Training of Private Health Workers in Bhadrachalam Tribal Area, Andhra Pradesh

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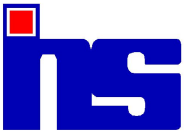

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Contents

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Private Health Workers are informal health care consultants, and intermediaries, helping people to access medical and health care facilities. A four day training program for private health workers in Bhadrachalam tribal area was organised by the Institute of Health Systems (IHS) from 18-21 June, 1994. Objectives of the training program was; (a) To educate private health workers about locally endemic diseases and improve their capacity to provide first aid and health education to the people in the area; and (b) To improve the skills of private health workers in facilitating access to appropriate health care. This program is for people who did not have any formal medical training, but are offering curative and preventive health services to the people in the area. These are the people to whom the people turn for medical advice or treatment. As there is also transportation problem to consult a PHC doctor they are the only health workers who are immediately available in these tribal areas. By training them, their effectiveness can be improved as change agents to achieve more desirable health behavior. The program was sponsored by The Integrated Tribal Development Agency (ITDA), Bhadrachalam. Altogether 50 private health workers were trained. In this paper we report details about identification of target groups, their training needs assessment, curriculum development, training program implementation and evaluation.

Training Needs Assessment:

Training needs of the targeted private health workers were systematically assessed to developed appropriate training material for health worker. To start with the training needs assessment (TNA) team[2] discussed with the program sponsors about their expectations. Clearly, the District Administration and ITDA officials were concerned about the poor access to health care facilities, by the tribes living in remote areas. They were concerned about poor services in primary health centres (PHCs) and the preponderance of "RMPs" and quacks in the tribal area (Chandra Sekhar Rao, The Hindu, 1994). The ITDA authorities recruited some of them as community health workers and wanted to suitably train them, so that they can help people access the health system, provide health education to people and help prevent epidemics. The TNA team first reviewed the literature about the role of informal health workers, "RMPs" and private health workers. This was followed by many rounds of brain storming discussions with the program sponsors about their perception of the training needs of the health workers to be trained. The project coordinator visited the Badrachalam areas to

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[1] Dr. P. Ramesh and Ms. Umamaheswari worked full time on this project. Dr. P. Mahapatra, was the chief consultant during the program development and implementation phase. Ms. S. Srilatha participated in translation of the health workers handbook and gathering of training materials. Although, the training programme was organised in 1994, this paper was written in 2003 based on recorded material available with the IHS. This paper was compiled and written by Prasanta Mahapatra, S. Srilatha, N. Mary Nancy and K. Vanishree. A good part of the paper is based on material written by P. Ramesh and Umamaheswari and hence the primary authorship credit is theirs. However, since the first two authors were not available at the time of this compilation, responsibility for this paper and the compilation rests with Mahapatra and Srilatha. Mary Nancy and Vanishree are responsible for the section dealing with classification of the cartoon from SPHERE, Gooty.

[2] The TNA team consisted of Dr. P. Ramesh the program coordinator, and Dr. Prasanta Mahapatra, chief consultant. Ms Uma Maheswari and Ms. S. Srilatha, and joined the team later.

assess a) local morbidity pattern, and b) identify of skill gaps of private health workers to be trained. The coordinator discussed with key informants and stake holders in the area. These include; officials of the ITDA, private medical practitioners, PHC Medical officers, doctors working in the Bhadrachalam hospital. A few private health workers and candidates for the proposed training were also interviewed to understand how they perceive their role, and the gaps in their skills. The coordinator also obtained reports from the Anit Yaws unit (Annex-1), the Malaria Officer (Annex-2), the Leprosy Control Unit (Annex-3), and the Additional District TB Control Officer, Bhadrachalam (Annex-4).

Curriculum Development:

The rapid assessment of local morbidity pattern and feedback received from public health workers, and various stake holders provided the lead to the Institute's faculty to plan coverage and select topics. Topics for coverage were selected according to the needs of the project area, and the participants. These were grouped under different categories like; (a) life style changes, (b) endemic diseases, (c) health of mothers, and (d) casual medical problems, etc. Sessions and their contents were planned, covering all identified topics, to meet the information needs and fill skills gaps of the targeted participants. The brainstorming sessions in the IHS at this stage resulted in some modification to the list of identified topics which in turn resulted in appropriate provision of session and their contents. The coverage of topics and session content, identified for the training program, was a result of a few rounds of this iterative process.

The program coordinator then reviewed standard medical texts, available public health literature, health education material to prepared notes on each topic. Significant among these are; (a) the "*Where there is No Doctor*" book by David Werner, and (b) Modules for Training Urban Community Health Volunteers, both published by the Voluntary Health Association of India (VHAI). A lot of practical material was obtained from the SPHERE, Gooty, a voluntary health organisation known to be active in health education. A write up was prepared on each of the identified topic. These write ups passed through a few rounds of internal review and updating and then was submitted to external experts[3] for peer review and comments. Comments from these peer reviewers and experts helped prepare the final write-ups on each of the chosen topic. These write-ups contributed to a Handbook for Private Health Workers specially prepared for the participants in the training programme. This handbook was then translated into Telugu and compiled as the "Arogya Karyakartala Karadipika" (Health workers handbook).

Training program implementation:

The Institute's trainer team[4] (ITT) gathered teaching aids and communication material to supplement the health workers handbook specially prepared for this programme. An active search was made to locate innovative approaches to training of nonformal health workers. The ITT located two useful sources by this process. These are; (a) the cartoons health education strategy developed by the SPHERE, Gooty in Antapur district of the state, and (b) health

[3] These include; Dr. M. Prakasamma, Dr. Patricia Bidinger, SPHERE, Gooty; Dr. Deshpande, Ms. Ann Marsden and Ms. Christina from the VHAI, Sri. Bapi Raju Sarma, Directorate of Health, Sri. Siva Rama Krishna, Ms. Elishaa, the District Collector, Khammam, the Project Officer, ITDA, Bhadrachalam, and the Additional DM&HO, ITDA Bhadrachalam.

[4] Dr. P. Ramesh, Programme Coordinator, Ms. Umamaheswari, and S. Srilatha.

education slides and communication material prepared by the Centre for Development Communication, at Hdyerabad, and (c) Video cassettes from Gandhi Medical College, Osmania Medical College, and the UNICEF. Some of the cartoons obtained from SPHERE Gooty were modified to suit the needs of this training program. The ITT visited the project area one week ahead of planned training date, to finalise the schedule and coordinate other arrangements. The local health staff arranged for the venue and helped organise various services there. Additional faculty, to work with the ITT, were identified from among local health officials. Support of local health staff was sought for practical demonstration of the cases and also to know about the local practices.

