swasth hind

OCTOBER 1987

swasth hind

Asavina-Kartika — October 1987
Saka 1909 — Vol. XXXI. No. 10

OBJECTIVES

Swasth Hind (Healthy India) is a monthly journal published by the Central Health Education Bureau, Directorate General of Health Services, Ministry of Health and Family Welfare, Government of India, New Delhi. Some of its important objectives and aims are to :

REPORT and interpret the policies; plans, programmes and achievements of the Union Ministry of Health and Family Welfare.

ACT as a medium of exchange of information on health activities of the Central and State Health Organisations.

FOCUS attention on the major public health problems in India and to report on the latest trends in public health.

KEEP in touch with health and welfare workers and agencies in India and abroad.

REPORT on important seminars, conferences, discussions, etc., on health topics.

Editorial and Business Offices

Central Health Education Bureau
(Directorate General of Health Services)
Kotla Marg, New Delhi-110 002

EDITOR — N. G. Srivastava

Sr. SUB-EDITORS — M. L. Mehta, M. S. Dhillon

COVER DESIGN — B. S. Nagi

In this Issue

	Page
Water related diseases *Dr (Smt.) Niharika A. Nath*	226
Rural environmental intervention and filariasis — a study *Sushila Nayar, M. P. Dwivedi and A. M. Mehendale*	230
Oral Cancer —a man-made disease *Dr P. K. Ray and B. S. Khangarot*	234
Environmental radioactivity and health *Dr M. P. Jain &* *Dr (Maj. Gen.) N. Lakshmipathi*	237
Acute respiratory infection *Dr Shanti Ghosh*	241
Gastroenteritis can be prevented —everyone has a role *Dr S. R. Naik*	243
National Sexually Transmitted Diseases Control Programme *Dr N. C. Bhargava*	245
Environmental Sanitation —a study in a village of Andhra Pradesh *Dr H. Audinarayana*	248
National Workshop on Training in Community Eye Health Education — report *Dr S. Venkatesh*	250

SUBSCRIPTION RATES

Single Copy .	50 Paise
Annual	Rs. 6.00

(Postage Free)

Articles on Health topics are invited for publication in this Journal.

State Health Directorates are requested to send reports of their activities for publication.

The opinions expressed by the contributors are not necessarily those of the Government of India.

SWASTH HIND reserves the right to edit the articles sent for publication.

ASM

OUR NEW PRESIDENT

Shri Ramaswami Venkataraman

Shri Ramaswami Venkataraman assumed office as the eighth President of the Indian Republic on 25 July, 1987.

Shri Ramaswami Venkataraman was born on 4 December, 1910 in the village of Rajamadam, Thanjavur District, Tamil Nadu. Shri Venkataraman married Smt. Janaki Venkataraman in the year 1938. They have three daughters.

Educated locally and in the city of Madras, Shri Venkataraman obtained his Masters degree in Economics from Madras University. He later qualified in Law from the Law College, Madras.

Shri Venkataraman was enrolled in the High Court, Madras in 1935 and in the Supreme Court in 1951.

While practising Law, Shri Venkataraman was drawn into the movement for India's freedom from Britain's colonial subjugation. His active participation in the Indian National Congress's celebrated resistance to the British Government, the 'Quit India Movement of 1942', resulted in his detention for two years under the British Government's Defence of India Rules.

Shri Venkataraman's, interest in the law continued during this period. In 1946, when the transfer of Power from British to Indian hands was imminent, the Government of India included him in the panel of lawyers sent to Malaya and Singapore to defend Indian nationals charged with offences of collaboration during the Japanese occupation of those two places.

In the years 1947 to 1950, Shri Venkataraman served as Secretary of the Madras Provincial Bar Federation.

Shri Venkataraman acquired, early in his legal career, an abiding interest in the law pertaining to labour. On his release from prison in 1944, Shri Venkataraman took up the organization of the Labour Section of the Tamil Nadu Congress Committee. He founded, in 1949, the LABOUR LAW JOURNAL which publishes important decisions pertaining to labour and is an acknowledged specialist publication. Shri Venkataraman came to be intimately associated with trade unions, including those for plantation workers, estate staff, dock-workers, railway workers and working journalists. Shri Venkataraman also took a direct and keen interest in the conditions of agricultural workers in his home district of Thanjavur.

Law and trade union activity led to Shri Venkataraman's increasing association with politics. He was elected, in 1950, to free India's Provisional Parliament (1950-1952), and to the First Parliament (1952-57). During his term of legislative activity, Shri Venkataraman attended the 1952 session of the Metal Trades Committee of the International Labour Organization as a workers' delegate. He was a member of the Indian Parliamentary Delegation to the Commonwealth Parliamentary Conference in New Zealand.

Shri Venkataraman was also Secretary to the Congress Parliamentary Party in 1953-1954.

Although re-elected to Parliament in 1957, Shri Venkataraman resigned his seat in the Lok Sabha to join the State Government of Madras as a Minister. There Shri Venkataraman held the portfolios of Industries, Labour, Co-operation, Power, Transport and Commercial Taxes from 1957 to 1967.

During this time, he was also leader of the Upper House, namely, the Madras Legislative Council.

Shri Venkataraman was appointed a Member of the Union Planning Commission in 1967 and was entrusted the subject of Industry, Labour, Power, Transport, Communications, Railways. He held that office until 1971.

In 1971, Shri Venkataraman was elected to the Lok Sabha from Madras (South) Constituency and served as an Opposition Member of Parliament and Chairman of the Public Accounts Committee.

In 1980, Shri Venkataraman was re-elected to the Lok Sabha and was appointed Union Minister of Finance in the Government headed by Smt. Indira Gandhi. He was later appointed Union Minister of Defence.

Shri Venkataraman was also, variously, member of the Political Affairs Committee and the Economic Affairs Committee of the Union Cabinet; Governor, International Monetary Fund, the International Bank for Reconstruction and Development, and the Asian Development Bank.

Shri Venkataraman was a Delegate to the United Nations General Assembly in 1953, 1955, 1956, 1958, 1959, 1960 and 1961. He was Leader of the Indian Delegation to the 42nd Session of the International Labour Conference at Geneva (1958) and represented India in the Inter-Parliamentary Conference in Vienna (1978)). He was a Member, United Nations Administrative Tribunal from 1955 to 1979 and was its President from 1968 to 1979.

Shri Venkataraman has visited all countries of West and East Europe, the Soviet Union, U.S.A., Canada, South-East Asia, Japan, Australia, New Zealand, Yugoslavia and Mauritius on official duties.

Shri Venkataraman has received the Doctorate of Law (Honoris Causa) University of Madras, the Doctorate of Law (Honoris Causa) Nagarjuna University. He is an Honorary Fellow, Madras Medical College; Doctor of Social Sciences, University of Roorkee; Doctor of Law (Honoris Causa) University of Burdwan. He has been awarded the Tamra Patra for participation in the freedom struggle; the Soviet Land Prize for his travelogue on Shri K. Kamaraj's visit to the Socialist Countries. He is the recipient of a Souvenir from the Secretary-General of the United Nations for distinguished service as President of the U.N. Administrative Tribunal.

The title of "Sat Seva Ratna" has been conferred on him by His Holiness the Sankaracharya of Kancheepuram.

Shri Venkataraman was elected Vice-President of India in August, 1984.

He was, simultaneously, Chairman of the Rajya Sabha (Council of States), the Second Chamber of the Indian Parliament.

Shri Venkataraman is Chairman of the Jury for the Jawaharlal Nehru Award for International Understanding and of the International Jury for the Indira Gandhi Prize for Peace, Disarmament and Development.

He is Vice-Chairman of the Jawaharlal Nehru Memorial Fund; Trustee, Indira Gandhi Memorial Trust; President, Indian Institute of Public Administration; Chancellor, Gandhigram Rural Institute; Chancellor, Delhi University; Chancellor, Panjab University and President of the Indian Council for Cultural Relations.

Shri R. Venkataraman was elected to the highest office of the President of India on 16 July, 1987.

WATER RELATED DISEASES

DR (SMT.) NIHARIKA A. NATH

Resistance to the use of sanitary latrines by the people and resorting to indiscriminate use of agricultural fields for defaecation are some of the practices which are conducive to the transmission of water-borne diseases. A complete socio-cultural change through creating awareness, alongwith provision of sanitary measures will go a long way in reducing the incidence of these diseases.

