributions from both employers and employees and sometimes government. Contributions to such schemes are often mandatory. There are three main types:

- Government or social insurance – maybe compulsory or voluntary often employed in the formal sector. Contributions based on the individual's income not on actual risk
- Private insurance – coverage through third-party payer institutions.
- Employer based insurance- employers or parastatal or private bodies serve as the third party payer or collection agent.

Health insurance diversifies sources of revenue of the health sector, individuals play some roles in paying for their own health care and to spread the burden of health costs over time and across a wider population which will reduce risk.

Health insurance can be compulsory or voluntary.

E) Foreign aid

External financing is generated mostly through development –oriented institutions such as bilateral agencies, multilateral organizations and banks e.g. UNICEF, WHO, UNDP, World Bank, EEC, USAID etc.

Financial cooperation is generally channeled through a central authority in the recipient country such as Ministry of Finance or Ministry of National Planning. In some cases funds may be routed directly to particular ministries, agencies or NGOs.

While NGOs in financial terms may be small in most cases, their potential for mobilizing people and strengthening their self-reliance cannot be overlooked.

F) Voluntary contributions

Usually from individuals or groups within the country. Philanthropists' cash donations as well as donations in kind (buildings, equipments, etc). Religious groups also fall into this category. Some groups run non-profit making health services.

G) Other private sector involvement

- Medical services run for employees by private or quasi- government enterprises.
- Salaried government physicians engaged in private practice
- Physicians engaged in full- time private fee for service practice
- Chemist shops / Pharmacies
- Private for profit hospitals and clinics
- Indigenous or traditional practitioners and quacks

3.4.3 Health care financing in Nigeria

Total public health expenditures consist of expenses incurred in the provision of all forms of health care by all levels of government. There are insufficient data on this. Available data point to the fact that public expenditures in the health sector has been very low either when compared with those of other key sectors of the economy, such as education, agriculture, etc or when expressed in percentage terms in relation to the gross domestic product. In percentage terms, Federal health sector in relation to total Federal government expenditures fluctuated between 0.98% and 2.51 % between 1980 and 1990.

While the health sector consumes between 2.0%and 3.0% of the Federal recurrent budgetary allocation, its share in the State and Local Government levels range from 10- 11% and 31- 40 % respectively. Total health expenditure reveals that at all levels of government; recurrent expenditures take the lion share. At the Federal level, the recurrent share of the health budget was between 64.8% and 70.0% between 1980 and 1990. Also, on the average for State and Local governments, 80.0% and 90.0% of the health budget is devoted to recurrent expenditure; personnel costs dominate the recurrent expenditure.

Federal allocation to PHC has been negligible, less than 0.5% of recurrent expenditures. Although the proportion is still low, there is an indication that the policy emphasis on PHC in recent times has led to a gradual increase in the level of its funding. However, the major part of the State and total Local government health budget is devoted to PHC.

- Heavy reliance on the Federation Account by the LGAs to finance their activities.
- An average per capita health expenditure of ₦67 (recurrent) and ₦101 (recurrent + capital) is abysmally low. Reflection of the average of less than 20% of the LGA budgets allocated to health.
- What is currently spent on health staff in most local governments leaves little or nothing for the purchase of drugs, transport, maintenance, supervision, etc

Measures for sustainability.

- There are a number of things that the local governments can do to improve on their funding of PHC services
- Increase LGA budgetary allocation (particularly recurrent expenditure) to health.
- At LGA level, at least 25% of its recurrent budget should go to health and not more than 60% of this is spent on staff salaries.
- Considerable funding from internally generated revenue by LGAs is the key to sustainable public funding.
- Community financing – largely untapped, readily available, include monetary and non-monetary resources such as labour and local produce. Community control of health financing is also a critical factor in health care financing-**The Bamako initiative.**
- Community pre-payment schemes can be used to improve or support other forms of HCF
- Community participation should be promoted vigorously in all developmental efforts including health. A variety of informal and formal community organizations can help to mobilize local resources.

- User fees, largely a form of cost sharing and one of the methods of HCF that tend to ensure sustainability.
- The funds make the purchase of drugs and supplies possible and keep services running.
- Retention of user fees at the facilities where they are generated is a critical factor in sustainability.
- Health Insurance scheme appears the HCF option that most ensures sustainability since it provides a large pool of funds on regular basis from potential clients.
- HIS, if properly managed, ensures equitable distribution of health facilities and appropriate patronage at all levels.
- Donor Funding - Appears very attractive and commonly relied on but regrettably unreliable for sustainability. Usually programme directed and not necessarily based on country's priorities

3.4.4 Sustaining the Funding of the COBES Programmes

The following are suggested sources of funding for COBES logistics including students' activities at the various sites.

- 1) **University Funding:** Advocacy to improve funding by the University such as involving key officers in relevant COBES activities such as workshops, presentations and commissioning of completed projects at COBES sites.
- 2) **Funding from LGAs and Communities:** These can be improved by tapping locally available resources. Communities are to be mobilised to make resources available. Efforts should be made to mobilise communities to patronize and fund available health services technically supported by COBES activities.
- 3) **Students Contribution:** Students financial contributions to COBES logistics should be minimal.
- 4) **Community Based Organisations:** Identification of formal and informal Community Based Organisations (CBOs) to provide material and financial support.

- 5) **International Organisations:** Involvement of International Agencies such as WHO, UNICEF, USAID, UNFPA etc through submission of proposals and advocacy visits.
- 6) **COBES Alumni:** The College should reach out to local and international COBES alumni for financial and material support. Such alumni can also provide potential sources of support.
- 7) **Non-financial contributions:** The needs of COBES programmes should be itemized and made available to relevant organizations such as companies, clubs and philanthropic organizations eg Coca Cola, Rotary International, Lions Club etc.
- 8) **Separate bank account:** Opening of a separated account for the COBES unit with the Dean, COBES APC Chairman and COBES Coordinator as co – signatories to facilitate easier access to funds is recommended.

Note: Appropriate funding of COBES is a basic need for improvement of the programme. Sustainable COBES financing options have to be in place to achieve this. This will require advocacy to various arms of government, non-governmental organizations and groups to be part of the planning process and be involved in various ways in implementation and evaluation.