

Training senior nurses for health services research: a course in data-collection and data-analysis in Nigeria.

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Health services research is concerned with the study of problems in health care delivery. It is essentially practical and uses techniques derived from social investigation and management research to investigate the process of providing health services to a population. It offers real prospects of improving the coverage and effectiveness of primary health care, starting from better use of the resources already available (1). Simple investigations into current practice yield data which used to improve activities can bring rapid results (2).

In developing countries, the senior nurse is carrying significant managerial responsibilities for primary health care. At present many primary health care services achieve poor coverage and impact, largely because of managerial deficiencies and a mode of organisation which is not responsive to community needs and problems. The first step to remedying this situation is to study it, in particular by collecting data on coverage with respect to important areas of service, to staff performance (of tasks), proportions of staff time devoted to different types of activity, the amount of time patients wait in the service, to community needs and problems and so on. These are all simple studies of the health services research type, involving looking analytically at what is actually going on in a health service, with a view to improving the quality and effectiveness of care provided.

Unfortunately, the senior nurse has rarely been prepared for this

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research role, although ideally placed to effect real improvements in health services by means of research and its appropriate application. However short courses and workshops can help to develop the knowledge and skills required. One such course was commissioned by the West African College of Nursing in July 1985. Twenty-seven senior nurses from the five countries of the West African Health Community (Nigeria, Ghana, Liberia, Gambia and Sierra Leone) gathered in Lagos for a five-day programme. The instructional objectives of the course were as follows:

At the end of the course the participant should be able to:-

1. Use standard research procedures appropriate for research in nursing management and staff training.

Specifically, the participant will be able to:-

- 1.1 Design a data collection instrument such that reliable and valid data may be obtained.
- 1.2 Select a sample according to standard procedures and guidelines.
- 1.3 Analyse the data collected using standard statistical procedures.
- 1.4 Present the data in table form according to standard procedures so that the data is readily comprehended.
2. Apply the techniques of systematic observation to research in nursing management and staff training.

Specifically, the participant will be able to:-

- 2.1 Carry out a simple work-sampling study in a clinic or ward situation.
- 2.2 Carry out a simple patient flow study in a clinic or OPD situation.
- 2.3 Utilise a skills checklist to observe individual staff performance.
- 2.4 Carry out a treatment audit with reference to standard treatment protocols.
3. Interpret the results obtained by means of research into nursing management and staff training, with reference to the context of staff supplies, administrative patterns and community behaviour.

4. Give feedback to staff on the results of research into individual and group performance utilising appropriate communication techniques.
5. Plan appropriate changes in service, supervision or training based on the results of the research.

The course emphasised active learning, 58% of the time was spent on practical exercises in groups. The practical work was carried out in the community and in the primary health care clinic run by the Institute of Child Health and Primary Care in a low-income area of Lagos.

Day 1      Pre-test.

Introduction to health services research methods.

Designing a data-collection instrument: group exercise.

Group presentations.

Day 2      Introduction to sampling methods.

The art of interviewing.

Collecting data by means of interview: group exercise in the community.

Analysing data and basic statistics.

Analysis of data collected in community: group exercise.

Group presentations.

Day 3      Service records as research data.

Sampling and analysing immunisation records: group exercise in clinic.

Group presentations.

Using research findings to improve service management.

Introductions to operations analysis.

Day 4      Systematic study of staff performance and service operations.

Task analysis, work-sampling, patient flow: group exercise in clinic.

Analysis of data collected in clinic.

Group presentations.

Day 5

Case-studies in groups.

1. Giving feed back to staff on research findings.
2. Using research findings to improve services.

Post-test and Evaluation.

Emphasis was placed not only on the practice of various research methods (cluster-sampling, systematic sampling, interviewing, systematic observation) but also on the process of analysing the data obtained, tabulating it and presenting the findings to the group as a whole. Examples of some of the data presented appear below. Table 1 is a composite of the findings of the four groups of participants who each sampled and analysed a year of immunisation activity at the Institute of Child Health clinic, Lagos. As each group presented its findings the discussion highlighted how the data illustrate the effect on immunisation coverage of changes in clinic supplies and mode of service operation. In particular the data illustrate the effect on coverage of the introduction of a walk in (without screening) immunisation service in 1981; of polio vaccine shortages in 1983 and 1984 and of forced reduction in the level of community outreach activities in 1984.

Table 2 presents the findings of one group of participants which analysed patient waiting time in the ICH clinic. Discussion during the data presentation focussed on the implications of waiting time for service utilisation and service coverage and possible strategies to reduce waiting time. Table 3 presents data on systematic observation of clinic functioning overall collected by the group which practised using a simple work-sampling method. The discussion focussed on time as a resource and the need to look systematically at how time is being used in PHC services. The data

presented was of observations over a busy two hour period but the group went on to speculate as to the proportions of time spent on different activities at less busy times of day and to consider how less busy times could be used for training, continuing education, management functions and evaluation.

The objectives on communication of research findings and use of research findings were met by means of case-studies worked through in groups. The case-studies illustrated the obstacles to use of research findings in improving clinic services and frank reference was made to the difficulties of improving ICH services despite the availability of data such as that collected by the participants in the earlier exercises.

Formal presentation to the participants as a whole was a feature of the feed-back at the end of each exercise. Participants used the overhead projector to make their presentations. For some of them it was the first opportunity they had to use this valuable visual aid. Participants were encouraged to prepare their tables carefully for presentation and the discussion always included comments from the group on the layout of the tables as well as on the content. The emphasis on formal presentation and careful preparation of tables was felt important in helping the participants acquire confidence in presenting research findings in public. Certainly nurses must be prepared for a critical reception of their efforts to develop a health services research role for themselves and a polished and professional presentation of research data will help establish credibility.

#### Assessment and evaluation

The assessment by means of pre and post test showed an increment of mean score from 28% to 48%, however the range of post-test scores was from 22% to 81%. The content on statistics posed the most difficulty for the participants and undoubtedly lowered the scores. Another course

would need to give more time to basic statistics. Health services research need not be excessively quantitative but it does require some statistical treatment of data. The course was extremely well received by the participants. Over 80% evaluated it highly on every parameter.

#### The senior nurse as a health service researcher

The WACN participants ended the course full of enthusiasm for health services research. The Institute of Child Health, Lagos, is offering support to those who wish to develop a research programme and two Lagos-based participants are working on this at present. However, it would be unrealistic to expect the bulk of the participants in this short course to embark immediately on health services research. There are a number of obstacles to be overcome, not least of which is a lack of recognition by the hierarchy in which they work of research as an appropriate activity for the senior nurse manager. Short courses such as the one described here are useful in preparing nurse managers for the research role. For the role to be fully operational there must also be, in many cases, a re-definition of job responsibilities and positive encouragement in the form of grants, awards and other kinds of recognition for the nurse who succeeds in carrying out health services research. Equipping those in the forward ranks of primary care with the knowledge, skills and confidence to carry out simple studies into service functioning, with the aim of immediate service improvement, offers real prospects for strengthening the delivery of primary care.

Table 1      Immunisation status by year of birth,  
 ICH clinic, Lagos, 1985

Immunisation	Year of birth			%
	1981	1982	1983	
BCG	70	82	76	73
DPT 3	60	71	67	51
Polio 3	54	65	30	16
Measles	71	58	46	44
All immunisations	21	43	21	14
None	5	-	2	3

- (a) Data derived from a systematic 10% sample of immunisation records filed at the ICH clinic.
- (b) Data collected and analysed by four groups of participants attending the WACN course in research methods for senior nurses.

Table 2 Patient waiting time at the ICH clinic, Lagos, 1985

<u>Service station</u>	<u>Mean waiting time</u>	<u>Mean service time</u>	(minutes)
Main waiting area	177.5	1	
Nurse interviewing area	21	11	
Exit table	.7	1	
Cash table	.8	1	
Injection/ immunisation area	1	1	
Drug table	3	3	
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Total	204	18	

- (a) Data derived from observation of six randomly selected patients attending the ICH clinic.
- (b) Data collected and analysed by one group of participants attending the WACN course in research methods for senior nurses.



Table 3 Proportions of staff time devoted to different areas of activity, ICH clinic, Lagos, 1985

<u>Activity</u>	<u>Proportion of time</u>	<u>%</u>
Direct service	55	
Supportive service	14	
Staff interaction	7	
Training	4	
Supervision	-	
Waiting	8	
Transit	3	
Non-productive	9	
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Total	100	

- (a) Data collected on a sample of staff by means of observations every 2 minutes over a two hour period in the ICH clinic.
- (b) Data collected and analysed by one group of participants attending the WACN course on research methods for senior nurses.

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WAITING TIME AND ITS IMPACT ON SERVICE ACCEPTABILITY  
AND COVERAGE AT AN MCH CLINIC IN LAGOS, NIGERIA.

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SUMMARY:

The Institute of Child Health and Primary Care, College of Medicine, Lagos provides an integrated maternal and child health service to a defined target community within a low income area of Lagos. The service is fully available to the population and no geographic or cost barriers to access exist. However service contact figures indicate that the acceptability of the service to the community is less than desirable.