FRESH, clean water is essential to life. But poor sanitary practices can transform water into an agent of death. In developing countries, water-borne diseases like cholera, typhoid, diarrhoea and dysentery kill thousands every day. Children and infants are the most frequent victims. Even when a source of drinking water is safe, polluted surroundings and lack of hygiene may contaminate water, causing disease to spread.

In the past, sanitation was centred on the sanitary disposal of human excreta. Even now, to many people, sanitation still means the construction of latrines. In actual fact, the term sanitation covers the whole field of controlling the environment with a view to prevent disease and promote health. Much of the ill health in our country is largely due to lack of safe drinking water. There can be no state of community health and well-being without safe water supply.

A scientist may describe water as a compound of hydrogen and oxygen. But its indispensability to physiological existence of all living forms is undisputed. Water is not only indispensable for physiological activities, but it has its sociological role related to various human activities like bathing, washing, cooking, cleaning, agriculture and industry. When one refers to water in relation to health, it does not relate to its indispensability to life, but the harmful effects on the health of people that water can cause. These harmful effects on health are usually referred to as "water associated diseases". Water may contain living organisms, excess of inorganic salts, or intermediate hosts of certain disease, and when consumed, acts as a source of diseases. Stagnated water source also acts as breeding ground for some mosquitoes, resulting in an abundance of new generation of disease producing vectors.

Water Scarcity

In places, where there is scarcity of water, and it is not available in quantity sufficient for bathing and cleaning—diseases which may result are also referred to as 'water washed diseases' such as scabies, conjunctivitis etc.

The harmful effect of water on health is attributed to the presence of disease producing organisms in water, excess or lack of certain inorganic salts and minerals, or due to unhygienic practices associated with use of water. Specific among these diseases are 'water borne disease', which are defined as diseases that are contacted when human being becomes infected, as the water which is drunk or otherwise used, contains the pathogen in question. Common

source outbreak results most often from faecal contamination of drinking water or consumption of raw vegetables cultivated by sewerage contaminated water. Common prevalent water associated diseases and their classification is given in table 1.

Water Contamination and its effects

In India, where the rate of population growth is very high, the rate of water contamination in the absence of adequate sewerage system is also very high. While the story of almost complete eradication of the classical water borne diseases from many of the developed countries is well known, these diseases are still prevalent in abundance in India.

The problem of water contamination and its harmful effect on the health of its people is not faced by India alone. No country in the world is satisfied with the present position of safety of water used for drinking purposes. Even the developed countries are still developing. The demand for water, both for domestic and industrial use, is continually increasing, and even if the rate of increase is as low as 4% per annum, the demand will double about every 20 years. This has several important consequences.

First, even supposing that the proportion of water requiring purification before use does not increase, it will be necessary to double water treatment works every 20 years. Secondly, the additional water will become increasingly costly to obtain, because the nearer and cheaper sources have already been tapped. Thirdly, contaminated waste water will also increase in volume and expenditure on treatment plants will increase proportionately. Fourthly, even if the rivers that receive the resulting effluents remain the same size, the amount of dilution available to absorb the resulting contamination, expressed as a ratio of river flow to effluent flow, will progressively fall so that the degree of treatment provided must be correspondingly increased, at an additional cost. Fifthly, the natural flow in the rivers is not likely to remain as large as it is now, because increasing quantities of water will be abstracted to provide for more domestic, agricultural and industrial demands. Still more efficient, effluent treatment will be necessary to compensate for that.

Diarrhoeal diseases have long been known to be associated with contaminated water, in which the causative oragnisms of the disease are transported and survive until they enter the human host. Mortality rates from these diseases vary from virtually nil to 50 per 100,000 and the gross inequalities are largely a reflection of the adequacy of pollution control of water used for drinking. There are other diseases in the transmission of which contaminated water plays a major role. Filariasis is transmitted by the bite of an insect vector that breeds in polluted water. Water contaminated by the virus of infective hepatitis has been responsible for major epidemics in India.

Polluted water may also be the cause of non-communicable diseases, because they may contain toxic material of various kinds originating largely in industrial wastes, although domestic sewerage system may not be entirely quiltless. The toxicology of many new pollutants is not yet well understood. But diseases like xenobiotic toxicity and infant Methaemoglobinaimia though rare, are attributed to water polluted by industrial waste.

Waste water

Large number of viruses of human origin are normally found in both sewage and waste water. Concentrations in waste water are also dependant on the degree of treatment. Most conventional treatment processes reduces concentration levels but generally significant numbers of viruses survive.

Drinking water

Sources of drinking water can be heavily contaminated. It has been reported that not only rivers and ponds but also well water contains enteric viruses. Epidemiological studies have found the cause of outbreaks of hepatitis A due to contamination of streams and tube wells in China. It was observed that during the rainy season due to heavy rains, cesspools overflowed and the deep wells become contaminated with sewage.

Ground water

The application of waste water on to land, whether for agricultural irrigation or as a method of treatment and disposal, poses the possible risk of virus contamination of ground water. The factors that influence the movement of viruses in soil have recently been evaluated. The rate of application, the soil composition and structure, and the pH level, organic content and ionic strength of the effluent are also relevant.

Polio viruses

Polio viruses group A and B are different species of entero-viruses

S. No.	Category/ Method	Transmission	Causative agent	Diseases
1	2	3	4	5
I.	Specific water borne diseases.	By drinking	Living organisms such as:	
			(a) Bacterial	Cholera, Typhoid, Paratyphoid. Bacillary Dysentery.
			(b) Viral	Infective Hepatitis, Poliomyelitis Infective diarrhoea of infants (Echolcoxachic virus)
			(c) Protozoa	Amoebiasis Giardiasis
			(d) Helminthic	Ascariasis, Enterobizasis, Trichuriasis Hydatid disease Draconciasis (Guinea-worm)
II.	Non specific water borne diseses	By drinking	Agent is non-living	Fluorosis Dental caries Endemic goitre Cretinism Plumbism Xenobiotic toxicity (water containing industrial waste). —infant methaemog-lobinaimia —Dyspepsia, constipation, diarrhoea.
III.	Water Associated disease	Swimming Bathing Waddling	Living Organism	Bacterial/viral infections of eyes, nose or skin Lepotspirosis
IV.	Water Associated disease	Water as Breeding ground for mosquitoes	Parasites	Malaria Filaria Dengue Fever
V.	Water Associated dis ase	Intermediate host live in water	(a) Snail (b) Fish (c) Plants	Liver-fluke Fish tape worm Large intestinal fluke

disseminated mainly through the faecal route. They can cause serious disease of the nervous system. Actually clinically manifest disease occurs only in between 1 in 100 cases of infection. In a recent telecast by BBC, it was mentioned that the maximum cases of poliomyelitis in the world occurred in India. The other entero viruses can also cause nervous system disease, usually of a transient nature (aseptic meningitis), but on occasion clinically similar to paralytic poliomyelitis.

Viral Hepatitis

The main route of transmission on viral hepatitis A or infectious hepatitis remains contaminated water. The total number of cases in India range from 1.4 lakhs to 1.8 lakhs, every year. Most of the cases from rural area go unreported as rural population resorts to home remedy in this particular disease and usually do not seek medical help. The disease is characterised by high incidence with intermittent outbreak and is solely attributed to contaminated water supply and poor sanitary practices and facilities.

Diarrhoeal diseases

The incidence of diarrhoeal diseases is very high in India—specially amongst infants and children. It is estimated that 1.5 million children die every year due to diarrhoeal diseases. In some of the countries as much as 40 per cent of mortality in children up to first year of life is related directly or indirectly to diarrhoeal diseases. Based on some longitudinal studies carried out in different parts of our country, it has been revealed that children up to five years of age may suffer from about two episodes of diarrhoea per year, 10 per cent may suffer from dehydration and 1 per cent require hospitalisation. Based on these studies, total number of 94 million children in the country up to five years of age would have 188 million episodes of diarrhoea, 18.8 million would need dehydration and 1.8 million will require hospitalisation. Besides, 20 different pathogens may be responsible for the cause of diarrhoeal diseases. Poverty, ignorance, low socio-economic condition, poor environmental sanitation, lack of safe water supply, all contribute to diarrhoeal attacks. The disease is perhaps most prevalent because of these factors. The morbidity and mortality of the disease is more in under-nourished and malnourished children.