Coverage and Topics through the Private Health Workers Handbook:

1. Drinking Water: Drinking water sources, Contaminated water, Chlorination, Symptoms of water born diseases, Soakage pits.
2. Personal Hygiene: Household Sanitation, Food, Water and Sanitation, Juvenile Diseases, Healthy Habits, Smoking, Oral Hygiene.
3. Nutritious Food: Primary foods, Highly nutritious foods, High calorie foods, Foods rich in Vitamins and minerals, Malnutrition, Ways to take good food in poverty, Low Cost Nutritious Foods.
4. Tuberculosis: Symptoms, Prevention, Treatment & Prevention - Message.
5. Leprosy: Symptoms, Treatment, Prevention, Indications.
6. Fever & Malaria: Diagnosis, Plasmodium, Life cycle, Treatment, Awareness.
7. Yaws: Symptoms, How it spreads? Prevention & Treatment.
8. Vaccination: Disease prevention by vaccination, Assisting Health workers in Immunization work.
9. Diarrhoea: Home remedy for diarrhea, Severity of dehydration, Prevention of diarrhea, Preparation of ORS, Medicines to be avoided.
10. Menstrual cycle
11. Health care of Lactating mothers: Young girls, Pregnancy, Do's & don'ts for pregnant mothers, Health care of pregnant women, Conditions for sending to PHC -Delivery, Breast feeding.
12. Family Welfare: Aim, Helping the health workers, Methods to be followed, Tubectomy - Questions & answers, Vasectomy - Questions & answers.
13. First Aid: Snake bite, Dog bite, Wounds, Sprains, Sun stroke, Burns.
14. Common Complains: Headache, Back pain, Cold and cough, Toothache, Earache, Constipation, Scabies.

There was a slight change in the timings of the programme. According to plan, the training was supposed to start at 9 a.m. But it actually started at 12 noon because of the inaugural function and the time taken by the pretest. The actual programme was revised to accommodate all topics originally planned. Apart from some handouts the following reading material in Telugu was provided to the participants in the training program:

1. "Arogya Karyakarthala Karadeepika" (Health Workers Handbook), specially prepared by the IHS for this workshop.
2. Werner David, "Vaidyudu Leni Chota", (Where there is no doctor?), Hyderabad Book Trust, 1-1-342/B, Viveknagar, Chikkadapalli, Hyderabad, 500020.

The cartoons from the SPHERE, Gooty evoked very good response from the audience. It was noticed in the training programme that the trainees took an active part in the discussions with the use of the diagrammatic figures which gave a sequence of causes, symptoms and the treatment of various ailments. Taking this into consideration such sessions were organized for all the diseases, common ailments and for the first-aid. The trainees were more keen in the treatment part of the lectures. It was noticed that most participants would become more serious and start taking notes whenever the topic of treatment came up.

Keeping in view the objectives of the training program, the teaching has mostly concentrated on demystifying some very basic aspects of medical and health technology which will help the communities in securing better access to the formal health care delivery set up. Importance is given on building skills and encourage appropriate concept formation about basic lifestyle issues, important diseases and symptom complex of the area, basics of medical and child health issues, first aid and common ailments. Sufficient emphasis is made on do's and don'ts as it was found that these private health workers use heavy dosages for their patients where it is not necessary.

Health workers were clearly told when they should refer a patient to the doctor. The responsibility of health workers to refer a case when appropriate was very much emphasized. These kind of instructions will definitely reduce some complications but in some instances they may have to face some practical problems in order to reach the PHC. For example if there is a case of a snake bite all the practitioners, without any exception can give first-aid to the patient and save him. But if any complications arise like the patient showing signs of bleeding or signs of shock we have suggested them to refer the patient to the nearest health sub-center. But in these tribal areas where there are no transportation facilities it is not practically possible to reach the health centre. So, regarding such cases the trainees should be taught how to treat even if some complications arise so as to save the life of the person. Programme monitoring will also answer the questions like whether the intended efforts are being conducted as specified in the programme design. At the end of the programme a post training test was conducted to gather changes in participants' knowledge base and evaluate the effectiveness of the training.

Course Evaluation[5]:

This evaluation study was undertaken, mainly to assess the appropriateness of the programme, to identify ways to improve the training delivery and to decide whether to expand or curtail the period of training. Any systematic evaluation follows three steps.

1. **Evaluation of the structure:** This is evaluation of whether facilities, equipment, manpower and organization meet a standard accepted by experts as good. The present programme made use of all the latest equipment for enhancing the quality of the training. We made use of projectors while explaining, audiovisual kits, video cassettes and a microscope. Three faculty members were in-charge of this programme. A manual prepared by the faculty and a hand book useful for the practitioners were presented to them.
2. **Evaluation of the process:** The process of training program include the way in which various activities of the programme were carried out. This is evaluated by comparing

[5] Ms. Uma Maheshwari, a member of the Training Needs Assessment Team, was designated in advance to evaluate the training program. This part of the paper is based on the Evaluation report prepared by her.

with a predetermined standards. The evaluation of the process can be measured by the response given by the trainees in attending the programme regularly. The attendance of the participants is 100% which shows that there was a positive response of the trainees.

3. **Evaluation of outcome:** This is concerned with the end results. A pretest is conducted so as to know to what extent he has knowledge, and a posttest is also conducted. By comparing these both results the efficiency of the training programme can be measured. The study tries to answer three basic questions of effectiveness, significance and efficiency. The assessment of efficiency is aimed at improving the implementation and adds to the review of progress by taking account of the results.

Assessment of programme effectiveness and efficiency is the effect of the programme and the end-results, outcomes or benefits, the trainees achieved. This is in relation to the stated objectives. The efficiency is of the training programme is tested as it is mentioned earlier by giving pre and post evaluation tests. Now the results of these tests shall be discussed in detail.

Questions relating to water borne diseases, identification of such diseases and also their knowledge about prevention of such infections were asked. The pretest results showed that 61% of the respondents did not have knowledge on this subject and only 39% of them could answer these questions satisfactorily. The post test results showed an improvement in the comprehension of the respondents in this aspect. 89% of them gave absolutely correct answers.

As some of the illnesses are caused due to the bad habits which men adopt, a half an hour session was taken on bad effects of drinking and smoking. Only 69% of them gave correct responses regarding this subject in the pretest where as in the post - test 93% of them were right which clearly shows that there is a much better understanding of this consent.

On the subject of food and nutrition only 45% of them had an average amount of knowledge, 18% did not answer and the rest of the respondents gave incorrect answers. The posttest results showed a noticeable difference in which only 5% of them could not respond and among the rest 79% of the respondents knowledge was satisfactory.

Their knowledge in the identification and treatment of various diseases like malaria, T.B leprosy, etc. Was much below average. Two sessions were organized to impart knowledge to the trainees on some diseases prevalent in the Bhadrachalam tribal areas. Only 38% of the trainees had an idea on these diseases but in the post test it increased to 84%. This obviously indicated that the practitioners knowledge on the identification of diseases and the treatment procedures has increased. However it was also clear that the participants could not comprehend either the recognition or the treatment procedures of Yaws disease. Before the training was conducted only 13% of them had some idea about this disease and the rest of them had no idea about it. The post - test also did not show any marked difference in which, only 30% of them could get a clear cut idea about this disease. As this Yaws disease is prevalent among the Koya tribes of Bhadrachalam district necessary steps must be taken in the future training programs to impart proper understanding on the identification and the treatment of the disease and the most important aspect which should be stressed is the causative factors. By telling them about the causative factors necessary steps can be taken so as to prevent incidence of this disease.

When the participants knowledge is tested regarding vaccination and immunization, only 40% of them gave desired responses, 23% of them gave wrong answers and the rest of them did not respond. The post - test showed that every body attempted in which 87% of them could grasp the idea of vaccination and immunization.

Questions were asked regarding various family planning techniques, both temporary and permanent. The pre test shows only 52% of them had reasonably good knowledge on family planning techniques and the rest of them had reasonably good knowledge on family planning techniques and the rest of them had very poor knowledge. The post evaluation test gave a good result in which 94% of them could not only write about various family planning methods but also imparted knowledge on the advantages and the importance of family planning methods.