It is suggested that long waiting time is a factor which reduces the acceptability of the service and hence utilisation. The data is presented on waiting time collected by means of a patient flow study over one week of service operation. Mean waiting time for mothers attending for routine visit was 162 minutes and mean time spent receiving service was 13 minutes. Time spent in the clinic varied in relation to the number of patients attending on a particular day, type of service received and number of children accompanying the mother. Although the waiting time probably compares favourably with conventionally organised child health clinics it is unacceptably high for members of the community and acts as a constraint to achieving optimum service coverage of the target community, particularly with preventive care. Existing service organisation features which contribute to length of waiting time are discussed and strategies to reduce waiting time are proposed.

INTRODUCTION:

The low ratio of health personnel and facilities to population in the developing countries is frequently emphasised. Less emphasised is the fact that when health services do exist they are far from being fully or properly utilised by the people. (1)

The Institute of Child Health (ICH), College of Medicine, Lagos offers an integrated preventive, promotive and curative health service five days a week to mothers and pre-school children in a target area of 30,000 persons. A home-based referral for service system is a key feature with a team of community workers visiting eligible families every four months.

Resource availability is high, the service is staffed, equipped and supplied at near optimum level. Accessibility, both geographic and economic, is also high. The densely settled target community surrounds the clinic such that even the farthest street is no more than 7-10 minute walk away. A nominal charge is made for registration and attendance and drugs are provided at subsidised cost. Hence geographic and direct cost barriers to service use are minimal. However the acceptability of the service to the community is obviously far from complete, as indicated by data on community/service contact (2).

The service has attained its coverage objective of an 80% registration of the eligible population but has been less successful in meeting coverage objectives set at the same level in the areas of immunisation and regular attendance. A systematic sample of the immunisation records of children

born in 1980 indicated that only 42% had completed three doses of DPT and polio immunisation by 12 months of age. Attendance figures for the period 1976 - 8 indicated that only 23% of 0 - 1 year old, 39% of 2 - 3 years old and 49% of 4 - 5 years olds had complied with the prescribed schedule of clinic attendance in relation to age. Moreover, the ratio of well to sick visits at the clinic during 1980 - 1981 was at the level of one well visit to five sick visits.

Most studies of service utilisation have examined the issue of acceptability by focussing on the characteristics of the service user, for example maternal education, beliefs, prejudices etc. (3) However there is a real need to look also at the service itself and to what extent aspects of service organisation may unwittingly create barriers to full service acceptability by the community.

Long waiting time has been frequently mentioned as one service organisation factor which may limit service acceptability and utilisation (4 - 7). However, there is rather little empirical data on the actual time spent in health service situations by users in developing countries. The few studies identified report total time spent in out-patient services between three to four hours, with waiting time usually comprising the greater part of this (8-11).

There tends to be an implicit assumption on the part of service providers that mothers in the developing world have this time to spare. However, it has been pointed-out that for both rural and urban women in developing countries surplus time may be extremely limited, particularly

when they are shouldering major economic responsibilities within the family (12 - 15). In such a situation, when women have many demands on their time, long waits at the clinic may prove deterrent to service use.

Considerable efforts have been made in the ICH clinic to streamline the delivery of care, for example carefully planned patient flow; use of home-based records and pre-packaged drugs; expanded roles for staff such that nurses diagnose and treat 90% of patients attending. Despite these efforts to reduce waiting time as a deterrent to service use, informal community feed-back indicated that waiting time at the ICH clinic was still too long. It was decided to collect data to ascertain exactly how long mothers were spending in the clinic and whether this indicated a need to revise aspects of service organisation.

The following reports the resulting investigation into waiting and service time, in relation to attendance at the clinic overall and also for different kinds of clinic visit.

METHOD:

A study of patient waiting time was carried out in February, 1980, over one week of service operation. A modified systematic sample of 25% of mothers was selected for observation from among those waiting for service at various points throughout the clinic at the start of each clinic day. In all, 562 mothers were observed. Selected mothers were given a distinctive card and asked to present this card at each service station they visited. On presentation, the time of arrival at the service station, the time service was received and the time of departure from the station and any relevant remarks were noted.

Members of the ICH field research unit were especially trained to

record the observations and were oriented to the method by means of a one-day pilot study. Observation began at 8 a.m. each day, the official opening of the clinic and continued until the last patient had left.

Seventy-five percent of mothers were already present by 8 a.m. each day, and a further 20% came in within one hour. Informal observation suggests that many mothers come in considerably before 8 a.m. since the clinic operates on a "first come, first serve" basis.

Broadly speaking, service was defined as direct service in the form of a one-to one encounter between mother/child and service personnel. Consequently, the duration of the Health Talk, (mean 11 minutes), which consists of a member of staff addressing all mothers present, was not counted in the service time spent by any one mother. The Food Demonstration session posed a particular problem in this regard, since those mothers attending spent most of their time watching and listening to the demonstration and nutrition education. They could be regarded as receiving preventive and promotive service throughout the often lengthy classes. However, service time was counted as that time when a mother/child was actually participating in the preparation or consumption of the food.

RESULTS:

The data were analysed by hand. Overall mean waiting time was 136 minutes (2 hours and 16 minutes) but the range was considerable, from 3 minutes to 278 minutes. Overall mean service time was 13 minutes but again the range was considerable, from 2 to 105 minutes. Since the large



variation in waiting and service time means that the overall times are not very helpful, waiting and service time by type of visit to the clinic appear in Table 1. In the week of observation, 54% of the mothers attending came for a routine visit and spent roughly 2½ hours waiting (162 minutes) for 13 minutes of service. The shortest waiting time (80 minutes) was spent by the next largest group of mothers (31%) who came solely for an injection.

Those mothers attending food demonstration class (8%) waited the longest (over 3½ hours) whereas mothers attending for the first time (7%) received the most service (37 minutes).

The existence of bottle-necks, or service stations where waiting time is significantly greater, appears in Table 2. The two points at which patients collect in any number for long periods are in the area of the Weighing Table, which also functions as the general waiting area for the clinic, and of the Exit Table, where those patients waiting for injection or immunization congregate.

The effect of day of the week on waiting time did not appear to the extent expected from impressionistic observation of peaks in attendance at start and end of the week. Mean waiting time was indeed longest on Monday (149 minutes) but only fell below 130 minutes on Thursday when it declined to 114 minutes, scarcely more than a 30 minutes variation from the longest waiting time.

As is to be expected, waiting and service time increased in direct relation to the number of service stations visited (Table 3). In other words, the more "components" in the package of integrated preventive, curative and promotive care the mother received, the longer the

the time she spent in the clinic.

Mothers are expected to bring all their pre-school children with them on each routine visit. Few do so, Table 4 shows that 84% mothers attending were accompanied by one child only. Since the time spent in the clinic rose steeply for each additional child accompanying the mother, (Table 4) this is hardly surprising, particularly if only one of a mother's children appears to "need" attention.

DISCUSSION:

The total time spent by mothers in receiving service at ICH probably compares favourably with conventionally organised child health clinics, for example those where a single doctor sees all children attending. However, the waiting time for those mothers who attend the ICH clinic for a routine visit, an average of 2 hours and 42 minutes (Table 1) falls short of attaining our stated service objective of 1½ hours waiting time. Moreover, waiting time of this duration is almost certainly deterrent to clinic use by mothers sufficient to achieve optimum coverage of the population with preventive and promotive care. It has been demonstrated that patients will wait willingly for curative care for a serious complaint. (16) The predominance of sick visits to the ICH clinic endorses this finding. Despite intensive health education efforts in the community, most mothers still seem to assign a lower value to preventive and promotive care. Consequently, they are not likely to give priority to clinic attendance for this type of service when allocating their scarce resources of time. The opportunity cost of attending health services for mothers in the developing world, who may often be shouldering major economic responsibility within the family, becomes significant.

Community perception of waiting time within the clinic is even greater than that revealed by this study. A small sample of mothers gave a mean estimate of the time they would normally spend in the clinic as  $3\frac{1}{2}$  hours. Interestingly, staff perception of time spent in the clinic was considerably less than actual waiting time, that is a mean of  $1\frac{1}{2}$  hours. A similar discrepancy between staff and patient perception of time costs has also been reported from Indonesia (17).

One service organisation change, intended to speed the delivery of care, has already been instituted. Mothers bringing children for routine immunisation now proceed directly for this service, without prior screening for a contra - indicating condition, as in the past (18). This has had the effect of drastically reducing waiting time for this group of mothers and attendance for immunisation has doubled since this system was introduced.

However, it is desirable to attempt to reduce waiting time in general, in order to increase the overall frequency of visits to the clinic. If mothers are sure of being attended to quickly and easily a pattern of regular and frequent visits to the clinic can be established. This offers a real possibility of reducing serious morbidity and resultant mortality. Frequent contact with families enables careful monitoring over time of children with nutritional and related problems, support to mothers using oral rehydration methods, daily review of measles cases etc.

