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Readers Write

I have liked very much the December 1979 issue of **Swasth Hind.** It gives too much information on child health and maternal health.

Dr A. G. Qureshi

P. O. Zirapur
Distt. Rajgarh
M. P. 465 691

Swasth Hind is very fine for health care. Its price is also very cheap. The topic on Hookworm published in January 1980 issue is, indeed, very necessary for the health of human beings.

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PEPTIC ULCER AND NUTRITION

SMT INDERJIT SINGH

Peptic ulcer—a common abdominal disease—is a product of modern civilization. Under the present-day living conditions constant tensions or conflicts at home or the office keep the mucous membrane congested with blood which persists even during sleep as the sub-conscious mind does not relax. This congested mucous membrane is easily injured to produce ulcer. However, with proper diet and timely treatment peptic ulcer can be cured.

PEPTIC ULCER is a composite term denoting a superficial or deep erosion of the inner lining of the stomach or its continuation known as duodenum. When the erosion is in the stomach, it is called gastric ulcer and, it is called duodenal ulcer when it affects the first part of the duodenum.

Peptic ulcer, however, is not responsible for a high rate of mortality, but once it occurs and develops unchecked, the ulcer is likely to last a life-time, disabling the normal life of a person and causing painful complications.

Following are the general symptoms which indicate the presence of a peptic ulcer in a person:

- Burning pain in the stomach. Discomfort or pain above the navel region which tends to come on directly after a meal, might suggest a stomach (gastric) ulcer. In case the pain comes two to three hours after a meal it might indicate duodenal ulcer.
- Nausea, blood vomiting, frequent eructations, gas formation and indigestion.
- Black tarry stools called, melena. Stools at first are black, then maroon and finally red that is only slightly darker than the blood.

Causes

Peptic ulcer is one of the commonest abdominal diseases. In fact, it is a product of modern civilization. Under the present-day living conditions, constant tensions or conflicts at home or at the office, keep the mucous membrane congested with blood which persists even during sleep as the sub-conscious mind does not relax. This congested mucous membrane is easily injured to produce ulcer. The injury may be due to increased secretion of hydrochloric acid or due to drugs like aspirin or painkilling drugs for arthritis which damage the mucous membrane of the stomach and duodenum.

Hydrochloric acid is normally secreted by the stomach so that foods like meat and fish are easily digested. During periods of stress or anxieties, however, its secretion increases. Thus an ulcer once produced in the stomach or duodenum is perpetuated by heavy secretion of the hydrochloric acid. Acid secretion also increases with decrease in blood sugar that occurs during fasting of more than three hours duration. Smoking and consumption of alcohols and excessive coffee or tea not only damage the mucous membrane of the stomach but also increase hydrochloric acid secretion. Severe burns, too, are capable of causing peptic ulcer. These are in brief the various causes of this ailment, the main culprit of course, being the excessive secretion of hydrochloric acid.

On suspecting the presence of any of the symptoms, it is advisable to consult a doctor for necessary advice and treatment. He will make out the diagnosis from the patient's symptoms and a few laboratory tests like gastric analysis and X-rays. Surgery may

depend on the stage of the ailment. However, side by side with the prescribed treatment, regulation of diet is also most important. In fact, it is an essential part of the treatment.

Dietary treatment

The dietary treatment for ulcer patient includes:

- Reducing the acid level of the stomach and giving it sufficient rest by minimizing the movement of the stomach muscle.

- Providing the nutrients essential for rapid healing of the ulcers—especially protein and vitamin C. Antacid and antispasmodic drugs are generally prescribed by the doctor along with the dietary modifications.

- In order that the dietary treatment along with the drugs, work effectively, it is most essential that worry, anxiety and tensions which tend to increase the production of hydrochloric acid, are avoided as far as possible.

Points to patients

It is important that the following general rules of diet are observed by the patient to secure an early relief and recovery.

- Hydrochloric acid secretion is a continuous process and food in the stomach neutralizes the acid. In the absence of food, the acid further damages the mucous membrane and produces discomfort or pain, usually two or three hours after the meal. Therefore, a patient should never allow the stomach to be without food for a long time. It is advisable to have a couple of biscuits, along with milk, in between the main meals. Three main meals a day, along with snacks, will be an ideal routine.

- Large meals should be avoided since over-eating leads to distension and discomfort. Also keep away from very hot or very cold foods and too many liquid foods as they tend to increase the motility of the stomach. It is advisable to be moderate in eating, avoiding extremes.

- Be particular about the meal timings and do not neglect meal, howsoever important the work may be.

Take time to eat. One thing the ulcer patient should specially avoid is to gobble up food in a tense atmosphere.

- Generally, almost all the foods have a neutralizing effect on the acid gastric juices. However, protein foods are more effective buffers and thus there is less free acid to irritate the ulcer when such foods are consumed. Accordingly, it is desirable to have some protein in the shape of milk, *dals* (decuticled split legumes), soft cheese or chicken eggs in every meal.

- Avoid taking strong coffee, tea and alcoholic drinks since they stimulate the flow of acids in the stomach.

- The intake of acid foods like tamarind and sour butter-milk should be avoided since they add to the acidity of the stomach secretion. However, lemons or oranges can be taken since they are mildly acidic. They are also important sources of vitamin C.

- Reduce the use of foods high in roughage, such as, radishes, cucumbers, celery and cabbage. This principle holds true for any fresh fruits or vegetables containing fibres, skins or seeds. These foods increase the motility of the stomach and cause greater irritation.

- Spices like chillies, mustard, pepper, cloves and highly seasoned foods should be avoided since they are irritating to the mucous lining and cause increased secretion of the hydrochloric acid.

- Fried foods should be avoided completely.

- Have a glass of milk before going to bed to reduce injury to mucous membrane of the stomach which is likely to be empty of food during the night.

Although many don'ts have been mentioned regarding the diet of the ulcer patient, it is felt that food tolerance is a highly individual matter. Psychological and emotional factors often play a vital part in the acceptance or rejection of a particular food. Therefore, the patient should avoid the foods which do not suit him and make a moderate selection from the agreeable foods after trials for sometime.

Given below is a typical dietary pattern which may be modified to suit the individual patient.

Daily Menu for Peptic Ulcer Patient

Morning—6 a.m.

Milk, 2 cups (with 2 teaspoonfuls of sugar)

Breakfast—8 a.m.

Bread—2 slices

Butter—2 teaspoonfuls

Cheese—2 slices or Boiled egg—one

Milk—1 cup.

10 a.m.

Milk—2 cups (with sugar)

Lunch—12 noon

Cooked rice or bread—1 serving

Mashed *dhal*—1 *cup*

Cheese—2 slices or Cooked minced meat—1 serving

Boiled potato—2

Milk pudding—1 cup

2 p.m.

Milk—1 cup

4 p.m.

Biscuits—2

Milk (with sugar)—1 cup

6 p.m.

Milk (with sugar)—2 cups

Dinner—8 p.m.

same as for Lunch

10 p.m.

Milk—1 cup.

New WHO Regional Director For South-East Asia

Dr U Ko Ko was nominated Regional Director of WHO's South-East Asia Region by the WHO Regional Committee at its 33rd session at Malé, Republic of Maldives, which commenced on September 1, 1980. After confirmation by the WHO Executive Board at its forthcoming session, the newly nominated Regional Director will assume office. He will succeed Dr V. T. H. Gunaratne, who has held the post since 1968.

Born in Burma in 1929, Dr Ko Ko obtained his medical degree from the University of Rangoon in 1953. He obtained diplomas in Public Health from the University of Edinburgh in 1956 and in Tropical Medicine and Hygiene from the London School of Hygiene and Tropical Medicine in 1957.

Dr Ko Ko began his career in the health services of Burma with the Ministry of Health as an Assistant District Health Officer in 1954 and later served as a District Health Officer *cum* Team Leader of Aung San Health Centre, Insein. He became Asistant Director of Health Services in 1961. Three years later, he was promoted as Deputy Director. From 1966 to 1969, he also worked as Professor of Preventive and Social Medicine at the Institute of Medicine II in Rangoon.

Dr Ko Ko joined WHO in 1969 as Regional Adviser in Community Health Services in the WHO Regional Office for South-East Asia in New Delhi and became Assistant Director of Health Services three years later. In 1978, he was appointed as Director of Health Services, redesignated later as Director, Programme Management.

HEALTH HAZARDS IN NIGHTSOIL DISPOSAL PRACTICES IN URBAN COMMUNITY

BRIG. S. L. CHADHA

Today, the whole environment is being polluted by the accumulation of liquid and solid wastes, especially nightsoil because of increasing population and rapid urbanization. An effective solution to the problem of collection, transportation and final disposal of nightsoil in urban community is complex involving technical, administrative, financial and legal problems. Failure to do this constitutes a threat to the public health problem.

THE collection, transportation and disposal of nightsoil is one of the pressing problems of city-life, particularly in a developing country like India. This has assumed, along with disposal of other wastes, a great importance. The Ministry of Agriculture had estimated that the city communities which form one-fifth of the population were generating over 12 million tonnes of wastes every year in the form of refuse, nightsoil and slaughter house wastes. These wastes, if properly treated, could immensely help in agricultural production.

Urbanization in our country has certain unique features. While the rural population is spread over vast areas located in more than half-a-million villages, the urban dwellers are concentrated in 2,921 (1971 Census) places of different sizes and varying areas individually. It is also significant that more than 57 million of city people, *eg.*, 52.41 per cent live in 142 cities classified as Class I places, each having a population of 1,00,000 and over. Among these Class I cities there are nine metropolitan cities, each containing over one million population, more than onefourth of the entire urban population. The Class II towns with population between 50,000 and 1,00,000 number 198 and have just 12-15 per cent of the urban population.

The local bodies like corporations and municipalities in the urban community are responsible for environmental sanitation, including collection and disposal of wastes. In most of the towns and cities, the public cleansing services have been inadequate. At present, there are 32 municipal corporations and about 1,500 municipalities in various States and Union Territories. For smaller towns, there are notified area committees which look after civic functions to a limited extent. There are also Cantonment Boards for civil areas of Cantonments set up under a Central law for performing civic functions under their jurisdiction.

Nightsoil disposal

The public cleansing work, including disposal of nightsoil in urban areas, is attended to by the local authorities with the powers under Municipal laws. The work is done by a health officer assisted by deputy/zonal health officers and sanitary inspectors. In some Metropolitan cities, *viz,* Bombay and Delhi, there is the Department of Conservany and Sanitation Engineering which functions independently or as a part of Engineering Department. This department is responsible for collection and disposal of refuse and nightsoil and other urban wastes including sewerage system.

Nightsoil disposal is an important hazard in most of the towns and cities. Out of about 2,921 urban places hardly 200 are provided with sewerage system and sewage treatment plants. In fact no city or town has yet been fully sewered. Only 15 per cent of the urban population of the country is served with sewer-

Need to realize a clean living environment, says Smt. Gandhi

The Prime Minister of India, Smt. Indira Gandhi, writing in the August-September issue of *World Health*, says:

"Today, mankind as a whole has the knowledge and the means to ensure basic sanitation all over the world". Welcoming the plans of WHO to observe the UN International Drinking Water Supply and Sanitation Decade, 1981–1990, she calls on all countries of world to collaborate fully with the Organization "so that World Health Assembly's resolve to provide clean Water for all the people of the world by 1990 can be a reality".

Smt. Gandhi concludes: "May the United Nations Water Decade prove to be an example of international cooperation in helping people everywhere to realize one of their basic needs—a clean living environment."

age system. A small percentage is served with septic tanks. A majority of urban population, over 80 million, therefore, depends on dry conservancy system. The nightsoil collected from this population is about 22,000 tonnes per day. The system of collection, transport and disposal is, however, yet to be mechanized fully. Our cities and towns therefore still continue to be in an unsatisfactory state of cleanliness.

Poverty and low standards of living in slum areas in cities also affect sanitary conditions. There is lack of interest in the public besides shortage of public funds. Average investment on solid wastes management in Indian cities is as low as Rs. 500 per head per annum. Social and religions also contribute to the insanitary conditions. Lack of professional public health engineers, sanitarians and middle level management personnel and trained labour have also been a great constraint in this activity. Fragmentation of administrative responsibility in this respect further frustrates the progress.

Common methods employed for disposal of nightsoil in cities and towns are:—

* Disposal along with refuse by sanitary landfilling and composting.
* Trenching.
* Burial.
* Incineration.
* Septic Tanks.
* *Chute* system. The nightsoil is collected in drums which are transported and emptied into a sewer at fixed points.
* Sewerage system.

Health hazards

Public health hazards arising from nightsoil disposal are due to unhygienic conditions caused by:—

(1) Obnoxious practice of manual handling and carriage of nightsoil by sweepers to public refuse dumps and nightsoil receptacles. Sometimes domestic nightsoil is carried by sweepers in unstandardized receptacles as head-loads. Numerous forums have condemned their practice as degrading of human dignity.