Enteric fever (Salmonellosis)

The enteric group of fevers are caused by four organisms: Salmonella typhi (S-Typosa), Salmonella paratyphi A, B, and C. Although enteric fever is world wide in distribution, it is particularly prevalent in tropical and developing countries, India being one of them. Carrier of

these organisms are the commonest source of infection to the community till there is an efficient water carriage system of sewage disposal and safe drinking water supply. S. Typhi spreads mainly through water. The total reported cases of enteric fever in India range from 2.5 lakhs in 1979 to 3.5 lakhs in 1983.

Helminthic diseases

Common helminthic disease associated with unsafe water supply are Ascariasis, Enterobiasis, Trichuriasis, Hydated disease (rare) and Dracontiasis. Except dracontiasis, the other helminthic diseases are transmitted when soil containing their eggs due to open field daefecation practices, contaminates the water source—of these, ascariasis is the most prevalent disease, especially amongst the pre-school and school going children.

Dracontiasis or Guinea worm

Prevalent in six endemic States of India, namely, Andhra Pradesh, Gujarat, Karnataka, Madhya Pradesh, Maharashtra and Rajasthan, the disease is confined to villages where tanks, ponds or step wells are the main source of drinking water. The disease is entirely rural in its distribution and thus affects the poor rural communities. It is estimated that 8.1 million people spread over 9,300 villages in 77 districts amongst the six endemic States in India are affected by this problem. A guineaworm eradication programme has been launched by the Government of India Since 1979.

Endemic Goitre

Deficiency of iodine in water leads to goitre. When goitre occurs in significant number of people in defined geographical area, it is known as endemic goitre. In India, prevalence of endemic goitre had reached a stage that it became a public health problem and government of India had launched a National Goitre Control Programme in 1982. India also has the World's biggest 'goitre belt' in the sub-Himalayan region extending from Ladakh, Jammu and Kashmir in the West, passing through Himachal Pradesh, Uttar Pradesh, Bihar, Bengal, Sikkim to the north eastern States. Isolated pockets have also been identified in Maharashtra, Madhya Pradesh and Kerala. The average prevalence rate in these areas is 40 per cent.

Fluorosis

Fluorosis is caused by ingesting excessive amounts of fluoride through drinking water. It is a serious public health problem in rural areas of our country. The disease, for which there is no specific treatment, can be prevented. There are ten States in India, namely, Andhra Pradesh, Tamil Nadu, Uttar Pradesh, Punjab, Haryana, Madhya Pradesh, Rajasthan, Karnataka, Delhi and Gujarat where the disease is prevalent on a large-scale. It is estimated that the total number of people afflicted with skeletal and dental fluorosis in India are approximately 20 million. Providing defluoridated water is the only way by which the disease can be totally prevented.

The water and sanitation related diseases are sometimes referred to as intestinal or filth diseases, because they are frequently transmitted by food or water contaminated with faeces. Even in areas where adequate sanitary measures are provided, diseases still occur due to socio-cultural practices inherent amongst the people. The cultural stimuli which is passed from parents to off-springs, acts both ways. Some practices are conducive in transmission of diseases, while other practices may help in prevention of these diseases. Common outbreaks are seen during fairs and festivals, where due to lack of hygienic practices, many people fall victim to diarrhoeal diseases. Resistance to use a sanitary latrine by the people and resorting to indiscriminate use of agricultural field for defaecation are some of the practices which are conducive to transmission of enteric diseases. A complete socio-cultural change brought in through creating awareness, along with provision of sanitary measures will go a long way in reducing the incidence of these diseases in the country.

RURAL ENVIRONMENTAL INTERVENTION AND FILARIASIS —a study

SUSHILA NAYAR, M. P. DWIVEDI AND A. M. MEHENDALE

Man's actions in creating vector breeding sites have been noted and discussed frequently in the filariasis literature. In the present study it was found that the intervention had been directed to make the village, environment cleaner by collecting the house drainage in a pit, instead of its being drained in the village lanes. This man-made intervention technology aimed at improving the environment has favoured the mosquito-breeding and led to heavy endemicity of filarial infection.

FILARIASIS is mainly an urban health problem and is spreading fast due to industrialization and unplanned urbanization. Centrifugal distribution of filarial endemicity being more in the urban as compared to the rural areas has been reported by Pawar and Mittal (1967). But the available data of filaria survey of Wardha district (1985) shows the situation to be just the reverse.

A survey of village Peth near Anji Primary Health Centre, District Wardha, Maharashtra, was carried out to sutdy factors responsible for higher prevalence of filariasis in villages as compared to towns in Wardha district (Report on Filaria, District Wardha, 1985).

While going round the village a striking observation was made that quite a number of houses were having a pit in which the house drainage was regularly collected. On detailed examination it was found that in some houses a 'Ranjan' (baked earthen vessel) was placed inside the pit for the collection of water. This backed earthen vessel is permanently fixed in the pit and cannot be taken out for emptying the collection of the household drainage. These pits and 'Ranjan' were full of water and there were a number of larvae of Culex fatigans.

The study included the collection of data on prevalence of filariasis and the role of rural environment for maintaining the disease at its high prevalence. The survey was undertaken in the month of May/June when the transmission of the disease was expected to be low. An interim report has been prepared while the work was being further extended to study the role of intervention of environment in detail.

MATERIAL AND METHODS

Peth is a village 2 km away from Anji PHC in Dist. Wardha,

Maharashtra. This was selected for the survey because of the villagers' ready co-operation for the survey. The population was enumerated by a team of interns and the staff of the Department of Community Medicine, Mahatma Gandhi Institute of Medical Sciences, Sevagram District Wardha, Maharashtra, in the month of May and June, 1985. Numbering of the houses was done and the survey was carried out through house to house visits. The various socio-demographic details such as name, age and sex, etc., of each individual were recorded. As many individuals as possible were examined for the manifestations of filariasis.

In the night, from 8 P.M. till 12 midnight blood slides were collected for detection of Microfilaria (Mf) in blood smears. This was done by the active participation of final year M.B.B.S. students, interns and staff of the Department of Community Medicine posted at Kasturba Rural Health Training Centre under Reorientation of Medical Education (ROME) Project at Anji. Three drops of blood were taken by a bold prick on terminal phalanx of left ring finger, on a clean glass slide and thick smear was made. The peripheral smears were dried, dehaemoglobinized and stained with JSB-I. These were examined for the presence, type of microfllariae and their count per 20 cmm of blood.

Study of the mosquito breeding places was also carried out simultaneously. All minor and major breeding places were located. Mosquito collection was done twice in the months of May/June and October/November, 1985. While going for search of possible breeding places of mosquitoes, it was discovered that there was an established community practice in the village of collecting household drainage in a big baked earthen vessel which is placed in a pit just outside the house. This baked earthen vessel is known as 'Ranjan'. Mosquitoes were collected from fixed stations, i.e. house with 'Ranjan'/pit for waste water, house without 'Ranjan'/pit for waste water and directly from the 'Ranjan'/pit itself. Identification of species was done and female culex mosquitoes were dissected and examined for the presence of different stages of development of the larvae.

RESULTS

The observations are presented under two main headings :

(a) Parasitological observations:

(b) Environmental observations.

(a) Parasitological observations:

TABLE-I

Distribution of population surveyed for infection, disease and endemicity rate.

1.	No. of families surveyed	115
2.	Total population surveyed	570
3.	No. examined for clinical manifestations of filariasis	520
4.	No. found with the disease	47
5.	Filaria Disease rate (%)	9.04
6.	Population examined for Mf in night blood	380
7.	No. found +ve for Mf	132
8.	Infection rate (%)	34·73
9.	Total affected	176*
10.	Filarial endemicity rate (%) in examined population	33.84

*3 persons were found positive for Mf alongwith clinical manifestations.

A total of 570 persons living in 115 families from the village Peth were surveyed in this study. On clinical examination of 520 persons out of the surveyed population, 47 showed clinical manifestations of filariasis giving a disease rate of 9.04% in examined population. Night blood examination of 380 (73.07%) persons for Mf was carried out, of which 132 were found positive for microfilariae in their blood showing an infection rate of 34.73%. Three persons were found having infection as well as disease. Thus it can be seen that a total of 176 persons were affected with filariasis, giving the filarial endemicity rate of 33.84% in examined population.

TABLE-II

Intensity of microfilarial infestation.