Consequently, two further proposals are made to speed up the delivery of health care at the ICH clinic. First, to encourage prompt

resumption on duty by staff and prompt start of service. Staff lateness may result in waiting time for patients which exceeds the time that the personnel were late in arriving, due to a snowball effect. (10)

Secondly, the introduction of a two-shift clinic as a step towards permitting a more variable arrival time by patients. There is no real possibility of decisively reducing average waiting time in clinics when all patients are required to arrive at the same time and to be assembled together before service starts. (9, 10). In such a situation, women may arrive within 20 minutes of each other, yet depart within several hours of each other depending on whether they were at the front or back of the waiting area. The only real argument for a common arrival time is that it permits the daily Health Talk to be given to a large captive audience. The unspoken arguments are that clinics have always been organised this way and that it is more convenient for staff. Education of both the staff and the community will be required on the advantages of attending clinic at different times, to ensure a more even flow of patients throughout the working day. It must be admitted that staff resistance to the idea has so far prevented the re-organisation of the ICH clinic along these lines, although discussion continues. However, the importance of reducing patient waiting time, as a means of improving acceptability, utilisation and service coverage, warrant the trial of this and other methods to make services more convenient, and hence more acceptable, for users.

Table 1

Time spent in an MCH Clinic by type of  
service received, Lagos: 1980.

Type of service	No. of Patients	%	$\bar{X}$ Waiting Time (min.)	$\bar{X}$ Service Time (Min.)
Routine visit	301	(54)	162	13
Injection*	176	(31)	80	2
Food Demonstration Class**	43	(8)	217	20
Registration ***	39	(7)	202	37
	559	(100)		

The type of visit made by 3 mothers was not identified

\* Mothers bringing children to complete an injection series,  
or for a Heaf Test reading.

\*\* Mothers of malnourished or weight faltering children attend  
FDC before being seen for a complaint or routine visit.

\*\*\* New patients.

Table 2

Waiting and service time at different Stations  
within an MCH Clinic, Lagos: 1980

Station	$\bar{X}$ Waiting Time (in min.)	$\bar{X}$ Service Time (in min.)	% of Patients attending (N=562)
Weighing Table*	102	1	30*
Food Demonstration Class	60	7	8
Registration	48	11	7
Exit Table **	40	1	96
Interviewing Cubicles	21	8	79
Immunisation	12	1	22
Injection	10	1	58
Hoaf Testing	10	1	12
Hb Testing	8	1	11
Drugs ***	3	1	36
Dressing	1	5	2

\* Waiting for weighing and then to be called into the interviewing cubicle area. Virtually all patients for interview wait in the Weighing Table area, however, only those children due for weighing are actually weighed.

\*\* Exit Table: This station conducts the traffic, or flow of patients around the clinic directing patients to where they are to go to next. It also regulates waiting time for the Injection/Immunisation area.

\*\*\* Commonly used drugs are pre-packed for dispensing at interviewing cubicles. Other drugs are collected from the Drug station.

Table 3

Time spent in an MCH Clinic by number of  
stations visited, Lagos: 1980.

No. of Stations	$\bar{X}$ Waiting Time (min.)	$\bar{X}$ Service Time (min.)	% patients Attending (N-562)
2	86	2	32
3	139	7	12
4	162	12	22
5	180	22	17
6	217	25	10
7	218	31	6

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Table 4

Time spent in an MCH Clinic by number of children  
accompanying the mother, Lagos: 1980.

Number of children accompanying mother	% mothers (N-562)	Mean time spent in clinic: (min.)
1	84	125
2	14	192
3	2	235



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FOR

WEST AFRICAN COLLEGE OF NURSING

Course in Applied Research for Senior Nurses  
of the West African Region July 8th - 12th, 1965

Participant Information Form

1. Name - \_\_\_\_\_
2. Country of origin (please tick one)
  - Nigeria \_\_\_\_\_
  - Ghana \_\_\_\_\_
  - Sierra Leone \_\_\_\_\_
  - Liberia \_\_\_\_\_
  - The Gambia \_\_\_\_\_

3. Age (please tick one)

30 - 34

40 - 44

50 - 54

4. Total number of years spent in full-time  
education and training (please count primary,  
secondary, post-secondary, professional education and  
training)

Total number of years \_\_\_\_\_

5. Professional qualifications (please describe)

-  
-  
-

6. Total number of years of work experience

Total

7. Current job title (please describe)

-

8. Responsibilities (please describe)

-  
-  
-

9. Please tick those research methods listed below that you are familiar with:-

Sampling - - - -

designing a survey pm

interviewing -

analysis of data -

tabulation of data -

basic statistics -

10. Please rate your familiarity with the research methods listed, using the scale below. Tick the appropriate column:-

Not familiar at all 1	Some experience 2	Reasonably familiar 3	Very familiar 4
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Sampling

designing a survey form

interviewing

analysis of data

tabulation of data

basic statistics

11. What do you hope to gain from this course?

12. Do you have a research topic you are particularly interested in at present? If yes, please describe

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Thank you. GT

INSTITUTE OF CHILD HEALTH AND PRIMARY CARE  
FOR  
WEST AFRICAN COLLEGE OF NURSING  
COURSE IN APPLIED RESEARCH FOR SENIOR NURSES  
OF THE WEST AFRICAN REGION 8th - 12th JULY, 1985

Introduction to design of a data - collection instrument

- 1. When we collect information from people we do so by means of asking questions. This situation of question and answer is termed an interview.

An interview has 3 elements:-

- (1) interviewer, who asks the questions.
- (2) respondent, who answers the questions
- (3) instrument, the form on which the questions are written.

The instrument may be of 2 types:-

- (1) a questionnaire which is self-administered by the respondent, If you are given a list of questions about yourself to answer at home and bring back the following day, this is a questionnaire. It is only suitable for use with literate and highly educated populations and consequently is not used often in community health surveys in developing countries.
- (2) a schedule which is administered by the interviewer. This is most commonly used in developing countries, the questions are written out and read to the respondent by the interviewer who then marks the respondent's replies on the schedule. Be sure you always use the correct term for the kind of interview instrument you use.

- 2. The questions asked can be of 2 main types:-

- (1) Structured
- (2) Unstructured.

Structured questions are those in which the answers have already been arranged or grouped into categories of response.

- 2.1 Structured questions in which only ONE answer is possible.

Eg. - State your sex: Male \_\_\_\_\_  
Female \_\_\_\_\_

Eg. - State your age 30 - 39 \_\_\_\_\_  
40 - 49 \_\_\_\_\_  
50 - ± \_\_\_\_\_

This kind of question is suitable for objective data such as age, educational level, occupation, income etc. where there is only one possible answer.

2.2 Structured questions of the check list type where SEVERAL answers are possible:

Eg - Please tick those research methods listed below that you are familiar with:-

- Sampling \_\_\_\_\_
- Designing a survey form \_\_\_\_\_
- Interviewing: \_\_\_\_\_
- Analysis of data \_\_\_\_\_
- Tabulation of data \_\_\_\_\_
- Basic statistics \_\_\_\_\_

Eg Tick all those foods that you would particularly recommend a mother should give her malnourished child:-

- Custard \_\_\_\_\_
- Bread \_\_\_\_\_
- Egg \_\_\_\_\_
- Beans \_\_\_\_\_
- Ice cream \_\_\_\_\_
- Yam \_\_\_\_\_
- Fish \_\_\_\_\_
- Tea \_\_\_\_\_

2.3 Structured questions of the rating scale type where the respondent is asked to rate according to a given standard, state in order of preference etc.

Eg Please rate your familiarity with the research methods listed. Tick the appropriate column.

	Not - Familiar 1	Some Experience 2	Reasonably Familiar 3	Very Familiar 4
- Sampling - designing a survey form				
- Interviewing - analysis of data				
- Tabulation of - data				
- Basic statistics				

Eg Please rank the foods below in order of your preference. Put 1 against the least preferred food and 5 against the most preferred food:

- Bread \_\_\_\_\_
- Yam \_\_\_\_\_
- Rice \_\_\_\_\_
- Beans \_\_\_\_\_
- Maize \_\_\_\_\_

3. Unstructured questions are usually those in which the respondent is asked for a statement of his belief, or opinion or reason and a blank space is left on the schedule for his actual answer to be written in eg:

What do you hope to gain from this research course: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Facts may also be collected by means of instructed questions if you are not sure of the kind of response:

Eg Current job responsibilities (please describe)

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

After you have collected data from a number of respondents in the form of unstructured questions, then you can go through them and decide that the responses fall into a pattern of most commonly given responses. You can then group each individual response into a category of response. It would be tedious and unhelpful for the reader to read through, for example, 30 separate responses by mothers to the question "why did you not keep your last clinic appointment" But these responses can probably be grouped into a category set as follows:-

<u>Response</u>	<u>Frequency</u>
mother travelled	****
mother forgot	****    ****
mother too busy	****    ///
child not ill	****    //

If you ask an unstructure question always try to develop a category set for reporting the answers in grouped form:



/4...