(2) Transportation of nightsoil receptacles and emtying their contents into municipal carts/vehicles for final disposal by trenching or composting. If trenching or composting is not done properly it results in prolific flybreeding. The lids of receptacles and tanks mounted on municipal carts/vehicles are at times ill-fitted and this gives ample chance to flies to breed on nightsoil.

(3) Uncontrolled and haphazard dumping into low-lying areas of refuse mixed with nightsoil often attract ragpickers. Files spread the material all around, thereby creating insanitary conditions that breed rats and flies—a danger to public health.

(4) Disposal of nightsoil by incineration is likely to contribute to air pollution.

(5) The disposal of nightsoil into a sewer under "chute" system is fraught with danger as it involves manual handling which may lead to soiling of hands, arms and feet of the workers.

(6) Discharge of untreated sewage into fields or into nearby water courses. This is done due to weak financial position of most of our municipalities which are unable to set up proper sewage treatment plants. Such practice of raw sewage disposal can be dangerous from public health point of view as it contaminates vegetables and pollutes water.

Safe method of disposal of nightsoil is by septic tanks or proper sewerage system. Sewerage has not been able to keep pace with rapidly expanding cities. Hence there is not even one fully sewered city or town.

Nature of health hazards

1. *Faecal-borne communicable diseases*:—Morbidity and mortality rates from faecal-borne diseases are high. Transmission of diseases whether by direct method, vector transfer or indirect, is due to environmental contamination by nightsoil. The disease agent is transmitted through various channels, *e.g.* water, fingers, flies, soil and food.

The various types of faecal-borne diseases are:

(a) *Bacterial diseases*—bacillary dysentery, typhoid fever, diarrhoea, enteritis and cholera.

(b) *Protozoan diseases*—amoebic dysentery, balantidial and flagellate diarrhoea.

(c) *Helminth diseases*—ascariasis, hookworm disease, trichuriasis, oxyuriasis and paragonomiasis.

(d) *Viral diseases*—viral hepatitis and and polimyelities.

2. *Joint, muscle and tender diseases*—Such diseases are common amongst nightsoil and refuse collectors.

GLOBAL COOPERATION CRUCIAL FOR HARM-FREE ENVIRONMENTAL DEVELOPMENT

In his message on World Environment Day (5 June), the Secretary-General, Dr Kurt Waldheim, said "eight years ago on 5 June, people from all parts of the world gathered at Stockholm to participate in a unique event. They had come together to set in motion a programme never before undertaken in the world—to protect and enhance the global environment".

Since then, he said, there has been nothing short of a revolution in people's thinking about the natural surroundings of human life, the earth's resources and the risks in upsetting the balance whose preservation is necessary for civilization, or indeed survival.

New thinking

The Secretay-General added "this new thinking comes after three decades of the most far-reaching improvements in the standards of living, during which yesterday's luxuries became today's necessities. Yet the world is increasingly aware of the undesirable side-effects of this surge of consumption."

In keeping with its guiding principle of safeguarding and enhancing the environment for the benefit of present and future generations of man, the United Nations Environment Programme (UNEP) is currently focussing attention, *inter alia*, on the dangers of an increase in carbon dioxide content in the atmosphere, the impact of military activity on the environment, and the condition of the world's children; who are the most vulnerable sector of society to pollutants and environmental stresses, he added.

Global crisis

There is no doubt, Dr Waldheim said, the crisis of human environment is of a global nature requiring collective policies and joint solutions. The transformation that has already taken place during the present decade in our thinking about environment needs to be matched by our preparedness to accept changes in living standards. There is a need to bring about alternative lifestyles that do not waste precious natural resources.

Dr Waldheim emphasized that global co-operation is crucial to facilitate the kind of development that will not injure the environment.—*U.N. Weekly Newsletter*, 13 June 1980. ▭

3. *Mechanical and physical hazards*—Risks of physical injury are common in all types of sewerage system resulting from:—(a) dangerous atmospheres due to oxygen deficiency (b) toxic gases, vapours and inflammable and explosive gases, and (c) flooding of sewers.

4. *Air-borne diseases*—Air is contaminated by (a) aerosols due to sewage treatment plants, (b) disposal of nightsoil by incineration, and (c) dust generated by handling sludge. Contaminated air may cause lung and skin diseases.

5. *Direct handling of nightsoil* in its disposal by composting, trenching and "chute" system may cause intestinal or skin diseases amongst workers with poor personal hygiene.

Today, the whole environment is being polluted by the accumulation of liquid and solid wastes, especially nightsoil because of increasing population and rapid urbanization. An effective solution to the problem of collection, transportation and final disposal of nightsoil in urban community involves not only complex and challenging technical questions but also difficulties of financial, legal and administrative dimensions. Failure to deal with the ever-increasing quantum of human excreta effectively and in time constitutes an alarming threat to public health and human well being. A proper system will have to be developed whereby its collection transportation and disposal are attended to in a sanitary manner keeping in view cleanliness of cities, prevention of environmental pollution and eradication of degrading practice of manual handling of nightsoil. ▭

PROTECTING OUR ENVIRONMENT

Of late, the educated sections among our people become somewhat conscious of the environmental problems. But this knowledge has not yet seeped down to the masses, nor are effective steps being taken for preventing and counter-acting pollution of various kinds.

Untreated sewerage and industrial effluents with toxic elements are polluting the water resources in our urban areas. While a majority of our villages do not have easy access to portable water, even those who have this facility pollute it through their unhygienic practices. Many diseases, some of them on epidomic scale, are directly and indirectly caused by the polluted water. Careless spraying of insecticides and pesticides poison the water, soil and air in our countryside, affecting the health of men as well as cattle. The devastating floods, droughts and landslides, which have increased in recent years, have brought home to the people the dangers of indiscriminate felling of trees. The deforestation in the various parts of the world is increasing the quantum or carbon dioxide in the atmosphere and threatens to cause major climate changes. In our metropolitan cities and other industrial centres the factories are incessantly belching out smoke containing carbon, harmful chemicals and toxic metallic particles which affect the lungs and eyes of the people residing in those areas.

In order to protect our environment the mass media should carry out a sustained and systematic publicity campaign. The government and local bodies should take immediate steps for treating the sewerage and for compelling the industries to purify their affluents before they are discharged into the public waterways. Government should also increase the pace of providing protected water supply to the villages. These programmes will, of course, cost an enormous amount of money but human life and health are more precious than money. For preventing the indiscriminate felling of trees there should be a nation-wide movement on the mode of CHIPCO of Uttarakhand (UP) which should also add to its activities the planting of trees on a large scale. Despite the annual Vanmahotsav Official action in afforestation has so far been very inadequate, and the country can be made green within a short time only if the youth take up this work with a missionary zeal. Meanwhile the statutory Boards which have already been set up at the Centre and in the States to control water pollution should work more actively and enforce the Water Act of 1974 with more vigour by prosecuting the factories, etc., which cause pollution. Last but not the least, we, as a developing nation, should not repeat the mistake of the developed nations in over-exploiting our national resources in the name of economic development.—*Courtesy*: Yojana, 1 July, 1980.

Institutes—6

NATIONAL TUBERCULOSIS INSTITUTE BANGALORE

DR A. BANERJI

The progress of health programmes is very much dependent on the facilities available in the country for training and research. This feature, *Institutes of India*, introduces such institutes as they play a vital role in the preparation of personnel to man health and medical services. This is the sixth in the series of the feature.

THE problem of tuberculosis is mainly rural-based because 80 per cent of the population live in villages in India. This was the finding of the Indian Council of Medical Research (ICMR) through the National Tuberculosis Survey conducted in 1955-58. This is contrary to the age-old conception that tuberculosis is predominant in towns and cities. For this reason, facilities for diagnosis and treatment of tuberculosis were concentrated mostly in urban areas. In a subsequent study, it was found that domiciliary treatment with the chemotherapeutic agents is as effective as institutional treatment. It is also much cheaper in cost and easily available to the patients who were otherwise denied proper treatment because of shortage of beds.

The above two studies changed the whole concept of tuberculosis control in the country. Backed with this new knowledge, the National Tuberculosis Institute (NTI) was born in 1959 at Bangalore with the assistance of WHO and UNICEF. It was inaugurated by the late Prime Minister Jawaharlal Nehru in 1960. This Institute is the only one of its type in the entire South-East Asia Region.

Objectives

The main objectives of the Institute are:

a. To formulate a nationally applicable tuberculosis control programme.
b. To train the required key personnel for organizing such a programme all lover the country.
c. To plan and conduct further epidemiological, sociological, bacteriological and operational research studies.

ACHIEVEMENTS

Formulation of Tuberculosis Control Programme

On the basis of several operational and sociological investigations carried out by the Institute between 1959 and 1961, a programme was formulated and tried in the field conditions in the Ananthpur district of Andhra Pradesh. It was later accepted by the Government of India for its implementation throughout the country, as a National Programme. This has been a major breakthrough in the methodology of tuberculosis control.

The programme envisages free diagnotic and treatment facilities through all health institutions in the country to the patients reporting with symptoms of pulmonary tuberculosis. Thus, these facilities are provided as near to the patients' homes as possible. This will facilitate better acceptance and co-operation from the patients since treatment of tuberculosis is a prolonged one, extending to a period of more than one year.

Training

To organize such a programme all over the country, it became necessary to train a large number of workers both medical and paramedical; hence the tuberculosis training programme. The main feature of the training programme is to impart "inservice team training". Each team consists of a medical officer as the team leader, a treatment organizer, a laboratory technician, a statistical assistant and a BCG team leader. Till date, the Institute has conducted 41 training courses, each lasting for 13 weeks duration and has so far trained 670 medical officers, 800 treatment organizers, 522 X-ray technicians, 609 laboratory technicians, 537 statistical assistants and

354 BCG team leaders. The Institute has thus trained a total of 3,492 workers who are expected to organize the programme in 400 districts of the country. Besides these, the Institute has also trained several WHO/UNICEF participants sponsored by the developing countries in the South-East Asia region.

The Institute has undertaken operational studies for simplifying, standardizing procedure for diagnosis, treatment and for developing the programme in consonance with the changes in the infrastructure of the health service. The diagnostic procedure had to be simple and cheap enough to be carried out by the available staff of the existing General Health Services on a permanent basis. Research undertaken at NTI has shown that diagnosis can be easily made by simple examination of sputum for those reporting to health institutions with cough of more than two weeks' duration. X-ray is not a 'must' in the diagnosis of the infectious cases of pulmonary tuberculosis. Rather, mass case-finding by X-ray examination—a very costly procedure that our country cannot afford—does not yield any better result compared to the simple, cheap and easily applicable method of sputum examination of the out-patients in hospitals and dispensaries in general. With the introduction of "multi-purpose workers" scheme, the feasibility of their involvement in finding out cases has been studied by the Institute and the results are promising.

The main problem in combating tuberculosis is that the patients do not complete their prescribed treatment. Studies undertaken to study the sociological behaviour of patients and the different methods of motivating them to complete their treatment have shown that one of the main reasons for discontinuation is the prolonged duration of treatment of more than one year. A study in collaboration with the ICMR is in progress to explore the possibility of shortening the treatment period to five to six months.

There is yet another important factor which influences the planning process of TB programme. The NTI research work has revealed that tuberculosis disease problem in the country is to be viewed as a long-term one like the problem of nutrition and leprosy. And no crash programme for tuberculosis control on the lines of smallpox eradication can succeed.

The Institute has recently been given the responsibility of mointoring the programme in the country. Of the 400 districts in the country, the programme is functioning in 317 districts. Based on these reports, about one million TB patients are on treatment in the entire country.

The greatest contribution of the NTI has been to work out the modalities of a down-to-earth programme which is integrated with the general health services; tuberculosis being a widespread disease and a long-term proposition.

These modalities have been utilized by the programme planners in India and other developing countries to formulate and set the trend of tuberculosis control activities.

