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COMMUNITY HEALTH EDUCATION IN

DEVELOPING COUNTRIES:

GETTING STARTED

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## INTRODUCTION

Community Health Education in Developing Countries is designed to assist you work on a grass roots level to improve health conditions. This manual is aimed at those of you who want to improve your effectiveness as agents of community change -- be you paid workers or volunteers; sponsored by international, bilateral, national, religious or governmental organizations or by no organization; whether you are from the nation's capital, the community, itself or the other side of the world. Community Health Education in Developing Countries is intended as a guide, a working and teaching tool, to help you get started in community health education in the developing world.

It is difficult to generalize about people in developing countries. These people encompass the gamut of climates and terrains, urban or rural locations, economic development levels, and "modern" or traditional cultures. What all have in common are high death and illness rates and much physical suffering.

This manual is based on the assumption that many causes of ill health can be eliminated through the scientific application of public health measures. Within the realm of public health, improvements in nutrition, sanitation, hygiene, and "health habits" -- along with other preventive health measures such as immunizations -- can have significant long-term effects on health. Other basic causes of human suffering, however, manifested in widespread mass poverty, reflect man's exploitation of man -- the economic, social, and political power of the few who control and exploit the labor and poverty of the majority. Although in some localities, political reforms are probably the most pressing concern, this manual does not directly address organizing

for political action. What this manual does is to provide a practical guide to public health interventions using a community organization approach. It is hoped that after their experience in health problem-solving, communities can build upon their successes by applying these methods to other areas of basic human needs.

Until recently, health needs of impoverished rural and urban folk have been either ignored or treated on a curative rather than preventive basis. Services offered by hospitals or understaffed public health departments were limited to physicians and nurses giving treatments with Western or "modern" medicines. Relatively little attention was focused on such preventive measures as providing safe and abundant water, sanitary disposal of human wastes, or maternal and child health services including immunizations, nutritional improvement, and other services associated with pregnancy -- all of which are included in the recent worldwide movement toward "primary health care." In keeping with this trend, this manual describes dynamic educational approaches that help communities realize that they can influence their state of health, teach them how this can be done, and assist them in getting started.

Health education is the process of providing people effective opportunities to change their knowledge, attitudes, and behavior in ways that will improve health conditions and prevent ill health. While new knowledge and attitudes are prerequisites for success, it is in changing health-related behavior that that payoff lies. Health problems are rooted in specific behavior patterns: changing these can change a community's health status.

Community health education requires community problem-solving. Behavioral change will probably not result from programs designed solely by outside planners; rather, it depends on the community's direct and ongoing participation. Community members must identify their needs, define their problems, participate

in identifying program goals, priorities, and methods, and share in the development of program resources and activities. This community involvement is the foundation for an effective program. Health education also includes creating opportunities for change among individuals and families, although this manual emphasizes group education and group action.

Furthermore, community health education involves community systems. Health problems in developing countries are caused by a complex interplay of many factors. The most immediately apparent may be a lack of information about illness and preventive measures, a lack of appropriate health services, poor sanitation, malnutrition, and poverty -- remember that in providing new information, you must be sensitive to individual, family, and community beliefs, attitudes, and practices, since changes in behavior require social support. A health education program must consider these and all other interrelated factors that contribute to the particular health problem. Moreover, a program cannot be limited to those individuals whose current practices contribute to ill health. It must also include those friends, family, community leaders, and institutions that influence the individual's decision to behave in a certain way. For example, a program to encourage breast-feeding should be directed not only at mothers but also at spouses who strongly influence their wives' behavior, at older women who may serve as authority figures, at youngsters who soon will be parents, at employers who can facilitate breast-feeding by working mothers, at more well-to-do mothers who serve as role models to the poor women, and at storekeepers who sell powdered milk and baby bottles. In sum, a health education program must incorporate and work with all relevant community systems.

Your role in the health education process will change according to the task at hand. You may initiate awareness of and desire to act on a

problem; you may organize a group to address a problem; you may lead group discussions; you may assist people in learning problem-solving skills; you may help locate and mobilize resources; or you may teach skills specific to a project. You may be able to develop interdisciplinary teams of extension workers, school teachers, and health clinic personnel to work on shared problems. Since health problems are integrally related to broader issues of community development, work in one sector affects all. A team approach can multiply the resources available to a community project as well as establish mutually reinforcing programs of community development and behavior change.

This manual was designed to help you adjust to these varied roles. Parts I and II focus on community health projects. These sections discuss techniques and approaches for working with community members to plan and develop programs that are responsive to the community's expressed needs and goals. Part III presents another aspect of educational programs, that of transmitting information about health topics. This section discusses methods and aids for presenting such information to individuals or groups. Part IV presents basic information about common health problems in developing countries. The appendices include practical information on sample surveys and collecting information, educational methods and aids, sources of materials and information, health vocabulary, and health education campaign

Community Health Education in Developing Countries is not intended to be a complete reference book for all diseases, health programs, or methods. Rather it discusses some of the central issues that you will want to consider as you begin your health work. At the same time, it provides selected

technical information and references to other sources which may prove useful.

This manual represents one aspect of the American Public Health Association's International Health Information Exchange. Your suggestions for improving this manual and accounts of your personal experiences using it would be most appreciated.

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PART I

HELPING A COMMUNITY START A HEALTH PROJECT

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CHAPTER I  
KNOWING THE COMMUNITY

Your success in assisting families and communities make changes that protect their health will very much be influenced by how well you know the community, its resources, traditions, and attitudes. While there can be no substitute for spending time in the community and getting to know the people personally, you can use your time efficiently by having a clear idea of what information may be important and how it can be obtained.

Your Role in the Community

This chapter is directed to ways of learning about the problems of the community rather than ways of helping people change. Take some time to think through the implications of what you are attempting. As an outsider, you should feel humble and very cautious about coming in and telling people what to do. First, try to learn, understand, and respect the way people live, and later, only after much analysis, decide that certain behavior should be changed in order to improve the people's health.

Whose program is this? Yours? Your government's? Some agency's? Or the community's? Whose responsibility is it to define programs, set goals, carry out the work, and evaluate the results? <sup>to assess</sup> Might the project serve as a model for other communities? What kind of records will be needed to ensure that others can learn from the program's successes and failures?

What qualities do you need to bring with you to ensure that you are accepted as a trustworthy friend of the community? These should include a willingness to listen, understand, and accept the viewpoint of the people.

Pre to the day

At the beginning of any effort to improve the conditions in a community, you should contact local leaders to seek their support for efforts you will help initiate. You should know how to communicate with people of various positions, what your status in the community is, and how you are expected to act in this position. First, visit the local community leader(s), who might be a mayor, the village chief, or a religious leader. Then, within the first two or three days, visit other formal leaders such as the principal of the school, members of the community council, the assistant headman, chiefs of various organizations, and other community extension workers. These leaders' approval can be essential to your being accepted by the community. They can also be very helpful sources of information about the community. For further discussion of the role of community leaders in the organization of a community project, see Chapter II.

#### Community Information That May Be Helpful

The following types of information may be helpful in understanding the community and its health problems. You need not gather all this information. Depending on the community's needs and the health problems, you may have to know more about one topic than another. In any case, be sure to keep a diary or a brief monthly report of what you learn so that other extension workers can benefit from your efforts.

1. The community and its general physical characteristics: Your efforts in health education must be based on a clear understanding of the community and its resources. Take the time to explore the area and take note of its general physical features. How big is the community? What kind of crops, food, and natural resources exist? What are the transportation routes? It may be helpful to make a map on which you should include

any facilities such as schools, religious institutions, markets, recreational areas, health centers, and other public services.

2. Information on the number of people and their characteristics:

- a. How many people live in the area?
- b. How many of each sex and of each group?
- c. What is the average size of households?
- d. For women, what is the average number of pregnancies? The interval between pregnancies? The average number of children alive? The average number of children who have died?
- e. How much education do the adults have?
- f. What kind of educational institutions are accessible to the people?

If you are able to gather this information from census materials or official reports, you may have to determine how reliable it is by comparing it to statistics gathered from different sources.

3. Community groups and their impact on the health care system: It is important to become aware of the existence of various social groups and of the nature of relationships both within and between these groups. You may be able to make use of those relationships that will help in your work and learn how to deal with those that may jeopardize the operations of your program.

Attend district or village council meetings and observe the roles played by different members; note the issues and the opinions of the leaders. Learn about past health-related issues, how they were resolved, and who took part.

The communications network: To reach the people, it is necessary for you to know how information and rumors spread within the community - the formal and informal channels of communication, the participants in these channels, and how effective they are.

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Learn how various leaders communicate their ideas and opinions, and note to what extent their messages are accepted in relation to their status or authority in the community. A good way to gather this information is to observe where people gather and listen to the types of information that are spread. You can also attend meetings, festivals, and religious gatherings. You can spend time socializing with women in the market or at village wells, or ask people to whom they would go for advice on health matters and to whom they feel comfortable giving advice or forwarding news.

If you plan to use radio or television for an educational campaign, find out how many people own or have access to radios or televisions and which programs they like and why. Also, find out if newspapers are available and who in the community reads them.

Effective communication between the community and the provider of services can have a great impact on a community health program. There are numerous examples of health programs that failed because of lack of communication between the staff and the people. In one example, a village chief refused to give his support to a sanitation campaign because he was not informed about the date of the health committee meeting in time. In another example, the frustration and anger of a mother who came to a well-baby clinic expecting free services could have been avoided had there been adequate publicity about clinic services.

Be certain not to underestimate the important formal and informal roles women play in health-related decision-making as well as in all aspects of community life, including agriculture, marketing, and politics.

5. The family structure: It is valuable for you to understand the status of various members of the family, and to know who participates in making major decisions, especially those related to health. Without this knowledge, you may direct your educational activities toward the wrong member of the family. By talking to community members, you may obtain this kind of information. Ask them if they need the consent of another person in order to follow certain medical treatment or advice. If so, who is the person?

6. The political structure in the community: By virtue of your work, you are already involved in the community's political life. But you must avoid making assumptions and learn how things really work in exploring the basis for leadership and power within the community (See Chapter II).

For the success of a community program, you should also seek the support of private groups or institutions that serve the community. Learn about their organization and activities. Find out if they have worked on health issues and what they have done. What are they doing now? Can you work together?

7. Women's roles: What are the traditional roles of women? How do women participate in agriculture, marketing, politics? How do they spend a typical day? Have they participated in other development projects before? What kinds of income do they earn?

8. The economy and its impact on health: The health of the individual and the community will be influenced by economic conditions. Economic resources may also be needed to support health changes. So you will want to know about businesses, industries, agricultural conditions,

unemployment, family debts, and patterns of distribution. This information will increase your knowledge of what is important to the people and what resources are available to them. You should know who holds economic power and how they might be affected by any program.

9. Religion and its impact on health: Religion may have a great influence on a community's life-style, including the health practices and beliefs of individuals. A mother may believe that her child is sick because it is God's desire, or a community may be strongly opposed to a well-digging program because the work may disturb the souls of the divinities who protect the village.

It is important, therefore, for you to identify the major religious groups in the community, their leaders, and the role they play in community life. To avoid raising antagonism because you are working more closely with one group than with another, find out if conflicts exist between these groups, if not, what level of cooperation can be expected.

Religious groups have their priorities and interests and may manage their own health programs. It may also be useful to find out the attitudes of the government and community residents toward these religious-affiliated programs and the reasons for program success or failure.

10. Health beliefs, attitudes, and practices: How people define "good health" and "disease" can be different from the way you do. Their views must be explored. Some people may believe that prevention of illness is impossible or very difficult; others may value only a particular method. What are people's attitudes regarding good health and prevention of disease? Do they think good health is possible? How do they think it can be achieved?

You need to know prevailing beliefs and practices about health, nutrition, maternal and child care, and environmental sanitation. You should sort out practices which are beneficial to health from those which

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have no effect on health or are harmful. As Maurice King suggests, "It is their effect on health that matters, not their strangeness to the observer nor their remoteness to his own culture."\*

Before you consider introducing new public health measures, you should learn the people's attitudes towards vaccinations and various tests (such as blood tests for malaria) and other preventive measures such as insecticide spraying and control of flies.

11. Hygiene:

- a. What are local attitudes and practices regarding personal hygiene?
- b. How do living conditions and available resources influence habits of personal hygiene?
- c. What is likely to be the reaction of the community toward possible change in hygienic practices (such as the introduction of water-sealed toilets or drinking protected water)?

12. Diseases:

- a. What are the most common diseases in the community?
- b. What are the general beliefs regarding the cause, prevention, and treatment of each of them?
- c. What diseases are the people most concerned about?
- d. Who in the family makes decisions about seeking treatment for a sick person? To whom do people go for advice on health matters? Where do they go for treatment?

13. Nutrition:

- a. What foods are available? What foods are affordable? What nutrients are most lacking in the local diet? What is the least expensive and most appropriate way of making up this nutrient gap?

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\*Maurice King, Medical Care in Developing Countries, Nairobi, Oxford University Press, 1966.

- b. What special beliefs are held concerning food? For example, are certain foods considered "hot" and not to be eaten if one has a fever? Are other foods considered taboo for pregnant women?
- c. What techniques are used to conserve foods? To prepare foods? How are nutrients lost in food preparation?
- d. What customs govern the foods, amounts, and order of eating of various family members?

14. Maternal and child nutrition:

- a. What foods do women eat during pregnancy? Do they follow a certain diet?
- b. How often and how long do mothers breast-feed? Are they interested in avoiding pregnancy during breast-feeding? Are some mothers switching from breast-feeding to bottle-feeding?
- c. At what age do babies start eating foods other than mother's milk or formula? What do they eat?
- d. When children are sick, are they given a special diet? What does it consist of? What do mothers do when their children have diarrhea?

15. Maternal and child care:

- a. During pregnancy are certain conditions or events considered dangerous?
- b. Where do most women give birth? Who assists in delivery? Are good hygienic practices followed?
- c. What methods are used to cut the umbilical cord?
- d. Do women follow special practices after delivery? For example, is it the practice to stay in bed near an open fire for several months, or to stay indoors avoiding light and fresh air? Is there a taboo against bathing for a certain period after giving birth?

16. Environmental sanitation:

- a. What sources of water are used: Are they protected?
- b. Do people have safe drinking water?
- c. Where do people go for defecation and urination? Do they know that certain diseases may be contracted through human feces?
- d. Are human and animal wastes used as fertilizer?
- e. Do people understand that certain diseases can be prevented through improved environmental conditions?
- f. Are there any problems with pests?

Techniques for Gathering Information

There are informal and formal ways to gather information. Informal ways include observing and talking to people and reading reports, official documents, and newspapers. Formal ways involve asking all members of the village or members of a selected representative group a set of fixed questions and recording their answers. Both informal and formal approaches have their advantages and disadvantages. The key issue for you is to understand and make clear to the community why this information is needed and how it will serve the people. Ask yourself how members of the community can be a part of the information-gathering process. Remember, too, that in some cultures people are not accustomed to being asked lots of questions or to answering freely. People may feel that your questions are prying and may become especially suspicious if you write down what they say.

Informal Fact-Finding

Informal fact-finding is not only easier, but it also helps build relationships between you and community members. It starts the first day you

enter the community and continues until the day you leave. Some ways to gather information informally were mentioned above. The following are further suggestions:

1. Get to know the informal leaders and those considered as "wise" in the community.
2. Talk with the ordinary people over a cup of tea or at social gatherings. Make some real friends. Try to learn as much as possible about every aspect of the community.

Their answers will help you to understand the life-style of the community and to identify the major health beliefs and practices, the leaders, and the problems that exist in the community. Note that what you think needs to be done may be quite different from what the tradition-minded community members think needs to be done.

For example, if you ask a knowledgeable person, "What are the public services that you believe the community needs most?", he may mention something outside the health field; give him a sympathetic hearing. Later, be more specific and ask him, "Do you think that there are any problems with the health of the community that ought to be solved?" Suppose that he does not raise the subject of water supply (wells) which you think is a serious and a solvable problem. In such a case, you could raise the question of wells yourself to see if he believes it is a problem -- the conversation might be like this:

You: Do you believe that the community has a problem with water supply?

Villager: Yes, our wells are always silting up and having to be re-dug, which is a real inconvenience.

You: Do you think something can be done about this?

Villager: Yes, but we need some equipment and have to case the wells with concrete rings.

You: If we could arrange to get help with this, do you think the villagers would be willing to offer their time to put in the rings?

Villager: Yes, I think so.

Since the villager did not raise the problem of wells, this matter might not be a deeply felt need on his part. To be sure, check with other villagers to see if they raise the subject. If so, you may be reassured that a well-casing project could have the participation of the community. See the next chapter on organizing, and Chapter III on planning a community project.

3. Talk also with those who criticize existing services or facilities in the community. They may tell you why programs in the past failed so that you can avoid making the same mistakes.
4. Listen to gossip and stories. Gossip, at times, can be informative and may help you to know more about the true reactions or feelings of the people. You should, however, avoid being identified as a person who gossips continually, or who promotes a particular faction.
5. Another way to get information is to ask people how they would go about solving a specific problem. By asking what they would do in the situation and why, you may learn more about how things work in the community, who does what and why, and who will possibly be your partner or your opponent.
6. Participate in community activities. Do not hesitate to attend social gatherings and other communal activities if you know that you will be welcome. However, do not try to impose your presence if you feel that you are not wanted.

7. Make home visits. Make sure that you fully understand what is acceptable behavior for visiting when the husband or wife is away. Also try to be sensitive to any possible hardships which might be caused by visitors. Projects have been damaged because officials who visited regularly accepted scarce food which the people felt obligated to offer.
8. It is usually valuable to discuss local problems with other community workers such as teachers.
9. Get reliable information. Be sure that the information you get makes sense. That is, the story of one person must coincide with that of another person. It is very important to get information from several sources. You may find out that it is difficult to get the truth. This may be due to several reasons:
  - a. People may not trust you yet because you are an outsider and you have not done anything that proves you are trustworthy.
  - b. You may be asking the wrong people.
  - c. People may tell you what they think you want to hear for politeness. Also, they may not want to show you their true feelings for fear of possible consequences.
  - d. In every culture, there is always an ideal and a real aspect of every situation. Your respondent may give an ideal response to your question while the realistic answer is quite different. If you ask a school administrator about the sanitary conditions at the school, he or she may tell you that the school has sufficient safe drinking water, and that latrines and urinals for children are clean; a visit to the school may give you another view of the situation. With these limitations in mind, always try informal research first. Sometimes it is sufficient, sometimes not. It depends on the problem and the type of action you plan to take.

For example, you might ask 10 to 20 women about their diet after delivery and find out that all of them (100%) take only rice and salt. You then probe: "Do you know a nursing mother who has diet other than rice and salt?" and all reply, "No." In such a case you would be wasting your time to do formal research, because you know that the answer is 100% or nearly so. But if the people said that there were some exceptions (women who came back from the cities those who were influenced by modern midwives, etc.) and if it were necessary for you to know that this percentage was, then you would need to use a formal method.

10. Other agencies and individuals who have worked in the community may prove to be invaluable sources of information. Talk to them extensively about their interpretations of the community's problems and their experiences working in the community.\*

#### Formal Fact-Finding

Mapping and household surveys are two kinds of formal fact-finding. You should not conduct these activities alone. The participation of community members should serve to educate as well as to motivate them.

Formal fact-finding will serve three purposes: (i) You can learn what the important problems are and plan your approach accordingly; (ii) You will also have the basis by which to measure the progress of any activities undertaken; (iii) You can find out the health status of individuals and families and thus be in a position to help them.

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\*The authors are indebted to Dr. Robert B. Textor, Mr. James C. McCullough, and their Thai public health colleagues for their thoughtful publication, Manual for the Rural Community Health Worker in Thailand (Thai-American Audiovisual Service, Bangkok, 1958). Their incorporation of anthropological and health education insights into a manual directed toward village sanitation workers has resulted in a valuable resource in preparing the present manual.

However, do not try to be fancy and waste time making fine maps or compiling statistics that may have no utility.

1. Mapping: The map need not be exact, just roughly accurate. Start by drawing in important features such as streets, markets, schools, wells, and ponds. Then put in each house. Use symbols to represent houses that have no latrine or an unsanitary latrine, wells, animal houses, etc. Use suitable symbols for other aspects of your program. The map is thus a tool to measure progress made and should be displayed in meetings with community members so that they can be made aware of progress obtained and problems remaining to be solved.
2. Household survey: The primary function of a survey is to learn more about the community. The extension worker must take advantage of this opportunity by asking questions and listening. You should not attempt to use this as a means of educating respondents; be a good listener, showing respect for the people's beliefs and sympathy for their problems. Opportunities will come later for changing attitudes and practices.

Another reason for doing a sample survey at the beginning of a new project is to ensure that you will be able to measure the project's results. You can combine the collection of these baseline data with your effort to use the survey as a means of getting to know the community better. Baseline surveys must be carefully planned and conducted. It may be worth your efforts to locate a social scientist to assist you.

In Appendices A and B, you will find an example of a health questionnaire which can be used for gathering information about the community and for providing baseline evaluation information for a project. You will also find some suggestions for designing and pretesting a sample survey.

CHAPTER II  
HELPING PEOPLE ORGANIZE

How does one go about motivating villagers, especially when they accept life as it is, to form a health committee and to work on solving their own problems? In many instances villagers must undergo a tremendous leap of confidence to become capable of such actions.

In these cases, you must patiently introduce a process of education that makes people aware of the kinds of improvements that are possible in their environment and <sup>that</sup> persuades them that through relatively simple changes in their own behavior and through community self-help projects, they have the ability to improve their life conditions. This is by no means an easy or simple task. Rather, confidence and knowledge must build up over months and years. Nothing breeds confidence like success, and thus the first project or projects are of crucial importance to the process.

Working through community leaders may help. But until the people achieve new confidence, the leaders they select are liable to the richest and most powerful residents, not people likely to become real agents for change. Also, until community self-confidence is achieved, you may find villagers following their leaders' direction and not really making their own decisions.

At any rate, now that you have some basic information about the community, you will want to broaden your contact with the leaders of the community to see how they can contribute to improved community health. Who are the leaders? Why are they important? How do you find them? What can they do to help?

## Who Are the Leaders?

Anyone in the community may be a leader. People are leaders when their ideas or actions influence others or they help to get things that the people want done. They are accepted as people of wisdom and sound judgement whose advice has been valuable in the past. They might be wealthy and powerful, or known to be very religious. Different people may be leaders in different areas such as agriculture, religion, politics or health. The leaders you are interested in should have some influence over people's actions that affect their health.

## Why Are Leaders Important?

Community leaders may make decisions that result in success or failure of a project. If they are trusted, the people of the community may work with them more quickly than with you. Seek people who are respected by the community and who are willing to learn and work.

There are two kinds of local leaders:

1. Formal leaders: They are generally paid for what they do. Projects sometimes fail or move slowly because these people were overlooked during the planning stage. Consult them often and request their advice and assistance. Gain their cooperation. Examples of formal leaders are:
  - Political appointees (mayor, party representatives)
  - Government officials (police, national guard)
  - Village chiefs
  - Religious leaders
  - School teachers
  - Heads of organizations

2. Informal leaders: They receive no money for what they do and have no official authority. They come from the local community and often have more influence than formal leaders. They are not necessarily the persons with the best houses or the best pieces of land, but they are liked, trusted, and respected by their neighbors and are willing to help. One person may be a leader in respect to the need for a better water supply while another may mainly influence vegetable gardening.

#### How Do You Discover the Informal Leaders?

The first step is to consider the responses you received when asking villagers, "Where would you go for help if you have a health problem?"

Other questions you might use are:

"Who are the important people in the community?"

"Whose opinion do you respect?"

"Who is wise?"

"Who settles arguments within or between families?"

"Whom do you think people would go to for advice when their children have fever? To organize a special event?"

You will probably find that the people named are those with leadership qualities and that the named will differ according to the problem to be solved.

However, leaders may not be the persons who show the greatest interest at the beginning of a project. You may not uncover obvious enthusiasm to help others, but people who express interest, friendliness, and willingness to work, or people whose names were mentioned often by neighbors may be your potential leaders. In your quest to discover local leaders, do not bypass those who appear to be opposed to your work. Give them special attention and try to win their support and cooperation.

## Example of a Local Leader: the Birth Attendant

Birth attendants are the most widely distributed of any category of health-related persons. The reason is that women usually wish some assistance at the time of delivery, and they are unable to travel far or to wait long for someone to reach them when they go into labor. Birth attendants have a unique opportunity to give maternal and child health education. Unfortunately, though they are often very influential with mothers, birth attendants are often untrained.

Identifying and working with local birth attendants can be a key step in planning health education. In fact, in some poor communities, health, sanitation, infant and childhood death rates, and family planning have been revolutionized primarily through the work of birth attendants.

### What Leaders Can Do for the Community

If an effort is made to give them a thorough understanding of how health problems affect community well-being and how these problems can be solved, leaders can contribute immeasurably to better understanding among the people. Through their own acceptance of improved health methods and practices, leaders can become a powerful motivating force for community unity and action.

Care must be taken, however, when deciding which leaders are the influential ones for a specific community problem. In Tonga, an environmental sanitation project was initiated after preliminary planning with the community leaders. In Tongan society, women rank higher than men in traditional Tongan kinship systems; the men, however, are heads of the household. The project's organization was based on the men's support and, at the request of the men, women were not involved in the planning. The health workers left the decisions about methods of work to the male leaders but conducted the evaluation themselves. The project failed.

When a second project was planned in another Tongan community, an analysis was made of why the first one failed. The conclusion was that both male and female leaders should have been involved. Both groups were given full control of the activities under guidance of the health worker. The villagers were left to make their own decisions, and suggestions supported by the majority were encouraged and used. Evaluation of the second project showed that every goal was achieved.\*

Project success can be achieved through efforts of the villagers themselves, provided the right approach is used in promoting the active participation of the most influential community groups and leaders.

Here are some other ways leaders can contribute to the success of a project:

1. Bringing people to meetings.
2. Arranging for meeting places.
3. Helping reach more people by telling others.
4. Helping people in the community know you and gain confidence in you.
5. Giving general information about the program and helping interpret it to others.
6. Helping identify problems and resources in the community.
7. Helping plan and organize programs and community activities.
8. Helping plan and organize services.
9. Giving sample demonstrations.
10. Conducting meetings.
11. Leading youth groups and various individual projects.
12. Interesting others in becoming leaders.

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\*Joe Fanamanu and Vaipulu Tupou. "Working through the Community Leaders, An Experience in Tonga," International Journal of Health, July-September, 1966.

13. Helping neighbors learn skills.
14. Sharing information with neighbors.
15. Serving as officers in an organization or heads of committees.\*

How can these potential resources of the community be mobilized? In discussions with leaders, what have you discovered is important to them? Maybe it is the protection of children's health. Maybe it is convenience, privacy, or cleanliness. Maybe they are moved by competition: "Other communities are solving their health problems." They might express pride in their community: "We have done so many other things in this village, but this problem remains." Capitalize on these motivations. Use them to guide you towards a better understanding of the people.

#### The Health Committee

An effective health program must rely on organized groups. The family, the church, and the school all have primary purposes other than health. Although they can take part in the health program, their separate efforts probably will not be able to make it work. Often a special community health committee must be organized.

There are many ways to form a committee. Remember the reactions of the people you have talked to in the community. Who was interested in the health situation? Who was hopeful? Which people were recommended as leaders? Talk with these people. Suggest that they meet as a group.

In the meeting, discuss the purpose of organizing a committee; let them decide to make an organized attempt to solve community health problems.

For example, community participation is a prerequisite for a village's inclusion in the Lardin Gabas health project in northeastern Nigeria. A

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\*Homemaking Handbook for Village Workers in Many Countries, Agency for International Development, Washington, D.C., March 1971, pages 196-197.

staff member initially calls a meeting of all villagers to discuss local health problems, the village health worker program, and the villagers' responsibilities if they decide to participate. Villagers then meet once or twice on their own to consider the program. If they decide to participate, they must contact the project staff, who meet again with them to discuss further details. A booklet about the project, The Responsibilities of the Village Health Committee, is read and discussed. If the village's commitment is reaffirmed, a village health committee is formed, consisting of the village head, other officials, and elected farmer representatives. The committee continues to educate the people about the project, and it selects the village health worker trainees. All villages must contribute toward the transportation and training costs of their representatives, and must construct and furnish a health post complete with a latrine before the project will dispense the initial supply of drugs and equipment. The health committee maintains the overall direction of its local program, pays the village health workers (from drug and consultation fees), replenishes the drug supply, and maintains the clinic facilities in good condition. The committee's effective functioning is essential to each village's program.\*

In another experience in Nigeria, after a preliminary survey of the community, the village chief was approached and the suggestion to form a health committee was made to him. He liked the idea and was requested to invite other influential members of the community, including women.

The chief requested the health worker to present the objectives of the meeting. The worker invited the members to go out on an inspection tour so that all would have a part in determining what their needs and problems were.

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\*"Rural Basic Health Services: The Lardin Gabas Way," in Contact 41, October, 1977.

This they did, and it served as a starting point for the meeting. Both male and female members urgently desired solutions to the problems they discovered during the tour. The chief was elected chairman of a village health committee, and a teacher was chosen as secretary. Decisions were made in that meeting about plans for solving some of the problems found.\*

Community members should become involved from the beginning in decision-making and planning. Observing health improvement projects in other communities may help motivate the people. Suggest a field trip for this purpose. The people will learn to manage their own projects as they gain experience and confidence.

A separate health committee may not be the best choice for some communities. If an existing local committee or other group appears to be an effective means for improving community health, then perhaps this group could add health to its other concerns.

A health committee can serve several purposes:

1. To discuss health problems.
2. To plan ways to reach goals and objectives.
3. To implement plans.
4. To receive and consider new information about health and development and convey this to the community.
5. To facilitate the members' gaining skills and confidence in working in a group so that the community work will not be too dependent on any one person.

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\*Health Education: The Development of Local or Village Health Committees in Eastern Nigeria, Action Library, Washington, D.C.

Records of proceedings of each meeting should be read at succeeding meetings, and matters arising from them should be discussed. These records can always be referred to by new members so that they can acquaint themselves with the progress and history of the committee's work. For suggestions on planning and conducting a meeting, see Chapter V.

Members of the committee are usually elected, but its formal makeup will differ from one country to another, often from one village to another. The important thing is that you keep abreast of the committee's work and progress. You may be invited to attend the meetings, and may even be chosen as a member. If your position in the village is temporary, it may be best to decline any offer to be an officer. You are a resource person -- one who assists and supplies information and guidance. Participate, but do not assume too much responsibility.

A health committee's initial projects should be simple in nature and should not demand a long period of time. Refer to the next chapter for further discussion of this point. The building of a latrine for a dispensary or school can be completed after only a few work days and would impress upon the committee -- and the community -- what they are capable of doing. If a complicated project such as a water system or construction of a health post is chosen first, the problems of materials, technical assistance, and the duration of the project would probably discourage the people and have a crippling effect on the health committee. More difficult projects can be attempted after the committee has had some success with simpler projects.

Once a health committee has begun its work, it should constantly be working on some health problem. If committees remain stagnant for a period of time, they become ineffective and cease to exist other than in name. There should also be lines of communication between the local health centers and the health committee to ensure cooperation between the two.

In summary, health committees can accomplish many things to improve community health if they represent key groups in the community, communicate and cooperate with other community workers, committees, and institutions, are well organized, and plan projects based on community needs and interests. Your role is to assist the committees in doing these things. The next two chapters will discuss steps in planning, implementing, and evaluating community health projects.

PART II

PLANNING, IMPLEMENTING, AND EVALUATING  
COMMUNITY HEALTH PROJECTS

## CHAPTER III

### PLANNING A COMMUNITY HEALTH PROJECT

People involved in community health education must be acquainted with as many aspects of community life as possible so that they have a good understanding of community problems and limitations in solving them.

Once community members and a community worker agree to work on a project, a sequence of steps should be followed in planning the project. Each step will be discussed separately in this chapter.

Four principal steps are:

Step 1: Define the problem. It is important to involve the community and focus on its needs.

Step 2: Choose a goal and objectives. These should be measurable so that evaluation is possible; they should relate to the problem; and they should be possible to achieve.

Step 3: Assess the resources and barriers to the project. This will include finding the necessary materials, skills, people, and funds, and investigating possible obstacles. It is important to do this before starting the project so that the plan for action is realistic.

Step 4: Carry out and evaluate the project. An outline should be made of the specific activities aimed at reaching the goal. Because evaluation is an on-going process throughout the life of the project, both topics are covered together.

#### Step 1: Defining the Health Problem

The first requirement in bringing about change is for people to agree that a problem exists and that something should be done about it.

To say that there is a health problem is a very general statement that covers many specific situations. In order to plan your work, set goals, and go into action, you must be able to define the specific problem on which you wish to work.

To help you define it and involve the community in doing so, talk with the local leaders and villagers. Use a questioning approach in an attempt to find out how they view the health situation. Start from the general and work down to specific problems. For example, if you found a very unsanitary environment in your community survey, you might contact the leaders and proceed as follows:

1. "What kinds of things need to be done in this village?"
2. "What are the illnesses most common in this village?"
3. "What do people die of, mainly? Are there many children under 5 years old dying? If so, what from?"
4. "Do they have diarrhea, dysentery, cholera, typhoid, worms, in this village? What causes these illnesses?"
5. "Are there any latrines in the village? What do people use?"
6. "Has any thought been given to building latrines?"
7. "Why would some people refuse to use them?"
8. "If these diseases could largely be stopped if the people themselves decided they wanted to, would people in the village want to plan together to do away with diarrhea, dysentery, cholera, worms, etc.?"

The problems you have already uncovered in the formal village survey can be compared with the views expressed informally through this type of questioning. In fact, much of the essential information may have already been gathered while you were first getting acquainted with

the community.

The place for further problem identification and definition is the health committee. Here are a few steps to help the committee define specific health problems.

- e What is the nature of the problem?
- e What is the extent of the problem? How significant is the problem for the community?
- e What groups or individuals does the problem affect?
- e What are the size, characteristics and nature of the "target" group?
- e How long has the problem existed? Is it improving or not?
- e How much would people be willing to contribute in labor, money, land for a well, sand for concrete, etc?

It is critically important that you and the community agree upon and define the problem as concretely and in as much detail as possible. All other steps in the planning process emanate from this first one.

#### Step 2: Setting a Project Goal and Objectives

The project goal is a general statement of what the project aims to accomplish. The goal should be a reversal of the problem statement; i.e., the goal should state that the project will wholly or partly solve the problem. If the problem identified is that 60% of the children are malnourished according to weight-for-age standards, the goal will be to reduce this prevalence of malnutrition by a specific amount within a specific time period.

The goal should be possible to achieve. If, for example, the community decides that it wants to eradicate malaria, but (i) mosquitoes in the area are already resistant to known insecticides, (ii) the area is swampy, and (iii) no organizations in the country are likely to help, it is wrong to attempt a project to eradicate malaria. Point out the facts to the community and urge the people to consider a different goal or problem. If the goal is impossible to achieve from the outset, embarking on the project will only lead to failure, and you will lose the community's trust and cooperation.

Objectives are steps on the way to achieving the larger goal. Each objective should describe a sub-program that must be completed to achieve the project goal. For example, the problem may be a high rate of tuberculosis cases in the community. The goal might be a 50% decrease in the prevalence rate within a certain time period. But there are several approaches: treatment of existing cases, screening programs, and education on the disease with the aim of having people change their behavior. All of these could be areas for specific program objectives. By achieving them, you should reach the goal.

Ideally, both the general goal and the more specific objectives should be written in concrete, measurable terms that include the following information:

- o What do you want to change?      The number of sanitary latrines.
- o For whom or for what do you want the change?      Used by families
- o How much change do you want:      Will increase by 25%
- o Where do you wish the change to occur?      In community Y
- o When? By what time or date?      In the next three months

Only by writing such well-defined goals and objectives can you hope to adequately check your progress along the way and evaluate the success of your project.

To sum up, the logical process proceeds as follows. You must have a clear problem statement. From this statement, your project goal is derived. From your project goal, a series of measurable, realistic, and feasible objectives are planned that, if attained, should assure the achievement of your general goal.

Once you have your specific objectives, you must plan in detail the steps are needed to reach each objective, who will take each step, what resources are necessary and where they will come from, and when each step should be accomplished.

At times, you may find that your initial goals do not coincide with the community's priorities. Your own analysis or that of health officials may indicate that improved sanitation is most needed, but the community may feel that they should first improve their road so that they can market their produce. You may need to convince your own supervisor that helping to meet the community's goals will make it easier for them to try to improve their environment. Perhaps the community will agree to set aside money earned from their marketing for sanitation.

### Step 3 (a): Assessing Barriers to Changes in Health Behavior

You should investigate possible obstacles to the success of the project. It is important to do this before carrying out the project so that your plan for action can be more realistic.

As you have been getting acquainted in your community, you have seen some evidence of poor health. You may have observed that:

- o Many children are thin and small and have big bellies,
- o The people live mostly on rice,
- o Few families eat their chickens, pigs, rabbits, or goats,
- o There is a year-round growing season, but few families grow vegetables,
- o The only available milk is purchased,
- o There is some fruit in the market, but it is expensive.

You have talked with the leaders and people in the village about the problems of illness, fatigue, and deaths of young children. Some people show interest in doing something about these problems. You ask a group of leaders and a few parents to meet to discuss problems and ways to solve them.

You and the group decide that the villagers do not consume enough green and yellow vegetables. What are the obstacles, habits, and attitudes that now keep people from growing vegetables? Possibly the following:

- o Lack of knowledge, information, or experience
- o No suitable seed
- o Seeds not easily available
- o Trouble with insects
- o Not enough land (or inequitable land distribution)
- o Not enough water (or inequitable water distribution)
- o No real interest
- o Traditions and beliefs that hinder the acceptance of these foods
- o Lack of shared community resources such as irrigation pump

- No banking resources
- High debts

Various obstacles to health education are found in all communities. Usually, a community has seen little improvement in its health status, whether the general health level is high or is low. People have nothing to compare their predicament with, and hence do not see it as a predicament at all. If the community is satisfied, on the whole, with its state of health, changes in behavior will be resisted mainly because people feel they will be inconvenienced by making them. Long distances to travel for medical care, long waiting periods, even painful experiences such as an injection could also be barriers to change in the community. People may want other help, though, such as freedom from bedbugs or the possibility of spacing children. Such needs create opportunities.

Cultural traditions, practices, and beliefs in every society influence health. The following are examples in regard to child feedings: the length of breast-feeding; the age at which the first foods other than breast milk are introduced and the nature of these foods; the customary use of milk or its products; the traditional use of other protein sources, especially legumes, eggs, and fish; the extent of "prestige" practices such as bottle-feeding and consumption of carbonated beverages and over-milled flour; and the dietary practices of women during pregnancy and lactation.

These practices may be passed on from one generation to the next. Until acceptance of a change is complete, the return to traditional or popular practices will occur because of the strong need of individuals to be accepted by their social group.

Other barriers to health education could result from differences in language. Perhaps there is an indigenous dialect in the area that you do not know well? Find an interpreter and, if possible, train this individual so that he or she can work directly with the people. Remember, the translator is an "insider" and therefore more readily trusted and accepted by the community.