Points to remember in designing survey schedules

4.1 Be relevant, clear and unambiguous

All your question should relate to your main topic\*  
"How often do you bring your children to the clinic ?"  
is not a good question because we do not know what time-  
period it refers to whether one month or one year, and  
also the children are likely to be brought at different  
time, depending on their ages and health needs. It would  
be better to say "During the last 4 months how often  
did you attend clinic with each of your children ?"  
and the information for each child would be listed  
separately.

4.2 Do not ask more than one thing in the same question

"Would you like to have cheaper drugs and afternoon  
clinics ?" is NOT a good question because two entirely  
different topics are being covered in one question.  
It is better to ask two separate questions e.g. :-

- "What do you feel about the cost of drugs at the  
clinic ?"
- "What do you feel about the suggestion of having  
afternoon clinics ?"

4.3 Do not influence the respondent in the way you word  
the questions:

Influencing the respondent is termed bias, that is he  
answers the question in a way which does not really  
reflect what he thinks because of how you ask the  
question. "Good mothers breast-feed their babies for  
the first year of life, how long did you breast-feed  
your baby ?" is NOT a good question because no mother  
wants to give an answer that suggests she is not a  
good mother. It is better to ask simply "How many  
months did you breast-feed your last baby ?"

In this way you avoid the risk of bias resulting from  
women's concern to appear good mothers in your eyes.  
Bias is very hard to avoid but is best prevented by  
asking ourselves constantly "am I likely to influence  
the respondents reply in any particular direction by  
the way I have worded this question ?"

5. Good interview schedules are hard to design. It is essential to try out your schedule with a pre-test before you actually embark on your research study. A pre-test will involve trying out 10 - 20 interviews in a real life situation. It will quickly show you which questions "work " and which do not.

AB/85.

Introduction to sampling:

1. In research it is not always possible or desirable to study every case in the population.

The process of selecting some cases for study is called SAMPLING. Provided the sample is properly selected, any findings from studying the sample may be generalised, or applied, to the entire population from which the sample was selected.

If the sample is properly selected we say that it is REPRESENTATIVE of the population from which it is selected.

2. Probability sampling

This uses random selection methods such that every case in the population has an equal chance of being selected.

2.1 Simple random sampling

For random sampling you require a SAMPLE FRAME which is a list of every case in the population with which you are concerned. For example you may wish to interview a sample of 100 student nurses. The list of names of all the students in the School of Nursing is the sample frame. Each student is given a number and using a TABLE of RANDOM NUMBERS 100 names are selected.

You may also use an even simpler method of random sample selection which is particularly suitable for selecting a fairly small number of cases from for example, among members of staff or clinic patients. Each person is given a number and then the numbers are written on small pieces of paper, jumbled together and the desired number of cases picked out of the box. This method is sometimes called the "Lucky dip" method.

2.2 Systematic sampling

This is used with a very large number of cases such as file cards in a clinic record cabinet which may run into thousands. The desired sample size is identified, for example 10% of the cases. The first card would be selected at random and thereafter every 10th card selected. Suppose the first card was the 6th card, the next selected would be the 16th, 26th, 36th, 46th etc. until all the cards have been sampled.

2.3 Cluster Sampling

In most developing country situations a sampling frame is not available. Then cluster sampling is useful for selecting cases from the community because all it requires is a map of the district, Each section of the map is numbered, each street in a city, each village in a rural area. A number is selected randomly then the research is carried out on the desired number of subject from the Street or village selected.

3. Non - probability sampling:

This is based on non - random methods.

3.1 Availability sample

If a particular, and small, group in the population is to be studied for example sickle cell disease victims, drug addicts, pregnant school - girls, every one of such cases identified constitutes the availability sample.

3.2 Quota sampling

If you know quite a lot about your population for example the proportion of each sex, the proportion of different educational income and marital statuses, then you can select a convenience sample based on those proportions.

3.3 Convenience Sampling

This is the polite name given to the most common method of sample selection which is to take those nearest at hand, usually patients or students, without further efforts at representative selection. AVOID THIS METHOD. BIAS IS ALMOST ALWAYS INTRODUCED

AB/85.

25  
38  
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02  
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28  
27  
108  
102

31

TABLE 8. RANDOM SAMPLING NUMBERS

20 17	42 28	23 17	59 66	58 61	02 10	86 10	51 55	92 52	44 25
74 49	04 49	03 04	10 33	53 70	11 54	48 63	94 60	94 49	57 38
94 70	49 31	38 67	23 42	29 65	40 88	78 71	37 18	48 64	00 57
22 15	78 15	69 84	32 52	32 54	15 12	54 02	01 37	38 37	12 93
93 29	12 18	27 30	30 55	91 87	50 57	58 51	49 36	12 53	00 40
45 04	77 97	36 14	99 45	52 95	69 85	01 81	51 87	85 50	20 17
44 91	90 49	89 39	94 60	48 49	06 77	64 74	59 10	08 51	20 07
16 23	91 02	19 96	47 59	89 65	27 84	30 92	63 37	26 24	21 60
04 50	65 04	65 65	82 42	70 51	55 04	61 47	88 83	99 34	82 37
32 70	17 72	03 61	66 26	24 71	22 77	88 33	17 78	08 92	73 49
03 64	59 07	42 95	81 39	06 41	20 81	92 34	51 90	39 08	21 42
62 49	00 90	67 86	93 48	31 83	19 07	67 68	49 03	27 47	52 03
61 00	95 86	98 36	14 03	48 88	51 07	33 40	06 86	33 76	68 57
89 03	90 49	28 74	21 04	09 96	60 45	22 03	52 80	01 79	33 81
01 72	33 85	52 40	60 07	06 71	89 27	14 29	55 24	85 79	31 90
27 56	40 79	34 34	32 22	60 53	91 17	33 26	44 70	03 14	00 70
49 05	74 48	10 55	35 25	24 28	20 22	35 66	66 34	26 35	91 23
49 74	37 25	97 26	33 94	42 23	01 28	59 58	92 69	03 66	71 82
20 26	22 43	88 08	19 85	08 12	47 65	65 63	56 07	97 85	56 79
48 87	77 96	43 39	76 93	08 79	22 18	54 55	93 75	97 26	90 77
08 72	87 46	75 73	00 11	27 07	05 20	30 85	22 21	04 67	19 13
95 97	98 62	17 27	31 42	64 71	46 22	32 75	19 32	20 99	94 85
37 99	57 31	70 40	46 55	46 12	24 32	36 74	69 20	72 10	95 91
05 79	58 37	85 33	75 18	88 71	23 44	54 28	00 48	96 23	66 45
55 85	63 42	00 79	91 22	29 01	41 39	51 40	36 65	26 11	78 32
67 28	96 25	68 36	24 72	03 85	49 24	05 69	64 86	08 19	91 11
85 86	94 78	32 59	51 82	86 43	73 84	45 66	89 57	06 87	00 15
40 10	60 09	05 88	78 44	63 13	58 25	37 11	18 47	75 62	52 41
94 55	89 48	90 80	77 80	26 89	87 44	23 74	66 20	20 19	26 54
11 63	77 77	23 20	33 62	62 19	29 03	94 15	56 37	14 09	47 10
64 00	26 04	54 55	38 57	94 62	68 40	26 04	24 25	03 61	01 20
50 94	13 23	78 41	60 58	10 60	88 46	30 21	45 98	70 06	36 69
66 98	37 96	44 13	45 05	34 59	75 85	48 97	27 19	17 85	48 51
66 91	42 83	60 77	90 91	60 90	79 62	57 66	72 28	08 70	96 61
33 58	12 18	02 07	19 40	21 29	39 45	90 42	58 84	85 43	95 67
52 49	40 16	72 40	73 05	50 90	02 04	98 24	05 30	27 25	20 88
74 98	93 99	78 30	79 47	96 92	45 58	40 37	89 76	84 41	74 68
50 26	54 30	01 88	69 57	54 45	69 88	23 21	05 69	93 44	05 32
49 46	61 89	33 79	96 84	28 34	19 35	28 73	39 59	56 34	97 07
19 65	13 44	78 39	73 88	62 03	36 00	25 96	86 76	67 90	21 68
64 17	47 67	87 59	81 40	72 61	14 00	28 28	55 80	23 38	16 15
18 43	97 37	68 97	56 56	57 95	01 88	11 89	48 07	42 60	21 02
65 58	60 87	51 09	96 61	15 53	66 81	66 88	44 75	37 01	28 58
79 00	31 00	91 14	85 65	31 75	43 15	45 93	64 78	34 53	88 02
07 23	00 15	59 05	16 09	94 42	20 40	63 76	65 67	34 11	94 10
90 08	14 24	01 51	95 46	30 32	33 19	06 14	19 28	40 51	92 69
53 82	62 02	21 82	34 13	41 03	12 85	65 30	00 97	56 30	15 28
98 17	26 15	04 50	76 25	20 33	54 84	39 31	23 33	59 64	96 27
08 01	12 44	82 40	30 62	45 50	64 54	65 17	80 25	59 44	99 05
37 21	40 77	84 87	67 39	85 54	97 37	33 41	1 74	90 50	20 62