As basic knowledge on first - aid is very essential for any dedicate practitioners, sufficient time was allotted to teach on the first - aid methods. The pretest gave 47% results where as the posttest test gave 92% results in this aspect. First -aid for snakebite has gained 100% positive response.

The importance of breast feeding, diet of the pregnant women, various complications during delivery and other topics relating to mother and child health were taught by experienced doctors working in that area. The pretest indicated that only 47% of them had knowledge in this aspect where as the posttest gave 93% result which indicated a reasonably good amount of improvement in their comprehension regarding this topic.

The trainees were asked whether they could know more on preventive or curative aspect of medical and health care in this training programme. 90% of the trainees said that though this training programme has definitely enhanced their knowledge in the curative aspect, lectures on the preventive aspects of the diseases have created an awareness in them. Except for the immunization they did not have any idea on other aspects of preventing diseases like preventing certain diseases by maintaining proper hygiene, prevention of water born diseases by chlorination and drinking boiled water etc. The trainees realised that they are not just the practitioners to cure the illnesses of the people, but they are responsible for providing better health to their people by educating on preventive aspect, food and nutrition etc.

The next question was whether they think that the training programme is in any way useful in modifying their knowledge in treatment procedures or prevention of diseases. 87% of them gave a positive reply saying they it is definitely helpful and 13% of them said that it would be useful to a certain extent. All the trainees who received the manuals said that they are informative and will be helpful for them in future.

Eighty percent the participants were enthusiastic to know about certain other aspects of medical and health care which were not covered in the programme. 93% of them said that the audiovisual aids were interesting. 100% of them said that this kind of training programme is very encouraging for them. They were glad that they could get some kind of recognition from the government. They expressed that this kind of training is essential which can improve their knowledge. Some other subjects which they thought should be taught were on eye infections, ear and throat problems.

Finally when they were asked to give their suggestions regarding this training programme. Most of the trainees opined that there should be a few practical session in which the problem of identification of the disease can be taught. They also suggested that the period of training programme should be extended so that they can have a detailed discussions on each topic.

Post Event Reflections. Necessary Changes In The Training Material For The Next Training Programme[6]:

Our training material has the following components, namely; (a) Manual for the private health workers, (b) Self explanatory material prepared by SPHERE[7] Gooty, (c) Audio visual aids, and (d) Evaluation in the form of comprehensive examination.

A. The Health Workers Handbook:

1. Health worker handbook title: Title of the handbook needs change to reflect the fact that it is meant for private health workers. One alternative is to prefix the Telugu word *swacchanda* (voluntary) to the existing Telugu title of *Arogya Karyakartala Karadipika* (Health Workers Handbook).
2. Drinking water: Session content to be added is Role of non formal health workers during floods. Many participants have asked for the practical demonstration of soakage pit. Necessary arrangements are to be made in the next training program with the help of the local authorities for the practical demonstration.
3. Food and Nutrition: The video cassette that was shown on this topic is not very nice. Recently CDC has produced two AV aids on this topics. They are to be purchased for the next training program. In the session contents we have to give more emphasis on Vit-A deficiency and Protein energy malnutrition.
4. Malaria: More time has to be allotted for the demonstration of collecting blood smears from fever patients. The DM&HO has appointed some of these non formal health workers as malaria depot holders. Their performance is to reviewed and new malaria depot holders can be appointed from the second training program participants. In the session contents life cycle of plasmodium is to be dealt in detail. Another topic can be added on collection of blood smears as we are giving them practical demonstration and appointing them as depot holder.
5. Tuberculosis: We have given more emphasis on spitting in the spread of Tuberculosis in the training material. Infact overcrowding is to be explained as the most common cause for the spread of TB. Gooty diagrams on TB have given stress on overcrowding. Same can be incorporated in our training material. Indiscriminate prescription of streptomycin by the non formal health workers has come to our notice. Training material has to emphasized more on the harmful nature of this practice. More emphasis is to be given on the use of TB drugs for the complete period (9 months). Some of the regimens used in the treatment of TB can be included in the training material. Audio visual aids are to purchased on TB. It come to our notice that the non formal health workers are treating severe TB cases with streptomycin and not referring them to PHC or District TB centre. This aspect has to be stressed in the training material and the importance of the sputum slide collection is to be incorporated.
6. Leprosy: Audio visual aids are to be purchased. Gooty people have not drawn any diagrams on Leprosy. We have to incorporate self explanatory diagrams on the cause, spread and treatment of Leprosy in the next training material.

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[6] Dr. P. Ramesh, Program Coordinator critically reviewed the training event, considered the evaluation report and reflected on the experience to gather opportunities for further improvement of such training programs. This part of the paper is based on the post event report prepared by him.

[7] Society for Promotion of Health, Education, and Rural Economy (SPHERE), Kurnool Road, Gooty, Andhra Pradesh 515401, India.

7. Yaws: Post evaluation test showed the lack of improvement in the knowledge of participants on yaws. The reason is that the post evaluation test question on Yaws is very confusing. We have demonstrated practical cases of Yaws in the training program. We come to know that the people in the Bhadrachalam tribal areas have many superstitions regarding yaws. We can incorporate the negative and harmful effect of those superstitions.
8. For example they have the belief that at least once in a life tribal man will get the disease. They don't know that this disease can be prevented by proper personal hygiene. Role of soap in the prevention of this disease is to be emphasized. We will have to incorporate self explanatory diagrams on Yaws.
9. Immunisation: Many participants have asked for the practical demonstration of the immunisation session. It can be arranged in the next training program with the help of local authorities. Recently in Bhadrachalam four children died because of using the reconstituted vials. The non formal health workers have to be given sufficient training in supervising or checking and helping the health worker in conducting the immunisation session. This aspect has to be discussed with the local health officials and necessary session contents are to be added in the training program.
10. Health of Mothers: One of the major reasons for the maternal deaths in the tribal areas is found out to be transportation. In the training material we have given emphasis on the high risk mothers identification. The participants were very much impressed by the approach to reduce maternal deaths. A more detailed discussion on high risk mothers and their identification can be included in our training material. We come to know that many dais in that area are untrained. IHS should actively involve in the training of these dais and there should be collaboration between Dais, health workers and non formal health workers. All these issues will have to be included in the training material.
11. First Aid: The local civil surgeon[8] expressed that mouth to mouth respiration is very important aspect of first aid and it saved three persons in his experience. He has given a practical demonstration of it. We have to include it in our training material. In the treatment of wounds we will have to give more emphasis to padding and bandage. Certain other topics like Electric shock and poisoning are to be included in the first aid.
12. Our training material on diarrhea and common ailments has covered many of the relevant issues. There were no suggestions for modification in these two topics.

B. Cartoons from SPHERE, Gooty:

This material was very useful. The quality of the diagram is poor. If funds are available we can go for better picture drawn by an artist. It will be better if we give notes on these pictures along with the manual. This material will be around 20-25 pages.

C. Audio Visual Aids:

We have purchased Audio visual aids from the Centre for Development Communication (CDC), Begumpet, Hyderabad. They were very useful. We can purchase some more Audio visual aids for the next training program. Recently they prepared one show on First Aid. They have other AV aids on TB, Leprosy and Food and Nutrition. We will have to purchase all these AV aids.

[8] Dr. Kanta Rao

D. New topics to be included in the training material:

Eye infections were found to be common in that area. We can include it in the training manual. Other useful topics are; (a) Worm infestation, (b) Allergy (Asthma) and lung infections, and (c) Better housing and Environment.

