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HOW TO INVESTIGATE DRUG USE IN COMMUNITIES

Guidelines for social science research



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In 1981 WHO's Action Programme on Essential Drugs was established to provide operational support to countries in the development of national drug policies based on essential drugs and to work towards the rational use of drugs.

The Programme seeks to ensure that all people, wherever they may be, are able to obtain the drugs they need at a price that they and their country can afford; that these drugs are safe, effective and of good quality; and that they are prescribed and used rationally.

Research analysing the impediments to developing and managing sound national drug policies and programmes is an important element of country support activities. The Programme undertakes and promotes operational research aimed at filling some of the many gaps in existing knowledge about the best means of selecting, procuring and distributing drugs, and their use by prescribers and consumers.

This document is part of a series reporting on Action Programme research activities and guidelines.

Research that leads to breakthroughs in pharmaceutical technology or in highly sophisticated and expensive techniques of biomedical practice may superficially appear to be more "glamorous". But the operational research that WHO's Action Programme on Essential Drugs undertakes has a direct bearing on the ways in which vital medicines can be made available and accessible to the greatest number of people.

PREFACE

The main objectives of the WHO Action Programme on Essential Drugs and Vaccines are to support countries in improving the availability of essential drugs to the whole population and the rational use of drugs. Although much progress has been made, the implementation of sound drug policies still encounters major constraints. Availability is far from being achieved, and inappropriate drug use is still the rule in many settings. Health policy makers and health workers need specific, concrete information in order to develop effective programmes and policies. More research is needed to provide the tools to improve the way that pharmaceuticals are prescribed, dispensed and used. To date very few studies have focused on community drug use, although it is known that self-medication is the most common form of therapy choice and that people often rely on informal drug distribution channels as much as on pharmacies.

This guide is intended to provide researchers, administrators of health programmes and health workers with simple research methods to identify problems in the provision and use of drugs at the community level of health care, and to encourage them to work together in developing an action-oriented research project. A rapid assessment methodology which would take around four months of work, has been developed for such a team.

In writing this guide we have gratefully made use of rapid assessment methods, health systems research manuals, and guidelines for social science research that have been developed for other health programmes of the World Health Organization (see Annex 3). We hope that the authors of these publications will be glad to know that their methodologies are being put to use in the field of drug use research.

HOW TO INVESTIGATE DRUG USE IN COMMUNITIES

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1. THE AIM OF THE GUIDE

The aim of this guide is to provide researchers, administrators of health programmes, and health workers with tools to investigate drug provision and use in communities. The tools can be used to do a baseline survey, the results of which can be used to develop strategies for rational drug use. They can also be used to monitor and evaluate the impact of essential drugs and health programmes in terms of a more appropriate use of drugs by consumers. The guide first discusses relevant research themes (chapter 2); it then presents a rapid assessment methodology for health workers and researchers who have little time to develop their own study design (chapter 3); and finally gives more general methodological suggestions for field research on community drug provision and use.

2. THE USE AND PROVISION OF DRUGS IN COMMUNITIES: RESEARCH THEMES

Why should staff involved in health and/or essential drugs programmes study the provision and use of drugs in communities? There are at least four interrelated reasons:

- (1) The first reason is that a survey of community drug use can help in identifying the most serious forms of drug misuse in an area where a health/essential drugs programme is being implemented.

The following types of misuse are common:

- a. **Non-compliance with health workers' prescription:** people do not always do what health workers advise them to do. They sometimes fail to purchase all the drugs that are prescribed, because they lack the financial means to do so. They sometimes stop taking the prescribed drugs. They sometimes take the wrong dosage.
 - b. **Self-medication with prescription drugs:** another problem is that people in many countries can purchase drugs over the counter which legally are only allowed on prescription. Prescription drugs are often potent drugs that should be taken carefully. Self-medication with prescription drugs can lead to serious adverse effects. A commonly available prescription drug for example is dipyrone, which can cause serious blood disorders.
 - c. **Misuse of antibiotics:** antibiotics are vital drugs, but they are overprescribed, and overused in self-medication, for the treatment of minor disorders such as simple diarrhoea, coughs and colds. When antibiotics are used too often in sub-optimal dosages, bacteria become resistant to them. The result is treatment failure when patients suffering from serious infections take antibiotics.
 - d. **Overuse of injections:** health workers and patients in many countries believe that injections are more effective than tablets. This not only leads to unnecessary expenditure (in many cases tablets are a cheaper form of therapy) it also leads to unnecessary health risks when the injections are administered in unhygienic conditions or syringes and needles are re-used without being sterilized.
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- e. **Overuse of relatively safe drugs:** in many countries people believe that they need a pill for every ill. At the onset of all kinds of minor disorders they immediately take drugs. Vitamins and analgesics such as acetylsalicylic acid and paracetamol, though relatively safe, are the most commonly used drugs in many countries. This is not without risks. Aspirin can cause stomach bleeding, and paracetamol, if taken in excess, can cause death.
 - f. **Use of inessential combination drugs:** when suffering from coughs and colds people tend to take all kinds of cough and cold remedies, that often contain more than one active ingredient. Sometimes these drugs even contain substances that counteract each other: one substance to **suppress** a cough and another to **encourage** it. Combination cough and cold remedies are not essential. People should take the active ingredient that they need, and if they need two drugs, then they can take two different preparations.
 - g. **Use of needlessly expensive drugs:** People in many countries rely on brand names when choosing therapies. Branded products are often more expensive than the same products under generic name. People also do not realize that two different brand name drugs may contain exactly the same substance.
- (2) A second reason to study community drug use, is to **gain insight into the various channels through which people in communities obtain drugs**. People may be in the habit of obtaining their therapies from other drug distribution channels than health centers that are distributing essential drugs. Such distribution channels can be private pharmacies, drugsellers and neighbourhood shops. Not only do people then receive drugs from these outlets, they also receive information that may or may not be appropriate. If these other distribution channels account for the majority of drug use in a community then a health center that is providing essential drugs is not likely to have much impact on drug use patterns.

In order to enhance appropriate drug use policy makers and administrators of health programmes need to gain insight into the functioning of the other drug distribution channels; recommendations for action will need to be directed to the people involved in these channels.

A drug distribution situation in a given community is illustrated by the figure hereafter.

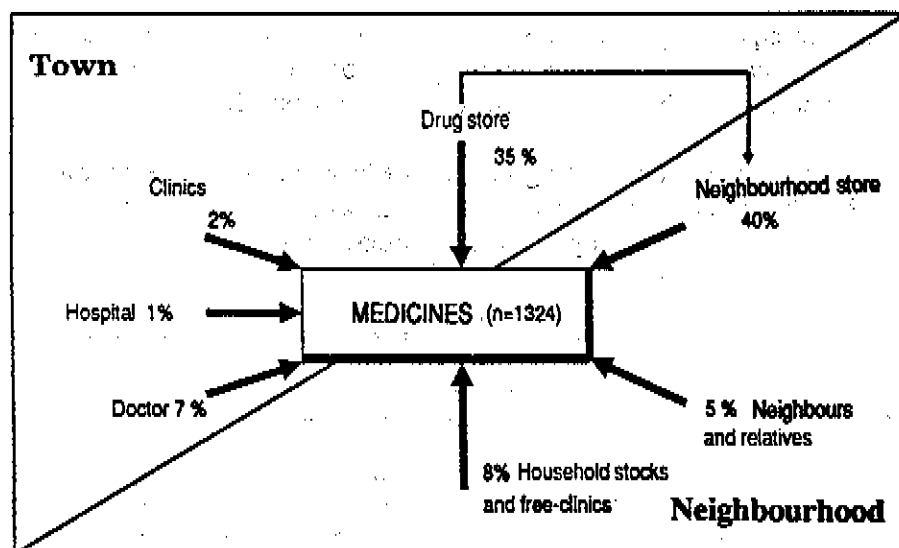


Figure 1. Community drug distribution channels: an example from the Philippines

This figure is based on weekly interviews on health problems and treatment practices during a five month period with 126 families in two urban slums in Metro Manila. The arrows illustrate the relative importance of the various channels, and the routes that the pharmaceuticals follow before reaching the users. In this example the health centers only account for a fraction of the drug purchases. The majority of the drugs are purchased in neighbourhood stores, and/or in pharmacies, together accounting for around 80% of the total drug purchases in the research. The study further revealed that around 50% of the medications were obtained in the community¹.