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INSTITUTE OF CHILD HEALTH AND PRIMARY CARE  
FOR  
WEST AFRICAN COLLEGE OF NURSING  
COURSE IN APPLIED RESEARCH FOR SENIOR NURSES  
OF THE WEST AFRICAN REGION 8th - 12th JULY, 1985

The art of interviewing:

1. The aim of all research studies is to obtain RELIABLE and VALID data. The design of the questions is an important means to this end and so is the selection and training of interviewers.
2. Selection of interviewers  
BIAS may arise as a result of the characteristics of or kind of person the interviewer is. Women respondents may not talk freely about certain subject with male interviewers and vice versa. If the respondent feels that the interviewer approves of certain behaviour or behaves that way himself or herself, the respondent may not admit to behaving differently. Consequently, nurses in uniform do not make good interviewers in community health surveys because the respondents will tend to give responses they feel the nurses will approve of, thus bias is introduced.  
The ideal interviewer has the following characteristics:-
  - pleasant but not striking appearance
  - same sex as the respondent
  - same sort of background as respondent, that is no major ethnic or status differences
  - confident, mature personality.
3. Training of interviewers:  
Make sure your interviewers understand the purpose of the research and the meaning of each question. A pre-test is helpful for ensuring the interviewers know what they are doing. Try to observe each interviewer at least once during the pre-test and discuss your observations about their performance.
4. Practical tips on interviewing
  - Always greet respondents in the appropriate fashion according to custom of the area.
  - Introduce yourself and your purpose
  - Go ahead confidently, do not hesitate or look uncertain.
  - Try to conduct the interview in the privacy of the respondents room or other scheduled place. Otherwise you may not get valid answers because of all the onlookers who tend to gather around.
5. RAPPORT is the name given to a good working relationship between interviewer respondent.
  - too much rapport leads to unreliable data
  - too little rapport leads to invalid data.

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OF THE WEST AFRICAN REGION: 8TH - 12TH JULY, 1985

Analysing data : tabulation and basic statistics

1. Tabulation Procedures:

Any data, once collected, must be arranged in an orderly fashion for analysis and report writing purposes.

1.1 Hand analysis using the tally method

Below in Example 1 is imaginary data from the register of students enrolled in a School of Nursing showing their State of origin. As you go through the list you place a vertical stroke against each student's State of origin. In order to make addition easy and for orderly arrangement of the data, the 5th, 10th, 15th etc. case is always represented as a horizontal stroke. Using vertical and horizontal strokes to organise data for analysis is known as the tally method. The term frequency is used to describe the number of cases in a particular category, in this example the number of girls from a particular state of origin. Thus this kind of simple analysis is often called a frequency table.

In Example 2 calculate percentages for greater understanding of the data. Note that percentages are ALWAYS added vertically to a total of 100.

Example 1: Tally method of analysis

<u>State of origin</u>	<u>Frequency</u>		
Lagos	####	####	#### /
Oyo	####	///	
Ogun	####	####	//
Ondo	///		
Bendel	####		

Example 2: Number and percentages

<u>State of origin</u>	<u>No.</u>	<u>%</u>
Lagos	16	36
Oyo	8	18
Ogun	12	27
Ondo	3	7
Bendel	5	11
<b>Total</b>	<b>44</b>	<b>99</b>

Percentages rounded.



Notice that the percentages in Example 2 are rounded to a whole number because the population is small (44). This explains why the percentages total 99 and not 100.

### 1.2 Cross - tabulation

A more complex kind of analysis is when two kinds of data are analysed together. In Example 3 we show imaginary data on woman's education and contraceptive knowledge.

Contraceptive knowledge	Woman's education	
	none	some education
can name no modern contraceptive	+++ +	//
can name one or more modern contraceptive methods	////	+++ + +++ +
Total	19	22

In Example 3 a total of 41 women were studied. A woman with no education and no knowledge of modern contraceptive methods would be counted in the top left category. A woman with some education and some knowledge of modern contraception would be counted in the bottom right category, and so on. This kind of analysis is called cross - tabulation. It takes more time than preparing frequency tables but is worth it because of the greater understanding we gain of the data.

### 2. Constructing a table

Once analysed data must be put into tables for your report. Every table has the following components:-

1. Title (what, where, when)
2. Captions ( side and column headings)
3. Body (the data itself)
4. Notes (anything else we need to know)

In Example 4 we have imaginary data on immunisation at Oguntolu Street Clinic..

#### Example 4

1. Table 1: Age at which BCG vaccine received, Oguntolu Street Clinic, 1984

2 Age at which received	BCG immunisation	
	no.	%
3 on/before 3 months of age	125	83
above 3 months of age	25	17
Total	150	100

4. Source: 10% sample of immunisation records of children born in 1983, Oguntolu Street Clinic, Lagos (imaginary data).

Can you identify the four component part of the table ?

### 3. Basic Statistics

If your data is numerical (age, income, no. of vaccine doses, weight, height, Hb etc) It is useful to know the "average".

Average refers to a "measure of central tendency"

The 3 measures we will examine are the MEAN, MEDIAN and MODE.

Terms to learn :- Value, sum of values  
 - Case, sum of cases, frequency of cases  
 - Frequency distribution

#### 3.1 Mean

##### Example 5

<u>Age in years (values)</u>	<u>Numbers of women (cases)</u>
25	1
22	1
15	1
18	1
30	1
<hr/>	<hr/>
110	5

sum of values = 110

sum of cases = 5

$$\text{Mean} = \frac{\text{sum of values}}{\text{sum of cases}}$$

$$= \frac{110}{5} = 22$$

the mean age of the women is 22 years.

##### Example 6

What do you do when you have several cases for each value ?

<u>Age (value)</u>	<u>No. women (frequency of cases)</u>	<u>value X frequency</u>
30	1	30
24	2	48
26	3	78
22	2	44
	<hr/>	<hr/>
	8 = sum of cases	200 = sum of values

$$\text{mean} = \frac{\text{sum of values}}{\text{sum of cases}}$$

$$= \frac{200}{8} = 25$$

mean age = 25 years.

### 3.2 Median

The median is the VALUE at the mid - point of a frequency distribution, the VALUE which has half the cases or one side of it and half the cases on the either side of it..

#### To find the median

1. Arrange the values in Example 6 in rank order

<u>Value (age)</u>	<u>Cases (No. women)</u>
22	2
24	2
----- mid - point -----	
26	3
30	1
	8

1. Find the sum of the cases i.e 8
3. Divide 8 by 2 to find the mid - point

$$\frac{i.e\ 8}{2} = 4$$

4. Start at the top of the column of cases and count down to arrive at the mid - point

5. Find the VALUE which corresponds to the i.e mid - way between 24 and 26 = 25

The median age is 25 years

- 3.3 The MODE is the VALUE which appears most often in a frequency distribution.

What is the value in Example 6 which appears most often.?

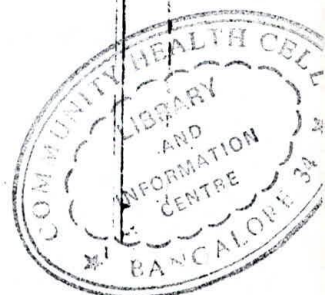
A Answer = 26.

The mode in this example = 26 years.

#### Example 7

<u>Heights (value)</u>	<u>No children (cases)</u>
45 cm	2
49	4
53	5
54	1
55	5

Two values occur most frequently ie 53 cm and 55 cm both occurs 5 times. This is a BI - MODAL distribution. The rule is to take the lower value. The mode is 53 cm.



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3.4 The RANGE is the distance between the highest value and the lowest value in a frequency distribution.

In Example 5 the values were 22,22,15,18,30.

What is the range ?

The range is  $30 - 15 = 15$  years.

In Example 6 the values were 30, 24, 26, 22 What is the range ?

In Example 7 the values were 45, 49, 53, 54, 55. What is the range ?

4. When do you use the different measures ?

The MODE is the easiest to use since you obtain it merely by looking at the data, for the most frequently occurring value. But it is also the least useful for most purposes.

The MEDIAN is the true mid - point of the data. It is less affected by very high or very low values.

The MEAN is used particularly if more elaborate statistical analysis will be done later.

Do NOT use the term average.

Always specify the measure you are using.

5. Two rules for statistical analysis

5.1 Always state your formula before doing the calculation

5.2 Do every calculation twice to ensure accuracy.

INSTITUTE OF CHILD HEALTH AND PRIMARY CARE

FOR

WEST AFRICAN COLLEGE OF NURSING

Course in Applied Research for Senior Nurses of the  
West African Region July 8-12, 1985

Practical exercise on sampling service records

Instructions

- Group 1 Select a 10% sample of 1981 immunisation cards
- Group 2 Select a 10% sample of 1982 immunisation cards
- Group 3 Select a 10% sample of 1983 immunisation cards
- Group 4 Select a 10% sample of 1984 immunisation cards

1. Take each sampled card in turn. One member should call out the immunisations received by each child. Fill the table below using the tally method. Before replacing the card count up the total number of immunisations received by the child and fill in table 2.