TUBERCULOSIS IN INDIA—A few Facts

- **Tuberculosis is infectious. In India, about 38 per cent of the population are infected. This does not mean that they have tuberculosis. Sixty lakh people get infected every year.**
- **There are about 120 lakh tuberculosis patients. Of these about 25 lakhs are excreting bacilli and infecting others; they are known as 'cases' and are infectious. Examination of their sputum through microscope or culture can diagnose whether they suffer from tuberculosis or not. The remaining 95 lakhs are not infectious and thus pose no risk to the community. They can be diagnosed by X-ray and other investigations. Every year, six lakh patients become infectious.**
- **The challenge today is how to diagnose and treat these patients who are spread over about 6,00,000 villages and 4,000 towns and cities. To meet this challenge District Tuberculosis Programme of the NTI provides facilities for diagnosis and treatment through the existing health services such as PHCs, rural and urban dispensaries, etc. Today, after the launching of the District Tuberculosis Programme ten times cases are diagnosed and treated.**
- **Sputum examination under microscope is a sure method of diagnosis than X-ray. X-ray reading needs long-term specialized training. Whereas with minimal training anybody can examine sputum.**
- **The earlier belief that tuberculosis patients need sanatorium admission, nutritious diet, bed rest and regular exercise for their cure is not true. The discovery of potent anti-TB drugs have made it possible to treat the patients at home, with the normal diet that they take.**
- **Tuberculosis is curable. Potent drugs are available to cure it. Drugs can be supplied to patients even in the remotest rural areas through the existing network of health services. But, the duration of treatment is at least 12 months, preferably 18 months. Uninterrupted treatment with adequate doses is an important factor for tuberculosis cure.**
- **BCG vaccination is still useful for children of pre-school age up to five years, preventing a bacillary tuberculosis.**
- **It is necessary to utilize the existing health staff like multipurpose workers, auxiliary nurse-midwives, basic health workers in providing vaccination to the children. They must be trained... And a network of supplies and supervision has to be developed.**

THE INEQUALITY OF DEATH
Assessing Socio-economic Influences on Mortality *

Death operates at different levels in different places and among different groups. Mortality levels are influenced by socio-economic factors that are differentially distributed by social class. This inequality of death is part of the gross inequality in health status between countries and within countries, and is equally unacceptable. The following article, excerpted from WHO Chronicle of January 1980, describes efforts to study the differentials in mortality associated with socio-economic status, and some of the difficulties and pit-falls encountered in such statistical studies.

THERE are two main reasons for studying differentials in mortality by socioeconomic groups. One is related to the identification of determinants of mortality. All societies are to some extent differentiated into social groups distinguished by occupation, education, income, region, ethnicity and other characteristics. These distinctions are associated with variations in individual endowments, personal behaviour, and relations between the individual and the State. To a large extent, social divisions structure all human relations and form the background against which the biological processes that lead to illness and death operate. Socioeconomic differences are thus mortality determinants of a different type from such factors as birthweight, nutritional intake, cigarette smoking or water quality. Virtually all these socioeconomic factors that are more proximate to the event of death are differentially distributed by social class, and the social class differences in the incidence of these factors provide a means of identifying their effect on mortality and hence of influencing mortality levels.

What is more, the distribution of social classes is itself a determinant of mortality levels in so far as a different distribution would typically be associated with a different level of mortality in a population. This gives rise to the concept of "socioeconomic epidemiology" according to which changes in health and mortality levels can be effected not only through specific health and medical action but also through changes in the class structure, and in particular by bettering living conditions among the poorest and most disadvantaged groups.

*Based on the report of the Meeting on Socio-economic Determinants and Consequences of Mortality in Mexico City in June 1979, which was sponsored and funded among others by WHO, the United Nations, the Committee for International Coordination of National Research and Demography (CICRED), El Colegio de Mexico, ILO, Instituto de Investigaciones Sociales (Mexico), International Review Group of Social Science Research on Population and Development, International Union for the Scientific Study of Population (IUSSP), Organization for Economic Cooperation and Development (OECD) the United Nations fund for Population Activities (UNFPA), and the World Bank.

Class or cultural differences in mortality cannot be studied simply in terms of the various advantages and disadvantages of a section of society. Significant elements in cultural differences are differences in the attitudes adopted and the priorities given to risk-taking, the different values attached to the incidence of morbidity and mortality in the various sex and age divisions of the family and society, and the relative deserts of such divisions in terms of food and treatment. Unless these attitudes, priorities, and values and their rates of change are understood, there can be no correct assessment of levels of mortality, of the success or failure of technical innovation, or of the speed of change in mortality.

A second major reason for attention to socio-economic differentials in mortality is what they reveal about social inequalities. Just as governments and economists are concerned with income distribution as well as average income levels, they must be concerned with inequalities in the distribution of life itself. Even if social class mortality differentials were unable to provide information that helped to reduce the general level of mortality, they would still be of considerable interest as pointers to inequality. Concern with social justice leads to active attempts to reduce differentials in mortality. Measures of these differentials therefore become important indicators of the success of equalitarian programmes, as well as indicators of the distance still to be travelled.

The present situation

There is no doubt that mortality levels have been declining throughout the world, though at an uneven pace. This can be inferred from the increasing rates of population growth in the mid-1950s in many developing regions of the world, including the lower income countries. In the majority of the developed countries, mortality further decreased during that period and life expectation improved at almost all ages. Some evidence exists that socioeconomic differentials in mortality have not been reduced as a result of the general decline in mortality, and may have even widened. In this connexion, it has been pointed out that in at least some cases the absolute size and proportion of total population at the extreme ends of the social groupings may have been reduced, and thus the very high and very low mortality groups are relatively small proportions of the population (in the United Kingdom 5% and 7% respectively).

In some less developed countries, mortality decline has been found that is independent of economic level and development. In these countries, measurement of trends in differential mortality has so far been a rather neglected area, largely because of the scarcity of data. Although generalization from the limited evidence at hand is subject to great caution, it would appear that, here also, the decline of mortality levels has not diminished the socioeconomic differentials in mortality within a given country, and that even the opposite has occurred in several instances. It seems that, in the same way as economic development has sometimes widened the socio-economic disparities in a society, it has also led to a widening of disparities in chances of survival. In theory all may have equal access to health services, but in practice this may not be so because of differing educational levels and attitudes towards health priorities. Health care programmes, even if intended for all, may give greater advantages to the privileged classes that are better prepared to make use of them than to the illiterate and the underprivileged.

One result of the uneven decline in mortality seems to be that the differences between populations in various parts of the world are wider than ever before. This is supported by observations based on data for Africa, southern Asia and Latin America.

Within low-mortality developed countries, major regional and sex differences in levels of mortality are found to persist. The comparison of European countries, during the period from 1950 to the early 1970s, revealed a regional difference of 11 years in life expectation at birth for males as well as females (from 73.6 to 62.6 years for males and from 79.2 to 68.5 years for females). The causes of these differences are still inadequately explored; however, it appears that male mortality is often relatively higher in the regions that are most highly urbanized and where mining and heavy industry or dockyards are concentrated. In contrast, the populations of predominantly agricultural regions appear to enjoy a higher life expectation. In less developed countries, however, rural mortality is apparently universally higher than urban mortality.

Apart from the regional differentials and their possible association with the social and economic profile of the region, differences in mortality persist within countries by social class, subculture, ethnicity, education, housing conditions, income, etc. Most of these characteristics are interrelated and it is difficult to point to any one of them as being the major determinant. Whatever classification of population stratification is adopted, the same pattern eventually emerges: the

underprivileged, poverty-stricken, disadvantaged groups persistently appear as groups of higher-than-average mortality, even in the low-mortality countries.

To some extent (yet unknown), social diseases appear to determine the occupation of individuals and their social class. It undoubtedly takes some considerable time to die of tuberculosis or of the effects of alcoholism. It is likely that the existence of the disease transfers the person to a lower social class—thus eventually affecting higher-than-average mortality in the lower social class. A similar process of selection may undoubtedly transfer ill people from higher to lower income occupations or induce early retirement. Thus, social class differentials in mortality are to some extent the result of the dynamic processes through which selection operates.

The view has been expressed that elimination of the socioeconomic differentials in the low-mortality countries, despite the general mortality decline, is a possibility that is unsupported either by theoretical considerations or by empirical evidence. The prevailing differences in life expectation at birth in those countries are relatively small, and even if the causes were better known than they are at present, the total elimination of mortality differentials may not be a practical possibility. Against this is the widely held opinion that, at least in less developed countries, a marked further decline in mortality may be obtained if efforts are focused on those aspects of social welfare, health care and economic development that can be shown to be most closely related to lower mortality levels.

The situation in less developed countries

The situation in the countries with moderate to high levels of mortality differs in many respects from that in the developed countries. First, only very limited hard data exist to assess the extent of mortality differentials, but in the relatively few societies that have them they reveal considerably wider differentials by social class and other characteristics than are normally found in developed countries. In most instances, mortality has to be estimated by indirect methods that are usually able to throw only limited light on the mortality of infants and young children. Secondly, very few countries have adequate vital registration systems that would enable the age and sex specific patterns of mortality to be established by social, economic, cultural and other indicators. Hence, very little is known about socio-economic differentials in the mortality of adults. Women of childbearing age appear to have excessive mortality in some high-fertility, high-mortality, less developed countries. Thirdly, in many cases the only data available on which to base the analysis of mortality differentials are global socioeconomic indicators which are not very useful, such as per capita national product, proportion of illiterates, proportion of urban dwellers, or proportion in the industrial work force, whereas it would be more appropriate and useful to base such analyses on household and community variables such as access to health services, schooling, water supply, and regularity and seasonality of food supplies.

Several studies have shown that one of the differentiating variables consistently linked with child mortality is education, and particularly the mother's education. How education affects mortality is, however, still an unresolved problem calling for intensive research.

Reliable information on causes of death in less developed countries is virtually non-existent. In many cases, only deaths that occur in hospitals, a small fraction of the total, are certified as to their cause, and these present an unrepresentative sample, particularly with respect to residence and social class. Yet even the fragmentary evidence available clearly points to the possibility of preventing many deaths, especially among children and women of childbearing age. There is a growing body of opinion that reorientation of health programmes from hospital-based curative systems towards community-based preventive systems and environmental sanitation would not only achieve a speedier reduction in mortality levels but would also help to reduce the wide gap between social and economic groups within a society.

Although much more data and further research are needed before the operation of the various factors of differential mortality can be understood, present knowledge is sufficient to encourage action against poverty, malnutrition, ignorance and superstition, as well as in support of efforts to provide preventive health care and meet the basic health needs of the population in order to reduce the gap in mortality between socio-economic groups.

Problems of data collection

A research worker investigating mortality differentials by socioeconomic groups has usually, at the macrolevel of analysis, to make the best use he can of tabu-

lated data such as population censuses, economic surveys, national budgets and expenditure, and information on production, health personnel and health facilities. Much of this is in the form of national or subnational averages, and characteristics such as distribution of income or access to health care facilities are rarely, if ever, available. Data from demographic surveys are also unsatisfactory. The variables that describe the social and economic position of individuals, families and households are often inadequate or unreliable since such surveys have limited objectives and are not specifically designed to explore social, economic, cultural and other differentials in mortality.

The variables that are most often available at the microlevel of analysis are: occupation of the head of the household, occupational status of the wife, education (years of schooling, but often only whether literate or not); household assets (selected items); housing conditions (number of rooms; material of roof and walls); water supply and sewage disposal; income of the household; and land tenure.

When conducting an analysis of differential mortality in the less developed countries, it is highly desirable to collect, in addition to individual data, information on family, household and community characteristics. Some family characteristics, such as how decisions are taken in the case of illness, by whom, and on what grounds, may be difficult to obtain but could throw light on the causes of differential mortality. Others concerning the availability of food and distribution of food within the family might explain to some extent differential levels of undernutrition and malnutrition. Anthropological procedures might usefully be introduced to obtain information on family attitudes to risk-taking, to the dangers of sickness and death, to the cost of treatment, and to the risks involved in deferring treatment.

The reason for introducing community variables in the analysis of differential mortality is that the environment in which individuals and families live and work determines, presumably to a large extent, the risks to which they are exposed and the available ways of remedying the adverse effects. These community variables include such things as the structure and operation of the health services, the prevalence of diseases such as malaria, the quality of community sanitation, and climatic characteristics. A microlevel study that omits them risks missing important influences on mortality levels, and also risks attributing an undue influence to the variables that are included.

A problem constantly encountered in studies of differential mortality by socioeconomic status is that of the time reference or time lag. The data found in censuses, surveys and vital statistics tables usually pertain to the date of reporting or to the time of death, and no background information is given on socioeconomic variables such as income, occupation or place of residence, which may have been quite different at the time of first occurrence of the deterioration in health that led to death perhaps many years later. Strictly speaking, only accidental deaths and those due to an acute illness are likely to be unaffected by the time lag and the consequent distortion of the social and economic indicators.

Composite indices—advantages and disadvantages

Social status is a multidimensional concept. The terms "upper class" and "lower class" call to mind a whole series of images related to education, occupation, style of life, housing conditions and so on. In view of the multiplicity of dimensions of class, many sociologists have recommended using social status or class indices based on combinations of specific variables. There are several good reasons for doing this—e.g., the sample size may not be large enough to allow analysis by single characteristics, and secondly, the reliability of individual characteristics may be doubtful and it is hoped that the composite index will overcome the defects.