- (3) A third reason to study community drug use is the fact that increasingly health programmes are training community health workers to distribute drugs. It is important to study the **appropriateness of drug distribution by community health workers**. How adequate is the supply of drugs? What is the coverage of the CHWs? How rational are their prescription practices? To what extent do people rely on CHWs for their drug needs?
- (4) A fourth reason to study community drug use is that by doing this **administrators of health programmes and health workers can learn about people's ideas of drug safety and efficacy, their self-medication practices, and the extent to which they follow the advice of health workers (compliance)**. Such information is needed when one intends to develop or improve on an essential drug use programme. It is especially necessary for the development of educational materials. In the development of such interventions it is very important to use local concepts, and to refer to misconceptions that may exist. If participatory in approach, a study on community drug use can sensitize (community) health workers to their client's ideas and practices, so that they

¹ . Source: Hardon A. Confronting ill-health: medicines, self-care and the poor in Manila, HAIN, Quezon City, 1991.

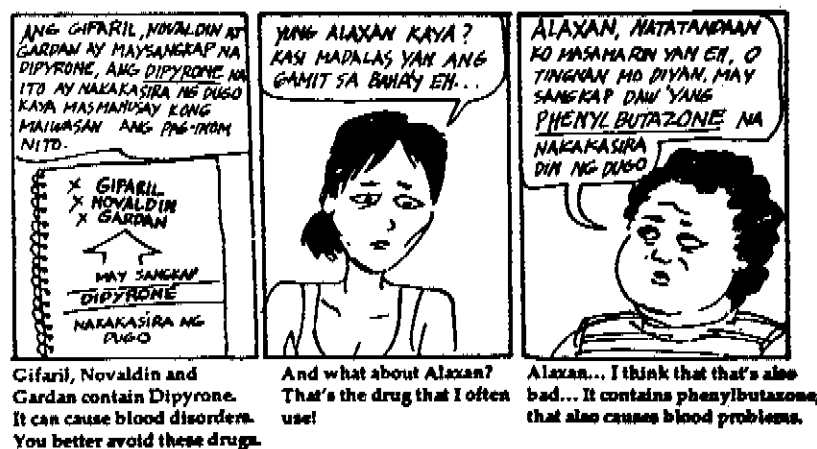
can subsequently provide more adequate advice on the appropriate use of drugs. Research can also involve community members in the development of intervention strategies, thus enhancing the effectiveness of these efforts.

The key to prevention of drug-misuse is education. An education campaign will not succeed if health workers do not know which drugs people are using, what common forms of drug misuse are, and where people get their drugs. This information can be obtained by studying community drug use.

In the Philippines community health workers did a survey of common self medication practices in an urban poor community. They found that 10 brands accounted for 50% of the medications taken by people. These 10 drugs were available in small neighbourhood 'sari-sari' stores. They assessed the safety, efficacy and cost of these drugs together with a pharmacist and found that five were analgesic brands (relatively expensive, compared with generics), three were inappropriate combination cough and cold remedies, and two were antidiarrhoeals containing antibiotics. One of the analgesics contained dipyrrone, a drug that can cause serious blood disorders and should only be available on prescription. They decided to focus on these ten drugs in their educational campaign.

The mothers in their community were informed about the safety and efficacy of these drugs in training sessions and in a comic. They were also advised on principles of rational drug use, and non-drug therapy options. The comics were also used in other poor urban communities, where the same drugs were popular.

One page from the comic book (text has been translated):



3. RAPID ASSESSMENT OF DRUG PROVISION AND USE IN COMMUNITIES

This section describes a methodology to assess drug use and provision patterns in communities. The whole research process last around four months: two months to collect the data, and two months to process and to analyse them and to write the report. The methodology includes an assessment of drug prescription in the health centers that serve the communities under investigation, because the health center is seen as the important locus for activities to improve drug use. If health center prescribing is not appropriate, then the staff are not likely to contribute to the more rational use of drugs by their clients.

The rapid assessment is conducted in eight steps. First the researchers are identified, and they develop the research methods. Then the cooperation of health center staff is sought, and prescription patterns in the health center are assessed by means of observation, study of documents and structured interviews. If necessary, community health workers are interviewed in the next phase of the research. Then, drug use in the community is studied by conducting household interviews. Finally, the most important drug distribution channels in the community are surveyed.

This chapter, firstly proposes a series of research questions. Various sampling options are then discussed, after which the research process, i.e. the eight steps of the rapid assessment, is outlined. Next, data processing and analysis are covered, and the input required for this rapid assessment in terms of human and financial resources is given. Finally suggestions are made on how the research results can be used.

3.1 Research questions

Health center level:

1. What are the basic characteristics of the health center in terms of:
 - * clinic hours
 - * services offered
 - * personnel
 - * costs of services/medicines for clients
 - * number of patients seen daily
 - * waiting time (range and average)
 - * the number of community health workers connected to the center/working in the communities covered by the center?
2. Have the staff of the center been trained in the rational use of drugs?

If yes, when were they last trained? What was the content of the course?
3. What is the average number of drugs per prescription in the health center²?

². To answer questions 3-6 the researcher should review 100 prescriptions, if records exist; or observe 100 consultations.

4. What percentage of prescriptions contains one or more antibiotics?
5. What percentage of prescriptions contains one or more injections?
6. What are the ten most commonly prescribed drugs (based on a review of the past 100 prescriptions)?
7. How do the health center staff treat diarrhoea?

Which percentage of 100 under-five diarrhoea patients are prescribed:

- * home fluids
 - * oral rehydration solution
 - * antidiarrhoeal tablets containing one or more antibiotics
 - * other antidiarrhoeal tablets
 - * injections
 - * intravenous rehydration
 - * other therapies, specify
8. What is the stock of the following essential drugs³:
 - * Acetylsalicylic acid, tabs
 - * Paracetamol, tabs
 - * Oral rehydration salts
 - * Procain benzylpenicillin, injections
 - * Ferrous salt, tabs
 - * Chloroquine, tabs
 - * Metronidazole, tabs
 - * Tetracycline, capsules

The stock of these drugs should ideally be measured twice, once at the beginning of the study, and a second time one month later.

9. To what extent do shortages in stock of the above drugs exist?
10. What other drugs are in short supply according to the health workers?
11. What are problems in the communities with respect to drug provision and use according to the health care staff?

Specifically:

- * To what extent do people comply with the prescription of the health workers? If not, why not?

³. Before applying this list the researcher should check if these drugs are indeed supposed to be available in the health center; in some health programmes alternative pharmaceuticals may be used for one or more of the below list.

- * What other drug distribution channels exist?
 - * Can people obtain drugs which officially should only be sold to people with a prescription, without a prescription?
12. What activities are undertaken to promote the rational use of drugs by clients?

Community level: users

1. What are sources of drugs in and around the community?
- 1.a Check if the following sources occur:
- Formal sources:
- * government health center, providing essential drugs
 - * community health workers
 - * other non-governmental health center, providing essential drugs
 - * private physicians/clinics
 - * hospitals
 - * other formal sources, specify
- Informal (illegal) sources:
- * village stores
 - * drug sellers
 - * markets stalls
 - * other informal sources, specify
- 1.b For each source of drugs, calculate how often it is used as a source of treatment during the study period.
2. What according to people in the community are the advantages and disadvantages of each of these drug outlets?
3. To what extent do people practice self-medication?
4. What are the ten most commonly used drugs in self-medication?
5. What are the ten most commonly stocked drugs in household medicine cabinets?
6. Are the drugs under 3 and 4:
- * listed on the country's essential drugs list?
 - * officially only available on prescription?
 - * expensive in comparison to available generic preparations?
7. How would people in the community treat a diarrhoea episode of a pre-school child (suffering from 4 watery stools in 24 hours, one day and one night)?
-

To what extent do they use:

- * home fluids
- * oral rehydration solution
- * antidiarrhoeal tablets or capsules containing one or more antibiotics
- * other antidiarrhoeal tablets
- * injections
- * intravenous rehydration
- * other therapies, specify

8. What are the most important sources of advice on the treatment of illness-episodes?

Categorize these sources into:

- * No advice (respondent knows what to do)
- * Neighbours and relatives
- * Doctors, nurses, health workers
- * Mass media, e.g. T.V., radio etc
- * others, specify

Community Health Workers

Community health workers (CHWs) are only included in the survey if they actually distribute drugs.