E. Miscellaneous:

We conducted the training program for 4 days. We had to cover many topics. I feel that we can delete the topic family planning. It will save some time. On the advice of local authorities we had to include that in the previous training program. It is better if participants stay during nights also at Bhadrachalam. They can participate and perform some plays on the topics they have learnt. We will have to plan for it in the next training program. In this training program we did not have much time to work on the Examination questions for the pre test and post test. As we have identified the gaps and the priority areas in the first training program the questions will have to be framed according to those requirements.

An Overview of Cartoons from SPHERE Gooty[9]:

A set of the cartoons used for this training programme has been preserved in the IHS Library. As a follow up on the Programme Coordinator's post event comment, the cartoons were sorted and grouped into various themes corresponding to the topics in the private health workers handbook and the topics covered in the training programme. Following is a listing of the cartoons possible health messages corresponding to them. A sample of these cartoons is given in Annex-5.

I. Drinking Water:

a) Contaminated water contains different type of worms and causes illness.
b) Tape worm: When human beings consume semi cooked pig's meat, this worm enters into the body. As a home remedy, consume one glass of milk with a pinch of betel nut powder early in the morning with empty stomach. Cook properly before eating.
c) Hook worm: When human body is in contact with human excrete, this worm enters into the body and causes anemia. Do not defecate in public places. Use slippers while going to latrine.
d) Sheep worm: Usually this worm lives in water. It enters into human body either by consuming water which contains the worm. It also enters into human body through wounds and sores. There is no medicine to treat this worm. To prevent this boil water before drinking.
e) Amoebiasis: Intake of contaminated water or food may lead to amoebiasis. The symptoms observed are mild abdominal discomfort and diarrhea. Presence of this worms in human body is dangerous. To prevent this maintain clean and neat surroundings around the house.
f) Ascaris: The mode of transmission is through intake of raw vegetables with out washing. It also enters into human body through soiled fingers. Live worms are passed in the stool or vomited. Treat the patient with mebendazole tables three per day. To prevent this wash the vegetables with clean water. Use latrines.

[9] A set of the cartoons used for this training programme has been preserved in the IHS Library. These were reviewed in July 2003, by N. Mary Nancy and Vanishree. This part of the paper is based on work by them.

II. Personal Hygiene:

a) Daily brush your teeth and have a bath. Daily comb your hair, dress neatly. Cut your nails regularly and remove mud and dirt from nails. Daily wash your clothes.
b) Wash your hands before cooking, eating. Clean your hands after cleaning the defecated child.
c) To avoid flies, food materials should be stored in a closed almirah. Drinking water should be filtered with clean cloth and properly covered with lid.
d) Wash vegetables before cooking.
e) After defecating cover it with soil.
f) Do not smoke, it damages lungs. It also affects the pregnant women and the unborn child in the womb. Do not chew betel nut. It causes ulcers and heart pain.
g) Do not drink alcohol, it damages liver. Do not inject drugs, it kills the person. Do not visit prostitutes, it causes AIDS. Practice sex with one faithful partner.

III. Household Sanitation:

a) Allow fresh air to enter into the house. Do not close the windows, it suffocates the children. Sweep and mop the house regularly. Use electric lights or kerosene lanterns.
b) Garbage bins should not be kept near the houses. Do not through waste in the sewage canals or in front of the house. Municipality should regularly empty the garbage bins.
c) Used water from the household should be properly channeled out. Water can be routed to drainage's or to trees. If the water is left out it may lead a place for mosquitoes and pigs.
d) Latrines should be used properly.
e) Maintain sanitation in and around the households. Do not defecate near the hand pumps. Use latrines and flush properly. Untidy cattle shed, uncovered garbage bins near the house is a place for mosquitoes. Do not allow the water to stagnant around the house, it makes a place for pigs to roam around.
f) There should be a proper outlet in the house for smoke. Especially while cooking. Do not keep incense (sambrani) near the infants cradle. Do not smoke inside the house it causes cough to the elderly women and children.
g) Keep the house and its surroundings clean. Do not allow the rain water to drain away, collect the water in bins. Sweep the kitchen regularly. Maintain clean and neat surroundings in front of the house and near the hand pump. The garbage bins should be placed far away from the houses. Latrines should be maintained neatly.

IV. Nutritious Food:

a) Lack of nutritious food in diet leads to nutritional deficiencies like pellagra, night blindness, anemia, bitot's spots, kwashiorkor and marasmus in children.
b) To avoid kwashiorkor, marasmus take high protein food items like eggs, milk, meat, pulses, beans, peanuts etc. High calorie rich foods like cereals, potatoes, bread, jaggery, butter, ghee etc.
c) To avoid anemia take iron rich foods like liver, beans, eggs, green leafy vegetables like palak, drumstick leaves and cereal foods like ragi and jowar.
d) Intake of vitamin A rich foods like carrot, milk, papaya, fish and leafy vegetables will reduce the deficiencies.

V. Diseases Transmitted by Mosquitoes:

Unhygienic surroundings near water sources like hand pumps, taps and near stagnant water are places for mosquitoes. Mosquito bite causes diseases like malaria, brain fever, and

elephantiasis. To prevent mosquitoes, maintain clean surroundings inside and around the house. Use mosquito nets. Spray anti malarial liquid.

A. Malaria

a) Malaria may be transmitted through mosquito bite.
b) Mosquitoes breed in stagnant water around the house, near hand pumps, etc.
c) If a child, exposed to mosquito bites, develops fever and chills, take him / her to the Health Worker, who would give anti malarial medicines for 3 days as a precaution and send a blood smear to laboratory for examination.
d) Use mosquito nets while sleeping.
e) Health workers talk about mosquito control to prevent malaria.
f) Where ever stagnant water is seen, sprinkle kerosene over its surface. Prepare soakage pit near the hand pump area and direct the waste water into the soakage pit. Remove herbs and grass near the hand pump area.

VI. Oral Rehydration Therapy:

a) Children may buy and eat food items which are kept in an uncovered containers.
b) Food gets contaminated when flies from the fecal matter get in contact with the food.
c) Intake of the contaminated food causes diarrhea.
d) Elderly women in the house advises to feed water to the child.
e) For home made Oral Rehydration Solution (ORS) add a pinch of salt and table spoon of sugar to 200 ml water.
f) Feed the child with salt and sugar liquid frequently. Simultaneously feed the child with rice porridge, coconut water, butter milk, black tea, lemon juice and curd rice. Breast feed the infants.
g) If the child's condition is severe, take to health worker, as you continue to give ORS.

VII. Care of Pregnant women:

a) For the first three months the pregnant women feels slightly sick during the morning times. To avoid vomiting sensation take lime water early in the morning.
b) Avoid self medication. Always consult doctor.
c) Maintain personal hygiene by regular bathing. Take balanced diet.
d) Consult the nurse in the village. Go for antenatal check ups. During the antenatal check ups weight, height, blood pressure and urine examination are done. If the weight is regularly increasing then the baby's growth is normal.
e) Care should be taken to avoid abortions.
f) Do not lift heavy weight. Brisk evening walk is good for health.
g) Regularly check blood pressure and weight.
h) Monitor the fetal development in health center.
i) To prevent anemia pregnant women should take iron and folic acid tablets.
j) Avoid injecting drugs.
k) As the baby grows it becomes a little difficult for the pregnant women. Drink barley water and eat plenty of fresh fruits and vegetables.
l) If any danger signs are noticed, immediately refer the pregnant women to the hospital.
m) If the pregnant women is delivering at home, prepare the house for the delivery. Make sure that the house is clean and the room is whitewashed.
n) Proper ventilation should be there. Arrange plenty of clean cotton clothes.
o) Use a new razor blade. Arrange for boiling water to clean the surroundings.
p) If the delivery is at hospital, sterilize all the delivery equipment before use.