Against these advantages must be weighed some serious disadvantages. One is that the combination of variables into a single index makes it virtually impossible to distinguish which of the underlying variables may be more important in determining mortality levels. If composite indices alone had been used in certain studies, for example, it would not have been possible to discover the critical role of maternal education in the child mortality of many populations. There are good grounds for retaining the mother's education (years of schooling) as a separate variable, at least in the analysis of infant and child mortality. A second and related disadvantage is that the use of a composite index prevents the identification of particular target groups for social and health programmes.

Methods and approaches

Methods of analysing mortality data to study associations between mortality patterns and socioeconomic variables depend largely on the type of data available.

If census (stock data) and vital registration (flow data) are available, the traditional approach has been to use the former as denominator (population at risk) and the latter as numerator (events). Groupings on both sides by sex and age are necessary. Unfortunately, the only possibility of analysis offered by this approach is to effect further disaggregations by characteristics such as urban/rural residence and occupational categories.

The linking of census and death records has been a decisive step forward in the methodology of mortality analysis by socioeconomic status in more developed countries. Three approaches can be discerned from work in progress:

— the follow-back studies at present being conducted in the United States of America;

— prospective studies, such as those undertaken in France and the Scandinavian countries;

— the longitudinal studies recently started in the United Kingdom.

A feature of the studies undertaken in the USA is that a sample of death certificates was drawn within a period of three to four months shortly after the 1960 census. Linkage was made with the 1960 census returns as regards criteria such as education, income and occupation. The short period between census and death ensures that the background information from the census is not obsolete and thus largely avoids the time-lag difficulty. A recent refinement of this approach is the retrospective collection of details about the deceased person from his or her relatives.

Two examples of prospective studies may be mentioned from France. In one, birth certificates have been linked with death certificates for a sample of births. This makes it possible to obtain very accurate infant mortality rates per generation for each socio-occupational category. The other is a cohort study in which a sample of individuals between 30 and 64 years of age drawn from the 1954 census was classified once and for all into socioeconomic categories and matched with their death certificates; the sample is being followed up at all ages until all the subjects concerned die.

Great interest centres on the longitudinal study undertaken by the Office of Population Census and Surveys in London which is designed to cover continuously approximately 1% of the population of England and Wales. To a sample drawn from the 1971 census are added a sample of persons born subsequently and a sample of immigrants arriving since the 1971 census. The events at which information about the sample members is recorded include censuses, birth of children, deaths of infants, death of spouses, cancer registration, and death.

Population registers that exist in a few countries at the present time are another valuable source of data on socioeconomic conditions, and have been used in certain Scandinavian countries in analyses of differential mortality.

The use of indirect techniques

All the above approaches require an elaborate system of record-keeping, updating and retrieval which are available in only a few countries. In the less developed countries the only usable sources of information at present and for some time to come are sample surveys, census data, and sample registration schemes. The reporting of events such as births and deaths has frequently been retrospective, with all the shortcomings of such reporting, although sample registration schemes and multiround surveys have come into use recently as a means of limiting them. A further difficulty is that any underreporting that may occur may introduce differential biases with respect to sex of the deceased person, the educational status of the respondent, or his or her age, and thus lead to spurious findings.

In view of these difficulties in using direct techniques for the estimation of differential death rates in the less developed countries, research workers usually also obtain estimates by one or more indirect approaches. Indirect techniques frequently use only one source of information, which may be either a census or a survey, to obtain information on the number of children ever born and children surviving, by age of mother, orphans by age, etc. As the census or survey also contains information on specific socioeconomic characteristics of the parents of the children and of the household, some tabulations can be made for the differential analysis of mortality.

Unfortunately, the indirect techniques most commonly employed are valid only for estimations of child mortality between birth and the ages of two, three or five years, as the case may be. Although the social and economic circumstances of the family as measured, for instance, by mother's education, father's occupation, and housing conditions have been shown to have

a pronounced bearing on the level, and sometimes on the sex differentials, of early child mortality, they do not allow more than an uneasy inference to be drawn about differentials of mortality at other ages.

Apart from the ubiquitous drawback of the time lag, indirect techniques are beset by certain difficulties: different population groups may report to interviewers with different degrees of accuracy and may be subject to different age patterns of mortality. Thus assumptions may be made about particular conditions of the population that are not necessarily valid for each group, especially in the case of groups exposed to internal migration. Another problematic point is the composition of the group when mothers' education is considered. In many less developed countries, women's access to education is a relatively recent phenomenon, and the older women in a group are likely to have a much lower level of education than the younger.

International cooperation

The resurgence of interest in mortality research carries a challenge to WHO and the United Nations in their role of coordinators of health and population statistical activities. The following are some of the directions that international cooperation activities might take:

Collection of data.—International assistance may be required in organizing single or multiround surveys that could provide the information on mortality needed by governments and planning agencies. Such surveys might be a first step to introducing or enhancing the development of efficient national registration systems for vital events.

Linking of existing data.—A largely untapped source of information to which attention should be drawn is the linking of existing data, as mentioned above. For instance, linking housing and population censuses could provide information on family housing conditions; linking agricultural censuses with population censuses would provide data on land holding and utilization.

Education and training.—To heighten the awareness of health administrators and medical and public health students about the existence of socioeconomic mortality differentials, materials should be prepared for use in schools. Short-term training courses should be organized, especially in the less developed countries, for health statisticians and other government statisticians. In addition to mortality data collection, processing and analysis, the curriculum of such courses should include estimation procedures based on indirect methods, and their limitations.

Other subjects on which research needs to be promoted are: the underlying causes of sex differentials in mortality; the ways in which female education is related to differential mortality, especially in less developed countries; and the biological ageing process and differentials in the rate of ageing, by socioeconomic groups. Encouragement is needed for research on the direct and indirect effects of work conditions, including those of the housewife, in order to improve understanding of socioeconomic differentials in the adult years of life.

Future trends

The paths that research into mortality differentials are likely to take in the future will be determined largely by the stage of development reached by societies and by national statistical systems. The countries of the world do not really fall into the tidy grouping of more developed and less developed but are situated at different points along a continuum. It is however convenient, in trying to estimate future prospects, to separate countries into two groups since their needs differ quite clearly, especially at the two extremities of the continuum.

The less developed countries

The principal problem in the less developed countries is a lack of data. This relates both to quantity and quality. Vital registration systems in these areas are either deficient or non-existent. Consequently the necessary foci of future activity will have to be on the development of the vital registration systems and of national survey capabilities. The former is the ultimate goal, but realistically speaking will take at least a generation or more to come up to acceptable standards of coverage and reliability. In the meantime, countries will have to rely primarily upon surveys as the source of good data for analytical and planning purposes. Past surveys have paid little attention to mortality and failed to produce useful data either for estimating general mortality levels or for evaluating differentials. A greatly expanded survey programme, preferably coordinated and directed by WHO and the United Nations is thus one logical direction for future research activity. It is also clear that, if both levels and trends are to be analysed and differential analysis is to be undertaken, sample sizes will have to be substantially enlarged, special techniques developed, and surveys not only multiplied but also extended over longer periods than in the past. All this will be necessary if patterns of mortality at all ages are to be fixed with reasonable certainty, which is a prerequisite for effective planning.

On a more specific level, a contribution to the study of differential mortality could be made by WHO by reinitiating or anticipating the expansion of the surveys of infant, early childhood and maternal mortality. There are several reasons for doing so. First, the large core of experience that exists and could be drawn upon for additional surveys of that kind, and secondly the fact that morbidity and mortality in those age groups commonly provide the most sensitive indicators of levels, trends and differentials in mortality. The same surveys can also be utilized to collect data of deaths at other ages, and through enlarged samples provide important information on the age and sex patterns of mortality over the entire life span. Finally, important questions about morbidity and causes of death might be incorporated in these surveys.

Finally, an essential concern in mortality studies including research activities must be the training of national personnel and the development of national household survey capabilities. The United Nations Statistical Commission, the Economic and Social Council of the United Nations, the United Nations General Assembly and the World Health Assembly have all given the highest priority to the achievement of these goals.

The more developed countries

The direction of research in the more developed countries will tend primarily towards the refinement of research techniques that are already known and are being used in at least a few places. In research on differential mortality, more attention will have to be given to finding explanations of the causes and consequences of the sometimes subtle age and sex differentials.

This does not imply that levels and trends in mortality in different population subgroups are well known in the more developed countries. In many the basic measurements have not been made, or else the data collected have not been ordered in a way that enables differentials to be established. Thus research in the more developed countries will be directed less to the collection of new data than to the more effective utilization of existing data and data that are routinely collected. Among techniques currently being tested, the linkage of data from different sources would seem particularly promising for future development.

In sum, it may be said that future research in the more developed countries will concentrate on questions of how and why, and in the less developed countries, at least initially, on questions of what, where and how much. ▭

SOCIAL AND PUBLIC HEALTH PROBLEMS ASSOCIATED WITH DRUG ABUSE

It is possible to identify certain specific social problems associated with drug abuse. Among them are the following:—

(1) Drug abuse may result in economic losses that have an impact on the user's immediate social circle (family or other dependents) and ultimately on society as a whole.

(2) There may be a deterioration in family relations resulting from (1) or from the user's incapacity to function as a partner or parent.

(3) Drug users might be involved in various forms of criminal behaviour beyond the illicit possession of drugs for their own consumption. Such behaviour could include crimes committed in order to acquire drugs, offences in vehicular traffic or at work, trafficking in drugs in order to ensure the users' own supplies, and crimes of violence committed under the influence of certain drugs.

(4) Drug abuse leads to demands on social services and medical resources, the cost of which is borne not only by drug users but by the general public.

(5) Drug users are potential agents in the spread of drug abuse both in their immediate social milieu and, when they travel, in other national or international settings . . .

Among the public health problems that have been associated with drugs of abuse are: serum hepatitis, infections, and septicaemia from the use of nonsterile injection methods; physical disabilities resulting from vehicular and other accidents; death due to overdose and mixing of psychotropic drugs with other substances; nonspecific health disorders resulting from neglect of personal hygiene and inadequate nutrition; mental disorders and toxic psychoses precipitated by certain psychotropic drugs; damage to tissue, the central nervous system, and the fetus.

From WHO Technical Report Series No. 618, 1978 (WHO Expert Committee on Drug Dependence: twenty first report) pp. 26-27.

National Family Welfare Fortnight

The National Family Welfare Fortnight was observed throughout the country from 16 to 30 September, 1980. We publish below the messages from the Prime Minister of India, Smt. Indira Gandhi, and the Union Minister of Education, Heaith and Social Welfare, Shri B. Shankaranand. (The Fortnight has since been observed as a Month.)

PRIME MINISTER'S MESSAGE

Smt. Indira Gandhi

"A NATION'S wealth are its people. As we launch the Sixth Five Year Plan we are more than ever before keenly aware of the importance of harnessing human talents in the service of the nation. If each man, each woman and each child is to become a better citizen, a better worker and a better contributor as well as beneficiary in the process of development, our emphasis must be on two programmes: education in its widest sense and family planning.

Smaller families ensure more efficient management of income for the maximum welfare of every member of the family. Family planning is essentially a means of improving the health of women and children, and to make the nation as a whole to become stronger and more dynamic.

It has always been our view, and I reiterate it, that this programme will be wholly voluntary. People should be persuaded to have smaller families. If properly approached it is not difficult to convince them."

New Delhi,
September 9, 1980.

Indira Gandhi

Health Minister's Message

As you all know, the Family Planning Programme in our country is designed to strengthen the concept of planning in family life. We know that it is not correct to produce more children than we can take care of properly. If we do so, it will be unfair to our children. It will also undermine the health of their mothers. Further, it will jeopardize our efforts to lead happy lives.

"Over the years, the family planning programme has acquired a much larger base. Today it provides essential maternal and child health care services to mothers and children. At the same time, it contiues to offer advice and facilities relating to family planning to married couples. The basic aim behind the programme is to help us all to lead better lives. This it seeks to achieve in conjunction with other programmes of development.

Shri B.Shankaranand

We are trying to expand and strengthen services both in relation to maternal and child health care and family planning. We are also trying to disseminate information about these services and to educate the people on whose willing cooperation depends the success of family planning. In this effort, we are taking the support of all organizations that are interested in the welfare of the people.

My appeal to the married people today is—take advantage of these facilities, plan the birth of your children according to your circumstances and lead a better life. To those who are already practising family planning, my appeal is that they may talk about its advantages to their neighbours and to others who may come in contact with them.

It is recognized that whatever may be our means, we can lead better lives if we plan our families. Let us do so—in our own interest, in the interest of our children and in the interest of our nation."