No. of microfilariae	No. of Smears	Percentage
1—2	5	3.79
3—5	38	28.79
6—10	40	30.30
11—20	38	28.79
21—50	9	6.82
51—100	2	11.5
Total	132	100.00

It will be seen from Table-II that more than 60% positive slides showed less than 10 Mf in approximately 20 mm^3 of blood. Only 2 (1.51%) positive slides had high parasite count whereas 38 (28.79%) smears were in the grade of 11 to 20 and 9 (6.82%) were having infestation of 21 to 50 parasites per slide (20 mm^3). The lowest count was 1 per slide and highest count was 84 per slide.

(b) **Environmental observation :**

TABLE —III

Distribution of filariasis in relation to reservoir for waste water ('Ranjan'/pit).

Reservoir ('Ranjan'/pit)	Families				Population*			
	Surveyed		Affected		Surveyed		Affected	
	No.	%	No.	%	No.	%	No.	%
Having 'Ranjan'/pit	25	21.74	23	92.00	125	21.93	58	46.4
Not having 'Ranjan'/ pit	90	78.26	61	67.78	445	78.07	118	26.51
Total . .	115	100.00	84	73.04	570	100.00	176	30.87

*$X^2 = 17.9$ df = 1 P < .001

It was observed that 25 (21.74%) families were having 'Ranjan'/pit for collection of house drain, whereas 90 (78.26%) families did not have 'Ranjan'/pit for collection of house drain. The distribution of affected population was 58 (46.4%) living in houses having 'Ranjan'/pit for collection of house drain and 118 (26.51%) living in houses having no such method for collection for house drain. It may be noted that filariasis has been significantly high among the inmates of houses having 'Ranjan'/pit for collection of house drain; than among those who did not use this method.

TABLE—IV

Man hour density and filarial infection rate among vector mosquitoes in all catching stations.

Place of mosquito collection	Period of collection (in hours)	Man hour density	Infection rate (%)	Infectivity rate (%)
1. House with 'Ranjan'/pit . . .	6	15.83	5·26	2.10
2. House without 'Ranjan'/pit . . .	6	12.16	2.73	..
3. From 'Ranjan'/pit	6	14.16	3.52	1.17
TOTAL	18	14.05	3.95	1.18

From table IV it may be seen that three catching areas were fixed and the collection of mosquitoes was carried out for six hours in each area. The man hour density varied from 15.83 in house with 'Ranjan'/pit, 12.16 in house without 'Ranjan'/pit, to 14.16 from 'Ranjan'pit itself. The infection and infectivity rates were 5.26% and 2.10% in house with 'Ranjan'/pit, 2.73% and nil in house without 'Ranjan'/pit and 3.52% and 1.17% from 'Ranjan'/pit itself. The overall man hour density, infection rate and infectivity rates were observed as 14.05, 3.95% and 1.18% respectively during the present study.

Search for possible breeding places of culicine mosquito was made. There were five public wells and three tube wells. It was fouhd that the surrounding of the wells did not have sufficient waterlogging for mosquito breeding. The mosquito breeding was largely observed in 'Ranjan'/pits which were used by the community for collection of house drainage.

DISCUSSION AND COMMENTS

The results of hits pilot study of village Peth indicate that the infection rate was 34.73%; disease rate was 9.04% and endemicity rate was 33.84%. These rates when compared with the urban area of District, Wardha were very high, thelatter rates being 4.54%, 1.07% and 5.61% respectively (Filaria Survey Report of District, Wardha, 1985).

While finding out the intensity of microfilarial infestation it has been observed that 40 (30.3%) smears were having 6—10 Mf per slide and 38 (28.79%) were having counts between 3—5 and 11—20 per 20 mm^3 each. Only 2 (1.51%) smears showed 51—100 Mf per 20 mm^3 of blood and none was found having more than 100 Mf Park (1961) observed highest percentage of smears having 3—5 Mf and only 7 (1.6%) having 100—200 Mfpe r 20 mm^3 of blood.

The study of mosquito breeding places was carried out in this village. There were five public wells and three tube wells but there was no stagnant water round about these wells. Whatever

small amount of water did collect near these had dried up during the month of May. A very small pacca open drain did not show the larvae of Culicine mosquitoes.

While going round the village, a striking observation was made that quite a number of houses were having a pit in which the house drainage was regularly collected. On further detailed examination it was found that in some houses a 'Ranjan' (baked earthen vessel) was placed inside the pit for the collection of water. This baked earthen vessel is permanently fixed in the pit and cannot be taken out for emptying the collection of the household drainage. These pits and 'Ranjan' were full of water and there were a number of larvae of *Culex fatigans*. This indicates that even during the period of summer these 'Ranjan' were acting as permanent breeding places for the mosquitoes.

The study also indicates that there is a definite association of higher prevalence of filaria infection (46.4%) among the inmates of the houses which were using the 'Ranjan'/pit for collection of house drainages against the infection rate of 26.51% among these not using 'Ranjan' for collection of house drainage.

Man's actions in creating vector breeding sites have been noted and discussed frequently in the filariasis literature, but virtually no systematic studies of these forms of behaviour have been undertaken[1]. In the present study it was found that the intervention had been directed to make the village environment cleaner by collecting the house drainage in a pit or specially devised 'Ranjan', instead of it being drained in the village lanes. This man made intervention technology aimed at improving the environment has favoured the mosquito breeding and led to heavy endemicity of filarial infection.

In view of the above findings, attempts are being made to reduce the filaria problem by changing the community practice of having 'Ranjan'/pit to the use of a soakage pit.

Profile in Courage

NATION HONOURS A LEPROSY CURED FARMER

H. Nanjaiah is a class by himself. Of all the proud recipients of the National Award for the Welfare of Handicapped, 1987, he has the distinction of being the only agriculturist. Though totally illiterate he not only fought the ravages of leprosy, but also established himself on his two acre plot of land and is today a proud head of the family comprising of his wife and three children.

Born in 1936 and a resident of village Vansagere in Tumkur district of Karnataka, Nanjaiah fell a victim of leprosy when he was 34 years old. Though he is fully cured, the disease has left his both hands deformed. Despite this misfortune, Nanjaiah did not lose hope and continued farming, in which he had been helping his parents ever since he was 10 years old. He proudly maintains that he can himself plough his field and do all the work there.

He has not only displayed capability for hard work, but has also shown his sagacity. Division in the family had left him with a plot of two acres only, which being insufficient for the livelihood of a whole family, he applied and got a loan from the bank for increasing his agricultural production and the income of his family. He has also procured two cows, which also add to the income of the family. The result is that Nanjaiah today with his wife and three children is leading a happy life.

Thanks to his qualities of head and heart that with all the odds against him he could claim national recognition by being honoured with the most coveted award a disabled could expect—PIB.

REFERENCES

1. **DUNN, F.L.** Behavioural aspects of the control of parasitic diseases. Bulletin of the World Health Organization, 57 (4): 499-512 (1979).
2. *Filaria Survey Report of Wardha District*. Filaria Survey Unit, Nagpur (1985).
3. **MISHRA, S.S. & DWIVEDI, M.P.** An Epidemiological Study of Filariasis in Rewa Town (M.P.). *Indian Journal of Public Health*, 23(1): 7-16 (1979).
4. *Operational Manual: National Filariasis Control Programme*. National Institute of Communicable Diseases. New Delhi (1978).
5. **PARK, J.E.** Filariasis in Rewa Division. *Indian Journal of Public Health*. 4: 114-121 (1961).
6. **PAWAR, R.G. & MITTAL, M.C.** Filariasis in Jamnagar. *Indian Journal of Medical Research*, 56: 370-376 (1967).

ORAL CANCER —A MAN-MADE DISEASE

DR P. K. RAY AND B. S. KHANGAROT

It is a fact that there is a high correlation between tobacco chewing habit and incidence of oral cancer. Public health education programmes can encourage individuals, especially school children, not to adopt any tobacco habits.

CANCER is fast becoming a third world concern. The global number of new cancer patients is about 5.9 million, of which more than 3 million are in the developing countries. The cancers that chiefly affect the third world countries are those of cancer of the uterine cervix, oral cancer, oesophaglal cancer and liver cancer. The world Health Organization (WHO) experts warned that oral cancer might become an epidemic in South-East Asia, unless the current trends of cigarette smoking and tobacco-chewing habits are slowed down or reversed.