VIII. Care of Lactating Mother:

a) Postnatal period is very crucial period.
b) Monitor the child's weight and height.
c) Lactating mother should take well balanced diet.
d) Avoid lifting heavy weight
e) Breast feeding is always best for the child.
f) Avoid self medication.
g) Maintain spacing for next child.

IX. First Aid:

a) Burns: With little precautions burns can be prevented. Do not leave the child unattended when the kitchen area is arranged in the ground. In such situations accidentally the child drags the water pot from the stove and causes burns. Do not apply anything to the burned part. Immediately dip the burned part in cold water. Take the child to the health center. See that the cooking counter should not be at child's reach.
b) Poisons: Accidentally if the child consumes poison make the child to vomit by giving irritants. Take the child to the health center. Do not leave any pesticides and insecticides in reach of children.
c) Falls: Accidental falls occurs mostly when trying to lift up or lift down the materials from the high storage areas. Immediately rush the person to the hospital if he had fall.
d) Drowning: If a person is drowned, save the person and give mouth to mouth breathing. Wrap the person and take him to the hospital.
e) Choking: Mostly it happens when the child is in a hurry while eating. If the child is little big tap the child at the back. For infants, make the child upside down and tap at the back of the child.
f) Burns due to fire: Burns due to fire mostly occurs in kitchen while cooking. Wrap the person with blanket and take him to the hospital.
g) Convulsions: For convulsions put a metal item like keys in the persons fist and hold it tight. Give mouth to mouth breathing.
h) Fractures: Most important thing to do while fracture is keep the bone in a fixed position. Take the person to the hospital.
i) To avoid injuries, especially while working in the fields or near the trees take care of your eyes. For minor injuries also visit the health center.

X. Management of Common Complains:

A. Cold and cough:

a) Common cold is contagious. It spreads from one person to another. For cough gargle salt water daily. To get relief take steam daily in the morning and night. Person suffering from cold should avoid close contact with children, old people and other family members.
b) Cover your mouth and nose while sneezing, coughing and talking.

B. Eye infection:

a) Conjunctivitis is contagious. It spreads fast from one person to another. Wash your hands with soap and salt water.
b) Do not use handkerchiefs, towels used by the infected person. Use a clean cloth to clean the eye and put eye drops.
c) To avoid dust and foreign body particles use spectacles.

C. Scabies:

a) The common site for scabies are the webs of the fingers, the wrist, the axillae, groins, genitalia, ankles and toes. Apply benzyl benzoate ointment for effective treatment and control of scabies.

b) Untidy hair with out regular washing is a place for lice in the head. Excess of lice leaves wounds in the head. If the wounds are plenty shave the head. Regularly comb your hair to remove lice. Apply neem oil for better results.

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Annex - 1

Anti Yaws Unit, Bhadrachalam[10].

Yaws is locally known as “Koyarogam” and “Savairogam”. It is a non venerial contagious disease caused by “Treponema Pertenue”, spreads due to lack of personal hygiene and close contact for long duration. One Anti-Yaws Unit was established in 1957 at Bhadrachalam. The unit functions with one Health Inspector (MPHS), two Health Assistants, and one Attender. At the time of establishment of the Yaws Unit a Medical Officer with a vehicle was functioning. Later on the Unit, is being operated by additional charge arrangement. When mass miniature radiography unit was there at Bhadrachalam, its Medical Officer was kept in charge. There after, the Medical Officer, Leprosy Control Unit, is usually kept in charge. The anti Yaws unit activities consist of survey, detection, and treatment of Yaws cases. As the staff are very limited and jurisdiction is vast the following strategy is followed to identify cases.

Tribes form nearly 15- 20 villages visit weekly shandies. The Anti Yaws Team visits the shandies, observes and examines people for Yaws cases. Inquiries are made particularly with village heads about possible Yaws cases. Photograph of Yaws cases are shown to illustrate various manifestations. If any person reports about a suspected yaws case in any village, it is listed as “Rumour” case. Staff visit the village subsequently to confirm the case, give treatment if required, and survey the village for additional cases. For all detected Yaws cases, their close contacts are examined, to confirm whether any infection is there (or) not. Cases detected in the shandy are given treatment. Roving surveys are done in PHC areas by rotation to detect and treat the yaws cases.

Yaws cases detected by the Anti Yaws Unit Badhrachalam

Year	Primary Health Centre				
	S.N. Puram	Nellipaka	Gowridevipeta	Rekhapalli	Total
1986	1	21	8	4	34
1987	-	82	3	45	130
1988	-	124	42	8	174
1989	1	104	20	73	198
1990	8	86	82	26	202
1991	5	111	51	58	225
1992	6	82	98	34	220
1993	2	132	54	37	225
1991 Population	66,807	73,647	49,783	39,763	230,000

[1] Case detection in 1986 was less as the area was under severe floods and staff were on flood duty.

The yaws cases are being treated with long acting penicillin at weekly intervals for 3 to 5 weeks. Dose and schedule is adjusted according to patient’s age. Lesions, and ulcers are dressed. Treated cases are followed up to monitor for relapse and repeat treatment. Limited staff and vast area is a constraint. Public transport is not limited. Staff travel mostly by cycle or walk. Some villages are accessible only by Launch. Another problem is transmission by expossure to Tribals in neighbouring states (Madhya Pradesh and Orissa). Hence villages

[10] Note given by the I/C Medical Officer, Anti-Yaws Unit, Bhadrachalam, Khammam Dist

bordering other states are visited whenever possible. It is necessary to train the Medical Officers and Para Medical in all PHCs of the area about the Yaws disease.

Annex - 2

Brief on Malaria in Khammam District[11].

Khammam District is an endemic area for Malaria. It is having 47.8% of the forest area in which tribals are living. Malaria is existing mostly in tribal area. About 90% of cases reported from Khammam district are recorded from the tribal area. It is observed that malaria incidence high between July - October. July to September is one Peak, November to January is the another peak. During the monsoon, a number of stagnant water pools form on either side of the Godavari. Anopheles culicifacies is the dominant vector during July - October. Between November - January, streams overflowing in monsoon, slow down and Anopheles fluviatilies acts an important vector. Hence DDT spray is planned in three rounds, June - mid July, Mid August - September, and Mid October - Mid November.

Khammam district - Malaria situation

Year	API	ABER	SPR	SFR
1990	8.6	18.2	4.7	3.63
1991	4	15.65	2.53	1.99
1992	2.08	15.74	1.31	1.08
1993	2.14	16.2	1.31	1.16

[1] API: Annual parasite index, is calculated for 1000 population.
[2] ABER: Annual blood smear examination rate for 100 population.
[3] SPR: Slide positivity rate is calculated for 100 fever cases.
[4] SFR: Slide falciparum rate is calculated for 100 fever cases.

The modified plan of operation started in the year 1977 with an intention to reduce the incidence to record no deaths due to malaria as eradication is seems to be not possible. Mainly three methods are being adopted. These are; (a) Case detection and treatment mechanism to eliminate parasite from human host, (b) Adult mosquito control operations to control the vector, and (c) Mosquito larval control operation. Case detection done by (1) active surveillance, (2) passive surveillance, and mass contact survey. Each of these is described below.