B. SHANKARANAND

STUDY

Implementation of Multipurpose Workers' Scheme in Ambala District — An Evaluation

Y. P. Gupta, A. B. Hiramani, K. S. Sinha and N. N. Biswas

The Multipurpose Health Workers' (MPW) Scheme was introduced in the State of Haryana in the year 1975. Initially, two districts, viz., Ambala and Mahendragarh were selected for the purpose of implementation of MPW scheme. The Central Health Education Bureau undertook an evaluation study of the implementation of MPW scheme in the State of Haryana. The following were the objectives of the Study:

Objectives

1. To study the structure and functions of MPW scheme.
2. To find out the criteria laid down to determine the feasibility of the MPW scheme in the selected districts.
3. To study the different steps worked out for the successful implementation of the MPW scheme and the extent to which these were adhered to in actual practice.
4. To ascertain the training status of workers, with particular reference to the role of HFPTC and Primary Health Centres (PHCs) in providing training to the workers under the MPW scheme.
5. To study the actual functioning of the workers under the MPW scheme vis-a-vis their prescribed roles, and the training they received.
6. To study the procedure of supervision and technical guidance.
7. To elicit the reaction of the villagers and non-officials at village and PHC levels regarding the working of the MPW scheme.
8. To study the system of documentation at all levels concerned.
9. To identify the problems encountered in the implementation of the MPW scheme at sub-centre, PHC and district levels, and to elicit suggestions to overcome these.

Method of the study

District Mahendragarh was dropped from the purview of the study because of mass transfers of health staff in the district. As such only Ambala district was selected. The study was conducted on sample basis and a multistage sampling plan was used.

Out of eight PHCs in Ambala district, one PHC, Raipur Rani which was a model PHC was excluded. From among the seven PHCs, three PHCs were randomly selected. Further, two sub-centres from the selected centres were randomly selected. And from each sub-centre, two villages—one the sub-centre headquarter village and one from the remaining villages were selected, the latter village was selected randomly. Thereafter, five villagers (three males and two females) and three leaders—one each formal and informal male, and one formal female leader were interviewed. The five villagers were selected by following systematic random sampling procedure.

A total of 122 persons—30 health personnel and 92 villagers—were interviewed with the help of semi-structured schedule. In all four such schedules were used. Besides, three *record-proformae* one each for district, PHC and the sub-centre levels—were filled in for selected units. The study was conducted in 1977.

Findings

The implementation of the scheme was well-planned at various levels. The training of the staff was adequately taken care of. The training was provided at the Health and Family Welfare Training Centre, Rohtak, as also at the PHCs in the Ambala district to different categories of personnel concerned with the implementation of MPW scheme. The training was reported to be adequate but the facilities for conducting it were reported to be insufficient. One-fourth of the health supervisors, (male and female) and the health workers (male and female) did not receive training. This was largely due to the transfer of the trained staff.

The MPW scheme was implemented in two phases in the district. The chief medical officer had divided the district into three sections putting each section under the charge of a district level officer. At the PHC, the medical officer and the lady medical officer had not divided the area between themselves. Usually, the latter had chosen areas which were near the PHC, while the medical officer-incharge visited their areas 4-9 times a month, the lady medical officer visited fewer number of times.

The health supervisors and the health workers were found, by and large, to be carrying out their duties as per schedule, with more emphasis on malaria. This was so because the district was in the grip of malaria.

The medicine kit which was to be provided to the health workers for treatment of minor ailments was not supplied (1977). The treatment of minor ailments was the sheet-achor of the MPW scheme which was grossly neglected. It was only carried out to some extent by the lady health visitor/auxiliary nurse-midwife.

It was a feeling of the workers that their performance was more effective under MPW scheme than earlier. As envisaged, the supervision of the work of the field staff increased. The health supervisors carried out concurrent and consecutive checks. Progress of the scheme was reviewed through sector meeting, in addition, checking of daily diaries and other records was also resorted to for reviewing the progress of the work.

The community's experience with regard to the services rendered by the health centre was confined to malaria, family planning, smallpox, maternal and child health services, and treatment of minor ailments. The workers had reported that they had good contacts with the cummunity; but the community could not recall whether one or more persons visited the villages for providing health services.

The system of documentation at the PHC level was not followed as recommended by the Government of India. It was a combination of the old and the new patterns. Maintenance of an 'atlas' by both the health supervisors and health workers was a new feature under the scheme. But this was not found to be up to the mark.

The scheme did face some problems. The district level officers did not receive specific guidelines for the implementation of the scheme, particularly in terms of data to be maintained and returns to be submitted. The existing staffing pattern at the district level indicated that the officers were found still working for specific programmes. For example, the district family planning officer was concerned only with family planning work and likewise, the district malaria officer with malaria. This created confusion among the MPWs in deciding priority.

The district level officers also pointed out that there were enough malaria cases in the district and as such, the workers' efforts were directed chiefly towards the control of malaria. This resulted in neglect of other aspects of the MPW scheme. The medical officer-incharge, PHCs was also aware that the district level officers on their supervisory visits laid more emphasis on their individual programmes. Non-availability of medicine-kit and inadequacy of stationery were the foremost problems of the workers at the sub-centre level. The supervisors were also reported to be not clear about their supervisory role—*Detailed report can be had from the Research Division of the Central Health Education Bureau, New Delhi.* ○

Health Education in Leprosy Control

Dr C. S. Gangadhar Sharma

Leprosy is highly endemic in Tamil Nadu. Ignorance, illiteracy, general apathy and lack of timely and proper treatment are responsible for the spread of leprosy. The answer is health education of the people.

Tamil Nadu is one of the States in India where leprosy is highly endemic. The disease has been mentioned in the ancient literature. Though the disease was known yet a little or no organized effort was made either for treatment or to ameliorate patients' plight. And the society was mutely witnessing the suffering of the victims.

Some social workers say that leprosy patients are ostracized by the society. I request them to go to the villages and find for themselves that no such inhuman practice is in vogue. Such an attitude is not prevalent among the socially and economically backward communities. The patients are maintained as long as they continue to add to the family income by sharing work without demanding any special privilege. They are given the same diet that the others eat, and they live together within the family-fold without being isolated. These patients visit their friends and relatives and attend to religious or social functions in the community. The patients do not experience any difficulty in getting their children married.

But the condition is undergoing a sea-change in the urban areas, especially among the affluent and literate society. With increasing value attached to economic standard in the social and community life, a change is taking place in the behavioural pattern. The people in such a society, now-a-days, try to dissociate themselves with their relatives afflicted with leprosy if they are not of the same economic status. But even among these groups, one can find that patients with advanced leprosy, with high degree of positivity and deformity, receive special attention when they attend to religious or social functions, if their economic standard is above the status of others.

Ignorance

Even now, many people, including the literates, do not recognize early signs of leprosy. They always associate deformity with leprosy. Unless an individual has a deformity, he is not identified as a leprosy patient.

They are not aware of early conditions of leprosy as it is an asymptomatic disease causing no distress like pain or itching sensation. When people have a fixed idea that leprosy patient must have deformity, they fail to accept the fact that early leprosy condition can be present in any normal looking individual. When told that a member of their family is having the early evidence of the disease, they become aggressive, refuse to accept it; hence do not take any treatment. The change of attitude in them is witnessed only when the disease progresses and causes deformity.

All the early lesions of leprosy however, do not progress and cause deformity. The progress of the disease depends upon the development of tissue immunity or organization of tissue defence. With strong tissue defence one can clear the bacilli, and the early patch disappears. Persons with varied degree of tissue defence continue to fight with the organism. And the result depends upon the virulity of the organism and the strength of tissue resistance. If no tissue defence is organized, the disease causing organism multiplies and spreads without any impediment. It has been scientifically found out that defence mechanism is built up by cellular components. But the exact factor which has failed to stimulate it to the same degree of defence in all has not yet been identified.

A few among the affluent society have a strong belief that they will not develop leprosy. They think that it is the poor and starving people living in the rural areas and slums alone can get it. Because of this deep-rooted belief they do not accept the fact when told that their children are detected as patients of leprosy during school medical checkup. Instead of taking steps to treat them they consult with their family doctors who very often fail to tell the facts about the disease. The patients realize their folly only when the disease progresses.

When an adult is told about evidence of the disease in him develops an inferiority complex and breaks down psychologically. He fears that the disease is not curable and he will end up as a crippled and would be disowned by his own fellowbeings. He is mortally afraid when anybody sees him during his visit to the

leprosy clinic or a specialist. He feels that he might be identified as a patient of leprosy and he would lose his social status. He would prefer to get his treatment secretively from a quack rather than from a qualified specialist. Sometimes, he consults half-a-dozen persons and get many ideas about what he should do.

Leprosy is a disease caused by *Mycobacterium laprae* even though it does not satisfy the Koch's postulate to confirm that organism as the causative agent for the disease.

Mode of spread

The exact mode of the spread of leprosy is not definitely confirmed though various theories are being expounded. There are chances of organism entering through the nose from the contaminated air (droplet infection), through the mouth from the edibles handled by the patient, through the skin with close and intimate contact with the patient or garments contaminated by him. It is impossible to avoid being 'infected' in modern time because people are found crowded in transports, meetings, bazars and places of recreation like cinemahalls. Wherever there is a crowd, there are always a few unknown patients from whom transmission of the bacilli can take place.

Some have a firm belief that it can occur only in certain families. They and their siblings will not develop the disease because their parents or grandparents did not suffer from it. They do not realize that today everybody is exposed to the risk of infection and anybody can get it. Further, one cannot be definite whether their parents had the infection or not; for, nobody has been maintaining any health records. Leprosy has been associated with deformity.

Chances of contracting leprosy by sexual contact has not been scientifically proved. However, short stories are written and films produced for public show giving currency to such notions. Such stories make people believe that individuals with good character cannot get the disease. People who have not indulged in any extra-marital relations refuse to accept that they are showing the manifestation of the disease. The answer is health education of the people. Health education should therefore lay emphasis on the following points:—

* Anybody can acquire leprosy infection.
* All infected people do not develop the disease.
* The disease does not progress in all the persons. Progress of the disease depends upon the development of tissue defence.
* It is not necessary that there should be a patient in the home to spread leprosy to others in the family.
* Leading a pious life, possessing wealth or literary status of an individual will not prevent development of the disease in him.
* Leprosy is curable like any other disease and requires regular treatment. ▭

One CHV in each village by 1982-83, CHVs for slums also

The Community Health Volunteers (CHV) Scheme was launched on 2 October, 1977 with the aim of placing "People's health in people's hands". It completes three years.

Evaluation studies made by the National Institute of Health and Family Welfare along with six other leading institutes of the country, have indicated that the CHVs scheme has been highly successful, accepted by a majority of the people and has contributed significantly to the malaria control and the success of family welfare programmes.

Every village in the country is to have its own CHV by 1982-83. The CHV scheme is also to be extended to the slums to help slum-dwellers to participate in programmes designed to promote their health, says a PIB release of 24 August, 1980.

By the end of June 1980, a total of 1,45,139 CHVs have been trained. The CHV scheme has been extended in its third phase in 723 Primary Health Centres PHCs. The scheme in its first and second phases, had already covered 1698 PHCs.

Every village or community selects one person per every 1000 population. The selected persons undergo three months' training in promotive, preventive, and elementary health care. After the training, the volunteer is provided with a basic kit, medicines and a manual. The CHV is paid a stipend of Rs. 200 during the three months' training and Rs. 50 per month as honorarium. He is also provided with medicines worth Rs. 50 per month for free distribution.

CHVs also give to the villagers simple remedies for common diseases and act as a bridge between them and the nearby PHCs. Another notable task of CHVs is the propagation of the small family norm.

WHO STUDY
INDIA—WORLD'S LARGEST DONOR OF DOCTORS

PETER OZORIO

A multi-national study by the World Health Organization has found that in the early 1970s, an estimated 140,000 physicians—about six per cent of the earth's reported total—were working outside their countries of origin or training.

Of that number, some 120,000 or 85 per cent, practised in just five countries. There were about 77,000 migrant physicians in the United States; 21,000 in the United Kingdom; 11,000 in Canada; 6,000 in the Federal Republic of Germany; and 4,000 in Australia.

Some 2,000 also migrated to Switzerland, making it the sixth highest among countries where physicians sought employment.

The study charts the migration of physicians and nurses, its directions and dimensions, analyzing as well the "push" and "pull" factors that determine it—that is, the forces that compel or attract migration.

About five per cent of all the world's nurses are estimated to be outside their countries of origin, the study also shows. Each year some 15,000 migrate with about 90 per cent going to eight countries.

From the mid-60s to the mid-70s, the United States attracted some 5,200 nurse migrants yearly, again topping the list. The United Kingdom was next, with 3,300, and Canada third with 2,900. In addition, 850 migrated to New Zealand and 590 to Switzerland.

A commonly held view places a heavier burden of blame for the "brain drain" on the affluent countries.

However, a multi-national study, "Physician and Nurse Migration: Analysis and Policy Implications", recently published by the World Health Organization (WHO) says that the responsibility rests equally upon both the richer "recipient" and poorer "donor" countries.