Tobacco chewing: a social habit

Oral cancer includes the cancers of the oral cavity and vermillion border of lip. It is one of the 10 most common cancers in the world. In Bangladesh, India, Pakistan and Sri Lanka, it is the most common cancer type and accounts for about a one-third of all cancers. More than 1,00,000 new cases are detected every year in South and South-East Asia, with very poor prospects of survival. As early as 1902, attention was drawn to a possible relationship between the tobacco-chewing and oral cancer in India. Oral cancer incidence has reached at the highest rate among peoples of South and South-East Asia where the habits of smoking and chewing of tobacco are common. The most common form of tobacco chewing is the betel quid (paan), which usually consists of the leaf vine (*piper betle*), arecanut, lime and tobacco. The composition and method of use of quid and other forms of tobacco vary from State to State in India. Flakes of dried tobacco are usually mixed with sliced dried nut and lime, the whole being wrapped in a betel leaf on which catechu, an extract of the heartwood of the *Acacia catechu* is smeared. Spices such as cardamom, cloves, etc., are sometimes added for flavour and taste.

Chewing tobacco in betel quid is a social habit and also a personal habit. It is a way of making friends

and killing time. Betel shops employ millions of people in India, especially in Uttar Pradesh, Bihar, Delhi and West Bengal. Cigarette, quid betel and pan masala are consumed throughout the country. Shops are often located in desert areas, slums, cinema houses, bus stands, railway stations, elegent nightclubs, sea beaches, rivers, jungles and at almost every place where men live.

Statistics show that for the past few years, there has been an alarming increase in the incidence of oral cancer in India especially in Uttar Pradesh, Bihar and West Bengal. Tobacco chewing might be one of the responsible factors. WHO studies and epidemiological surveys suggest that one single major health hazard related to tobacco-chewing is the oral cancer. Tobacco leaves and cigarette advertisements play an important role in marketing and publicising tobacco chewing and smoking. Tobacco making companies spend millions of rupees trying to link chewing habits with higher life-style.

Other popular forms of tobacco consumption are also equally potent causes of oral cancer. These include the use of 'Nass' or 'Nasswar' in which a mixture of tobacco, ash and lime with oil or water is used. It is inserted into the mouth cavity in small amounts and after a while it is spat out. The smoking of bidi and cigarette are also responsible for this dreaded disease.

Risk factor

It is a fact that there is a high correlation between tobacco chewing habits and incidence of oral cancer. (a) Numerous studies indicate that cases of oral cancer occur in persons who use tobacco and (b) people who chew tobacco have high risk of developing oral cancer. It has been observed that the cancers almost always occurred on the side of the mouth where tobacco quid betel was used to be kept.

It is hard to give exact number of tobacco chewers in India or in South-East Asia because information is abundant in some places and numbers keep changing. Approximately 90% of oral cancer in South and South-East Asia can be correlated to habit of tobacco chewing and smoking. Tobacco chewing and smoking increase the risk of oral cancer. In such cases the risk of developing oral cancer is about 10-20 times more than in people who neither chew nor smoke tobacco.

There is some evidence that risk of oral cancer is increased in people who use tobacco in quid betel and also use alcohol. High concentrations of alcohol can develop oral cancer. Other evidences indicate that the incidence of oral cancer is high in people who chew quids even without tobacco, compared with people who do not chew quids at all. Other factors, such as malnutrition, immunological, disorders, infection with human (alpha) herpes virus I, *candida* infection and poor oral hygiene may also increase the risk of oral cancer.

Educational versus legislational programmes: Cancer prevention

Public Health Education Programmes can encourage individuals, especially school children, not to adopt any tobacco habits. People should be encouraged to rinse their mouth after chewing tobacco and not to retain the quid in mouth during sleep. Health education programmes should combine various techniques, such as person to person communications, person to group communication, radio and TV talks, through films, newspapers, magazines, posters, etc. The best way to stop oral cancer is not by surgery or by medicines but by education and prevention.

Tobacco chewing and smoking may be stopped or at least reduced to certain extent by legislation or health education. There should be statutory warning on each tobacco product packet used for chewing or smoking including 'bidi'. Warning should be phrased more strongly like "Tobacco chewing causes oral cancer", "cigarette or bidi smoking causes cancer". Advertising of tobacco products in newspapers, popular magazines and films may be restricted. There should be restriction on smoking of tobacco products in enclosed public places such as hospitals, theatres, colleges or university canteens, restaurants and places

of business. This is because passive smoking by inhalation only is also injurious to even a non-smoker.

In our country, millions of people live on poor diet, facing malnutritional disorders. It is surely not justifiable to devote good agricultural land to growing tobacco. Smoking and chewing of tobacco is a big health problem and is one that concern all of us. It is high time that we should stop use of tobacco either in the form of smoking or chewing.

Early detection

If tobacco is put into the oral cavity, it assaults the delicate tissues of the mouth. Oral cancer is preceded in almost all cases by precancerous lesions like leukoplakia and erythroplakia, and occasionally by other conditions, such as submucous fibrosis. Among the precancerous conditions, submucous fibrosis is of great interest in the South-East Asian countries, most likely because of extensive habit of chewing tobacco. Clinically, it is characterized by the appearance of fibrous bands of the oral mucosa. There is an epithelium damage which makes it more vulnerable to actions of carcinogens present in tobacco chewing. The importance of oral cancer as a public health priority is underscored by the fact that the suffering, disfigurement, and death it causes need not occur. The detection of oral cancer at an early stage is possible with simple inexpensive treatment, and resulting in long-term survival of patient.

All cancers are characterized by uncontrolld growth of cells. Cells naturally grow and multiply in healthy body, but this normal cell growth is controlled by a complex mechanism. Cancers occur when the normal controls break down. Cancer cell growth can be stopped by radiation and chemotherapeutic methods, which are often crude, painful and expensive. These treatments destroy cancer cells as well as the healthy normal cells and produce a lot of side effects. Extensive side effects may even lead to patients' death. Thus, we need better treatment for cancer patients with toxicity only for target cancer cells in preference to healthy normal cells.

Newer approaches to control of cancer

In the early 70's researchers at the University of Southern California, performed a landmark experiment as they were able to identify genes which have the potential for causing cancer. This discovery opened the door to new forms of treatment. It is possible to turn off the cancer gene or even to repair it. But in this form of treatment, the problem of selectivity comes up. The problem remains unsolved till today and needs further research on this crucial subject.

Another promising approach to stop cancer cells growth is immunotherapy, the secret of which lies within our own body. In this process, body's immune system is boosted against cancer. Our immune system is made up of cells that protect body, destroying foreign agents such as virus, bacteria and other pathogens. It has selectivity and can recognise invaders carrying molecules called antigens. Thus, immune cells can spot under certain situation the cancer cells and can destroy them. However, if the number of cancer cells outnumber the immunologically committed cells, cancer cells continue to grow, increase in number, invade the normal tissues and interfere in its functions and eventually kill the host.

Cancer in a major way is a preventable disease, since most of them are environmentally linked, or occupationally connected on 'habituals'. With suitable measures it should, therefore, be preventable.

Further Reading

1. **Hirayama T.** *Bulletin of the World Health Organization*, 34, (1966), 41.
2. **Pindborg, J.J.** Oral Cancer and Precancer. Bristol, John Wright (1980).
3. **Holmstrup, P. and Bessermann, M.** Oral Surgery, 56 (1983), 388.
4. *WHO Technical Report Series No.* 695. Smoking Control Strategies in Developing Countries. Report of a WHO Expert Committee (1983).
5. *WHO Report.* Control of Oral Cancer in Developing Countries—A WHO Meeting. *Bulletin of the World Health Organization*, 62 (1984), 817.
6. **Ray, P.K.** Advances in Immunity and Cancer Therapy. Springer Verlag, New York (1985).

ENVIRONMENTAL RADIOACTIVITY AND HEALTH

DR M. P. JAIN AND DR (MAJ. GEN) N. LAKSHMIPATHI

The man is being continuously exposed to the ionising radiations present in the environment as well as due to the use of radiation sources in various fields such as medicine, industry, power production, agriculture and research etc. There is large variation in exposure levels and the exposure level at any particular place, depends upon its location, type of building material used for the construction of the house, etc. The radiation exposure levels due to natural causes range from 1000 μSv to 4000 μSv per year in most parts of the world. On the basis of epidemiological surveys carried-out by several expert bodies, no harmful effects could be observed amongst the individuals exposed at these levels.