Closely related to the language barrier is the communication problem caused by illiteracy or low educational levels. The concepts of modern hygiene, for example, may have no meaning to a people who have never learned about microbes or observed them under a microscope. In this case, the importance of knowing what the community knows becomes evident.

Other things to keep in mind when considering problems and setting goals are the economic ability of the people (do they have the money and time to take action?) and the community attitudes toward solving the problems. If their attitudes are negative, a definite barrier to change exists. How does the community feel about other outside programs and workers?

Although community cohesiveness is a positive force (see next step), many communities are divided by religious, political, ethnic, and other factions. Personal and family rivalries exist. And the community's socioeconomic elite may feel threatened by some community health projects. These "people" barriers are real, and exist to some extent in every community. They must be understood and neutralized if community projects are to succeed.

### Step 3 (b): Assessing Apparent and Potential Resources

What are some of the resources you can use in your work with the community? Each situation offers different possibilities, but do not forget that you are a very important resource person in the area where you work. To function efficiently, it is important that you know as much about your community as possible. What has been the history of its involvement in health issues? You may have to dig deep to find a cohesive force, but all communities work together in some form.

The term "community" implies a sense of togetherness and, if you try, you will probably find that neighbors have helped each other in the past, even though it may not have been on a large scale. Perhaps one family helped another to build a house, or to take a sick child to the hospital. Perhaps the local church has a youth group that convenes and raises funds for various projects.

What organizations or agencies exist? What are their activities and interests? Many communities have official (governmental), voluntary (private), professional, religious, and civic groups. What are they doing? Are they interested in health? What approach do they use? Can you work together, one complementing the other?

Are there any extension workers other than yourself in the community? Find out and introduce yourself and what you are doing. Perhaps you can work together toward a common goal rather than fragment efforts and duplicate work.

Get to know the background, skills, and strengths of those in close touch with the community. These could be teachers, traditional healers, merchants, religious leaders, or heads of community organizations and clubs.

Also available are the people involved with your specific project, your staff. Then there are people working in various government and private agencies at local, national, and sometimes international levels. Get to know what goes on in the local government and national ministries, who is available for contact, and what other agencies they can suggest as sources of further information and support. Acquaint yourself with the services of all the agencies and organizations active in the region. If possible, together with a community leader, you should visit these agencies.

What kinds of supplies, materials, and equipment will be necessary for the health plan? A vaccination campaign will need vaccine, some means of keeping vaccine cold, needles and syringes, a place to sterilize equipment, paper on which to keep records, a means of publicizing the campaign, a place to work, etc. To build latrines, you will need to know the geography of the area; where wood, sand, gravel and cement are available; etc. How can your project be adapted to the available materials?

What will you need for educational supplies? Does a mass-information system exist (radio, TV, newspapers)? Where will you get paper, crayons, tape, tacks, projector, film? Can you make a bulletin board, blackboard, flip chart? Decide what you need and investigate your resource agencies, schools, and various people. Who can be responsible other than yourself? Look for talent within the community. Though you may want to save time by using relevant materials available from outside sources, it is important not to foster feelings of dependency; as many materials as possible should be donated or made by the community people themselves.

How will you maintain your supplies? Will you need a place to work? In almost every project, some monetary source must be available. Where can you get money? How can funds be raised? Who will organize a fund-raising project? Who will handle the money? These are all very important questions because trust can be lost if funds are mismanaged.

In Nicaragua, funds to build a community clinic were raised by the local health committee. The officers volunteered their time and visited the various merchants in the surrounding communities, asking for donated items. Such things as pots and pans, soap, fabrics, paint, food, and toys were obtained and given as prizes to the winner of various community contests and games set up by the committee. The contestants purchased a ticket for the contest at minimal fee and nearly everyone participated. A local leader who manufactured beds donated a bed for a raffle. The provisional clinic encouraged contributions in return for services. All of these are possibilities for fund-raising projects, but remember to plan who will be responsible for safeguarding the funds and who will make the decisions about their use.

You should not work alone in this investigation of resources. Talk with local leaders, your supervisor, and heads of community organizations. Get suggestions. Experiment. Publicize. But, most important, work together.

#### Step 4 (a): Developing and Implementing a Project Plan

You have learned to know the villagers and how they live. You have probably already helped them with some simple problems. You may have given some demonstrations and talked over village problems with the people.

The health committee has identified a problem, defined a goal, and written objectives; barriers and resources have been assessed. You are ready to plan what to do, when to do it, and how it should be done.

A plan is a picture or "map" of what to do. If you and friend started walking down a road, you would need to know which way to go in order to get to your destination. There could be several different roads leading to the same place, but perhaps one has advantages over the others. You need to decide between you which one to follow. A planned program is a guide to help the community get where it wants to go.

The importance of participatory planning cannot be stressed too strongly. There must be joint planning on common problems by all interested groups. Attempts at cooperation too often fail because one person or one organization decides on a plan to be followed and then tries to get the others to follow a plan they did not help design.

If there is joint planning on a common problem, everyone is working toward the same goal. Independent action causes competition that is fatal to the success of a health plan, competition for the attention and actions of the people that creates wasteful demands on limited resources.

The people should participate in each step. They need to decide just what to accomplish and what their targets are. When the people have agreed on their goals, they must decide how they are going to reach them. Sometimes, each person thinks his or her own way is best.

Leaders may need help in deciding what will happen if they do it one way and what will happen if they do it another. Which will be better? Does one cost more than the other? They must set priorities and decide which way is best for their community. Deliberate involvement of as many

people as possible is good because it means that many more people know and understand the problem. All of those who participate learn something. Men, women, children, young people, old people, merchants, housewives, speakers, farmers; all have skills that can be utilized in carrying out a community health program.

The project plan may have many parts; it should include a time schedule. What should be done first, and what comes next? How much time is needed for each job so that each will be done at the right time?

The planners must find out what is needed to do the job, who can do it, how much it will cost, and many other things. They must find the time, the people, money, equipment, and anything else that is needed. Educational methods for each stage of the plan should be selected as part of the plan. See Chapters V and VI.

Once the steps to be taken have been defined, the health committee or planning group must decide who will be responsible for each step. For some jobs, workers will need special skills and equipment. Other jobs can be done by village people with no prior training. There will be many things to do: planning for equipment, arranging meetings, explaining procedures.

Everyone must feel that they have a chance to help. You are planning to do some job, be it building a road, planting vegetable gardens, or vaccinating against measles. Having a part in reaching this goal will give community members a great measure of satisfaction and will draw the group more closely together.

To summarize, when planning a project with the community, the health committee or other community planning group will need a written plan. This is the "map." It will serve as a guide and will help in implementing

and evaluating the project and planning another one. The plan of action should state:

1. The goal and objectives.
2. The steps (activities) to be undertaken.
3. The people responsible (in charge) for each step.
4. The materials, equipment, people, and funds (resources) that will be necessary for each step.
5. The target date when each step is to be completed.
6. Space for observations

When planning educational activities needed to achieve the objectives and goals of the plan, the health committee should review the different elements (such as resources, constraints, and alternative approaches) that might have an impact on the success or failure of the program. The following checklist summarizes some important things to consider in writing a plan.

#### RESOURCES REQUIRED

|              |   | YES | NO |
|--------------|---|-----|----|
| 1. Economic: |   |     |    |
|              | Is sufficient money available locally for the project?<br>If not available, can sufficient money be raised locally? |     |    |
|              | Will outside economic assistance be necessary?  |     |    |
|              | Are there known to be public or private sources of economic assistance for this type of project?                    |     |    |
|              | Is the probability good that outside economic assistance can be obtained?   |     |    |
| 2. Material: |   |     |    |
|              | Are there any special supplies or equipment needed for the project?   |     |    |
|              | Is this material available locally?   |     |    |
|              | If not locally available, can it be obtained when needed from sources outside the community?                        |     |    |





#### Step 4 (b): Evaluating the Project

Each time a step of the program is completed, the committee should look back over what has been done to be sure that things are going as they should. This evaluation is an on-going, continuous process, just like planning. You must evaluate past efforts to plan for changes.

Develop a means for evaluation when defining the goal and writing up your plan. Keep in mind responses from your community survey and questionnaires and the statistics you might collect as possible sources of information for evaluation.

Following each step or activity, ask questions such as:

- How well did we do?
- Did the plans work?
- Why did we succeed?
- Why did we fail?
- What should we be doing now?
- What do we do next?
- If we made mistakes, can we keep from making them again?

Encourage the community members to begin to evaluate the project shortly after its initiation. Are people using the latrines that have been installed? Are they keeping up their vegetable gardens and eating the harvest? Are the children really going to school? Have your activities affected the behavior of the intended group?

After each phase of the project is over, you must determine how successful it has been. At the end, ask yourself all of these questions again. Did you get the job done? What can be done to make your efforts more successful?

You might use the following kinds of measurements to evaluate your project if the appropriate information is collected before the study:

1. Quantity or amount
  - a) How many persons were reached?
  - b) How many posters, pamphlets, home visits were made?
2. Quality - What do the people think?
  - a) The leaders?
  - b) The participants, villagers?
  - c) Other health workers?
  - d) The pupils?
3. Changes in knowledge shown by:
  - a) Questioning
  - b) Requests for opinions
4. Changes in attitude
  - a) Community support for the program
  - b) Requests for further cooperation by the health department
  - c) Less opposition by groups in the village who had previously been against the project
  - d) Public opinion poll
5. Changes in behavior, such as:
  - a) Increase in visits to the clinic or health worker
  - b) Improved habits and conditions at the school
  - c) Increase in the number of children immunized
  - d) Increase in the sale of milk, meat, vegetables, or other good foods
  - e) Increase in the number of pregnant women seeking early prenatal care

- f) Increase in the number of births that occur in the hospital or with the trained midwife.
  - g) Increase in the number of infants under medical supervision
  - h) Increase in the number of women who breast-feed their babies
  - i) Installation of sanitary facilities (latrines, garbage pits)
6. Changes in health status as shown in:
- a) Child growth
  - b) Number of sick people (as shown in a survey)
  - c) Number of deaths as reported in public health statistics
  - d) Improvement in health as shown in individual cases
  - e) Reduced accident rate
  - f) Reduced exclusion from school due to illness, lack of clothing, or poor hygiene\*

The least adequate assessments of your project are those measures listed under "1." The types of evaluation improve progressively up through "6", the ideal types of assessment. While all levels of evaluation are useful, your project goal and objectives should be written to the extent possible, in terms of changes in behavior and health status and should be evaluated precisely in those terms.

In the case of evaluating an educational approach, you will find it difficult to measure the results. The mere giving of lessons or demonstrations and the ability of people to repeat them are surely not the only measure. Behavior change is the goal, yet these changes are not easily evaluated.

\* Claire E. Turner, Community Health Educator's Compendium of Knowledge, International Journal of Health Education, Switzerland, 1964. pp. 105-108.

As always, throughout your work with the community, it will be necessary to record your observations. They will form a written record of your community investigation. You should discuss the importance of record-keeping with the health committee.

Evaluating the progress of complex activities is never simple, but it can be made easier by clearly defining the projects's objectives early and relating your evaluation plan directly to those objectives. With careful planning, evaluative data will help to assure that the project is better managed and that those who support the work, particularly members of the community, will feel confident in the progress being made.

## CHAPTER IV

### A CASE STUDY AND EXERCISE IN PROJECT PLANNING

The following is a summarized version of a case study written by L.M. Hawks and Jane R. Hawks entitled "Diphtheria Immunization in a Thai Community."\* It concerns an immunization campaign that failed. The study reports what happened and why; it does not report what ought to have happened. The purposes for presenting the case are:

1. To illustrate some of the complexities of getting people to try something new, even when faced with an immediate danger
2. To provide the reader with an opportunity to diagnose an actual case history
3. To provide a framework for developing a health education plan as and individual or group training exercise

#### The Community of Bang Chan

Bang Chan is a rural area located in the flat central plain of Thailand, with a total population of 1,700, mostly Buddhist. The area consists of 12 hamlets, only one of which has Moslem inhabitants. Practically everyone in the Bang Chan area is a rice farmer or a laborer.

#### Existing Health Facilities

Bang Chan has about 8 traditional practitioners and 15 traditional midwives. Four persons called doctors by the villagers live and practice in Minburi, a city near Bang Chan. Only one has received complete medical training; he is in charge of the health center. The rest of the staff

\*Benjamin D. Paul, Ed., Health, Culture and Community, Russell Sage Foundation, New York, 1955.

consists of a dentist and a nurse-midwife. Since only common illnesses are treated at the health center, patients with serious symptoms are referred to hospitals in Bangkok. Though the health center charges little or nothing, it is not as popular as the doctors who live near the marketplace in Minburi. Their fees are relatively high, but they explain their diagnoses in terms familiar to the farmers. They also refer their patients to hospitals in the capital. For preventive work, a sanitarian is attached to the district office. He conducts regular immunization sessions in the district schools and is responsible for taking necessary measures in case of an epidemic. As the only public health worker in the district, he has limited time to devote to health education activities.

#### The Incident

During the rice-planting season, a 3-year old girl named Prang and a small boy, her cousin, contracted diphtheria. The girl was treated by the local traditional practitioner and died, while the boy was taken to the hospital and cured.

After the death of the little girl, her relatives started worrying about the safety of the remaining members of the family. They went to see a research team that was conducting a study on health and agriculture in the area. The team explained that diphtheria was a childhood disease that could be cured and prevented. They offered to take any child to the local health center for an injection. At the health center, they were told that the vaccine was out of date. A member of the research team offered to visit the district officer at Minburi. The latter promised

to order enough vaccine to immunize the total child population of Bang Chan as soon as the public health officer who was attached to the district office returned from training.

A few days later, the public health officer found orders for a vaccination campaign on his desk. He wrote letters to four headmen and transmitted an oral order to the fifth one through the intermediary of a villager from the hamlet in question.

Awn, the owner of a store, was asked by a member of the research team to help spread the word about the campaign. During the ensuing days, he spoke to people who got out of the bus in front of his store and those who passed by in their boats and asked them to bring their children for immunization the next Saturday. No more than this information was given. Meanwhile, the headmen sent out word. Some personally visited all the houses of their hamlets; others spoke to people as they passed by the headmen's homes.

The two schools, one Thai and one Moslem, were still closed for vacation.

On Saturday, the public health officer, assisted by a member of the research team, began to give injections at Awn's store. He chose the store for his personal convenience and also because of its location at the junction of water and road transportation routes. Boatloads of children arrived; they were told to return for a second injection the following week. In the meantime, the schools had reopened, and the headmen of the Moslem community told the teacher of the Moslem school to send all the children to receive their vaccinations.

More children came, but many children of the preceding week did not reappear for the second injection. The public health officer announced that those who did not get their second injection should come to the health center in a week for the final vaccination. At the center a week later, some children appeared but none from Bang Chan.

The results of the campaign were disappointing. In 8 hamlets for which census data were available, 34% of the child population under age 15 was immunized, of whom only 55% came back for a second injection. The Islamic population responded more fully to the call than the Buddhist hamlets.

Why did the program have little educational impact? The research team decided to conduct a survey to find a partial answer to this question, and the following were the findings:

1. Villagers' attitudes towards health and modern medicine.

The villagers of Bang Chan believed that diseases are caused by evil spirits or by the entry of foreign objects into the body by accident or malicious intent. Ill health is also attributed to an imbalance of the four basic elements: earth, wind, fire, and water. However, popular beliefs have not interfered with the general acceptance of modern medical treatment. Such acceptance is due to the effectiveness of Western drugs, mainly antibiotics, and the striking results of surgery.

However, efforts to gain popular acceptance of preventive measures such as sanitation, personal hygiene, and immunization had met with little success at that time. The villagers had learned to fear cholera and typhoid but not diphtheria. They also regarded childhood diseases with relatively little concern. In addition, it was the rice planting season, and sending children off meant losing their

labor in the rice fields. Furthermore, vaccinations and other health measures involving the children usually took place at the schools and not at a store.

Religious beliefs also influenced the response to the call for immunization. In Buddhism the body is considered a source of contamination for the soul; this is not the case in Islam. Thus, it was predictable that the Islamic hamlet would respond more fully to the call than the Buddhist hamlets.

## 2. Channels of Communication

The first channels of communication were geographical. In this boating community, information spread along the Bang Chan canal up to the main canal.

The second channels were social. The Buddhist temple was one of them. During much of the year, people came to the temple and priests went out into the community to collect alms. However, during the rice-planting or harvest season, only a few older people visited the temple. The mosque provided a better channel of communication than the temple because the Moslems attend services regardless of the season.

The other social channels of communication were the schools and stores. A message given to any member of a group or neighborhood through one of these channels reached most members of that group or neighborhood.

## 3. Use of These Channels and Their Effectiveness.

First of all, neither the temple nor the mosque was enlisted by health workers to help carry the message. Furthermore, the schools

were not open until the second week of the campaign, and only the teacher of the Moslem school was notified.

Five of 12 headmen were officially contacted by the district health officer. The only other source of information used by the organizers was Awn, who informed passers-by, who in turn transmitted the message to their relatives and neighbors.

How effective were these social channels of communication? The survey showed that:

- a. The headmen were more effective than informal circulation of information through neighbors or relatives.
- b. The teacher was more effective than the headmen in transmitting information regarding the children's health, in part because vaccinations were linked with the schools in the minds of the villagers.

4. The content of the message.

This also played an important role in the response of the community to the call for immunization.

Originally, the message transmitted to the public health officer contained several elements: (i) diphtheria, a dangerous and contagious disease, was then in the community; (ii) however, the disease could be cured (as proved by the recovery of the little boy) and could be prevented; and finally, the people were urged to bring their children to be vaccinated.

However, in letters to the headmen, they were asked only to announce to the population the time and place of the vaccination, without further explanations. Awn shouted only this limited information.

to passers-by. The villagers, who had little prior knowledge about immunization and diphtheria, failed to perceive a sense of urgency in this oversimplified message. Since children were usually vaccinated in school, the parents did not understand why the health officer could not wait a few days and give the injections at the schools instead of asking them to bring their children to Awn's store. As mentioned before, this was particularly inconvenient because it was the rice-planting season and labor was needed in the fields.

5. The Authority of the Communications.

The authority held by the communicators also was important in motivating people to act. Formally, the headmen had some authority in the hamlets. They kept the peace and settled quarrels. However, over the years their authority had decreased considerably. The district office and its police now oversaw the life of the community, and the villagers knew that the headman was the lowest-ranked government employee. Consequently, an order coming from the headman did not carry much weight.

How did the headmen perceive the order? It came not from the district officer but from the public health officer, who, despite his official status and relation to the district officer, had little authority over the headmen. Consequently, some headmen did not take the order seriously.

In the hamlets where the headmen personally visited each household, 59% of children were immunized, while only 37% were immunized in the hamlets where the headmen delegated their work to a boy. . . . And in

hamlets where the headmen did not receive an official letter, participation was minimal. Since no official order had been received, people assumed that participation from that community work was not necessary.

How was the message sent by Awn perceived? Awn's age, past experience as a successful farmer, and present position as a prosperous store owner gave him considerable influence. However, he lacked official authority to give orders. Furthermore, some people even believed that he was doing this to attract business.

The survey showed also that few people knew of the child's death or understood the danger of other children contracting the disease. Most parents did not act out of a sense of danger but primarily in response to authority.

#### An Exercise in Problem-Solving

Let us imagine that you are assigned as community development extension workers in Bang Chan. You learn of the vaccination experience from a person who worked on the research survey team and realize that the community experiences regular outbreaks of diseases that could be prevented through immunization and improved sanitary practices.

How could a long-term educational program be planned, implemented, and evaluated in Bang Chan? Make assumptions when information is lacking.

1. Taking into consideration what is already known regarding the people's beliefs about health and disease, the political and power structure in the community, and the existing health personnel and the resources available, what kinds of further and detailed information would be needed?

2. What fact-finding methods will be used? What formal and informal methods for getting information would you suggest? Why? At what times during the planning stage would one collect this information? Who would take part? What topic areas would be included in the study?
3. Assuming that informal ways of gathering data were selected, to whom would you go for information? What kinds of questions would be asked? How many informal visits would be sufficient? Where would be the best place to get the needed information?
4. Assuming that formal ways of collecting data were chosen, what sampling methods should be used? Who should be included in the sample? Prepare a questionnaire which would help in planning the health education program. (You may revise the model provided in Appendix B).
5. What kind of analysis would be made? Which information is more important, the percentage of children, vaccinated or the reasons why parents did not send their children for injections? Is it valuable to find out what people know about childhood diseases and immunizations? Is it useful to identify the best channels of communication determine and how to use them?
6. For whom will the educational efforts be planned? Which questions in the questionnaire can help in deciding this?
7. What are the specific goals and objectives of this program, and how will they be measured?
8. How could you involve the people of the community in your work? Would it be most useful to organize a village health committee? a mothers club? a parent-teachers association? Who would participate and what would be the group's role?

9. Which educational methods would be most appropriate for achieving the goals and objectives of the project? (See the next two chapters.)
10. Would the use of volunteers be profitable to the program? If so, how would they be trained, and what would be their responsibilities?
11. When would the program start? Who would be responsible for each activity? How long would each activity take?
12. Assuming that the use of radio is feasible, what would be the content of the radio program? Would the information be presented through a story, a song, or a spot announcement? Prepare a sample spot announcement. Explain why each message was chosen. Do you need to determine the value of using the radio? How?

PART III

SOME AIDS AND METHODS IN HEALTH EDUCATION

## CHAPTER V

### EDUCATIONAL METHODS FOR INDIVIDUALS AND GROUPS

Your ability to effectively transmit information is essential to the task of helping people understand and solve their health problems. To meet this challenge, you must choose appropriate educational tools and methods.

If resistance is likely to be great because the changes recommended are contrary to deeply held traditions, intensive interpersonal educational efforts may be necessary. If the benefits of a recommended change are so great that resistance is low, mass media can be used. Generally, mass media and group techniques are more appropriate for conveying new knowledge and beginning to change attitudes, but personal and small group efforts are more appropriate for changing behavior and reinforcing those changes. Nearly always, a combination of techniques is needed to achieve the behavioral changes outlined in the project's objectives.

CONVERGE IS THIS A PERCEPTION CHANGE?

Recall that the health education process starts from an educational message that changes people's knowledge, then their attitudes, and ultimately their behavior. The resultant behavioral change may be on a personal level (a mother deciding to breast-feed ~~instead of bottle-feed~~ her child) or on a community level (villagers deciding to install a storage tank and distribution system using clean water from a mountain spring).

Educational campaigns must be culturally appropriate as well as sensitive to the people's reactions to the message. While intense educational efforts may be necessary for a time, a point of diminishing

returns may also be reached. Often the audience must go through a lengthy process of attitudinal change between the educational exposure and the behavioral change that yields the health benefits. Even after educational goals have been reached, periodic reminders about important information are advisable, especially when given by the community members themselves.\*

There are innumerable ways of getting educational messages across. The health educator's challenge is to choose the methods appropriate to each situation. Methods involving personal contact include lectures, conversations, discussions, role plays, experiments (e.g., feeding mice different diets to learn how nutritional intake will affect their health) demonstrations, and participatory demonstrations (learning by doing). Among audiovisual techniques that may be available are television, radio, cassette tapes, video tapes, films, filmstrips, slides, flipcharts, flannelboards, flashcards, and posters. If enough people are literate, books and comic books can be used. While many of these methods should contain elements of entertainment, several other techniques combine teaching and diversion especially well: stories, parables, puppets, magic tricks, games, songs, and poems.

In general, the more people participate in the learning activity the more they learn and retain. The more passive the learning situation, the less people will learn and remember. Do your methods promote confidence and self-reliance, as through group problem-solving, or dependence,

\*Lawrence W. Green, "Cost Containment and the Economics of Health Education in Medical Care", Paper presented at the American Health Congress, Chicago, Illinois, August, 1974.

as with lectures? In the long run, the process may be more important than the message.

In planning health education as part of a project plan (see Chapter III), keep in mind the importance of educating not only individuals but also support groups (family, friends, community decision makers and opinion leaders, and even government units). Support groups are important both for convincing people to change their behavior and for maintaining the new behavior.

#### What to Consider When Choosing Educational Methods

1. Your audience: How sophisticated is it? How literate? How large is the audience? How many men, women, and children? What is their social status? What are their current knowledge, attitudes, and practices?
2. The message: Is it simple or complex? How hard will it be to convince the audience?
3. Participation versus passivity: See above
4. Cultural tradition: What educational methods are traditional in the community? How might they be used to convey the health information?
5. Costs of alternative methods.
6. Availability of alternative methods, facilities that are necessary, etc.

#### What to Consider in Deciding Educational Content

1. How do the educational messages compare with traditional beliefs? Traditional beliefs should be used as the basis from which to build new ones. Harmless beliefs and practices often need not be tampered with.

2. Are the specific health-related behavioral changes feasible in terms of the people's time, money, availability of necessary materials, the community power structure, etc? It is useless for people to learn what they should do to improve their and their families' health (e.g., boil water), when the action urged is not feasible (e.g., for lack of fuel). You must consider alternative changes in behavior that would solve the same problem (contaminated water).
3. What will be the side effects of the changes in behavior? Will there be effects on the environment? Will behavioral changes improve one health problem but worsen others? For example, urging people not to enter a nearby river because it contains the organisms of schistosomiasis might lead to a severe decline in personal hygiene that causes health problems.

In another case, the Shanta Bhawan health project in Nepal experimented with distributing powdered milk to combat infant malnutrition. The powder was to be mixed with a local grain porridge, but tea stall operators and some mothers used the milk under unsanitary conditions which led to diarrhea and dehydration. Because of this unexpected result, the distribution of powdered milk was discontinued, and mothers were taught to prepare a high-calorie, high-protein porridge made from local foodstuffs. This alternate solution had the additional advantage of decreasing dependence on external food aid. Subsistence-level villages are delicate organisms: any change, whether caused by an act of nature, of government, or of a health program may have multiple and sometimes unexpected side effects.

## Individual Educational Methods

During your work in the community, you often find yourself talking with individuals in their homes, in various places in the community, or even in your own home or office. Teaching on an individual basis can occur in these situations.

### Home Visits

It is important that you develop a genuine interest in people as individuals and in their lives, culture, problems, and strengths. Your initial home visits should serve first and foremost as lessons for you. How can you aspire to suggest changes in these people's lives unless you understand and respect them first?

Later on, visiting a family at home may be an effective method for teaching. You show respect for them by your visit and can make use of their natural environment and daily activities, making observations and any necessary suggestions for change right there.

While some home visits are more of a social nature, you will have a specific purpose for others. You will supply specific information or help out when asked by the family. You may want to invite a family member to a meeting or request that the family participate in a fund-raising campaign. Whatever the reasons for your visit, keep your purpose in mind.

A family record like the one that follows could be helpful. Have with you the materials necessary to reach your objective for the visit. Carry audiovisual aids if you feel they are appropriate. With practice, your visits will become easier; planning, observing, and discussing will become second nature.

Make the visit pleasant. Compliment the mother. Be friendly and give praise. Use the family members' names. Talk about the family and its activities. Listen and observe. Be interested. Keep everything you learn confidential or you will lose the family's trust. Be sure both you and the family understand what has been discussed and the future plans. Be sure to show appreciation for the opportunity to visit the home and to know the family.

After visiting a family, write down your observations. Ask yourself such questions as these: What did I accomplish? Was it what I had planned? What did I learn that will make the next visit easier? These questions help you evaluate the visit. You may find it convenient to design your own family health education folder for use during home visits. Consider a three-part form:

- A. Planning notes: What do I hope to accomplish by the visit? (Fill out in advance.)
- B. Information on this interview: This should be in the folder and kept up to date.
1. Family name
  2. Address and location of the house
  3. Date of the visit
  4. Name of the worker making the visit
  5. Names and ages of all members of the household (Be sensitive to local customs about collecting such information.)
  6. What health problems does the family have?
  7. What problems or related topics were discussed?
  8. What did you suggest to the family?

9. What did they agree to do?
  10. What did you agree to do?
  11. When do you need to visit again?
- C. After-visit notes: Did you accomplish what you had hoped? What can be done to make the next visit worthwhile? What approaches or techniques seem to work well or poorly?\*

### Casual Visits in the Community

Casual visits may take place in the market, at the well, at the river while the women are bathing or washing clothes, or at a neighborhood shop. If you encounter a group of people, you will probably be unable to discuss intimate problems. Also, you may be interrupting an activity, so you must be brief and not inconvenience the person you are visiting. Plan these visits, carry them out, and afterward record them in the family record.

### Office Calls

These visits may take place in your place of work or your home. Early in your work, make it known that you will be available to speak with anyone who desires to seek you out, and let everyone know when and where you can be reached. Perhaps it will be your office one afternoon a week. Be warm and friendly. Make your visitor feel welcome. As always, record the visit and be sure to note why your visitor came.

\*See Salubritas, Vol. 2, No. 4 for a description of a home visiting guide used in Korea.

## Group Educational Methods

### Demonstrations

A demonstration requires planning and preparation, just as home visits do. A demonstration is a step-by-step procedure that is performed before a group or individual. It is used to show how to do something. You explain why you do each step as you proceed. In a demonstration you often can point out a better way to do something by comparing the current practice with a new method. In this case, the end results are compared; this can be a very dramatic means for showing the need for change. If possible, have someone from the community give the demonstration.

You can demonstrate how to protect food from household pests to a woman in her home, or you can demonstrate the preparation of a vegetable garden before a women's club. If your program is aimed at improving personal hygiene habits, you can show how to bathe an infant before a large group.

The demonstration you choose should:

1. Answer the needs of the community
2. Teach a sound practice, one you think is right
3. Be timely (for example, when foods are in season)
4. Be given with readily available materials
5. Combine seeing and doing (members of the community should participate in preparing and performing it)
6. Show improvement over a method in current use
7. Encourage people to try the new practice
8. Be so simple that anyone watching can copy what is done
9. Use local, low cost materials

In preparing for the demonstration you and others who will make the presentation should:

1. Consult with co-workers about the choice of topic and the method you plan to use
2. Know more about the subject than you plan to teach so you will be prepared to answer questions
3. Publicize the demonstration (by posters, talking with people, asking the local leaders to tell others)
4. Outline the demonstration step by step and list key points
5. Assemble equipment
6. Practice (see Chapter VI on pretesting).

Practice is very important if you are to give a successful demonstration. When you practice, do the demonstration exactly as you plan to do it before the audience. Ask someone who can evaluate your work to watch and make comments; these will help ensure that your presentation will be clear and understandable to your audience, and that it will run smoothly. Immediately before the demonstration, arrange your equipment and supplies. Check that everything works properly. Be sure your audience will be comfortable and able to see and hear you.

The demonstration can consist of four parts:

1. Introduction: Explain the need for the demonstration and why you are giving it for this particular audience. Acknowledge the present method, but emphasize how the new practice will improve on it. Be short and clear while convincing your listeners that the subject is important.

2. Demonstration: Be enthusiastic and friendly. Follow your outline and make it look so easy that everyone will want to try it. Be sure everyone understands you. Speak loudly and clearly.
3. Questions: Encourage discussion either during or after the demonstration. Ask questions of you audience. Ask them to demonstrate back to you or to explain the steps. Ask them to help you as often as possible. If a step is not understood, repeat it.
4. Summary: Review the important steps and key points briefly and tell the audience where they can get materials new to them. If this demonstration is to be followed by further sessions, tell the audience when and where the next one will be held.

Let some or all of the audience repeat your demonstration. In one health program in Bolivia, tooth-brushing techniques are demonstrated to a large group of parents and children. Then the parents and older children are given toothbrushes and toothpaste. They practice brushing, using plastic buckets for their sinks, and are observed and corrected by the health workers. Then the parents brush the small children's teeth. Home visits provide excellent opportunities for such demonstrations and practices.

Following the demonstration, evaluate it. Did the audience learn how to do what was demonstrated? Do you believe the people plan to carry out this practice on their own? Visit members of the audience to see if they are using the new methods; for instance, visit at mealtime to see if family members are eating recommended foods, and check their toothbrushes to see if they are being used. How could your demonstration be improved? An example of the steps used for a demonstration on drinking water can be found in Appendix C. It may serve as a guide for you.

## Meetings and Group Discussions

A general meeting is good for teaching something of importance to a large group of people. You can present subject matter, questions can be discussed, and the audience can participate.

Lecturing is the most common educational method, but when used alone it is one of the poorest. Learning can be much easier if the audience can see and take part in it. Visual aids make meetings more interesting and meaningful (see next chapter). Plan your meeting. Outline your talk. Think how you can emphasize each point visually. Then prepare your materials. Consider, for example:

- Using the actual objects (If you are talking about immunization, show the syringe and vial of vaccine.)
- Drawing simple sketches on chalkboard
- Using flip charts
- Making a series of posters
- Using flashcards to tell a story
- Using a flannelgraph
- Showing pictures or a film of how someone used the practice and succeeded

Points to remember:

1. Involve the people. This makes the meeting more interesting. Here are some ways to involve them. (i) Have a group act out some activity (see sections below on drama and role playing). (ii) Have a villager report on a successful project. (iii) Use songs to reinforce learning. In Sierra Leone, women put the key points of a meeting to music and sing them.

2. Let audience members talk. Ask them one by one to voice their views. This way each person learns from another, each takes part and, after some practice, those who wish can try leading the discussion. To plan and lead a discussion you must prepare for it. Study what you are going to talk about. Have reference materials available as well as pictures, charts, and other aids.
3. Make the group comfortable. Give some thought to the little things you can do to help the community see that this is their problem and project, not yours. For example, if people usually chat while sitting on mats, follow their practices. Let someone from the community head the meeting while you talk informally with people. Ask for information more often than you give information. The meeting place and time should be convenient for the audience. Know the names of those who attend. See that the meetings are short.
4. Seat the group in a circle. Then everyone can see faces of the others. Give everyone a chance to talk; even when viewpoints disagreeable to the group are expressed, work to keep the atmosphere friendly.
5. Let the audience tell what the problem is. Your job is to find out how they think, not to tell them what to think. If there is disagreement about the problem, help them come to agreement by asking the group questions that will clarify the issue.
6. Discourage speechmaking. Everyone in the group should be allowed to contribute, but you may find one or two persons who want to do all the talking. If you say, "Let's hear what someone else thinks," this may help to keep the discussion open to other members.

7. Help all to take part. Ask questions. Show that their answers are good. Involve the shy person. Never laugh at or belittle anyone's ideas. Group discussion is a big conversation, moderated but not monopolized by the leader.
8. Guide the discussion to group action. Help people identify a problem and act on it. This may be the hardest part. It is easier to talk than to do what is necessary. At some point in the discussion of the problem, summarize it with the group. It is very important that the group members agree on the definition of the problem. Then they can discuss how to attack it.
9. Help the group find technical information and assistance. At times, a problem will be too complicated for the villagers, and they will need outside aid. Help them understand this and the importance of knowing as much as possible about the problem before deciding what to do about it. Sometimes you will need to help them review what they have said so they do not forget any important information.

#### Club Meetings

There are many kinds of organizations to which villagers belong. Mothers' clubs usually provide pregnant women or new mothers with education in maternal and child care. Youth groups usually have both male and female members; they may be project-oriented or provide education about such subjects as drug abuse, human reproduction, or homemaking. There are farm organizations for men and women.

Such clubs are becoming popular in many areas. They provide a systematic way of teaching over an extended period of time. The cooperative spirit developed through club work provides an excellent opportunity to teach that "we," the members, are responsible citizens and working as a group for the betterment of "our" community.

### Songs

Often, village people like to sing and dance, and almost every village has someone who can sing and put words to music. Give this person a topic you want to bring to wide attention such as:

- The village without a safe well
- The sick children who got well with the proper food to eat
- The village girl who went to school to become an agricultural specialist
- The house where no flies and mosquitoes breed

The lesson is learned best if the song covers only one topic. The words can tell a story. A well-known tune can be used.

### Drama

Drama is less common than song in villages, but it is a good means of delivering a message. Most people like to try their hand at acting, so invite villagers to perform. Ask others to help write the script; teachers might be of assistance. Maybe someone knows of one-act plays that could be used or modified.

Any open space with a raised area will do for the performance. Have adequate seating and lighting if the drama is to be performed at night. Keep the script simple and clear. Choose a convenient place and time. Say a few words at the beginning of the play to introduce the subject and explain why it is important. At the end of the performance, answer questions and explain anything people did not understand. Encourage discussion. Short introductory talks and reemphasis of the point, with questions at the end, are essential if drama is to be an educational method and not just entertainment.

### Role-Playing

Role-playing is an informal play in which the participants imagine a situation and then act it out. This technique might be used to show how different people feel about a problem and what they should do about it. Role-playing can be used to start off a discussion, to discover possible consequences of a certain action, and to develop a better understanding of why people feel as they do.

The role-players might meet once to decide what points they wish to put across, choose characters that will best dramatize the issue, and assign the parts. They could try a quick test-run, but much rehearsing or advance coaching will deaden the performance. People like spontaneity. By experiencing a situation, both the actors and the audience gain a better understanding and feeling for the problem.

Role-playing should be followed by group discussion. How did the people feel? What were the issues? Why? Role-playing is an excellent way of introducing a discussion of controversial issues.

## Puppet Plays

Puppetry can be a good means of both teaching and entertaining an audience. Even crudely made puppets can keep an audience interested if the action is lively and funny. A sample script for a puppet play is included on pp. 193 . Puppets can be made very simply, as shown on pp. 199 - 201.

If a puppet play is to be effective, you must clearly define the points you wish to dramatize and limit the issues to those you want your audience to remember. Keep the play simple and to the point.

Use a dramatic story and exaggerate the action of the characters because the villagers have come for entertainment. The good characters must be very good; the bad must be horrible. Avoid silent pauses. Have short scenes with lots of action. The voices must be distinctive, and new characters must be clearly introduced so that everyone can follow the action. Be careful not to preach; the audience is there to be entertained. Be sure to try out your puppet play with a small group first to be certain your audience will understand the puppets and the messages you want to communicate.

The time spent in making puppets, writing a play, finding puppeteers, rehearsing, and testing should be weighed against the likely educational impact of this method in health education as compared to others. The simpler the message, the simpler the play will be to plan and perform. Mothers' clubs and schools can plan this kind of program.

### Examples of Education via Entertainment

In the Lardin Gabas health project in northeastern Nigeria, village health workers have achieved excellent results teaching preventive measures through traditional methods of learning and entertainment such as parables, drama, songs, and riddles. The project trains the village workers through these same techniques.

In the San Ramón area of Costa Rica, a health education week is held in each rural community to educate the people and the motivate them to form or strengthen their health committees, select health leaders, and discuss health problems. The week features talks, films, discussions, contests, and exhibits, but the main attraction is "the magician of health", a man who teaches through magic tricks, jokes, songs, and ventriloquy.\*

Some other ideas about how to make a meeting more interesting will be found in the next chapter.

\*See Salubritas, Vol. 3, No. 2, and Vol. 2, No. 3

CHAPTER VI  
VISUAL AIDS AND MASS MEDIA

When selected and used properly, visual aids can help to explain new concepts and relationships. Sometimes, however, they can entertain or distract an audience without educating. So use aids wisely to support a true educational approach, and test out their usefulness before you go too far.

