ANNOTATED BIBLIOGRAPHY

HEALTH EDUCATION AND COMMUNITY MOBILIZATION FOR ERADICATION OF DRACUNCULIASIS

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INTRODUCTION

We have prepared this compilation of information on the application and theory of health education and health promotion methods to assist health educators and other professionals involved with the eradication of dracunculiasis (Guinea worm disease).

Health education is the primary means through which people can develop the interest and capacity to take effective preventive actions against dracunculiasis. Community mobilization promotes awareness and active participation in all stages of program planning and implementation which, in turn, promotes the long-term reinforcement needed for eradication. Hence, health education, including community mobilization, is a priority intervention in the eradication of dracunculiasis, and necessary as a basis for any of the other interventions, eg. provision of safe sources of drinking water and chemical control of copepod populations.

Each national eradication program needs to develop comprehensive national, regional, and community-based strategies for health education to effectively disseminate the basic messages to populations with endemic disease by all appropriate channels. The three essential messages are 1) that Guinea worms are acquired by drinking contaminated water, 2) that persons with emerging worms or blisters should not enter and contaminate sources of drinking water, and 3) that people can also protect themselves by always filtering or boiling their drinking water, or by only drinking water from safe sources. Successful health education depends on using a few messages, of proven benefit, repeatedly, and in many forms.

This annotated bibliography provides the practitioner with an overview of the application of health education methods to the control of dracunculiasis. It is a complement to the Guidelines for Health Education and Community Mobilization issued by the WHO Collaborating Center for Research, Training, and Eradication of Dracunculiasis at the Centers for Disease Control in conjunction with the Global 2000 Project, Carter Center, Inc..

The bibliography is divided into four parts. Additionally, an author and subject indices are included for easy reference. Part A contains articles concerning the application of health education methods to eradication of dracunculiasis. Part B contains information about resource documents, audiovisual aids, and sources of information for health educators involved in dracunculiasis eradication programs. Part C provides a selection of papers

describing additional successful applications of health education methods in disease prevention and control. Part D includes other key references about health education applications.

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"The public interest requires doing today those things that men of intelligence and good will would wish, five or ten years hence, had been done".

- Edmund Burke

"When spider webs unite, they can tie up a lion".

- Ethiopian proverb

PART A
HEALTH EDUCATION APPLICATIONS FOR ERADICATION OF DRACUNCULIASIS

A1. Akpovi, S.U., Johnson D.C., Brieger, W.R., 1981. Guinea worm control: testing the efficacy of health education in primary care. International Journal of Health Education 24(4):229-237.

Summary Not only is health education listed first among the essential services of a primary health care program (WHO and UNICEF 1978). It is also viewed as underpinning the basic approach to primary health care (WHO/EMRO 1978). This demonstrates a high level of faith in health education. Still, effort is needed to prove its worth. An experimental health education and primary health care program in several small farm villages in western Nigeria is the subject of this article. Program development is described along with outcome issues present at three levels: (1) short-term effects on health knowledge and attitudes; (2) intermediate behavioral results; and (3) long-term impact on health status. The implications of organizational and technological limitations are also considered. Although the program dealt with many health and related issues, guinea worm is highlighted in this paper as a means of facilitating the measurement of results. It should be noted that guinea worm and the related problem of reliable water supply were both among the priority concerns raised by citizens of the project communities.

> **Key points:** Effective utilization of health education methods mobilized both the leaders and residents of communities with endemic dracunculiasis. Collective actions by citizens caused significant reductions in transmission of the disease. This is the first published study claiming a demonstrable impact of health education and community mobilization on transmission of dracunculiasis.

A2. Anonymous, 1991. Seeking safe water: the community-based approach to guinea worm control. Contact 118, 24 pp.

Summary This issue of Contact, a periodical bulletin of the Christian Medical Commission (a sub-unit of the World Council of Churches), presents examples of how in the village of Kati, Togo, dracunculiasis was eliminated using the

community-based approach.

Key points: Through a highly participative communication and education effort, the Kati villagers became aware that the real cause of the disease was to be found in contaminated water. Then they took on the task of eradicating Guinea worm disease from their village.

A3. Brieger, W.R., Ramakrishna, J., Akpovi, S.U., and Adeniyi, J.D., 1984. Selecting alternative strategies for community health education in guinea worm control. International Quarterly of Community Health Education 5(4):313-320.

Summary Community health education strategies in guinea worm control can be applied at several intervention levels. Community development mobilizes local resources to provide safe water supplies such as wells. Mass education in schools and communities can teach personal protection measures such as filtering water. Training volunteer community health workers produces front line staff, who by being culturally in tune with the community can demonstrate and promote the use of appropriate prevention and treatment measures. Advocacy assists community members to express their needs to government and ministry decision makers. All of these strategies have been applied in a community health education/primary health care program in Idere, Ibarapa District, Oyo State. Community development for well construction was found to be a long-term strategy that first must overcome problems of village organization and resource allocation. Mass education, to be effective, must have a simple and acceptable technology to promote. Trained village health workers must overcome traditional beliefs that inhibit use of preventive and treatment measures. Advocacy requires basic political education of community leaders. A variety of health education strategies is needed to address short- and long-term priorities as well as to overcome the different barriers to guinea worm control.

Key points: A variety of health education strategies are needed to enable people to prevent dracunculiasis. The effectiveness and appropriateness of a particular strategy depends on given social, economic and political realities. Mass education relies on the presence of a specific, simple technology which can be easily adopted and used. Primary

health workers are an important channel of health communication isolated rural villages. Political advocacy cannot succeed unless preceded by a long process of political education. Some external resources are needed to compliment the local initiative and to tip the balance in favor of community health.

A4. Brieger, W.R., Ramakrishna, J., and Adeniyi, J.D., 1986. Community involvement in social marketing: Guinea worm control. International Quarterly of Community Health Education 1986-87 7(1):19-31.

Summary Social marketing has been heralded as the new strategy that will enable health education to make an impact on a mass level. The African Regional Health Education Center in Ibadan, Nigeria adapted social marketing to promote the construction, sale, and use of drinking water filters, made from imported monofilament nylon cloth material, to prevent transmission of Guinea worm disease in the town of Idere (population 10,000). This study describes the steps taken to design the filter, establish the unit price, arrange for distribution of filter units, promote sales, and evaluate the outcome of the marketing strategy.

Key points: Social marketing is a neutral tool for social change. Advocacy can be educational if the client is encouraged to speak out for himself. Behavior modification can be educational if the patient helps develop her own treatment plan. Social marketing becomes educational when the community is involved in all stages of the marketing process, including determination of what are the basic health needs which marketing should address.

A5. Brieger, W.R., Ramakrishna, J., and Adeniyi, J.D., 1987. The relationship between health technologies and health education strategies in primary health care. Proceedings of 12th World Health Conference on Health Education. pp. 213-218.

Summary This paper describes a framework that integrates technological issues more fully into the educational diagnostic process. The framework, called Levels of Intervention, has been used in planning community health

education programs for tropical diseases control in the small town of Idere, Nigeria. Specific applications to malaria and dracunculiasis (guinea worm) are described here. The framework pinpoints both the level or levels of prevention for which control technologies are available to a small community as well as the type of health education strategies which are appropriate for promoting particular technologies.

Key points: A limited number of technologies and tools appear feasible for village level control of the two diseases. For dracunculiasis: improvement of community water supply by digging wells and cloth filtration of drinking water. Limitation of disability (treatment of lesions) should be carried out due to the economic impact of the disease, but cannot be relied upon as an effective priority control measure. Educational diagnosis is required to learn if these technologies will be socially acceptable to the community.

A6. Brieger, W.R., Watts, S.J., and Yacoob, M., 1989. Guinea worm, maternal morbidity, and child health. Journal of Tropical Pediatrics 35(6):285-288.

Summary Studies have documented the effect of guinea worm concerning days lost to agricultural work and drops in school attendance, but little is known about how the disease disables mothers and impairs their ability to care for their children and families. A pilot case study of 42 women in two rural Nigerian communities has been conducted to fill that gap. Guinea worm was responsible for half of child immunization defaulting and deterred women using maternity services. Guinea worm kept women from their jobs and trades, costing an average of approximately $50 in lost income, a sizable chunk of a family's support considering the annual per capita income for the area is just over $100. Other problems experienced included loss of appetite and reduced food intake, unattended child illnesses, and disabling secondary infections resulting from unhygienic self-treatment. The ill women and her dependent children put great strain on the support network of family friends, a network already weakened in many cases when several other members were also afflicted with guinea worm. While further research is needed to learn more about this disabling disease, there is no excuse not to implement now guinea worm control interventions. The experience with mothers and children in

Nigeria has shown that guinea worm control through water supply improvement should be a major child survival and development initiative.

Key points: The authors provide a poignant view of the impact of dracunculiasis on domestic life in rural Nigeria. The study provides information that is relevant to health educators tasked with developing and implementing health education and community mobilization strategies for eradication of dracunculiasis.

A7. Brieger, W.R., Ramakrishna, J., Adeniyi, J.D. et al., 1991. Guinea worm control case study: planning a multi-strategy approach. Social Science and Medicine 32:1319-1326.

Summary The planned global eradication of guinea worm offers opportunities to learn about relatively complicated disease control situations. Unlike smallpox, which was eradicated over 10 years ago through immunization, the guinea worm problem has no one solution, but must rely on a variety of technologies to protect, treat or replace existing unsafe community water supplies which harbour the disease. Experiences in rural Nigeria have shown that a multi-strategy approach is necessary to account for differences in geographical settlement patterns, local culture and beliefs, geology of the area, economy of the villages and political clout of town leaders among the five major segments of the community. Through a self-help primary health care program, residents of the Idere community were able to dig wells, produce and distribute cloth water filters bringing a reduction in disease incidence in some areas. It was also seen that generally low standards of living exacerbated by scattered outlying settlements made self-help difficult. Unfortunately occasional government and private efforts did not succeed because of a lack of community participation.

Key points: Program planners must involve the consumers in diagnosing community characteristics and in planning, supervising and maintaining the resulting projects. The multi-strategy approach will help avoid wasted resources and false expectations that arise when project staff attempt to apply a "magic-bullet" solution to a complex problem.

A8. Ekeh, H., Adeniyi, J.D., 1987. Using teachers as change agents in the control of tropical diseases: an extra-curricular approach. International Quarterly of Community Health Education 6(4):323-333.

Summary For years the teaching of health education has always been a problem in the Nigerian schools either due to the absence of the subject on the curriculum or inadequate professional preparation of teachers to handle it. This study introduces an extra-curricular approach using four endemic diseases (malaria, schistosomiasis, onchocerciasis, and dracontiasis) as an example in the teaching of health education in five secondary schools.

Key points: Teachers can be successfully used as informal agents in the school environment if exposed to appropriate health education techniques. Endemic diseases can be controlled through the provision of learning experiences in the school environment where feasible.

A9. Ekeh, H.E., and Adeniyi, J.D., 1988. Health education strategies for tropical disease control in school children. Journal of Tropical Medicine and Hygiene 91:55-59.

Summary This study was concerned with the demonstration of the outcome of health education in the control of malaria, schistosomiasis, dracontiasis, and onchocerciasis in rural secondary schools in Nigeria using simplified version of Green's antecedent model. Green identified three factors which could contribute to the prevalence of a disease or health problem and they are "predisposing", "enabling", and "reinforcing" factors. Thus educational activities were planned in this project that would affect these three factors. The study was of a quasi-non equivalent before and experimental design. It was carried out in 10 secondary schools grouped into two equal clusters (five each) to form experimental and control groups. The post-intervention findings revealed that there was a significant increase in the knowledge of the four diseases among those in the experimental group.