1. What drugs do the community health workers distribute?
 2. Where do they obtain their drugs?
 3. Do CHWs also obtain drugs from private sector pharmacies, in order to meet the demands of their clients?
 4. Do CHWs have to manage funds for drugs?
 - 4.a Do they have to sell the drugs to users?
 - 4.b Do they have to pay for replenishment of their supplies? If yes, what problems occur in this management of funds?
 5. Do shortages in supply of the drugs listed under 1 occur?
 6. If yes, why do shortages in supply occur?
 7. What training have CHWs received in the rational use of drugs? Describe the training. When was the last training given?
 8. What would CHWs advise for the treatment of diarrhoea in a preschooler (suffering from four watery stools a day):
-

How many CHWs would advise:

- * home fluids
- * oral rehydration solution
- * antidiarrhoeal tablets or capsules containing one or more antibiotics
- * other antidiarrhoeal tablets
- * injections
- * intravenous rehydration
- * other therapies, specify

9. What according to CHWs are problems in drug distribution and use in the area? Specifically:

- * Do people comply with the prescription of the health workers? If not, why not?
- * What other drug distribution channels exist?
- * Can people obtain drugs which officially should only be sold to people with a prescription, without a prescription?

10. What activities do CHWs undertake to promote a rational use of drugs in the communities?

3.2 Sampling: how to select communities, households and health centers?

There are right and wrong ways to select communities, households and health centers for the rapid assessment of community drug use. Correct sampling ensures that the households selected within the community reflect the situation of the community as a whole. This is called a representative sample.

The area in which a health programme operates can be big and small. In some situations the rapid assessment will be conducted by health administrators who are responsible for a nationwide primary health care, or essential drugs programme. In other cases, the research will be conducted by health workers responsible for a health programme in a more limited geographical area, for example one district, or province.

If the health programme is nationwide, then two districts can be selected. These can be districts where district health officers are motivated to do a survey of drug use and distribution. Or two districts can be selected that differ with respect to the provision of health care: for example, one district where people have access to a variety of public and private health care facilities and hospitals, and one district where people rely on very few health care facilities, and perhaps only one government hospital.

Within the district, the communities are selected to represent a variety of health care settings. For example two communities where community health workers are distributing drugs; and two communities where this is not the case can be selected.

Or two urban communities, where people live near hospitals, and pharmacies, and two rural communities, where people have access to a health center, but not to a hospital or pharmacy, could be chosen.

It is important that the households selected within the communities reflect the situation in the community. Therefore, in selecting households in the communities, a random sampling procedure is followed. In this study special attention is paid to drug use by pre-school children, a group which is particularly vulnerable in terms of health. Therefore only households with pre-school children are selected. The sample drawn from the community is representative for the household in the community with pre-school children, not for the whole population.

The following sampling procedures ensure a random sample of households with pre-school children:

Drawing a sample of households

One very simple method to select households is to go to the centers of the communities and spin a bottle on the ground. Whatever direction the bottle points at will be the walking direction. The researcher can then interview every household in that direction that has one pre-school child. S/he should preferably interview the caretaker of the pre-school children. If the caretaker does not want to answer the questions, the researcher continues to the next household in that direction. If the caretaker is not at home during the visit, a return visit is made. Another researcher sets off in different direction. In one day the researchers should each be able to interview around 10 households. The second day the researcher goes to the center of the community again, and spins the bottle once more. S/he then proceeds to interview every household with a pre-school child found in that direction. In one week around 100 families can be interviewed.

If a list of households in the community exists, and it is possible to select from this all households with a pre-school child, then a random selection of the households can be made using assigned numbers. To do this:

First, make a list of the households with pre-school children in the community, and assign a number to each household. The most simple way to select a random sample of households is to select numbers from a box. Write all the numbers (one number per household) on separate squares of paper, fold each paper separately so that the number cannot be seen. Put all papers into a box and mix them up very well several times. When this has been done, let someone else draw one hundred papers. The numbers on these papers, represent the households in which the rapid assessment will be conducted. Then, let this person select an additional 25 pieces of paper. The number on these papers, represent the households which will be put on a reserve list. This list will be used if one or more households on the original list of 100 households do not want to participate in the study.

If the number of households in the community with a pre-school child is near to 100, then it is advisable to interview all the households.

All health centers surrounding the communities included in the study are surveyed. Usually this number is limited.

3.3 Research process

Step one: The health programme or other institution initiating the project identifies an experienced researcher as principal investigator of the project (to be contracted for six weeks work, over a period of four months), and a field researcher (to be appointed for four months).⁴ The aims of the study are discussed, and the rapid assessment methodology proposed in this guide reviewed.

Step two: The principal investigator and the field researcher, in consultation with staff of the health programme involved, select communities for the study, and a feasible method for sampling households in the communities. Interview forms in the local language are prepared, and guides for the field researcher and the community investigators (interviewers) are made.

Step three: the interview forms are pre-tested in other communities than those selected for the study, and revised if problems occur.

Step four: The field researcher should visit the health centers covering the communities that have been selected for the study. S/he should plan a meeting with the various health care providers of this center to discuss the aims of the research project and to assess if the staff are willing to participate in the project. If they agree, then the team leader should arrange a second meeting for observations, interviewing and a review of the patient records at the health center (if patient records exist).

Ask the staff if they have time, and are willing to participate in the study. If they are, then involve them in the discussions about how the study is to be conducted. They can participate in data-gathering at the community level as community investigators, providing that this is not done in an area where they work. They should not present themselves as health workers, but as researchers who want to learn about drug use and distribution from the community members. Such an exposure can be very enlightening to the health workers.

Step five: Observations, interviewing and study of patient records at the health centers. It is best to visit the center at least twice at different times. In two visits the researcher should be able to answer the questions concerning prescription and supply of drugs at the health center level, getting an impression too of the problems in drug use and provision that are perceived by health care providers and sources of information on drugs. If no patient records exist, then the researcher should observe 100 consultations, which can be very time consuming.

⁴ If the research is done in two districts than two principal investigators and two experienced researchers should be contracted. In this description of the rapid assessment the process to be followed in each district is described.

Step six: If CHWs operate in the communities, they are interviewed in an informal manner. The researcher visits them and asks them to explain their work in the communities. The above list of research questions is used as an interview guide. The community health workers may have lists of households that can be used to draw a random sample for the user study.

Step seven: During this phase data will be collected by the community investigators in the communities. It is best to train eight interviewers, two for each of the four communities to be included in the study. One of the above sampling procedures should be selected, and 100 families with pre-school children should be interviewed in each community, 50 by each interviewer. The length of the household interviews will be about 30 minutes. Each interviewer will need about one week to interview the 50 households assigned to him or her. The interviewer should visit the same households the next week, to do an additional recall of the health care problems. This is because during the first visit only a limited number of people will have been sick. By following up the families the next week the researchers can increase the number of illness episodes recorded. The household interview should answer the questions on:

- percentage of illness episodes treated in self-medication,
- most commonly used drugs,
- drugs which people have in stock,
- reasons for going/not going to certain health care facilities,
- ideas about efficacy of drugs,
- how women treat childhood diarrhoea (e.g. if they use ORS),
- where people get their drugs. See Annex 1 for a sample interview form.