Types of Audiovisual Aides

Leaflets

Leaflets can be appealing if their message is simple and clear, and if the language is understood by the reader. Short sentences and paragraphs should be used, illustrated with simple drawings or pictures that are easily understood. Make sure instructions are exactly right before distributing the leaflets. Pretest them (see p. 90).

Remember, too, that many of the adults in your village may be just learning to read. They will appreciate having simple reading materials that are on topics that interest them and are not written for children.

Circular Letters

You have received information about the planned arrival of a much-needed vaccine in the village, and you want to notify the villagers and perhaps request help from a few volunteers. Occasionally, some communities can be reached through a circular letter.

The circular letter is duplicated so that many copies can be distributed. The best letters are short and simple, covering one idea. If you have no access to a copying machine, perhaps the school principal will allow a few pupils to help make copies, or you might ask for volunteers from the health committee or mothers club. Make sure the message is understood. Pretest it.

### Newspapers

Newspapers might be of some help in reaching the villagers. Announcements can be printed regarding health services, demonstrations, or meetings, or new ideas can be presented.

Very often, however, national newspapers do not reach smaller communities, or many people cannot understand them well. In this case, a newsletter written by the villagers themselves can become the community's newspaper. Distribute it as you would a circular letter. Or place copies on a bulletin board or wall in a public meeting place (market, well, bar, store). People will see it, and those who can read will read it to others. The news will spread rapidly.

### Posters

Posters will help get people interested in topics, but alone they cannot teach very much. A poster can remind people of a meeting to be held or a procedure to be practiced, such as using well water rather than water from the river.

Posters should:

- Be readable at a glance
  - Concern a topic that is important to people
  - Be easily understood
  - Be appropriate culturally
  - Have human interest
  - Be placed where they will be seen by the intended audience and perhaps provoke discussions
- Use local artists and illustrators as much as possible. Also, holding a contest among school children to see who can make the best poster on health topics is a way of making the posters doubly educational.

Refer to the example of a flip chart in Appendix C (the Colombia Peace Corps Volunteers). Cards 2, 5, 6, 8, or 9 would make effective posters. See if you can think of other ideas.

#### Flash Cards and Flip Charts

These are a series of pictures and accompanying script that together tell a story. As with all visual aids, making them requires good planning.

1. Make a list of points you want to make
2. Write a story covering these points
3. Break the story into short segments
4. Decide what pictures, drawings, cut-outs, or cartoons will help visualize the story and prepare them
5. Place each word sequence and corresponding picture on a sheet of paper
6. Test material on a potential audience
7. Revise

8. Test again

9. Put materials in final form

Use heavy paper or medium cardboard cut to desired size. Size depends on the number of people in the expected audience, seating arrangement for visibility, ease of transport, and ease of use. Flash cards are most useful in groups of 30 people or less. For 30 people, each card should measure 22 x 28 inches.\* Flip charts can be used in larger groups, for instance, in the school or clinic or at meetings.

Use simple line drawings, cartoons, or photographs depicting the village in which you work. Try to use the minimum number of cards necessary. Too many may bore your audience. Let local people show the cards or flip the charts, because the audience will pay more attention to them.

At the beginning, tell what the story will be about and explain why it is important. When telling the story, use simple local language. The flash cards are held against the body, chest high, as the demonstrator turns from side to side so that everyone can see. A flip chart might be placed on a table or held as described for flash cards. Stack the cards in order. Only one card or illustration, the one being explained, should be visible at one time. Move each card (or flip each page) to the back of the pile after it has been discussed, and proceed to the next.

For further suggestions about preparing flip charts and flash cards, turn back to the discussion of posters above.

### Flannelgraphs

The flannelgraph is one of the most effective and easily used teaching aids because it is cheap and portable. Except outdoors on a windy day,

\* One inch = 2.54 cms.

it has the same advantages as flash cards. It is very useful with people who do not read and in groups of less than 30 people.

To make a good flannelgraph, you will need a thick piece of cotton flannel. Other materials you could use are burlap, a wool blanket, a thick towel, wool rugs, or almost any cloth with rough fibers. A piece 30 to 40 inches should be large enough. Stretch the cloth over a smooth board that is slightly smaller than the flannel and fasten the edges of the flannel to the back side of the board.

Pieces of felt, flannel, old rug, or sandpaper will stick to the flannel. Just press them against the board, and they will stay until you remove them. Tip the flannelgraph back slightly if you have any difficulty. Scraps of flannel or sandpaper can be pasted to the back of photographs or drawing paper. Coarse or medium grain sandpaper works better than paper of fine grain.

To prepare a flannelgraph story, place the title in large letters at the top of the board. Next, prepare the drawings, photos, or printed material. Pretest them all to be sure your audience will understand them. Then cut them out and paste pieces of flannel or sandpaper on the back. Put them in sequence and number them on the back.

Keep the story simple. Pictures should be kept in order, and the story should be told one step at a time. Using common local names makes the lesson more vivid to the audience. Some figures that might be useful to you are included in Appendix C.

### Blackboard (chalkboard)

The blackboard is most useful in situations where the speaker's writing or drawings may help the audience understand an idea. Along with other teaching aids (flip charts, flash cards, flannelgraph, films, slides), it can be used for summarizing and clarifying essential points, drawing diagrams, writing directions for further activities, developing a lesson step by step, and highlighting and answering questions.

You must, as always, plan ahead when using the blackboard. Some points to keep in mind:

- o Write clearly in large script.
- o Keep drawings or diagrams simple.
- o Using the blackboard to clarify the lesson, not as the primary teaching method.
- o Stand so your audience can see what you have written, but don't keep your back to them.
- o If you have too much to write, you are probably not using the blackboard effectively.
- o Anything on the board that is not covered in the discussion will distract attention
- o Talk only after you finish writing.
- o If you make a drawing, always make sure that the group can identify it.

You can make a blackboard from a 30 x 40 inch piece of plywood, cardboard, or carton material. Coat the board with special paint containing:

- o 1 to 1 1/2 parts of kerosene
- o 1 part of varnish
- o 1 part of lampblack (soot)
- o enough powdered pumice to make the painted surface slightly gritty

If lampblack is not available, the carbon of old flashlight batteries can be ground up and used as a substitute.

### Photos, Slides, and Filmstrips

Photographs can aid in education when they are meaningful. People can compare photos of a house before and after improvements are made. A dramatic comparison can be made between photos of malnourished children in the village before and after they received treatment. Remember, however, that what we see in photos is largely culturally determined. Find out how people feel about pictures of certain subjects before employing those photos in education.

A filmstrip is a series of still pictures on one roll of film that, in sequence, tells a story. Making your own filmstrip is technically tricky, however, and a slide series is easier to make yourself and just as effective. In either case you will need a projector. Small, lightweight, inexpensive, hand-held projectors are available. If you have a camera, you can take pictures in your village of good ways to solve problems, and have them made into slides or photographs. There are definite advantages to photos:

- o If they are photographed in the town or region where you work, they are certain to be familiar and recognized by the people.

- They may be in color or black and white (color would be especially important for foods, although you should always use the real thing if feasible).
- They are relatively inexpensive and reproducible for different uses (posters, flashcards).
- The action, position, and characters or objects can be easily manipulated.
- They can be simplified by "blocking out" to emphasize the point being made.
- You can make them yourself.
- With a 35 mm camera, you can produce filmstrips too, but this means planning well ahead for proper sequence (a filmstrip is a series of still pictures on one roll of film).

In planning to use photography as well as drawings, you should consider the group's familiarity with visual aids. Remember these points when using photos, slides, and filmstrips:

1. Select pictures in which all objects are familiar to your audience.
2. Try not to use pictures showing only parts of important objects.
3. Make sure that all objects are viewed from the angle at which they are normally seen.
4. Try not to use photographs which show objects larger than they really are.
5. Use natural color photography whenever you can.
6. Keep out of the picture objects or details that are not important to the message.
7. When showing pictures one by one, remember that people need time to comprehend them; ask the audience to say what they see and correct them if they make mistakes.

8. Filmstrips should be photographed in a logical sequence.
9. If you want to use photographs of people, ask their permission and make sure that they understand how you are going to use their pictures.

### Weight Charts

If you work in a pediatric or rehabilitation clinic, properly used weight charts can be a helpful teaching aid and a reminder to the mother not only to come to the clinic, but also of what happens when her child eats well.

Weight charts are graphs printed on durable, often brightly colored cardboard and protected by plastic envelopes. The mother or guardian keeps them and brings them to clinic at each visit. The chart measures weight for age and should be clear and easy to use and understand.

Dr. David Morley has designed a "Road to Health Chart" which provides a child's health record that can be used to educate the family about their child's growth. Examples of this and another weight chart are found in Appendix C along with directions on how to use them.

### Films

People who will not attend classes or any kind of meeting may go to see films. You can use films as a way to get these people interested in your program. You will need electricity or a generator, a projector, and films.

1. Be sure the projector is in good working order; know how to operate it.
2. Choose a location with enough seating for the expected audience. Make sure they will be able to see and hear.

3. Always preview a film so that you may plan for its proper use. Invite a group of villagers to preview it with you. They can assist in presenting it to the village.
4. Introduce the film. It is easier for viewers to understand its message if they are first told what it is about. For example, "I am going to show every vividly how disease spreads in a village. You will see what causes disease to spread, and how disease can be prevented. These problems are very important to us here in Bamboo village."
5. A few questions given to the group in advance will give them an added purpose for viewing the film. For example, "Does disease travel in our village the way it does in the film?" "What are the ways disease travels?" "What can we do about stopping the spread of disease in this village?"
6. Never show a film without having a discussion afterward. The questions given in advance can serve as its basis. Discussion will make the group think about the film and its meaning for them. It will help fix the important points of the film in their minds. You will have a chance to clarify any points which are not clear and supply additional information that may be needed.
7. Often it is desirable to look at the film again to get information that may have been unnoticed in the first showing. People who are not accustomed to seeing films may have to see it several times before getting the point. Avoid showing a number of films at one time, particularly if they are unrelated.

June 10  
1972

## Radio

The growing popularity of transistor radios offers extension workers new opportunities for community education. One approach is to ensure that your agency keeps you informed about radio programs with important health information so that you can let the community know. Organizing group meetings around such programs may be useful. The community can also send questions to health and community development programs for answering over the radio.

Local radio broadcasting stations are often willing to broadcast messages about health clinics, services, basic concepts for preventing or treating many diseases, or other educational messages.

The spot announcement offers a flexible and efficient means of carrying health themes to the community. "Spots" are similar to commercial advertisements because they consist of short, persuasive messages, 10 to 60 seconds in length, that can be broadcast during breaks in the routinely scheduled program. They can be repeated frequently, which helps listeners remember them and also leads to a wider audience. They are relatively inexpensive.

Spot announcements are already widely used to communicate messages covering national, regional, and community affairs, information for the public good, and goals and campaigns of government and private organizations. Spots thus offer a ready place for community health messages. Radio can help in announcing activities and meetings in your community. Specific information about disease, malnutrition, or sanitation can also be given. Caution must be exercised, though, when planning spots concerning topics

that are not publicly discussed or are taboo in the culture. Examples might be: tuberculosis, sex education, pregnancy spacing, or venereal disease.

In preparing and writing spot announcements, a few points should be remembered:

- Discuss subjects that are easy to talk about. Difficult subjects might be presented if led up to with a series of spots.
- Talk about something that will be interesting and useful to listeners.
- Present only one subject and one idea in each spot.
- Use an attention-getter in the very beginning. A catchy phrase, music, or a sound such as a baby's cry can serve the purpose.
- Have the listener's point of view in mind.
- Be concise, precise, and move quickly from one point to another.

Samples of radio spot announcements appear in Appendix C.

If you decide to use the radio, consider how to involve the community in planning, carrying out, and evaluating health-related radio messages. Discuss this possibility with your supervisor before presenting it to the community. Make sure that you are authorized to contact the radio stations. If not, find out who has that authority and request their assistance. If possible, have a community member accompany you and take part in all dealings, so that on-going contact can continue after you leave the community.

You and selected community members will need to determine the type of program you wish transmitted, its content, length, and times of broadcasting. Determine, too, what will be the cost and who or what organization might assist you.

## Designing Visual Aids

You are undoubtedly using visual aids. How often have you drawn a map on the ground, sketched a symbol, or used some gesture to describe something? Following are some ideas to encourage you to make other visual aids.

Remember that in the communication of ideas, visual aids can be misused or overused. A visual aid can never adequately serve as a substitute for personal contact or personal efforts of communication. However, visual materials of an appropriate nature, carefully selected and used effectively, can be very important to communication.

Symbols used in visual aids must be culturally appropriate to be correctly understood. A bed does not look the same the world over. Neither does a coat, a well, or a latrine. This is why visual aids made locally, with your community clearly in mind, can be the most effective in building understanding. Effective visual aids are best produced by or with the assistance of community members.

Information from a health project director in India provides an example of the extreme importance of the cultural appropriateness (and pretesting) of audiovisual aids. In this project training classes were conducted for local traditional midwives (dais). In a nutrition class, when the dais were shown 25 accurate illustrations in color of commonly available vegetables, an average of only four illustrations was recognized by each person. In another class, the dais were shown a photograph of the eye as part of their training to prevent xerophthalmia. When the illustration was tested for comprehension, only four dais out of thirty

could recognize the picture as that of an eye. To some it was a leaf, to others it was a flower or a fish. Some of the more intelligent dais associated the visual aid with their training program. They held the picture vertically and said that this was a picture of a vagina with the head of the fetus showing through it.\*

Visual aids are used to communicate an idea or explain a need for action. Two important questions about content should be answered before designing visual aids.

1. The problem: It is important to ascertain how the problem is seen from the point of view of local people. For example, in working on improving contaminated water, there may be no problem of contamination as far as local people are concerned; they may believe that clear water is not contaminated. It may be necessary to help people understand how water becomes contaminated. This may be exceedingly difficult. It is important to keep in mind that local customs are resistant to change unless there are good practical reasons to change them.
2. Acceptable answers or solutions: Although you may see the problem as a scientific one, the actions you recommend must be practical and acceptable to the people concerned. For example, boiled water in certain cultures is usually consumed only by "sick" people. The answer, therefore, may lie in removing sources of contamination from water rather than trying to get people to boil it.

\*From Dr. A. Dyal Chand, Project Director, C.H.D. Project, Pachod, "Integration of Functional Literacy and Development Services with Health Services." Paper presented at the XXIII Annual Conference of the Indian Public Health Association, Aurangabad, January 28, 1979.

## Selecting Material to Be Presented

The following additional questions may be of assistance to you in refining ideas about visual materials:

- Characteristics of audience: Who are you trying to reach?  
Just men? Just women? Just children? What is the occupation of the potential audience? The cultural background? The education? The social status?
- Understanding the material: Is the language in the presentation understandable? Is the material attractive? Will it capture attention?
- What about visualization? Are the drawings of pictures acceptable? Will they be understood? Has the material been tested? Can the audience understand the pictures, the names?
- Simplicity is an asset: Studies of the understanding of visual aids indicate that too much detail is confusing.

To summarize the guidelines for designing effective teaching aids they should be:

- Relevant
- Attractive
- Simple
- Convey one idea
- Promote action
- Inexpensive and durable
- Understood

### Suggested Steps in Making Visual Aids

1. Work with local people
2. Determine the material to be covered (use questions similar to those above).
3. Limit the visual aid to one or two specific points.
4. Decide with members of the community what type of visual material would be most appropriate.
5. Pretest a draft of the material on people from the intended audience.  
(see below)
6. Make appropriate revisions.
7. Pretest material in final form.

### Informal Pretests

How can we be sure people will understand materials prepared for them posters, pamphlets, stories, puppet shows, demonstrations, and visual presentations of all kinds? We can test them under conditions similar to those in which they will be used. Offer the materials to a small group from the intended audience. Ask them these questions:

- o What is the purpose of the material? What information is it supposed to convey? Is it clear what action is wanted?
- o Does the material make people want to act?

The answers to these questions will give you an idea of the effectiveness of your material. Ask these people also how you might make the material more attractive and easier to understand.

## Mass Education Methods

In using individual or group educational methods, you have personal contact with those you are teaching. Although it is sometimes assumed that printed materials are not useful in communities where only a few people read, these few people are often important sources of information for others. Other mass educational methods can also be effective. They can be used to

- repeat messages to those you have spoken with personally;
- interest people in new ideas, new projects, new procedures; and
- deliver important news about health projects.

PART IV

COMMON COMMUNITY HEALTH PROBLEMS

## CHAPTER VII

### NUTRITION

Malnutrition contributes to many health problems in developing countries today: many illnesses and deaths that are caused by infections are preconditioned by malnutrition. The severity in developing countries of tuberculosis, diarrhea, common respiratory infections and the contagious diseases of childhood are principal examples. Nutritional diseases are also important in their own right. Furthermore, a poor diet limits one's ability to concentrate, learn and work.

The period between late fetal growth and the age of five is a most crucial period of life nutritionally. Both mothers and children need adequate nutrition. At six months of age, healthy infants should have doubled their birthweight and tripled it by a year.

To prevent severe malnutrition, early recognition of the symptoms is important. This can be accomplished through regularly scheduled weighing at child clinics or in the community. Weight is marked on a weight-for-age graph, such as the Road to Health Chart (see Appendix C) on which the normal weight curve is printed. On this graph, growth failure can be seen. And because a child must be healthy to grow, measuring growth is a good way to measure a child's health.

Following are some facts about malnutrition, its forms and prevention and some basic points about necessary nutrients. Suggestions for use of this information in planning educational activities are also included.

## Reasons for Malnutrition

### 1. Inequity and exploitation

- a. Inequitable land distribution
- b. Peonage, tenant farming
- c. Excessive interest on loans
- d. Exploitive profits by merchants
- e. High cost and profits in health care
- f. Corruption, graft, and favoritism by those in control

### 2. Poverty

- a. Foods high in protein and fat, necessary for energy and growth, are more expensive than those with carbohydrates.
- b. People with little money are unable to buy or produce a wide variety of foods.
- c. Low incomes also prevent people from buying supplies and equipment necessary to increase food production or improve food storage.
- d. A person cannot buy large, economical quantities of any commodity when only a small sum of money is available at any one time.

### 3. Misuse of local resources

- a. Lack of breast-feeding
- b. Dynamiting fish
- c. Unrestricted hunting
- d. Burning forest and felling trees indiscriminately
- e. Eating polished rice and other grains rather than unpolished forms.

4. Lack of education

- a. Uneducated parents are often unaware of modern ideas of adequate nutrition.
- b. Many people assume that a "full belly" is all that is necessary to be well fed. They do not understand that illnesses are caused by lack of certain foods in the diet. "Witchcraft" is often blamed instead.

5. Low food production

- a. Often the tools and methods of food production are outdated and slow; people lack good seeds, fertilizer, and machinery.
- b. Bad weather may lead to drought and famine.
- c. Insects, birds, rats, and wild pests may ruin much of the harvest in the fields or in storage.
- d. The practice of "slash and burn" causes soil erosion, which lowers the crop yield.

6. Lack of time to prepare food properly, maintain home gardens, and provide special dishes for children

- a. Often water must be carried long distances, and it needs to be boiled. This takes time, energy, and fuel.
- b. Preparation of cereal grains can take several hours.
- c. Parents spend many hours working in the fields or selling in the markets and are separated from their children.

7. Poor hygiene and sanitation lead to diarrhea, intestinal worms, and other infections and parasites that cause malnutrition or worsen it.

Also lacking in many areas of the world is an even distribution of food on the national, regional, and socioeconomic levels as well as within the family. Better transportation is needed to supply certain foods to areas where they are lacking. Parents need to be educated to provide children with larger amounts of the family's protein foods.

### Forms of Protein-Calorie Malnutrition

#### A. Kwashiorkor

This is caused by a diet consisting mainly of carbohydrates (starchy foods) and lacking in protein, especially animal protein. It is most commonly seen in children of one to three years who were weaned from the breast too early, often because of another pregnancy.

#### Signs of Kwashiorkor:

1. Edema: legs and feet, and often the abdomen are swollen.
2. Limp, small muscles: surface body fat remains; the muscles are used up to provide protein.
3. Misery: the child is dull and uninterested in anything.
4. Hair changes: it usually lightens in color, become reddish, and is thin and easily pulled out.
5. Paleness: the protein which normally colors the skin is lacking.
6. Skin changes: rashes are common; the skin becomes dry and peels off, sometimes leaving sore areas; it may be cracked at mouth corners or behind the ears; infected open sores are present.
7. Watery stools: these result from failure to digest foods, especially sugars.

## B. Nutritional Marasmus

This is caused by a diet lacking both in protein and in calories (a lack of food of any kind): starvation. Most commonly, marasmus occurs in the first year of life and is associated with failure of breast-feeding and frequent diarrhea.

### Signs of Marasmus:

1. Failure to grow; an extremely low body weight
2. Wasting of both muscles and surface fat
3. Loose stools
4. Hair changes, but less noticeable than in kwashiorkor
5. Face like that of an old person

### How Marasmus Differs from Kwashiorkor:

1. Marasmus occurs most often when child is under one year old.
2. Child is obviously thin and wasted.
3. There is very little swelling (edema), if any.
4. Child does not appear miserable, just old.
5. Child has good appetite.

Because kwashiorkor and marasmus often occur together, it is convenient to think of them as protein-calorie malnutrition.

## Prevention of Protein-Calorie Malnutrition

### Long-term

1. Improve the family's food supply (especially of animal protein such as milk, meat, and fish; plant protein foods such as legumes and high-protein cereals.).

2. Improve the level of nutritional education (especially so that mothers adopt correct feeding practices for their children).
3. Improve the family's economic level.

Immediate

1. Provide health education for all sections of the community but especially for parents.
  - a. Use breast-feeding alone for the first four to six months; then gradually introduce available mixed diet, including animal and plant proteins, together with breast milk.
  - b. Continue to breast-feed for at least one year, preferably two.
  - c. Make the best use of foods available from cultivation, shops, and child care clinics.
  - d. Use child (pregnancy) spacing to prevent too early weaning.
2. Look for early signs of mild and moderate malnutrition by monitoring the curves on the weight graphs at child care clinics. This may be due to stopping breast-feeding; not supplying enough protein, or infectious diseases that commonly occur in early childhood.
3. Cure all infections.
4. Give rehydration mix to children with diarrhea.
5. Organize community projects that generate personal income - gardens, raising small animals, cooperatives.

Nutrients for Good Health

These come from both animal and plant sources; animal proteins are more expensive.

### Animal Proteins

Meat  
Animal organs  
Fish and other seafood  
Poultry  
Milk and milk products  
Insects

### Plant Proteins

Legumes (beans, peas, nuts)  
Cereal grains (rice, wheat, oats)  
Dark green leafy vegetables  
(including spinach)

A mixture of plant foods taken at the same meal often can provide just as good protein as that of expensive animal foods. Two foods with poor protein may together form a meal with adequate protein. In many countries, tubers and legumes compliment the cereal grains very well; for example, rice and beans are often served together in Latin American countries.

### Energy Foods (Carbohydrates and Fats)

1. Carbohydrates are the cheapest and most available source of energy in most diets. They are found in:
  - a. Cereals, corn, sorghum, millet, rice, wheat
  - b. Flour and breads
  - c. Roots and tubers (potatoes, yuca, etc.)
  - d. Fruit, fruit juices and jams
  - e. Sugar
  - f. Legumes
2. Fats are expensive but supply more energy per gram than carbohydrates or protein:
  - a. Fatty parts of animals
  - b. Liver

- c. Egg yolks
- d. Butter and cream
- e. All nuts
- f. Soybeans
- g. Seeds
- h. Vegetable oil
- i. Lard

### Protective Foods (Vitamins and Minerals)

Small quantities of these materials are needed by the body and are usually supplied in a good varied diet.

#### 1. Good sources of vitamins

- a. All brightly colored foods (for example, carrots or beets)
- b. Raw vegetables and fruits
- c. Egg yolk and liver
- d. Butter
- e. Meat, chicken, fish
- f. Whole-grain cereals, especially the germ

#### 2. Important minerals and their sources

- a. Iron (required for red blood cell formation): meat, liver, kidneys, egg yolk, dark green leafy vegetables.
- b. Calcium (required for bone and teeth formation): human and animal milk, milk products, bones of small fishes. Adequate calcium is especially important for women during pregnancy and lactation and for infants and young children.
- c. Iodine (required for normal glandular function): seafood, seaweed, iodized salt, vegetables grown near salt water.

## Vitamin A

Vitamin A is necessary for the eyes, the skin, and the mucous membranes (which line the eyes, mouth, nose, and digestive and urinary tracts).

It is especially important for children and pregnant women.

Widespread blindness in some tropical areas, often caused by a lack of vitamin A intake, could be prevented by small amounts of vitamin A added to the diets. In these areas blindness is likely to occur in children who are not breast-fed and eat only cereal diets. Discover local foods rich in vitamin A, and urge the people to eat more of them.

### Foods Which Supply Vitamin A

| <u>Animal Sources</u>       | <u>Plant Sources</u> |                   |
|-----------------------------|----------------------|-------------------|
| Liver, especially from fish | Carrots              | Bananas           |
| Butter                      | Pumpkin              | Dark green leaves |
| Oily Fish                   | Sweet potatoes       | Most brightly     |
| Eggs                        | Pawpaw               | colored fruits    |
| Milk (not skimmed)          | Papaya               | and vegetables    |
| Animal fats                 |                      |                   |

### Results of Vitamin A Deficiency

1. An inability to see in dim light (night blindness)
2. Dry eyes that become easily infected; This may cause blindness.
3. Dry, rough skin
4. Susceptibility to infections, especially respiratory (lungs)
5. Poor digestion

### Measures to Increase Vitamin A

1. Vitamin A is stored in the liver. If large amounts of grain and yellow vegetables can be eaten when they are plentiful, their vitamin A can be stored in the liver for later use by the body when the fruits and vegetables are no longer in season.
2. Pregnant women should eat more of these fruits and vegetables so that their babies will be born with a good supply of vitamin A. Investigate local foods for vitamin A content.
3. Several foods can be commercially prepared with vitamin A added, such as rice and sugar.
4. Vitamin A capsules can also be used where deficiency is likely. Because vitamin A is stored for a long period of time a 200,000 unit tablet can be taken only every 3 months. (Except for this use vitamin tablets play little practical role in developing countries).

### Vitamin B

The vitamin B complex includes many components, each playing a particular role in proper body functioning. Dry yeast, wheat germ, organ meats, pork, and green leafy vegetables are the principal sources of these nutrients. Among health problems caused by their deficiency are beriberi, from a lack of thiamine, and pellagra, from a lack of niacin.

### Vitamin C

Vitamin C is necessary to help the body fight off infections. It also plays a role in the healing of wounds and burns. Because of the availability

of fresh fruit, vitamin C deficiency is seldom seen in the tropics.

#### Foods Which Supply Vitamin C

Breast milk

Citrus fruits: oranges, grapefruits, lemons, limes

Green leafy vegetables: spinach, turnips, pumpkin tops

Guavas, pawpaw, mangoes, tomatoes, green peppers

Cabbage, cauliflower, broccoli, potatoes

Cereal grains that have sprouted

#### Results of Vitamin C Deficiency

1. Tiredness, weakness
2. Swollen and bleeding gums, loose teeth
3. Nose bleeds, pinpoint bleeding on the skin
4. Soreness and stiffness of the joints
5. Abdominal pain
6. Slow wound healing
7. Tendency towards infection

#### Measures to Increase Vitamin C

1. Plant village, school, and home gardens and fruit orchards
2. Encourage the use of edible wild fruits and vegetables
3. Teach reasons for eating fresh foods
4. Discourage use of carbonated drinks and artificial fruit juices
5. Encourage use of raw fruits and vegetables

6. Teach preparation of cooked fruits and vegetables
  - a. Use low heat
  - b. Cook briefly
  - c. Use a small amount of water
  - d. Do not drain the water, serve it with the vegetables

### Vitamin D

Vitamin D is necessary for the body to use calcium. Calcium is necessary for formation of bones and teeth and for clotting of blood. In pregnancy and early childhood, when calcium is needed for growth and teeth formation, a lack of vitamin D can be serious. Despite the sunshine in the tropics vitamin D deficiency is common because mothers tend to keep their infants out of the sun.

### Foods and Other Sources of Vitamin D

Exposure of the skin to sunlight

Foods that contain vitamin D

Liver

Eggs

Butter

Fat from fish

Human and animal milk are poor sources unless Vitamin D has been added.

### Results of Vitamin D Deficiency

#### 1. Rickets

- a. The 'soft spot' on the skull remains open past 18 months of age.
- b. The bones appear deformed.

- c. Bow legs and knock knees are common.
  - d. The primary teeth come in late.
2. Softening of bones in the adult which leads to deformity and fractures.

Note: In women, deformity of the bones, especially the pelvis, may narrow the outlet for the baby, causing difficulties in giving birth.

#### Measures to Increase Vitamin D

1. Teach mothers to expose their children to the sun, but cautiously. Hiding the infant from the sun is a deeply ingrained practice in some places. It may be helpful to compare a child's needs for sunshine to the needs of plants. Too much sun is, of course, dangerous to a child.
2. Offer foods which contain vitamin D after around 4 months of age along with breast milk.
3. Obtain foods supplemented with vitamin D (milk, flour, margarine, etc.)

#### Iron

Iron is used by the red blood cells to transport oxygen from the lungs to all the tissues of the body. It is particularly important during the first two years of life, adolescence, especially for girls, and the child-bearing period. Menstrual bleeding causes iron deficiency to be particularly prevalent in women.

### Foods Which Supply Iron

Meats (especially organ meats, i.e., liver heart, kidney)

Legumes

Whole or enriched grains

Potatoes

Egg yolk

Green leafy vegetables

Dried fruits

### Results of Iron Deficiency (Anemia)

1. Weakness and tiredness
2. Shortness of breath
3. Paleness (pallor)

### Measures to Increase Iron

1. Increase the intake of foods high in iron by making people aware of these sources and encouraging their use.
2. Supply supplementary iron in the form of pills or tonics
3. Consume wheat and other grains commercially supplemented with iron.
4. Give iron medication when necessary.

### Possible Educational Activities

In a nutrition program, it is hoped that the community will realize the importance of good and adequate nutrition, understand and use the basic concepts related to nutrition, and take an active role in improving

its nutritional state. Nutrition education can be provided in many settings, for example:

- o A child clinic offers an excellent opportunity for an extension worker interested in nutrition. Many topics and activities can be incorporated, such as:
  - . Breast-feeding is best.
  - . Soft foods containing protein should be introduced at four or five months and given routinely at six months.
  - . School children need food before leaving for school.
  - . Children with diarrhea need lots of fluids.
  - . Pregnant women need extra food and added protein, vitamins, and minerals.
- o In mothers' clubs or prenatal clinic sessions, mothers can be taught to recognize the early signs of protein-calorie malnutrition.
- o Food production can be discussed and methods demonstrated at clubs or community meetings.
- o Community gardens can be incorporated into the school curriculum. Pupils can be totally responsible for the gardens.
- o A grain storeroom can be constructed to protect cereal grain supply from rodents, insects, and mold.
- o Youth groups can organize a small animal cooperative (chickens, rabbits, goats) to increase the supply of animal protein.
- o Groups can be organized within the community to discuss nutrition and hygiene at regular monthly meetings.
- o Harmful nutrition beliefs and practices can be combatted through education.

### Some Examples of Innovative Nutrition Programs

The following examples illustrate what kinds of activities are taking place in the field of nutrition.

- o In Liberia, mothers are urged to use local foods that are accessible, cheap, and effective in coping with malnutrition rather than buy prepared baby formulas. Plantain powder, nutritious and easy to prepare, is fed to undernourished babies, almost all of whom have greatly improved in nutritional status.
- o In India, project staff members make home visits every six weeks, studying infant feeding practices and educating families about the diet of young children. Through these visits, they have been successful in getting community people to plant kitchen gardens and engage in poultry farming.
- o To establish whether a child is underweight where scales are not available, a project in India uses a bangle bracelet, four centimeters in diameter, made of cheap material available in the area. If the bracelet slips easily over the child's elbow, it is certain that the child is underweight. This technique seems to work for children up to four years of age.
- o People can be encouraged to consume cheap and nutritious foods, locally available, rather than expensive, advertised, processed foods. For example, the Foster Parents Plan in La Paz, Bolivia, urges mothers to use the high-protein native grain, quinoa, in place of bread and noodles.

\*American Public Health Association, The State of the Art of Delivering Low Cost Health Services in Developing Countries, APHA, Washington, D.C. January, 1977, pp. 27, 60.

- Many children discharged from a nutrition rehabilitation center in Ghana returned after six months more marasmic than at the first admission. Many mothers said they had no means of earning money to buy appropriate food. A sewing school was therefore established to provide vocational education for mothers who attend the nutrition rehabilitation center. Mothers are taught to sew with needles and sewing machines. Mothers who finish the course are placed in jobs, and can thus supplement the family budget and help to break the vicious cycle of poverty, infection, and malnutrition.
- In a project in Nepal, the word "runche" conveys the local interpretation of malnutrition. The term implies that a spell placed on a child is the cause of his illness. The project staff has realized that, by understanding and accepting the local concept as well as using the word for diagnosis, it is much easier to convince people of the proper treatment for victims of malnutrition.

## CHAPTER VIII

### MATERNAL AND CHILD HEALTH

In some developing countries half or more of the children die before they reach school age, and many of those who survive are stunted by malnutrition and repeated infections. In these cases actions in maternal and child health have a tremendous potential for disease prevention. Most prevention must be early in life to be effective. This preventive effort should begin with the care of pregnancy.

#### Diet and Nutrition During Pregnancy and Lactation

Since the mother is chiefly responsible for care within the family of infants and children, poor maternal nutrition may have serious consequences for children. The nutritional needs of a woman who is pregnant or breast-feeding are greater than at any other time in her life.

From the nutritional viewpoint, the mother's diet should provide sufficient nutrients to maintain her and her fetus (unborn baby) in good health during pregnancy. Also, an adequate diet provides the physical strength necessary during labor and delivery. After birth, a good diet makes possible an adequate flow of breast milk without danger to maternal reserves of various nutrients. And, finally, good nutritional habits are necessary to maintain the health of the mother between pregnancies.

Effects of Inadequate Diet for the Pregnant Woman

1. A lack of protein can cause brain damage in the child.
2. A lack of vitamin A can lead to visual problems for the child.
3. The unborn child will take nutrients from the mother that can leave her in poor health.
  - a. The mother's teeth and bones will lose their hardness because the baby takes calcium needed for its bones and teeth.
  - b. If the mother does not eat enough body-building foods, she may not be able to produce enough breast milk for her child.
  - c. The mother may become anemic if the supply of iron stored in her body is low. The baby will take the iron it needs from her.
4. Iron deficiency in the mother before birth can lessen the baby's supply of iron and lead to anemia after birth. If the infant has an adequate store of iron built up before birth, breast milk is an adequate diet during the first four months. Breast milk does not supply much iron however, and therefore, the infant will need iron-containing foods added to the diet during the first four months. The infant will need iron added to the diet during the first four months if the mother did not have enough in her diet during pregnancy.
5. Abortion, miscarriage, and stillbirth occur more often in poorly nourished women. Nutritional deficiencies increase the chance that the baby will be malformed; often mothers' poor diets cause babies to have low birth weights.

## Care of the Pregnant Woman Before Birth

Many complications of pregnancy and deaths of mothers and infants can be prevented. Pregnant mothers can protect themselves by attending a clinic for pregnant women, every month at first, and then every week during the eight month when complications are most likely to occur.

### Important Activities for Care During Pregnancy

1. Insure good health of the mother by treating any illnesses and offering advice for any disorders.
2. Promote adequate rest and avoidance of exhausting work.
3. Immunize her against tetanus.
4. Assure that her diet is adequate; give vitamins and iron supplements if needed.
5. Provide education on health, nutrition, and hygiene concerning herself her unborn child, and any other children she may have at home.
6. Identify "high risk women" who has a good chance of complications, and encourage them to give birth in the hospital.
  - a. Age: if she is (i) under 16, (ii) over 40, or (iii) over 35 and pregnant for the first time.
  - b. History of complicated pregnancies
    - . Caesarian section or history of long, difficult labor
    - . Miscarriage, abortions, stillbirths
  - c. If she is very short
  - d. If the baby is in an abnormal position within the mother
  - e. High blood pressure
  - f. Heart trouble, diabetes, or kidney problems

- g. Syphilis, tuberculosis, or other infections
- h. More than 5 pregnancies
- i. Pregnancies too close together

Unexpected difficulties occur in any pregnancy, so all women should seek medical care when they experience the following danger signs:

- a. Scanty urination or a burning feeling when passing urine
- b. Severe pain in the abdomen
- c. Chills and fevers
- d. Nausea and vomiting after the fifth month of pregnancy
- e. Vaginal bleeding or discharge
- f. Swelling of face, hands, or feet
- g. Persistent headache or dizziness
- h. Blurred vision;
- i. Fits or convulsions

#### Some Discomforts of Pregnancy and Suggestions for Relief

All pregnant women will experience some minor discomfort. Some symptoms will disappear with time; others can be treated. These are:

##### 1. Sleepiness

This usually is noticed early in pregnancy and will correct itself if the mother gets plenty of sleep at night and some rest during the day.

##### 2. Frequent urination

This is due to the growing uterus pressing on the bladder and will occur early in pregnancy, disappear, and then reappear in the last month or so when the baby is again pressing against the bladder.

### 3. Morning sickness (nausea and vomiting)

Not all women experience this. Those who do will do so early in the pregnancy and should relax in the mornings. Eating dry food (e.g., crackers) before getting out of bed in the morning, and eating several small meals during the day instead of two or three large ones may help.

### 4. Heartburn

This happens later in pregnancy and is similar to indigestion. Women should eat only small amounts of food at one time, and if possible drink milk and suck on hard candy. They should try to sleep with chest and head raised.

### 5. Constipation

This can sometimes be corrected by drinking plenty of liquids and eating plenty of fruits and vegetables. Laxatives should be avoided.

### 6. Muscle cramps

a. Leg cramps can be caused by the pressure of the uterus and baby on the blood vessels that carry blood to the legs. Cramps usually occur at night and can be eased by:

- . Bending the foot forward with the hand
- . Applying heat against the cramped muscle
- . Calcium tablets (if the cramp is due to calcium deficiency)

b. Abdominal cramps are caused by the muscles stretching as the baby grows within. Relief can come from exercise or use of an abdominal binder.

### 7. Varicose veins

They are caused by the weight of the baby pressing on blood vessels circulating to the legs. They can be quite uncomfortable, but may be

relieved by putting on elastic stockings or elastic bandages before getting up in the morning. The stockings should come off at night. Sometimes raising the legs while lying down will help.

#### 8. Backache

This occurs because the muscles of the back are pulled into new positions by the growing abdomen. Low-heeled shoes, rest, and abdominal support (a binder) sometimes help.