Key points: Given the opportunities, resources, and health education, children will voluntarily make rational decisions affecting their health. When knowledge is supported by enabling and reinforcing factors, desirable change can result in the school setting among students.

A10. Gbary, A.R., Guiguemde, T.R., and Ouedraogo, J.B., 1987. La dracunculose, un fleau eradique dans trois villages du Burkina Faso par l'education sanitaire. Bulletin de la Societe du Pathologie Exotique 80:390-395.

Summary We carried out a dracunculiasis control study through health education in three hyperendemic villages in south-western Burkina Faso. The villages were organized in the framework of primary health care. Two years after the beginning of health education the disease was eradicated. Feasibility, low cost, and acceptability by populations of health education make it a main part of any dracunculiasis control strategy.

Key points: Dialogues with these communities about the origin and life cycle of Guinea worm, aided by illustrations (slides and a film), mobilized the villagers into action. In each community villagers selected a village agent and formed a village health committee, represented by 7 women and 7 men. Villagers prevented individuals with Guinea worm lesions from entering sources of drinking water, and filtered their drinking water through cloth filters.

A11. Hopkins, D.R., Ruiz-Tiben, E., 1991. Strategies for dracunculiasis eradication. Bulletin of the World Health Organization 69(5):533-540.

Summary In 1991 the Forty-fourth World Health Assembly declared the goal of eradicating dracunculiasis (guinea worm disease) by the end of 1995. This article summarizes the recommended strategies for surveillance and interventions in national dracunculiasis eradication programs. It is based on personal experience with dracunculiasis programs in Ghana, Nigeria, and Pakistan. Three phases are described: establishment of a national program office and conduct of a baseline survey; implementation of interventions; and case containment. The relevance of dracunculiasis eradication activities to strengthening of primary health care in the three countries is discussed briefly.

Key points: Appropriate adaptation of the strategies employed thus far in Pakistan, Ghana, and Nigeria can help eradicate dracunculiasis in the remaining endemic countries.

A12. Kappus, K. D., Hopkins, D. R., Ruiz-Tiben, E., et al. 1991. A strategy to speed the eradication of dracunculiasis. World Health Forum 12:220-225.

Summary The guinea worm eradication program in Pakistan began in 1987 with a nationwide search for cases and the initiation of a surveillance and control program in approximately 400 affected villages. The number of cases fell from 2400 in 1987 to 1110 in 1988 and to 534 in 1989. Following this, in 1990, case containment was introduced and included five main elements: identification of all cases not more than 24 hours after worm emergence; medical management using antibiotics, bandages, and health education in order to reduce opportunities for contamination of drinking water sources; obtaining a travel history for the period during worm emergence in order to identify water sources that may have been contaminated; community mobilization to undertake preventive measures (ie. filter use, temephos treatment); and reporting of cases to sector and regional managers in order to allow cases to be confirmed within a week of worm emergence. Case containment is most likely to be effective in areas with fewer than 1000 cases in a year, since it requires manpower, and resources for early detection and intervention to stop transmission. During case containment health enhancing actions by individuals and by the community are critical to program success.

Key points: Health education and community mobilization play a critical role in the success of case-containment as a strategy to accelerate the eradication of dracunculiasis.

A13. Kumar, A., Sharma, R.S., Kaul, S.M., and Sehgal, S., 1989. Towards Guinea worm eradication--role of health education. Swasth Hind, 23(3-4):90-93.

Summary In the absence of an effective drug and vaccine against guinea worm, the community is left only to follow the preventive health practices to protect themselves from this disease. Since guinea worm infection occurs only through drinking the water contaminated with infected cyclops, prevention of disease can be achieved either by protecting drinking water from contact with ulcer of guinea worm patients, or preventing the people from drinking the water containing infected cyclops, or making the drinking water free from cyclops. This paper describes the clinical manifestations of the disease, discusses its causation and the role of health education in eradication programs.

Key points: Sustained health education is an essential tool

to educate and motivate the community to adopt practices that will prevent dracunculiasis transmission.

A14. Sharma, M.I., 1980. Lessons learnt from the intensified campaign against smallpox in India and their possible applicability to other health programs, with particular reference to eradication of dracunculiasis. Journal of Communicable Diseases 12(2):59-64.

Summary Lessons learned from the campaign to eradicate smallpox may serve as a stimulus and a model for devising new techniques to attack other health problems, such as dracunculiasis, as vigorously and successfully. The lessons learned are that success can be achieved if the objectives are well defined and made known, the strategy is clearly thought out and described in detail, there is proper pooling and utilization of resources, everyone is kept well informed, persons in authority are allowed freedom of action, an efficient system of record keeping is established, operations are flexible and adaptable around the basic concept of active case-search and containment and during the campaign a continuous system of training and education is established for personnel at all levels.

Key points: The operational principles and practices employed in the smallpox eradication effort are applicable to the eradication of Guinea worm disease, including the need for a vigorous health education campaign to make the community aware about the mode of spread of the disease and its prevention.

A15. Ward, W.B., Belcher, D.W., Wurapa, F.K., and Pappoe, M.E., 1979. Perception and management of Guinea worm disease among Ghanaian villagers. A framework for differential health education planning. Tropical and Geographical Medicine 31:155-164.

Summary A survey, resulted from the immediate need to understand the health behavior of Southern Ghanaian villagers during an epidemic of guinea worm disease. While such problems are usually studied at a time when the epidemic has abated, this study emphasized getting into the field quickly to obtain data before the epidemic passed. If behavior models are to have value for program planning in the developing world, they should be amenable to such

quick sample approaches. The study involved a survey of attitudes, beliefs and practices related to guinea worm disease and used a well-known framework for survey document development. Results showed distinctive and somewhat differing perceptions of susceptibility, seriousness, curability and preventability for the two ethnic groups within a single geographic area. The analysis of the survey results permitted suggestion of various educational strategies for both of the groups. This quick survey approach must be more refined before it has wide applicability. There appears to be a significant potential for developing a simplified checklist to be used by health workers in carrying a rapid educational diagnosis of a specific health problem for a given population.

Key points: Assessment of beliefs, attitudes and practices of populations within a geographic area may yield heterogenous results. Findings from such assessments play an important role in the selection of health education methods to be employed and the content of the messages to be delivered.

A16. Watts, S.J., Brieger, W.R., Yacoob, M., 1989. Guinea worm: an in-depth study of what happens to mothers, families and communities. Social Science and Medicine 29(9):1043-1049.

Summary This paper reports on the impact of maternal morbidity due to guinea worm, dracunculiasis, on the care and health of children under 24 months old, and the way in which the mothers and the family coped with the often extended periods of disability. This qualitative study is based on observations and in-depth interviewing, supplemented by focus group discussions. Of 42 mothers with guinea worm in two hyperendemic areas of Oyo and Kwara States, 28 were either bedridden or only able to hobble short distances with the help of a stick; the average period of incapacity was almost 9 weeks. Of the four maternal roles identified (child care, self care, domestic tasks, income generation), the women gave priority to child care; 34 of 42 mothers needed help in child care. Coping networks operated principally within the extended family, but also included women in other households, and women from beyond the community. Thus, the impact of a mother's illness extended beyond her children and family to the wider community. This qualitative study thus reveals the multifaceted impact of a disease on individuals and on the

community. The study stresses the need for, and availability of, effective methods for controlling guinea worm by utilizing community cooperation to provide protected water sources and other preventive measures against the disease.

Key points: Women, as the main care givers in the community and the people with the primary responsibility for collecting and storing the family drinking water supply, should be actively involved in control campaigns. The strong cooperative ethic among women, which helps them to survive the onslaught of this disease, should be incorporated into strategies designed to prevent Guinea worm.

PART B
RESOURCE DOCUMENTS, AUDIOVISUAL AIDS, AND SOURCES OF INFORMATION FOR HEALTH EDUCATORS.

GENERAL

B1. Meeting Global Health Challenges: a position paper on Health Education. A publication of the International Union for Health Education and the World Health Organization, 1992.

Summary Based on consensus input from international health education experts, this paper deliniates both the methodological and infrastructure elements essential to the implementation of effective health education programmes. The health education principles described reinforce the recommendations presented in Guidelines for Health Education and Community Mobilization in Dracunculiasis Eradication Programs (See below).

Request from: Division of Adolescent and School Health, Mailstop K-32, Centers for Disease Control, 1600 Clifton Road, N.E., Atlanta, Georgia, 30333 USA.
Available in English in March 1992.
Cost: Free of charge.

GUIDELINES

B2. Guidelines for Developing a Plan of Action for Dracunculiasis Eradication Programs. World Health Organization Collaborating Center for Research, Training, and Eradication of Dracunculiasis at the Centers for Disease Control.

Summary These guidelines are intended for use by national and regional authorities, program officials, and consultants to the Ministries of Health charged with developing a national plan of action for eradication of dracunculiasis. (Prepared with support from UNDP).

Request from: See address below.
Available in English and in French.
Cost: Free of charge.

B3. Guidelines for Surveillance in Dracunculiasis Eradication Programs. World Health Organization Collaborating Center for Research, Training, and Eradication of Dracunculiasis at the Centers for Disease Control.

Summary These guidelines are intended to help persons involved with dracunculiasis eradication programs make decisions about the design or modification of surveillance to monitor and document the disappearance of the disease. (Prepared with support from UNDP).

Request from: See address below.
Available in English and French.
Cost: Free of charge.

B4. Guidelines for Health Education and Community Mobilization in Dracunculiasis Eradication Programs. World Health Organization Collaborating Center for Research, Training, and Eradication of Dracunculiasis at the Centers for Disease Control in conjunction with Global 2000 Project, Carter Presidential Center, Inc..

Summary These guidelines are intended for use by national, regional, district and community level personnel involved with developing and implementing health education and community mobilization plans in national dracunculiasis eradication programs. (Prepared with support from UNDP).

Request from: See address below.
Available in English and French.
Cost: Free of charge.

B5. Guidelines for Chemical Control of Copepod Populations in Dracunculiasis Eradication Programs. World Health Organization Collaborating Center for Research, Training, and Eradication of Dracunculiasis at the Centers for Disease Control.

Summary These guidelines are intended to help persons involved with dracunculiasis eradication programs make decisions about chemical control of copepod populations in sources of drinking water. (Prepared with support from UNDP).

Request from: See address below.
Available in English and in French.
Cost: Free of charge.

Request these Guidelines from: WHO Collaborating Center for Research, Training, and Eradication of Dracunculiasis, Centers for Disease Control, Division of Parasitic Diseases, 1600 Clifton Road, Atlanta, Georgia 30333. Telephone: (404) 488-4060, Telefax (404) 488-4532.

B6. Silverfine, E., Brieger, W., and Churchill, A., 1991. Community-based Initiatives to Eradicate Guinea worm: A Manual for Peace Corps Volunteers. Prepared by the U.S. Peace Corps and the Agency for International Development - Vector Biology and Control Project.

Summary This manual is for community promoters, health agents, and school teachers who are working in communities where Guinea worm disease is endemic.

Available in English.
Cost: Free of charge.
Request from: Information, Collection, and Exchange, Peace Corps, 1990 K Street, N.W., Washington, D.C. 20526 USA.

PLANNING

B7. Paul, J., 1986. Cost-Effective Approaches to the Control of Dracunculiasis. WASH Technical Report No. 38:53 pp.

Summary This monograph describes a model developed to help compare the costs and benefits of different interventions (provision of safe drinking water, health education, chemical control of copepods) in the control of dracunculiasis.

Available in English.
Cost: Free of charge.
Request from: WASH Project, 1611 N. Kent Street Room 1001, Arlington, VA 22209-2111, USA. Telephone: 703-243-8200.