Though the household interviews are conducted in a structured manner, the follow-up visits can be used by the interviewers to engage in informal discussions to complement the data of the structured interviews. It is important that the interviewers not only ask if one or more household members were ill, but also observe children coughing and noses running, and make a comment about this observation: "Does the baby have a cold?" Thus the validity of the responses can be enhanced.

Step eight: If people frequently get their drugs from an informal drug channel, for example a village store, then the interviewers should make an inventory of the stocks of drugs at this particular outlet. Note also the reasons for which these drugs are used and their cost. Often the drugs which are available at the village store are the most frequently used (see interview form below in Annex 2).

3.4 Data processing and analysis

In processing and analysing the data, the principal investigator and the field researcher work closely together. The principal investigator can help in making a plan for the analysis of the data. The research questions mentioned in section 3.2 serve as guide for the analysis and for the report writing.

For the purpose of this study no complicated statistical analysis is done. For each question simple frequency distribution of the various responses will suffice. The

analysis is made for each community separately. Where relevant, the data from two similar communities can be combined, for example, the two urban communities. A number of simple indicators are suggested below for use by the researchers in the analysis of the data:

Indicators to be used at the health center level

The following three indicators can be used to describe prescription patterns in the health centers:

1. **The average number of drugs prescribed per consultation in the health centers.**

This indicator measures the degree of polypharmacy in the health centers. It is calculated by dividing the number of different drug products prescribed by the number of consultations surveyed.

$$\frac{\text{Number of different drug products prescribed}}{\text{Total number of consultations surveyed}}$$

An average can be calculated for all centers in the various research areas. A research result can be for example: in the urban health centers patients receive an average of 3.8 drugs per prescription. In the rural areas, patients receive an average of 2.8 drugs per prescription.

2. **Percentage of patients receiving one or more injections/antibiotics.**

This indicator measures the overall level of use of two important, but costly and commonly overused forms of drug therapy. It is calculated by dividing the number of patients who received one or more antibiotics by the total number of consultations surveyed (100 in this rapid assessment methodology); and the number of cases receiving one or more injections by the total number of cases. The resulting proportion should be multiplied by 100, to obtain the percentage.

$$\frac{\text{Number of patients who received one or more antibiotics}}{\text{Total number of patients}} \times 100$$

$$\frac{\text{Number of patients who received one or more injections}}{\text{Total number of patients}} \times 100$$

Example: In the urban health centers, 84% of all patients received an antibiotic, while 73% of cases received one or more injections.

3. Percentage of children under-five with diarrhoea prescribed oral rehydration therapy (ORT)/antidiarrhoeal products in the health centers.

This indicator measures the quality of care for an important health condition where clear standards of pharmaceutical treatment exist, namely, always to prescribe ORS, and never to prescribe an antidiarrheal drug. It is calculated by dividing the number of cases for which oral rehydration therapy (either oral rehydration solutions, or home fluids) is prescribed by the total number of cases surveyed, and the number receiving an antidiarrheal drug by the number surveyed. The resulting proportions are multiplied by 100.

$$\frac{\text{Number of pre-schoolers with diarrhoea prescribed ORT}}{\text{Total number of preschoolers with diarrhoea surveyed}} \times 100$$

$$\frac{\text{Number of pre-schoolers with diarrhoea prescribed anti-diarrheal products}}{\text{Total number of preschoolers with diarrhoea surveyed}} \times 100$$

Example: In the health centers in the research area, 47% of children with diarrhoea are prescribed an antidiarrheal product, while 34% are prescribed oral rehydration therapy.

Indicators to be used at the community level

The following three indicators can be used to describe drug use in the communities. They can be calculated for each health care setting, e.g. urban communities versus rural communities, or communities with community health workers versus communities without. A comparison can also be made between the individual communities, though the number of illness episodes may be too small for meaningful comparison.

1. Percentage of illness episodes treated on health worker's prescription/ in self-medication.

This indicator measures the extent to which people consult a health worker and the extent to which they practise self-medication. It is calculated by dividing the number of times a health worker was consulted by the total number of illness episodes reported in the community during the two weeks health survey; and by dividing the total number of illness episodes treated with drugs without consulting a health worker, by the total number of illness episodes reported in the community. This resulting proportion are multiplied by 100 (see also question 3,4, and 5 of the household interview form).

$$\frac{\text{Total number of episodes in which a health worker was consulted}}{\text{Total number of illness episodes reported during two weeks survey}} \times 100$$

$$\frac{\text{Total number of episodes in which a drug was used without consulting a health worker}}{\text{Total number of illness episodes reported during two weeks survey}} \times 100$$

Example: In 10% of the illness episodes reported in the urban communities a health worker was consulted; in 32% of the illness episodes drugs were taken without consulting any medical personnel.

2. Percentage of treatments obtained from the health center/pharmacy.

This indicator measures the extent to which people obtain their treatments from the health center, or from the pharmacy. It can in fact also be calculated for other important drug distribution channels in the area. It is calculated by dividing the number of treatments obtained at the health center during the two weeks health survey, by the total number of treatments reported during the two weeks health survey; and by calculating the total number of treatments obtained at the pharmacy during the same period in the community, by the total number of treatments. Treatments include herbal treatments and oral rehydration therapy. More than one treatment can be listed per reported illness episode (see also questions 3, 4 and 6 of the household interview form).

$$\frac{\text{Number of treatments obtained from health center}}{\text{Total number of treatments reported in two weeks health survey}} \times 100$$

$$\frac{\text{Number of treatments obtained from pharmacy}}{\text{Total number of treatments reported in two weeks health survey}} \times 100$$

Example: In the urban communities 23% of the treatments were obtained from the health centers, and 44% from the pharmacies. In the rural communities 42% of the treatments were obtained from the health center, and 12% from pharmacies.

If various drug distribution channels exist, then a **drug provision profile** can be made, showing graphically which percentage of treatments was obtained from which source (see figure 1, page 3, for an example of such a drug provision profile).

3. Percentage of children under-five treated with oral rehydration therapy/antidiarrheal products.

This indicator measures the appropriateness of self-medication in an important health condition where clear standards of pharmaceutical treatment exist, namely, always use oral rehydration solution or home fluids, and never use antidiarrheal drugs. It is calculated by dividing the total number of respondents who mentioned oral rehydration solution or home fluids as a treatment for a three year old child with diarrhoea (see hypothetical illness case in the interview form), by the total number of respondents in the community; and by dividing the total number of respondents who suggest treatment with antidiarrheal drugs by the total number of respondents in the community. This proportion is multiplied by 100.

$$\frac{\text{Total number of respondents mentioning oral rehydration solution or home fluids}}{\text{Total number of respondents in the community}} \times 100$$

$$\frac{\text{Total number of respondents mentioning antidiarrhoeal products}}{\text{Total number of respondents in the community}} \times 100$$

Example: 32% of the respondents mentioned that they would give a three year old child with diarrhoea a form of oral rehydration therapy; 29% said that they would give the child antidiarrhoeal drugs.

3.5 Resources required

Ideally one experienced researcher should be identified as principal investigator and one other researcher as field researcher. The field researcher can be a health worker with some research or record keeping experience and knowledge of the essential drugs programme, and principles of rational drug use. The field researcher will do the survey of the health centers. This will require around two working days per health center. In urban areas more health centers are likely to exist than in rural areas. The total number of health centers serving the four selected communities is most probably around six. The survey of these health centers will take the field researcher around two - three weeks. If s/he also interviews community health workers, then it is best to schedule one month for this phase of the research.

For the household survey, the team leader should identify eight community investigators. These can be community health workers, other people from the communities where the investigation will be done, or outsiders who have some affinity with the people in the community. The investigators should preferably not be health workers from a health center that is servicing the community, as people might not

want to tell this person about their self-medication practices. Health workers can however do the research in another area. The interviewers should be able to speak the language of the people in the communities. Each community investigator will do household interviews for two weeks, and will survey the drug distribution channels for one week.

The analysis of the data will be done by the field researcher, in consultation with the principal investigator. The processing of data will require about one month, and the writing of a report another month.