#### 9. Lower Abdominal Pain

This is caused by stretching of the internal female organs (uterine ligaments) or pressure on other organs during some activities. Changing to another form of activity will make it disappear.

### Possible Educational Activities

Selected community women could be trained in the care of pregnant women. In many countries, traditional midwives, healers, and other village people have been trained to provide safer prenatal health services, including identifying signs of problems requiring the attention of a trained midwife, nurse, or doctor.

In South Korea, a university-supported project has been training community housewives as family health workers responsible for educational and other preventive health services. These women are showing great pride in their work and are influential in changing health behavior.

### Benefits of Prenatal Care for the Infant

Several other specific conditions that can arise before or during birth affect the health of the baby. Good care of the mother during her pregnancy can prevent them.

## Conditions That Can Be Prevented

### 1. Tentanus in the newborn

- a. Immunize the mother with tetanus toxoid.
- b. Educate the mother and birth attendant in the care of the umbilical cord.

### 2. Congenital Syphilis

- a. Treat the mother before pregnancy, if possible.
- b. If the mother is treated before the baby is infected with the germs, the baby will not get the disease. If the germs of the mother infect the baby, the child will be born with the disease.

### 3. Blindness (due to gonorrhoea infection of the mother)

- a. Treat the mother before she gives birth.
- b. Place 1% silver nitrate ophthalmic solution in the infant's eyes at birth. If this is not available, ophthalmic penicillin drops can be used.

### 4. Birth Defects

- a. Some birth defects may be caused by the mother having rubella (German measles) during her pregnancy. Mothers who have not acquired immunity should be immunized as soon as they discover they are pregnant.
- b. The mother's use of certain drugs during pregnancy can lead to birth defects. In general, pregnant women should take as few drugs as possible and take drugs under a doctor's supervision (if available).

## 5. Prematurity or Low Birth Weight

- a. Discover and treat diseases and complications.
- b. Improve the mother's diet during pregnancy.
- c. Space pregnancies.
- d. Avoid excessive physical work during pregnancy.
- e. Give vitamin and mineral supplements when necessary.

## 6. Birth Injury

Early detection of problems (a pelvis which is too small, twins, etc.) can help prevent birth injuries. Refer these cases to specialists (a hospital).

### Care of the Mother After Birth

#### 1. Diet

The lactating mother should eat a well-rounded diet and drink plenty of liquids. The diet should be similar to that for a pregnant woman, with more liquids added.

#### 2. Personal Hygiene

She should bathe frequently, brush her teeth after meals, and shampoo often. She is healthy unless she has experienced complications in pregnancy or delivery. It is important for you to study local attitudes and practices which influence the health of new mothers.

#### 3. Medical Examination

She should be seen at the clinic within six weeks after delivery to have her weight and blood pressure checked. The medical staff will check size of her uterus and look for evidence of infection or bleeding. Breast-feeding should be encouraged.

## Care for the Newborn Child

### 1. Diet

The child should be fed by breast alone for the first four months, when semisolid foods can supplement breast-milk.

### 2. Personal Hygiene

The child should be bathed daily, the diaper changed regularly, and the navel protected from dirt and insects. Educating the mother and birth attendant about the importance of cleanliness in cutting the cord, keeping the newly cut cord open to the air and dry, and not applying dirt to "stop the bleeding" is crucial in preventing tetanus and reducing neonatal mortality.

### 3. Medical Examination

The baby should be taken to a children's clinic as soon as possible after birth to:

- a. Detect any abnormalities, infections, or complications;
- b. Weigh the baby and begin the Road to Health Chart (See Appendix C);
- c. Vaccinate the child against tuberculosis with BCG and plan for DPT and polio immunization;
- d. Encourage the mother to breast-feed and use good hygiene.

### Possible Educational Activities

- e. The use of child clinics, can be encouraged through posters, meetings, and home visits.
- e. In New Guinea, medical workers accompany census officials and tax collectors to immunize and check for communicable diseases.
- e. Review the contents of this chapter and identify specific educational goals and methods, as was done in the previous chapter in respect to

nutrition.

- There is growing worldwide concern about the need for more effective immunization campaigns. Consider what you can do at your level to support such efforts. A chart describing immunizations for children follows, and Appendix F may assist you in planning the educational components.

### Breast-Feeding

Mothers should breast-feed their babies. Breast-feeding is the single most important measure in preventing death and disease in infancy. Presently, there is a dangerous trend away from the breast toward the bottle, resulting in preventable deaths from nutritional diseases and diarrhea.

Many people of the world live in scattered villages, are poor and have no adequate water supply, limited fuel, few cooking utensils, and poor storage facilities. Kitchens and bottles are difficult to keep clean and the means for preparing baby bottles are very limited. Water is often polluted, the milk formula is over-diluted or poorly mixed, the nipples and bottle are rarely washed properly and are therefore sources of disease-causing germs. In these circumstances, mothers who do not breast-feed or who stop too soon are condemning their infants to suffering and perhaps death.

Babies who are breast-fed have fewer illnesses and less diarrhea during the first year of life. The milk supplies the protein necessary for body and brain development, and helps prevent marasmus (starvation) in the first year of life and kwashiorkor later on. Health education must stress

the value of breast-feeding and the dangers of bottle feeding. In the case of a mother who cannot nurse, bottle feeding can be used, but extra caution is necessary so that the baby will not become ill.

#### Why Breast Milk is Best for Babies

1. It is the natural food for babies and is suited to their needs and digestion. Human milk has all the necessary nutrients in the correct proportions to be digested and used by the baby.
2. It is always ready and needs no preparation or cooking.
3. It costs nothing, while all other milk is expensive, especially powdered milk.
4. It is warm and clean. If the mother is careful to keep her nipples clean, there is little chance of infection.
5. It contains elements (antibodies) which will be passed to the baby and help prevent illnesses caused by many contagious diseases.
6. Breast-fed babies usually feel warm and secure because they get more mothering, cuddling, and fondling.
7. Breast-feeding sometimes delays pregnancy, allowing the mother to nurse longer and therefore to better assure good health for her baby. This is not, however, a reliable method for family planning.

#### Benefits to the Mother Who Breast-Feeds

1. Breast-feeding causes less work; there is no need to mix formula, heat it, or clean and prepare pots and pans or bottles.
2. Breast milk is produced naturally and costs nothing.

3. Nursing helps the mother's uterus to return to its normal size and state.

4. Breast-feeding is satisfying to the mother and is a means for her to show her love to her baby.

5. Although breast-feeding will not always prevent pregnancy, if done consistently it sometimes can. This can be of help to the mother who needs time to readjust physically and emotionally after giving birth.

Health education concerning breast-feeding is being complicated by the widespread advertising of infant foods and milks by commercial companies and by the seeming success of artificial feeding by well-to-do mothers all over the world.

Ways to alter this trend:

1. Increase the importance of breast-feeding by involving the prominent local women (leaders) in the community in the health education program.

2. Provide health education, especially for school children and for pregnant women.

3. Try to counter the commercial pressure put on parents to bottle feed through your educational efforts including posters, mothers' clubs, spot announcements over the radio, and so forth. Encourage your community to question why they are being urged (or manipulated) to buy prepared baby foods. Explore other ways of being a "good parent," such as through immunizing children, using clean water, etc.

## Introducing Solid Foods (Mixed Foods)

During the first four to six months of life, a mother's breast milk is all that is necessary. From then on the child will begin to need iron supplementation and other foods as well as breast milk. This is a dangerous period because a child who does not receive the proper solid foods will become ill from protein-calorie malnutrition.

A baby grows rapidly and therefore needs a large amount of protein. But, because of poverty, custom, or lack of knowledge, the weaning diet usually consists almost entirely of carbohydrates.

Instructions to mothers regarding weaning:

1. First four to six months of life: breast-feed only (unless there is some specific nutritional need); iron supplementation at about four months.
2. After four to six months:
  - a. Breast-feed at least to 12 months of age, preferably longer
  - b. Begin offering semisolids, chosen from the protein foods available, at four to six months of age.
  - c. By one year, the child's diet should include all items in an adult diet.

Facts to Emphasize

1. The baby is growing fast so body-building protein food is important

Examples:

- a. Soups made from meat, beans, peas
- b. Hard cooked egg yolk until the first year and then lightly cooked eggs.

- c. Well pounded meat, poultry, fish, or groundnuts
- d. Cereals prepared with milk or egg

Vegetables and fruits are also important.

2. The baby has no teeth, so his foods must be soft and well-cooked.
  - a. Foods may be pushed through a sieve;
  - b. They may be softened by grinding, washing, or pounding.
3. Babies get ill very easily so everything must be very clean:
  - a. A clean cup and spoon should be used, not fingers.
  - b. Food should be stored so that dirt, flies, and other insects cannot get on it.
  - c. People who feed the baby should wash their hands first.
  - d. Babies should drink clean, preferably boiled water.
4. Small children have small stomachs; they cannot eat all the food they need in one meal each day. The baby should be fed at least four times a day, more often in the first month.
5. Weaning should always be gradual: from breast to cup, from liquids to solids.
6. All new foods can be offered a little at a time, increasing the quantity each day. Offer a new food before breast milk. Once the baby likes it, offer it after the breast milk.

### Pregnancy Spacing and Family Planning

Large families are still customary in many societies; many children are necessary to help grow food and share the work. Children are a guarantee that parents will be looked after in their old age. Also,

parents have as many children as possible to replace those who may die in early infancy and childhood.

Families usually know that it is best to leave a space of a few years between births. And increasingly, they realize that they can feed, clothe, educate, and give more time to their children when they space their births. Some families are also beginning to realize that spacing and improved health care helps more of their children survive until adulthood so that fewer births are required to produce the desired family.

### Reasons for Pregnancy Spacing and Family Planning

#### 1. The Mother's Health

- a. Too many pregnancies use up a mother's store of iron and protein and increase her risks of difficult delivery. By spacing her pregnancies at about 3 year intervals, she offers her body the chance to fully recuperate from her last pregnancy.
- b. Too many children can be a burden on the mother and can make her tired and ill.
- c. A pregnancy when the mother is too old for safe childbearing may cause her death and leave her children motherless.

#### 2. The Child's Health

- a. Each child needs individual attention during his early years in order to develop properly.
- b. A child weaned too early from the breast to make room for a new baby is at great risk from protein-calorie malnutrition. A sufficient interval between one pregnancy and the next will allow the first

infant to be breast-fed for two years and weaned before the mother becomes pregnant again.

- c. Children have a better chance of being well-fed, well-clothed, and well-educated if there are not too many of them.
- d. Home life is happier when the home is not overcrowded and parents have time to enjoy each child.

### 3. The Father's Health

- a. A father who is overworked and worried because he must support a large family may become ill.
- b. A father will be happier if he is able to choose a job he likes instead of feeling forced to take one or more jobs that he does not like in order to provide for a large family.
- c. If there are fewer family pressures and no fear of an unwanted pregnancy, both husband and wife will probably find their sex life more enjoyable, and this can lead to a more stable family life for all.

### Possible Educational Activities

Let the people know that it is possible to safely and conveniently space children. Inform them that many people already use these methods and that if the community wishes, family planning services can probably be found. Since the desire to avoid pregnancy during breast-feeding is widespread, it is possible to base pregnancy-spacing education on this desire and to encourage starting a method at least before the mother's menstruation returns after delivery.

## Innovations in Maternal and Child Health Services\*

Some current projects may serve to stimulate ideas for community involvement in maternal and child health care. (See Appendix F)

- A maternal and child health center was established at a hospital in Ghana for comprehensive, integrated-care of children under five and provision of antenatal, family planning, preventive and curative services. The MCH center is physically separated from the rest of the hospital although the same staff delivers all services. Demonstration gardens are attached to the facility. Clinic attendance is up, waiting time is down, and congestion in the out-patient department has been reduced. Preventive services have been made more available.
- Recognizing the importance of the local traditional practitioners in the health system, a project in Nepal has adopted some of their practices. For example, the umbilical cord is not cut for 4 to 8 days after delivery, which reduces risk of neonatal tetanus. Deliveries are done with minimum equipment. The maternity clinic card, which contains a record of antenatal care and family planning information, is retained by the mother and is available to the person assisting with the delivery in a home or health facility.
- In Zambia, hostels with cooking facilities are provided for expectant mothers because of problems with inadequate transportation and difficulty in predicting the date of confinement. Thus, there is opportunity for prenatal health education and provision for proper supervision of the delivery.

\*American Public Health Association. The State of the Art of Delivering Low Cost Health Services in Developing Countries, APHA, Washington, DC January, 1977, p. 23.

- o In Zaire, a sterile umbilical cord dressing pack, including a razor blade, is sold to each expectant mother after 8 months of pregnancy so that necessary equipment for cutting and tying the umbilical cord will be available whether the child is born at home or a health facility.
- o A project in Ghana was facing two seemingly unrelated problems. On the one hand, there was a high incidence of communicable diseases in the community. On the other hand, the project staff had to contend with mothers bringing to the health center not only their sick children but all the healthy ones as well, since there was no one to care for them at home. Arrangements had to be made to supervise the "extra" children. To solve the problem, the community helped to build an "adventure playground" where the children not in need of medical attention could be left to play. The idea of a playground is not new, but this particular one is unusual in that it also serves as an immunization center to fight communicable diseases. The project reports that the health center is "full of kids" from the time the doors open and that health education has become an important aspect of project activity.
- o In an effort to gain community support for family planning activities, a project in India sought the participation of interested and influential formal and informal community leaders as the initial step in contacting individuals and groups. The involvement of these leaders has created awareness of and social support for certain health activities, and has helped to solve the problem of

existing but poorly utilized services. This approach has also aided in neutralizing unfavorable influential sources in the community. A second activity of this program is the establishment of contraceptive depots in the villages, making free contraceptives available near where people live. The depot holders are selected so that every subcultural group in the community is represented. Both of these activities have aided in diminishing the target population's cultural, religious, and psychological barriers to accepting family planning services.

- o Another project in India recognized the combined problems of population increase and food shortage. This project provided family planning information and services as well as techniques for increasing food production and improving agricultural practices in general. Voluntary community leaders who are members of the National Farmers Organization participate in the program, and consequently there is better coordination and utilization of existing services and facilities. As a result of this approach, the project has better acceptance of family planning practices than the nearby nonproject area.

#### School Health Education

Schools offer an excellent setting for improving the health of the community. Children can be reached at age when practices can be influenced in an organized and controlled setting. Educated children are the future leaders of the community and can be current leaders in health education for their families.

A list of possible school health education measures follows:

1. Develop health education in the curriculum. In teaching language, use health subjects for practice; for example, provide a "health vocabulary." Teach percentages in reference to a vaccination campaign.
2. See that the school is provided with a sanitary water supply, and that students understand its importance and use it. Students can get practical experience by taking sanitary improvement measures in their communities.
3. See that the school has sanitary latrines and that students understand their importance and use them. Students can build sanitary latrines beginning at their own homes.
4. Educate and organize students in community clean-up campaigns. Such efforts reduce fly and mosquito breeding places, remove accident hazards, make an area more aesthetically pleasing, and give confidence to students in their ability to complete successful group projects.
5. Start a school garden, giving priority to legumes, greens, and carrots that can supplement diets consisting mostly of cereals and starchy roots.
6. Develop your surveillance of students for health and nutritional problems and counsel according to needs. Educate the parents on the most common problems found.
7. Promote a safety program in sports and other activities, especially around the home.
8. Do not smoke cigarettes. Smoking in front of students, who are only too prone to imitate adults, can cancel the health benefits of many of your other efforts. Emphasize dangers of tobacco, alcohol, and other drugs.
9. Promote collaboration between teachers, parents, and health officials on health priorities. (Include students in this collaboration.)

10. Teach students first aid. (See Chapter 10)
11. Provide education on pregnancy needs and pregnancy avoidance where desirable. Promote family life education, with emphasis on spacing pregnancies and planning for optimal family size.
12. Start a project raising rabbits, ducks, or chickens. This not only benefits the children's diet but also provides feeding and disease control demonstrations.
13. Take students on food market surveys, explaining cost values.
14. Involve students in sanitary preparation of nutritious new food combinations. This can be fun!
15. Demonstrate food protection and preservation.
16. Show students where and how flies and mosquitoes breed.
17. Encourage people to wash their hands before they eat and after they defecate.
18. Involve students in health and sanitation surveys.

## CHAPTER IX

### CONTROL OF COMMUNICABLE DISEASES

Communicable diseases are diseases transmitted from one person or animal to another. Deaths from communicable diseases continue to be common in many parts of the world. Among the reasons for this is the fact that people know little about these diseases. You can play an important role in the control of communicable diseases by helping people in your community understand that these afflictions are caused by various organisms, that they are transmitted from one person to another, and that they can be prevented by breaking the transmission cycle.\*

#### What Causes Disease?

The communicable diseases are usually caused by microscopic living organisms called "germs". There are several types of germs that cause specific contagious diseases. For example, tuberculosis is caused by one kind of bacterium, polio by one type of virus, malaria by one kind of protozoa, and parasitosis by various worms.

\*For a detailed description of symptoms, treatment, and control measures for specific communicable diseases, an excellent resource is Control of Communicable Diseases in Man, 12th edition, available in English from the American Public Health Association, 1015 15th St., N.W. Washington D.C. 20005, in Spanish from the Pan American Health Organization, 525 23rd St., N.W. Wash., D.C. 20037, and in French from Approvisionnement et Services Canada, Hull, Quebec, Canada K1A 0S9.

## How Diseases Spread?

As long as the germs remain in the body of their host (a human being or an animal), they cannot threaten other potential hosts. If the host dies, the germs will also die.

For germs to survive they must be transmitted to another host. There are several ways of exit from the original host. The nose and throat are the most common modes of exit. Sexual intercourse and discharges of the gastrointestinal tract (feces) are other ways.

On gaining exit, the germ must find some means of transportation to the body of a new potential host. Here again, the method of spread is limited by characteristics of the germ. The syphilis germ requires sexual intercourse for transport to a new host. Certain others must rely upon other living things (vectors), such as mosquitoes for malaria or lice for typhus, for transport to a new host. Many germs, however, are more adaptable for transmission. The germ of tuberculosis, for example, can live in the open air, in dust, in nasal and oral secretions (sputum), and in dark places and still remain capable of causing the disease when it enters a new host.

Even with a potential host nearby, successful spread of infection does not necessarily follow. The germ must find a suitable mode of entrance into the body of the new host. Generally speaking, the mode of entrance is the same as the mode of exit. For example, the diphtheria germ must leave and enter through the respiratory system (cough-inhale), the typhoid germ through the digestive system (fecal-oral), and the malaria germ through the pierced skin. In some cases, there is an intermediate host. For example, the organism causing schistosomiasis

passes from human feces into water and enters certain snails. It changes in the snail, enters the water, and then penetrates the skin of people who enter that water.

#### How Are Communicable Diseases Controlled?

The control of diseases involves each step in the spread of disease the organism (germ), its present hosts (sources), its spreading agents (vectors), or potential hosts (victims). The measures taken are aimed at preventing the organism's spread and increasing the resistance of potential hosts.

#### Prevention of Spread

The first step is to attack the organism, which is often difficult because the organism is usually living with a live host. At times, it is necessary to eradicate the source (host) to eradicate the organism and eliminate the disease. This is true with rabies and with tuberculosis of cattle. Plague, typhus, and a number of other diseases can be controlled by a similar attack against their animal reservoirs.

A common approach to eradicate the organism is through treatment of infected persons. If the germ is eradicated at this point, it will not spread to infect other potential hosts. The human sources are prevented from infecting others by limitation of their movements (isolation) and by treatment of the infection.

Fundamental to this attack is a system for finding cases of communicable disease. The value of reporting cases is in the clues they give to finding further sources and contacts. Case-finding methods include tuberculin tests and chest X-rays for tuberculosis, stool exams for typhoid fever and other intestinal infections, nose and throat cultures for diphtheria, and vaginal and urethral smears for gonorrhea.

Many communicable diseases require some type of transmitting agent (vector) to spread the disease organisms from the source of a potential host. Common living agents are insects, snails, and other animals. Inanimate articles, such as a contaminated drinking glass, a handkerchief, or a hair comb may spread a disease. This can occur when a germ that does not need to be immediately transported to a new host is deposited on the article by a source; later, the germ enters the new host. Many successful approaches to controlling communicable diseases have been aimed at transmitters of disease.

#### Examples of How Diseases Spread

##### ASCARIS ( a roundworm)

1. Person has ascaris worms in intestines,
2. Person defecates on ground (does not use latrine or toilet); feces contain ascaris eggs,
3. Eggs mature in soil,
4. Eggs washed by rain onto growing vegetables,
5. Person eats vegetable with eggs on it, or
6. Eggs stay in soil,
7. Person gets soil with eggs in it on his hand, puts hand in mouth,

8. Eggs enter body where they become adult worms and eventually produce more eggs

9. Etc.

#### SCHISTOSOMIASIS

1. Person has schistosomiasis in intestines or other organs
2. Person defecates on the ground (does not use latrine or toilet); feces contain eggs.
3. Eggs are washed by rain into fresh water (stream, river, lake),
4. Eggs mature into organism called miracidium,
5. Miracidia enter snail host,
6. While in snail, eggs mature into organism called cercaria,
7. Cercariae leave snail, enter water,
8. Cercariae enter through pores into skin of person who enters water,
9. In person, cercariae grow into mature worms,
10. Worms produce more eggs,
11. Etc.

#### MALARIA

1. Person has malaria parasites in blood,
2. Person is bitten by mosquito, which sucks blood containing parasite eggs,
3. Eggs mature in mosquito,
4. Mosquito bites another person who receives mature parasites from the salivary glands of the infected mosquito.

Attacks made by public health workers at each point in the chain of mosquito-borne disease show how these methods can succeed. The mosquito can be destroyed by chemical insecticides, particularly when used on walls

walls of houses where mosquitoes rest after feeding. Breeding places can be eliminated by filling them or by making them unsuitable through spraying with oils and insecticides. Use of nets and screens keeps the mosquito from contact with the potential human host. The person infected with malaria can be isolated from mosquitoes. Healthy persons can be protected by taking antimalarial pills.

Similar measures aimed at other live transmitters are: delousing, rat-proofing, proper garbage disposal, and destruction of flies. Measures related to inanimate transmitters include thorough cooking of pork, burning of articles contaminated by a person with tuberculosis, boiling of water or milk, and construction and use of latrines.

#### Increasing the Resistance of Potential Hosts

A person's general state of health and nutrition is very important to the body's ability to resist disease. Under the same circumstances a severely malnourished child infected with measles has a far greater chance of dying than a child of normal weight. Good general health and nutritional habits are essential if the potential host is to be able to resist disease.

Another way to increase host resistance is to give vaccinations that stimulate formation of a system of defense within the body. Most communicable diseases, including tuberculosis, polio, measles, diphtheria and tetanus can be prevented with immunization.

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SOME BASIC INFORMATION ABOUT  
IMMUNIZATIONS (VACCINATIONS)  
FOR CHILDREN UNDER TWO\*

| To Prevent  | Age of Child When Given  | Comments  |
|---|--|---|
| Tuberculosis<br>(BCG Vaccine)                       | At Birth<br>(1 shot only)  | Immunize at birth or as early as possible after. Do not give if infant has skin rash, fresh smallpox vaccination or burns. The shot makes the arm sore and leaves a scar.   |
| Polio<br>(Infantile Paralysis)                      | No. 1, 3-5 months<br>No. 2, 6-8 months<br>No. 3, 9-11 months<br>Booster: 18 months | Oral polio vaccine is given in the form of drops in the child's mouth. Do not give while child has diarrhea. The baby should not be breast-fed two hours before or after giving the drops.                                  |
| Measles   | 9 months   | Do not give if child has fever, rash, or is allergic to eggs. Measles can be a very serious disease, particularly if child is malnourished.   |
| Diphtheria<br>Pertussis<br>Tetanus<br>(DPT Vaccine) | No. 1, 3-5 months<br>No. 2, 6-8 months<br>No. 3, 9-11 months<br>Booster: 18 months | Like measles, diphtheria, pertussis (whooping cough) and tetanus (lockjaw) can be serious childhood diseases. Tetanus of the newborn can be prevented by immunizing pregnant women, as well as by clean midwifery services. |

\*For further information about immunizations, contact your local office of health or WHO representative. Immunization schedules may differ from country to country, and protection from other diseases may also be necessary, as well as immunizations for older children and adults.

See Appendix F for information about health education and immunization campaigns.

## Personal Hygiene

Personal hygiene includes those protective measures by the individual which promote health and limit the spread of infectious diseases, chiefly those transmitted by direct personal contact.

### 1. Keeping the body clean by bathing

- a. Soap and water baths remove dust, dirt, perspiration, and other waste materials that harbor germs.
- b. Cold baths or showers during hot weather helps to prevent prickly heat (heat rash) and other skin infections and rashes.
- c. Bathing helps to prevent body lice.

### 2. Keeping hands and nails clean to prevent spreading germs.

- a. Hands should be washed in soap and water:
  - . Before preparing or eating food
  - . Before handling eating utensils
  - . Before feeding babies or others
  - . After each use of the latrine
  - . After changing a baby's diaper
  - . After handling animals or cleaning their pen
  - . After working in the garden or fields
  - . After handling a baby or sick person

### 3. Brushing teeth because food sticks to teeth, and if left there causes them to decay.

- a. Brush teeth after meals or in the morning and evening.
- b. Use clean water. If it is not clean, boil it for 10 minutes.
- c. If unable to brush, rinse the mouth with clean water after eating.

- d. Use a commercial toothbrush or make one from a twig: Select a short, soft, non-poisonous twig. Peel off 2 centimeters of bark at one end and then pound, chew, or shred the peeled end to form the "brush".
- e. Use salt and baking soda, clean charcoal, or commercial toothpaste. Do not use ash, cinder or other coarse materials that may scratch the gums and teeth. Use only your own toothbrush. Wash it in clean water after each brushing.

4. Care for hair.

- a. Hair should be washed with soap and water every 10 days to 2 weeks. If it is oily, wash it once a week.
- b. Lemon juice can be used in the rinse water to help remove soap.
- c. Comb and brush the hair daily, using your own comb or brush. Wash the comb and brush every time you wash your hair.
- d. Head lice: These are small insects that cause itching when they bite; they suck blood from the scalp. To avoid them, shampoo regularly and use your own comb and brush. If lice are present, DDT or other insecticide powder can be dusted on the hair. Use Caution. Insecticides are poisonous. Leave the powder on for 10 days and then wash with soap and water. If kerosene is used, apply only a small amount because it can burn the scalp. It is not as effective as DDT and requires more than one application. Commercial preparations may be available from health centers.

5. Wear clean and adequate clothing.

- a. Skin exposed to wind, dirt, sun, chance scratches, and insect bites has a greater possibility of contracting disease. However,

sunlight on bare skin is the chief source of vitamin D, so some exposure is necessary.)

- b. Dirty clothes can carry disease germs and attract body lice; wash clothes often.
  - c. Shoes support the feet and protect them from injury, heat, cold, wet, and dirt, as well as worms, and tetanus, and other infections. Shoes that do not fit properly should not be worn, especially by children.
6. Avoid using other people's personal articles.
- a. Everyone should use his own toothbrush, towel, wash cloth, handkerchief, hair brush, and toilet articles.
  - b. Everyone should have his own drinking glass or cup. Children should have their own bottles.
7. Avoid exposing others to germs from the nose and mouth, as in spray from coughing, sneezing, laughing, talking, or spitting.
8. Keep the living environment clean.
- Dirty homes and communities attract mice, rats, roaches, flies, lice, mosquitoes, and other pests that can carry disease.
- a. It is easier for people to keep clean if their environment is clean.
  - b. Overcrowding, dampness and lack of ventilation favor disease, especially tuberculosis.
  - c. To keep a house free from disease-carrying insects and rodents, it should be dry, warm, and in good repair. In locales where insects are disease carriers, windows should have screens and people should sleep under mosquito netting.

9. Sleep in a clean, properly ventilated room.

- a. Too many people sleeping in one room makes the air uncomfortable and facilitates transmission of diseases (especially tuberculosis) from one person to another.
- b. Keep the bed clean by washing and airing the linen regularly.

10. Maintain cleanliness in keeping and preparing food.

Foods that are important for health can also be carriers of disease. For example, food that has been fertilized with human wastes, food stored in places where mice, rats, and roaches can get to it, or foods such as meat and milk products that easily spoil or have been exposed to flies and dust can all cause serious illness. To prevent this from happening:

- a. Wash all fruits and vegetables in pure water. If food has gone bad, burn or bury it.
- b. Wash hands before cooking or eating food.
- c. Keep cooking utensils clean.
- d. Keep food covered and safe from flies and other household pests.
- e. Wash and rinse dishes with water as hot as the hands can stand. Allow dishes to dry in the air, but protect them from flies, insects, etc.
- f. Cook meat thoroughly to kill any germs.

Waste Disposal

Wastes include trash, garbage, human excreta, used water, and animal waste. Garbage and trash left around the home serve as food for insects and rodents. Flies, roaches, mice, and rats often carry germs of communicable

diseases such as typhoid fever, dysentery , rat bite fever, food poisoning, and cholera. Wastes should not be allowed to accumulate in the home or yard because they invite disease-carrying insects. Disposing of wastes safely is one of the first steps in preventing disease.

Human waste (feces, urine, nasal discharges, etc.) can carry germs that cause hookworm, typhoid fever, dysentery, schistosomiasis, cholera, roundworm, infectious hepatitis and many other diseases. Few health changes could be more important than helping a community properly dispose of human wastes. Human waste, left in the open or lightly covered with dirt, quickly spreads throughout the community by means of rainwater, wind, insects, rodents, or other ways to contaminate drinking water and food. Disease organisms also find their way directly into the mouths of children, the skin of farmers, the eyes of babies; germs threaten everyone.

In most areas, the safest and cheapest way to dispose of human wastes is the sanitary privy or latrine. Two types of latrines are available, the hand-flush water type and pit latrines. Hand-flush latrines<sup>1</sup> have the advantage of being almost odorless and can therefore be close to or in the house. They also completely protect against the breeding of flies and other insects. Hand-flush latrines can be built for not much more than the cost of a pit latrine, but money can be saved on the shelter because it need not be flyproof. They do require small amounts of water for flushing (less than a liter per flush) and the water cannot be allowed to freeze.<sup>2</sup>

1/ A number of countries including Thailand, Malaysia, and the Republic of China, have had considerable success with hand-flush latrines in rural areas. Detailed instructions on waterseal latrines are available from APHA.

2/ An excellent resource describing the procedure for building a water-seal privy is a booklet entitled Thailand Water-Seal Privy Program by Barry Kar (Thai-American Audiovisual Service. December 1961).

The pit latrine can be built by digging a hole and building a small house over it. Check with the local sanitary inspector to see how deep the hole should be. The latrine should be at least 10 meters from the house 35 meters from any water source (well, river) and lower than the level of the water source. It should be in a dry place and not over a stream or river. The floor should be covered with tightly fitting boards or bamboo, or a concrete slab. Make a hole in the middle of the floor over the pit you have dug. Cover the hole with a lid of iron, wood or other solid material to keep the hold dark and keep flies out. You should replace the cover each time you use the latrine. Insecticides should be poured into the hole to destroy insect maggots and larvae.

The house over the latrine can be built of wood, bamboo, or other materials. A vent in the roof carries odors away, and should be screened so that flies do not enter. Painting or whitewashing the latrine inside and out will make it easier to clean, and it will last longer. Scrub the inside walls and floor of the latrine with disinfectant, soap, and water at least once a week.

When the latrine hole is two-thirds full, move the house, if possible, or burn it for fuel. Fill the hole with dirt. Another hole can be dug and the house put in place or rebuilt over it.

When a sanitary latrine is not available, human waste can be discarded by digging a hole and completely covering the hole after use.

Garbage consists of food wastes such as bones, peelings, and scraps. It should be collected in a container with a tight-fitting lid and can be used for fertilizer or animal feed, or buried. For fertilizer, place it in a pit, sprinkly a thin coat of lime over it, and cover it with

25 centimeters of dirt to keep flies and animals out. Leave it buried two to three months before using.

Trash such as tin cans, old bottles, rusty nails, old rags, broken dishes, paper, and brush provides breeding places for rats. Stagnant puddles and anything that holds water can be breeding places for mosquitoes. Trash should be separated from the family garbage and discarded regularly. Burn what can be burned and bury the rest.

Animal wastes inside or around the house carry disease germs and attract flies that spread the germs. Animals such as cows, chickens, pigs, or goats should be penned at a distance from the house. Their wastes can be used as manure (fertilizer) but should not be allowed to attract flies. Store this manure, covered in a special area, away from the house. Wastes from cats and dogs should be cleaned up or covered over to avoid flies and other insects.

Waste water from washing can be used for watering the garden but should never be left in uncovered containers or allowed to stagnate. Pools of water in the yard are breeding places for mosquitoes and other insects. If no piped or closed drainage system exists, a hole can be dug in the ground and filled with rocks. Waste water poured into the hole will filter through the rocks and into the earth.

#### Using Safe Water

Most rural people continue to suffer from the lack of a safe and adequate supply of water for drinking and other uses. Helping the community understand the importance of clean water and stimulating people to protect their water sources can be extremely important tasks. These require

strong community support because you may be asking the people to make difficult changes.

The water from an open pond may taste better than water from a protected well. Building safe wells and springs may require hard work and expense. The community must make decisions about where wells will be located, who will maintain them, and how to get funds for spare parts or repairs. But the results can be easily worth the effort in protecting the community from such diseases as typhoid fever, dysentery, cholera, and other water-borne diseases.

Decisions about the location and installation of safe water supplies will probably require outside advice from a sanitarian or engineer. For example, it will be important to ensure that no latrines are within 35 meters of the water supply and that the wells are properly sealed.

It is possible to make water safe by boiling it for about 10 minutes. In some communities people do this to make tea or coffee. Often, however, they object to the change in taste, the need to use expensive fuel, and the time required. If water must be boiled:

1. Boil the water in a clean container for 10 minutes
2. Let the water cool in a clean container. Cover it while cooling.
3. Pour it back and forth between two clean containers. This will add air to the water that was lost by boiling and it will taste better.
4. Use it to:
  - . Drink
  - . Wash fruits and vegetables to be eaten raw
  - . Mix with powdered milk or food
  - . Make ice
  - . Brush teeth

5. To store it:

- . Keep boiled water in a clean, covered container.
- . Keep it away from children, flies, rodents, etc. They can contaminate it.

### Control of Household Pests

Flies, mosquitoes, cockroaches, bedbugs, fleas, ants, ticks, lice, scorpions, rats, and mice are some of the most harmful insect pests. Their bites can transmit diseases. Flies transmit germs causing diarrhea and dysenteries, typhoid, cholera, tuberculosis, conjunctivitis (inflammation of the eyes), and worm infestations. Malaria, yellow fever, and filariasis are diseases carried by different kinds of mosquitos. Rats and mice destroy property and eat the family's food and food for animals. All of these pests live in dark, damp, dirty places, usually where garbage, trash, and stagnant water are found.

### Facts About Flies

- e The female fly lays her eggs in fresh manure and garbage. She may lay 600 to 900 eggs during her 30 day life-span.
- e One or two days later the eggs hatch into maggots that live for about 10 more days, eating the manure and garbage around them.
- e They then spend three to six days developing into full-grown flies under the manure or garbage.
- e The adult fly then feeds on human and animal wastes. Because the fly has a sticky body covered with thousands of tiny hairs, germs and worm eggs found in the feces of humans are carried on its body and legs.

- Flies carry these germs from feces to food as they fly from one to the other. They also pass germs through their feces and vomit.

#### Personal Protective Measures Against Flies

1. Make sure that no human waste matter is left exposed to the air where flies can feed on it. If building a latrine is not possible, dig a hole for feces and cover it completely with at least 10 centimeters of dirt.
2. Keep food and eating utensils covered.
3. Screen houses.
4. Enclose animals away from the house and keep their area clean.
5. Discard all garbage in a covered container or in a pit and cover it with dirt.
6. Bury all dead animals.
7. Use a fly swatter in the house when flies are present.

#### Facts About Mosquitoes

- They bite human and carry germs of malaria, yellow fever, and filariasis from the blood of the sick to other people.
- They lay their eggs in stagnant water such as lakes, ponds, puddles, and waste water that lies motionless in uncovered barrels or drainage ditches.
- Mosquito eggs hatch in 10 to 30 days.
- The colder the weather, the longer the eggs take to hatch.

### Personal Protective Measures Against Mosquitoes

1. If possible, build homes on ground higher than the surrounding area so that water will run off and not stagnate in the yard.
2. Use screens on doors and windows of houses.
3. Use mosquito netting in sleeping quarters.
4. Bury all trash
5. Do not leave anything in which water or rain can collect and remain open to the air.
6. Use insecticide sprays with care and only when necessary.

### Facts About Bedbugs

- o They live in clothing and bedding, walls of houses, and in floors and ceilings of houses.
- o They live by sucking blood from people in bed.
- o Once in the house, they multiply rapidly and are hard to eliminate.
- o Bed bugs bite and are irritating. Their bites may become open sores that become easily infected.

### Personal Protective Measures Against Bedbugs

1. Take all the clothing and bedding outside and spread it on clothes lines or racks. Spray it with DDT and wash before using again.
2. Spread the mattress on a flat surface outside and spray it well with insecticide. It is not necessary to wash the mattress after spraying.
3. Take all the food out of the house. Open all drawers and move beds from the walls. Spray the walls, floor, ceiling, inside of drawers, beds, and anywhere else that bedbugs might hide.

4. One week later, repeat these steps. This will destroy the eggs laid by the bedbugs. It may be necessary to repeat the spraying a third time before all bedbugs are killed.

#### Facts About Lice

- Lice live in clothing and on the body. Most commonly, they are found in the hair.
- They bite people and cause blood loss.
- Lice can transmit typhus, relapsing fever, impetigo and eye diseases from one person to another.

#### Personal Protective Measures Against Lice

1. Boil all clothing, bedding, towels, combs, and brushes
2. Bathe all household members with soap and hot water.
3. Dust all bedding and mattresses with DDT. Repeat in one week.
4. Spray the walls and ceilings with DDT.

#### Facts About Ticks

- Ticks are often found on dogs, cattle, cats, horses, and other animals. They sometimes are found on people.
- They bury their heads in the skin and can be removed by lighting a match and holding it close to the tick's body. The tick will remove its head, trying to avoid the heat. Do not pull at the tick until it removes its head; the head might be left in the skin and cause infection.

- Ticks can transmit virus infections, encephalitis and paralysis, bleeding, Q fever, and relapsing fever. Their bites often become infected.

#### Personal Protective Measures Against Ticks

Prevent ticks by keeping animals out of the home and regularly removing their ticks. Animals that carry many ticks can be dipped into a bath containing insecticide.

#### Facts About Cockroaches

- They live in warm, dark places, usually where garbage is found. They leave their hiding places and come out at night to eat whatever food they can find.
- They often enter the house in foodstuffs brought in from the market or fields.
- They crawl over food and dishes, leaving behind the germs they carry.
- They carry diseases from sick to healthy people and can transmit dysentary.