B8. Prins, A., and Yacoob, M., 1988. Adding Guinea Worm Control Components: Guidelines for Water and Sanitation Projects. WASH Technical Report No. 51:77 pp.

Summary These guidelines provide information on how to add a dracunculiasis control component to existing large-scale national water and sanitation projects, and are intended for use by project officers of private voluntary organizations, other donors, and national agencies in endemic countries.

Available in English and in French.
Cost: Free of charge.
Request from: WASH Project, 1611 N. Kent Street, Room 1001, Arlington, VA 22209-2111, USA. Telephone: 703-243-8200.

B9. Yacoob, M., 1984. Women and participation in health education for water and sanitation: an operational approach for moslem communities. Paper presented on behalf of UNDP Project INT/83/003 at the International Congress for Tropical Medicine and Malaria, Calgary, Canada.

Summary This paper deals with ways of involving moslem communities with health education projects in water and sanitation. It stresses the need to scrutinize community practices as a critical first step toward perfecting techniques that are culturally compatible with staunch Islamic traditions. "A successful practice," an experience that has worked is presented. The author proposes to use religion as a vehicle for behavior change, offers illustrations from projects and situations where religious values have been invoked in complementarity with development objectives, and discusses examples of health education materials whose content derives from codes of religious behavior, and, ultimately, from Islam as a behavioral model.

Available in English.
Cost: Free of charge.
Request from: WASH Project, 1611 N. Kent Street Room 1001, Arlington, VA 22209-2111, USA. Telephone: 703-243-8200.

TRAINING

B10. Srinivasan, L., 1990. Tools for Community Participation: A Manual for Training Trainers in Participatory Techniques. Promotion of the Role of Women in Water and Environmental Sanitation Services (PROWWESS)/United Nations Development Program (UNDP).

Summary The participatory approach--often known as learner-centered--has evolved over the past decade as a means of helping learners take greater control of their lives and their environment by developing their skills in problem-solving and resource management. Unlike traditional teaching methods which have emphasized the transfer of knowledge, messages or content pre-selected by outside specialists, participatory training such as SARAR focuses more on the development of human capacities to assess, choose, plan, create, organize and take initiatives. This skills can then spill over to many other aspects of the person's life and community. These aims are synthesized in the following five characteristics of the SARAR approach.

Self-esteem

The self-esteem of groups and individuals is acknowledged and enhanced by recognizing that they have the creative and analytic capacity to identify and solve their own problems.

Associative strengths

The methodology recognizes that when people form groups, they become stronger and develop the capacity to act together.

Resourcefulness

Each individual is a potential resource to the community. The method seeks to develop the resourcefulness and creativity of groups and individuals in seeking solutions to problems.

Action planning

Planning for action to solve problems is central to the method. Change can be achieved only if groups plan and carry out appropriate actions.

Responsibility

The responsibility for follow-through is taken over by the group. Actions that are planned must be carried out. Only through such responsible participation do results become meaningful.

Request from: PACT, 777 U.N. Plaza, New York, N.Y. 10017 U.S.A. Telephone: 212-697-6222. The manual costs US$15.00 plus shipping. The manual and a complementary video is available for US$35.00. Presently, the manual is available in English only. The video is available in English and French, in VHS systems PAL, NTSC, and SECAM.

B11. Hope, A., Timmel, S., and Hodzi, C., 1991. Training for Transformation: A Handbook for Community Workers. Mambo Press, Gweru, Zimbabwe. Book 1:147pp., Book 2:131pp, Book 3:182pp.

Summary All the theories, codes, and exercises in this book have been used effectively with groups in Africa over the past twelve years. However, there is no shortcut to effective leadership of groups. Sensitivity to the needs of the group and quick judgements on what will be most helpful at any particular moment, can only be developed through constant practice, complete openness to feedback from participants, critical reflection, analysis, and years of experience. This book has been divided into three parts mainly because it will be easier to use like this in the field than one large bulky book. Each part belongs with the other two parts. Part one is basically the theory of Paulo Freire on developing critical awareness and how to put this theory into practice. Part two is focused on the skills necessary for participatory education. To break the 'culture of silence', people need to gain a sense of self-confidence and know that what they think is important. Therefore methods to involve the group actively are critical in group leadership, as are ways of clarifying and implementing the goals of the group. Part three deals with the social analysis necessary to develop critical awareness and long-term planning and with the steps needed for building solidarity in people's movements. This book is mainly written for practitioners. It is a book on how to put basic theory into practice. It is also written to provide educators and community workers with some tools to help people to shape their own lives. "Reflection without action is mere verbalism. Action without reflection is pure activism". This book tries to combine both reflection and action in a clear and simple way.

Available in English.
Cost: US$ 29.75 for orders within the USA or US$ 26.00 plus postage for orders from other countries.
Request from: Grailville Art and Book Shop, 932 O'Bannonville Road, Loveland, Ohio 45140-9705 USA. Telephone 513-683-0202.

B12. Guinea Worm/Dracunculiasis Eradication Program: Training Course for Guinea Worm Coordinators. World Health Organization Collaborating Center for Research, Training, and Eradication of Dracunculiasis at the Centers for Disease Control in collaboration with Global 2000 Project, Carter Presidential Center, Inc..

Summary This 5 day course was designed for district-level health workers in Ghana, but should also be useful in other endemic countries. Materials include a trainer's guide, participant packet, and course director's guide. The packet contains course handouts, health education materials (including a Dracunculus medinensis life cycle flip chart), and job aids, such as charts for keeping records. Topics include surveillance, community assessment, promoting community action, promoting individual and family action, vector control, and clinical treatment.

Available in English and in French.
Cost: Free of charge.
Request from: Dr. Donald Hopkins, Global 2000 Project, 1840 North Hudson, Chicago, IL 60614, USA.

B13. Brieger, W.R., and Rosensweigh, F., 1988. Workshop on Guinea Worm Control at the Community Level: A Training Guide. WASH Technical Report No. 50:83pp.

Summary This training guide is designed to help trainers conduct a 2-1/2 day workshop for participants to improve their skills in planning and implementing dracunculiasis control projects. The guide is oriented towards improving drinking water sources as the preferred intervention. The workshop is intended for persons who work in rural community settings and who have responsibility for controlling dracunculiasis [e.g., health assistants, nurses, health inspectors, and other district-level (not village-level) health workers].

Available in English and in French.
Cost: Free of charge.
Request from: WASH Project, 1611 N. Kent Street, Room 1001, Arlington, Virginia 22209-2111, USA. Telephone: 703-243-8200.

B14. Isely, R.B., and Yohalem, D., 1988. A workshop for community participation. Volume I. Starting work with communities (ICE # TR048). Volume II. Planning and implementing sustainable projects (ICE # TR049). WASH Technical Report No. 33.

Summary These reports provide detailed guidance on how to plan and deliver two-week training programs to improve the skills of field workers responsible for promoting the active participation of communities in all aspects of project development and implementation. The two workshops should be delivered six months apart.

Request from: WASH Project, 1611 N. Kent St., Room 1001, Arlington, Virginia 22209-2111, USA. Telephone: 703-243-8200.

B15. Yohalem, D., 1990. Programming Guide for Guinea Worm Eradication (Revised by J. Benjamin, and P. Olson). WASH Field Report No. 329:100 pp.

Summary The guide contains background information on the causes and effects of Guinea worm disease and the common interventions recommended by WHO, the Centers for Diseases Control, UNICEF, and A.I.D. It also suggests roles and responsibilities for Peace Corps staff to coordinate and promote Volunteer involvement in eradication efforts as part of a national program.

Available in English and in French.
Cost: Free of charge.
Request from: WASH Project, 1611 N. Kent St., Room 1001, Arlington, Virginia 22209-2111, USA. Telephone: 703-243-8200.

B16. Yohalem, D., Fry, S., 1991. Orientation to Guinea Worm Disease: A Guide for Use in Pre-Service and in-Service Training. WASH Field Report No. 320:42 pp.
Summary This guide and orientation is aimed at Peace Corps trainees assigned to communities affected by Guinea worm disease. Its purpose is to help familiarize these trainees with the nature of Guinea worm disease and to help them define their role in eradicating the disease in their communities.

Available in English and in French.
Cost: Free of charge.
Request from: WASH Project, 1611 N. Kent St., Room 1001, Arlington, Virginia 22209-2111, USA. Telephone: 703-243-8200.

B17. Water Aid (Ghana), 1990. Guinea Worm: Training Manual for "Water Aid" Health Education Supervisors and Village Health Co-ordinators.
Summary This manual uses 10 illustrations to assist Village Health Coordinators to communicate with villagers regarding the basic actions they can take to prevent infection with Guinea worms, including how to filter drinking water through cloth filters.

Available in English, and 2 versions to suit Ghanian cultural differences and 5 local languages.
Cost: Free of charge.
Request from: Mr. Ron Bannerman, Water Aid Representative, P.O. Box 16185, Kokota International Airport, Accra, Ghana. Telephone: 228 206. Fax: 221 850.

TEACHING IN SCHOOLS

B18. Smith, J., and Yacoob, M., 1988. Teaching about Guinea Worm Prevention: A Manual for Secondary School Teachers. WASH Field Report No. 223:93 pp.
Summary This manual provides sample lesson plans, resource materials, and an outline for a training workshop for teachers who will use the guide to educate students about dracunculiasis and its prevention.

Available in English and in French.
Cost: Free of charge.
Request from: WASH Project, 1611 N. Kent Street, Room 1001, Arlington, VA 22209-2111, USA. Telephone: 703-243-8200.

B19. Ghana Guinea Worm Eradication Programme Teachers Handbook. Developed by Ms. Joan Wooten, a U.S. Peace Corps Volunteer, in collaboration with Global 2000 Project and the Ghana Ministries of Health and Education.
Summary This booklet describes the Guinea worm life cycle, filtration of drinking water using cloth filters, answers commonly-asked questions about Guinea worm disease, and provides exercises for pupils.

Available in English, and French.
Cost: Free of charge.
Request from: Resident Director, Global 2000 Project, Ghana GWEP, Private Mailbag, Kotoka International Airport, Accra, Ghana.

B20. Yohalem, D., and Fry, S., 1991. Teaching Guinea Worm Prevention in Secondary Schools: A Guide for Training Peace Corps Volunteer Teachers. WASH Field Report No. 321:77 pp.
Summary This training guide is aimed at Peace Corps Volunteer secondary school teachers assigned to communities where Guinea worm disease is endemic. Its purpose is to help familiarize these volunteers with the nature of Guinea worm disease and to help them define the role they and their students might play in eradicating the disease in their communities.

Available in English and in French.
Cost: Free of charge.
Request from: WASH Project, 1611 N. Kent St., Room 1001, Arlington, Virginia 22209-2111, USA. Telephone: 703-243-8200.

SLIDES

B21. WHO Slide Set Series: The Guinea Worm. This set of 61 color slides was prepared by the World Health Organization.

Available in English and French.
Cost: US $100.00 per set.
Request from: Dr. Philippe Ranque, Filariasis Unit, CTD, World Health Organization, 1211 Geneva 27, Switzerland.

B22. TALC Slide Set: Dracunculiasis (Guinea worm disease). This teaching slide set was developed for public and community health workers, and sanitarians and extension workers who are concerned with water supplies in areas where dracunculiasis is common.

Request from: Teaching Aids at Low Cost (TALC), Foundation for Teaching Aids at Low Cost, Institute of Child Health, 30 Guliford Street London WCIN IEH, England.

VIDEOS

B23. Guinea Worm: The Fiery Serpent. A 20-minute color video (available in VHS, NTSC formats) with sound. Produced by the Centers for Disease Control in cooperation with UNICEF, UNDP, and Global 2000, Inc. Available in English and in French.