Immunisation	Tally	No.
BCG 0		
Total 1		
DPT 0		
1		
2		
3		
Total		
Polio 0		
1		
2		
3		
Total		
Measles 0		
1		
Total		
All immunisations		
Some immunisations		
None		
Total		

Table 2

Immunisation score	Tally	No	%
0			
1			
2			
3			
4			
5			
6			
7			
8			
Total			

Calculate the mean, median and mode of immunisation scores.

ASSESSMENT OF STAFF PERFORMANCE  
SESSION FOR WACP AND WACN

(8)

**INTRODUCTION:** To evaluate means to estimate the value of something. The word 'appraise' and 'appraisal' are often used instead of 'evaluate' and 'evaluation' or assess and assessment when the performance of staff is being judged.

The main purpose of evaluation is to learn from experience. Staff performance is appraised in order that staff may learn from experience and therefore perform more efficiently. Appraising performance is not done to find fault with staff, even when results are not as good as intended.

STAFF APPRAISAL

1. Why appraisal ?

Appraisal is necessary in any organization in order to :

- a. reward to those who work harder than others
- b. collect data for promoting staff
- c. give incentive toward hard work
- d. keep discipline.

2. Factors for Appraisal

- a. Performance
- b. Effort
- c. Discipline, Attitude toward work

3. Methods of Appraisal

- a. Measuring performance
- b. Merit rating - factor by factor
- c. Overall appraisal

Each method has its advantages and disadvantages, e.g. Measuring Performance is very clear and convincing particularly in production or sales, however, sometimes performance does not reflect efforts made. Overall appraisal is simple, but rather difficult to convince a person appraised because of subjectiveness involved.

4. Points to be noted :

- a. Try to be objective.

Appraisal cannot be totally objective as long as human beings appraise human beings. However, efforts should be made to a system which can satisfy those who are appraised.

- b. Combine different methods.

If possible, try to employ not only one method, but also two or three different methods and compare them before an appraiser reaches a conclusion.

- c. Obligation of an appraiser.

An appraiser is obliged to tell frankly a person to be appraised in case he is asked. It is recommended that a manager should produce atmosphere in which the manager can point out weaknesses of his/her subordinates and discuss how to overcome them. Evaluation of staff performance using systematic observation technique with particular reference to the development and use of a clinical skills checklist as an example. Let us

INSTITUTE OF CHILD HEALTH AND PRIMARY CARE  
COLLEGE OF MEDICINE, UNIVERSITY OF LAGOS

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the West African Region: July 8th - 12th, 1985

Introduction to Operations Analysis

1. Operations analysis simply means the systematic study of health service operations. Because it is systematic it requires us to be empirical, that is collect data about service activities. Since we are collecting data, operations analysis also requires us to be quantitative rather than qualitative in our reports. A quantitative approach means that we describe activities in numerical terms e.g.

- 32% of staff time is devoted to direct service
- average waiting time in the clinic is 2 hours 27 minutes and average service time is 7 minutes
- in 12% of weights measured the finding was not recorded on the child's card.

All the above are quantitative statements because they are written in numerical terms based on empirical data, that is data collected in the actual service situation.

Qualitative statements are descriptive statements which use adjectives rather than numbers. The foregoing statements can be phrased qualitatively as follows:-

- a fairly small proportion of staff time is devoted to direct service.
- mothers wait quite a long time at the clinic and actually receive service for a short time only.
- the greater part of all weights measured are charted.

It is obvious that quantitative statements are much more authoritative and informative than qualitative statements. In addition quantitative statements are objective because they are based on empirical facts whereas qualitative statements are usually subjective, being based on the observers impressions rather than on any empirical data-collection.



Consequently operations analysis or systematic fact-finding about service operations is the best basis for evaluating the on-going work of a health service or, in other words, the process of health service delivery. And ideally, no modifications in clinic activities should take place without evaluation. Operations analysis is a very important technique for management of health services.

2. There are 3 major methods of operations analysis we shall be concerned with:-
  1. work - sampling
  2. patient flow
  3. task analysis

The first two are described below.

### 2.1 Work - sampling

This is a method of studying the total pattern staff activities in a service setting, in particular the different proportions of time devoted to different activities. The idea is that the total working time each day, in minutes, is regarded as the universe for sample selection purposes. Moments of time are systematically sampled, or selected, and it is at these moments that observations are made of staff activities on-going. For example observations may be every 2 minutes at 8.00; 8.02; 8.04; 8.06 and so on until the end of the working day. The observer selects before hand the different stations in the clinic where the observations will be made every 2 minutes and enters them in on the observation form. The observation form has a line for each moment of observation. For example the prepared form could look as follows:-

8.00	Reg. Table
8.02	Weighing
8.04	Interviewing Cubicle
8.06	Exit Table
8.08	Injection Room
8.10	Drugs and Dressing
8.12	Reg. Table
8.14	Weighing
8.16	Interviewing, etc.

Thus an observation is made of staff at work every 2 minutes even although each station is only observed every 12 minutes in this example.

When there is more than one than observer at work it is most important that watches be synchronised, that is checked that they are keeping identical time. The stations observed are never identified in terms of the staff member present, work-sampling is not a study of individuals at work: rather of the total pattern of activities at a station and in the clinic overall. The observed activity is categorised under 8 headings by putting a tick in the appropriate column on the form as follows:-

- Direct Service: e.g. interviewing patients, weighing, registering patients, giving an injection/immunization, giving drugs, etc.
- Supportive Service: e.g. clinic record keeping, preparation of service area, administrative work generally.
- Training: on-the job training of staff members or health personnel/students from other institutions.
- Supervision: on-going supervision of staff members.
- Staff interaction: assisting each other, consultation, etc.
- Waiting: Waiting for patients.
- Transit: Moving from one part of the clinic to another on an essential task.
- None: Non-productive time devoted to personal rather than work activities e.g. eating, chatting, buying items, etc.

The last column of the form provides for a very brief description of the observed activity as necessary. For example if staff interaction is checked the description might read "Sister helps Clinic Assistant to adjust haemoglobinometer". At the end of the observation period the forms are analysed by adding up the total number of ticks or observations and then adding the total number of ticks or observations under heading. For example, in one hour there will be 30 observations if the interval between observations was 2 minutes. If 10 people are observing for one hour, each this will be 300 observations overall. Direct Service might be 62 observations, Supportive Service 39, Training 10 and so on. These totals should then be calculated as a percentage of 300 to give the proportions of staff time devoted to each activity. The same method can be followed for calculating activity pattern for each separate section.

## 2.2 Patient Flow:

In patient flow studies the focus is on the client or user of the service. The aim is to estimate waiting time in the service both overall and for each station. Mothers are selected at random or on a systematic basis and then given a distinguishing card, both to enable them to be picked out by the observers and on which the waiting time information may be recorded. Each station appears on the card against 3 columns as below:-

	<u>Arrives</u>	<u>Receives Service</u>	<u>Depart<sup>s</sup></u>
Weighing Table			
Interviewing Cubicle			
Exit Table			
Injection/ Immunization			
Drugs & Dressing			
Departure			

Note: the list of stations has been abbreviated to simplify the exercise

The time of arrival at the weighing station is fixed for 8 a.m. since that is the official start of the clinic. As each mother selected goes through the clinic an observer posted at each station notes on her card the time she leaves. The final observation is of the Departure from the clinic. For analysis purposes the waiting and service time at each station is calculated. For example, if a woman reaches the Interviewing Cubicle at 9.14, receives service at 9.21 and leave at 9.40 the waiting time will be  $9.14 - 9.21$  i.e. 7 minutes and the service time  $9.21 - 9.40$  i.e. 19 minutes. The average waiting time and service time overall and for each station can be calculated by adding up the figures and dividing by the number of cards, i.e. patients sampled.

3. Operations analysis may be simple, quick and carried out by few staff. If done carefully it can yield invaluable picture of what is happening in a service. But we must remember that it only describes service operations it does not explain the pattern of findings. To determine the reasons for long waiting time or high non-productive time the findings must be discussed with staff and also set against the background of e.g. the drugs and supplies situation and community utilization patterns.

Operations analysis should never be seen as a punitive exercise or exercise in criticism. To guard against this service staff should be involved at every stage of the study planning and discussion of findings.

A. Bamisaiye.

ASSESSMENT OF STAFF PERFORMANCE  
SESSION FOR WACP AND WACN

8

INTRODUCTION: To evaluate means to estimate the value of something. The word 'appraise' and 'appraisal' are often used instead of 'evaluate' and 'evaluation' or assess and assessment when the performance of staff is being judged.

The main purpose of evaluation is to learn from experience. Staff performance is appraised in order that staff may learn from experience and therefore perform more efficiently. Appraising performance is not done to find fault with staff, even when results are not as good as intended.