Thus the personnel requirements of the research project are:

ACTIVITY	PERSONNEL		
	Principal investigator	Field researcher	Community investigators
Preparation of interview forms and guidelines for investigators	one week	one week	
Pre-testing of interview forms		one week	
Training of community investigators	two days	two days	two days each (8 investigators)
Conduct of health center survey in around 6 centers		three weeks	
Interviews with community health workers		one week	
Interviews with households			two weeks each (8 investigators)
Survey of drug channels			one week each (8 investigators)
Data processing	one week	four weeks	
Data analysis	two weeks	two weeks	
Report writing	two weeks	two weeks	
TOTAL	1 1/2 month	4 months	8 investigators 3 weeks each

The material requirements for the project are limited. If the investigators are not already located in the chosen communities some form of transport will be necessary. A photocopying machine would facilitate the production of data collection forms.

3.6 The use of the results of the investigation

The most obvious use of the results is: to raise the awareness of health workers of problems in drug use and distribution in communities. This will happen automatically if they are involved in the research process from the start.

Health workers can organize training sessions for people in the communities on rational drug use. If they refer to drugs that people are familiar with during these sessions, and explain what is good and bad about the drugs, then people are more likely to listen to them.

Health programme staff can prepare information leaflets on the rational use of drugs, using as examples the drugs that people commonly take. In these leaflets they can also give the appropriate treatment for commonly occurring disorders such as diarrhoea, coughs and colds, and malaria.

The findings of the study have implications for essential drugs policies. If people, for example, are found to rely to a large extent on pharmacies and not on health centers for their drug needs, then this may have implications for the implementation of the essential drugs policy. Ways to improve information provision and prescribing in the private sector will have to be developed.

Such recommendations for action are best developed in a workshop in which the findings of the research are presented to key policy makers, and the implications of the findings discussed.

4. METHODOLOGICAL SUGGESTIONS FOR FIELD WORK

In chapter three a rapid assessment methodology was presented for health programmes which lack time and resources to design their own methodology. This section gives researchers, policy makers, and health administrators some further suggestions for study design, sampling and methods of data collection and analysis. Special attention is paid to the main topics that may be researched, requirements in terms of staff skills, and advantages and disadvantages of each method. Further details on research methodologies can be found in the selected bibliography in Annex 3.

4.1 Research design options

This guide focuses on applied research - research that concentrates on finding solutions to immediate problems of a practical nature. Research design should be simple and cost-effective. This is possible, if the choice of methods is based on a precise identification of the research needs and an accurate formulation of objectives of the study. The research needs should follow logically from a description of the drug use and distribution problems in the research area.

The objectives

The objectives of the study should be phrased in such a way that they focus on what the study is attempting to investigate. They should cover the different parts of the problem in a logical way.

The focus

The distribution and use of pharmaceuticals are fairly complex processes. It is advisable therefore - at least initially - to focus on one particular aspect. Broadly speaking two kinds of focus are possible: the people who deal with the drugs (providers or consumers) or the issues that are at stake (the illness or the drugs). In the rapid assessment methodology proposed in the former chapter, the focus is on consumers. The interviewers try to find out what consumers do when they are sick.

With respect to the focus on issues, an illness centered approach has some advantages that should be mentioned explicitly. Starting with an illness (diarrhoea for example), people can be directly asked how they tackle a specific health problem. Thus the researcher can compare various alternative treatments and study to what extent consumers rely on pharmaceuticals. Both over-dependence on drugs, and lack of essential drugs become visible. The illness-centered approach further allows for a smooth transition during the interview from people's perception of cause of the illness to people's treatment strategies.

Research that takes drugs as a starting point for interviewing, on the other hand, has a special advantage in that it allows the researcher to focus on specific drugs, for example drugs that have been reported as problematic or dangerous. The use of essential drugs can also be followed, checking to what extent they are available and being used in a particular community.

Qualitative versus quantitative approach

Various research methods can be used to study patterns of drug use, distribution and prescribing. The choice of research method should of course depend on the objective of the enquiry.

- * **Qualitative** research involves exploration of a number of often mutually related variables that give insight to the nature of a certain problem. A qualitative study will usually focus on a small study population in order to remain flexible with respect to the number of variables to be included, and to permit in depth description of these variables.
- * **Quantitative** research aims at quantifying the distribution of certain variables among a study population. A quantitative study usually involves variables that are easily measurable. Quantitative studies usually cover a relatively large study population. It is advisable to restrict the number of variables to avoid problems with analysis.

Often a mix of quantitative and qualitative methods is the most rewarding option. The quantitative method tells us how often certain drug use practices occur. Through qualitative research the researcher gains understanding of the processes involved. The question "why are injections so popular" for example is best studied through qualitative research.

The various research methods that can be used are described in more detail later in this chapter, but first some options are given for the selection of communities, households and health centers for the study.

4.2 How to select communities, households and health centers

Researchers studying drug use and prescription will need to select communities, and households for inclusion in the study. In selecting the study population (the sample) the researcher should try and ensure that:

- * the sample is representative, i.e. reflects correctly all households belonging to the communities that are being studied;
- * the sample is large enough.

These criteria cannot usually be met in qualitative studies, because it would take too long time to interview all the households required in the study period. In quantitative surveys, where a limited list of questions is used, this is however possible.

The first step in making any sampling scheme is to define the study unit. This is done by:

- * providing rules by which households being surveyed can be recognized. In the rapid assessment methodology presented in the former chapter, households with pre-school children were chosen as the target population;
- * listing the communities to which the survey is confined. The selection of communities depends on the choice of geographical area to which the study is confined. Usually this will be the area in which a health or essential drugs programme operates.

The procedure followed to select households in communities can vary. Two different approaches will be discussed here.⁵

⁵. For a good guide to sampling, see Lutz, W. How to select people, households, places to study community health. International Epidemiological Association, 1982.

Non-probability sampling

This method can be used when the aim is to get a rough impression of how certain variables are distributed in the population. An example of non-probability sampling is convenience sampling: the sample that happens to be available at the time or period of research is selected, for convenience sake. For example, all the patients attending a particular clinic on a certain day are selected. Or, patients visiting a pharmacy are interviewed.

Another example is quota sampling. In this method the researcher ensures that all known elements (for example females and males; or people belonging to different religious groups) in the population occur in the sample. The investigator then interviews as many people in each category as s/he can find until the quota is filled.

A drawback of this sampling method is that the sample may not be representative for the population that you want to study.

Probability sampling

Probability sampling employs random procedures to ensure that the households are selected on the basis of chance. This method requires that a complete list of all sampling units is made available.

The simplest form of probability sampling is simple random sampling. To select a **simple random sample** the researcher needs to:

- * make a numbered list of the units in the population that s/he wants to study;
- * decide on the size of the sample (see below);
- * select the required number of sampling units, using a "lottery" method.

It may be difficult to take a simple random sample of the individuals in the target population, either because a list of all the study units does not exist, or because visiting scattered individuals is difficult. When a list of communities is available, a random sample of communities can first be chosen from this list, after which all households in the selected communities are interviewed. This method is called **cluster sampling**.

After selection of a sample of communities, further sampling of the households within the communities can also take place. Such a sampling procedure in which first communities are selected at random, and then households, is called **two-stage sampling**.

In some cases it may be most convenient and appropriate to combine non-probability and probability sampling. For example, in a certain research project the health programme may select two communities for study: one with community health workers distributing drugs, and one without. The programme staff may be interested in the difference in drug use patterns between the two communities. If this is the aim

of the study, then the selection of communities is done by non-probability sampling. The researcher can then select the households within the communities using a simple random sampling procedure. The researcher should however make clear to the health programme staff that the resulting study population is not representative for the whole programme area, but only for the two communities within which a random sample was selected.

Sample size

Having decided how to select a sample, the next step is to determine the sample size.