Request from: See address below.

B24. The Waters of Ayole. This 28-minute color video (available in VHS, NTSC formats) with sound, produced by UNDP and USAID, includes some footage about Guinea worm disease in relation to a rural water supply project in Togo.

Available in English and in French.
Request from: See address below.

Request from: United Nations Development Program, Division of Information, One United Nations Plaza, Room DC1-1904, New York, N.Y. 10017, USA. Telephone (212) 906-5318. Each video is available at a cost of US$15.00 (Checks/money orders must be in US dollars).

FILMSTRIPS/FLIP CHARTS

B25. Where Does The Guinea Worm Come From? Based on a project conducted in Kati, Togo, this filmstrip and/or flip chart is designed to encourage group participation of what the audience sees in each picture.

Available in English and in French.
Cost: US $10.00 per film strip or flip chart.
Request from: World Neighbors, 5116 N. Portland Avenue, Oklahoma City, OK 73112-2098, USA. Telephone (405) 946-3333.

B26. Guinea Worm/Dracunculiasis Eradication Programme: Training Course for Guinea Worm Coordinators. This training course contains a Dracunculus medinensis life cycle flip chart. (see under **TRAINING).**

INFORMATION CENTERS

B27. Water and Sanitation for Health (WASH) and the Vector Biology and Control Project (VBC) Information Center. The WASH and VBC Projects are supported by the U.S. Agency for International Development to improve the quality of life for people in developing countries. VBC is designed to improve the effectiveness of vector control programs by providing technical services to identify weak links in the chain of transmission (both biological and operational). WASH provides short-term technical assistance services for water supply and sanitation projects. Objectives of the information center are to:

- o collect and organize publications, reports, and articles pertaining to Guinea worm;
- o respond to information requests about Guinea worm and to distribute or translate periodic bulletins or newsletters;
- o develop a database on Guinea worm specialists and consultants;

- o establish a database on current Guinea worm control projects;
- o develop a database to monitor and report on occurrence or prevalence of Guinea worm; and
- o prepare information packets/briefing documents of Guinea worm for USAID health officers, Ministry of Health Officials, etc..

The information center translates the Centers for Disease Control administrative communication Guinea Worm Wrap-up into French and distributes it to Francophone countries.

To request information call telephone number 703-243-8200 or write to:

Guinea Worm Information Center
WASH Project
1611 North Kent Street, Suite 1001
Arlington, Virginia 22209-2111, USA

B28. The World Health Organization Collaborating Center for Research, Training, and Eradication of Dracunculiasis. The Collaborating Center is responsible for: (1) assessing the extent of dracunculiasis in the world and furnishing reports to WHO periodically; (2) undertaking research designed to improve the control, diagnosis, treatment, and prevention of dracunculiasis; (3) upon request, providing expert consultants to governments, programs, and other agencies; and (4) providing for and supporting training activities. The object of these activities is to ensure that the ultimate goal of eradicating dracunculiasis will be achieved.

For information call telephone number 404-488-4060 or write to:

Dr. Robert L. Kaiser, Director, WHO Collaborating Center
for Research, Training, and Eradication of Dracunculiasis,
Centers for Disease Control, Division of Parasitic Diseases,
NCID, 1600 Clifton Road, N.E., Atlanta, Georgia, 30333
USA.

B29. Dracunculiasis Operations Research Network (DORN). The overall objective of the network is to help develop improved methods of disease control and prevention in the global initiative to eradicate dracunculiasis, and to facilitate their application in the field. The three principal areas for research are: (1) improved disease surveillance/reporting capacity; (2) improved health education methodologies; and (3) integration of dracunculiasis eradication efforts into existing health and social services. The network carries out the following activities: (1) linking potential investigators with technical experts that can assist in the development and execution of proposals to resolve operational issues; (2) assisting investigators with the development of research proposals through workshops organized by DORN; (3) establishing a communications network which includes individual correspondence, regular update on DORN activities, scientific and technical meeting presentations, and the development of a newsletter; and (4) collecting, cataloguing, evaluating and improving existing health education and communication materials, and training and technical manuals.

For information Contact:

Dr. Sandy Cairncross, Co-Chair, DORN, Senior Lecturer in Tropical Public Health Engineering, London School of Hygiene & Tropical Medicine (University of London), Keppel Street, London WC1E 7HT; or Dr. Sam Bugri, Co-Chair, DORN, National Guinea Worm Coordinator, Ministry of Health, P.O. Box 99, Tamale, Ghana.

PART C
ADDITIONAL SUCCESSFUL APPLICATIONS OF HEALTH EDUCATION METHODS.

C1. Abed, F.H., Mckee, N., Chowdhury, A., Chowdhury, M., and Rahman, R., 1991. Social Mobilization for EPI in Bangladesh. In: Near Miracle in Bangladesh. (Ed. M. Huq) The University Press Limited, Dhaka, Bangladesh. pp.9-34.

Summary The authors assess the implementation and impact of a communication plan formulated in 1986 to support the Expanded Programme on Immunization in Bangladesh. This plan set out the major steps to be taken in accelerating demand for immunization by bringing together various social allies in a process of social mobilization. The authors discuss 1) the design, role and importance of a program symbol (logo) which people would recognize and understand easily, 2) the role of the print and electronic media in the EPI, 3) the formation of partnerships with organizations from different sectors, 4) the mobilization of corporations, 5) interministerial collaboration, including the role of the Ministry of Religious Affairs, 6) national and international non-governmental organizations and other partners, 7) the designation of national immunization weeks during 1990 to enhance awareness and immunization rates, and 8) the relationships between advocacy, social mobilization, and programme communication in this successful effort.

Key points: Programmes need to properly prepare the political and social ground through advocacy. The activities of advocacy, social mobilization, and programme communication for EPI were instrumental in the achievement of program goals. The formation of effective partnerships among the coalition of available forces in Bangladesh, which now drive the programme, are critical to its sustainability and success.

C2. Altman, D.G., Flora, J.A., Fortmann, S.P., and Farquhar, J.W., 1987. The cost-effectiveness of three smoking cessation programs. American Journal of Public Health 77(2):162-165.

Summary This study analyzed the cost-effectiveness and distribution of cost by program stage of three smoking cessation programs: a smoking cessation class; an incentive-based quit smoking contest; and a self-help quit smoking kit.

The self-help program had the lowest total cost, lowest per cent quit rate, lowest time requirement for participants, and was the most cost-effective. The most effective program, the smoking cessation class, required the most time from participants, had the highest total cost, and was the least cost-effective. The smoking contest was in-between the other two programs in total costs, per cent quit rate, and cost-effectiveness; it required the same time commitment from participants as the self-help program. These findings are interpreted within the context of community-based intervention in which the argument is made that cost-effectiveness is only one of several factors that should determine the selection of smoking cessation programs.

Key points: The most effective program may not be the most cost effective. Cost-effectiveness is only one of several factors which should determine program selection.

C3. Bertan, M., and Reid, R.S., 1985. The national immunization campaign of Turkey. In: Assignment Children - Universal child immunization by 1990 (Ed. P.E. Mandl) volume 69/72. pp.265-300.

Summary The Turkish national immunization campaign, launched by the country's president on 11 September 1985, has attracted world-wide attention. Its ambitious objective was to immunize 80% or more of the country's 5.1 million unimmunized children in the three-month campaign period. This was the first campaign in recent history which succeeded in obtaining more than 80% measles vaccine coverage of eligible children under 1 year old. Pre-campaign statistics showed 29,000 Turkish children dying every year (a rate of 80 a day) from measles, pertussis, and tetanus, with more than half that number permanently crippled by measles and polio. Surveys indicated that routine immunization services were ineffective in providing adequate nation-wide coverage against the vaccine-preventable diseases, probably barely a fourth of the country's children being fully protected against them. The campaign was designed to use existing material and human resources as far as possible in order to keep costs at an affordable level and to ensure that the benefits of the campaign could be maintained after it was over, through continued reliance on the experience gained and enthusiasm generated during the campaign. Above all, it was considered essential to focus on social mobilization in order to create the "critical mass" necessary to bring the vaccines effectively to the children. In

addition to political support and the involvement of the health sector, the country's religious leaders and the media played a highly effective part in putting over the message, and a wide range of contributors (including local leaders, companies and service organizations, teachers and school-children, artists and entertainers) played equally important parts in donating materials or their own time to the success of the campaign. This case study describes why and how the campaign was organized, and presents the final immunization results.

Key points: The need for social mobilization rests on the premise that in developing countries the health sector alone does not have the means to reach and fully cover populations which are mostly rural. The problem is mainly social passivity, not technical incapacity. Help from other sectors, specially from the top political leadership of the country, is needed. In this programme the process began with the creation of awareness of the importance of vaccination at the community and family levels, mainly through the media. Such awareness was reinforced to create a felt need among mothers. The messages conveyed by the media were given further credibility when repeated and amplified by the imams (religious leaders), muhtars (village heads) and teachers, who were well-known to the community and represented trusted advisers with recognized moral authority.

C4. Bertera, R.L., 1990. Planning and implementing health promotion in the work-place: a case study of the DuPont experience. Health Education Quarterly 17(3):307-327.

Summary This case study describes the needs assessment, design, implementation, and preliminary evaluation of a comprehensive work-place health promotion program. The company had 110,000 U.S. employees at more than 100 locations engaged in a variety of manufacturing, research, sales, and support occupations in 1980. The PRECEDE framework was used to focus program planning and evaluation on key areas of health knowledge, attitudes, and behavior. The needs assessment included use of company morbidity and

mortality data, a survey of medical and human resources staff, and a survey of employees, spouses, and pensioners. An in-house network of lay committees, site medical personnel, and corporate health education, nutrition and fitness specialists was used to staff critical program functions. Interventions included: public health approaches to program kick-off and health risk assessment; group and self-directed lifestyle change activities; recognition and awards; and work-place climate changes such as smoking policies that favor nonsmokers. One pilot location experienced a 47.5% decline in hourly employee absenteeism over six years versus a 12.5% decline in the total DuPont hourly work-force. A number of lessons are discussed on how to improve the planning, implementation, institutionalization, and evaluation of health promotion programs in large industrial companies. Four areas where future research and practice should be focused include: reaching spouses, sales personnel, shift-workers, and employees at small sites; balancing what is popular with what reduces risks over the long-term; documenting program impacts when research resources are scarce; and integrating health promotion programs with work-place medical, safety, employee assistance and benefit programs.

Key points: A needs assessment and health education framework focus intervention programs on important areas of health knowledge, attitudes and behavior for specific target groups.

C5. Blair, S.N., Piserchia, P.V., Wilbur, C.S. and Crowder, J.H., 1986. A public health intervention model for work-site health promotion. Impact on exercise and physical fitness in a health promotion plan after 24 months. Journal of the American Medical Association 255(7):921-926.

Summary We need effective ways of getting adults to exercise if we are to meet the Surgeon General's 1990 health goals for the nation. This study reports a comprehensive effort to evaluate the sustained effect of a public health intervention model to achieve these health goals. Employees at four companies (N = 2,600) were exposed to a health promotion program, while employees at three comparison companies (N = 1,700) were offered an annual health screen. Daily energy expenditure in vigorous activity increased 104% among employees at companies offering the health promotion program, compared with a 33% increase among employees at comparison companies.

Changes in exercise habits were corroborated by estimates of maximal oxygen uptake. Exercise and physical fitness improvements were distributed throughout the work force. Meaningful population changes in exercise and physical fitness can be produced at the work site and are of a magnitude that makes it possible to meet the 1990 goals for exercise and physical fitness.

Key points: Worksite health education and promotion programs can result in sustained behavior change and improved fitness.