The WHO study also shows that the "drain" on a country is not so much in the loss of "brains" — another commonly held view—but in money spent on the education of a physician, or nurse who—unable to find employment at home—seeks it elsewhere.

The 'Brain Drain'

Though a commonly held view places a heavier burden of blame on the rich for the migration of physicians, nurses and other skilled persons—the so-called brain drain—the study contends that the responsibility rests equally upon the "recipients", the richer, and the "donors" the poorer, countries.

Thus, on the one hand, the study warns developing nations that: "It is not enough for donor countries merely to lament the migration, wash their hands of the affair by laying the blame entirely on recipient countries."

And, on the other hand, it says to developed nations: "It is not sufficient that the major recipient countries individually and unilaterally take measures—as they are now doing—to curb the inflow of physicians."

This is a reference to tighter immigration laws and to tougher standards of licensing.

The study urges all countries affected by migratory trends to work together—now not the case—so that a "mutually beneficial approach to regulating health manpower may be found".

While world-wide in scope, the data upon which conclusions are based is drawn from 40 countries most affected by migration. Also, the study gives details of the experience of 13 countries, and through a list of "do's and dont's", it recommends ways of managing migratory flows.

Titled "Physician and Nurse Migration: Analysis and Policy Implications", its WHO authors are Dr Alfonso Mejia, Chief, Manpower Systems; Mrs Helena Pizurki and Mrs Erica Royston.

Migratory trends

The first migratory wave took place in the late 1950s and early 1960s, the study says, with "an exodus from war-ravaged Europe to the New World." About the end of the 1970s however, the donors began to change, from developed to developing—and particularly Asian —nations. So did the recipients. Now they are the industrialized, plus the oil-producing nations, and

in particular Saudi Arabia. Some industrialized countries however are both donors and recipients.

Highlights of the study show the following migratory patterns:

—In general, 95 per cent of migrant physicians from Latin America go to North America and five per cent to Europe.

About 40 per cent from Africa go to Europe, another 40 per cent to Canada and the United States, and over 15 per cent to Asian and other African countries.

About 65 per cent from Asia go to North America, 30 per cent to Europe, and five per cent to developing countries.

—In the United States, migrants accounted for 10 per cent of all physicians in 1963, and for 20 per cent —or one in five—in 1974, when migratory trends peaked. In terms of absolute numbers, totals increased from 6,000 in 1965 to 8,000 in 1973, by over 30 per cent.

In addition, one of every three residents and interns in the United States is a foreign medical graduate, and, the study shows, there are twice as many migrant women MDs than there are U.S.-born.

Much like their U.S. colleagues, the migrant physicians care for patients, though more work in hospitals. The migrant inclines more towards research than towards administration.

—In the United Kingdom, the study shows, about 25 per cent of all physicians are foreign medical graduates, or one in four.

"In 1973, they accounted for 16.5 per cent of all physicians in general practice, and 34 per cent of those in the hospital service", the study states, "where they are greatly over-represented in the junior grades and under-represented in the higher grades."

—In the two countries, the study shows, the foreign medical graduates tend to be younger than their national counterparts. Those from Asia are youngest of all.

In the United States, for instance, the average age of the migrant physician from India was 33, and from the Philippines 36, as compared to the United States 43.

—In Canada, over 30 per cent—or one in three—of all physicians

How to Manage Migration of Health Personnel!

The brain drain, according to the WHO multi-national study, "like most migrations is basically a symptom of deeper problems. The desire or need to migrate is bound to lessen as these problems are resolved".

The following advice may be useful for health authorities to help manage the migratory flows:

— *Do* produce as many physicians as the country can afford, or alternatively, do increase the demand for their services.

— *Do* plan for numbers and categories of health personnel.

— *Do* match education and training programmes to a country's priorities.

— *Do* develop management capacity, beginning with a national corps of teachers.

— *Do* rely on yourself, for "no country can really rely on another country to solve its problems".

— *Do* create a national network of local institutions to facilitate technical cooperation.

— *Do* implement policies and plans realistically. But,

— *Do not* withhold passports "unless you want to create greater discontent and encourage illegal migration".

— *Do not* ban foreign qualifying examinations "since physicians bent on migrating will travel to neighbouring countries to sit such examinations".

— *Do not* try to make salaries competitive with salaries in rich countries, for then the services of physicians will be "out of the reach of even larger segments of the population".

— *Do not* coerce professional health personnel to work for a specified time in hardship areas unless this applies equally to other professions.

— *Do not* attempt to solve health problems by wanting to have 'enough' physicians.

"In affluent countries, the notion of 'enough' has no limits", the study says, "while in many poor countries, more than 'enough' seems already to have been produced."

are foreign medical graduates. According to the study, there were 9,400 migrants in 1971, and 11,200 in 1973—an increase of 12 per cent in two years.

—In the Federal Republic of Germany, there were 5,600 migrant physicians in 1971, including 1,800 Europeans and 2,200 Iranians.

—In Haiti and Ireland, there are fewer physicians in the countries than there are abroad.

Major donors

The No. 1 donor country today of physicians is India, with an estimated 15,000 MDs abroad. "There is scarcely a recipient country in the world where there are no Indian physicians", the study asserts. The figure represents 13 per cent of the country's total.

The Philippines is the second largest donor. Figures for the early 1970s show 9,500 MDs abroad, equivalent to 68 per cent of the country's total, and to "at least eight years' production of its medical schools".

The money spent on the training of migrant Filipino doctors "constitutes a lost investment of some US $100 million", the study says, "over twice the annual health budget of the Philippines".

Twenty-five countries are listed in the study as donors of physicians, among them: the United Kingdom with 8,300 abroad, the Federal Republic of Germany with 4,600 and Ireland with 4,300.

The No. 1 donor country of nurses is the Philippines. Figures show 13,500 Filipino nurses abroad, or 88 per cent of all nurses in the country. It is estimated that 2,400 migrate yearly.

Second among 20 countries listed as donors of nurses is the United Kingdom, with an estimated 2,000 migrating yearly, followed by Australia with 1,500.

The 'Sustainable Level'

What is the primary determinant of migration? According to the study, developing countries turn out far more MDs than they can afford to employ.

The situation is just the reverse in developed countries. Mainly as a result of "restrictive practices of the medical profession", these countries turn out an insufficient number of MDs, thereby providing openings for the migrant physicians.

Neither the developed nor the developing nations attain what the study refers to as their "sustainable level". The former, needing more physicians, train too few, and the latter, needing less, train too many. Migration then becomes inevitable, for at its root is supply and demand.

Because many U.S. students fail to gain admittance to medical schools at home, they go abroad for training. Mexico is "chief host" to them, the study says. As a result, about a tenth of all graduates of foreign medical schools practising in the United States are U.S. citizens.

Thus far, there has been little or no attempt to relate graduates to the numbers a country can afford to employ. In the light of known estimates showing that "eight medical auxiliaries could be trained for the cost of one physician", the study says "one may ask why countries produce physicians apparently without regard for the demand of their services.

India's example

The study notes that India is the "world's largest donor of medical manpower". Estimates put India's total number of physicians at 135,000 in 1972, which gives the country a physician-to-population ratio of 2.2 physicians per 100,000.

That is low, the study says, but it is still "much higher than the country's sustainable level". With a *per capita* income of about U.S. $120, and a growth rate of 1.5 per cent per annum, India "really could afford only 35,000 physicians".

As "the vast majority of the population cannot possibly pay for private care", India, in effect, then had a "surplus" of between 80,000 to 100,000 physicians.

India estimates it costs U.S. $9,600 to train a physician. Thus, the "15,000 physicians at present outside India represents a lost investment to India of U.S. $144 million". But the loss is not in the services they could have rendered had they remained at home.

"They would, most probably, not have found suitable employment, and might even have been a charge on the economy", the study pointedly states, while explaining:

The loss is "in the fact that the money spent on the education of these emigrant physicians would have been better spent on other forms of health personnel and health care".

The "drain" on a country is therefore not so much in the loss of "brains"—another commonly held view—but in the money put into the education of a physician who, unable to find suitable employment at home, seeks it elsewhere.

High income abroad, a "pull" factor, coupled with a lack of gainful employment at home, a "push" factor, are among major influences. When the factors combine the study says, "then the propensity to migrate becomes strong".

Facilitating migration

What makes migration so relatively easy? First and foremost, it

is the increase in the number of schools over the last 20 years, many established, partly, because a medical career is regarded as an important vehicle for social mobility" in the developing world.

By 1970, there were already 17 more schools in the developing world, with a total of 489, than in the developed world, with 472. Even so, five years later. the margin of difference widened to 92, with 608 and 516 respectively then.

Over those years, Brazil established 53 schools to achieve a growth rate of 230 per cent; Mexico 34 for a rate of 188 per cent; India 62 for 141 per cent; and Colombia 7 for 100 per cent.

By way of comparison, Spain established 11 schools for a 110 per cent growth rate; Japan 23 for 50 per cent; the United States 38 for 45 per cent; and the Soviet Union 18 for 26 per cent.

However, of the 119 schools set up in the developing world between 1970 and 1975, 31 were established in countries without a single school before.

Migration is facilitated also by medical curricula still largely based on standards of the western world, the study says.

According to Dr David Tejada-de-Rivero, WHO Assistant Director-General: 'Health leaders in developing countries frequently share the values and interests of their counterparts in affluent societies."

They essentially train students "up to international standards" conferring "a degree that is tantamount to an international passport", all of which facilitates migration.

In the United Kingdom, for instance, of the 21,000 migrant physicians practising in the 1970s, most were from countries with English-language or Commonwealth ties. These are factors that not only make migration easier but also determine the direction it takes.

Among migrant physicians were some 9,200 from India, Pakistan, and Sri Lanka, whose numbers increased by 52 per cent over five years; 3,100 from Ireland; 1,100 from Australia; 900 from South Africa; 360 from New Zealand; and 260 from Nigeria.

Oil-exporting states

Yet another trend pointed up by the study is the migration of physicians and nurses to oil-exporting Arab countries, notably Saudi Arabia, Algeria and the Libyan Arab Jamahiriya.

For instance, there were 1,140 migrant physicians at work for the Saudi Arabian government in 1974, representing about 90 per cent of all MDs in government employ. Moreover, nearly all came from Muslim nations, including 590 from Egypt and 420 from Pakistan, and none from developed countries. In addition, there were between 2,000 and 3,000 migrant physicians in private practice.

There were also 2,400 migrant nurses employed by the government.

Figures for that year also show Algeria with 1,200 migrant physicians, about 70 per cent of the country's total; Libyan Arab Jamahiriya, with 780, or 94 per cent of its total; the United Arab Emirates with 200 or 95 per cent; Oman with 160 or 90 per cent; and Bahrain with 80 or 77 per cent.

Of some 30 Arab states, Syria had the lowest number of migrant physicians—30 or just 1.8 per cent of the total of all MDs in the country.

Saudi Arabia and the United States are the only two countries that are essentially recipients, the study says. Most others are both recipients and donors of physicians and nurses, among them the United Kingdom, Canada, the Federal Republic of Germany and Australia.

The United Kingdom, for instance, "lost some 8,000 physicians chiefly to Australia, Canada, and the United States, but gained 21,000 chiefly from Commonwealth countries". Many of those leaving were originally migrants to the United Kingdom.

Along with a handful of other nations, the United Kingdom and Canada are often "way stations"—for political, cultural, economic, educational, or professional reasons —rather than final destinations for migrations. This is another trend brought out by the study.

In 1972, some 650 physicians, originally from Asia, who had settled in those two countries, moved on to the United States. In much the same way, Spain was a stepping stone for 30 Cuban migrants.

Therefore, "for many physicians, migration is not a once-and-for-all move, from one country to another", the study shows.

Whatever the migratory trends, however, the world situation is this: Only one fourth of the world's physicians are in the developing world where two-thirds—the majority—of the earth's population lives, while three-fourths are in the developed world, where a third of the population lives. ▭

On Nutrition

NUTRITIONAL ANAEMIA

This is the sixteenth in the series of the feature. Nutritional anaemia is the end result of a severe nutrient deficieney. From the public health and socio-economic points of view, anaemia is important because it interferes with the sense of the well-being of the individual and reduces productivity and work capacity besides contributing to the overall mortality and posing threat to the life of the mother. This can be prevented as well as treated.

The World Health Organization has defined nutritional anaemia as a condition in which the hemoglobin content of the blood is lower than normal as a result of a deficiency of one or more essential nutrients, regardless of the cause of such deficiency. Malaria, schistosomiasis, and various other diseases can contribute to iron deficiency anemia and several causes of anaemia can coexist in an individual.