#### Personal Protective Measures Against Cockroaches

1. Spray insecticide where cockroaches hide and where they might go at night. Remove food, dishes, and cooking or eating utensils before spraying.
2. Cover food to protect it from insects.
3. Remove garbage from the house
4. Wash dirty dishes promptly.

### Facts About Rats

- They carry diseases and destroy property. They also eat the food needed by people and their animals.
- They live wherever people live, feeding on garbage and food wherever they find it.
- They reproduce rapidly and are hard to eliminate.
- Rats can carry plague, rabies, rat bite fever, trichinosis, and typhus.

### Personal Protective Measures Against Rats

1. Do not leave garbage around. Keep it covered and outside the house; advice for burying garbage is found earlier in this chapter.
2. Use traps to kill rats, but be careful that children do not play with the traps.
3. Poisons are available and should be used with caution. The local sanitation inspector can recommend what to use. Always wash your hands after handling rat poison. Keep it away from children, food, and animals.

A very important step in getting rid of pests is to involve the entire community. Most pests go from one house to another so that one family's efforts may mean little if the neighbors do nothing. Every village family must keep its own home and yard clean and sanitary.

### Educating About Communicable Diseases

Your educational objectives will ultimately be aimed at having people change their behavior to achieve, maintain, or restore good health. In order to reach this final objective, you must assist people through the

steps of (i) increasing knowledge, (ii) changing attitudes, and (iii) changing behavior. Actually changing behavior will probably require personal contacts with individuals and families and extensive community development work for communities. More often than not, it is a long, difficult process.

Education about communicable diseases may aim to help an individual, family, single community, or various communities together to improve their health. The following topics should be covered in communicable disease campaigns.

What causes the disease? How prevalent is the disease here?

What are the symptoms? How serious is the disease? What are the treatment possibilities? What side effects do they have? What preventive measures are effective? Which would be most appropriate here? What would be the complexity, practicality, costs, effectiveness, and possible side effects of each measure here?

In a latrine-building project, people need to know that human wastes are dangerous, that serious disease can be prevented through the use of latrines, and that they are convenient to use and inexpensive. They need to know how to build and maintain them and teach their children to use them. Parents, teachers, leaders and church groups should be a part of the organized effort. Committees should be organized to plan and implement the project. The educator may need to know about outside resources, how to arrange for a demonstration model, and how to organize a fund-raising campaign.

In the Philippines a community program was designed to emphasize preventive services called "Special Integrated Financing Program." It has

an innovative scheme through which people may borrow money and receive a 2% rebate on the loan interest if they meet the following conditions: (i) there must be no birth for one year, (ii) a vegetable garden must be planted, (iii) environmental sanitation must be improved, and (iv) the nutrition content of the diet must be upgraded. The 2% rebate is placed in a special savings account to meet medical expenses.\*

\*The State of the Art of Delivering Low Cost Health Services in Developing Countries, American Public Health Association, January, 1977, page 62 .

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CHOOSING EDUCATIONAL OBJECTIVES

| <u>DISEASES</u>  | <u>MODE OF SPREAD</u>  | <u>SELECTED EDUCATIONAL OBJECTIVES (PREVENTIVE MEASURES)</u>  |
|--|--|---|
| Polio, Diphtheria, Measles, Tuberculosis, Whooping Cough | Organisms spread by direct contact through nasal and throat secretions.                          | Vaccinations, immunizations; good nutrition; good personal hygiene; adequate ventilation and less crowding in homes; early detection and treatment; avoid contact with ill persons; isolation of ill persons  |
| Trachoma   | Organisms spread by direct contact through nasal and eye discharges and by contaminated articles | Avoid contact with infected persons or contaminated articles; early detection and treatment; good personal hygiene  |
| Smallpox, Diphtheria                                     | Organisms spread through direct contact with sores on skin and dry scabs                         | Avoid contact with sores on skin and dry scabs; good personal hygiene; vaccinations, immunizations  |
| Polio, Dysentery, Typhoid, Cholera, Worms, Infections    | Organisms spread from feces of ill person to water and foods consumed by others                  | Safe disposal of human wastes (latrines) and safe drinking water to break fecal-oral transmission; boil or filter water if necessary; control flies, rodents; vaccinations, immunizations; good personal hygiene; early detection and treatment; wash fruits and vegetables |
| Hookworm, Strongylosis                                   | Organisms spread from feces of ill person and penetrate bare skin of others                      | Safe disposal of human wastes; early detection and treatment; wear shoes.   |
| Tetanus  | Organisms spread from feces of ill person to environment, enter open wound                       | Safe disposal of human wastes; immunizations; early detection and treatment   |
| Filariasis   | Organisms spread from infected persons to others by mosquitoes.                                  | Application of residual insecticides; use of screens, mosquito nets, mosquito repellents (if feasible); fill and drain mosquito breeding places; early detection and treatment  |

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CHOOSING EDUCATIONAL OBJECTIVES (continued)

| <u>DISEASES</u>  | <u>MODE OF SPREAD</u>   | <u>SELECTED EDUCATIONAL OBJECTIVES (PREVENTIVE MEASURES)</u>   |
|--|---|--|
| Tetanus Neonatorum                                     | Same, enter umbilical cord wound  | Educate mothers and birth attendants on strict birth hygiene; disinfection of open wounds; immunization of pregnant women; safe disposal of human wastes.  |
| Schistosomiasis  | Organisms spread from feces of ill persons to snails, to fresh water, where they enter through person's unbroken skin | Avoid slow-moving, contaminated water; reduce snail habitats by draining and filling; use chemical products to kill snails; early detection through periodic stool exams; early treatment.                                       |
| Syphilis, Gonorrhoea                                   | Sexual contact  | Use prophylactics; teach mode of transmission and signs of disease; early detection and treatment; avoid sexual contact with high risk population.   |
| Malaria  | Organisms spread from infected persons to others by mosquitoes  | Regular use of suppressive drugs by high risk population; early detection and treatment; application of residual insecticides; use of screens, mosquito nets, and repellents (if feasible); filling and draining breeding places |
| Onchocerciasis<br>(river blindness)                    | Organisms spread from infected persons to others by blackflies  | Use insecticides to kill larvae; early detection and treatment.  |
| African Trypanosomiasis<br>(African sleeping sickness) | Organisms spread from infected persons to others by tsetse flies.   | Clear brush around fly-breeding areas; use insecticides to kill flies; early detection and treatment; use of prophylactic drugs by high risk population  |
| American Trypanosomiasis<br>(Chagas' disease)          | Organisms spread from infected persons to others by "cone-nosed bugs."  | Systematic use of residual insecticides; construct homes to minimize hiding places for bugs; use mosquito nets; learn modes of spread and prevention; keep (reservoir) animals away from dwellings                               |

## CHAPTER X

### ACCIDENTS: PREVENTING AND MEETING EMERGENCIES

Accidents are an important and unnecessary cause of death and disability in developing countries. Many of them can be avoided by education and other safety measures.

Vehicle death rates per kilometer traveled are extremely high in many developing countries. Education about the dangers of speeding and of drinking alcohol before driving, about wearing seat belts, wearing helmets when motorcycling, and looking out for children and other pedestrians is very important for developing countries.

Most communities in developing countries have many unprotected places where falls are likely. These accidents can be prevented through education.

Drowning is an important cause of death in many areas. Awareness of this hazard can have an impact, as can education about the need to be accompanied when bathing.

The potential dangers from other sources of accidental injury, such as burning and poisoning, can also be reduced through education. The most important types of accidents in your area can be discovered through a survey.

The next few pages outline some effective ways of treating several common types of injuries.

Ideas on educating others about injury treatment are found in the final section of this chapter.

### How to Control Bleeding from a Wound

The loss of two pints of blood is a serious matter; the loss of three pints can cause death. A break in the main blood vessels in the chest or abdomen can cause death in less than 30 seconds! It is vital to know how to control bleeding in an emergency. The correct action, performed rapidly at the scene of an accident, can save a life. If a person has a large wound and is bleeding:

1. Stop the bleeding promptly by pressing directly on the bleeding area with a clean cloth (for example, a handkerchief or piece of clothing,). If a cloth is not available, a clean bare hand can be used.
2. If there are no fractures (broken bones), raise the wounded part and support it so that it rests above the heart. If there are fractures, the injured part should also be elevated, but with great care.
3. Keep the victim calm and lying down.
4. Protect the victim from cold by covering with a blanket. Do not apply heat.
5. If the injured person is thirsty give plain water to drink. The water should not be hot or cold, and should not be given if the victim is unconscious, partly conscious, nauseated, or vomiting.
6. Seek help from a doctor, nurse, or other person trained in health care. If possible, take the victim to the nearest hospital or clinic (dispensary). If medical assistance is not available, or if many hours will pass before assistance is available, it is important to follow the steps below for control of infection.

## Prevention of Contamination and Infection of Open Wounds

An open wound is a break in the skin or mucous membrane. There are several types: scrapes, cuts, tears and punctures. The steps for first aid are:

1. Stop the bleeding immediately.
2. Protect the wound from contamination and infection.
3. Obtain medical attention if case is severe.

Step 1 has been covered above, now we go to step 2.

Open wounds can become contaminated with dirt and bacteria and thus become infected. Infection of surface wounds (those that are not deep) can be prevented by appropriate first aid measures.

Wounds without severe bleeding that are not deeper than the skin should be cleansed thoroughly before a bandage is applied.

1. To cleanse a wound, first wash your hands with soap and water.
2. Wash in and around the victim's wound to remove germs and other foreign matter.
3. Rinse the wound by flushing with clean water. It is best to use water that has been boiled, then cooled to a comfortable temperature.
4. Blot the wound dry with a clean cloth.
5. Apply a clean bandage, usually of cloth, and tie it securely in place. When the bandage gets dirty, remove it and apply a new one.
6. Caution the victim to seek medical help if symptoms of infection appear.

The time needed for healing may be greatly lengthened by infection, which is the result of invasion and growth of germs (bacteria) within the tissues of the body. Symptoms of infection include:

1. Swelling of the affected area
2. Redness of the affected area
3. A sensation of heat
4. Throbbing pain
5. Tenderness
6. Fever
7. Pus
8. Swollen lymph glands in the groin, armpit, or the neck.
9. Red streaks leading from the wound.

The threat of tetanus, or lockjaw, must not be overlooked if a wound becomes infected. If the victim has received a tetanus booster within the year preceding injury, a booster shot should be given. If the victim has not received a recent tetanus immunization, he will need to receive a series of them. Anyone with a severe wound that becomes infected should seek medical help immediately.

### Burns

Burns are classified and treated according to depth or degree of damage to the skin. Often the degree will vary in different parts of the same burned area.

First-Degree Burns are usually the result of light contact with hot objects or scalding by hot water or steam. The usual signs are:

1. Redness and discoloration
2. Mild swelling and pain
3. Rapid healing

To treat first-degree burns:

1. Apply cold, clean water or submerging the burned area in cold, clean water.
2. Apply clean cloth bandage, if necessary.

Second-Degree Burns often result from contact with hot liquids and flash burns from gasoline, kerosene or other flammable products. These burns are usually more painful than deeper burns. The usual signs are:

1. Depth greater than first-degree burns
2. Red or mottled appearance
3. Development of blisters
4. Considerable swelling over several days
5. Wet appearance of skin

In treating a second-degree burn:

1. Immerse the part in cold, clean water (not ice water).
2. Apply freshly washed or ironed cloths that have been wrung out in ice water.
3. Blot dry, gently
4. Apply sterile gauze or clean cloth as a protective bandage.
5. Do not break blisters or remove tissues.
6. Do not use any antiseptic preparations, ointment or spray.
7. If arms or legs are affected, keep them raised, using pillows or rolled clothing for support.

Third-Degree Burns can result from a flame, burning clothing, immersion in hot water, contact with hot objects, or electricity. Temperature and length of contact are important to know for determining extent of damage. The usual signs are:

1. Deep tissues destroyed
2. White, or charred appearance
3. Complete loss of all layers of the skin

To treat a third-degree burn:

1. Do not remove any adhered particles or burnt clothing
2. Cover the burn with thick sterile gauze or a freshly washed or ironed cloth.
3. Elevate the arms or legs if they are burned.
4. For severe facial burns, sit the victim up; seek prompt medical attention if breathing falters.
5. Do not immerse an extensively burned area in ice water. A clean cloth wrung out in ice water can be used, but only on the face, hands, or feet.
6. Arrange for transportation to a hospital, if possible.
7. If the burned area is large, medical help is not available within an hour, and the victim is conscious and not vomiting:
  - a. Offer a solution of salt and baking soda:
    - 1 teaspoon salt
    - $\frac{1}{2}$  teaspoon baking soda
    - 1 liter clean water (preferably boiled)  
that is neither hot nor cold
  - b. Allow victim to sip slowly

c. Offer every 15 minutes:

4 ounces (half a glass) to adults  
2 ounces to children 1 to 2 years old  
1 ounce to infants under 1 year

Stop if vomiting occurs.

8. Do not apply ointments, grease, or home remedies. They could later complicate and interfere with a doctor's treatment.

### Artificial Respiration

Some accidents and illnesses can cause the victim to stop breathing even though she or he is still alive. Common causes are blockage of the airways (choking), electrocution, drowning, shock, and illnesses such as diphtheria, asthma, or croup. Artificial respiration causes air to flow into and out of the lungs when natural breathing has ceased. Symptoms of respiratory emergencies include:

1. Cessation of breathing movements of the chest
2. Blueness of the tongue, lips, and fingernail beds
3. Loss of consciousness
4. Pupils that become dilated (enlarged)

In some cases, artificial respiration may save a life, but it must be started promptly. Most persons will die with 6 minutes or less after breathing stops unless artificial respiration is given.

There are several methods to administer artificial respiration but mouth to mouth is the best. (See illustration, page 166) Here are the steps

1. Place the victim on his back immediately.
2. Use your fingers to clear the mouth and throat. There may be food or other material blocking the movement of air into the lungs.

3. With one hand, grasp the victim's chin. Place your other hand on top of the head and tilt it backward.
4. Place the thumb of one hand between the victim's jaws. Grasp the lower teeth and pull the jaw forward. Pinch the victim's nostrils closed with the thumb and index fingers of your other hand. Always keep the victim's head tilted far back.
5. Take a deep breath and place your mouth over the victim's mouth. Keep your mouth open wide as you breathe into the victim's lungs. Breathe deeply into the victim, making sure that no air escapes between your lips and the victim's lungs.
6. Repeat steps 4 and 5 every 5 seconds until the victim breathes naturally.

For infants or small children, the procedure is altered slightly:

1. Tilt the head back, jaw forward.
2. Cover both the mouth and nose of the victim with your mouth.
3. Blow with small puffs of air from your cheeks.
4. Repeat step 2 every 3 seconds.

Your first breath into the victim will indicate if there is anything blocking the airway (throat). If there is, the chest will not rise.

If the obstruction cannot be removed with your fingers, roll the victim on his side and give a sharp blow to the victim's back, between the shoulder blades. Hold a small child by his ankles with head down or lean child forward with the chest over your thighs. Give two or three sharp pats between the shoulder blades. This should free any object in the throat. A further discuss of choking follows.

## Choking

Choking is the result of obstruction of the airway (throat). Consuming too much alcohol or wearing false teeth (dentures) may predispose a person to choking. People often choke on large, partly chewed pieces of food or bones in fish or chicken.

### Prevention

1. Cut food in small pieces and chew slowly and thoroughly.
2. Avoid laughing and talking during chewing and swallowing.
3. Avoid excessive intake of alcohol before or during a meal.
4. Restrict children from walking, running, or playing while they have food or foreign bodies in their mouth.
5. Keep foreign bodies, such as marbles, dried beans, stones, or thumb-tacks out of the reach of infants and small children.

### Methods for Relieving Obstruction

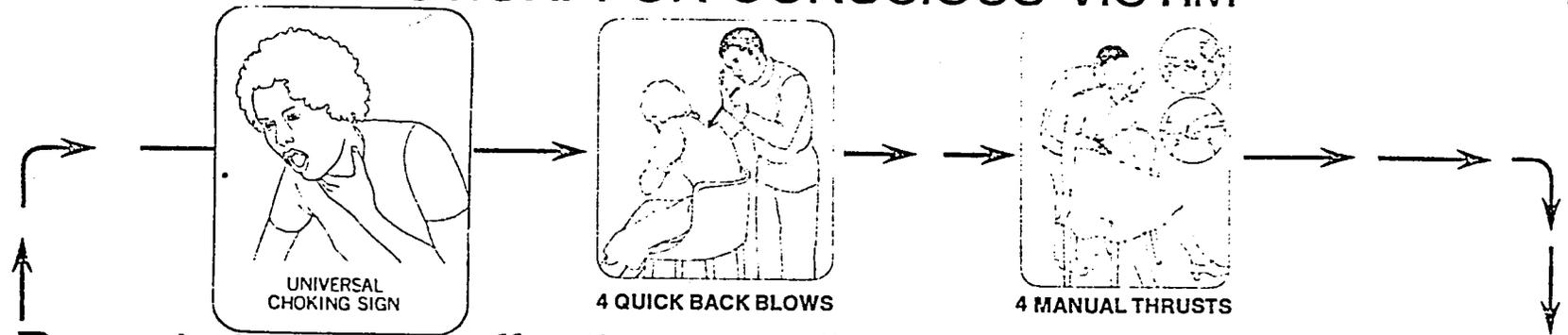
#### 1. Back Blows

These are a rapid series of sharp whacks given with the hand over the the spine and between the shoulder blades. They can be useful with the victim in a standing, lying, or sitting position. It must be noted, however that some experts urge rescuers not to use back blows. Such blows are said to be both ineffective and potentially harmful to the victim.

#### 2. Abdominal Thrusts

These are a rapid series of thrusts to the upper abdomen that force air from the lungs. They can be administered to the victim who is standing, sitting, or lying down.

# TAKE ACTION: FOR CONSCIOUS VICTIM



UNIVERSAL  
CHOKING SIGN

4 QUICK BACK BLOWS

4 MANUAL THRUSTS

Repeat steps until effective or until victim becomes unconscious.

# TAKE ACTION: FOR UNCONSCIOUS VICTIM



Continue artificial ventilation or CPR, as indicated.

Everyone should learn how to perform the above first aid steps for choking and how to give mouth-to-mouth and cardiopulmonary resuscitation. Call your local Red Cross chapter for information on these and other first aid techniques.

**Caution:** Abdominal thrusts may cause injury. Do not practice on people.

THE AMERICAN NATIONAL RED CROSS



a. Sitting or standing:

- . Stand behind the victim and wrap your arms around victim's waist.
- . Place the thumb side of your fist against the victim's abdomen, slightly above the navel and below the rib cage.
- . Grasp your fist with the other hand and press it into the victim's abdomen with a quick upward thrust.
- . Repeat if necessary.

b. Lying down:

- . Place the victim on his back and kneel close to his body, or straddle his hips.
- . Place one hand in the middle of the abdomen with the heel of that hand slightly above the navel and below the rib cage.
- . Place your other hand on top of the hand already on the victim.
- . Rock forward so that your shoulders are directly over the victim's abdomen.
- . Press toward the chest with a quick upward thrust.
- . Repeat if necessary.

3. Chest Thrust

This is an alternative technique to the abdominal thrust. It can be especially useful if the victim is far along in pregnancy, or when the victim is so large that your arms cannot encircle the abdomen.

a. Standing or sitting:

- . Standing behind the victim, place your arms under the victim's armpits and encircle the chest.
- . Place the thumb side of your fists on the breastbone, but not at its lower tip (you could injure the heart) and not over the lower edge of the rib cage (you could break the ribs or cause injury to the internal organs).

- . Grasp your fist with the other hand and exert a quick backward thrust.
- . Repeat if necessary.

b. Lying:

- . Place the victim on his back and kneel closely or straddle the hips.
- . Place your hands on the sides of the victim's chest with the heels of your hands at the level of the nipples but not over the lower edge of the rib cage.
- . Exert a quick downward and inward thrust with a squeezing motion.
- . Repeat if necessary.

### Fractures

A fracture is a break or crack in a bone and can be of two types:

1. Closed (or simple) fractures are those in which the bone does not break through the skin surface.
2. Open (or complex) fractures are those in which the broken bone protrudes through the skin.

Symptoms of a fracture include:

- o Swelling
- o Obvious deformities
- o Discoloration, often bruising
- o Pain or tenderness to touch
- o Differences in the shape and length of corresponding bones on the two sides of the body.

### Objectives of first aid:

- To maintain an open airway and give artificial respiration if necessary
- To prevent movement of the injured parts and nearby joints
- To control bleeding, if present
- To cleanse and protect open wounds, if present
- To apply splints if the victim must be removed, and if it is possible
- To remove victim if further danger if present
- To obtain medical assistance.

### Splinting

Splints are applied to the arms, legs, or trunk to immobilize an injured part when fracture is suspected, and to decrease pain and the possibility of further injury. The methods described here are for temporary use, until the victim can get to a clinic or hospital. A simple technique is to tie the injured leg to the other one, preferably with padding placed between them; or to bind an injured arm, after padding, to the chest if the elbow is bent, or to the side if the elbow is straight.

Very satisfactory emergency splints can be made from corrugated cardboard, newspapers, boards, straight-sticks, rolled up blankets, pillows, etc. The splint should be long enough to extend beyond the joints on either side of a suspected fracture. There should be adequate padding between the skin and the splint. The joints should be immobilized above and below the fracture and splints can be held in place by strips of cloth, large handkerchiefs, neckties, or bandages.

If the arm or leg is fractured, check the pulse in the wrist or over the instep and inspect the fingers and toes for swelling or bluish color. If the pulse is weak, or swelling or bluish color occurs, or the victim complains of numbness, tingling sensations, or inability to move the fingers or toes, loosen the ties immediately; they are probably too tight.

Remember:

- o The victim should not move the injured part.
- o The victim should not test for a fracture by moving the part or by trying to walk on a possibly broken leg.
- o If there is a possible head, neck, or back injury, do not allow the victim to move his head. Movement could cause paralysis.
- o If it is necessary to straighten and splint a deformed limb, place one hand above the break and one below. This supports the area.
- o For a fractured leg, have someone grasp the end of the limb and pull gently until splints are applied.

#### Snakebites

If a person is bitten by a poisonous snake from the group called pit vipers (rattlesnake, copperheads, etc.), there will be immediate pain, and the area around the bite will swell within an hour or two. The skin in the affected area will also change color.

If the bite is by one of the group of snakes that includes the coral snake, the cobra, and their relatives, there may be slight burning pain and swelling at the wound, nausea, vomiting, dimness of vision, and sweating. The bite of

nonpoisonous snakes causes little pain or swelling. In the case of such a bite, the necessary treatment is the same as for open wounds. (See procedures outlined earlier in this chapter.)

If a person is bitten by a poisonous snake and you have a snakebite kit, follow its directions carefully. If no kit is available, follow these steps in first aid within an hour of the bite:

- o Keep the victim quiet, lying down, and completely still. Calm the victim.
- o If the arm or leg was bitten, immobilize the area and lower it below the level of the heart.
- o Tie a band or narrow piece of cloth firmly 5 to 10 centimeters above the bite if it is on an arm or a leg. If the band is adjusted correctly, there will be some oozing of blood from the wound. It should not be so tight that blood does not flow to the hand or the foot. You should be able to insert your index finger under the band when it is in place. If swelling spreads away from the wound, apply another band a few inches above the first, leaving the first one in place.
- o Sterilize a knife blade with a flame and use it to make shallow cuts at each fang mark. Do not make cross-cut incisions. Do not cut deeper than the skin. Beware of cutting muscles and nerves of the hands, fingers, feet, toes or wrist because they lie very close to the skin.
- o Suck with your mouth at the bitten area. The poison of the snake will not poison you if you have no open cuts or sores in your mouth. Rinse any fluid from your mouth.

- If possible, wash the wound with soap and clean water, blot dry, and apply a clean dressing.
- Ice water or ice can be placed on the wound to ease the pain and swelling. It may also slow the absorption of the poison.
- Do not give alcohol in any form.
- If the victim stops breathing, give mouth-to-mouth artificial respiration. (See previous section of this chapter.)
- Take the victim to the nearest hospital or clinic as soon as possible. Keep the victim lying down if at all possible.

If, however, a large pit viper (rattlesnake) bites an arm or leg, the fangs usually go quite deep, injecting the venom into the muscle tissue. In this case, superficial cuts of the skin will remove virtually no venom and only increase the danger to the patient by additional manipulation of the bitten area. (The venom circulates through the lymph, which is pumped by movement only.)

#### Possible Educational Activities

Parents, teachers, adolescents, health committee members, and other groups can be offered demonstrations of various first aid techniques. Role-playing is an essential activity in these group gatherings.

A safety committee can be organized which assumes responsibility for promotion and education about first aid. The group can also distribute basic first aid kits to strategic areas throughout the community, or organize a disaster plan for communities regularly hit by floods, fires, earthquakes, etc.

## APPENDIX A

### Steps in Designing a Sample Survey

One of the most useful and economical means of gathering information about a population is the sample survey. The instrument used to collect data is known as a questionnaire. Before starting to construct a questionnaire you should be able to answer the following questions:

- a. In what areas do you need information?
- b. Why do you need this information?
- c. How will you analyze the data collected?

A questionnaire may appear to be easy to construct and use, but in fact it requires a great deal of care and expertise. The following guideline should be sufficient for your work in the community. It is not meant to train you in the methods necessary for scientific research. If you are interested in collecting more detailed information, seek assistance from a social scientist.

Also, remember that you do not have to plan, conduct, and analyze results of a survey yourself. Surveys provide excellent opportunities for community members, including school children, to participate and learn.

#### I. Constructing the Questionnaire

- A. Before writing the questions, several decisions should be made:
  1. How to relate the content of the questions to the objectives of the survey.

In studies such as a population census, the relationship between the goals of the survey and the questions is obvious. But when the aim is to obtain information on motivation, intentions, and feelings, the wording of questions is more difficult.

When choosing what issues to raise, how to ask the questions, and what vocabulary to use, try to be sensitive to people's backgrounds.

A common problem found with inexperienced personnel in survey research is the tendency to assume that the respondent has the same level of knowledge as they do. Following are some reasons that may explain the respondent's inability to answer a given question:

- a. The respondent may not know the answer. Some rural people cannot tell you the names and ages of all their children.
- b. The respondent does not have access to the information. This may be true when respondents are asked to report the characteristics of other family members or neighbors.
- c. The respondent has forgotten events in the past.
- d. The respondent may not understand the words or meaning of the question.

## 2. Wording of questions

Having decided about the content of the questions, you should then give attention to their actual wording. Precise, clearly worded questions will give clear answers. Following are some suggestions for writing them:

- a. The language should be simple, direct, and at a level that can be understood by all respondents. You should avoid two extremes: do not use technical terms and jargon that are familiar only to those with a certain level of education; and avoid "talking down" to the respondent by using ungrammatical constructions and colloquial phrases.
- b. The question should be specific and should deal with only one idea. For example, consider the question, "Do you think that the community needs more family privies and are you planning to build one for your family?" An answer of "No" might mean that the respondent does not think that the community needs more privies, or it might mean that the community does need more privies, but that the respondent is not going to build one for the family. In any case, there is always a risk that the respondent is answering only one part of the question.

To avoid these difficulties, it is better to limit the question to a single issue and then combine the responses later if this is necessary.

- c. The question should not make unnecessary assumptions about the respondent. For example, the question, "What is your present occupation?" assumes that the respondent actually has an occupation and would not be applicable to those who are unemployed. To avoid those dangers, it is best to use what is known as a "filter" or the "skip pattern" device.

These questions have at least two parts: the first determines whether or not the respondent qualifies for further investigations, while the second part will give more detailed information on those who qualify. For example: a survey of women might ask,

(1) "Do you have a husband (or a man)?"

Yes \_\_\_\_\_ No \_\_\_\_\_ - (skip to question 4)

If yes,

(2) "Does he work to earn money?"

Yes \_\_\_\_\_ No \_\_\_\_\_ - (skip to question 4)

If yes,

(3) "What does he do?"

\_\_\_\_\_ (open-ended)

- d. Avoid using indefinite words. One type is words that are indefinite in number, such as "frequently", "often," and "rarely". "Frequently" may mean once a day, once a week, etc.

There are many other ways in which questions can be unclear, but these examples illustrate some of the more common mistakes.

### 3. Types of questions

There are basically two types of questions used in a questionnaire: "closed" and "open-ended" questions. The first is illustrated by items such as:

"Do you think that the drinking water supply of the community is:

- a. quite good?"
- b. only fair?"
- c. not good?"

Where the respondent is asked to choose one out of a list of possible answers.

With "open-ended" questions, the respondents are free to use their own words to reply. For example: "How satisfied are you with the community's drinking water supply? Why do you feel this way?" Open-ended questions allow the questioner to probe deeper and get a clear understanding from the answers. The majority of questionnaires contain both "open-ended" and "closed" questions.

#### 4. Ordering the questions

There is no correct format for a questionnaire, but certain principles are found to aid efficiency.

- a. The first impressions should be that the questionnaire is relevant, clear, and easy to complete.
- b. The first questions should ordinarily be emotionally neutral and easy to answer.
- c. The questionnaire should be as short as possible. Do not include question only because information might be useful for some purpose in the future.
- d. The questions should follow each other in a logical order and should not be repetitive, except when you are attempting to be sure you are getting accurate information.

#### 5. Culturally sensitive questions

In every culture there are some questions that cannot be asked, or must be asked very carefully in a survey. Sensitive questions should be carefully written during the initial drafting of the

questionnaire and carefully analyzed for possible revision after the pretest (discussed below).

#### B. Types of Questionnaires

There are two types of questionnaires:

1. The self-administered questionnaire, in which the respondent completes the answers.
2. The interview questionnaire in which the questions are asked and recorded by an interviewer.

Advantages and disadvantages are found in both methods. However, for your work in the community, you should consider using the interview questionnaire to give you an opportunity to get to know the people personally. The interview questionnaire has the following advantages:

1. It reduces the problem of nonresponse. The presence of the interviewer sometimes serves as an incentive to respond.
2. It can be used with persons of almost all educational levels.
3. It allows probing for more detailed information, and the interviewer can clarify misinterpretations. It is also possible to combine the two methods. The interviewer can visit the respondent, explain the purpose of the study, and leave the questionnaire to be completed by the respondent.

#### II. The Pretest

Once the questionnaire has been assembled, it should be tried out with people similar to those to whom it is to be administered. That is, it

should be administered to households similar to those in the sample but not included in it.

It is only by doing this that errors and confusing questions can be corrected before time and effort are wasted on the actual survey. Five or ten interviews are enough to know if the questionnaire works well or not. After the pretest interviews are done, you should review the questionnaire, correct any inadequacies, and, ideally, test the modified questionnaire again. Following are some points you should consider in the pretest.

- A. Does the question ask for information that is needed for the purposes of the survey? Are you sure you need to ask this question?
- B. Are the questions and words interpreted in the same way by people of different social groups, ethnic groups, educational levels, sexes and locations?
- C. Are there certain questions which seem to create irritation or embarrassment?
- D. Are any questions confusing to the respondent? What would make these questions more clear?
- E. Is the questionnaire too long?
- F. Is there enough space to record the answer? Nothing is more annoying to the respondent or the interviewer than having to write a lot of information into too small a space.
- G. Are there repetitive questions?

A pretest is an essential part of questionnaire design and should not be omitted on the grounds that the questionnaire can be properly evaluated by you and your team of local people.

### III. Selection of the Sample

It is nearly impossible for you to ask everybody in the community a set of questions. What you can do is select a small group of people (the sample) to whom you will administer your questionnaire. The aim of this process is to obtain information from the sample which will apply to the total population of the community when the information gathered is analyzed.

There are several sampling techniques, but for the purpose of your study, you need not get into complicated statistical calculations. Following is one simple method:

- o Make a list of all the households street by street or block by block, then select one household out of every 5, 10, or 15 households, depending on the size of your sample.

For your study, 20 to 30 interviews are sufficient. Select equal numbers of male and female respondents. Very often, the community may have several different ethnic or social groups. In this case, include in your sample representatives of each major group, in numbers proportional to its percentage of the total population.

Remember that the population of your sample must represent and have as much as possible the characteristics of the population of the whole community.

#### IV. Interviewing

Keep in mind that the questionnaire is a tool that helps you collect information for a better understanding of the community. Accept answers without showing any doubt; do not change replies that do not sound correct to you.

First, set up a friendly relationship with the respondent. Explain the purpose of the study in such a way that the respondent's curiosity and interest are stimulated. Respondents must see that the study is worthwhile and that their cooperation is needed. Another important aspect of interviewing is probing. This is the technique used by the interviewer to encourage the respondent to give further details. You can use a neutral question or comment such as, "What do you mean?" or, "I see," or remain silent, suggesting that you understand the answer given but know that your respondent has more to say.

The important point to keep in mind is that you should not impose your ideas to a point that your respondent feels obligated to give the answer that you want - an answer that does not reflect the respondent's own feelings. In some cultures, people may feel a social obligation to give you the answer they think you want to receive. You must be very sensitive to discourage this and get at the real answer.

## V. Analysis of the Data Collected

In conducting the community survey, your goal is not to gather statistical information such as the number of persons in different age groups or the number of persons having a certain illness, but rather to gain a better understanding of the people's traditions, knowledge, and beliefs about the community's felt needs, about what could and should be done for the well-being of the people.

For example, if you want to know what the community thinks about the services given at the health clinic, your analysis may present itself under this form:

"Reasons for not using the health center by ..."

- a. Sex (male/female)
- b. Marital status [single, married, divorced, widow(er)]
- c. Education (know how to read and write, primary education, secondary education, etc...)
- d. Income
- e. Location
- f. And others

Examining the responses to this question for each of these categories will help you to understand why the health center is not used. For example, the location may not be too convenient for some people because of lack of public transportation; or women say that the midwife-nurse's manners are rude; or the villagers, especially those with little education, consider the health center as the place for dying patients. This kind of information will help you to plan your educational activities accordingly.



7. How many are living with you? \_\_\_\_\_

8. Can you give their names and ages?

| Name | Age | Sex |
|------|-----|-----|
|      |     |     |

- a.
- b.
- c.

Be cautious: if your respondent does not want to give you the names of the children, do not insist.

9. Is your husband/wife working? ( ) yes ( ) no

If yes, ask:

a. What is his/her occupation?

If no, ask:

a. Why not? Probe \_\_\_\_\_  
\_\_\_\_\_

10. Are you working? ( ) yes ( ) no

If yes, ask:

a. What is your occupation?

If no, ask:

a. Why not? Probe \_\_\_\_\_  
\_\_\_\_\_

11. Does your family have good health?

Probe \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

12. What kind of health problems has your family had?

a. Who was sick?

name: \_\_\_\_\_

age: \_\_\_\_\_

sex: \_\_\_\_\_

b. Describe the illness: \_\_\_\_\_  
\_\_\_\_\_

c. Is the person still sick?    (    ) yes            (    ) no

d. What kind of treatment was given? \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

(Repeat for each sick member of family.)

13. In your opinion, which illnesses cause the most sickness and death for the people in the community?

a. \_\_\_\_\_

b. \_\_\_\_\_

c. \_\_\_\_\_

d. \_\_\_\_\_

(For the first illness mentioned, ask the following)

13.a.1. Are there other names that people use to describe \_\_\_\_\_  
(mention the illness listed above under 13.a)

13.a.2. What might cause people to get this disease? \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

What else might cause it? \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

13.a.3. If you thought that someone in your family had this disease, what would you do?  
\_\_\_\_\_  
\_\_\_\_\_

If it still didn't help, what would you do? \_\_\_\_\_  
\_\_\_\_\_

13.a.4. What can people do to protect themselves against this disease? \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

What else? \_\_\_\_\_  
\_\_\_\_\_

13.a.5. (Repeat above series of questions for each disease or symptom listed in question 13.)

14. (In this section, ask specifically about diseases that are common, but were not mentioned. For example: "Have you ever heard of a disease called tuberculosis?" If the answer is "yes," ask series of questions as in question 13. If the answer is "no," probe: "Have you ever heard of a disease which causes people to cough up blood? If the answer is "yes," ask series of questions as in question 13.)

15. What things do you believe are most needed to improved the health of people in the community? Probe \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

16. Where do you usually go for help with your family's health problems? Probe \_\_\_\_\_  
\_\_\_\_\_

17. Where is the nearest health center? \_\_\_\_\_  
\_\_\_\_\_

18. Has any member of your family ever used it? ( ) yes ( ) no

If no, ask:

a. Why has no one in your family ever used the local health center. Probe \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

If yes, ask:

b. What do you think of the quality of services of the local health center? Probe \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Now, we would like to ask a few questions about bringing up your children.

19. Did you/your wife breast feed your child? ( ) yes ( ) no

(Note: For people who are not parents, ask, "Do you feel that children should be breast fed?")

If no, ask:

a. Why did you not breast feed your child? Probe \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

20. At what age do you begin to feed your child solid foods in addition to your milk (or formula?) \_\_\_\_\_ months

21. What are the first solid foods that should be given to a baby? Probe \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

## APPENDIX C

### Examples of Educational Methods and Aids

1. A Demonstration
2. A Puppet Play
3. Flip Charts
4. Figures for a Flannelgraph
5. Road to Health Chart
6. Radio Spot Announcements

## 1. A GUIDE FOR PLANNING A DEMONSTRATION MEETING ON "DRINK SAFE WATER"\*

### Prepare for meeting — Ahead of time

1. Notify people of the day, time and place where the demonstration will be given.
2. Talk with your village worker and health officials to learn all you can about:
  - Where people in the village get water for drinking.
  - What kinds of sickness in the village may come from unsafe water.
  - What makes water safe.
  - What should *safe* water be used for.

### Day of demonstration

1. Get ready what you need for the demonstration
  - Container for water before boiling
  - Clean cloth and clean vessel for straining water
  - Pot for boiling water
  - Clean covered vessel for storing water
  - Wood or other fuel for fire
2. Practice your demonstration
3. Check the meeting place to see if there are enough seats, light and ventilation for people to be comfortable.
4. Arrange chairs and your demonstration equipment.

---

\*From *Homemaking Handbook*; AID/USDA; Washington, D.C.; March 1971; pp. 191-192.

Conduct meeting and give demonstration

1. Opening the meeting:

- Welcome the people
- Explain your role
- Explain where your information comes from

2. Discuss the importance of using safe water in the home. Talk, ask questions, and get people to talk about:

- What is meant by safe water?
- Where do people in the village get their water for household use?
- What diseases may using unsafe water cause, especially for babies and young children?
- Explain how water can be made safe by boiling.

Letting people look at their water under a microscope is a dramatic way of convincing them that it really contains "germs."

Discuss the need to use safe water for:

- Drinking
- Mixing powdered milk
- Bathing baby
- Washing dishes, etc.

Wash your hands with soap. Explain that this is always necessary before working with drinking water.

3. Give the demonstration

Important steps

- (a) Strain the water

Points to emphasize

Into clean utensil. Use a clean cloth. Straining will not make water safer but will remove dirt and make it look cleaner. May need to strain several times.