C6. Bly, J.L., Jones, R.C., and Richardson, J.E., 1986. Impact of work-site health promotion on health care costs and utilization: evaluation of the Johnson and Johnson's Live for Life program. Journal of the American Medical Association 256(23):3235-3240.

Summary This study explores the relationship between exposure to a comprehensive work-site health promotion program and health care costs and utilization. The experience of two groups of Johnson & Johnson employees (N = 5,192 and N = 3,259) exposed to Live for Life, a comprehensive program of health screens, life-style improvement programs, and work-site changes to support healthier life-styles, was compared with that of a control group (N = 2,955) over a five-year period. To account for baseline differences, analysis of covariance produced adjusted means for inpatient hospital costs, admissions, hospital days, outpatient costs, and other health costs. Mean annual inpatient costs increases were $43 and $42 for two Live for Life groups vs $76 for the non-Live for Life group. Live for Life groups also had lower rates of increase in hospital days and admissions. No significant differences were found for outpatient or other health care costs.

Key points: Lower inpatient costs, hospital days, and admissions can be achieved with work-site health promotion programs.

C7. Fortmann, S.P., Williams, P.T., Hulley, S.B., et al., 1982. Does dietary health education reach only the privileged? The Stanford Three Community Study. Circulation 66(1):77-82.

Summary The relationship of selected social factors to diet, weight and plasma cholesterol was studied in one control and two treatment towns before and after

a 3-year, bilingual, mass-media health education program. Spanish-speaking persons reported higher dietary cholesterol and saturated fat than English-speaking participants at baseline, and this remained true after adjusting for the confounding influences of socioeconomic status (SES). Obesity was also more prevalent in Spanish-language and low-SES groups, but plasma cholesterol was not related to these socio-demographic factors. Over the 3 years of the education program, all groups reported 20-40% decreases in dietary cholesterol and saturated fat. These decreases were as large in low-SES groups as in high-SES groups; Spanish-speaking participants reported significantly greater decreases in dietary saturated fat ($p = 0.02$). Weight change was not related to either SES or language group, but change in plasma cholesterol was marginally more favorable in Spanish-speaking subjects ($p = 0.06$).

Key points: A three year bilingual mass media dietary health education program can improve cholesterol levels and cholesterol and fat intake across cultural and socioeconomic lines.

C8. Gordon, A.J., 1988. Mixed strategies in health education and community participation: an evaluation of dengue control in the Dominican Republic. Health Education Research, Theory, and Practice 3(4):399-419.

Summary This paper reviews an intervention program in education and community participation in dengue and Aedes aegypti control in the Dominican Republic. Four different levels of intervention were part of a pre-test/post-test study design that examined alternatives in community participation, in breeding source reduction, use of biological controls, and information transmission through controls, and information transmission through national media and health services, social networks, and directly from health educators. The effects of each level are analyzed to find the effective levels of allocation of time, resources, and program component. Finally, problems in communication and response are analyzed in light of their social and cultural context.

Key points: Evidence from this study indicates that national campaigns directed from central headquarters, using media and simple educational literature, can be effectively complemented by concurrent community-based campaigns

stressing community-based education to influence community members, increase knowledge, and promote participation, thus avoiding the drawbacks of each respective type of campaign.

C9. Guyer, B., Gallagher, S.S., Chang, B.H., et al., 1989. Prevention of childhood injuries: Evaluation of the Statewide Childhood Injury Prevention Program (SCIPP). American Journal of Public Health 79(11):1521-1527.

Summary We evaluated the effectiveness of a community-based injury prevention program designed to reduce the incidence of burns, falls in the home, motor vehicle occupant injuries, poisonings and suffocations among children ages 0-5 years. Between September 1980 and June 1982, we implemented five injury prevention projects concurrently in nine Massachusetts cities and town; five sites, matched on selected demographic characteristics, were control communities. An estimated 42 percent of households with children ages 0-5 years were exposed to one or more of the interventions over the two-year period in the nine communities. Participation in safety programs increased three-fold in the intervention communities and two-fold in the control communities. Safety knowledge and practices increased in both intervention and control communities. Households that reported participatory exposure to the interventions had higher safety knowledge and behavior scores than those that received other community exposure or no exposure to intervention activities. We found a distinct reduction in motor vehicle occupant injuries among children ages 0-5 years in the intervention compared with control communities, associated with participatory exposure of about 55 percent of households with children 0-5 years. We have no evidence that the coordinated intervention programs reduced the other target injuries--although exposure to prevention messages was associated with safety behaviors for burns and poisonings.

Key points: A community-based injury prevention program increased knowledge and changed behavior, resulting in fewer motor vehicle occupant injuries, and increased safety behaviors for burns and poisonings.

C10. Heath, G.W., Leonard, B.E., Wilson, R.H., et al., 1987. Community-based exercise interventions: Zuni Diabetes Project. Diabetes Care 10(5):579-583.

Summary Non-insulin dependent diabetes mellitus (NIDDM) is a serious health problem among the Zuni Indians of New Mexico. In July 1983, Indian Health Service personnel initiated a community-based exercise program designed to help control NIDDM in the community. To retrospectively evaluate the effects of the exercise program, the medical records of 30 participants with NIDDM were compared with the medical records of 56 nonparticipants with NIDDM matched by age, sex, health-care provider, and duration of NIDDM. From 1 July 1983 through 1 October 1985, participants had a mean weight loss of 4 kg, whereas nonparticipants had a meant weight loss of 0.9 kg (P less than 0.05). Participants' fasting blood glucose values dropped by a mean of 43 mg/dl, compared to a mean drop of 2 mg/dl among the likely nonparticipants to have stopped their hypoglycemic medication (relative risk 4.2) and to have decreased their medication dosage (relative risk 2.2).

Key points: These results suggest that participation in a community-based exercise program can produce significant weight loss and improvement in glycemic control among a group of Native Americans with NIDDM.

C11. Kottke, T.E., Battista, R.N., Defriese, G.H., and Brekke, M.L., 1988. Attributes of successful smoking cessation intervention in medical practice. A meta-analysis of 39 controlled trials. Journal of American Medical Association 259(19):2883-2889.

Summary Meta-analysis was used to examine 108 interventions comparisons in 39 controlled smoking cessation trials. Type of intervention (face-to-face advice being better than all others), type of intervenor (both physician and nonphysician counselors better than either alone), the number of reinforcing sessions, and the duration of reinforcing sessions were related to success six months after the initiation of intervention. The number of modalities used by the intervention predicted success with borderline statistical significance. Multivariate analysis predicted that a team of physicians and nonphysicians using multiple intervention modalities to deliver individualized advice on multiple occasions would produce the best result. Program success 12 months after the initiation of intervention was related to the type of intervention session

(group and individual sessions combined better than either alone), the number of intervention modalities, and the number of reinforcing sessions. With multivariate adjustment for confounding, the number intervention modalities alone had positive association with intervention success.

Key points: Program success was related to the number and duration of reinforcing sessions, multiple intervention modalities, the combinations of group and individual sessions, face-to-face interventions, and combinations of physician and nonphysician counselors.

C12. Lando, H.A., Loken, B., Howard-Pitney, B. and Pechacek, T., 1990. Community impact of a localized smoking cessation contest. American Journal of Public Health 80(5):601-603.

Summary The present study assessed the effectiveness of a localized community contest timed to coincide with a statewide smoking cessation contest. Follow-up interviews were conducted with 218 local contest participants and 198 participants from the statewide contest. Overall cessation impact (participation rate x abstinence) was 0.39 percent for the local contest and 0.09 percent for the statewide contest.

Key points: Localized community contests offered in conjunction with statewide or national campaigns may represent cost-effective methods of reaching large numbers of smokers.

C13. Morisky, D.E., Levine, D.L., Green, L.W., et al., 1983. Five-year blood pressure control and mortality following health education for hypertensive patients. American Journal of Public Health 73(2):153-162.

Summary Three health education interventions for urban poor hypertensive patients were introduce sequentially in a randomized factorial design: 1) an exit interview to increase understanding of and compliance with the prescribed regimen; 2) a home visit to encourage a family member to provide support for the patient's regimen; and 3) invitations to small group sessions to increase the patient's confidence and ability to manage his/her problem. Previous evaluation of the initial two-year experience demonstrated a positive effect of the educational program on compliance with the medical treatment and blood

pressure control. Data accumulated over an additional three years, including mortality analysis, are now presented. The study group consisted of the same cohort of 400 ambulatory hypertensive outpatients in the eight experimental and control groups. The five-year analysis shows a continuing positive effect on appointment keeping, weight control, and blood pressure control. All-cause life table mortality rate was 57.3 per cent less for the experimental group compared to the control group (12.9/100 vs 30.2/100, p less than .05), while the hypertension-related mortality rate was 53.2 per cent less (8.9/100 vs 19.0/100, p less than .01). The results from this longitudinal study provide evidence to encourage health practitioners to utilize such educational programs in the long-term management and control of high blood pressure.

Key points: A combination of three health education interventions used together demonstrate improved compliance and mortality.

C14. Morisky, D.E., DeMuth, N.M., et al., 1985. Evaluation of family health education to build social support for long-term control of high blood pressure. Health Education Quarterly 12(1):35-50.

Summary Sustaining patient motivation for long-term adherence to drug therapies remains a substantial problem for physicians, other health care providers, the patients themselves, and their families. Other therapeutic requests such as dietary changes and weight control may be even more difficult to maintain than taking pills. As part of a controlled experimental design implemented in an outpatient teaching hospital, an educational program was implemented to improve family member support for medical compliance among hypertensive patients. Family members were interviewed, counseled, and provided with a booklet for the purpose of educating and involving them in the home management of high blood pressure. The booklet identified ways the family member could assist the patient with medication compliance, appointment keeping, as well as diet and weight control. These items were identified and recorded as behavioral objectives in the booklet. Results showed a strong statistically significant difference between the experimental and control groups, with the experimental group demonstrating higher levels of appointment-keeping behavior, weight control, and BP under control (all p values < .001). Analysis of the main effects of the educational program

demonstrated that the family member support intervention accounted for the greatest decrease in diastolic pressure variability, R^2 = .20, p< .001.

Key points: Health education programs to improve family member support can lead to improved patient compliance and health.

C15. Morisky, D.E., Malotte, C.K., Choi, P., et al., 1990. A patient education program to improve adherence rates with antituberculosis drug regimes. Health Education Quarterly 17(3):253-267.

Summary The design, logic, and results of a two-year health education study directed at improving rates of patient adherence to antituberculosis medical regimens are presented. An incentive scheme to reward positive health behaviors plus targeted educational counseling sessions was implemented in a randomized clinical controlled trial. The 205 subjects who participated in the study are categorized according to patients with active tuberculosis (n=88) or preventive patients with no evidence of active disease (n=117). Patients in each of these groups were randomly assigned to a special intervention (SI) group or a usual care (UC) control group and were followed monthly throughout their treatment program. While SI patients with active tuberculosis demonstrated higher levels of appointment-keeping behavior and mean percent of medication taken compared to UC patients, no statistically significant differences between the two groups were found. Preventive therapy patients assigned to the SI group, however, were significantly more likely than UC patients to remain in care during their 12-month regimen (64% vs 47%; p = 0.03). Furthermore, SI patients had significantly higher levels of adherence to their medical regimen compared to UC patients (68% vs 38%; p = less than .001).

Key points: These results demonstrate the positive effects of a structured health education program involving counseling sessions and an incentive scheme to reward positive behaviors on the improvement of continuity of care and adherence behavior among patients with tuberculosis.

C16. Murray, D.M., Richards, P.S., Luepker, R.V., and Johnson C.A., 1987. The prevention of cigarette smoking in children: two- and three-year follow-up comparisons of four prevention strategies. Journal of Behavioral Medicine 10(6):595-611.