1. Active surveillance: Health assistants conduct house to house survey once in fortnight. Each assistant is allotted 3000 to 5000 population, depending upon the geographic area. They inquire about fever cases and collect the blood smears from those with fever and those with history of fever. All fever cases are treated with chloroquin tablet at the time of blood slide collection. The blood smears are sent to respective PHC laboratory. If malaria parasite is found in blood smear, the health inspector would give radical treatment.
2. Passive surveillance: All fever cases attending any Govt. Medical institutions such as the PHCs, Civil hospitals, and Dispensaries are treated with chloroquin after collecting blood smears. If malaria parasites are found in blood smear, the health inspector will gives radical treatment at the residence of the patient. In some places few teachers are also trained for collection of blood smears and treatment. These are called Fever Treatment Depots and are part of the passive surveillance system.

[11] Based on a Note given by the Assistant Malaria Officer, Bhadrachalam.

3. Mass contact surveys: When ever, gametocyte stage of malaria parasite is found in a slide, blood smears are also collected from the surrounding houses and examined for malaria parasite, whether they have fever or not. This is because Gametocyte is the stage which causes immediate transmission through mosquito. Some villages are also taken up for mass survey when ever doubt arises in the epidemiologist mind. These blood smears will be examined in the lab. After detection of positive case they will be given radical treatment.
4. Adult mosquito control: Earlier, until 1991, three rounds of DDT used to be sprayed in areas with high API (more than 2), between June to November. From 1992-93, Govt. Of India advised to spray DDT on micro epidemiological evaluation and as per availability of the DDT. Supply of DDT is less than before. Hence DDT spray has been planned according to village wise statistics. But it is not giving good results. The left over villages are facing focal out breaks for which mass radical treatment is being organised.
5. Malathion Fogging: Malathion fogging used to be made in highly malarious villages. But now the Fogging machine is out of order. We have addressed the directorate to take up repairs, because it is not possible to get repairs locally. The company has to send their person for repairs and the amount for the repairs is also so high which is not under the sanction purview of DM & HO.
6. Pyrethrens Spray: This is expensive. Hence used in emergency. Mainly when a death is suspected to have been due to malaria.
7. Anti-larval operations: Mostly in urban areas, particularly in Khammam town. Very difficult in rural areas.

Major problems to sustain the malaria control activities in the tribal areas include; (a) Large number of vacancies affecting regular sruveillance, (b) Shortage of DDT, (c) Frequent movement of labour engaged by the Bhadrachalam paperboards.

The Statement showing 1st and 2nd round spraying particulars sub-unit wise 1993

ame of the ub-Unit	I Round Villages		II Round Villages		I Round Pop.		II Round Pop.		DDT 50% in KG	
	Allotted	Sprayed	Allotted	Sprayed	Target	Sprayed	Target	Sprayed	I Round	II Round
anjara	74	104	106	-	36,423	34,476	35,325	-	3,499	-
othagudem	155	49	26	25	86,326	16,394	6,799	6,601	1,322	554
Ianugoor	150	39	46	15	73,954	14,089	15,677	5,436	1,190	366
hadrachalam	127	37	30	24	65,886	13,901	9,632	7,754	1,173	700
unavaram	156	72	59	43	54,377	20,653	20,576	15,164	1,930	1,339
herla	92	26	86	19	40,935	8,793	40,935	7,082	812	513
hintoor	113	79	99	95	46,884	30,758	40,260	36,197	2,240	2,786
udimalla	121	86	19	19	32,258	20,879	40,120	4,525	2,146	442
swaraopeta	136	78	44	23	87,391	29,361	11,097	5,529	2,329	532
enkatapuram	76	58	68	72	44,283	25,254	31,542	24,179	2,212	1,806
otal	1,200	628	583	335	568,717	214,558	251,963	112,467	18,853	9,038

Malaria Program Performance Indicators for Five Years

Year	Population	Blood Smears		Positives			Radical Treatment	API	ABER	SPR	SFR
		Collected	Examined	Pv	Pf	Total					
1989	1,750,064	250,405	250,405	789	3,574	4,363	4,284	2.5	13.3	1.42	1.42
1990	1,835,833	333,516	333,516	3,811	12,130	15,941	15,900	8.6	18.2	3.63	4.77
1991	1,835,833	287,280	287,280	1,552	5,743	7,295	7,142	4	15.65	1.99	2.53
1992	1,835,833	288,948	288,948	302	3,125	3,427	3,427	2.08	15.74	1.08	1.31
1993	1,835,833	320,326	320,326	451	3,486	3,937	3,927	2.14	16.02	1.16	1.31

Annex - 3

National Leprosy Eradication Programme[12].

Leprosy Control Unit, Bhadrachalam

1	Date of establishment		October, 1976		
2	Total population covered		215,858		
3	No. Of villages covered		469		
4	Population surveyed in Multi Drug Therapy		204,953		
5	Population examined in Multi Drug Therapy		170,802		
6	Cases detected in Multi Drug Therapy		166		
7	No. of Mandals covered		8		
8	Treatment starting with Multi Drug Therapy	20th April 1990	Multi Bacilliary	Paucci Bacilliary	Total
			154	359	513
9	New cases added during the Multi Drug Therapy		255	401	656
10	No. released from treatment up to end of December 1993 (cured cases)		254	667	921
11	Current cases on record		100	47	147
12	Total tribal and non-tribal cases	Tribal	31	11	42
		Non-tribal	69	36	105
13	Total healthy contacts under observation		1,288	1,961	3,249
14	No. Of school children surveyed so far		38,011		
15	No. Of school children examined so far		30,686		
16	Cases detected in school survey		10		
17	Total no. Of deformity cases		83		

Sub centre wise data on Leprosy Cases, Bhadrachalam, Khammam District.

Sub-Centre	Cases			Sub-Centre	Cases		
	MB	PB	Total		MB	PB	Total
Yetapaka	17	8	25	Chintur	1	1	2
Nellipaka	21	10	31	Mothugudem	7	3	10
Gowridevipeta	3	4	7	Kutur	1	0	1
Bheemavaram	2	2	4	China Nallaballi	4	4	8
Pidugurallapalli	2	0	2	Satyanarayanapuram	3	2	5
Dummugudem	5	4	9	Charla	7	1	8
Kunavaram	2	3	5	Edira	1	2	3
Rekhapalli	5	1	6	Venkatapuram	12	0	12
Vararamachandrapuram	2	1	3	Wazeedu	3	0	3
				Perur	1	1	2
Ramavaram	1	0	1	Total	100	47	147

[12] Information given by the Medical Officer, Leprosy Control Unit, Bhadrachalam.

Annex - 4

TB disease profile in interior areas - a report[13].

Tuberculosis disease is not seasonal one. Here the disease prevalence is not restricted to urban or rural or tribal areas. It continues to be major public health problem. The incidence of tuberculosis according to National Sample Survey is 1.5% of the total population. It affects equally both general public and tribes, according to the droplet infection they receive.