Important steps

Points to emphasize

- |   |   |
|---|---|
| (b) Boil the water                          | Boil it for 10 minutes to make it safe. While the water is boiling you can review the importance of safe water and the reasons for boiling water. Wait until the water starts to boil to begin counting time. |
| (c) Cool the water                          | Let the water cool in the pot used for boiling or other clean containers. Cover it with a clean cloth.  |
| (d) Prepare the container for storing water | Wash it in hot soapy water. Rinse it with safe water  |
| (e) Pour water slowly into container        | Pouring water from one container to another adds air and makes boiled water taste better.   |
| (f) (f) Cover and store water for using.    |   |

4. Summarize:

- Go over the important points again
- Ask for questions
- Find out how many will agree to start boiling water
- Plan for your next meeting

NOTE: The change in behavior urged is appropriate only if the people have: 1) time to boil their water, 2) available fuel for boiling, and 3) any money which the action would entail.

## 2. A PUPPET PLAY\*

(Translation -- from Spanish)

THE CAST: MAMA: A POTATO  
PAPA: A CARROT  
BABY: A BEET  
NURSE: A YUCA

### THE PLAY

(Mama attending the child who is crying)

*Mama:* Oh, what's the matter my boy? Why are you crying so?

*Child:* Oh, oh, oh.

*Mama:* Tell me what's the matter? Are you sick?

*Child:* Oh, my stomach. Oh, I have a stomach ache.

*Mama:* Poor boy, what did you eat? The stew was good .... what could it be?

*Child:* Oh, oh, oh, I have to (psst, psst) .... (he exits).

*Mama:* Oh, Ave Maria, what does my poor boy have? He is very sick.

(Enters the Husband)

*Mama:* How are you? How did it go?

*Papa:* Oh fair. I am very sick. I don't know what's the matter, but I don't have any energy these days. I feel very weak. Do you have coffee?

*Mama:* Yes, here it is. See, our son doesn't feel well, either. He has cried and cried all afternoon. He has a stomach ache and diarrhea and now he began to vomit.

*Mama:* Yes, he is very sick. And you're sick, too .... two patients in the house.

(Enters the Child)

---

\*Used at the closing ceremonies for a series of health talks given in the schools in the municipio of Dagua, Valle, Colombia. Written by Barbara Williams and Rebecca Willy, Peace Corps Volunteers.

*Mama:* Poor kid. Do you feel better?

*Child:* No, I feel horrible.

*Papa:* Come here son. What do you have?

*Child:* Oh, it really hurts here. Oh, excuse me .... (he exits)

*Papa:* He is sick. We are in bad shape. I also hurt myself today coming home. I don't know what I stepped on. Look at my foot, the blood. It really hurts .... it's swollen. Bring me a cloth to bind it.

(Enters the Child)

*Papa:* See, don't worry. Now we are bringing a little something for the pains. Did you eat something strange?

*Child:* No, nothing. The same as always, Papa. Oh, oh, oh.

*Papa:* Poor boy, go to bed.

(Exits the child and enters the Mama)

*Mama:* Here is the cloth. What did the boy do? Look at that foot.

*Papa:* Thanks, Oh, he went to lie down. What can we do for the poor kid? What is there to give him?

(Enters the boy)

*Child:* Oh, oh (doubled over) .... (exits for the field)

*Mama:* He is very upset .... never has the boy been more sick. I am afraid to give him any remedy without knowing what he has.

*Papa:* You are right.

*Child:* (Stuttering) Oh, I wish I was dead.

*Mama:* Again? Poor child, go to bed. I'll be right in.

(Exits the child)

*Mama:* Look Papa. This boy is very sick. Go find a doctor or a nurse. Which ever can come, but quickly, do you hear?

*Papa:* Yes, I am also worried to see him like this. I am going. See you later. (Exits)

*Mama:* Oh, Ave Maria. How sad to see the boy suffer like that. I sure hope someone comes quickly to cure him.

(Enter the Papa and the Nurse)

They greet: What's up, how are you, how's it going?

*Mama:* Thanks for having come so soon. The boy is very sick. I don't know what to do with him. All day he has been crying and he has a stomach ache, diarrhea, and has vomited. Oh, please look at him and see what he has. This way. Go ahead.

(Exits the Nurse, sees the child, comes back:)

*Nurse:* I examined him and here is the medicine that will make him better. But he is very sick.

*Mama:* Oh, my poor boy. Thank you. What does he have?

*Nurse:* A very common thing, which you can detect easily.

*Papa:* Yes? What is it?

*Nurse:* It is a little animal, very small, that causes sicknesses like the one the boy has.

*Papa:* Do you mean there are little animals living in the stomach of our child?

*Nurse:* Yes.

*Mama:* But how do they enter?

*Nurse:* Well, I will show you. With the help of the students (who already know of amoebas, parasites, and worms) I am going to explain it to you. Which of you can explain to this woman how her child got sick?

*Explanation by student about bad water, what it contains. Nurse draws pictures on the blackboard: glass of water, someone drinking, and what happens inside.*

*Mama:* Oh, don't tell me. Do you mean the water contains little animals? And you can't see them? What a thing! And I am drinking that water.

*Nurse:* Students, help her. What can she do with the water to make it good water? ... Yes, boil it. For how long? Between five and ten minutes. That way we kill the microbes and amoebas in the water.

*Nurse:* (to the Mama) And another thing, I notice you don't use a latrine, is that right?

*Mama:* No, we don't have a latrine. A while ago we thought of installing a latrine and now we know the importance of using a latrine.

*Nurse:* You see, students, what is the importance of using a latrine? For what purpose?

*Nurse Draws:* *excrement on the ground, foot stepping on excrement . How plants get contaminated, how water gets contaminated. Shows how when excrement is put in the ground it cannot reach the naked foot, the vegetable garden, the water we drink.*

*Nurse:* You have suffered from many sicknesses. If I remember well, I have visited you various times to treat a sick member of this family. And do you know another reason why you get' sick? Look here on the table where you have placed the bread, the sugar, and other things to eat. There are flies crawling on the food ....

Children (to the class), what should she do? Yes, cover the food so the flies that carry germs on their legs don't crawl on it.

(to the family) Where do you throw the garbage?

*Mama:* Ay, we throw the garbage outside but very far from the house.

*Nurse:* But that doesn't matter for it's still close enough to attract flies. The flies grow and bring, as we said, germs on their legs.

*Nurse:* And, students, what can she do with the garbage? Yes, throw it in a hole and then cover it with earth. And what else can she do? Burn it well.

*Mama:* Another thing while you're here, nurse. My husband has also become sick, look how pale he is.

*Papa:* Me? No, it's nothing. I always go to work and come home at night. It's true I have a few pains here in my stomach, but that's nothing.

*Mama:* What do you mean it's nothing? You came in today from the field complaining and grumbling that you felt weak. That you didn't have any energy.

*Nurse:* Fine, right here is the problem. (She points to his bare foot.) You, Mr. Vegetable, with these pains in the stomach and this fatigue, are a victim of the thieves of good health. The robbers of health are the worms that are inside your body, sucking your blood, sapping your energies, and giving you anemia. And do you know how the thieves enter?

*She points to the same drawing of the foot as used for the latrine illustration. Asks students to explain.*

*Nurse:* One way to avoid the germs, that is to kill them, so you don't get sick, is to always wash your hands; when, students? Yes always wash your hands before you eat and after you go to the toilet.

*Mama:* Well, if that's true, by ridding the dirt from our hands we also rid the germs that are in the dirt. I have to admit that I have been lazy about this.

*Nurse:* And notice the importance of a daily bath. Just as you rid the dirt from your body, you rid the germs from your skin so it can breathe and also it gives us a good appearance.

*Mama:* Yes, you have reminded us of many health habits that perhaps we already knew, but we have forgotten.

*Nurse:* And, while we are speaking of health, don't forget to take the boy to the Health Clinic for his vaccination. That's another way to avoid sicknesses.

*Papa:* Now, with so many good ideas, I am inspired to write a poem .... Hmmmmm .... Do you want to hear it? Here it is .... Hmmmmm .... Got it!

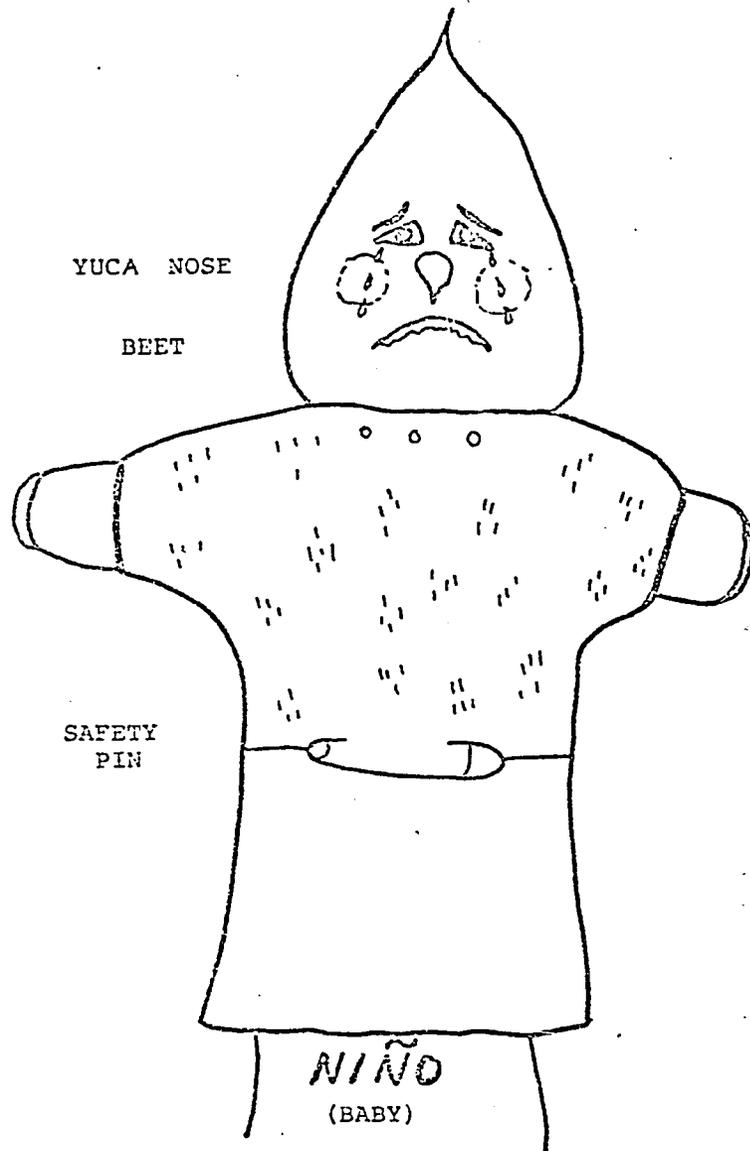
*BUILD YOUR LATRINE  
DRINK BOILED WATER  
ALWAYS WALK WITH SHOES  
INSURE YOUR GOOD HEALTH*

*ALWAYS WASH YOUR HANDS  
COVER YOUR FOOD  
GET YOUR VACCINATIONS  
AND YOU WILL HAVE A HEALTHY LIFE*

## INSTRUCTIONS FOR MAKING PUPPETS

The clothes are simply made — two pieces of cloth sewn together and painted. The heads are made of local vegetables or balls made from cloth, leaves, or grass, made with a hollow to fit three fingers. It is advisable to put tin foil or other paper inside to protect your fingers from touching the vegetable, as these puppets have the obvious disadvantage of being quite short-lived. We used tempera paints for the facial expressions. The Mama has a very worried look, the Baby eternally crying (he's very sick), the Papa a worn tired face, and the Nurse bright, pretty, and ready to save the sick family.

The play is a review, depending on the previous knowledge of the school children. The play includes children (or they could be grown-ups just as well), for the Nurse calls on them to help teach the family some basic health rules. As a prop we also depended on the blackboard, the Nurse sketching the same things that we had presented before in the talks; the end of the play also contains a review, with the aim of increasing learning through repetition.



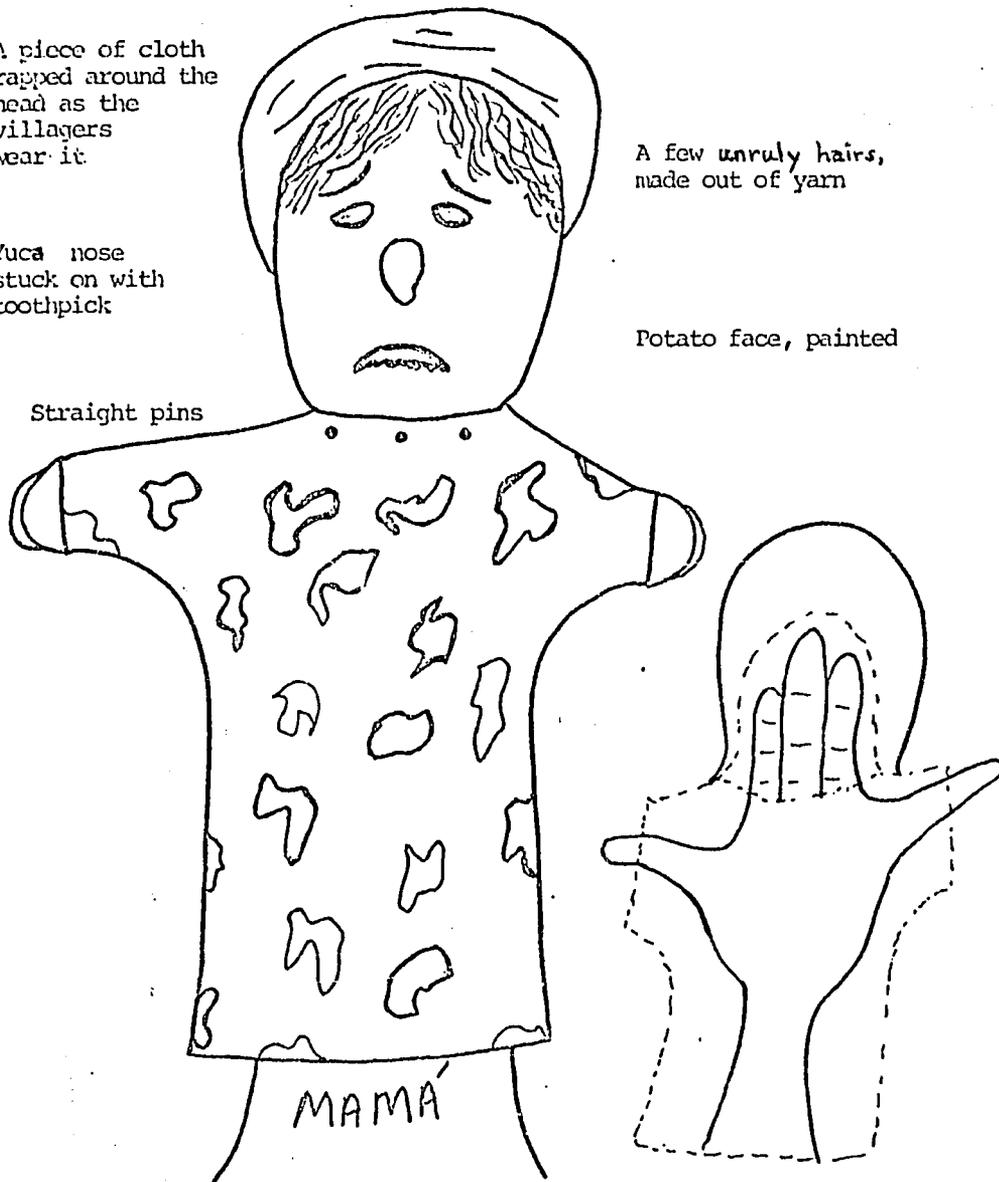
A piece of cloth wrapped around the head as the villagers wear it

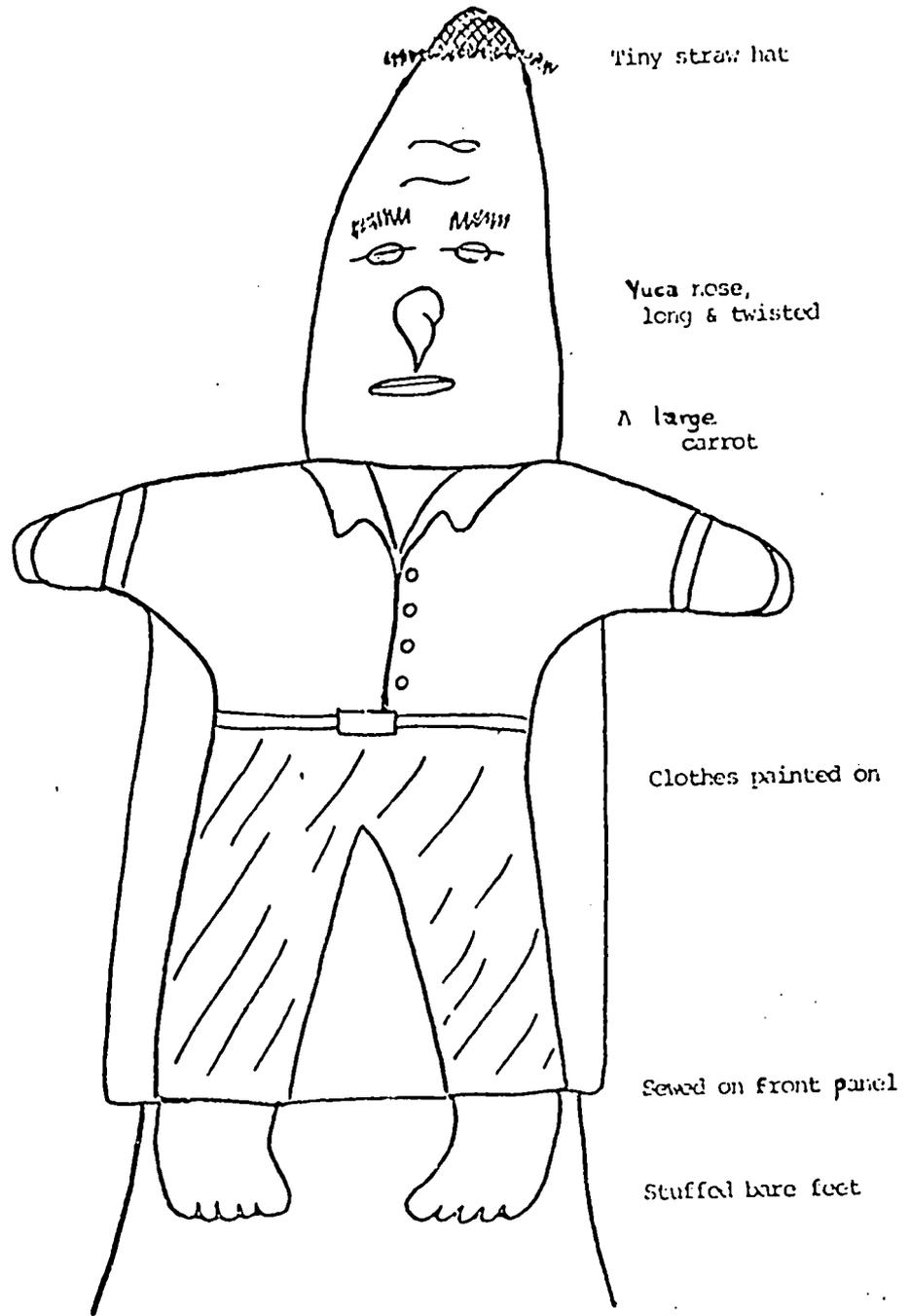
Yuca nose stuck on with toothpick

A few unruly hairs, made out of yarn

Potato face, painted

Straight pins





PAPÁ

### 3 FLIP CHARTS

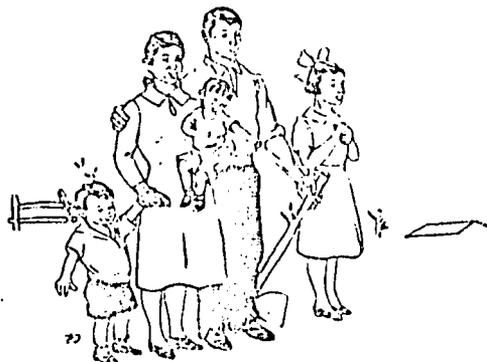
An example of a flip chart used by Peace Corps Volunteers follows: An effective visual aid, such flip charts are simple to make and easy to transport from place to place. Reduced in size here, the actual flip chart sheets are 43 x 55 cms., stapled at the top to turn easily as the story unfolds.

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*En colaboración con los  
Cuerpos de Paz de los Estados Unidos*

Front cover

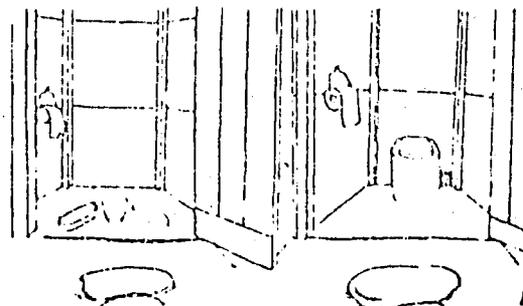
EL ASEO Y CUIDADO DE LA  
LETRINA DEFIENDEN  
NUESTRA SALUD.



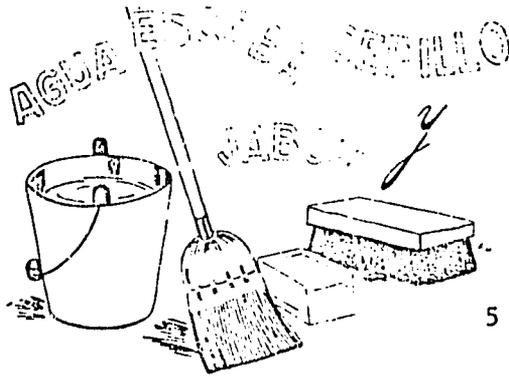
Y LE DAN A NUESTRA  
CASA BONITA VISTA.



EN COLOMBIA USAMOS ESTAS  
DOS CLASES DE LETRINAS  
AMBAS CLASES SON BUENAS.



**PARA LIMPIAR LA LETRINA  
NECESITAMOS ESTAS COSAS:  
AGUA, JABON, CEPILLO  
O ESCOBA.**



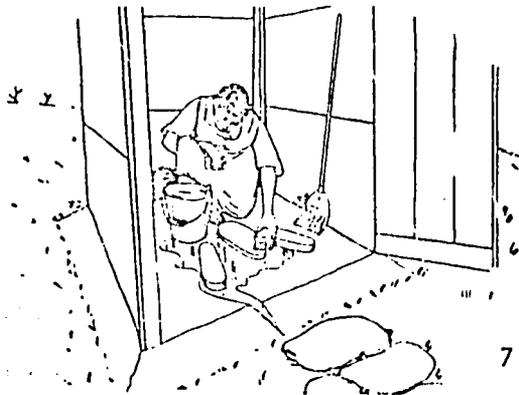
5

**SI SE LAVA LA LETRINA CON  
AGUA Y JABON MUCHAS VECES  
SE ACABAN LOS MICROBIOS Y  
LOS MALOS OLORES.**



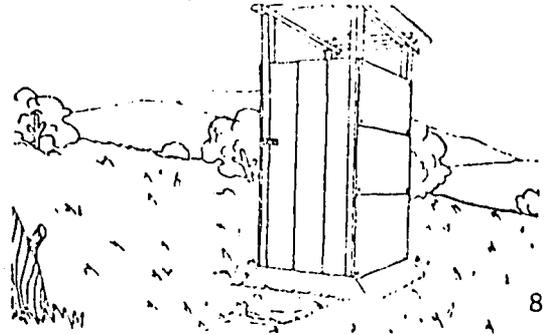
6

**LAVE BIEN LOS BORDES DEL  
HOYO, EL PISO Y LA TAPA POR  
SUS DOS LADOS.**



7

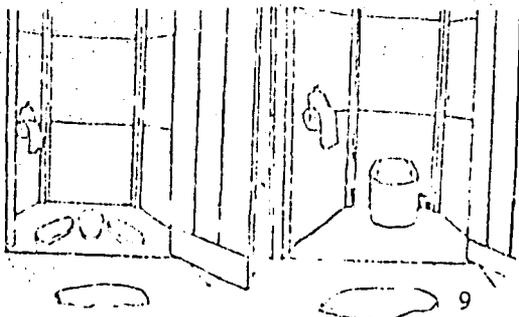
**TENGA SIEMPRE CERRADA LA  
PUERTA DE LA LETRINA PARA:**  
1. TENERLA LIMPIA.  
2. DARLE BONITA VISTA.  
3. NO DAÑAR LA CASETA.  
4. No Dejar Entrar Animales.



8

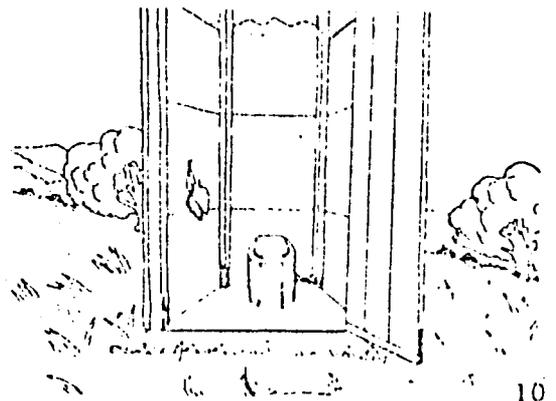
**TENGA LA LETRINA TAPADA  
CUANDO NO LA USE, PARA:**

1. No Dejar Entrar las Moscas y Mosquitos.
2. Acabar con los Malos Olores.



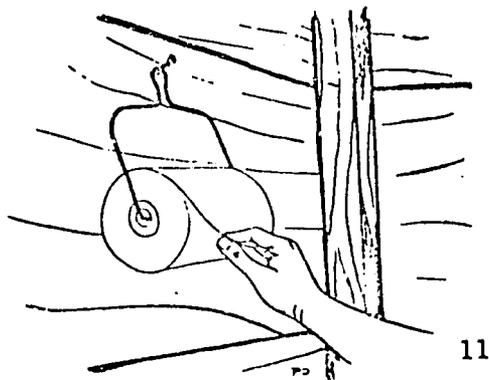
9

**PONGA PAPEL LIMPIO EN UNA  
CAJA O EN UN GANCHO, ASI:**



10

**O, SI TIENE PAPEL HIGIENICO,  
PONGALO ASI:**



11

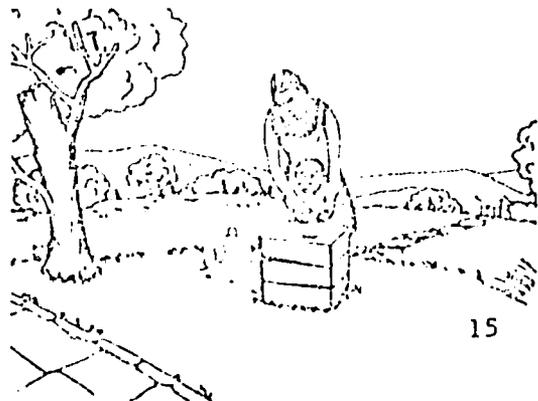
Bote todos los papeles sucios  
que use en la letrina dentro  
del hoyo.

**NO BOTE LAS BASURAS DE LA  
CASA DENTRO DE LA LETRINA.**



13

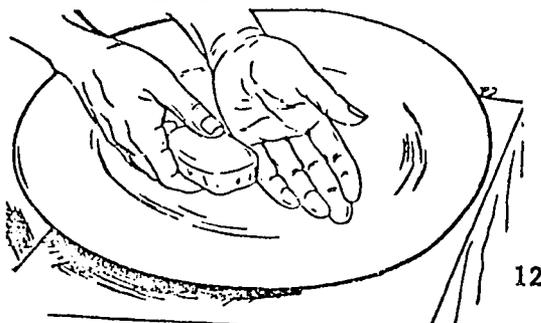
Ayude a los niños pequeños  
a lavarse las manos  
DESPUES DE IR A LA LETRINA.



15

**LAVESE** las manos  
con agua y jabón:

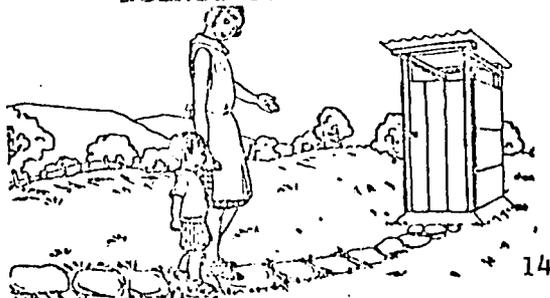
1. DESPUES DE IR A LA LETRINA
2. DESPUES DE LAVAR LA LETRINA.



12

Ayude a los niños pequeños  
en la casa a sentarse en la  
letrina.

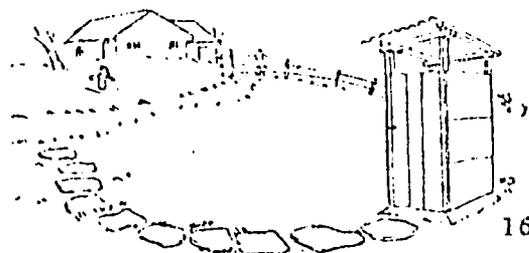
1. PARA QUE NO TENGAN  
MIEDO DE CAERSE.
2. PARA FORMARLES HABITOS  
BUENOS PARA USARLA.



14

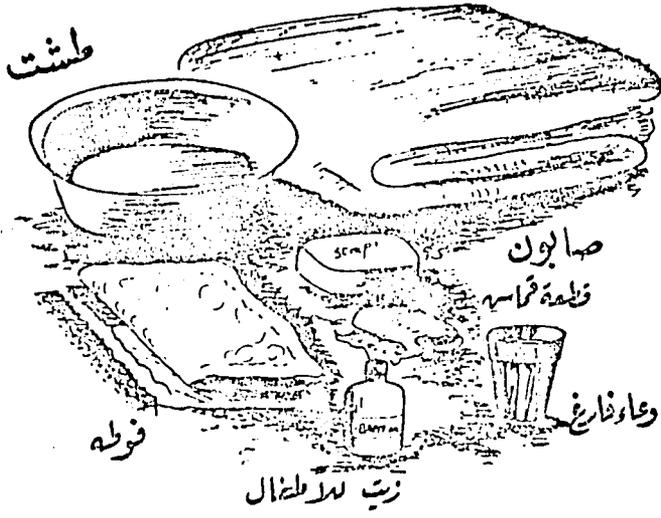
El buen uso y cuidado de la  
LETRINA

1. DEFENDEN NUESTRA SALUD
2. LE DAN A NUESTRA CASA  
BOHITA VISTA.



16

## HOW TO GIVE YOUR BABY A BATH



1. Materials for baby bath



جربى اولاً حرارة الماء

2. Test temperature of water



اغسل ظهركم طفلك هكذا

3. Hold baby while bathing



اجلسى الطفل فمنا الطشت

4. Support baby to wash back



البسبى الطفل حالآ . نشفى الطفل جيداً بعد الغسل

5. Dry baby thoroughly

6. Dress baby



خففى طفلك كما تترين فى الصورة

الطفل النظيف دائماً السرور وجميع البسبى

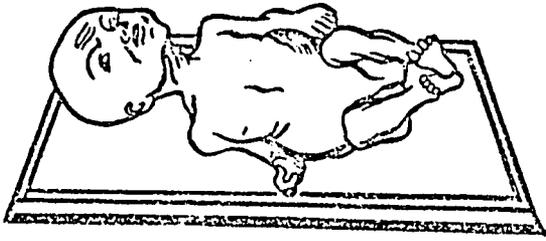
7. Bath time is a happy time

8. A clean baby is happy

#### 4. FIGURES FOR A FLANNELGRAPH

Here are some basic figures which might be adapted for use on a flannelgraph. Several topics are illustrated. Care must be made to adapt the figures to the cultural setting in which they will be used.





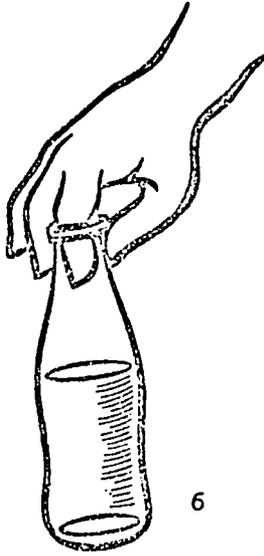
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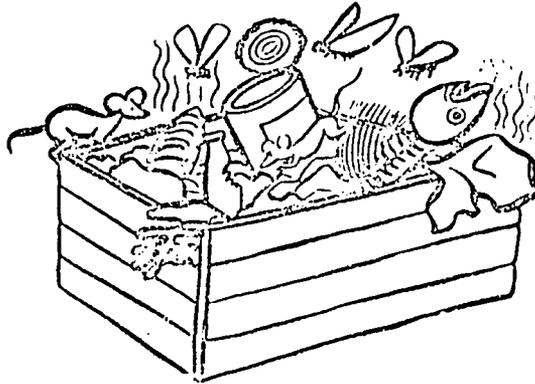
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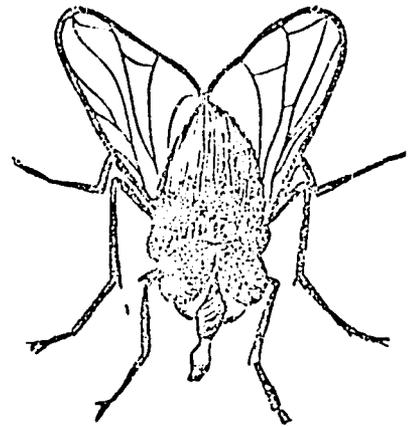
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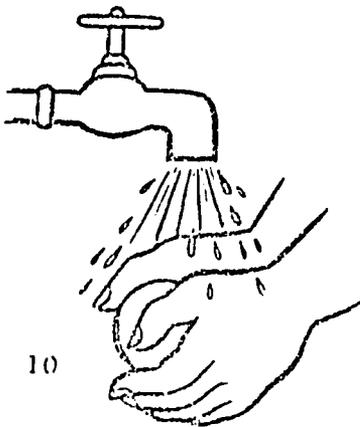
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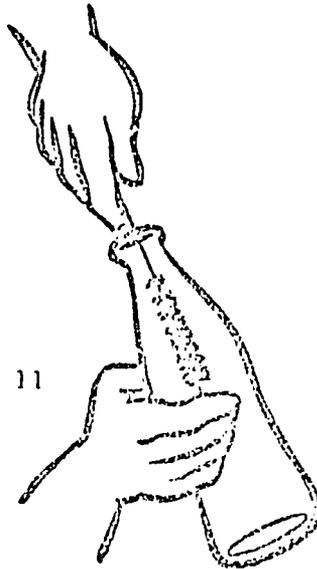
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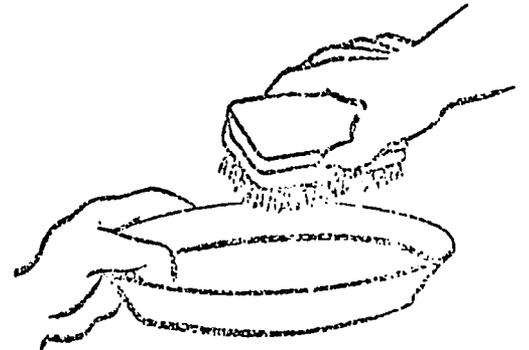
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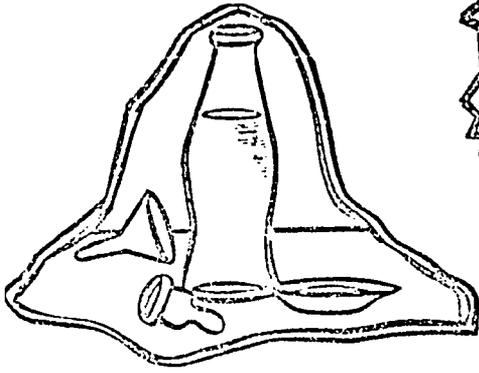
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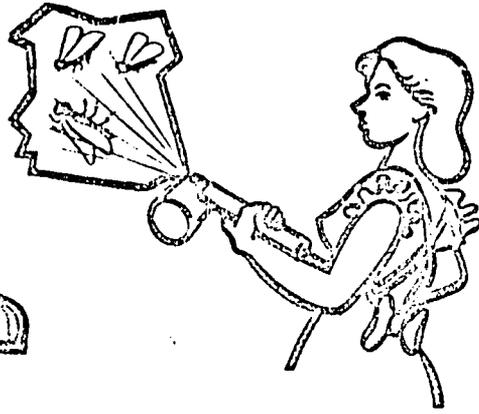
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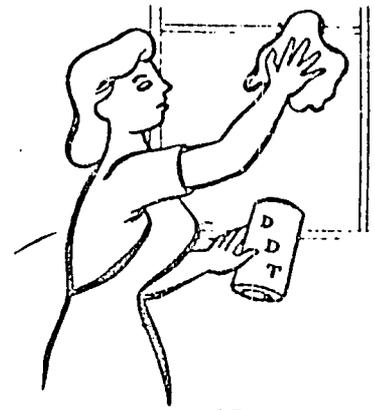
12



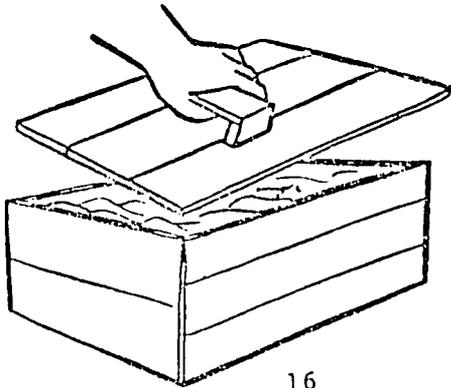
13



14



15



16



17



18



19



20

CENTRO DE SALUD



21

## 5. THE ROAD TO HEALTH CHART\*

The Road to Health Chart is supplied to the mother; it is considered to be her property and not that of the clinic. Experience has shown that few get lost. In handing the card to the mother, the medical worker is increasing her sense of responsibility for the health of the child, which is a useful step in her own health education. She is taught to understand that her child should "walk along the path" on the chart and how to prevent the child from straying downwards from it. She is instructed to take the chart to any other medical center that the child may attend. This is particularly important because it provides a new medical attendant not only with the growth rate but also with the immunization status and the disease history of the child.

### HOW BEST TO USE THE ROAD TO HEALTH CHART

#### Completing the Chart

- When the child is first seen, the month of the child's birth should be entered in the first space of the calendar followed by all months for the first five years. Outline the month of birth for each year in darker print before filling out the rest of the chart.

- At each visit, the child's weight and month of visit should be noted by a large dot in that month's column against the correct weight. The movement of the weight curve is determined by connecting the dots for each visit.

Note: Enter against this curve such incidents as cessation of breastfeeding, the birth of a sibling or major diseases, etc.

- All treatment received, past and recent medical history, nutritional status, inoculations and major illnesses should be entered on the chart as well as factors which place the child in a "high risk" category. Any indication for special care should be written in a prominent position on the card.