Summary Recent studies have suggested that a prevention program that addresses the social influences that encourage smoking can be effective in deterring cigarette use by adolescents. This Study presents 1-, 2-, and 3-year follow-up results from two studies which evaluated three variations of the social influences curriculum and compared them to a health consequences program an a usual-care comparison group. These results suggest that a peer-led, social influences program can restrain smoking among both baseline nonsmokers and baseline experimental smokers at 2 years postintervention. Analysis of attrition data suggest no evidence to threaten the internal validity of these findings, although their generalizability to baseline smokers may be limited.

> **Key points:** A peer-led school health prevention program that addresses social influences on a particular behavior can be effective in reducing that behavior.

C17. Nangawe, E., Shomet, F., Rowgerg, E., et al., 1986. Community participation: The Maasai Health Services Project, Tanzania. International Quarterly of Community Health Education 1986-87 7:343-351.

Summary The Maasai Health Services Project in northern Tanzania is a primary health care undertaking in which individuals chosen by their communities are trained as providers of selected preventive and curative services, including family planning, and as facilitators of change in their areas. The communities, through the selection, support, and supervision of these community health care workers (CHWs), are actively involved in every stage of project activities. This article examined in detail the process through which community management of the project is promoted. Important elements within this process include: 1) holding several unhurried meetings with community members and leaders to discuss health problems and solutions fully; 2) cultivating leadership and management from within the community while providing technical assistance from the outside; 3) working with CHWs who are selected by their communities; 4) conducting the training of CHWs in their own

communities instead of at a distant site; and 5) integrating community organization skills and activities into CHW training. Some of the lessons learned are that 1) project staff must resist the role of expert and maintain that of facilitator; 2) the pace of the project must be in step with the communities' understanding and readiness to accept it; 3) the role of the CHW must respond to the urgently felt need for curative services; the real need for preventive services, such as family planning; and the long-range need for social change; and 4) the project must respect the traditional social structure for the Maasai and Waarusha groups served and must also recognize and adapt to the differences between them.

Key points: Communities should be actively involved in every stage of project activities. Health care workers should be selected by and from communities they will serve. Curative services, preventive services, and social change should all respect the traditional social structure and the communities' readiness to accept programs.

C18. Perry, C.L., et al., 1987. Predictors of adolescent smoking and implications for prevention. Morbidity and Mortality Weekly Report 36(ss 4):41-45.
Summary This paper traces an effort to design and evaluate an intervention from an initial theory to the identification of variables amenable to intervention. The process of theory testing and the application of knowledge gained from that testing to the design and evaluation of an intervention is also described. School-based educational programs are seen as having the potential of sustaining healthful habits in children and adolescents and are also considered important vehicles for transmitting information to parents and other adults. Strategies used were based on a theoretical framework suggested by social learning theory, problem behavior theory and social inoculation theory. Major targets of the intervention included changes in the environment, personality and behavioral attributes that support health-enhancing behavior or that discourage health compromising behavior such as cigarette smoking. Group interviews with students led to the development of a questionnaire built around six functions served by smoking. Demographic information and smoking behavior were also assessed prior to development of the intervention. The program consisted of six 45-minute sessions held at 2- to 4-week intervals, led by

same-age peer leaders. The program taught social skills and addressed the functional meanings of smoking through small group discussions, interviews with parents, and skills training. A quasi-experimental evaluation design was used to test the efficacy of the intervention and showed a significantly lower increase in the proportion of student smokers over time in the intervention communities.

Key points: School health education programs can sustain healthful habits in children and their parents. Same-age peers can play leadership roles in these programs. Intervention targets include environmental changes, discouraging harmful behavior and supporting health-enhancing behavior.

C19. Perry, C.L., Luepker, R.V., Murray, D.M., et al., 1988. Parent involvement with children's health promotion: the Minnesota Home Team. American Journal of Public Health 78(9):1156-1160.

Summary This study compares the efficacy of a school-based program to an equivalent home-based program with 2,250 third grade students in 31 urban schools in Minnesota in order to detect changes in dietary fat and sodium consumption. The school-based program, Hearty Heart and Friends, involved 15 sessions over five weeks in the third grade classrooms. The home-based program, the Home Team, involved a five-week correspondence course with the third graders, where parental involvement was necessary in order to complete the activities. Outcome measures included anthropometric, psychosocial and behavioral assessments at school, and dietary recall, food shelf inventories, and urinary sodium data collected in the students' homes. Participation rates for all aspects of the study were notably high. Eighty-six per cent of the parents participated in the Home Team and 71 per cent (nearly 1,000 families) completed the five-week course. Students in the school-based program had gained more knowledge at posttest than students in the home-based program or controls. Students in the home-based program, however, reported more behavior change, had reduced the total fat, saturated fat, and monounsaturated fat in their diets, and had more of the encouraged foods on their food shelves.

Key points: The data converge to suggest the feasibility and importance of parental involvement for health behavior changes in children.

C20. Pierce, J.P., Macaskill, P., and Hill, D., 1990. Long-term effectiveness of mass media-led antismoking campaigns in Australia. American Journal of Public Health 80(5):565-569.

Summary A community antismoking campaign began in Sydney, Australia in 1983, and in Melbourne in 1984. These campaigns purchased prime-time television advertising spots to set the community agenda. An intense effort was made to ensure that antismoking activities were maximized at the school, organizational, and community level. Smoking prevalences in both cities from 1981 were fitted with a statistical model to identify any underlying trend, to assess any immediate impact, and to assess the longer term effect of continuing to conduct such campaigns, i.e. to identify any change in the underlying trend. During the years before the antismoking campaigns, there was no observable trend in smoking prevalence in either city. At the beginning of the campaigns, there was an immediate drop of more than two percentage points in male and female smoking prevalence in both cities. Thereafter, a decline of about 1.5 percentage points per year was observed among males. No post campaign trend was observed in smoking prevalence for women in either city.

Key points: These data support conducting coordinated mass media and community campaigns, involving schools and organizations, in health education programs.

C21. Puska, P., et al., 1985. The community-based strategy to prevent coronary heart disease: conclusions from the years of the North Karelia Project. Annual Review of Public Health 6:147-193.

Summary This paper describes a model for behavioral change that unifies four theoretical frameworks in a community-based health program to control cardiovascular disease. The planning, intervention, evaluation, and results are discussed and related to other studies completed or in progress in other parts of the world. The project, begun in 1972, carried out a comprehensive community program to control cardiovascular disease in response to a petition

from the population. Various activities were carried out simultaneously to increase knowledge, to teach practical skills for behavioral change, to create the necessary social and environmental support for the performance and maintenance of these health skills, and to organize the community to better meet its own needs. Introducing new behaviors to the community was achieved by both mass communication and interpersonal communication by opinion leaders acting as change agents.

Key points: Results suggest that community directed educational programs are very effective in reducing the risk of cardiovascular disease.

C22. Vincent, M.L., Clearie, A.F., Schluchter, M.D., 1987. Reducing adolescent pregnancy through school health and community-based education. Journal of the American Medical Association 257(24):3382-3386.

Summary The resident population of the western portion of a South Carolina county has undergone a public health information and education intervention since October 1982. The purpose of the intervention has been to reduce the occurrence of unintended pregnancies among unmarried adolescents. Intervention messages are targeted at parents, teachers, ministers and representatives of churches, community leaders, and children enrolled in the public school system. The messages emphasize development of decision-making and communication skills, self-esteem enhancement, and understanding human reproductive anatomy, physiology, and contraception. The estimated rate of pregnancy ([live births plus fetal deaths plus induced abortions] per 1000 female population) for females aged 14 to 17 years in the county's western portion has declined remarkably since the intervention began, and the changes are statistically significant when compared with three sociodemographically similar counties and also with the easter portion of the county.

Key points: Successful intervention messages should be specifically targeted. In this case intervention messages emphasized 1) information to improve knowledge, 2) the development of decision-making, 3) communication skills, and 4) enhancement of self-esteem.

PART D
KEY REFERENCES FOR HEALTH EDUCATION APPLICATIONS.

D1. Anonymous, 1987. Communication: a guide for managers of national diarrhoeal disease control programmes. World Health Organization, Geneva, 78pp.

Summary This manual provides a scheme for effective design of communication programs. Detailed explanations of the various elements of this scheme: investigation of the problem, development of a plan, development of materials, testing and revision of materials, implementation, monitoring and evaluation are given using the example of a diarrhoeal disease control program. Specific areas to be investigated include characteristics of the audience, communication networks and resources. Examples of questionnaires to establish knowledge, attitudes, and practices are given. The framework of the 4P's used in market research: product, place, price, and promotion are covered.

Key points: Many practical examples are given of media mix and message design. What, when and how to monitor and evaluate a communication program are described.

D2. Anonymous, 1983. New approaches to health education in primary health care. World Health Organization. Technical Report Series No. 690, 45pp.

Summary Health education is considered one of the eight essential activities in primary health care. Although originally thought of as the downward transmission of correct health information, health education has come to involve a dynamic interaction between health professionals and the general population. Community members are to play an active role in planning and setting up health care programs, so that health education programs are created which balance the felt needs of a community and epidemiologically defined needs. Social intervention models of health education have been developed, recognizing the importance of community values and norms in defining the society's approach to illness, health, prevention and treatment. Training should be practical and participatory. Program activities should be monitored and evaluated frequently.

Key points: Health education is culture-specific and health education approaches may not be applicable everywhere.

D3. Bracht, N., and Tsouros, A., 1990. Principles and strategies of effective community participation. Health Promotion International. 5(3):199-208.
Summary A framework is offered for understanding the conceptual basis and the strategic implications of community participation, in achieving Health for All goals. Special focus is given to the meaning, settings and levels of participation in official decision-making structures and at the community level. Questions such as 'how is participation facilitated?', 'who participates?' and 'what are the benefits and obstacles to participation?' are geared primarily towards the needs of individuals who function at the city level and expect practical strategic advice and guidance. The structure of the 1989 WHO Healthy Cities Symposium which was devoted to community action was based on the framework and conceptual approach of this paper.

Key points: Community participation to promote health and improve environments is an established process for effective local action. Partnerships between all sectors of the community will bring about healthy public policies.

D4. Brieger, W.R., and Adeniyi, J.D., 1982-83. Urban community health education in Africa. International Quarterly of Community Health Education 2(2):109-121.
Summary African urban populations are growing at a fast rate. The resulting health problems pose a challenge to health education. A community development, self-help approach is recommended. Experiences of health educators-in-training in Ibadan, Nigeria, show this approach to be relevant if practitioners are able to creatively deal with certain community variables--community identity, internal integration, group orientation, external linkages, and resource characteristics. At times students express concern about the relevance of this approach to the African setting. Their failures in applying the approach can be traced back to the western bias in teaching materials and the general education system. The challenge to health educators is to provide training experiences with a cultural sensitivity which encourages students to work with the community as they find it and not how it should be according to a foreign textbook.

Key points: A culturally sensitive, community development, self-help approach is recommended for health education programs in African urban settings.

D5. Brieger, W.R., Akpovi, S.U., 1982-83. A health education approach to training village health workers in Nigeria. International Quarterly of Community Health Education 3(2):145-152.

Summary Health education plays an important role in primary health care process, particularly in the training of village health workers. Three educational concepts, training based on community felt needs, trainee involvement and social and cultural realism, are essential in designing these programs. These concepts were applied over a three year period in the training of village health caretakers in Idere town of Oyo State, Nigeria. Volunteer village health workers from ten villages were able to bring about changes in knowledge, behavior and health status of their fellow villagers indicating that the health education approach fostered skill transfer to the communities.