It is useful to distinguish sampling procedures in qualitative studies from those in quantitative studies. Determining people's perceptions of drug efficacy would be an example of a qualitative study. The sample size in this type of research needs to be large enough to reflect important variations in the population, but small enough to allow for intensive study methods. Once you have identified the categories of informants, you might start with 10-20 interviews per category. This number should be increased if the information obtained per category doesn't show a certain trend.

Quantitative studies are ideally used to quantify well defined variables. The indicators put forward in the rapid assessment methodology (see 3.4) are such variables: for example the proportion of children under-five treated with oral rehydration therapy. Sample size calculations are based on estimates of what these proportions are likely to be (informed guess). These estimates are made before selecting a sample.

For a simple random sample the following table can be used to determine the required sample size:

Table 1. Sample size for a simple random sample⁶

Estimated Proportion	Desirable Sample Size*	Estimated Proportion
0.05	420	0.95
0.10	325	0.90
0.15	290	0.85
0.20	255	0.80
0.25	225	0.75
0.30	195	0.70
0.35	170	0.65
0.40	145	0.60
0.45	120	0.55
0.50	100	0.50

The desirable sample size is given in the middle (second) column. The table is entered using either the left (first) column or the right (third) column depending on whether the estimated proportion is less than or greater than 0.5.

** For the information of survey specialists: In this table the estimated S.E./p gradually increases from 0.10 for $p = 0.5$ to 0.21 for $p = 0.05$*

Example: The aim of the survey is to measure the proportion of people going to the village shop. Although there is no clear information on this, it is assumed that 40% of the people would go to a village shop. This is taken as the preliminary estimate, i.e. a population of 0.4 goes to the village shop. From Table 1, it is seen that the desirable sample size for a proportion of 0.4 is 145.

Sampling size calculations for cluster - and two stage sampling are more complicated. It is best to consult a statistician. The desirable sample size can usually be calculated, with some assistance, if the researcher is able to make a rough estimate of the outcome of the study, and is clear about its main objectives.

⁶. Source: Lutz. W. 1982, *ibid*.

The eventual sample size is usually a compromise between what is desirable and what is feasible. The feasible sample size is determined by time, human resources, transport and equipment. Not only is data collection in large samples time consuming; but also the analysis. Processing of large amounts of data requires computers, and people who can operate databases and statistical programmes.

4.3 Methods for data collection and analysis

4.3.1 Structured interviews

Structured interviews include a number of questions in a pre-defined order. They can deal with various aspects of the provision of medicines. Either drug providers or consumers may be interviewed. The most common form of structured interview confronts the provider or consumer of drugs with hypothetical patients: e.g. what would you prescribe/use for complaint x, in patient y. Structured interviews are also used to complement observations that the researcher makes during consultations. Physicians are then asked what they prescribed, and why they chose a certain treatment.

Consumers may be interviewed in a hospital, a health center, a pharmacy, a drugstore or on the market. Questions could cover topics such as:

- * types of medicines being purchased;
- * complaints for which medicines are purchased;
- * prices of the medicines;
- * source of advice on the purchase;
- * treatment taken before buying drugs;
- * ideas about the correct use of the medicines.

Consumers can also be interviewed in their home, which is where they are most likely to take the medicines. An advantage of household interviews, unlike interviews at drug outlets, is that a sample can be selected which is representative of the population in a certain area (by random sampling). Structured household interviews produce quantitative data on the use of drugs over a specific period of time. Answers on medicine use are most reliable when they cover a short period of time: one - two weeks if asking respondents to recall illness episodes; and one - two days if asking respondents to recall drug use.

Requirements

In conducting the interviews the researcher uses a questionnaire as a tool. Developing a questionnaire is not an easy task. First the researcher has to clearly define the objectives of the study, and the specific research questions. Only then can appropriate questions be formulated. The following points can serve as a guideline:

- * use the objectives of the study to compile a list of topics, and hypotheses;
- * identify the variables to be measured, and the variables (such as socio-

economic status, age, etc.) to which the findings should be related. It is best to design the tables that are wanted as a study output, before designing the questionnaire;

- * use qualitative research (see below) to learn about the way in which people talk about the topics in the local language. Use this understanding when preparing questions for the questionnaire;
- * write the questionnaire in the local language, and translate it back to the original language to check that the content has not changed in the "translation" process;
- * questionnaires should be short; leave out any questions that are not needed to answer the objectives;
- * write guidelines for the interviewers, and pre-test the questionnaire in an area which is not where the actual research will be conducted but which is similar in characteristics.

In designing and pre-testing the questionnaires the interviewers should check for each question:

- (1) if it is understood;
- (2) if the question leads the respondent to one of the possible answers.
- (3) that it does not contain implicit assumptions that are not valid, for example the question "Which side-effects did you experience?" assumes that side-effects occurred;
- (4) that it is needed; maybe there are other - more easy and reliable - ways to answer the research question. For example instead of asking "What medicines do you have in your medicine cabinet?", you can ask "Could you show me the medicines that you have in your medicine cabinet?" if the content of the medicine cabinet is what you want to know.
- (5) that it elicits answers which are sufficiently precise to meet the objectives of the research. For example the question "which drugs did you take in the past months" is not a useful question, because people simply cannot remember over such a long time span. The question "which drugs did you take yesterday, and the day before yesterday" is much more reliable, as people are likely to remember what they did in the past two days quite well.

This list can serve as a guideline to prevent the most obvious mistakes. However, it is best to consult a social scientist with experience in quantitative surveys when constructing a questionnaire. If the data are to be processed by use of computer, then data-processing personnel should be asked for advice on the best way to design the questionnaire and code the responses. The extent to which the responses can be coded depends on the questions. If so called open questions are used, then the researchers have to code the responses after conducting the interviews. In the case of closed questions, containing a predefined list of possible answers, then each answer can be assigned a code on the interview-form. This makes data-processing easier.

Finally, it is essential that the data-forms are easy to use by the interviewers. Leave sufficient space for the answers.

In the small scale surveys, that are proposed in this guide, no computer analysis is needed. Because the questionnaires are short and the number of respondents limited to around 100, the researcher can hand-tally the results. The statistics that are used are descriptive involving simple frequency tables and percentages. No cross-tabulations, or other statistical tests are done.

Advantages and disadvantages

The main advantages of structured interviews are:

- * data can easily be quantified and compared with results of other studies (measuring the same variables, using similar questionnaires);
- * a lot of data can be collected in a short time span.

The main disadvantages are:

- * the interviewer controls the discussion, and may influence the responses;
- * no data on other aspects of the problem (not contained in a question) are collected;
- * reliability of responses may be low, because the interview is held in an "unnatural" manner.

4.3.2 Non-structured or informal interviews

A more open and informal interview style allows for a wider context of drug provision and use to be explored. Various aspects of medicine sales and the patient's home situation may emerge in the course of a conversation. Interviewers can continue to ask questions until they have fully understood the situation. They can also check whether respondents are answering truthfully. Ordinary conversation makes it easier to reassure informants and to win their cooperation.

The following topics can be covered in an informal interview:

- * a seller's or prescriber's own knowledge and ideas about drugs;
- * social and commercial aspects of drug transactions;
- * patients' perceptions of drugs;
- * financial constraints in the purchase of drugs.

A natural way to begin a conversation on drug use in the home is to ask people what medicines they keep at home, and to organize the discussion around these particular drugs: where did they purchase them, what do they know about them, how do they use them etc. Hardon (1991) purchased a number of commonly used drugs in the community, and asked respondents to sort these drugs into different piles. The

respondents were then asked why they had sorted the drugs in this way. This technique gives an impression of people's criteria for the choice of drugs in self-medication.

Another occasion to talk with people about drugs is right after they purchased them in a pharmacy. But this may be difficult because people are in hurry or because the shop is not a suitable place for an interview. In some cases it may be possible to visit respondents in their homes when one of their family members is ill. When talking with people about an actually occurring illness case responses are likely to be more reliable than when talking about a hypothetical illness case, or about one that occurred in the past. Also, in such illness-related interviews the interviewer can find out what non-drug therapies people administer, and how the therapies relate to the perceived cause of the illness.