MANKIND has been exposed to the ionising radiations ever since its inception because of the presence of primordial radionuclides such as thorium-232, uranium-228 alongwith other stable isotopes from the time of formation of the earth about 5000 million years ago. Uranium and thorium got widely dispersed in the earth's crust in low concentrations and existed in the environment alongwith their decay products at the time of evolution of man on this earth about two million years ago. A few radionuclides existed in trace amounts alongwith their stable isotopes such as potassium-40 (a radionuclide) in natural potassium. In the initial periods man was exposed to the radioactivity present in air, earth's crust, water and also possessed some radioactivity inside his body due to consumption of food and water. In addition, a certain amount of exposure came from outer space. In due course of time as man became civilised and started living in houses, one more source of radiation exposure, ie, due to the presence of radioactivity inside the building materials (and also due to accummulation of radon gas inside the building) was added. Thus, man continued receiving

radiation exposure from the above mentioned natural sources of ionising radiations without knowing their characteristics till the fag end of the nineteenth century.

Immediately after the discoveries of X-rays by W.C. Roentgen in 1895 and Radioactivity by Henri Becquerel in 1896 followed by the identification of some of the naturally occurring radionuclides, viz., radium-226, polonium-210, the ionising radiation sources found their applications in medicine and industry. The radiation hazards associated with the use of such sources were manifested amongst the users in the early period and this led to the development of the discipline of Radioation Protection and Health Physics in order to safeguard against the harmful effects while handling such sources. The beginning of the second half of the present century witnessed the use of ionising radiations almost in every field (after the availability of artificially produced radioisotopes), viz., medicine, industry, agriculture, research, power production, etc.

Exposure due to radiation to extra terrestrial origin (Cosmogenic Radiation).

The cosmic radiation originates due to the interaction of high energy particles (high energy protons) from outer space (cosmic rays) with atoms of oxygen and nitrogen present in the outer atmosphere, resulting to produce showers of secondary particles, including muons, neutrons, gamma rays and high energy electrons. These secondary particles penetrate through the atmosphere to the earth. As the atmosphere provides shielding against the penetration of these radiations to earth, the intensity of cosmic rays depends on the location of the place, viz., on its altitude and to a lesser extent on latitude. It is minimum at the equator and sea level, and increases with the increase in altitude and latitude. The intensity at a height of 6000 meters is about ten times that of at sea level. The effect of latitude is comparatively much less and is to the order of 10 per cent. At the sea level, the average annual dose due to cosmic radiation is of the order of 250 μSv to 300 μSv. The cosmic ray dose increase by 20 μ Sv per year due to an increase in height by 300 meters near sea level. The passengers and the crew receive higher amounts of radiation exposure due to cosmic radiation (in comparison to that of at sea level) at altitude used for intercontinental travel. It is estimated that London to New York trip by air involves a cosmic rays dose of 36 μSv and the Astronauts who made the first landing on moon received 3600 μSv during their 200 hours journey from earth to moon and back.

Exposure due to radiative substances within the body.

This source of exposure is present inside the human body (mainly potassium-40 and carbon-14) itself due to the presence of a large number of radioactive substances taken inside the body through food and water. Out of all, potassium-40 is responsible to deliver maximum dose. Potassium is an essential constituent of body cells and is uniformly mixed in the body. Potassium-40 occurs to the extent of 0.012 per cent in natural potassium. The amount of potassium in the body is of the order of about 2 grams per kilogram weight. The average whole body activity is 3700 Bq each for potassium-40 and carbon-14. The dose due to potassium-40 is in the range from 150 μ Sv to 270 μ Sv per year and due to carbon-14 in the range from 5 μSv to 22 μ Sv. Much smaller doses of whole body radiation are delivered from rubidium-87. Apart from radon inhalation (which is responsible to deliver very large doses and is discussed in detail separately) the decay products of primordial radionuclides mainly from polonium-210 and radium-226 irradiate selectively the lung and bone cells tissues and deliver an average effective dose of 160 μ Sv per year.

Doses from terrestrial radioactivity.

Exposure to population from the terrestrial radiations are due to the presence of primordial radionuclides mainly uranium-238 (with its decay products radium and other nuclides); thorium-232 (with its decay products) and potassium-40 in the soil and rocks. The doses due to terres-

The beginning of the second half of the present century witnessed the use of ionising radiations almost in every field, *viz.*, medicine, industry, agriculture, research, power production, etc.

trial radiations are mainly due to gamma rays. The exposure due to terrestrial radiation at sea is negligible because of minimal concentration of these radionuclides in the ocean. The dose received by a person from terrestrial radiation depends on the geology of the locality and the type of dwelling. In brick houses the dose is likely to be 500 μ Sv more in a year as compared to the dose received in open or in a wood house. The concentration of uranium-238 and thorium-232 varies by a factor of ten in common rocks and is much higher in some phosphate rocks (about 200 times more in comparison to common rocks). The radioactivity may thus be high locally in the following cases: (1) Due to the presence of rocks of igneous origin and particularly granites or due to the soil derived from weathering of such rocks; (2) Due to the accumulation of the materials released from such rocks. This applied in particularly to certain minerals such as monazite or zircon which occurs as dense, mechanically resistant particles in high insoluble form, and which may be washed ashore as coastal sands derived from the weathering of offshore rock. Stretches of monazite sands occur in several parts of the world. The outdoor annual gamma radiation dose rates in towns of Esperito Santo and Rio de Jeneiro provinces of Brazil, range from 1500 μ Sv to 7000 μ Sv. In Kerala and Tamil Nadu States of India the average dose received by the people residing on a narrow coastal strip having monazite with thorium content of 8 to 10 per cent is of the order of 4000 μ Sv per year. It is estimated that out of the total world's population, about 95 per cent receive

annual dose due to terrestrial radiation between 210 μ Sv and 430 μ Sv.

Doses from radon inside Dwellings.

This type of exposure results from inhalation of two of the isotopes of radon namely radon-222 and radon-220. Both are in the gaseous forms and are present in the air inside dwellings in higher concentration (under certain conditions 10 to 20 times higher) as compared to the air outdoor. Both are formed mainly by the decay of radionuclides present in the soil or in building materials. Both decay in turn to radionuclides which deposit on the linings of the air passages and in the lungs. The total dose resulting from inhalation of radon-220 is about one quarter of that from radon-222.

Some of the main factors governing the radon concentration in dwellings are soil atmosphere, environmental atmosphere, building materials and the respective exchange processes, whereas the important factors for radon concentration in the environment are soil exhalation rate and meteorological conditions. The radon concentration levels have been measured by various agencies in different parts of the world. This has been possible only recently to carryout such measurements due to the availability of improved measurement techniques. There is a very large variation in the radon concentration levels in different parts of the world and even within the same country in different cities. The highest levels have been found in dwellings in the Cornwall area, thus contributing to the inhabitants of this area an effective dose equivalent to about 11.7 μ Sv per year.

Population exposure due to the use of ionising radiation sources.

Ionising radiation sources found their use in diagnostic and therapeutic applications in the field of medicine and to a smaller extent in industrial applications immediately after the discoveries of X-rays and naturally occurring radionuclides such as uranium, radium and thorium, etc., in the beginning of the present century. The use of ionising radiation sources found applications in various other fields also, viz., agriculture, power production, basic and applied research in many fields, in addition to much larger applications in medicine and industry after the availability of artificially produced radionuclides during early 1950s. Medical use of ionising radiations is responsible for providing maximum exposure to population out of applications in all other fields, viz., nuclear power production, agriculture, industry and research, etc. The use of ionising radiation sources in medicine is justifiable in view of the benefits derived. Radiation treatment is the best mode of treatment available for majority of cancer patients. Radiopharmaceuticals together with modern imaging devices and computers help to diagnose functional disorders of vital organs such as brain, heart, liver, lung and kidney. Radioiodine is the best choice available for the diagnosis and treatment of thyroid disorders. The large scale use of ionising radiations is inevitable in the field of medicine as it has brought tremendous benefits.

The health risks of radiation have been carefully studied by expert bodies such as ICRP, BEIR, UNSCEAR, for the last several decades and are well understood in comparison to those of many other physical or chemical environment. A very large dose of .5 to 10 sieverts causes death and injury within a few weeks. But, however, there is no direct epidemiological evidence that exposure at low levels of radiation such as due to natural background radiation levels, causes harm to man. As per estimates the life time risk for natural incidence of cancer (in developed countries where life expectancy is beyond 70 years) is 12 to 16 per cent, i.e., 1,20,000 to 1,60,000 per million and the probability of cancer due to radiation exposure is 100 per million per 10 μSv. Thus it is not possible to identify any incidence of cancer (if there is any) due to exposure to low levels of radiation.