Nutritional anaemia is the end result of a severe nutrient deficiency, usually iron, less frequently folate, and rarely vitamin B_{12}. Hemoglobin concentration, by which anaemia is diagnosed, is a relatively insensitive index, thus a person who is found to be manifests itself clinically in pallor, anorexia, lassitude, anaemic is already suffering from quite a market degree of nutrient deficiency. Very severe anaemia dizziness, breathlessness, and edema and soreness of the tongue and mouth.

From the public health and socio-economic points of view, anaemia is important because it interferes with the sense of wellbeing of the individual, and reduces productivity and work capacity, it aggravates many other disorders; it contributes to the overall mortality associated with malnutrition, and. in the case of anaemia in pregnancy, it poses a threat to the life and health of the mother at the time of delivery and contributes to low birth-weight and thus poor viability of the infant.

Some individuals can seemingly function normally with severe degrees of anaemia, but most cannot. Even mild anemia impairs wellbeing. For example, studies of sugarcane cutters in Guatemala, latex tappers and weeders in Indonesia, and tea-pickers in Sri Lanka have shown a direct relationship between hemoglobin concentration and work output.

Causes of nutritional anaemia

Nutritional anaemia may be caused by insufficient intake, poor absorption, or an increased requirement of one or several blood-forming nutrients.

Insufficient intake

Insufficient intake of iron is chiefly observed in young children consuming dairy products or other foods of low iron content at a time when their requirements are relatively high for the rapid build up of blood and tissues. It is also found among young women who voluntarily restrict their dietary energy intake for aesthetic reasons, because iron and energy intake are roughly proportional. There are other instances of insufficient iron intake, but these are rather exceptional and are usually combined with other deficiencies such as occur in famines.

The intake of folate and vitamin B_{12} is usually sufficient in most diets, only becoming insufficient in the presence of special culinary or dietary practices. Overcooking of foods, especially vegetables, can cause folate deficiency, and complete avoidance of all animal products in the diet, as practised by some vegetarians, may lead to vitamin B_{12} deficiency.

Poor absorption

The rate of absorption of iron is influenced by the dietary pattern and the level of iron stores in the body. It is increased by the presence of animal products in the diet, or of some other constituents such as vitamin C and some amino-acids. The iron in vegetarian diets is usually poorly absorbed, and unless there are other factors present that enhance the absorption, iron deficiency anemia will develop. This is probably why widespread and severe anaemia is so frequently observed in some developing countries, such as those in Asia.

Increased requirements

The body's increased requirement for iron may be physiological or pathological. Normally, a certain percentage of women lose large quantities of blood during menstruation and, therefore, require higher amounts of iron. During pregnancy, folate and iron

requirements are increased, becoming six times greater for a woman in the last three months of pregnancy than for a non-pregnant woman. As a consequence, women of reproductive age are especially vulnerable to iron and folate deficiencies. It is interesting to note that hormonal contraceptives tend to reduce the menstrual blood flew and thus the loss of iron; however, intra-uterine contraceptive devices have the opposite effect, in certain pathological conditions, such as hookworm infestation, there may also be increased loss of blood and, therefore, of iron. This is, in fact, a major cause of anemia in most developing tropical and sub-tropical countries.

Prevalence

There are now about one billion women in their reproductive years; over two-thirds of them live in developing countries, and bear on average over twice as many children as do women in the developed countries. At any given time roughly every sixth woman, 15 to 49 years of age, living in developing countries is pregnant, compared with about one in 17 in developed countries. From the information available, it appears that at least half of the non-pregnant women and nearly two-thirds of pregnant women have hemoglobin levels below those established by WHO as indicative of anemia. This makes a total of some 260 million anemic women in the developing world alone. The overall proportion of anaemic women is highest in Asia and Oceania, followed in the descending order by Africa and Latin America.

In developed countries, the prevalence of anaemia ranges from 20 per cent in non-pregnant women and up to 35 per cent in pregnant women. The total female population between 15 and 49 years old in these countries is estimated at 275 million, of whom 16 million are pregnant at any given time. Assuming conservatively that 10 per cent of non-pregnant and 30 per cent of pregnant women are anaemic, this would make an additional 31 million, bringing the world total (outside China) of anemic women between 15 and 49 years of age to 291 million.

Accurate information concerning the prevalence of anaemia in children under school age is not available, but figures of 20 to 50 per cent have frequently been mentioned. Therefore, the total figure of anaemic individuals may be around 500 million, and perhaps more.

Treatment

Treatment consists of administering iron compounds orally. Rarely is the anemia so severe that it requires emergency treatment, such as blood transfusion. Giving iron tablets is, as a rule, sufficient; but they must be taken two or three times a day for several weeks before the hemoglobin concentration is restored to normal levels. The length of administration is a major drawback to the treatment; because motivation to continue medication is usually lacking in anemic individuals. Iron compounds for treatment of anemia should have high bioavailability, acceptability, and low cost. Reduced iron and ferrous sulfate meet these criteria. Iron is best absorbed when the stomach is empty; however, it is also then that it most frequently causes side-effects that constitute another drawback to the treatment. Most iron preparations currently used are accompanied by a high proportion of side-effects such as epigastric pain, heartburn, vomiting, constipation, or diarrhoea. There is an urgent need to develop more acceptable iron preparations that cause fewer or no detectable side-effects.

Prevention

The obvious approach is to increase the amount of iron and folate absorbed and to reduce blood losses. A change in dietary patterns, together with programmes to control parasitic diseases, are needed to achieve the objective. The increased consumption of iron absorption enhancers, such as foods of animal origin, would help, but may not be immediately practical in some areas for cultural or economic reasons.

In the short-term, and in emergencies, the distribution of iron suplements should be considered. The approach may be especially effective when it is directed toward well identified, easily reachable, vulnerable groups such as mothers during the second-half of pregnancy. Side-effects and duration of administration are against drawbacks.

Another measure designed to improve the iron status of the total population is to fortify food with iron. The selection of the food vehicle and of the iron compound is critical. The food vehicle must reach the population at risk, and its flavour, colour, and texture must not be changed by the fortification process. Several have so far been identified for iron fortification; salt, wheat flour, milk powder, sugar, monosodium gultamate, and fish sauce. The iron compound must have a high bioavailability, be stable, and inexpensive. It has been difficult so far to meet all these criteria, and only a few fortification programmes have proved successful. Most have not been evaluated, and it is not certain that they are effective; this is especially true of some national programmes of fortification of wheat flour. More developmental research is urgently needed in this field. —*Courtesy*: U.N. Administrative Committee on Coordination-Sub-Committee on Nutrition. ¤

WORKSHOP

HEALTH EDUCATION IN HOSPITAL SERVICES AT JIPMER

Dr S. P. Mehta

A workshop on Health Education in Hospital Services organized by the P.S.M. Department of the Jawaharlal Institute of Postgraduate Medical Education and Research (JIPMER) Hospital, Pondicherry in collaboration with the Central Health Education Bureau (CHEB), New Delhi was held at Pondicherry from 9 to 11 April, 1980. This is the seventh in the series of such workshops held in different parts of the country.

The objectives of this workshop included a review of the existing conditions and resources available for health education in JIPMER and other hospitals in Pondicherry, and identifying the scope for integration of health education with the routine activities of the hospital. The workshop also sought to develop a plan of action for educational activities at all possible areas in a hospital setting, and select appropriate methods and media for this workshop. It also aimed at identifying the roles of different categories of medical and para-medical staff in hospital health education.

Twenty-two senior medical officers from JIPMER hospital and other hospitals in Pondicherry participated. Dr B. C. Ghosal, Director, CHEB, New Delhi in his keynote address stressed the importance of imparting health education in the normal routine activities of hospital. Dr (Miss) S. Pandit, Dy. Assistant Director-General, CHEB, presented a scientific paper on concept, philosophy and principles of health education. Dr V. Sambasivam, Director of Health and Family Welfare Services, Pondicherry, inaugurated the workshop.

The participants were divided into two groups. The first group discussed about the "analysis of existing conditions and identification of situation and scope for health education in hospitals". The group observed that there was no well-defined health education programme in JIPMER hospital; but some efforts were made to educate the patients in some of the departments. In their view health education was mainly given by personal communication and no audio-visual aids were being used. The group agreed that there was a great scope for health education in out-patients department with the help of audio-visual aids. The staff of the hospital should undertake the educational activities. It suggested that the charts carrying slogans should be displayed at all strategic locations in the hospital.

The second group discussed the "plan of action for health education activities in all possible areas in hospital setting." The group listed the points for planning any programme on health education. The group also discussed a specific plan of action. Many problems were considered like leprosy, tuberculosis, malnutrition and family planning. It decided to draw a plan of health education on scabies in the OPD and wards.

Recommendations

The recommendations of the workshop included:

*The group consensus was in favour of integration of health education in the hospital services. For its effective implementation, each and every individual working in or for the hospital irrespective of the part he plays, should undertake educational activities as part of his daily routine.

*The preventive & social medicine department should be a central guiding force for all technical matters including planning, execution and evaluation of the educational activities and in the preparation of educational media required for such activities.

*There should be an apex body in the form of health education committee consisting of medical superintendent, health educator and the representatives of all other departments including nurses. This committee should do planning, implementation, building up of financial resources and arrangements for training of various personnel in health education.

*Formation of an educational cell headed by health educator for the daily implementation of educational activities. This cell should include representatives from residents, nurses, medical students and social workers. ▭

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The objectives of this workshop included a review of the existing conditions and resources available for health education in JIPMER and other hospitals in Pondicherry, and identifying the scope for integration of health education with the routine activities of the hospital. The workshop also sought to develop a plan of action for educational activities at all possible areas in a hospital setting, and select appropriate methods and media for this workshop. It also aimed at identifying the roles of different categories of medical and para-medical staff in hospital health education.

Twenty-two senior medical officers from JIPMER hospital and other hospitals in Pondicherry participated. Dr B. C. Ghosal, Director, CHEB, New Delhi in his keynote address stressed the importance of imparting health education in the normal routine activities of hospital. Dr (Miss) S. Pandit, Dy. Assistant Director-General, CHEB, presented a scientific paper on concept, philosophy and principles of health education. Dr V. Sambasivam, Director of Health and Family Welfare Services, Pondicherry, inaugurated the workshop.

The participants were divided into two groups. The first group discussed about the "analysis of existing conditions and identification of situation and scope for health education in hospitals". The group observed that there was no well-defined health education programme in JIPMER hospital: but some efforts were made to educate the patients in some of the departments. In their view health education was mainly given by personal communication and no audio-visual aids were being used. The group agreed that there was a great scope for health education in out-patients department with the help of audio-visual aids. The staff of the hospital should undertake the educational activities. It suggested that the charts carrying slogans should be displayed at all strategic locations in the hospital.

The second group discussed the "plan of action for health education activities in all possible areas in hospital setting." The group listed the points for planning any programme on health education. The group also discussed a specific plan of action. Many problems were considered like leprosy, tuberculosis, malnutrition and family planning. It decided to draw a plan of health education on scabies in the OPD and wards.

Recommendations

The recommendations of the workshop included:

*The group consensus was in favour of integration of health education in the hospital services. For its effective implementation, each and every individual working in or for the hospital irrespective of the part he plays, should undertake educational activities as part of his daily routine.

*The preventive & social medicine department should be a central guiding force for all technical matters including planning, execution and evaluation of the educational activities and in the preparation of educational media required for such activities.

*There should be an apex body in the form of health education committee consisting of medical superintendent, health educator and the representatives of all other departments including nurses. This committee should do planning, implementation, building up of financial resources and arrangements for training of various personnel in health education.

*Formation of an educational cell headed by health educator for the daily implementation of educational activities. This cell should include representatives from residents, nurses, medical students and social workers. ▭

Professional Preparation of Health Education Specialists

A National Meeting of the Working Group on the Professional Preparation of Health Education Specialists was organized by the Central Health Education Bureau, Directorate General of Health Services, in New Delhi from 21 to 25 July 1980. This Inter-Country Workshop on Professional Preparation of Health Education Specialists in support of programme of Health for All by the Year 2000 A.D. organized by World Health Organization, SEARO, New Delhi from 4 to 11 August, 1980.

An important agenda item for the national working group meeting was the oppurtunity for exchange of information on latest developments, trends, accomplishments and problems in each of the three institutes in India offering Diploma in Health Education (DHE), *viz.* Central Health Education Bureau (CHEB), New Delhi; All-India Institute of Hygiene and Public Health, Calcutta; and Gandhigram Institute of Rural Health and Family Planning Gandhigram, Madurai, with a view to make recommendations to review/modify/upgrade such preparation so that it may more effectively contribute to the goal of primary health care.

There were 17 participants to the meeting. They included the Directors of All-India Institute of Hygiene and Public Health and the CHEB, representatives from the Gandhigram Institute, Directors of Medical and Family Welfare Services from Haryana and Uttar Pradesh, and W.H.O. Consultants Dr J. Grossman and Dr. H.S. Hassan besides distinguished specialists in the field of health education.