Requirements

When conducting non-structured interviews, the interviewer is prepared with a list of topics to be discussed. The order of the topics is however not defined. This will depend on the flow of the discussion. The researcher acts as a moderator guiding the respondent from one topic to another. It is best to start with a topic that is not sensitive, and is important to the respondent. Thus, an informal, friendly atmosphere can be created, facilitating a 'natural' flow of ideas and opinions. As with structured interviews, it is best to do a pilot study, in which the conduct of the informal interviews is practised.

Recording of non-structured interviews can be done in various ways. The most simple is to take short notes, which are elaborated immediately after the interview. It is usually advisable to capture the informant's words as exactly as possible. A tape-recorder can also be used, and the tapes transcribed after the interview. An interview of one hour, will take about three hours to transcribe. The advantage of tape-recording is that no information is lost due to inattention or selective perception of the interviewer.

In the analysis the researcher cuts and pastes the original interviews into categories, that are defined on the basis of the broad topics that were initially used, and on any other central themes that emerge during the discussions. Hypotheses that emerge can be validated by interviewing people again, and by cross-checking the findings in interviews with key-informants (people who know a lot about the research topic, or about the people in the research area; or people whom you know well and who are therefore likely to give reliable answers to your questions). This whole process of analysis and validation requires much creativity and objectivity. It should ideally be undertaken by the person who did the interviews.

The results of non-structured, informal, interviews are hard to generalize as they are based on interviews with a limited number of people. Subsequently, a quantitative survey can be used to test the hypothesis in a bigger group of respondents.

Advantages and disadvantages

Advantages of unstructured interviews are:

- * greater depth of information;
- * respondents determine the principal issues of the topics that are discussed;
- * the researcher has greater opportunity to understand the viewpoint of the respondent;
- * the interviewer can discover unexpected aspects of the issue at stake.

Disadvantages of unstructured interviews are:

- * highly trained interviewers are needed, who understand the purpose of the research, and can probe without being directive;
- * data-interpretation is hard; the researcher has to guard against selecting only data that fits his/her own explanatory framework;
- * much depends on the researchers' focus and skill;
- * results are hard to generalize.

4.3.3 Focus group discussions

Focus group discussions are in many ways similar to unstructured interviews. Instead of having an interview with one person, a researcher can invite several people to participate. They may be members of the same households, neighbours, or people who share a certain characteristic (teenagers, mothers of first children, people suffering from a specific disorder, etc.). In the last case researchers speak of "focus" group discussions.

Group discussions are a particularly valuable tool for studying people's - varying - perceptions about drugs. They can also be used to obtain general information about drug use and distribution in a community. In focus groups, moreover, people may be willing to express embarrassing or socially disapproved attitudes. Teenage girls, for instance, may discuss what drugs they take as abortifacients, a topic that they are not likely to discuss when interviewed at home in the presence of family members.

Group discussion can be used in the exploratory phase of the research, to focus the research and help researchers formulate questions for structured interviews and to help formulate hypotheses. This method is also often used to develop appropriate texts for educational materials.

Requirements

The most important requirement is a skilled moderator. Group discussions, though very efficient as a data-gathering tool, are not easy to conduct. The moderator does not need to have high academic qualifications, but he or she must understand the aim of the discussion, and must have good communication skills. The moderator:

- * encourages all to participate in the discussion;
- * stimulates discussion between participants, particularly when new information is given, or a diverging perspective put forward;
- * guides the group from one discussion topic to another;
- * does not express his or her own opinion;
- * does not act as an expert, but does remain in control over the discussion.

The choice of the venue for discussion is important. The venue should be neutral. If self-medication, for example, is being studied the health center should not be chosen as a venue. Small extras such as a refreshment or snack can create a friendly relaxed atmosphere, which encourages discussion.

The selection of group members demands careful planning. It is generally advisable to choose "homogenous" groups in terms of age, sex, socio-economic status, etc. since this facilitates open discussion. In mixed groups considerations of status and hierarchy can affect the discussions. Groups should be relatively small, with a maximum of six to ten members.

The interviewer should be present in the venue before the people arrive. The interviewer can then start talking with the participants, and create an informal atmosphere that induces a group discussion. The aim of the discussion and how it will be conducted should be explained to the group members.

And finally, the recording should be done with care. Group discussions are usually tape-recorded. The participants should of course be asked for their consent. In addition one observer/researcher should make notes. From the tape it is not always clear who is talking. The observer can also record non-verbal communication.

The results of the group discussion can be analyzed and interpreted in the same way as non-structured interviews.

Advantages and disadvantages

Advantages of group discussions are:

- * the method is quick and cheap;
- * a greater pool of expertise is tapped than in individual interviews; a more diverse picture of drug use will emerge.

Disadvantages are:

- * the success of a group discussion is a bit unpredictable;
- * in some cases one or more participants dominate; the views of others are not recorded and thus under-represented;
- * the depth of information may be limited. It is hard to probe one person's ideas, as others also have to be given a chance.

Focus group discussions are ideally combined with unstructured individual interviews. These interviews can be used to gain understanding of ideas and views that were not expressed in the group.

Focus group discussions in Malawi Essential Drugs Programme

The following questions for discussion have been used in a research project of the Malawi Essential Drugs Programme. The researchers used focus group discussions to elicit people's ideas about drugs. These ideas are being used in the development of educational materials.

1. What are the common illnesses in this area? *Ask what symptoms occur. List the local terms for common disorders such as diarrhoea, fever, cough, malaria.*
2. Do you know what causes these illnesses?
3. Has anybody here (or a close family member) been ill within the last two weeks?
4. Did you know what the illness was?
5. What did you do about the illness? *(i.e. what treatment was given?) Alternative actions include: keeping a patient at home with/without drugs bought from a store; take patient to health centre, take patient to (or invite) a traditional healer. Probe*
6. What was the reason for your choice? *Alternative base for action may include sufficient knowledge of the illness to determine treatment type, belief in the effectiveness of the treatment type, cost, distance to treatment centre, confidence (or lack of) in skills of health worker/healer*
7. When you treated the illness at home:
 - What drugs did you use?
 - Where did you obtain them?
 - Did you or another family member buy them?
 - How did you learn about this treatment? *Alternatives could include school, mass media, advertising, health worker, pharmacist/drug vendor family, friends*
 - Do you share your knowledge about drugs, or sometimes the drugs themselves?
8. When you go to a health centre for treatment:
 - Does the health worker always tell you:
 - What your illness is?
 - What drugs they have prescribed for you?
 - Do you always understand how to use the drugs prescribed?
 - What do you feel about the communication between you and the health worker?
9. What do you do to keep yourself and your family free of illness? *(It is important to find out if people use drugs for this reason, for example vitamin combinations, malaria prophylaxis, immunization).*

4.3.4 Observation techniques

Direct observation produces more reliable information than interviews. The researcher can see which medicines are being sold, prescribed or used; what information on their use the seller or doctor provides; whether drugs are purchased on prescription, etc. These observations can be combined with interviews with doctors, patients, or drug vendors.

Observational research can be difficult to carry out because drug sellers may not want to have an onlooker present. They may feel that it will disrupt or even endanger their business, particularly if some transactions are illegal. If they have a researcher present, they may do business in a more 'correct' way than they normally would. Doctors, pharmacists and health workers may feel that their professional competence is being tested.

This problem can be solved by doing unobtrusive observation. A researcher or an assistant can pose as a patient. The advantage is obvious; it gives an unbiased picture of normal procedures. Posing as a patient, however, reduces the amount of information that can be gathered. The researcher can only observe his/her own consultation, and only few drug purchases at a pharmacy while waiting in turn. Furthermore it is difficult to pose many questions, without revealing one's true identity. To counter this restriction, researchers can combine unobtrusive observation with interviewing.

This approach was used by Wolffers⁷ (1987), who had assistants visit 28 pharmacies to buy tetracycline, and then let other assistants interview the pharmacy personnel on tetracycline a few days later.