These high risk factors may include any of the following:

- 1) a maternal weight below 43.5 kg, 2) birth order greater than seven, 3) death of either parent or a broken marriage, 4) death of more than four siblings, especially those occurring between one and 12 months of age, 5) birth weight below 2.4 kg, 6) multiple births, 7) failure to gain 500 grams a month during the first trimester or 250 grams a month during the second trimester of life, 8) breast infections in the mother and difficulties in breastfeeding, particularly those secondary to psychiatric illness in the mother, and 9) an episode of measles, whooping cough, and severe or repeated diarrhea in the early months of life.

#### Reading the Chart

- At each visit the child's weight should be compared with the weight at the previous visit. The child's weight curve should be following a path approximately parallel to the channel (of the Upper and Lower Reference Lines: See chart for explanation).

Of more significance than the position of the child's weight curve in relation to the standard weight is the direction in which the weight curve is moving.

- If the child's weight curve should fall below the Lower Line (or not follow the curve of the channel), it should first be established that the child has no obvious symptoms of underlying illness. Once this has been excluded, efforts should be made to improve nutritional status through health education, provision of food supplements, etc. The child should be carefully monitored to ensure proper weight gain or whether referral to a physician may be needed.

\* \* \*

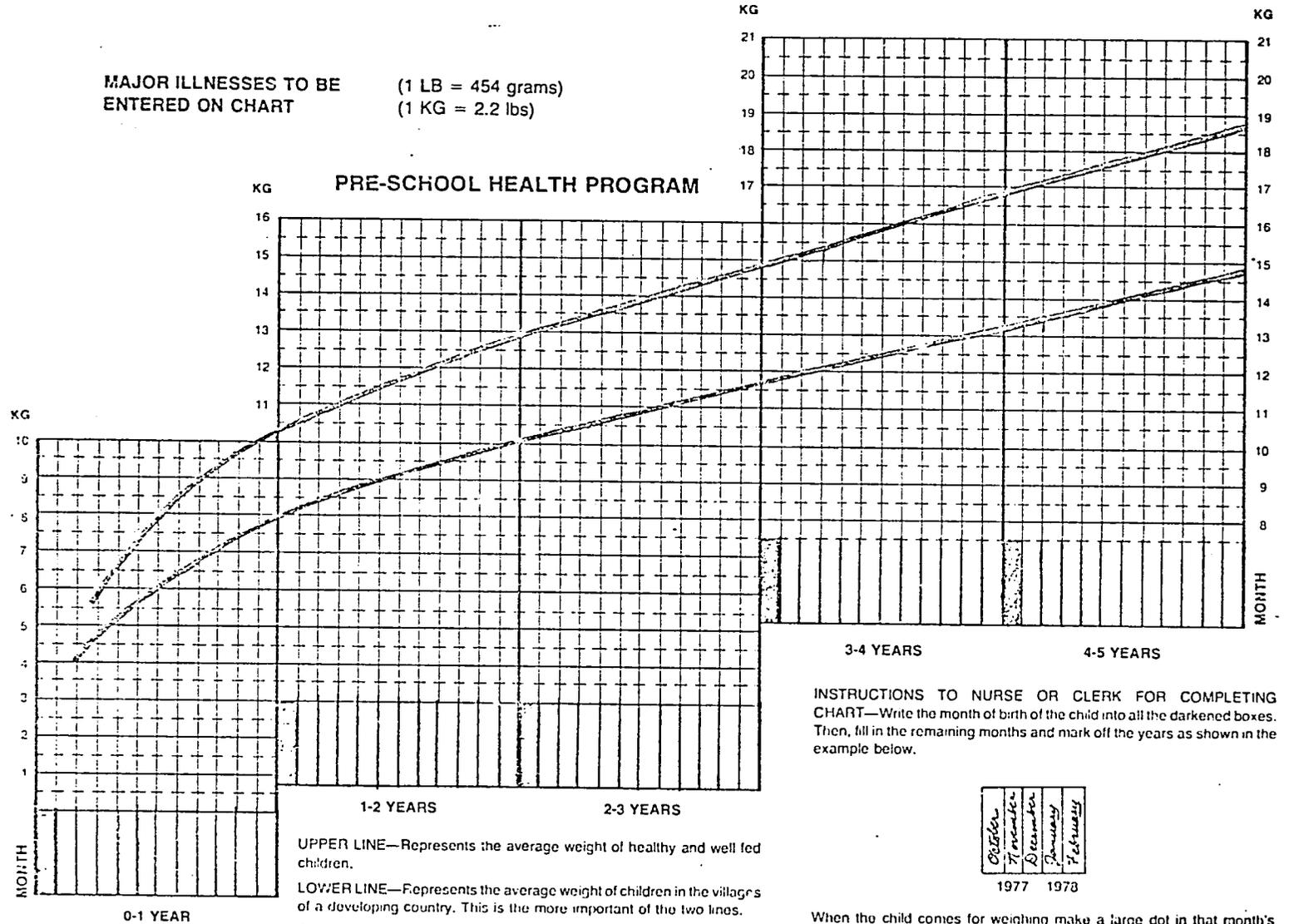
A full-size sample of the Road to Health Chart is provided here to facilitate reproduction locally. The chart is fully described in "Paediatric Priorities in the Developing World" by David Morley (price: U.K. £ 1.25). Address requests for a free sample of the chart in English, Spanish or French and for Morley's book to:

Foundation for Teaching Aids at Low Cost (TALC)  
30 Guilford Street  
London WC1N 1EH  
United Kingdom (England)

\* American Public Health Association, "Salubritas", APHA, Washington, D.C., April 1977, p. 5.

# CHILD'S HEALTH AND WEIGHT RECORD OVER FIRST FIVE YEARS

MAJOR ILLNESSES TO BE ENTERED ON CHART  
 (1 LB = 454 grams)  
 (1 KG = 2.2 lbs)





## 6. RADIO ANNOUNCEMENTS

### Examples of Scripts:

1. Indonesia<sup>1</sup> — (The Commission on Responsible Parenthood of the Indonesian Council of Churches and Church World Service)

Announcer: Rice planted too densely will not yield a good crop. Improper spacing between births will affect the health of the mother as well as the child.

Ask for advice in (community) at the (place) between (hours),

2. Liberia<sup>2</sup> — (provided by the International Planned Parenthood Federation)

*Sound effects*: Crying baby — children yelling

*Johnny*: Mama, I'm home!

*Mother*: Oh dear, is it twelve already: Here, feed the baby while I get lunch ready. And keep an eye on baby sister.

*Singing voice*: Are you over-burdened with a load of care? Are your chores too many for you to bear? Space your many blessings. Care for them one by one. And it will surprise you how much you'll get done. Space your blessings. Care for them one by one. See how much you'll get done.

3. Pakistan<sup>3</sup> — (National Research Institute of Family Planning in Karachi)

In a research project designed to study the impact of family planning broadcasts over Radio Pakistan, five spot announcements were transmitted each day for a month, each spot consisting of four elements:

- a. A 4-second musical introduction
- b. A dialogue between 2 adults (two male friends, two female friends, a couple, or a female and female physician)

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<sup>1/</sup> Harry L. Levin and Robert W. Gillespie. The Use of Radio in Family Planning. World Neighbors, Oklahoma p. 108.

<sup>2/</sup> Ibid, p. 131

<sup>3/</sup> Barry Karlin, and Syed Mushtag Ali; "The Use of the Radio In Support of the Family Planning Programme in Hyderabad District of West Pakistan"; from Pakistan Journal of Family Planning, National Research Institute of Family Planning; Vol. 2, No. 2, July 1968, p. 63-67.

- c. Questions about free family planning services; and
- d. Announcements about where clinics would be held.

The dialogues were designed to appeal to listeners in terms of the health and well-being of children and the mother, and that practicing pregnancy spacing was a wise, common place, and safe practice. The following dialogue was used:

*1st Woman:* "Hello, Rashida. How is it you look so tired today?"

*2nd Woman:* "My three little children keep me so busy that I have no time to rest or even take care of them properly."

*1st Woman:* "Why don't you wait a few years before having another baby?"

*2nd Woman:* "But can that be done?"

*1st Woman:* "Sure, so many couples are planning their families nowadays."

## APPENDIX D

### SOURCES OF MATERIALS AND INFORMATION

Adult Education Association of the U.S.A. (810 18th St., N.W., Washington, D.C. 20006) Publishes leadership pamphlets on a variety of subjects in adult education.

African Medical and Research Foundation (Wilson Airport, P.O. Box 30125, Nairobi, Kenya) Booklets for auxiliaries.

American Foundation for Overseas Blind, Inc. (22 West 17th Street, New York, New York 10011, U.S.A.) Material on blindness from lack of vitamin A.

American Home Economics Association (2010 Massachusetts Avenue, N.W., Washington, D.C. 20036) Manuals for working with villagers and kits for family planning workers are available.

American National Red Cross (2025 E Street, N.E., Washington, D.C. 20036) First aid and nursing publications are published by Doubleday and Company, New York, U.S.A.

American Public Health Association (1015 15th Street, N.W., Washington, D.C. 20005)

- a. Control of Communicable Diseases in Man: A handbook on all communicable diseases.
- b. Salubritas, a quarterly publication covering innovative practices used for the promotion of health in the developing world.

CARE (660 1st Avenue, New York, New York 10016) "Village Library" publications for new literates.

Caribbean Food and Nutrition Institute (Kingston, Jamaica, West Indies) Newsletter, "Cajanus," with excellent materials on nutrition.

Nigerian Ministry of Health. (Chief Education Officer, Public Health Department, Ministry of Health, Ibadan, Nigeria) Posters and material in English and main Nigerian languages.

Christian Medical College and Hospital (Vellore 4, Madras, India) Posters, flash cards, flannelgraphs in English and local languages.

Centre pour le Promotion de la Santé (Kangu Majumbe, Republique du Zaïre) Excellent simple material for villages in French, some English, and local languages.

Centro Andino de Comunicaciones. (Casilla 2774 Cochabamba, Bolivia) Flip charts in Spanish.

FAO, Food and Agricultural Organization of the United Nations. Many publications on nutrition and extension work. Catalogs available of publications and filmstrips. (See list of FAO addresses on page 219.)

Health Education Supply Center (P.O. Box 922, Loma Linda, California 92354, U.S.A.) Books and visual aids (hard and soft).

INCAP: Institute of Nutrition of Central America and Panama (Apartado Postal 1188, Guatemala City, Guatemala) An impressive list of excellent teaching materials in Spanish.

International Planned Parenthood Association (105 Madison Ave., New York, NY 10016) The principal nongovernmental organization involved in family planning worldwide. Headquartered in London.

Material Realise a l'Atelier de Material Didactique (Busiga, B.P. 18, Ngozi, Burundi). Good flip charts; a teaching plan using flip charts in French and local languages.

National Association for Public School Adult Education (A department of the National Education Association, 1201 16th Street, N.W., Washington, D.C. 20036) Pamphlets and materials on adult education.

Nutrition Center of the Philippines, Communication Department (Nichols Interchange, South Superhighway, Makati, Rizal, Philippines) Leaflets and fact sheets in English.

Pan American Health Organization (525 23rd Street, N.W., Washington, D.C. 20037) Both a regional organization of WHO and of the OAS. Many worthwhile publications in health, particularly Latin American studies.

Pan American Union (19th & Constitution Ave., N.W., Washington, D.C. 20037) Many publications in an adult literacy and basic education specific to Latin America. Publications for the new literate, "Biblioteca Popular Latinoamericana."

Planned Parenthood - World Population (810 7th Ave., New York, NY 10019) Catalog of publications and film strips. Many materials in Spanish.

Proyecto Leer Bulletin (Pan American Union, Wash., D.C. 20037) Cumulative title lists-books for adults and children. Sponsored by Books for the People Fund, Inc. and the Bro-Dart Foundation.

RTAC: Regional Technical Assistance Center for AID. Located in Mexico. Catalog of Publications on a variety of subjects, in Spanish. (Through AID)

Teaching Aids at Low Cost (TALC) (Institute of Child Health, 30 Guilford St., London WC1N 1EH, England) Slide sets, weight charts, aids to weight charts (flannelgraphs, etc.) Free booklist, English, French, and Spanish.

*UNESCO* (650 1st Ave., New York, NY 10016) United Nations. Many studies and publications in the field of adult education and literacy. Catalog of publications.

*World Health Organization (WHO)*. United Nations. Numerous publications on many aspects of disease, nutrition and public health. Publications are generally technical, but still useful to the layman. Catalog of publications. (A list of addresses follows.)

*U.S. AID*. Produces a variety of useful books, pamphlets and films; examples are:

*Village Technology Handbook*. Available from U.S. AID Mission (at American Embassy in your country).

Simple tools to help village workers. Water supply, health sanitation, food processing and preservation, housing and construction, home improvement, communications tools such as bamboo pens.

*The Multiplier Handbook*. Available from U.S. AID Mission. A rather technical "how to" manual. French, Spanish and English editions; 1961 publications. The puppet section has been translated to Arabic, and printed by the Ministry of Education, Bagdad, Iraq.

*The Sunlight Filmstrip Projector*. Available from U.S. AID Mission.

Very detailed, to scale directions for making a Sunlight Filmstrip Projector. Useful where no other projection can be used. 1962 publication.

*Homemaking Around the World*. Available from U.S. AID Mission.

*A Guide to Simple, Basic Principles of Homemaking*. Designed especially for overseas use. 1963 publication, 5th printing. Spanish edition by Regional Technical Aids Center (RTAC), Mexico City. Other U.S. AID Missions have translated editions in the language of the country.

*Foods For Peace Around the World*. Available from U.S. AID Mission.

Leaflets about food; school lunch booklet. Many have been translated to Spanish, Portugese, French.

*The Multiplier*. Available from U.S. AID Mission. Published bi monthly. Gives information on new materials (publications films, etc.) and where to get copies.

W.H.O. locations:

*AFGANISTAN*: See India, W.H.O. Regional Office

*CAMEROON*: Librarie du Peuple Africain, Boite postale 1197, Yaounde

*COLOMBIA*: Pio Alfonso Garcia, Calle Canoe 21 A-11, Cartagena

*CONGO*: Librairie Congolaise, 12 av des Aviateurs, Leopoldville

*COSTA RICA*: Imprenta y Libreria Trejos S.A., Apartado 1313, San Jose

*ECUADOR*: Libreria Cientifica Bruno Mortiz, Luque 233, Guayaquil

*FEDERATION OF MALAYA*: Jubilee (Books) Store Ltd. 97 Batu Road, Kuala Lumpur

*INDIA*: W.H.O. Regional Office for South-East Asia, World Health House, Indraprastha Estate, Ring Road, New Delhi-1 — Oxford Book and Stationery Company, Scindia House, New Delhi; 17 Park Street, Calcutta 16 (Sub-Agent)

*INDONESIA*: W.H.O. Regional Office for South-East Asia, World Health House, Indraprastha Estate, Ring Road, New Delhi-1, India — Indira Ltd. 37 Dj. Dr. Sam Ratulangi, JARAPTA (Sub-Agent)

*IRAN*: Mehso Bookstore: Naderi Avenue (Arbab-Guiv Building), REHERAN

*LEBANON*: Librairie Universelle, Beirut

*MOROCCO*: Centre de Diffusion Documentaire du B.E.P.I., 8, rue Michaux-Bellaire, RABAT

*NEPAL*: See India, W.H.O. Regional Office

*NIGERIA*: University Bookshop Nigeria, Ltd, University of Ibadan, IBADAN

*PAKISTAN*: Ferozons' Publishers, McLeod Road, Karachi; 365 Circular Road, Lahore; 35 The Mall, PESHAWAR — Mirza Book Agency, 65 The Mall, Lahore-3

*PHILIPPINES*: Alemar's, 769 Rizal Avenue, Manila

*THAILAND*: See India, W.H.O. Regional Office

*TOGO*: R. Walter and Cie, Place du Grand-Marche, Lome

*TURKEY*: Librairie Hachette, 469 av. de l'Independance, Istanbul

*UNITED STATES OF AMERICA*: Columbia University Press, International Documents Service, 2960 Broadway, New York, New York 10027

URUGUAY: Oficina de Representacion de Editoriales, Sr. Hector D'Elia, Plaza Cagancha 1342, 1er Piso, Montevideo

VENEZUELA: The University Society Venezolana C.A., Apartado 10786, Caracas

REGIONAL OFFICES — FOOD AND AGRICULTURE ORGANIZATION (FAO)

AFRICA

*ACCRA*

*Postal Address:*

Regional Office for Africa

P.O. Box 1628

Accra, Ghana

ASIA AND THE FAR EAST

*BANGKOK*

*Address:*

Regional Office for Asia and Far East

Maliwan Mansion

Phra Atit Road

Bangkok, Thailand

LATIN AMERICA

*MEXICO CITY*

*Postal Address:*

Regional Office for Latin America (Northern Zone)

(Oficina Regional de la FAO)

Apartado Postal 10778

Mexico 1, D.F. Mexico

NEW DELHI

*Address:*

Regional Office for Asia and Far East (Western Zone)

1, Ring Road

Kilokri

New Delhi 14, India

*RIO DE JANEIRO*

Regional Office for Latin America (Eastern Zone)

(Escritorio Regional de FAO)

Rua Jardim Botânico, 1008

Rio de Janeiro

*SANTIAGO*

*Postal Address:*

Oficina Regional de la FAO

Casilla 10095

Santiago

Chile

*Street Address:*

Regional Office for Latin America (Western Zone)

(Oficina Regional de la FAO)

Cano y Aponte 995 (Providencia)

Santiago

Chile

Other Sources of Information:

Books

Adams, R.N., Cultural Surveys of Panama, Nicaragua, Guatemala, El Salvador, Honduras. Pan American Sanitary Bureau (Pan American Health Organization) Scientific Publication #33 (525 23rd St., N.W., Washington, D.C. 20037), 1957.

Agency for International Development, Education in Health. (Washington, D.C. 20523), 1964 (English and French). (Four case studies from the Philippines on malaria eradication, environmental sanitation, school health, and maternal and child health.)

American Home Economics Association, Working With Villagers. AHEA International Family Planning Project (2010 Mass. Ave., N.W., Washington, D.C. 20036), 1977.

American National Red Cross, Standard First Aid and Personal Safety. Doubleday and Co., Inc. (245 Park Avenue, New York, New York 10017), 1973.

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Fanamanu, Joe and Vaipulu, Tapou, "Working Through Community Leaders," International Journal of Health Education (July-September 1966).

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Read, Margaret, Culture, Health and Disease. J.B. Lippencott Co. (E. Washington Square, Philadelphia, PA 19105), 1966.

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PERIODICALS

| <u>TITLE</u>                  | <u>PUBLISHER</u>  | <u>FREQUENCY</u>  | <u>PRICE</u>                 |
|-------------------------------|---|---|------------------------------|
| <u>Nutrition</u>              |   |   |                              |
| CAJANUS                       | Caribbean Food and Nutrition Inst.<br>P.O. Box 140, Kingston 7, Jamaica   | *Bimonthly<br>English   | Free                         |
| L.I.F.E.                      | League for International Food Education<br>1126 16th Street, N.W., 20036, U.S.A.                                    | Monthly<br>English  | Free                         |
| <u>Maternal/Child Health</u>  |   |   |                              |
| LES CARNETS DE L'ENFANCE      | UNICEF<br>Case Postale 11<br>1211 Geneve 14, Switzerland  | Quarterly<br>French and English                                 | \$6.00-3rd World             |
| CHILDREN IN THE TROPICS       | Centre International de l'Enfance<br>Chateau de Longchamp<br>Bois de Boulogne, 75016 Paris, France                  | Bimonthly<br>English  | \$9.00                       |
| <u>Family Planning</u>        |   |   |                              |
| PEOPLE                        | International Planned Parenthood Fed.<br>18-20 Lower Regent Street<br>London SW1Y 4PW, U.K.                         | Quarterly<br>French, Spanish,<br>and English                    | \$15.00                      |
| PERSPECTIVES                  | Alan Guttmacher Institute<br>515 Madison Avenue<br>New York, New York 10022   | Bimonthly<br>English  | Free                         |
| POPULATION REPORTS            | Population Information Program<br>Johns Hopkins University<br>625 No. Broadway<br>Baltimore, Maryland 21205, U.S.A. | Bimonthly<br>Arabic, English, French,<br>Portuguese and Spanish | Free                         |
| <u>Appropriate Technology</u> |   |   |                              |
| APPROPRIATE TECHNOLOGY        | Intermediate Technology Development Group<br>9 King Street<br>London WC2E 8 HN, U.K.                                | Quarterly<br>English  | £4 surface<br>£5.50 air-mail |
| VITA NEWS                     | Volunteers in Technical Assistance<br>3706 Rhode Island Avenue<br>Mt. Rainier, Md. 20822                            | Quarterly<br>English  | \$5.00                       |

\* Means every two months in this list

Environmental Sanitation

|                     |   |   |      |
|---------------------|---|---|------|
| FROM THE WATERFRONT | Drinking Water Programmes<br>Programme Division, UNICEF<br>New York, New York 10017                                       | Quarterly   | Free |
| IRC NEWSLETTER      | WHO International Reference Centre<br>for Community Water Supply<br>P.O. Box 140, 2260 AC Leidschendam<br>The Netherlands | Bimonthly   | Free |
| ENSIC               | ENSIC - Clearinghouse<br>Asian Institute of Technology<br>P.O. Box 2754<br>Bangkok, Thailand                              | Distributes variety<br>of environmental sani-<br>tation documents |      |

Communications

|                                     |  |  |        |
|-------------------------------------|--|--|--------|
| DEVELOPMENT COMMUNICATION<br>REPORT | Academy for Educational Development<br>1414 22nd Street, N.W.<br>Washington, D.C. 20037, U.S.A.                  | Quarterly<br>English                           | Free   |
| CONTACT                             | Christian Medical Commission<br>World Council of Churches<br>150, Route de Ferney<br>1211 Geneva 20, Switzerland | Bimonthly<br>French, English<br>and Portuguese | Free   |
| SALUBRITAS                          | American Public Health Association<br>1015 15th Street, N.W.<br>Washington, D.C. 20005, U.S.A.                   | Quarterly<br>English, French<br>and Spanish    | Free   |
| TROPICAL DOCTOR                     | Royal Society of Medicine<br>1 Wimpole Street<br>London W1M 8AE, U.K.  | Quarterly<br>English                           | £8.80  |
| WORLD NEIGHBORS IN ACTION           | World Neighbors<br>5116 No. Portland Ave.<br>Oklahoma City, Okla. 73112, U.S.A.                                  | Quarterly<br>English                           | \$2.00 |

General Development

|                    |   |   |      |
|--------------------|---|---|------|
| BASICS             | Rural Communications<br>17 St. James Street<br>South Petherton, Somerset, U.K.    | Bimonthly<br>English                        | Free |
| IDRC REPORTS       | International Development<br>Research Center, Box 8500<br>Ottawa, Canada K1G 3H9  | Quarterly<br>English, French<br>and Spanish | Free |
| DEVELOPMENT DIGEST | U.S. Government - Address represents<br>to in country Aid Mission or U.S. Embassy |   |      |

| <u>TITLE</u>                                | <u>PUBLISHER</u>   | <u>FREQUENCY</u>                           | <u>PRICE</u>       |
|---|--|--|--------------------|
| INTERNATIONAL DEVELOPMENT<br>REVIEW         | Society for International Development<br>Palazzo Civiltà del Lavoro<br>00144 Rome, Italy         | Quarterly<br>Abstracts in<br>Fr. and Spaa. | Free               |
| <u>Education</u>                            |  |  |                    |
| REPORTS                                     | World Education<br>1414 Sixth Avenue<br>New York, New York 10019, U.S.A.                         | Quarterly<br>English                       | Free               |
| <u>Indigenous</u>                           |  |  |                    |
| AFYA  | African Medical and Research Fdn.<br>P.O. Box 30125<br>Nairobi, Kenya                            | Bimonthly<br>English                       | Free               |
| BONG COUNTY COMMUNITY<br>HEALTH NEWSLETTER  | Phoebe Hospital and School of Nursing<br>P.O. Box 1046<br>Monrovia, Liberia                      | Monthly<br>English                         | Free               |
| DEFENDER                                    | African Medical and Research Fdn.<br>P.O. Box 30125<br>Nairobi, Kenya                            | Irregular<br>English                       | Free               |
| EL INFORMADOR                               | ASECSA<br>Apartado Postal #27<br>Chimaltenango, Guatemala, C.A.                                  | Spanish                                    | Free               |
| FAMILLE & DEVELOPPMENT                      | Famille & Developpment<br>B.P. 11,007 C.D. Annexe<br>Dakar, Senegal                              | Quarterly<br>French                        | \$10.00            |
| BRAC NEWSLETTER                             | Bangladesh Rural Advancement Committee<br>3, New Circular Road<br>Maghbazar, Dacca-17 Bangladesh | Irregular<br>English                       | Donation<br>\$5.00 |
| THE EASTERN CLINIC RURAL<br>HEALTH BULLETIN | The Eastern Clinic, Moberi Via Baiima,<br>Sierra Leone, West Africa                              | Quarterly<br>English                       |                    |
| VIBRO                                       | Yayasan Indonesia Sejahtera<br>P.O. Box 3028<br>Jakarta Pusat, Indonesia                         | Quarterly<br>English                       | Free               |

ACTION/PEACE CORPS  
APPROPRIATE TECHNOLOGIES FOR DEVELOPMENT  
INFORMATION COLLECTION & EXCHANGE PUBLICATIONS

More than 82,000 Volunteers have served in some 75 countries around the world in people-to-people development projects since the Peace Corps began in 1961. Living and working at the grassroots level, Volunteers learn the restrictions of high technology. With very limited resources to work with in the villages and urban slums in which they find themselves, they are forced by circumstance to be creative; to innovate with local materials and technologies, integrating them with the most relevant of what America can offer; and to then adapt them for better agriculture, health, education, and overall community development. Thus, years before the term "appropriate technology" was adopted by the international development community, Peace Corps Volunteers, in collaboration with their host country counterparts, were pioneering in this field.

In 1975, the Peace Corps established Information Collection and Exchange (ICE) to take the ideas and technical information derived from many successful projects and disseminate them in the form of manuals and other technical materials to Peace Corps Volunteers in the field and to others working at the grassroots development level.

We are convinced that this technical material has relevance in the United States, too, especially as we in the U.S. move towards a decentralized, self-reliant community approach. Already many VISTA Volunteers are using Peace Corps technical material in their projects, adapting ideas and approaches, as do PCVs in villages throughout the 3rd World, to specific local needs and conditions.

The materials listed on the attached pages may be purchased by individuals and organizations in the United States from:

National Technical Information Service  
5285 Port Royal Road  
Springfield, Virginia 22161

and from

VITA (Volunteers in Technical Assistance)  
3706 Rhode Island Avenue  
Mt. Rainier, Maryland 20822.

We hope that those of you who find this material useful will contact us at the address below with your comments, modifications, or project reports. Reconnection, the newsletter for former Peace Corps and VISTA Volunteers, would be interested in publicizing the success of any project based on Peace Corps generated material.

Peace Corps  
Information Collection & Exchange  
806 Connecticut Avenue, N.W.  
Washington, D.C. 20525

ACTION/PEACE CORPS  
APPROPRIATE TECHNOLOGIES FOR DEVELOPMENT  
INFORMATION COLLECTION & EXCHANGE PUBLICATIONS .

MANUAL SERIES

Based on Peace Corps' field experience in selected technical areas, the volumes in the Manual Series present complete how-to information from initial project planning in the community setting to ongoing needs for maintenance, training, and co-operative organization. Manuals are written in a format and language appropriate for field workers without specialized technical training.

Manual  
Number

- M1a Freshwater Fisheries - Program Planning. Designed for policy-makers, program planners, trainers, and coordinators who are considering the potential contribution of freshwater fishpond projects; topics include feasibility surveys, Peace Corps' involvement in a number of fishculture programs, task analyses, recruitment and evaluation criteria. 1977. 72 pp.
- M1b Freshwater Fish Pond Culture and Management. A guide to planning, constructing, and maintaining small-scale fish pond operations, with information on selecting warm-water fish, fish disease, and fish preservation. Produced as a joint project with VITA. 1976. 191 pp.
- M2 Small Farm Grain Storage. A practical field manual covering aspects of small-scale grain storage, including plans for grain dryers and storage facilities, and techniques for controlling insects and rodents. Produced as a joint project with VITA. 1976. 560 pp.
- M2b Programming and Training for Small Farm Grain Storage. Designed for use by Peace Corps agriculture programmers, trainers, and Volunteers as they plan projects and develop skill training programs. 1978. 110 pp.
- M3 Resources for Development - Organizations and Publications. A descriptive listing of U.S. and international organizations and periodicals which can provide useful information for field workers in developing countries. 1976. 88 pp.
- M4 The Photonovel - A Tool for Development. Includes a step-by-step preparation process for creating visual teaching tool, plus sample photonovel on sanitation. 1976. 105 pp.
- M5 Reforestation in Arid Lands. Provides guidelines for planning and carrying out a reforestation project from nursery to planting site, with extensive appendices on the trees, soil, climate, and vegetation of sub-Saharan West Africa. Produced as a joint project with VITA. 1977. 248 pp.
- M6 Self-Help Construction of 1-story Buildings. Designed for field workers with little or no construction experience. Assists families or communities in planning, designing and constructing 1-story buildings, (schools, health clinics, homes, etc.) using locally available materials. 1977. 235 pp.
- M7 Teaching Conservation in Developing Nations. Provides development workers with ideas, project possibilities and resources for incorporating conservation education into their day-to-day community activities. Produced in conjunction with the National Audubon Society. 1977. 251 pp.

- M8 Community Health Education to Developing Countries. Provides an assessment outline, project planning guidelines, and suggested health education methods including visual aids. Identifies common community health problems with recommended solutions. Incorporates information from Reprint R3, now out of print. 1973 209 pp.

REPRINT SERIES

Reprints are technical monographs selected from Information Collection and Exchange materials on the basis of potential wide usefulness in the field. They are published without reediting or retyping, and users are expected to adapt techniques to local conditions and needs. Reprints frequently serve as primary resources in development of country specific publications.

Reprint  
Number

- R1 Health Education- A Study Unit on Fecal-Borne Disease and Parasites (PC/Philippines). Provides instructors with materials for teaching students how an individual's habits affect and determine his or her health. Materials for oral presentation include an explanation of the process of digestion, the digestive system and fecal-borne diseases 1976. 50 pp.
- R2 Visual Aids. Provides various examples of visual aid media including flashcards, pamphlets, posters, flannelgraph, silk screen printing, movies, photographs, blackboard, bulletin board, puppets and slides. For each visual aid, includes suggestions for ensuring maximum effective usage and obtaining or developing materials locally. 1976. 21 pp.
- R3 Health Training Resource Material for Peace Corps Volunteers.  
Out of print: superceded by M3.
- R4 Agricultural Mathematics for Peace Corps Volunteers.  
Practical guide for solving field problems which require mathematical calculations, with review materials; frequently used mathematical reference tables; problems related to water and irrigation, construction, land leveling and crop production, agricultural machinery; and general agricultural information. 1968. 96 pp.
- R5 Irrigation Principles and Practices. Basic irrigation principles and techniques primarily in relation to soil, plants, and water. Presented in relatively nontechnical vocabulary with illustrations and charts. Topics include: irrigation principles, water measurement, irrigation, water control, drainage, irrigation planning with additional information on crop production problems, and irrigation implements. 1969. 112 pp.
- R6 Crop Production Handbook. Provides explanations, illustrations and charts of soil, plant, and water relationships as they affect crop production. Entomology and insect control, cereal crops, pulse crops, sugar and fiber crops, and oil crops are also included. 1969. 147 pp.
- R7 Improved Practices in Corn Production-A Guide for Peace Corps Volunteers.  
Improving crop yields by simultaneously implementing a variety of practices including use of seed for planting, seed treatment with a fungicide, improved plant spacing and populations, fertilizer use, insect control, weed control and proper storage. 1969. 44 pp.
- R8 Soils, Crops and Fertilizer Use. Designed to give Volunteers the technical information about fertilizer use necessary for effective agricultural education programs. Concentrates on such topics as soils, different kinds of fertilizers, understanding and determining fertilizer needs and using fertilizers. 1969. 103 pp.
- R9 A Glossary of Agriculture Terms - Spanish/English, English/Spanish  
Terms frequently used by agriculturalists. 1960 107 pp.
- R10 Guide for Field Crops in the Tropics and Subtropics (AID).  
In-depth discussion of climate, soil, cropping, and farming systems in non-technical language. Cereal crops, legumes, oil crops, root or tuber crops and bananas, and major fiber crops and cash crops are also addressed. 1976. 321 pp.

- R11 Le Français Essentiel Pour L'Afrique Francoohone. French lessons for Peace Corps Volunteers; available only through PC training programs. 1975. 167 pp.
- R12 An Expanded Collection of Language Informant Techniques (PC/Senegal). Presents practical "how to" techniques as well as a useful outline for an overall learning plan for continued language learning in the field without instructors. 1975. 53 pp.
- R13 Tales of Wisdom in Folly-A Course in Controlled Composition (PC/Afghanistan). Collection of the fables of Mullah Nasrudin, with increasingly difficult structures/text/language/vocabulary and assignments at the end of each story to improve students' English composition skills. 1976. 44 pp.
- R14 Guidelines for Development of a Home Industry (PC/Ethiopia). Easily understandable, illustrated guidelines useful in considering marketing, production, training, and record-keeping for home industry projects. Simple instructions for some of the activities of the Ethiopia Volunteer Rehabilitation Project are also included. 1976. 59 pp.
- R15 L'Utilisation du Silo-Fosse et des Lecons Techniques (PC/Mali/Chad). Uses and construction of pit silos for storing ensilage with lessons suitable for teaching extension workers about ensilage and pit silos. (French) 1976. 70 pp.
- R15a Utilization and Construction of Pit Silos (PC/Mali/Chad). Provides background information on ensilage crops, harvesting and preservation followed by instructions for construction of pit silos. A Peace Corps Pit Silo project in Mali is also evaluated. 1976. 41 pp.
- R16 Combatting Hansen's Disease (PC/Korea). Illustrated presentation of technical information on physiology and immunology, epidemiological-clinico-pathological and public health perspectives. Also includes PC/Korea experience establishing and implementing leprosy program. 1976. 361 pp.
- R17 Glossary of Environmental Terms-Spanish/English, English/Spanish. Terms used for discussion and work related to the environment. 1976. 202 pp.
- R18 Manual Didactico-Huertos Escolares Y Nutricion (PC/Guatemala). Prepared for Guatemalan nutrition teachers in rural areas, with information on nutrition and materials for planning and implementing school garden programs related to nutrition classes. (Spanish) 1976. 132 pp.
- R19 Title not currently available
- R20 Teaching Reading and Creative Writing - A Language Experience Approach (Beliza). Method and complete illustrative materials for teaching, reading and writing in adult literacy and TEFL/ESL classes as well as in elementary school classes. 1977. 111 pp.
- R21 Conseils de Santa a la Famille Africaine (PC/Togo). Illustrated manual in simple French that provides material for teaching about pregnancy and child-birth, infant nutrition and basic health precautions, with recipes for infants' meals. (French) 1977. 126 pp.
- R22 The State of the Art of Delivering Low Cost Health Service in Developing Countries - A Summary Study of 180 Health Projects (AID/APHA). Results of a world-wide 1976 study. 1977. 62 pp.
- R22a Situation Actuelle Des Services De Sante A Faible Cout Dans Les Pays En Voie De Developpement.- A Summary Study of 180 Health Projects (French) 1977. 76 pp.
- R22b Situacion Actual de la Prestacion de los Servicios de Salud de Bajo Costo En Los Países En Desarrollo. (Spanish) 1977. 82 pp.
- R23 Contabilidad Para La Micro Empresa - Manual de Ensenanza (PC/Colombia). A teaching manual for small business accounting (Spanish) 1977. 105 pp.
- R24 Strings "N" Things - A Teaching Manual for the Blind (PC/Colombia). A guide to teaching macrama for those with little or no experience in working with the blind. 1977. 32 pp.

- R25 Intensive Vegetable Gardening for Profit and Self-Sufficiency (PC/Jamaica). Provides "step by step" guidelines for cultivating vegetable under many agricultural and climatic conditions organically or with chemical fertilizers. 1978. 159 pp.
- R26 Resources for TESOL Teaching. Compilation of techniques for the teaching of English to speakers of other languages, including pronunciation, grammar, linguistic information, verb list, rules, etc. 1978. 211 pp.
- R27 Health and Sanitation Lessons/Africa (PC/Niger/Gambia). Describes pre-presentation techniques and outlines step-by-step basic health presentations, nearly all directed towards women with children. Translated from French-language materials developed in Niger, and updated for use in the Gambia. 1979, 94 pp.
- R28 A Glossary of Agricultural Terms - English/French, French/English; Practical vocabulary for agriculturists in French-speaking areas. 1979.
- R29 Water Purification, Distribution, and Sewage Disposal. Designed as a field reference and instructor's manual for technical training. 1969. 243 pp.
- R30 Poultry "New Methods Pay With Poultry" (UNICZP). Assesses economics and logistics of poultry raising for small scale producer and commercial operator. Special reference to intensive housing deep litter practice. 1964.
- R31 Title not yet determined.
- R32 Lesson Plans for Beekeeping (PC/Philippines). Step-by-step procedures and basic technical information for starting small scale bee-keeping project. 1978.

RESOURCE PACKET SERIES

The Resource Packet Series is designed to provide a flexible format for compilation of already published information and supplementary material on particular subjects, with frequent updates and additions responsive to changing field needs. Upcoming Packet subjects include energy, water/sanitation, agriculture extension and food preservation.

Packet  
Number

- P1 ICE overview
- P2 Pesticide Safety  
Control methods for pests, use of pesticides and equipment, common pesticides and their toxicity, guidelines for use, symptoms of poisoning, first measures.  
Also Spanish and French. 1977.
- P3 Disaster Procedures  
Considerations for developing a country-specific disaster procedures plan with emphasis on precautionary measures and reporting of status procedures.  
Designs for earthquake-prone areas. 1977.
- P4 Small Vegetable Gardens  
Peace Corps Volunteers reports on experiences; wall charts on gardening and nutrition; Reprint 25 on tropical gardening; assistance organizations. 1977.
- P5 Cooperatives  
Cooperative principles, financial management, coop education, organizations giving assistance in cooperatives. 1978.

-- April 1979

**Best Available Document**

Appropriate Technologies for Development  
Information Collection & Exchange Publications

The Information Collection & Exchange provides "Appropriate Technologies for Development" publications to Peace Corps Volunteers for their projects, and, on a very restricted basis, to Third World field workers whose funds are limited; we also send single review copies to development agencies on request.

The publications listed below can be ordered from the National Technical Information Service (NTIS), 5285 Port Royal Road, Springfield, Virginia, 22161. For your convenience we have included the NTIS accession number and price, where information was available. In some cases, as indicated, manuals can be obtained only through VITA, 3706 Rhode Island Ave., Mt. Rainier, Maryland, 20822.