Smt. Serla Grewal, Additional Secretary & Commissioner (Family Welfare and MCH) inaugurated the meeting. She observed that health education was a very important aspect of health care programmes. India had committed herself to the W.H.O. and to her people about reaching primary health care for all by the year 2000 AD. In this context there was a need for a review of the curriculum of the DHE courses being conducted by the three institutes and to modify it for preparing appropriate health education specialists. These in turn could impart necessary knowledge and skills to the health functionaries at all levels.

Dr B.C. Ghosal, Director, C.H.E.B., in his address of welcome said that health education was required to play a much more expanded and critical role in primary health care in India.

The W.H.O. Programme Coordinator, Dr D.A.W. Nugent, informed that similar meetings were being held in other countries of the South-East Asia Region in preparation of the WHO meeting. He dispelled the scepticism of some that 'Health for All by 2000 AD' was a slogan saying: "This is a slogan no doubt, but many battles have been won on slogans".

Three Groups

The participants elected Dr N.S. Deodhar, Director, All-India Institute of Hygiene and Public Health as a Chief Rapporteur. The participants were divided into three groups to deliberate on 'functions of health education specialists in the delivery of primary health care and relate to various tasks being performed by him to fulfil these functions". The reports of the three groups were presented and discussed and these resulted in consensus recommendation on the subjects. The participants were then again divided into two groups to deliberate on two subjects, namely, (i) "To review the curriculae of the three institutes imparting DHE with special reference to their roles and functions in support of programmes for health for all by the year 2000 and to modify the curriculae relevant to this need", and (ii) "Strategy for effective utilization of health education specialists in States and Centre—modification or re-organization needed for the same".

The reports of the working groups were presented on the concluding session of the meeting. The groups identified the various positions at different levels of the health set-up where health education specialists could find their role. They also developed the functions of the health education specialists at various levels. In relation to the DHE course curriculam, the groups, among other things, called for incorporation of essential contents related to primary health care. They also recommended that at least five per cent of the budget of every health programme should be specifically earmarked for health education component.

Valedictory session

The valedictory session of the meeting was chaired by Dr (Smt) S. Chawla, Director-Principal of the Lady Hardinge Medical College and Associated Hospitals.

Dr B. Sankaran, Director General of Health Services, delivered the valedictory address. Dr B. C. Ghosal, Director, CHEB in his address of welcome said that the meeting had proved extremely useful in chalking out the educational responsibilities and training needs of health education personnel at various levels. Health education should be given due place in planning implementation and evaluation of primary health care activities.

Dr Sankaran, in his valedictory address, said that health education could be successful if it were related to the needs of the target group. The discipline was extremely important in the context of primary health care and it could contribute a great deal to bridge the gap in acceptance level of services, provided education was suited to the requirements.

Dr Sankaran said that it was not correct to plead that community had not been utilizing the services. "If goods are set properly and displayed well, they would be utilized, he added.

Dr Sankaran advised the health education specialists to keep themselves abreast of the latest knowledge and information in the health field, so that the same could be transmitted to the people. He was glad the meeting had gone in depth into the training strategy and placement of heath education specilists at various levels starting from the periphery.

Dr (Smt) S. Chawla stressed the need of incorporating health education as a subject in the under-graduate and post-graduate curriculae in the field of medical education programmes.

Dr N. N. Biswas, Deputy Director (Trg.), CHEB while proposing a vote of thanks expresed his gratefulness to the WHO for providing finances for this national meeting and all those in making this workshop a success.—**D.L.N.**

Hope for Asthma Sufferers

Hopes of a cure for asthma have been raised by the success of scientists in isolating what may be the chemical that causes breathing difficulties. Another team has discovered that natural painkilling substances produced by the body may act as the trigger for asthmatic attacks.

A team of six doctors and students from the Institute of Basic Medical Sciences and Imperial College in London have spent the past three years trying to identify the mysterious chemical present in the lungs which causes the breathing problems in asthmatics.

Scientists in Europe and the United States have known of the chemical's existence for many years, but only now has the London research team been able to isolate the chemical, which is known as SRSA—Slow-reacting substance of anaphylaxis. Dr Priscilla Piper, spokeswoman for the Institute, said: "We have isolated it, purified it and completely characterized it. It has a molecular structure of a sort which was not known before. It may prove to be very important in the whole field of detoxification."

SRSA is one of several molecules released from cells involved in allergic responses. The name derives from the fact that these substances cause smooth muscle to contract slowly, and it is now believed that SRSA in particular is involved in asthma and allergies.

The London team's discovery may be an important step towards the development of new anti-asthma drugs. At least one British chemical firm is currently testing a drug that suppresses SRSA.

Doctors at King's College Hospital, London, however, believe they may have accidentally found the substances that trigger off asthmatic attacks, during research into diabetes. They discovered that sometimes when a certain test is applied to diabetics it produces wheezing like an asthma attack. This is believed to be due to a substance called enkephalin, which is one of the recently discovered chemicals in the brain which act like a natural morphine.

New hope for asthma sufferers springs from the fact that the effect of enkephalin can be blocked with an injection of a substance called naloxone:—

—B.I.S. ▭

A view of the procession on the observance of the World Health Day—7 April 1980 in Hyderabad.

World Health Day—1980 Observed in Hyderabad

A colourful procession with anti-smoking slogans and exhibition explaining the hazards of smoking and a public meeting were the highlights of the World Health Day celebrations in Hyderabad on April 7, 1980.

The nursing students, staff nurses, sanitary inspector trainees, medical students and house surgeons and doctors formed a van guard of the procession which started from the Gandhi Medical College, Bashirabagh. Dr D. Bhaskara Reddy, Director of Medical Education and Dr M. Venkata Rao, Director of Health and Family Welfare received the processionists at the Health Museum, Hyderabad.

The processionists carried 60 placards with anti-smoking slogans in English, Telugu and Urdu and made loudspeaker announcement explaining the health hazards of smoking.

Shri A. Sambasiva Rao, retired Chief Justice of Andhra Pradesh High Court inaugurated the Exhibition which will be open for the public for the next 12 months. Films-shows were also organized at the venue of the Exhibition.

Later at the public meeting Shri Sambasiva Rao emphasised the need for intensive campaign by the Government and the voluntary agencies against smoking. He said that this education should be a continuous process and accent should be placed on the young especially the teenagers.

Dr Harish Chandra a former consultant of WHO, in his presidential address said that smoking should be banned in all the public places. He felt that he could not understand the logic behind bringing vast areas of land under tobacco cultivation when malnutrition was widespread in the country. Dr Narasimha Rao, retired State TB Officer, said that the babies of the pregnant women who smoke were prone to low birth weight and congenital disorders.

Dr Hyder Khan, Superintendent, Gandhi Hospital, Secunderabad, said that it was proved beyond doubt that smoking can cause cancer of the lung, bladder, skin and heart diseases. Mere legislation and enforcement he said would not solve the problem. A systematic and sustained education about the dangers of smoking would yield desired results.

Dr Venkata Rao released the Souvenir brought out by the Peoples Information Centre. Dr T. John Phillip, Assistant Director of Medical and Health Services Health Education received the first copy of the Souvenir. ▭

Community Health volunteers' Page

MEASLES

This is the twenty-eighth in the series of the feature. The Community Health Volunteers, among other things, are to educate the community on preventive, promotive, curative and rehabilitative aspects of health. Measles—a contagious disease— is the most common of all eruptive fevers in childhood. All persons, who have not had the disease earlier, are highly susceptible to measles. With proper care, and timely vaccination, wherever available, measles can be prevented.

MEASLES is a highly contagious disease caused by a specific virus. It is the most common of all eruptive fevers in childhood.

Who is susceptible to measles?

All persons, who have not had the disease previously are highly susceptible to measles. As the disease is widespread in India, the children contract it early in life, usually before two years of age. The immunity (protection) that a person develops after suffering from this disease is long-lasting. People usually get measles only once in their life-span.

How is measles transmitted?

The measles virus is transmitted through the air and therefore direct contact with the infected person is responsible for its spread. Infected persons are most contagious before fever and rash appear. Transmission is more frequent inside a room and when children come together. About two weeks usually elapse between exposure to infection and development of the illness.

What are the symptoms of measles?

The early symptoms of measles are similar to those of common cold namely running nose, red eyes, a dry cough and slight fever. On the second or third day of the disease, white or bluish-white specks, the size of the grain of sand, may be seen on the inside of the cheeks.

The rashes usually appear on the fourth day after the onset of the symptoms, beginning on the face, on the forehead, at the hair-line, behind the ears and on the chin. The rash gradually spreads downwards and covers the whole body. The rash always remains thickest on the face. The rash lasts for about five days and gradually disappears. The dried scabs then begins to peal off in fine flakes. During all this period running nose, watery eyes, sneezing, coughing, diarrhoea and fever continue. With the disappearance of the rash, the other symptoms also subside.

What are the chief complication of measles?

Most children recover from measles without any ill-effects. Complications may however be very severe in malnourished and very young children. The common complications are secondary bacterial infections of the throat and lungs. The ears are frequently affected in the form of purulent discharge. The eyes and brain may also sometimes be involved. Eye damage due to ulceration and opacity of cornea may lead to impairment of vision. Acute dehydration is one of the most frequent and dangerous complications of measles in countries as measles is often accompanied by diarrhoea and vomiting. Measles can also aggravate malnutrition.

Care of the patient

Isolation of the child is difficult in small houses and its usefulness is doubtful. By the time the diagnosis is made, other children have already been exposed to it. However, if possible the patient may be isolated for seven days after the appearance of rash, specially from children under three years of age.

Every effort must be made to prevent complications. The child must be kept clean by bathing him daily. The eyes should be protected from glare and washed frequently with clean water. The child should be kept in a well ventilated room. Overclothing should be avoided. The child should be given plenty of fluids at frequent intervals. He should be given his normal diet. In addition, milk, curds, *khichri*, rice, *porridge*, fruits, etc., can be given. It must be remembered that a child with fever needs more food, not less. Reducing the quantity and quality of food, during and after measles can lead to severe malnutrition in children specially in those with already poor nutritional status.

In case cough and fever do not subside after the disappearance of rash and the child shows other symptoms of acute illness of the doctor should be consulted at once for possible complications of measles.

How can measles be controlled?

Measles can be prevented by giving one dose of measles vaccine wherever it is available. The vaccination can be given to a child between nine to twelve months of age. When the vaccination has been given correctly the protection afforded is quick-acting, reliable and long-lasting. It is thought that a single injection is enough to protect a person for lifetime.

GET YOUR CHILD IMMUNIZED AGAINST MEASLES, WHEREVER AVAILABLE, BETWEEN 9 and 12 MONTHS OF AGE.

Mental Health Exhibition

An exhibition on mental health was organized in the Raipur Rani Block of Ambala District, Punjab on 30 and 31 March 1980. The Mental Health Association (MHA) along with the Department of Psychiatry, Post-graduate Institute of Medical Education and Research, Chandigarh and Haryana Health Service, Haryana were the organizers. The MHA is a voluntary non-profit organization of village leaders specifically aimed at enhancing the effectiveness of the programme to care for the mentally ill in the Block.

On these two days, a big annual fair was held in the Block, near the village of Raipur Rani. Thousands of villagers from nearby villages thronged the fair site on foot and bullock-carts to pay their respects to the goddess Durga Devi. This 'Mela' forms the most important religious and social event of the area.

Against this backdrop, the MHA organized an exhibition for creating an awareness among the villagers on severe mental disorders. Information about the available modern medical services were also provided. In this venture the staff of the PHC, Raipur Rani and PGI were actively involved.

On display in the 'PANDAL' was a set of attractive posters with coloured photographs and simple Hindi messages. These provided information about the misconceptions prevalent in the community about mental disorders, the recognition of severe mental disorders like psychosis, depression, mental retardation and epilepsy. The importance and the cost of treatment, the duration and outcome with treatment, were also outlined. A pamphlet in Hindi on mental health was distributed free among the visitors to the 'pandal'. A special feature of the exhibition was the intelligence tests for children. This proved very popular and attracted people to know their 'intelligence'. About 5,000 people visited the exhibition.

—**R. Srinivasamurthy.**

Centre for Education and Health

Manipal, a small village in South Kanara district, is fast becoming a good centre of education and health services. This has become possible by the guidance of late Dr T.M.A. Pai who excelled in public service. In Manipal, families with annual income of less than Rs. 3,600/- have been identified. Poor families are being offered medical facilities free of charge. The Centre for Health protection for planned Families has an outpatient clinic at Udipi, 5 kms West of Manipal. It provides people of the area family planning services and runs a child health clinic, a marriage guidance clinic and a dental clinic.

The organisers of this new movement say that the work of family planning gets intensified if the acceptors are assured of protection against diseases.

—**J. N Dhar**

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