Out of the total exposure to population due to environmental activity about 87 per cent is because of natural causes and 13 per cent due to use of radiation sources by man in different fields. Efforts should be made to minimise the radiation exposure to population (as well as to the occupational workers) by adoption of protective measures stringently (as recommended by the expert bodies such as ICRP) during handling of radiation sources. There is a further scope of controlling the population dose in the dwellings where the radon levels are much high. The concentrations of radon and its daughter products can be reduced by increasing the ventilations. Electrostatic precipitators or other devices for aerosol filtration could also be used to reduce the concentration of radon decay products. ○

ACUTE RESPIRATORY INFECTION

DR SHANTI GHOSH

The family must know the danger signs of pneumonia so that they can consult the health worker without delay. A rapid rate of breathing (more than 50 per minute) is considered a danger sign, and a health worker must be consulted immediately.

ACUTE *respiratory infection* (ARI) is a leading cause of illness in all developing countries. It consumes a sizeable proportion of the resources of the health services in these countries. Several studies have shown that the incidence of ARI is 1.9-3.5 episodes per child per year. ARI accounts for about 20-40 per cent of children attending outpatients and a quarter of the total admissions to the children's words. Serious cases result in death and the case fatality rate due to pneumonia is 5-10 per cent. According to the Registrar General's Report on infant mortality-1979, ARI accounts for 14.3 per cent deaths during the first year and 15.9 per cent deaths between 1 and 5 years. Some other studies give an even higher figure. In babies with low birth weight, *i.e.*, birth weight 2.5 kg. or less, the death rate is much higher.

The common organisms are *streptococcus pneumoniae* and *H. semophilus influenzae*, both sensitive to several antibiotics. But a large number of people live beyond the reach of health services, hence there is a great deal of delay before the treatment is initiated. Several children die before they can reach any health facility. **In the urban areas, however, there is a tendency to over-prescribe drugs, which are not needed in many cases. This irrational use of drugs contributes to the emergence of bacterial resistance.**

Danger of death is much higher if the child is malnourished or low birth weight or is suffering from other diseases such as diarrhoea, measles or whooping cough.

Common cold

The commonest form of illness is an upper respiratory infection or a common cold, which is self-limiting and does not need any treatment besides the simple household management. All kinds of cough syrups and antihistamines serve no purpose at all and are unnecessary. The severe forms of diseases *i.e.*, pneumonia, deteriorate rapidly and may lead to death. It is therefore, necessary that the severe disease should be recognized and treatment for the severe disease, *i.e.*, pneumonia, should be available at the village level, and become an integral part of primary health care.

Involving the family

The first step in this direction is to involve the family and make them aware of the signs and symptoms and the danger signs. In mild cases, only supportive care is necessary, *i.e.*, making the child comfortable, bringing down the fever if the child has fever, making the environment humid so that the child can breathe more easily and the cough becomes less. Many household remedies such as honey, *tulsi*, ginger, etc., are beneficial and can be given as a decoction.

The family must know the danger signs of pneumonia so that they can consult the health worker without delay. A rapid rate of breathing (more than 50 per minute) is

considered a danger sign, and a health worker must be consulted immediately.

The health worker

The health worker must be trained to recognise the danger signs, *i.e.*, breathing more than 50 per minute and a recession of the lower ribs. Most parents and the health workers learn to recognise it and call it "Pasli Chalna". An antibiotic recommended by Government must be administered immediately, and if there is no improvement within a day, the child should be taken to the nearest health centre or hospital. It is essential therefore that the worker must be trained adequately and must have the necessary drugs in sufficient quantities.

Acceptance by the medical profession

It has always been believed that only doctors can prescribe drugs and even the Government authorities till recently, have not passed on that responsibility to other health workers. **Our experience shows that a health worker can be trained to use a few drugs efficiently and correctly and there is no danger in that. On the contrary, because the drug can be prescribed without delay, the danger of death can be avoided.** It is not possible for the seriously ill child to be taken to a doctor or a hospital. The result is that many of these children die, before they can get any medical help. With proper training the health worker can learn to distinguish between a mild disease which only needs symptomatic treatment, a moderate disease which needs specific antibiotic, and a severe disease which needs referral to a Health centre or a hospital. The World Organization has given clear guidelines for training and management.

Training and Supervision

In a vast country like India, training of a large number of health workers is a formidable problem. Once the guidelines have been laid down, the training should be decentralised as much as possible. There should be adequate supportive supervision. □

PREVENTIVE MEASURES

Preventive measures can reduce the incidence and severity of ARI, the chief among these are:

1. **Health education.**
2. **Immunization to prevent diseases like measles and whooping cough.**
3. **Reducing low birth weight babies by better care and better nutrition of pregnant women.**
4. **Breastfeeding. Breastfed babies have a lower incidence of ARI.**
5. **Better nutrition of the child.**
6. **Reducing smoking, household smoke and pollution.**
7. **Protecting the child from chill and sudden change in temperature.**

Authors of the month

Dr (Smt.) Niharika A. Nath
Deputy Assistant Director General (Training),
Central Health Education Bureau,
Kotla Road, New Delhi-110 002.

Sushila Nayar
Director
&
A.M. Mehendale
Lecturer in Community Medicine
M. G. Institute of Medical Sciences
Sevagram, Wardha (M.P.).

M. P. Dwivedi
Director
Bhopal Gas Disaster Research Centre
Indian Council of Medical Research
Gandhi Medical College
Bhopal (M.P.).

Dr P. K. Ray
Director
&
B.S. Khangarot
Pool Officer
Immunobiology and Preventive Toxicology
Industrial Toxicology Centre (CSIR).
Mahatma Gandhi Marg
Post Box No. 80,
Lucknow-226 001.

Dr M. P. Jain
&
Dr (Maj. Gen.) N. Lakshmipathi
Institute of Nuclear Medicine
and Allied Sciences
Probyn Road, Delhi-110 007.

Dr Shanti Ghosh
A/18, Punch Sheela Enclave
New Delhi.

Dr S. R. Naik
Professor and Head
Deptt. of Gastroenterology
Sanjay Gandhi Post-Graduate Institute
of Medical Sciences
P.B. No. 375
Raebareli Road,
Lucknow-226 001.

Dr N.C. Bhargava
Adviser
Sexually Transmitted Diseases
Directorate General of Health Services
Nirman Bhawan,
New Delhi-110 011.

Dr N. Audinarayana
Research Officer
International Institute for Population
Sciences (Deemed University)
Deonar, Bombay-400 088.

GASTROENTERITIS CAN BE PREVENTED
— Everyone Has a Role

DR S. R. NAIK

The commonest cause of gastroenteritis is the infection of the alimentary tract by microbes or germs, which occurs through contamination of food and drinks by microbes passed out in the stools of patients with diarrhoea. Microbes include bacteria, viruses, parasites and fungi.

WE are all familiar with the newspaper headlines like "Gastro toll 45", "Gastroenteritis strikes again". We often ask ourselves questions like—can this disease be prevented? If so by whom and how? Obviously the concern in prevention of the disease should be shared by everyone—right from the government health department, the doctors, to the vulnerable public. It is a common belief that the government is often caught napping and at the receiving end when out-breaks of gastroenteritis occur. Even if this may not always be true, it is worthwhile to begin with the role of the public in the prevention of gastroenteritis to follow the adage "charity begins at home".

Cause of gastroenteritis

The members of the *public* should try to understand why gastroenteritis occurs, how to avoid getting it and what temporary household remedies can be used once it occurs. The commonest cause of gastroenteritis is infection of the alimentary tract by microbes or germs, which occurs through contamination of food and drinks by microbes passed out in the stools of patients with diarrhoea. Microbes include bacteria, viruses, parasites and fungi. Viruses like rota virus are the commonest, but mercifully cause milder episodes of gastroenteritis. The most frightening infection is by the bacteria, cholera organisms, which often cause massive diarrhoea leading sometimes to death of the patient in a short while after developing the first purge.