Manuals

|     |  |             |         |
|-----|--|-------------|---------|
| M1a | Freshwater Fisheries: Program Planning                   | PB268987/AS | \$ 5.00 |
| M1b | Freshwater Fish Pond Culture and Management              | VITA        | 6.50    |
| M2  | Small Farm Grain Storage                                 | VITA        | 10.00   |
| M3  | Resources for Development: Organization and Publications | PB263350/AS | 5.00    |
| M4  | The Photonovel: A Tool for Development                   | PB266300/AS | 5.50    |
| M5  | Reforestation in Arid Lands                              | VITA        | 6.50    |
| M6  | Self-Help Construction of 1-Story Buildings              | PB291857/AS | 9.50    |
| M7  | Teaching Conservation in Developing Nations              | PB292856/AS | 10.75   |
| M8  | Community Health Education in Developing Countries       | PB295953/AS | 9.00    |

Packets

|    |  |          |       |
|----|--|----------|-------|
| P5 | A Handbook for Cooperatives Fieldworkers | PB296041 | 13.25 |
|----|--|----------|-------|

Reprints

|      |   |             |         |
|------|---|-------------|---------|
| R1   | Health Education: A Study Unit on Fecal-Borne Disease and Parasites                 | PB262606/AS | \$ 4.50 |
| R2   | Visual Aids   | PB262511    | 5.00    |
| R3   | Out of print  |             |         |
| R4   | Agricultural Mathematics for PCV's  | PB262631/AS | 5.50    |
| R5   | Irrigation Principles and Practices   | PB262747/AS | 5.50    |
| R6   | Crop Production Handbook  | PB262746/AS | 6.75    |
| R7   | Improved Practices in Corn Production - A Guide for PCV's                           | PB26384C/AS | 4.00    |
| R8   | Soils, Crops & Fertilizer Use   | PB262769/AS | 5.50    |
| R9   | A Glossary of Agricultural Terms - Spanish/English; English/Spanish                 | PB262745/AS | 5.50    |
| R10  | Guide for Field Crops in the Tropics and Subtropics                                 | PB262468    | 10.00   |
| R12  | An Expanded Collection of Language Informant Techniques                             | PB262768/AS | 4.50    |
| R13  | Tales of Wisdom in Folly: A Course in Controlled Composition                        | PB252820/AS | 4.00    |
| R14  | Guidelines for Development of a Home Industry                                       | PB262951/AS | 4.50    |
| R15  | L'Utilisation du Silo-Fosse et des Leçons Techniques                                | PB262851/AS | 5.00    |
| R15a | Utilization and Construction of Pit Silos   | PB268985/AS | 4.00    |
| R16  | Combatting Hansen's Disease   | PB262929/AS | 10.50   |
| R17  | Glossary of Environmental Terms - Spanish/English; English/Spanish                  | PB262928/AS | 10.75   |
| R18  | Manual Didactico: Huertos Escolares y Nutricion                                     | PB263349/AS | 6.00    |
| R20  | Teaching Reading and Creative Writing: A Language Experience Approach               | PB296052/AS | 6.50    |
| R21  | Conseils de Santé à la Famille Africaine  | PB268988/   | 5.50    |
| R22  | The State of the Art of Delivering Low Cost Health Services in Developing Countries | PB270038/AS | 6.00    |
| R22a | Situation Actuelle Des Services De Santé A Faible Cout...                           | --          | --      |
| R22b | Situation Actual...   | --          | --      |
| R23  | Contabilidad Para La Micro Empresa - Manual de Ensenanza                            | PB269049/AS | 5.00    |
| R24  | Strings 'n' Things - A Teaching Manual for the Blind                                | PB271376/AS | 4.00    |
| R25  | Intensive Vegetable Gardening for Profit and Self-Sufficiency                       | PB288925/AS | 9.00    |
| R26  | Resources for TESOL Teaching  | PB295919/AS | 9.25    |
| R27  | Health and Sanitation Lessons   | --          | --      |
| R28  | A Glossary of Agricultural Terms - English/French; French/English                   | --          | --      |
| R29  | Water Purification, Distribution, and Sewage Disposal                               | --          | --      |
| R30  | Poultry   | --          | --      |
| R31  | Title not yet determined  | --          | --      |
| R32  | Lesson Plans in Beekeeping  | --          | --      |

Best Available Document

APPENDIX E  
VOCABULARY

Many of the terms used in this handbook will also be found in the following list. The definitions were adapted from *Where There Is No Doctor — A Village Health Care Handbook* with the kind permission of David Werner (Hesperian Foundation, P.O. Box 1692, Palo Alto, California 94302 U.S.A.)

A

*ABDOMEN* — The part of the body that contains the stomach, liver, and guts. The belly.

*ABNORMAL* — Different from what is usual, natural, or average. Not normal.

*ABSCESS* — A sac of pus caused by bacterial or other infection. For example, a boil.

*ACUTE* — Sudden and short-lived. An acute illness is one that starts suddenly and lasts a short time. The opposite of 'chronic'.

*ADOLESCENT* — The years in which a child becomes an adult. The teens: 13 to 19 years old.

*AFTERBIRTH* — See *PLACENTA*.

*ALCOHOLISM* — A continual need a person cannot control to overuse alcoholic drinks such as beer, rum, wine, etc.

*ALLERGY, ALLERGIC REACTION* — A problem such as an itching rash, hives, sneezing, and sometimes difficult breathing or shock that affects certain people when specific things are breathed in, eaten, injected, or touched.

*AMEBAS (also AMOEBAS)* — Tiny animals that live in water or in the gut and can only be seen with a microscope. They can cause diarrhea, dysentery, and liver abscess.

*ANALGESIC* — Medicine to calm pain.

*ANEMIA* — A disease in which the blood gets thin for lack of red blood cells. Signs include tiredness, pale skin, and lack of energy. See also *PERNICIOUS ANEMIA*.

*ANTACID* — Medicine used to control too much stomach acid and to calm stomach upset.

*ANTIBIOTIC* — Medicine that fights infections caused by bacteria.

*ANTISEPTIC* — A soap or cleaning liquid that prevents growth of bacteria.

*ANTIVENIN (ANTI-VENOM)* — An antitoxin used to treat poisoning from a venom, such as snake poison.

*AORTA* — The main artery or vessel that carries blood out of the heart to the body.

*APOPLEXY* — An old word for stroke. See *STROKE*.

*APPENDIX* — A finger-like sac attached to the large intestine (gut).

*APPROPRIATE* — Something that is easiest, safest, and most likely to work in a particular situation or condition.

*ARTERY* -- A vessel carrying blood from the heart through the body. Arteries have a pulse. Veins, which return blood to the heart, have no pulse.

*ASCARIS (ROUNDWORM)* — Large worms that live in people's intestines and cause discomfort, indigestion, weakness, and sometimes gut obstruction (blocking of the gut).

## B

*BACTERIA* — Tiny germs that can only be seen with a microscope and that cause many different infectious diseases.

*BAG OF WATERS* — The sac inside the womb that holds the baby; amniotic sac. When it breaks, releasing its fluid, this usually means that labor has begun.

*BEDSORES* — Chronic open sores that appear in people who are so ill they do not roll over or change position in bed.

*BIRTH DEFECTS* — See *DEFECTS*.

*BLADDER STONES* — See *KIDNEY STONES*

*BLOOD PRESSURE* — The force or pressure of the blood upon the walls of the arteries; it varies with the age and health of the person.

*BOIL* — A swollen, inflamed lump with a pocket of pus under the skin. A kind of abscess.

*BOOSTER* — A repeat vaccination to renew the effect of an earlier series of vaccinations.

*BOWEL MOVEMENT* — To have a bowel movement is to defecate; the way of passing solid waste out of the body. See *FECES*.

*BREAST ABSCESS* — See *MASTITIS*.

*BREECH DELIVERY* — A birth in which the baby comes out buttocks or legs first.

*BROAD-SPECTRUM ANTIBIOTIC* — A medicine that works against many kinds of micro-organisms. Compare with a narrow-spectrum antibiotic, which works against only a few.

*BRONCHI* — The tubes leading to the lungs, through which air passes when a person breathes.

*BRONCHITIS* — An infection of the bronchi.

*BUBO* — A very swollen lymph node. *BUBOS* is a common name for lymphogranuloma venereum.

## C

*CANCER* — A tumor or lump that grows and may keep growing until it finally causes death.

*CARBOHYDRATES* — Starches and sugars. Foods that provide energy.

*CAST* — A stiff bandage of gauze and plaster that holds a broken bone in place until it heals.

*CATARACT* — An eye problem in which the lens of the eye becomes cloudy, making it more and more difficult for the person to see. The pupil looks gray or white when you shine a light into it.

*CAVITY* — A hole or spot of decay in a tooth where bacteria have got in and destroyed part of the tooth.

*CENTIGRADE (C.)* — A measure or scale of heat and cold. A healthy person's temperature (normal temperature) is 37°C. Water freezes at 0°C. and boils at 100°C.

*CEREBRO-VASCULAR ACCIDENT, CVA* — See *STROKE*.

*CERVIX* — The opening or neck of the womb at the back of the vagina.

*CHANCRE* — A painless sore or ulcer on the genitals, finger, or lip that is one of the first signs of syphilis.

*CHIGGER* — A tiny, crawling spider or tick-like animal that buries its head under the skin and sucks blood.

*CHILDBIRTH FEVER* — (This is also called childbed fever, postpartum infection, or puerperal infection.) The fever and infection that mothers sometimes develop after childbirth.

*CHRONIC* — Long-term or frequently recurring (compare with acute). A chronic disease is one that lasts a long time.

*CIRCULATION* — The flow of blood through the arteries and veins by the pumping of the heart.

*CLEFT* — Divided, separated. A child born with a cleft palate has a separation or abnormal opening in the roof of his mouth.

*CLIMACTERIC* — Menopause.

*COLIC* — Sharp abdominal pains caused by spasms or cramps in the gut.

*COLOSTRUM* — The first milk a mother's breasts produce. It looks watery but is rich in protein and helps protect the baby against infection.

*COMA* — A state of unconsciousness from which a person cannot be wakened. It is caused by disease, injury or poison, and often ends in death.

*COMMUNITY* — A group of people living in the same village or area who have similar living conditions, interests and problems.

*COMPLICATIONS* — Secondary health problems that sometimes develop in the course of a disease. For example, meningitis may result as a dangerous complication of measles.

*COMPOST* — A mixture of plant and animal waste that is allowed to rot for use as a fertilizer. Hay, dead leaves, vegetable waste, animal droppings, and manure all make good compost.

*COMPRESS* — A folded cloth or pad put on a part of the body. It may be soaked in hot or cold water.

*CONJUNCTIVA* — A thin, protective layer that covers the white of the eye and inner side of the eyelids.

*CONSCIOUSNESS* — See LOSS OF CONSCIOUSNESS.

*CONSTIPATION* — Dry, hard, difficult stools (bowel movements) that do not come often.

*CONSUMPTION* — An old name for tuberculosis.

*CONTACT* — Touch. Contagious diseases can be spread by a sick person coming in contact with (touching or being close to) another person.

*CONTAGIOUS DISEASE* — A sickness that can be spread easily from one person to another.

**CONTAMINATE** — To dirty, stain or infect by contact. A syringe that has not been boiled is often contaminated and can cause infections, even though it looks clean.

**CONTRACEPTIVE** — Any method of preventing pregnancy.

**CONTRACTIONS** — Tightening or shortening of muscles. The strong contractions of the womb when a woman is in labor help to push the baby out of the womb.

**CONTRAINDICATION** — A situation or condition when a particular medicine should not be taken. (Many medicines are contraindicated in pregnancy.)

**CONVULSIONS** — An uncontrolled fit. A sudden jerking of part or all of the person's body, as in meningitis or epilepsy.

**CORNEA** — The clear outer layer or 'window' of the eye, covering the iris and pupil.

**CORNS** — Hard, thick, painful parts of the skin formed where sandals or shoes push against the skin or one toes presses against another.

**CRAMP** — A painful tightening or contraction of a muscle.

**CRETINISM** — A condition in which a child is born mentally slow and often deaf. It is usually due to lack of iodine in the mother's diet.

**CUPPING** — A home remedy that consists of drawing blood to the surface of the body by use of a glass or cup with a flame under it.

**CYST** — An abnormal, sac-like, liquid-filled growth developing in the body.

## D

**DANDRUFF** — Oily white or grayish flakes or scales that appear in the hair. Seborrhea of the scalp.

**DECONGESTANT** — A medicine that helps relieve swelling or stuffiness of the nose or sinuses.

**DEFECTS** — Birth defects are physical or mental problems a child is born with, such as a hare lip, club foot, or an extra finger or toe.

**DEFICIENCY** — Not having enough of something; a lack.

**DEFORMED** — Abnormally formed, not having the right shape.

*DEHYDRATION* — A condition in which the body loses more liquid than it takes in. This lack of water is especially dangerous in babies.

*DELIRIUM* — A state of mental confusion with strange movements and speech; it may come with high fever or severe illness.

*DERMAL* — Of the skin.

*DERMATITIS* — An infection or irritation of the skin.

*DIAPER RASH* — Reddish, irritated patches between a baby's legs caused by urine in his diapers (nappy) or bedding.

*DIARRHEA* — Frequent runny or liquid stools.

*DIET* — The kinds and amounts of foods that a person should eat or avoid eating.

*DISCHARGE* — A release or flowing out of fluid, mucus or pus.

*DISLOCATIONS* — Bones that have slipped out of place at a joint.

*DROWNING* — When a person stops breathing (suffocates) from being under water.

*DYSENTERY* — Diarrhea with mucus and blood. It is usually caused by an infection.

## E

*ECLAMPSIA* — Sudden fits during pregnancy or childbirth. The result of toxemia of pregnancy.

*EMBRYO* — The beginnings of an unborn baby when it still very small.

*EMERGENCY* -- A sudden sickness or injury that calls for immediate attention.

*EMETIC* — A medicine or drink that makes people vomit. Used when poisons have been swallowed.

*ENEMA* — A solution of water put up the anus to cause a bowel movement.

*EPIDEMIC* — An outbreak of disease affecting many persons in a community or region at the same time.

*EVALUATION* — A study to find out the worth or value of something, or how much has been accomplished. Often done by comparing different factors or conditions before and after a project or activity is underway.

*EVIL EYE* — A glance or look from someone believed to have the power to bewitch or do harm to people.

*EXHAUSTION* — Extreme fatigue and tiredness.

*EXPECTORANT* — A medicine that helps a person cough up mucus from the respiratory tract (lungs, bronchi, etc.); a cough-helper.

*EXPIRATION DATE* — The month and year marked on a medicine that tells when it will no longer be good. Throw away most medicines after this date.

## F

*FAHRENHEIT (F.)* — A measure or scale of heat and cold. A healthy person's temperature (normal temperature) is 98.6°F. Water freezes at 32°F. and boils at 212°F.

*FAMILY PLANNING* — Using birth control methods to plan when to have and not have children.

*FECES* — Stools; the waste from the body that is moved out through the bowels in a 'bowel movement'.

*FECES-TO-MOUTH* — Spread or transmitted from the stools of one person to his or another person's mouth, usually by food or drink, or on fingers.

*FETOSCOPE* — An instrument or tool for listening to sounds made by the unborn baby (fetus) inside the womb.

*FETUS (FOETUS)* — The developing baby inside the womb.

*FEVER* — A body temperature higher than normal.

*FIRST AID* — Emergency care or treatment for someone who is sick or injured.

*FIT* — A sudden, violent attack of a disease, causing convulsions or spasms (jerking of the body that the person cannot control), and sometimes unconsciousness.

*FLU* — A bad cold, often with fever, pain in the joints, and sometimes diarrhea.

*FLUKES* — Worms that infect the liver or other parts of the body and cause different diseases. Blood flukes get into the blood and cause schistosomiasis.

*FOETUS* — See FETUS

*FOLIC ACID* — A nutritious substance found in leafy green vegetables.

*FOLLICLES* — Small lumps.

*FONTANEL* — The 'soft spot' on the top of a young baby's head.

*FRACTURE* — A broken bone.

## G

*GALLBLADDER* — A small, muscular sac attached to the liver. The gallbladder collects bile, a liquid that helps digest fatty foods.

*GAUZE* — A soft, loosely woven kind of cloth used for bandages.

*GENERIC NAME* — The scientific name of a medicine, as distinct from the brand names given it by different companies that make it.

*GENITALS* — The organs of the reproductive system, especially the sex organs.

*GERMS* — Very small organisms that can grow in the body and cause some infectious diseases; micro-organisms.

*GIARDIA* — A tiny, microscopic parasite that can infect the intestines, causing frothy yellow diarrhea.

*GLUCOSE* — A simple form of sugar that the body can use quickly and easily. It is found in fruits and honey, and can be brought as a white powder for use in Rehydration Drinks.

*GOITER* — A swelling on the lower front of the neck (enlargement of the thyroid gland) caused by lack of iodine in the diet.

*GRAIN (GR.)* — A unit of weight based on the weight of a grain of wheat. 1 grain weighs 65 mg.

*GRAM (GM.)* — A metric unit of weight. There are about 28 grams in an ounce. There are 1000 gm. in 1 kilogram.

*GROIN* — The front part of the body where the legs join. The genital area.

*GUT* — Intestines.

## H

*HARE LIP* — A split in the upper lip, going from the mouth up to the nose (like a hare, or rabbit). Some babies are born with a hare lip.

*HEALTH WORKER* — A person who takes part in making his community a healthier place to live.

*HEMORRHAGE* — Severe or dangerous bleeding.

*HEREDITARY* — Passed on from parent to child.

*HISTORY (MEDICAL HISTORY)* — What you can learn through asking questions about a person's sickness—how it began, when it gets better or worse, what seems to help, whether others in the family or village have it, etc.

*HIVES* — Hard, thick, raised spots on the skin that itch severely. They may come and go all at once or move from one place to another. A form of allergic reaction.

*HORMONES* — Chemicals made in parts of the body to do a special job. For example, estrogen and progesterone are hormones that regulate a woman's period and chance of pregnancy.

*HYGIENE* — Actions or practices of personal cleanliness that lead to good health.

*HYPERTENSION* — High blood pressure.

*HYPERVENTILATION* — Very rapid, deep breathing in a person who is frightened.

*HYSTERIA* — (1) In common language, a condition of great nervousness, fear and emotional distress. (2) In medical terms, signs of sickness caused by fear or the power of belief.

## I

*IMMUNIZATIONS (VACCINATIONS)* — Medicines that give protection against specific diseases for example: diphtheria, whooping cough, tetanus, polio, tuberculosis, measles and smallpox.

*INFECTION* — A sickness caused by bacteria or other germs. Infections may affect part of the body only (such as an infected finger) or all of it (such as measles).

*INFECTIOUS DISEASE* — A disease that is easily spread or communicated (passed from one person to another); contagious.

*INFLAMMATION* — An area that is red, hot and painful, often because of infection.

*INSECTICIDE* — A poison that kills insects. DDT and lindane are insecticides.

*INTESTINAL PARASITES* — Worms and tiny animals that get in people's intestines and cause diseases.

*INTESTINES* — The guts or tube-like part of the food canal that carries food and finally waste from the stomach to the anus.

*INTRAMUSCULAR (IM) INJECTION* — An injection put into a muscle, usually of the arm or the buttock—different from an intravenous (IV) injection, put directly into a vein.

*IRIS* — The colored or dark part of the eye around the pupil.

## J

*JAUNDICE* — A yellow color of the eyes and skin. It is a sign of disease in the liver, gallbladder, pancreas or blood.

## K

*KERATOMALACIA* — A dullness and softening of the eye, ending in blindness. It is caused by a lack of Vitamin A.

*KIDNEYS* — Large, bean-shaped organs in the lower back that filter waste from the blood, forming urine.

*KIDNEY STONES* — Small stones that form in the kidneys and pass down to the urinary tube. They can cause a sharp pain the lower back, side, urinary tube, or lower belly. In the bladder they may block the urinary tube and make urination painful or impossible.

*KILOGRAM (KG.)* — One thousand grams. A 'kilo' is equal to a little over 2 pounds.

*KWASHIORKOR (WET MALNUTRITION)* — Severe malnutrition caused by not eating enough protein. A child with kwashiorkor has swollen feet, hands, and face and peeling sores.

## L

*LABOR* — The sudden tightening or contractions of the womb that mean the baby will soon be born.

*LARVA (LARVAE)* — The young worm-like form that comes from the egg of many insects or parasites. It changes form when it becomes an adult.

*LATRINE* — An outhouse; privy; a hole or pit in the ground to use as a toilet.

*LAXATIVE* — A medicine used for constipation that makes stools softer and more frequent.

*LIGAMENTS* — Tough cords in a person's joints that help hold them in place.

*LINGUAL* — Of or relating to the tongue.

*LITER (L.)* — A metric measure equal to about one quart. A liter of water weighs one kilogram.

*LIVER* — A large organ under the lower right ribs that helps clean the blood and get rid of poisons.

*LOSS OF CONSCIOUSNESS* — The condition of a sick or injured person who seems to be asleep and cannot be wakened. Unconsciousness.

*LUBRICANT* — An oil or cream used to make surfaces slippery.

*LYMPH NODES* — Small lumps under the skin in different parts of the body that are traps for germs. They become painful and swollen when they get infected. In tuberculosis and cancer they are often swollen but not painful.

## M

*MALNUTRITION* — Health problems caused by not eating enough of the foods that the body needs.

*MARASMUS (DRY MALNUTRITION)* — A condition caused by not eating enough. Starvation. The person is very thin and underweight, often with a pot belly.

*MASK OF PREGNANCY* — Dark, olive-colored areas on face, breasts, or middle of the belly that are normal in a pregnant woman.

*MASTITIS (BREAST ABSCESS)* — An infection of the breast, usually in the first weeks or months of nursing a baby. It causes part of the breast to become hot, red and swollen.

*MEMBRANE* — A thin, soft sheet or layer that lines or protects some part of an animal or plant.

*MENOPAUSE (CLIMACTERIC)* — The time when a woman naturally stops having monthly bleeding, usually between the ages of 40 and 50.

*MENSTRUAL PERIOD, MENSTRUATION* — Monthly bleeding in women.

*MENTAL* — Of or relating to the mind (thinking, brain).

*MICRO--ORGANISM* — A tiny plant or animal so small it can only be seen with the aid of a microscope.

*MICROSCOPE* — An instrument with lenses that make very tiny objects look larger.

*MICROSCOPIC* — Something so small that it can only be seen with a microscope.

*MIGRAINE* — A severe, throbbing headache, sometimes on one side of the head only. It often causes vomiting.

*MILLIGRAM (MG.)* — One thousandth of a gram.

*MILLILITER (ML.)* — One thousandth of a liter.

*MINERALS* — Simple metals or other things the body needs, such as iron, calcium, and iodine.

*MISCARRIAGE (SPONTANEOUS ABORTION)* — The death of the developing baby or fetus in the womb. Sometimes followed by heavy bleeding with blood clots.

*MONGOLISM (DOWN'S SYNDROME)* — A disease in which a child is born mentally slow with slanted eyes, a round dull face and wide hands with short fingers.

*MORNING SICKNESS* — Nausea and vomiting that occur especially in the morning in the early months of pregnancy.

*MOUTH-TO-MOUTH BREATHING* — Artificial respiration. A method of helping a person who has stopped breathing to start breathing again.

*MUCUS* — A thick, slippery liquid that moistens and protects the linings of the nose, throat, stomach, guts and vagina.

## N

*NARROW-SPECTRUM ANTIBIOTIC* — A medicine that works against a limited number of different kinds of bacteria.

*NASAL* — Of or relating to the nose.

*NAUSEA* — Stomach distress or upset; feeling like you need to vomit.

*NAVEL* — Belly button; umbilicus; the place in the middle of the belly where the umbilical cord was attached.

*NERVES* — Thin threads or strings that run from the brain to every part of the body and carry messages for feeling and movement.

*NON-INFECTIOUS DISEASE* — A disease that does not spread from person to person.

*NORMAL* — Usual, natural or average. Something that is normal has nothing wrong with it.

*NUTRITIOUS* — Nourishing. Nutritious foods are those that have the things the body needs to grow, be healthy, and fight off disease.

## O

*OBSTRUCTION* — A condition of being blocked or clogged. An obstructed gut is a medical emergency.

*OINTMENT* — A salve or lotion to use on the skin.

*OPHTHALMIC* — Of the eyes.

*ORAL* — By mouth. An oral medicine is one taken by mouth.

*ORGAN* — A part of the body that is more or less complete in itself and does a specific job. For example, the lungs are organs for breathing.

*ORGANISMS* — Living things (animals or plants).

*OTIC* — Having to do with the ears.

*OUNCE* — A measure of weight equal to about 28 grams. There are 16 ounces in one pound.

*OVARIES* — Small sacs in a woman's belly next to her womb. They produce the eggs that join with a man's sperm to make a baby.

*OXYTOCICS* — Dangerous medicine that cause the womb and blood vessels in it to contract. They should only be used to control a mother's heavy bleeding after her child is born.

## P

*PALATE* — The roof or top part of the mouth.

*PANCREAS* — An organ below the stomach, on the left side, that produces insulin.

*PANNUS* — Tiny blood vessels that appear in the top edge of the cornea in certain eye diseases like trachoma.

*PARALYSIS* — Loss of the ability to move part or all of the body.

*PARASITES* — Worms and tiny animals that live in or on another animal or person and cause harm. Fleas, intestinal worms and amebas are parasites.

*PARENTERAL* — Not by mouth but by injection.

*PASTEURIZATION* — The process of heating milk or other liquids to a certain temperature (60°C.) for about 30 minutes in order to kill harmful bacteria.

*PELVIS* — Hip bones.

*PERITONEUM* — The thin lining between the guts and body wall. The bag that holds the guts.

*PERITONITIS* — A very dangerous inflammation of the peritoneum. The belly gets hard like a board, and the person is in great pain, especially when he tries to lie with his legs straight.

*PERNICIOUS ANEMIA* — A rare kind of anemia caused by a lack of vitamin B<sup>12</sup>. Pernicious means harmful.

*PETROLEUM JELLY (PETROLATUM, VASELINE)* — A grease-like jelly used in preparing skin ointments.

*PHLEGM* — Mucus with pus that forms in abnormal amounts in the lungs and must be coughed out.

*PILES (HEMORRHOIDS)* — Small, painful bumps or lumps at the edge of the anus or inside. These are actually swollen or varicose veins.

*PLACENTA (AFTERBIRTH)* — The dark and spongy lining inside the womb where the fetus joins the mother's body. The placenta normally comes out 15 minutes to half an hour after the baby is born.

*PLACENTA PREVIA* — A condition in which the placenta is too low in the womb and blocks the mouth of the womb. The risk of dangerous bleeding is high. Women who have bleeding late in pregnancy—a possible sign of placenta previa—should go to a hospital at once.

*PLANTAIN* — A kind of banana with a lot of starch and fiber. It is often cooked and eaten when green.

*POLLEN* — The fine dust made in the flower of a seed plant. People who are ALLERGIC to pollen often have hay fever at times of the year when plants put a lot of this dust into the air.

*POSTPARTUM* — After childbirth.

*POSTPARTUM HEMORRHAGING* — Heavy bleeding of the mother following childbirth.

*PRECAUTION* — Care taken in advance to prevent harm or prepare for emergencies before they happen.

*PREGNANCY* — The period (normally 9 months) when a woman carries a child inside her.

*PREMATURE BABY* — A baby born before the full 9 months of pregnancy and weighing less than 2 kilos.

*PRESENTATION OF AN ARM* — An abnormal position of delivery in which the baby's hand comes out first during the birth. This is an emergency needing a doctor.

*PREVENTION* — Action taken to stop sickness before it starts.

*PROLAPSE* — The slipping or falling down of a part of the body from its normal position; for example, a prolapsed rectum or womb.

*PROTECTIVE FOODS* — Foods that are rich in vitamins and minerals. They help build healthy bodies and make people more able to resist or fight diseases.

*PROTEINS* — Body-building foods necessary for proper growth and strength.

*PULSE* — The number of times a person's heart beats in one minute.

*PUPIL* — The round opening or black center in the iris of the eye. It gets smaller in bright light and larger in the dark.

*PURGE* — A very strong laxative that causes diarrhea.

## R

*RATE* — The number of times something happens in a given amount of time.

*RECTUM* — The end of the large intestine close to the anus.

*REFLEX* — An automatic reaction or movement that happens without a person's trying to do it.

*REHYDRATION DRINK* — A drink to correct dehydration, which you can make with boiled water, sugar, salt and bicarbonate of soda.

*RESISTANCE* -- The ability of something to defend itself against something that would normally harm or kill it. Many bacteria become resistant to the effects of certain antibiotics.

*RESOURCE* — What is needed or available for doing or making something. People, land, animals, money, skills and plants are resources that can be used for improving health.

*RESPIRATION* — Breathing. The *RESPIRATORY SYSTEM* includes the bronchi, lungs and other organs used in breathing.

*RESPIRATION RATE* — The number of times a person breathes in one minute.

*RETARDATION* — Abnormal slowness of thought, action, or mental and emotional growth.

*RHINITIS* — An inflammation of the lining of the nose, often caused by allergies. Hay fever.

*RISK* — The possibility of injury, loss, or harm. Danger.

*ROAD TO HEALTH CHART* — A monthly record of a child's weight that shows whether the child is gaining weight normally.

*ROTATION OF CROPS* — To grow different crops one after the other in the same field, so that the soil becomes richer rather than weaker from year to year.

*RUPTURE (HERNIA)* — An opening or tear in the muscles covering the belly that allows a loop of the gut to push through and form a ball or lump under the skin.

## S

*SANITATION* — Public cleanliness involving community efforts in disease prevention, promoting hygiene, and keeping public places free of waste.

*SEPTICEMIA* — An infection of the blood-sometimes called 'blood poisoning'.

*SHOCK* — A dangerous condition with severe weakness or unconsciousness, cold sweat and fast, weak pulse. It is caused by dehydration, hemorrhage, injury, burns or a severe illness.

*SIDE EFFECTS* — Problems caused by using a medicine.

*SIGNS* — The things or conditions one looks for when examining a sick person, to find out what sickness he has. In this book symptoms, or the problems a person feels, are included with signs.

*SINUS TROUBLE (SINUSITIS)* — Sinuses are hollows in the bone that open into the nose. Sinusitis is inflammation causing pain above and below the eyes.

*SOFT DRINKS* — Fizzy, carbonated drinks like Coca-Cola.

*SOFT SPOT* — See FONTANEL.

*SPASM* — A sudden muscle contraction that a person cannot control. Spasms of the gut produce cramps, or colic. Spasms of the bronchi occur in asthma. Spasms of the jaw and other muscles occur in tetanus.

*SPASTIC* — Having chronic abnormal muscle contraction due to brain damage. The legs of spastic children often cross like scissors.

*SPLEEN* — An organ normally the size of a fist under the lower edge of the ribs on the left side. Its job is to help make and filter the blood.

*SPONTANEOUS ABORTION* — See *MISCARRIAGE*.

*SPRAIN (STRAIN)* — Bruising, stretching, or tearing of ligaments or tendons in a twisted joint. A sprain is worse than a strain.

*SPUTUM* — Mucus and pus (phlegm) coughed up from the lungs and bronchi of a sick person.

*STARCHES* — Energy foods like maize, rice, wheat, cassava, potatoes and squash.

*STERILE* — (1) Completely clean and free from living micro-organisms. Things are usually sterilized by boiling or heating. (2) Sterile also means permanently unable to have children.

*STERILIZATION* — (1) To sterilize instruments, bottles and other things by boiling or heating in an oven. (2) Also, a permanent way of making a man or woman unable to reproduce (have children).

*STETHOSCOPE* — An instrument used to listen to sounds in the body, such as the heartbeat.

*STOMACH* — The sac-like organ in the belly where food is digested. In common language 'stomach' is often used to mean the whole belly or abdomen.

*STOOLS* — See *FECES*.

*STROKE (APOPLEXY, CEREBRO-VASULAR ACCIDENT)* — A sudden loss of consciousness, feeling, or ability to move, caused by bleeding or a clot inside the brain.

*STY* — A red, swollen lump on the eyelid, usually near the edge, caused by infection.

*SUCROSE* — The common sugar that comes from sugarcane or sugar beets. It is more complex and more difficult for the body to use than glucose.

*SUGARS* — Sweet foods like honey, sugar or fruit that give energy.

*SUSPENSION* — A powder mixed in a liquid.

*SUTURE* — A stitch made with needle and thread to sew up an opening or wound.

*SYMPTOMS* — The feelings or conditions a person reports about his sickness.

## T

*TABLESPOON* — A measuring spoon that holds 3 teaspoons or 15 ml.

*TABOO* — Something that is avoided, banned or not allowed because of a cultural belief.

*TEASPOON* — A measuring spoon that holds 5 ml. Three teaspoons equal 1 tablespoon.

*TEMPERATURE* — The degree of heat of a person's body.

*TENDONS* — Tough cords that join muscles to bones (distinct from ligaments, which join bones with bones at joints).

*THALASSEMIA* — A form of hereditary anemia seen only in certain countries. A child may become very anemic by age 2, with a large liver and spleen.

*THERMOMETER* — An instrument used to measure how hot a person's body temperature is.

*TICK* — A crawling insect-like animal that buries its head under the skin and sucks blood.

*TOPICAL* — For the skin. A topical medicine is to be put on the skin.

*TOXEMIA* — A sickness resulting from certain poisons in the body; for example, toxemia of pregnancy and urine toxemia (or uremia).

*TOXIC* — Poisonous.

*TRACT* — A system of body organs and parts that work together to do a special job; for example, the urinary tract cleans the blood and gets rid of urine.

*TRADITIONS* — Practices, beliefs or customs handed down from one generation to another by example or word of mouth.

*TRANSMIT* — To pass on, transfer or allow to spread from one person to another.

*TROPICAL* — Having to do with the tropics or hot regions of the world.

*TUMOR* — An abnormal mass of tissue without inflammation. Some tumors are due to cancer.

## U

*ULCER* — A break in the skin or mucus membrane; a chronic open sore of the skin, the surface of the eye, the stomach or gut.

*UMBILICAL CORD* — The cord that connects a baby from its navel to the placenta on the inside of its mother's womb.

*UMBILICAL HERNIA* — A large, outward bulge of the navel-caused by a loop of intestine that has pushed through the sac holding the guts.

*UMBILICUS* — See *NAVEL*.

*UNCONSCIOUSNESS* — See *LOSS OF CONSCIOUSNESS*.

*UNDER-FIVES PROGRAM* — A plan that helps mothers learn about their children's health needs, make regular visits to a clinic for checkups, and keep a record (Road to Health Chart) of the growth of their children under five years old.

*URETHRA* — Urinary tube or canal. The tube that runs from the bladder to the hole a person urinates from.

*URINARY TRACT* — The system of organs concerned with the formation and getting rid of urine-such as kidneys, bladder and urinary tube (urethra).

*URINE* — Liquid waste from the body.

*UTERUS* — Womb

## V

*VACCINATIONS* — See *IMMUNIZATIONS*.

*VAGINA* — The tube or canal that goes from the opening of a woman's sex organs to the entrance of her womb.

*VAGINAL* — Of or relating to the vagina.

*VARICOSE VEINS* — Abnormally swollen veins, often lumpy and winding, usually on the legs of older people, pregnant women and women who have had a lot of children.

*VASELINE* — See *PETROLEUM JELLY*.

*VENEREAL DISEASE* — A disease spread by sexual contact.

*VESSELS* — Tubes. Blood vessels are the veins and arteries that carry the blood through the body.

*VIRUS* — Germs smaller than bacteria, which cause some infectious (easily spread) diseases.

*VITAMINS* — Protective foods that our bodies need to work properly.

*VOMITING* — Throwing up the contents out of the stomach through the mouth.

## W

*WELTS* — Lumps or ridges raised on the body, usually caused by a blow or an allergy (hives).

*WOMB* — The sac inside a woman's belly where a baby is made. The uterus.

## X

*XEROSIS or XEROPHTHALMIA* — Abnormal dryness of the eye due to lack of Vitamin A.

## APPENDIX F

### HEALTH EDUCATION AND IMMUNIZATION CAMPAIGNS

The following information represents the preliminary thinking of public health experts at the World Health Organization. For more up-to-date guidelines, speak to your local public health officials.

1. At the central level, seek backing from leaders of central governments within the many related ministries and divisions. This support is essential for insuring public knowledge and cooperation, securing and maintaining support from field workers, proper supervision, evaluation, and logistical backing.

Seek to obtain support of key individuals such as political leaders, medical educators, leaders in the private and voluntary sections, teachers, religious leaders, and those in the mass media field.

2. Foster interest and support of health services personnel through quality training, particularly in reference to educational needs of the public. This can be accomplished by your help in developing curricula, appropriate training methods such as discussion and role-playing techniques, through effective field training programs, using staff meetings for in-service training, preparation of bulletins or information sheets, getting feedback from the field, and insuring that efforts are made to secure widespread local support at the provincial, district, and sub-district levels. This can best be accomplished through early planning together with local officials who are involved in community education and health administration. Printed materials, audio-visuals and the radio can all be helpful to this educational effort.
3. Assist your community leaders in preparing for vaccination campaigns before vaccination teams arrive, while they are working in the communities, and after their departure. Table 1, which follows, provides a few examples of educational considerations.
4. Related activities can include arranging for dates and locations for immunization sessions, insuring specific support of local leaders and groups, obtaining full community participation, including keeping local registers of children needing immunizations, helping at the sessions by providing information to the public about what is happening and why. You can make sure that the community is fully protected by getting all of the shots they need when they need them through the use of family health cards shown on pp. 210 of this Manual. (Note that the immunization records on the Road to Health Chart will need to be modified according to local health needs.)

- You can try to get the people who attend the immunization clinics to bring in others who have not shown up because of fear, lack of knowledge, or other reasons. Consider using immunization programs as a means of expanding community interest in promoting good health in other ways such as with sanitary privies, clean water, nutritional, maternal and child health, and other projects.
5. These are only preliminary thoughts. Try to get WHO's or your country's detailed guidelines regarding immunizations and health education.

TABLE 1

PREPARING THE EDUCATIONAL COMPONENT  
OF A VACCINATION PROGRAM

| Some Factors Working Against Vaccination  | Some Positive Factors Encouraging Vaccination  |
|---|--|
| 1. Diseases are not known, diseases thought to be rare or unimportant or accepted as inevitable and so not feared | Disease known, recognized, and feared  |
| 2. Vaccine believed ineffective   | Immunization believed effective, to protect.   |
| 3. Side effects feared or resented  | Side effects known and accepted as contributing to immunization process  |
| 4. Health personnel feared, mistrusted, or disliked   | Health personnel known, respected, and trusted   |
| 5. People feel unwelcome at the immunization center   | People attend with friends and meet others. Welcomed and encouraged to cooperate   |
| 6. Time spent traveling, expense, and effort involved   | Effort, expense, etc., involved reduced to a minimum by program design and felt to be reasonable in relation to benefits obtained. |
| 7. Simultaneous, distractions e.g. market days, community activities  | Program utilizes community activities and celebrations - avoids unsuitable occasions   |
| 8. Child thought to be unwell or weak   | Advice of health staff on child's condition desired and accepted   |
| 9. Obligations to family. Family lack of sympathy with program  | Family support program and both assist and encourage participation   |