While unobtrusive observation is an attractive research method, it can be questioned whether it is ethical to pose as a patient. This is especially problematic if the researcher is a doctor. If the researcher then observes harmful practice s/he can be expected to intervene and prevent the practice.

Requirements

As in the case with interviewing, the observations may be structured or unstructured. It is advisable to prepare a checklist and guidelines for the researchers. The way they introduce themselves to the people whose behaviour they observe can influence this behaviour to a large extent. Drug sellers, for example, may refrain from selling a powerful drug over the counter while the researcher is around, if the researcher introduces him/herself as a doctor.

For the validity of the observation it is best if the researcher is considered part of the community. This generally requires a prolonged period of 'participant'

⁷ Wolffers, I. Drug information and sale practices in some pharmacies of Colombo, Sri Lanka, Social Science and Medicine, 1987, 25(3), 319-321.

observation, during which the researcher gets to know people. The researcher is then considered less of an intruder, and can make valuable observations on day-to-day life, and treatment practices.

Finally, it is important to record observations systematically. A checklist can be helpful. However, as with non-formal interviewing, the researcher has to be alert for the unexpected. This, to prevent bias in the sense that the researchers prior assumptions shape the outcome of the research.

One can also make drawings of the observation-situation, and note non-verbal communication.

The analysis and interpretation of the data depends on the extent to which the observations are structured. In some cases the analysis is quantitative. For example, when reporting in how many cases prescription drugs were sold over the counter. In other cases the observation is less structured, and the researcher has to categorize and analyze the findings in much the same way as with non-structured interviews. In this case, it is important that the person analyzing the data also did the research. Findings from observation will need to be validated and complemented in informal discussions. Being an outsider, the interviewer can easily misinterpret observations.

Advantages and disadvantages

Advantages of observational techniques are:

- * it can provide more reliable information than oral communication, especially when done unobtrusively;
- * drug use and distribution in its natural context can be observed.

Disadvantages are:

- * the method is time-consuming;
- * difficult to do, as people may be suspicious of an onlooker;
- * data are sometimes hard to interpret;
- * the findings need to be validated by means of interviews.

4.3.5 Study of documents

In the field of drug use and distribution there are many secondary data sources that researchers can tap. For example:

- * sales figures
- * prescriptions
- * package inserts
- * reports of agencies involved in the implementation of health care (baseline

- surveys, monitoring reports, and evaluations)
- * records of (community) health workers
- * published results of studies

All these data sources can be used in the exploratory phase of a research project, to get a global overview of drug consumption, prescription and distribution, and in the analysis phase, to complement and validate collected data.

Documents that have been studied quite frequently are package inserts and prescriptions. Package inserts are a form of information that doctors and patients receive about a drug. A survey of prescriptions can give a very accurate picture of physician prescribing practices. However, in many countries it is quite hard to get hold of prescriptions, because health care institutions or pharmacies do not want to give a researcher access to them, or because they are not systematically collected, e.g. patients keep them.

Using prescriptions, certain commonly used indicators can be measured. These are:

- * the percentage of prescriptions containing an antibiotic;
- * the percentage of prescriptions containing an injection;
- * the average number of drugs per prescription.

If kept by patients, they can also be used to study lay views and practices. One can for example ask which drugs are actually purchased, and what the recipient's experience with the therapy was. The notes provide an easy starting point for informal interviews.

Sales figures can be used to assess if the drug use patterns in the area reflect national consumption patterns. One can for example check if the ten most commonly used drugs in an area are also the drugs that rank in the top ten in the country's sales figures. A drawback is that the agencies collating sales figures often ask researchers to pay for these data; and only outdated figures are available free of charge.

Requirements

The method of data-collection of course depends on the type of documents. Package inserts can be obtained by simply buying the products concerned. To obtain prescriptions and health worker records consent is generally needed from the "owner" of the documents. Once the researcher has the materials an assistant can record the numbers and types of drugs on prescriptions, or collect and analyze the package inserts. It is only necessary to prepare clear guidelines for the analysis.

Non-published documents, such as baseline studies, monitoring and evaluation reports can be hard to get hold of. In fact, it may be hard to find out which documents exist. It is best to ask health workers in the research area, what data they or others have collected, and if they can be accessed. It is very important to do this, in order not to bother people in the area with questions and surveys that they have already been confronted with by others.

Advantages and disadvantages

The advantage of using documents is that this is usually a cost-efficient way of doing research. It is very important to check what data are available before field research starts.

A disadvantage is that consent is needed from the "owner" of the data and it is sometimes difficult to assess the reliability of the data.

ANNEX 1

HOUSEHOLD INTERVIEW FORM

Interview form 1:

Community *Date*.....

Name of respondent *Interviewer*.....

Sex

Questions 1 to 7 are repeated weekly during one month. Complete the responses with respect to all illness episodes that occurred in this period in the table below.

1. *Have any household members been ill in the past week?*
2. *If yes, what were they suffering from ? (use lay term for illness)*
3. *What treatment did you give the patient?*
4. *Was anything else taken?*
5. *Who advised you to use that remedy ?*
6. *Where did you buy/get the treatment?*
7. *What was the effect of the treatment ?*

Complete all information on the illnesses occurring in the one month recall period (elicited in four one-week recalls) in the table below. If more than one treatment is given list them under each other with a number (see the example):

Name of patient	Age	Disorder	Treatment	Source of advice	Source of treatment	Effect
Emma Calidan	4 years	diarrhoea	1. Diatabs 2. ORS	mother CHW	pharmacy CHW	better now none

(continue on cover if you lack place)

8. What would you do if your three year old child had diarrhoea. The child has had four watery stools since yesterday and it does not want to eat?

Proposed treatment :.....

9. What type of medicines do you keep in the house?

Can I see them? (list all the medicines and write down the name, manufacturer and expiry date). For each medicine, ask what the medicine is good for and where the respondent got it.

Medicines available in the household :

<i>Name/type</i>	<i>Manufacturer</i>	<i>Expiry date</i>	<i>Which illness/symptom</i>	<i>Place of purchase</i>

10. *What are the various places where you can buy drugs in and around your community? Can you tell me what the advantages and disadvantages of each are?*

<i>Source of drugs</i>	<i>Advantage</i>	<i>Disadvantage</i>

ANNEX 2

DRUG DISTRIBUTION CHANNEL FORM

Inventory of stock :

Type of outlet *Date*.....

Name of respondent *Interviewer*.....

Age

Type of drug	Number in stock	What is it used for	Cost

ANNEX 3

FURTHER READINGS AND RESOURCE MATERIALS

The following books and articles are useful resource materials for people involved in health care research:

1. Abramson J.H. Survey methods in community medicine - an introduction to epidemiological and evaluation studies, Churchill Livingstone, Edinburgh, 3rd edition 1984.
2. Feuerstein. M. Partners in Evaluation: evaluating development and community programmes with participants, McMillan publ, London, 1986.
3. Geest van der S and A. Hardon. Drug use: methodological suggestions for field research in developing countries, Health policy and Planning, 1988, 3(2), 152 - 159.
4. INRUD. Methods for INRUD indicators. INRUD News 2(1), 1991.
5. Lutz, W. Sampling: how to select people, households, places to study community health, International Epidemiological Association, Edinburgh, 1982.
6. Parker D.J.P. Practical Epidemiology, Churchill Livingstone, Edinburgh, 3rd edition, 1982.
7. Moore N. How to do research, The Library Association, London, 1987.
8. Scrimshaw S.C.M and E. Hurtado. Rapid assessment procedures for nutrition and primary health care: anthropological approaches to improving programme effectiveness, University of California, Los Angeles, 1987.
9. WHO. Health Systems Research Training Course, WHO, 1988.
10. Krueger R.A. Focus groups: A practical guide for applied research, Sage Publications, USA.

The following books are useful as resource materials in the assessment of safety and efficacy of the drugs that people are using:

11. WHO. The use of essential drugs, WHO, Geneva, 1988.
12. Reynolds J.E.F. Martindale the extra Pharmacopeia, 29th Edition, The Pharmaceutical Press, London, 1989.