Key points: Training of village health workers should be based on community felt needs and should foster skill transfer in order to bring about changes in knowledge, behavior and health status.

D6. Connell, D. B., and Turner, R.R., 1985. The impact of instructional experience and the effects of cumulative instruction. Journal of School Health 55(8):324-331.

Summary Two substudies were conducted within the School Health Education Evaluation to assess implementation practices and cumulative effects. Teachers who had taught only one year were assessed their second year to determine what changes they made during implementation and how those changes were related to classroom performance. Teachers were found to have taught significantly fewer hours, fewer components of the curriculum and made more changes. However, classroom performance, compared with the first year, improved for both knowledge and attitude with a marginal trend toward improvement in self-reported practices. These results suggest that teachers became both more efficient and effective in the second iteration. The cumulative effects study tracked children through different levels of exposure to

health instruction across two consecutive grade levels. The results revealed that for knowledge, attitudes, and self-reported practices, exposure to two units of School Health Curriculum Project were more effective than one which was in turn more effective than no exposure.

Key points: Multiple exposures to health instruction are likely to be beneficial.

D7. Connell, D. B., Turner, R. R., and Mason, E. F., 1985. Summary of findings of the school health education evaluation: health promotion effectiveness, implementation, and costs. Journal of School Health 55(8):316-323.

Summary A summary of important findings from the School Health Education Evaluation (SHEE) are reported. The study was a comprehensive effort to assess the status of school health education and involved more than 30,000 children (grades four to seven) in 1,071 classrooms in 20 states. School health program effectiveness was strongly related to the level of implementation. Significant increases in overall and program specific knowledge were found for treatment classrooms compared with control classrooms. Smaller yet statistically significant increases were found for attitudes and self-reported practices. A higher level of program implementation produced greater increases in all scores, but was most strongly related to improvement in attitudes and self-reported practices. While relatively few hours of instruction can produce large effects for knowledge, more hours are required for the development of attitude and practice effects and that stable effects are established for all three domains at about 40 to 50 classroom hours. A commitment to teacher training and or support materials may be a crucial factor fostering widespread teacher acceptance of health programs and, subsequently, ensure that an administrative commitment to health instruction will be carried into the classroom.

Key points: School health program effectiveness is related to the level of implementation. Knowledge is more easily changed than attitudes or behavior. A commitment to training and provision of support materials is important.

D8. Fryer, M.L., 1991. Health education through interactive radio: a child-to-child project in Bolivia. Health Education Quarterly 18(1):65-77.

Summary In developing countries it is common for older children to assume much of the responsibility for care of their younger siblings. Based on this observation, the "child-to-child" approach to health education targets these older children as a means of improving child health. As the initial phase in the development of a radio health curriculum in Bolivia, a module on diarrheal disease was developed and field-tested among fourth- and fifth-grade students in Cochabamba. The module consists of 10 interactive radio lessons in which the students respond orally to drill and practice, sing songs, or write key concepts in their notebooks. Following the 25-minute radio broadcast, the teacher conducts a 20-minute session that focuses on application and practice of the new behaviors. The module includes lessons on personal hygiene, water and oral rehydration, home sanitation, and nutrition. The field evaluation revealed the need for modifications in the teachers' role and greater attention to teacher training. Students responded enthusiastically and achieved significant knowledge gains as a result of the program. Plans are underway to expand the radio program.

Key points: Radio programs can be used in school health education.

D9. Farquhar, J.W., Maccoby, N., and Wood, P.D., 1985. Twelve education and communication studies. In: Oxford Textbook of Public Health. Vol. 3 (Eds. Holland, W.W., Detels, R. & Knox, G.). Oxford, London: Oxford University Press, pp.207-221.

Summary A theoretical framework relying heavily on diffusion theory and the community self-development field is presented to assist the designer of community-based communication and education studies. Effective community-based education and communication programmes may be assured if the investigators take the following six steps: 1) become proficient in the use of effective mediated face-to-face teaching methods; 2) establish a sound and ethical content of instruction; 3) collaborate with local forces in programme development; 4) use communication pathways natural to the system; 5) activate opinion leadership and accelerate diffusion and adoption of the desired health innovations; and 6) assist in community

transformation. Details on planning, formative evaluation methods, pre-field studies, process evaluation, and principles of field operations are discussed.

Key points: Effective programs use face-to-face teaching methods, collaborate with others, activate opinion leaders, use culturally appropriate communication methods, and assist in community transformation.

D10. Green, L.W.,and Kreuter, M.W., 1991. Health promotion planning: an educational and environmental approach. Mt. View, California, Mayfield Publishers. 506pp.

Summary This book was written to provide a conceptual synthesis of the roots and foundations of health education and health promotion. The original framework, which was called PRECEDE in the previous edition, remains largely intact in the present edition. PRECEDE stands for "predisposing, reinforcing, and enabling constructs in educational diagnosis and evaluation." To accommodate the broader mandate of health promotion, an additional set of procedures have been superimposed called PROCEED for "policy, regulatory, and organizational constructs in educational and environmental development." The promotional, regulatory, and organizational components of PROCEED introduce the political, managerial, and economic actions necessary to make social systems and environments more conducive to healthful lifestyles. Contents include social diagnosis, epidemiological assessment, behavioral and environmental diagnosis, educational and organizational diagnosis, administrative and policy diagnosis, and evaluation.

Key points: The practical applicability of the PRECEDE Model is evidenced by the fact that since its first printing in 1980, it has been used in over 300 published applications in health education programme planning, implementation and evaluation research. In this most recent version, a new element is added to the model: PROCEDE which stands for Policy, Regulatory and Organizational Constructs in Educational and Environmental Development. This component helps planners identify some of the subtle but critical internal and external barriers on how to modify the

environmental precursors that influence health.

D11. Green, L.W., 1986. The theory of participation: a quantitative analysis of its expression in national and international health policies. Advances in Health Education and Promotion. Vol. 1 Pt. A. (Ed. Ward, W. B.). Greenwich, Connecticut: Jai Press Inc. pp. 211-236.

Summary A quantitative analysis of the principle of participation as expressed over time in national and international policies is made. This analysis provides the basis for the formulation of the theory of participation. The theory states the effective adaptation by people to their own needs for health protection and health enhancement is a function of their degree of active participation in identifying their own goals or needs, setting their own priorities among goals or needs, controlling the implementation of programs or solutions, and evaluating or otherwise obtaining feedback on their own progress. The theory is accompanied with variables, definitions and propositions, suggesting hypotheses to be tested in order to validate the theory as it applies to health education and promotion.

Key points: The theory of participation is formulated including the specification of variables, definitions, and propositions.

D12. Green, L.W., Wilson, A.L., and Lovato, C.Y., 1986. What changes can health promotion achieve and how long do these changes last? The trade-offs between expediency and durability. Preventive Medicine 15(5):508-521.

Summary This article examines the logic and evidence by which health education together with related organizational, economic, and environmental supports or interventions can result in more than superficial or transitory adjustments of behavior conductive to health. Most signs point to continuing development of the health promotion movement, as indicated by its grass-roots origin, the long-range convergence of changes in health-related behaviors (e.g., smoking, diet, exercise, alcohol consumption, safety practices), public and private sector investment, and the growing interest of hospitals and medical practitioners in health promotion. To assess the durability of behavior changes accomplished through health promotion activities, the apparent discrepancy between improvements observed on the social level and high relapse rates

reported in most experimental studies on individuals is analyzed, leading to the conclusion that the experimental studies have overstated the problem of relapse.

Key points: There is a trade-off between expedient interventions that achieve short-term behavior changes and more difficult, slower-acting educational and lifestyle interventions that assure a greater congruence between the behavior and the values, beliefs, and circumstances of the individual.

D13. Iverson, D.C., and Vernon, D.S., 1990. Program principles associated with successful health education and health promotion interventions. Cancer Prevention An International Journal. 1(1):35-43.

Summary Based on a review of a fairly representative sample of empirically-based health education literature, including studies which used experimental and quasi-experimental research design, twenty program principles were formulated by the authors which they believe to be characteristic of successful efforts to modify behavior. Consideration of these principles when designing health education programs should increase the likelihood of the programs achieving their desired behavior changes. These principles include: 1) health education programs directed at large populations yield significant effects; 2) the most efficacious health education programs often are the least cost-effective; 3) the reasons underlying behavior change are varied and many are not directly related to health; 4) personalizing health information increases the likelihood of behavior change by affecting the motivation/commitment phase; 5) program participants and non-participants possess different characteristics; 6) principles of diffusion theory apply to program acceptance and program participation rates; 7) mass media has a modest effect on behavior change; however, mass media does affect the initial phases of the behavior change process; 8) for mass media to be effective it must be intensive and prolonged; when mass media is combined with community programs its effectiveness is increased; 9) most community programs are based on a number of theoretical constructs; it is not possible to identify which of the theoretical constructs is most important; 10) school health education programs based on skills training, peer involvement, select components of social learning

theory and involvement of the community produce the greatest change; 11) combinations of educational/behavioral interventions delivered by physicians are more effective then individual interventions; 12) physician-based programs are most effective when the patient is exposed to the program on a number of occasions; 13) self-help materials have a modest effect on behavior; however, their effect is increased when they are combined with other interventions; 14) individuals tend to change behaviors rapidly rather than slowly over time; 15) self-monitoring appears to enhance an individual's ability to initiate and sustain behavior change; 16) environmental variable such as the number of alcohol outlets per capita influence the prevalence and the public health consequences of a behavior; 17) behavior relapse occurs rapidly, but individuals remain at risk for relapse for many years; 18) relapse prevention components appear to be necessary to sustain behavior change; however, little is known about the factors that influence relapse for specific behaviors; 19) social support affects all phases of the behavior change process; and 20) participant characteristics appear to influence selection of, and success with different interventions.

Key points: A review of the health education literature has led the authors to twenty program principles of successful efforts to modify behavior.

D14. Liedkerken, P.C., Jonkers, R., de Haes, W.F.M., Kok, G.J., and Saan, J.A.M., 1991. Effectiveness of Health Education. Dutch Health Education Centre. Van Gorcum, Uitgeverij voor Gezondheidsbeordering, The Netherlands. 160pp.

Summary This monograph presents an assessment of the effectiveness of health education programmes in multiple settings addressing the following topic areas: tobacco use, diet, alcohol and drug misuse, sexually transmissible diseases, mental health, use of medications and cardiovascular diseases. Various evaluation methods are discussed; criteria and examples for determining programme effectiveness are presented. Although intended primarily for Dutch practitioners, the contents of this publication have universal application. Three issues are clarified: 1) health education as a prevention instrument, 2) health as one's own responsibility, and 3) health education as an integral part of health policy. Based on the review of 19 health education applications, 21 general conclusions are drawn and for each conclusion, a concrete recommendation is made. Recommendations range from

methodological issues to public health actions.

Key points: The assumption is that action on the 21 recommendations, whether at the national, regional, or local level, will lead to the implementation of more effective and efficient health education programmes.

D15. Loevinshon, B.P., 1990. Health education interventions in developing countries: a methodological review of published articles. International Journal of Epidemiology 19(4):788-794.

Summary Some 67 journal articles that described and evaluated health education programmes in developing countries were read by two independent reviewers who examined the methodology used in the studies. Of the articles 47% provided a sufficiently detailed description of the educational intervention to allow replication and 40% described the educational level of the intended audience. Only 21% were controlled studies employing sample sizes greater than 60 individuals or two clusters, although six studies used randomized or quasi-randomized designs. Of the studies 33% looked at changes in health status while another 33% used observable changes in health behavior as an endpoint. There was good agreement between the reviewers on whether these characteristics were present. Only three of the articles contained all four methodological attributes described above. It is important to improve the methodological quality of health education research. This can be done by using controlled, preferably randomized designs, ensuring adequate sample sizes, examining only objective changes in behavior or, better yet, changes in morbidity or mortality. Research reports should describe in detail the educational intervention employed and the target audience.