STAFF APPRAISAL

1. Why appraisal ?

Appraisal is necessary in any organization in order to :

- a. reward to those who work harder than others
- b. collect data for promoting staff
- c. give incentive toward hard work
- d. keep discipline.

2. Factors for Appraisal

- a. Performance
- b. Effort
- c. Discipline, Attitude toward work

3. Methods of Appraisal

- a. Measuring performance
- b. Merit rating - factor by factor
- c. Overall appraisal

Each method has its advantages and disadvantages, e.g. Measuring Performance is very clear and convincing particularly in production or sales, however, sometimes performance does not reflect efforts made. Overall appraisal is simple, but rather difficult to convince a person appraised because of subjectiveness involved.

4. Points to be noted :

- a. Try to be objective.

Appraisal cannot be totally objective as long as human beings appraise human beings. However, efforts should be made to a system which can satisfy those who are appraised.

- b. Combine different methods.

If possible, try to employ not only one method, but also two or three different methods and compare them before an appraiser reaches a conclusion.

- c. Obligation of an appraiser.

An appraiser is obliged to tell frankly a person to be appraised in case he is asked. It is recommended that a manager should produce atmosphere in which the manager can point out weaknesses of his/her subordinates and discuss how to overcome them. Evaluation of staff performance using systematic observation technique with particular reference to the development and use of a clinical skills checklist as an example. Let us

assume that two of the functions of a staff in her job description are: weighing and "patient management by the use of standing orders". The observable behaviours that can be appraised can be broken down into steps she/he will take in the process of patient management. Also the level of competence can be measured by the rating scale = 1-4. Let us use these samples for practice!

A.

WEIGHING INFANT, TODDLER, MOTHER		0	1	2	3	4	REMARKS
1.	Explanation of purpose and Procedure						
2.	Balancing scale at zero						
3.	Placement of patient						
4.	Balancing scale at weight						
5.	Reading and Recording						

B. job: Patient Management by the use of standing orders

		0	1	2	3	4	REMARKS
steps: 1.	Approach to patient						
2.	Look up the appropriate order						
3.	Take adequate history						
4.	Perform physical examination as listed						
5.	Selects appropriate findings						
6.	Selects appropriate corresponding action						
7.	Check for correct drug dosage						
8.	Instruct patient about appropriate use of drugs						
9.	Advise on follow-up						

- Key
1. Poor performance
  2. Average performance
  3. Satisfactory performance
  4. Excellent performance

PRINCE S.O. OYEDEJI

INSTITUTE OF CHILD HEALTH AND PRIMARY CARE  
FOR  
WEST AFRICAN COLLEGE OF NURSING  
COURSE IN APPLIED RESEARCH FOR SENIOR NURSES  
OF THE WEST AFRICAN REGION JULY 8th - 12th, 1985.

Work Sampling Exercise

1. Postings

- Weighing Table
- Interview Cubicles ( 2-3)
- Exit Table
- Cash Desk
- Immunisation
- Injection
- Family Planning
- Drugs/Dressing

2. Analyse your CW data as follows :-

2.1	<u>Place</u>	<u>No observations</u>
	At station	
	Elsewhere	
	Away	
	<u>Total</u>	

2.2	<u>Activity</u>	<u>No. Observations</u>
	Direct service	
	Supportive	
	Staff interaction	
	Training	
	Supervision	
	Waiting	
	Transit	
	Non - Productive	
	<u>Total</u>	

2.3 Work together with the rest of the group and produce COMBINED tables. Show number and percentage.

2.4 Produce a final table combining the data as follows:-

<u>Activity</u>	<u>No. Observations</u>	<u>%</u>
Direct service		
Supportive service (Including staff Interaction, training, Supervision).		
Non - Productive (Include waiting and transit)		
<hr/>		
Total		

2.5 Give the final table a proper title.



FIG. 1: OBSERVATION FORM FOR WORK-SAMPLING IN 2 MINUTE INTERVALS

Name of Observer: \_\_\_\_\_

Date and Date: \_\_\_\_\_

Total observations for day: \_\_\_\_\_

TIME	STATION & STAFF	PLACE			ACTIVITY								DESCRIPTION OF ACTIVITY					
		At Station	Elsewhere	Away	Direct Service	Supportive Service	Staff Interaction	Training	Supervision	Waiting	Transit	Non-Productive						

ABREVIATIONS:  
 Hospital: H  
 Welding: W  
 Belt Tackle: B  
 Interview: I  
 Infection: I  
 Doctor: Dr.  
 Nurse: N

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Patient flow exercise

1. Postings (2 participants per station) :-
  - Weighing table (note: enter time of arrival for ALL patient at the station as 8.00)
  - Interview Cubicle
  - Exit Table
  - Injection/Immunisation area
  - Drugs/dressing (1 participant)
  - Clinic exit ( 1 participant, This is a very important position to record the final departure time from the clinic)
  
2. Analysis of data
  - 2.1 For each station calculate the waiting and service time for each patient and the total waiting and service time at that station.
  
  - 2.2 Arrive at the mean waiting time and the mean service time by dividing the total waiting and total service time by the number of patients observed.
  
  - 2.3 Prepare a table (with ALL components) for mean waiting and service time at each station. Get data from your colleagues.
  
  - 2.2. Calculate the mean waiting time overall. Total up the waiting time of ALL patients and divide by the number of patients observed.
  
  - 2.3 Proceed in the same way for the mean service time.
  
  - 2.4 Using 8.00 as the entry time calculate the length of time spent in the clinic for each patient. Calculate the mean length of time spent in the clinic by dividing the total of length of time by the number of patients observed.
  
  - 2.5 Prepare a final table showing the mean time spent overall, mean waiting and mean service time.

COST ANALYSIS OF OGUNTOLU FAMILY HEALTH PROJECT

PATIENT FLOW ANALYSIS FORM

SERVICE STATION \_\_\_\_\_

NAME OF OBSERVER \_\_\_\_\_

DATE \_\_\_\_\_

PAGE \_\_\_\_\_

Patient Identification Number	Time of Arrival at Station	Time Service Begins	Time Service Ends	Name and Category of Health Worker	Comments:

INSTITUTE OF CHILD HEALTH AND PRIMARY CARE  
COLLEGE OF MEDICINE, UNIVERSITY OF LAGOS

PRIMARY HEALTH CARE: UNIT 7.2 EVALUATION OF PRIMARY HEALTH CARE SERVICES.

Group Exercise 4 - Communicating the results of evaluation of individual performance.

It is 9.00 on a Monday morning in Ajido Health Clinic. It is a very busy time and there are many patients waiting for attention. The sister-in-charge, Sr. Adebayo, has about 3 patients crowded around her consultation table. Sr. Adebayo sees one of her staff, Sr. Onayemi, passing and interrupts her interview with a patient to call her over.

Sr. Adebayo: Sr. Onayemi, come, come, come

Sr. Onayemi: Good morning, sister

Sr. Adebayo: (waving a paper at her)

I have just seen the results of the assessment of your clinical performance. Its not good at all, not good at all.  
.....

Sr. Onayemi: Please sister, which assessment is this .....

Sr. Adebayo: Dont interrupt, I have told you over and over again that you must improve your work and these results show you are not trying. They are not good, not good.

Sr. Onayemi: Please sister, I dont know .....

Sr. Adebayo: I said don't interrupt: Have you no respect ? Did you learn nothing at Nursing School ? What kind of parents do you have that they did not teach you how to behave towards your seniors ?

Sr. Onayemi: Sister .....

Sr. Adebayo: Just because your husband is a big man and you come to work with a driver you think you need not take correction. Well, this assessment shows it all. You better get straight back to your patients and do better. Unless I watch you Nurses all the time you don't want to do any work at all.

Assignment:

1. List the negative ways in which Sr. Adebayo communicated with the member of her staff. There are at least 8 "bad" communication and supervison practices described.
2. What factors in the Nigerian culture contribute to poor communication between superiors and their staff ?
3. Re-write the situation and the dialogue to reflect effective communication skills in reporting back on the evaluation of the performance of a particular member of staff.

PRIMARY HEALTH CARE: UNIT 7.2 EVALUATION OF PRIMARY  
HEALTH CARE SERVICES:

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Group Exercise 5: Implementing evaluation findings:

At Headquarters:

Dr. Lawson, the manager of the Ajido Integrated Community Health Project, is sitting at his desk in the Ministry of Health. He turns to the next file on his table and sees it is the report of a study carried out by the newly formed evaluation Unit of the Ministry. The Unit is the brainchild of a colleague recently returned from overseas. Dr. Lawson was absent from the briefing sessions before the Evaluation Programme was launched and is unclear about the objectives of the programme and how it affects his own work.

The report is of a work-sampling study at Ajido Clinic. It is closely typed and a mass of tables, graphs and figures. Table I (below) catches his attention.

Table I : Overall breakdown of staff activities, Ajido Clinic, 1984

	<u>Activity categories &amp;</u>		
	<u>Direct service</u>	<u>Supportive service</u>	<u>Non-Productive</u>
Total Staff effort:	32	33	30

Dr. Lawson has often expressed his opinion that the Ajido Clinic is over-staffed and that most of the health workers are more interested in their private-activities than in carrying out their job responsibilities. Table I in the report appears to support this view.