At present the Add. TB Control Centre Bhadrachalam diagnosed 760 patients out of which nearly 300 cases are tribal patients.. The occurrence of the disease is not different in either sex of infants and children. Tuberculosis diseases is prevalent all over area and Bhadrachalam division too. If effective treatment is taken mortality rate can be minimised appreciably. Morbidity will be there if the patient does not receive treatment for 18 months. The endemicity of the disease much depends on insanitary living conditions, poverty, mal and under-nutrition. For possible preventive measures of the TB disease BCG vaccination is promoted before one year age and it is incorporated in National Immunization Programme. Under curative side National TB Control Programme is evolved by Government of India. Activities include case finding by mass miniature ratdiography (MMR), uninterrupted intensive treatment of diagnosed cases for 18 months. Additional District TB Centre was sanctioned in Bhadrachalam in 1992. The centre is yet to receive MMR X-Ray unit, vehicle drugs etc.

Bhadrachalam area - mandal wise statement of detected TB cases.

Mandal	Male	Female	Total	Mandal	Male	Female	Total
Bhadrachalam	30	21	51	Chandragonda	1	0	1
Deemagudem	43	17	60	Tekulapalli	1	0	1
Chintoor	14	3	17	Sulurpad	0	1	1
VR Puram	10	11	21	Palvancha	6	2	8
Cherla	9	4	13	Mulkalapudi	14	2	16
Kunavaram	4	5	9	Kottagudem	5	1	6
Pinkapaka	6	3	9	Yelerpad	6	4	10
Aswapuram	6	1	7	Mamgur	6	1	7
Kuknoor	5	2	7	Sattupalli	1	0	1
Burgampad	4	5	9	Karpalli	1	0	1
Vazeed	3	0	3	Guendala	1	0	1
Venkatapuram	1	1	2	Enkur	1	0	1
Dammarpeta	2	1	3	Orissa and MP	2	0	2
Yelandu	1	0	1	Total	182	85	267

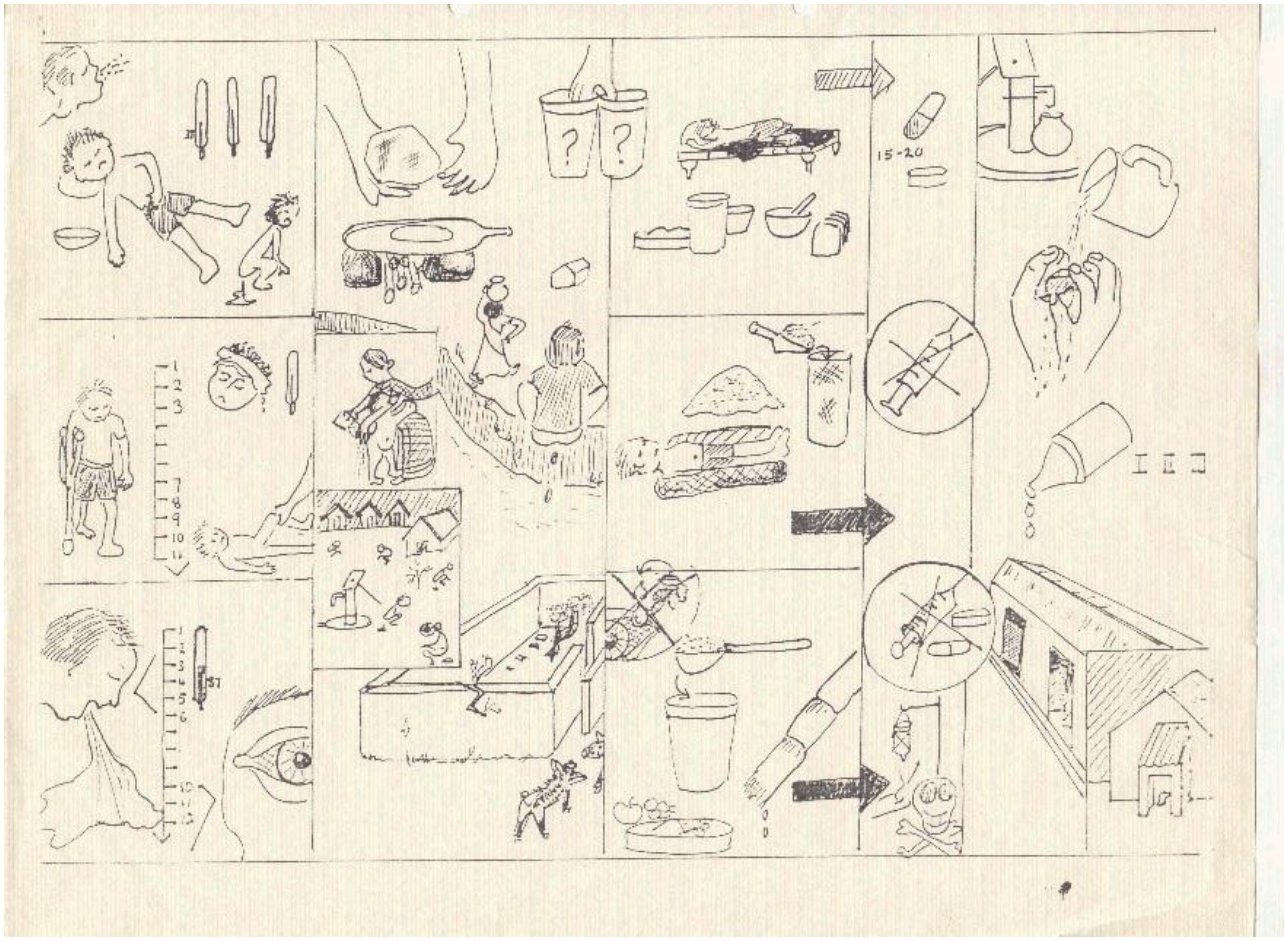
[13] By the Additional District TB Control Officer, Bhadrachalam.

Annex - 5

A Sample of Cartoons from SPHERE, Gooty

Coverage and Topics through the Private Health Workers Handbook:

1. Drinking Water: Drinking water sources, Contaminated water, Chlorination, Symptoms of water born diseases, Soakage pits.
2. Personal Hygiene: Household Sanitation, Food, Water and Sanitation, Juvenile Diseases, Healthy Habits, Smoking, Oral Hygiene.
3. Nutritious Food: Primary foods, Highly nutritious foods, High calorie foods, Foods rich in Vitamins and minerals, Malnutrition, Ways to take good food in poverty, Low Cost Nutritious Foods.
4. Tuberculosis: Symptoms, Prevention, Treatment & Prevention - Message.
5. Leprosy: Symptoms, Treatment, Prevention, Indications.
6. Fever & Malaria: Diagnosis, Plasmodium, Life cycle, Treatment, Awareness.
7. Yaws: Symptoms, How it spreads? Prevention & Treatment.
8. Vaccination: Disease prevention by vaccination, Assisting Health workers in Immunization work.
9. Diarrhoea: Home remedy for diarrhea, Severity of dehydration, Prevention of diarrhea, Preparation of ORS, Medicines to be avoided.
10. Menstrual cycle
11. Health care of Lactating mothers: Young girls, Pregnancy, Do’s & don'ts for pregnant mothers, Health care of pregnant women, Conditions for sending to PHC -Delivery, Breast feeding.
12. Family Welfare: Aim, Helping the health workers, Methods to be followed, Tubectomy - Questions & answers, Vasectomy - Questions & answers.
13. First Aid: Snake bite, Dog bite, Wounds, Sprains, Sun stroke, Burns.
14. Common Complains: Headache, Back pain, Cold and cough, Toothache, Earache, Constipation, Scabies.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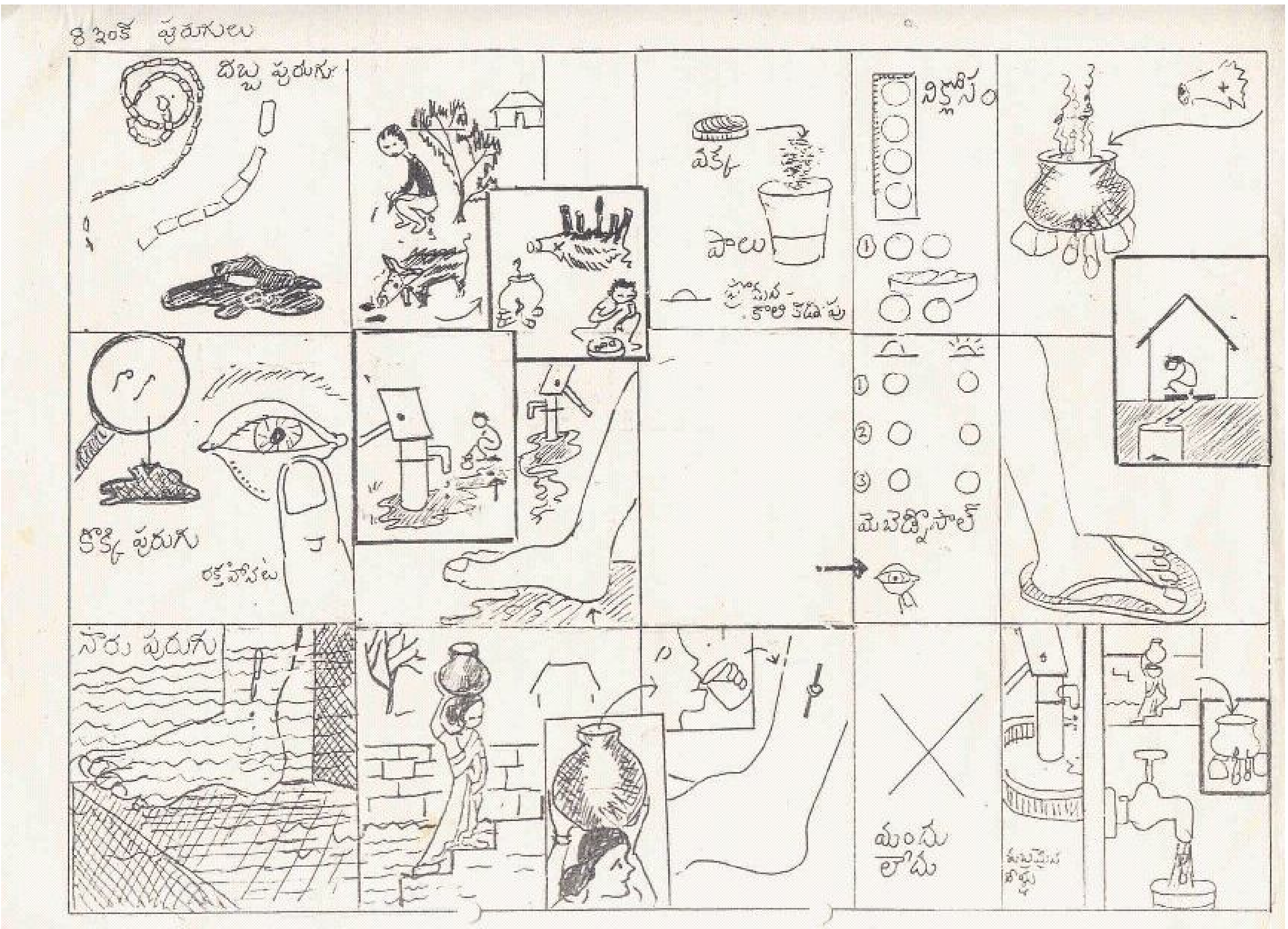
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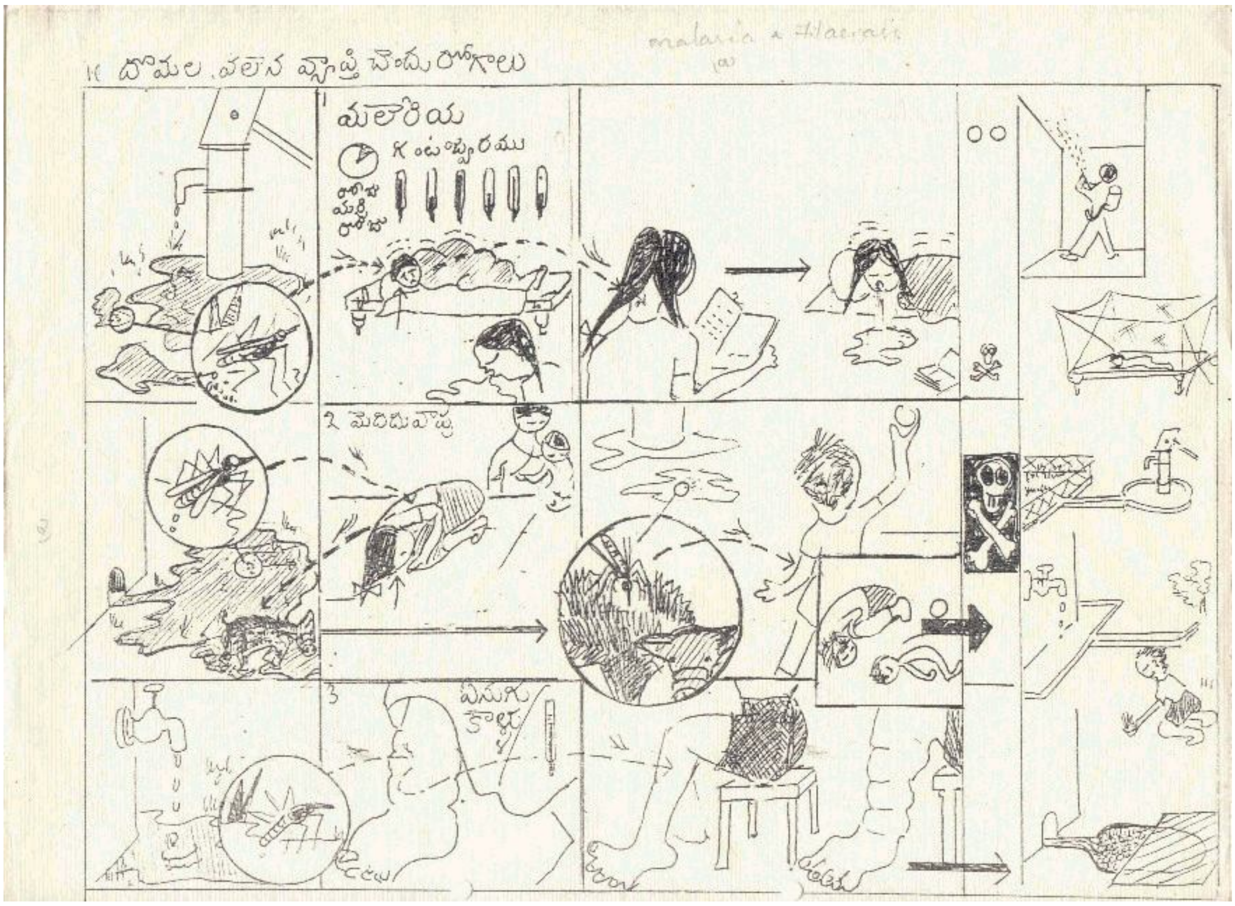
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