Key points: The results of these articles suggest that successful health education depends on using a few messages, of proven benefit, repeatedly, and in many forms.

D16. Minkler, M., 1980. Citizen participation in health in the Republic of Cuba. International Quarterly of Community Health Education 1980-81 1(1):65-78.

Summary Community participation in health was established as a guiding principle in the development of Cuban health services as early as 1961. This

paper examines the nature and scope of popular participation in health utilizing Arnstein's "ladder of participation" as a theoretical framework for analysis. Attention is focused in particular on two of Cuba's mass organizations - the Committees for the Defense of the Revolution (CDR'S) and the Cuban Women's Federation (FMC) - and on the broad-based People's commissions on Health and Public Health Commissions which they comprise.

Key points: Cuba's strong accent on consumer participation at all levels of society, and particularly at the broad institutional level, is seen as providing an important example to health professionals in other nations concerned with facilitating consumer involvement in the quest for healthier societies.

D17. Minkler, M., 1989. Health education, health promotion and the open society: an historical perspective. Health Education Quarterly 16(1):17-30.

Summary This article provides an historical perspective within which two recent, alternative directions for health education are examined. Each direction is seen as reflecting a unique vision of health promotion, with the first focusing primarily on personal behavior change and the latter on a broad empowerment/environmental model of health promotion. Key historical developments in the evolution of these two perspectives are examined, as are some of the assumptions and ideological values underlaying these alternative approaches. The World Health Organization's "Healthy Cities Project" then is used to illustrate the broader vision of health promotion in practice. While recognizing that the health educator has contributions to make on both the micro and macro change levels, a case is made for moving the field of health education further in the direction of this broader model of health promotion, and roles for the health educator within such a paradigm are outlined.

Key points: Health education and promotion are examined in terms of a model of individual behavior change and an environmental/empowerment model.

D18. Moynihan, M., Mukherjee, U., 1981. Visual communication with non-literates: a review of current knowledge, including research in Northern India. International Journal of Health Education 24(4):251-262.

Summary In this article previous research on the perceptions of visual aids by non-literates in Kenya, Zambia, Ghana, Papua New Guinea, Mexico, as well as among immigrant groups in London, and Paris, in Nepal and, by the authors in northern India, is reviewed. Recognition of pictures is affected by the particular culture of each group. In Africa, photos are better understood and liked: in the Indian subcontinent, line drawings are well recognized and appreciated. Recognition can be reduced by inaccurate detail, stylization and perspective. The authors found that overall size could be kept small if the pictures were simple. Complicated pictures, or a group of interrelated pictures, are not usually well recognized. Familiarity, realism and simplicity seem the most important components for a successful picture. Ways of attaching value ("good" or "bad", for example) have not in the past been very successful, but the authors found that a "vocabulary" of fourteen sighs were, once explained, well understood. The value of colors in the culture must be understood and utilized. To be successful, visual materials for non-literates must start from the local culture and not come from behind a desk in the capital city.

Key points: Successful pictures are characterized by familiarity, realism, and simplicity. Perspective, stylization and inaccurate detail can reduce recognition.

D19. Pillsbury, B., Yacoob, M., and Bourne, P., 1988. What makes hygiene education successful?: experience from Togo, Sri Lanka, and Yemen and its relevance for project design. WASH Technical Report No. 55, 64 pp.

Summary This report provides guidance for project designers and implementers as well as for policy- and decision-makers in water supply and sanitation projects which should lead to both improved health and sustainable projects. The AID-funded Togo Rural Water and Sanitation Project, the Health Education Project of the Matara Water Supply Program in Sri Lanka, and the hygiene and sanitation component of the Integrated Rural Development Program/Mahweit, North Yemen, are three hygiene education efforts which provide valuable lessons for the design and implementation of hygiene education components in water supply and sanitation programs.

Key points: Baseline studies of prevailing beliefs and practices are critical for designing hygiene education messages that people will listen to. Educators must come from the local community and their training should be participatory and task-oriented.

D20. Ramirez, G., and McAlister, A., 1988. Mass media campaign - A Su Salud. Preventive Medicine 17:608-621.

Summary A mass media health promotion program directed toward reducing future cancer trends among Mexican Americans by decreasing smoking and encouraging smoking prevention and other health practices is described. Included is an outline of the program design based on social learning theory, and its significant features. The development of the program, including the role focus groups played in the identification of areas to be targeted by the programs, and the production and implementation of the mass media campaign based upon the targeted program areas are also discussed.

Key points: The A Su Salud project serves as a model of a minority mass media health promotion program based on social learning theory which can be replicated in other communities addressing similar health problems.

D21. Rice, M., and Valdivia, L., 1991. A simple guide for design, use, and evaluation of educational materials. Health Education Quarterly 18(1):79-85.

Summary Few health workers in Latin America are trained in how to produce effective and appropriate health education materials. In order to provide an instrument and a strategy to help overcome this problem, the Pan American Health Organization developed an effective methodology to orient the design, use, and evaluation of health education materials. This article describes the development of this methodology and summarizes the basic operating principles and criteria for evaluation. These operating principles include developing educational materials from the community perspective, ensuring that they are an integral part of a health education program, relating them to health services delivery, pretesting the materials, and distributing instructions for use along with these materials. An evaluation scale helps health personnel assess materials that have been designed elsewhere and decide if they would be

appropriate for their own target audiences. The scale also promotes self-evaluation by the community in the development of its own materials.

Key points: This simple and straightforward methodology has been successfully applied in courses and seminars as well as in the design, use, and evaluation of health education.

D22. Rothman, J., 1972. Three models of community organization. In: Creating Social Change. (Eds. Zaltman, Kotler, and Kaufman). pp.472-491.

Summary Three methods of community organization: locality development, social planning and social action are described and compared in terms of twelve variables. These variables are: goal of community action, assumptions concerning community structure and problem conditions, basic change strategy, change tactics and techniques, salient practitioner roles, medium of change, orientation toward power structure, boundaries of the community, interests of the community, conception of public interest, client population and client role.

Key points: Practitioners are encouraged to become familiar with all three models of community organization in order to utilize the most appropriate strategy or mix of methods in health education efforts.

D23. Scrimshaw, S.C., Carballo, M., Ramos, L., and Blair, B.A., 1991. The AIDS Rapid Anthropological Assessment Procedures: a tool for health education planning and evaluation. Health Education Quarterly 18(1):111-123.

Summary Health education is an essential part of efforts to limit and manage the current AIDS pandemic. The information needed to develop meaningful and culturally appropriate educational interventions is often difficult to obtain because topics related to the prevention and treatment of AIDS are invariably culturally and/or personally sensitive. This article describes the data collection guidelines of the HIV/AIDS Rapid Anthropological Assessment Procedures developed by the Social and Behavioral Research Unit of the World Health Organization's Global Programme on AIDS. The guidelines apply anthropological methods of observation, participant observation, informal and formal interviews, and focus group interviews to the collection of information on

AIDS-related beliefs and behaviors. When researchers focus on specific issues in countries, cultures, and languages with which they are already familiar, relatively rapid assessments can be made with a high degree of validity. This article briefly discusses these methods and their application to AIDS-related topics, together with the validity and reliability of the various methodological tools available to social and behavioral scientists.

Key points: This article discusses how to apply anthropological methods of observation to obtain culturally-relevant data concerning disease-related beliefs and behaviors.

D24. Tweneboa-Kodua, A., Obeng-Qualdoo, I., and Abu, K., 1991. Ghana social mobilization analysis. Health Education Quarterly 18(1):125-134.

Summary In order to increase communication channels for child survival and development, the government and UNICEF Ghana undertook a "social mobilization analysis." This analysis included three studies that aimed to identify individuals and existing organizations with the potential to serve as health communicators and to determine the type of assistance that they needed to maximize their effectiveness in this role. The first study surveyed governmental institutions, trade unions, revolutionary organizations, traditional leaders, and others and found a largely untapped reservoir of capacities to promote child health, with varying levels of current involvement. The primary need identified was for information and training materials. The second study focused on the mass media and revealed a low coverage of maternal and child health topics and the need for better cooperation between journalists and health professionals. The third study assessed sources of health information for parents and found several sources, such as religious organizations, women's groups, and school teachers that could be mobilized to promote child health. Recommendations are made for the use of the findings.

Key points: An analysis of social mobilization in Ghana revealed untapped resources.

D25. Van der Geest, S., 1991. Marketplace conversations in Cameroon: how and why popular medical knowledge comes into being. Culture, Medicine and Psychiatry 15(1):69-90.

Summary The author argues that buyers and sellers of western pharmaceuticals at a local marketplace in Cameroon construct their ideas about illness and medicines in reaction to two kinds of situations in which they find themselves. The market situation induces people to adjust their medical beliefs to the economic transaction. Sellers are likely to inflate the efficacy of medicines and customers adjust their medical concepts to fit their limited financial means. In that way they rationalize their inability to buy all the drugs they would have liked to buy. The interview situation leads informants to produce rather specific and assured answers on topics about which they may know very little. Reasons include the inequality between interviewer and informant and the latter's wish to avoid making an ignorant impression on the interviewer. Three conversations held during fieldwork in 1983 are discussed.

Key points: An attempt is made to understand the dynamics of popular or folk medicine beliefs in Cameroon.

D26. Van Damme J.M.G., 1985. The essential role of drinking water and sanitation in primary health care. Tropical and Geographical Medicine 37(3):21-32.

Summary The purpose of this paper is to draw attention to the fact that drinking water supply and the provision of sanitation facilities form an indispensable element in disease prevention and primary health care programmes. The world situation regarding the availability of drinking water and sanitation facilities is dramatic, in that more than 1500 million people lack proper facilities; the implications in terms of health and cost are stupendous. It is therefore a fortunate development that the International Drinking Water and Sanitation Decade (1981-1990) is on its way to an appealing initiative. The paper discusses water and sanitation related diseases, and the established experience that water and sanitation programmes can only have a health impact if they are jointly developed, and if they integrated with health education. Operational implications of such programmes as an element of primary health care are reviewed.

Key points: To be most effective, water and sanitation programs should be developed jointly and in conjunction with health education .

D27. Videlier, P., and Piras, P., 1990. Health in strip cartoons. World Health Forum 11(1):14-31.

Summary Strip cartoons are among the most vivid means of communication at our disposal, and they are particularly popular with the young. Medical matters have featured in many stories, though usually in a peripheral role. Could more be done to use this powerful medium, or would deliberate exploitation destroy it?

Key points: The authors discuss cartoons, as an important means of communication.

D28. Ward, W.B., Neumann, A.K., Pappoe, M.E., 1981-82. Community health education in rural Ghana: the Danfa Project-an assessment of accomplishments. International Quarterly of Community Health Education 2(2):143-155.

Summary The Danfa Comprehensive Rural Health and Family Planning Project was a joint effort of the Ghana Medical School, and Ministry of Health, UCLA, and USAID. A health education component was developed as an integral part of program inputs during the initial conceptual phase of the project. As a result non-equivalent experimental and control areas were designated permitting an assessment of program impact during a five-year period (1972-1977) for which baseline and follow-up study data were available. A new cadre of community-based workers (Health Education Assistants) was developed from existing health personnel in the country, and trained in health education and multi-purpose health work. Although the HEAs were found to have difficulty in bringing about changes in health practices when other support services were not available, they did have measurable impact on villagers' adoption of family planning methods and a number of specific health practices.

Key points: Community-based health workers trained in health education had an impact on villagers' health practices.

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