He flips through the rest of the lengthy report, looks for the recommendations and doesn't see any. He puts it to one side and decides to call a meeting with the Ajido Clinic Staff right away.

(In fact the report goes on to argue that the main reason for such a sizeable proportion of non-productive activities on the part of the staff is the way the Clinic is organised, particularly the requirement that all patients must be assembled before the clinic starts. The report refers to studies from East Africa which have showed great increases in direct service contact time by changing to a system whereby a patients can come to the clinic any time up to hour before the clinic ends. Specific recommendations are not made in the Evaluation Report, since this is outside the terms of reference of the Evaluation programme.)

At Ajido Clinic:

A colleague from MOH has called in at Ajido Clinic to say that an evaluation report is going around at Headquarters which says that the staff at Ajido spend most of their time idling around. The Ajido staff are highly indignant. They recall the day the Evaluation Unit came: nobody knew who they were, they were not introduced, nobody know what they were were doing and anyway what qualifications did they have to observe the nurses work since they were not trained people. One nurse recalled how she had quarrelled with the observer from the Evaluation team who had marked her "idle" while she was waiting to read a patient's temperature. Another nurse said "why should Dr. Lawson send people to spy on us like this ?

He's going to use this as an excuse to block our promotion" By the time Dr. Lawson arrives at Ajido Clinic for the meeting the staff are in a state of annoyance and tension. Dr. Lawson is accompanied by the Assistant Project Manager, Dr. Giwa. Dr. Giwa has read the report and is hoping for a good discussion on the implications of the findings. He was interested in the studies from East Africa quoted and would like to see a re-organisation of clinic hours. He believes it would increase coverage of the community.

The Clinic Meeting:

- Dr. Lawson : You have all read this Evaluation report by now, I sent copies yesterday.
- Sr. Adebayo : We didn't get them until this morning but -----
- Dr. Lawson : Well we just have to discuss it this afternoon, I will be away for the next one month.
- Sr. Adebayo : Anyway, my staff were too busy but I looked through it. In fact, there were too many tables and statistics and I could't see where the report was leading But I did see something about "non-productive" time which I didn't like.
- Dr. Lawson : Of course, you won't like it because it shows your nurses aren't working. You are too many, consequently you're non-productive.
- Dr. Giwa : Actually, Sir, the report does point out that the main reason for non-productive time \_\_\_\_\_
- Sr. Adebayo (Interrupting Dr. Giwa) : My staff do not accept this report because they were not satisfied about how the study was done. Who are the people who carried it out. What are their qualifications, why aren't they here to meet us now ?
- Dr. Lawson : The Evaluation team is in Borno now. They are specialists, they can't take time giving feedback to each and every clinic. Anyway they are coming back next month to do a study of patient waiting time.
- Sr. Adebayo : Well, we will be ready for them. And anyway we know that our patients only wait for about ½ hour, if they find something different it is because they are just out to make "no" trouble.
- Dr. Giwa : Sr. Adebayo, there is a very interesting suggestion in this report, that it would be nice to discuss here, that is to have the patients come in to the clinic freely at the time they wish -----
- Sr. Adebayo : But what about the Health Talk ? Unless all the patients are together we can't give the Health Talk.
- Dr. Giwa : Is that so important ? Don't we give health education in other ways ?

Another nurse said "why should Dr. Lawson send people to spy on us like this ?"

- Sr. Adebayo : Ah no, we must have the Health Talk first for everyone. That's how we have always done it the patients know it, they prefer it.
- Dr. Lawson : It would require a decision by the Chief Consultant to alter clinic hours. Anyway, we can't just have patients wandering in and out as they please. At least this way we know our service starts at 8. a.m. prompt.

Assignment:

1. Before evaluation findings can be utilised they must be discussed fully by all concerned. Identify the factors in the example above **that have prevented full discussion.** There are at least 8 factors, you may find more.
  
2. If the suggestion to re-organise clinic hours had been discussed fully, what factors can you identify which would have prevented a decision being taken to do so ?
  
3. Suppose the Ajido Clinic was re-organised such that free entry of patients up until 12 noon was introduced, which two activities would be essential to make the change **effective ?**

AB/85.

... while she was waiting to read a patient's temperature.  
Another nurse said "why should Dr. Lawson send people to spy on us like this ?

(13)

INSTITUTE OF CHILD HEALTH AND PRIMARY CARE  
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OF THE WEST AFRICAN REGION JULY 8TH - 12TH, 1985

How to write a research report:

A Scientific report should have the following sections:

Introduction  
Materials and Methods  
Results  
Discussion  
Summary  
Acknowledgements  
References

1. INTRODUCTION

- What is the report about ?
- What purpose is it fulfilling
- State the problem you have investigated

The fundamental purpose of a scientific report is to give the reader everything he needs to know about the work you have done.

2. Materials and Methods

WHAT instruments did you use for data collection ?  
HOW were they designed and tested and by whom?  
If diagnostic instruments or antropometric measuring devices used, describe briefly.  
WHO carried out the study ?  
WHERE was it conducted ?  
WHEN was it conducted ?  
WHAT problems occurred during field work ?  
HOW were they resolved ?

3. RESULTS:

This is the most important part of the report. It includes BOTH the tables AND a sentence describing each table ~~EVERY~~ Table or graph/histogram/pie chart etc must be numbered, have a title (what, where, when) captions, data and any necessary notes.

**EXAMPLE\***

Table II Distribution of type of bathroom Somclu, 1983

Type of bathroom	Number	
Room with bath tub	4	4
Room with tap or shower	15	15
Room without tub/tap/shower	80	80
Total	100	100

Note : 93% of the above facilities were shared.



Points to remember when presenting data

- Where the data set is small i.e less than 200-300, round % to nearest WHOLE number
- Where the data set is very small i.e 20 or less, do not calculate %
- Always have a Total for each table
- For cross - tabulation have a Total both horizontally and vertically Table 10 "Is there any medicine you give your child every day" by age of respondent, Somolu, 1983

Response	Age		group		Total	%
	15- 29	<30				
Yes	35	80 <sup>3</sup>	33	82 <sup>2</sup>	68	81
No	9	20	7	18	16	19
Total	44	100	40	100	84	100

- arrange categories in logical order
- age chronologically  
less 15 years  
15 - 29 years  
more than 30 years etc
- other categories either in descending or ascending order of magnitude
- collapse categories when possible.  
Generally speaking, do not have more than 4 - 5 categories per table:

**EXAMPLE:**

<u>Level of education</u>	<u>frequency</u>
none	41
same primary	12
primary vi	22
same secondary	11
completed secondary	6
post secondary	3

**CAN BECOME**

<u>Level of education</u>	<u>frequency</u>
none	41
primary	34
secondary or more	20

Note: only 3 respondents had post-secondary education.

- Always put residual categories i.e.  
 DK  
 NR (no response)  
 NA (not applicable)  
 Other (specify)  
 at the bottom of the table if included
- Decide whether or not to include residual categories

**EXAMPLE 1 :** Residual category excluded

**Table 2** Whether health discussed at PTA meetings,  
Somolu 1983

<u>Whether health discussed</u>	<u>frequency</u>	<u>%</u>
Yes	28	43
No	37	57
<b>Total</b>	<b>65</b>	<b>100</b>

Note: NA = 20 i.e respondents without children at school age.  
 In this example NA is excluded because does not represent valid data.

**EXAMPLE 2:** Residual data included

**Table 4:** What do you do at once to treat diarrhoea at home ?  
Somolu, 1983

<u>Response</u>	<u>Frequency</u>	<u>%</u>
Correct	45	25
Partially Correct	21	35
Incorrect	12	18
Dont know	7	22
<b>Total</b>	<b>85</b>	<b>100</b>

In this example "Dont know" is a substantive response i.e. it has a valid meaning in this table therefore it is included.

- ALWAYS exclude NR (no response) from tables. It is not data, by definition. Put a note at bottom "missing values ="
- the Notes at the bottom of a table should include any additional information the reader requires to understand and interpret the data presented in the table.  
 If data Other than your own is also presented in a Table, indicate source.

**EXAMPLE:** Table 9: Distribution of type of toilet, Somolu and Lagos State.

Type	Area		%
	Somolu (Apata St.)	Lagos State*	
WC	51	9	
Bucket	32	47	
Pit latrine	13	44	
None	4	1	

\*Source: Federal Office of Statistics (1990)

4. DISCUSSION

This concludes your report

- interpret your results, referring to the Table
- highlight you results
  - anything noteworthy
  - " surprising
  - " in line with other findings
  - " contradicting other findings

State the:

- implications for health and health service delivery
- make recommendations

5. SUMMARY

brief review, no more than 10 line

6. REFERENCES author (date) title, publisher, place of publication

7. ACKNOWLEDGEMENTS:

everyone who has helped you do your study. An important academic courtesy, Do not omit.

8. APPENDICES:

any other relevant material or extra tables or additional documentation