Prevention of the disease

To avoid catching infections leading to gastroenteritis, an individual has to ensure that he consumes safe food and drinks. What then is safe food or drink? An easy hint to remember is that food material heated to about 100°C for about 15 minutes will kill most microbes. Lower cooking temperatures are adequate if maintained for longer period. This ensures that our normal Indian cooking is adequate to render food safe. Why then do sporadic outbreaks of gastroenteritis occur not uncommonly in most of our com-

munities? The chief reason is inadequate preservation of cooked food. Food is left often for long periods at room temperature and in open containers allowing infection to occur, particularly through infected food handlers. Such contamination leads to large outbreaks at community levels, *viz.*, at religious fairs like the *Kumbh Mela* and other community functions. Crowded restaurants, with unhygienic kitchens are also a common source of infection causing sporadic outbreaks of gastroenteritis. Food left over from a previous family meal is liable to be infected at the time of first serving and when served again without proper heating will transmit infection. In urban homes, left over food is often dumped in the refrigerator in the mistaken belief that it will be preserved. What is also often preserved is the microbe inside the food. Such food may not be safe even if it is heated well, because heating will kill the microbes, but will not destroy some preformed substances called toxins, which are liberated by microbes. These toxins also cause gastroenteritis.

How does one detect infected food and drink? Obvious indicators are foul smell and taste, and unusual turbidity in an otherwise clear drink. Avoid *salads* and cold food at social parties; insist on refrigerated drink rather than to add commercial ice to your drink, and avoid eating in restaurants with dubious hygienic record. Home food is always the safest if one adopts hygienic kitchen habits. Kitchen staff should be scrupulously clean, should wash their hands thoroughly with soap and water after visiting the toilet and keep their finger-nails clean and well trimmed.

Oral rehydration therapy

Outbreaks of gastroenteritis often give early warnings, which must alert the public to take personal care and arrange the free availability of Oral Rehydration Therapy (ORT) powder. If an attack of gastroenteritis actually starts, keep an approximate measure of amount of fluid lost by way of vomiting and diarrhoea and replace, at a steady rate, this amount by ORT fluid reconstituted from ORT powder. One must inform the doctor in the meanwhile, but mild episodes of gastroenteritis often resolve quickly and even moderately severe attacks may be controlled adequately. It is reassuring to know that almost all attacks are self-limiting, *i.e.*, they will resolve on their own if during this period patients are supported well with replacement fluids.

Everyone has a role

The role of the *doctor* at the primary health care level must be understood clearly. A doctor does not merely give medicines. He has to try to identify the cause of episodes of gastroenteritis, namely the source of infection and educate the public about it. He has to coordinate actively with local leaders and the health authorities to contain and eradicate the outbreak.

A *health care worker* assumes an important duty of assisting the primary health care team in detecting early cases, informing the doctor, delivering the ORT powder at the doorsteps and educating the public on how to reconstitute, store and administer it. Effective domiciliary care of this type has led to gratifying results in the control of cholera in several developing countries.

In our country with its expanded national health care delivery system, the *government* has a predominant role in the control of gastroenteritis. community levels, *viz.*, at religious water and effective disposal of sewage and sullage are the key tasks. Because of budgetary stringency and shortage of water, these priority tasks have not been adequately attended to. The short-term measures include providing primary health care—medical and paramedical personnel, prompt detection of cases, expeditious distribution of ORT packets and other drugs and hospitalisation facilities to the more sick. Education of public with regard to hygiene and other aspects of the disease is also an essential duty of the government.

In all the above efforts, the government could achieve much with the greater help of *voluntary and social organizations* run by the more enlightened public, an area woefully neglected in our country. The role of *popular news media* in alerting and educating the public is also important. With genuine efforts and determination on everyone's part, it should not be difficult at all to reduce the incidence of gastroenteritis to no more than a rare outbreak.

NATIONAL SEXUALLY TRANSMITTED DISEASES CONTROL PROGRAMME

DR N. C. BHARGAVA

Health education including community education is one of the important aspects of bringing about awareness about the sexually transmitted diseases amongst the general public. The community health workers need to be involved in this programme.

THE National Sexually Transmitted Diseases Control Programme during the current plan period (*i.e.* the Seventh Five Year Plan) operates as a purely central sector scheme with 100% central assistance with an approved outlay of Rs. 100.00 lakhs. The main components of the scheme are :

- Teaching & training
- Research
- Community education, and
- Epidemiology

These components are operated on zonal basis by the Regional STD Teaching-cum-Training Centres, Regional STD Reference Laboratories and Regional Survey-cum-Mobile STD units established at Calcutta, Delhi, Hyderabad, Madras and Nagpur. Prior to establishment of these centres there were only two centres in the country which used to function/operate the teaching and training programmes and they were the Institute for the Study of Sexually Transmitted Diseases, Madras, and the STD Training and Demonstration Centre, Safdarjang Hospital, New Delhi, which have been upgraded as the Regional STD Centres. All the above five centres are given grant by the Central Government through their respective State Governments. The Central idea for inducting the programme as a central sector scheme is to reach the programme to the periphery level thereby elevating the status of the programme from the very grassroot level.

The main aim of the Regional STD Teaching-cum-Training centres is to provide training and orientation courses to the in-service medical and para-medical personnel working in the District/Civil/General hospitals, PHCs/MCH/Sub Centres in the various aspects viz. clinical, diagnostic, therapeutic, laboratory, control etc. of sexually transmitted diseases. This training and orientation course is conducted mainly with a view to effectively treating the patients at their own level rather than referring them to the medical colleges/general hospitals. It has been our experience that many of the medical personnel are inadequately exposed to the treatment of STDs, because at the periphery level clinics the medical officers are mostly graduates and are not exposed to the disease. They base their clinical diagnosis mostly on what they have studied in their course for graduation, and if there is any postgraduate, he belongs to other speciality say medicine, gynaecology, paediatrics etc. and has little interest in STD. STDs which might have clinical resemblance to dermatological cases and are being treated for the same are actually quite contrary. They instead of curing/checking the disease are simply aggravating the cases. Moreover in our country STD clinics do not func-

tion in all the district/general hospitals. They are checked in the skin departments of the hospitals, where the medical officers attending on them are not well-trained/exposed to the various aspects of STD. and as a result the disease remains with all its signs and symptoms. However, at the periphery level, the picture is altogether different. STD clinics/departments do not exist at the periphery level centres. There only a clinic exists/functions which is attended by all kinds of patients including those with STDs. As stated above, the PHC doctors mostly being graduates and having no prior exposure to the disease treat these STD patients for skin phenomena and when the patients do not respond to the drugs, they (medical officers) simply refer them to the District/General hospitals where the treatment too is doubtful. In the process of transferring the patients from one hospital/clinic to other, the disease gets aggravated and the maladies of the patients go on increasing. This time gap makes the disease worse and the patients are in their worst shape. Not only that, there exists every possibility of further spread of the disease by the individual during this period. Over and above this, the technicians working in these district and periphery level hospitals/clinics are not properly trained in undertaking the routine laboratory investigations of the disease and as a result they are not in a position to isolate the organisms responsible for the disease. Hence the only alternative left was to train these district and periphery level medical officers and laboratory technicians so that these personnel would be at the vantage point to cut down the level of infection at that level *vis-a-vis* the potential risk groups. With this idea in mind the Regional STD Teaching-cum-Training centres were established.

Research

Research is one of the most important components of the National Sexually Transmitted Diseases Control Programme. For undertaking research work leading to laboratory diagnosis of the disease, the STD Reference laboratories have been established. In addition to the research work these laboratories would also conduct (i) short orientation courses for the laboratory technicians working at the district and periphery level as proposed above (ii) conduct inter-laboratory evaluation of VDRL test in which all the district/Civil/General/Medical Colleges and Hospitals and periphery level clinics would participate in setting up a uniform standard of doing the VDRL tests throughout the region. In our country almost all the hospital/clinics laboratories as a routine do not undertake the VDRL test and if at all they are doing as a special case the results vary from that of the Reference laboratories. The main purpose of doing the VDRL tests evaluation and standardisation therefore is to bring in uniformity in the tests and results. The Reference laboratories would conduct evaluation of the laboratories by asking them to send the sera to Reference Laboratories. They in turn after performing the test would send the sera back to the laboratories for their evaluation/test and then the results of the laboratories are compared with that of the Reference laboratories.

Coming to the research aspects, the programme underlines two main areas of study which needs immediate attention (i) the organism (*T. pallidum*) itself, its ultrastructure, bio-chemistry and metabolism, its survival factor and effort to cultivate it, and (ii) the interaction between the host and the infecting agent, which should be studied by means of the new techniques based on humoral and cell mediated immunity with a view to investigating the possibilities of immunization. While syphilis is considered to have priority over the other treponematoses, there is a need for detailed studies of the endemic treponematoses and cross community between them and syphilis. The highest priority should be given to research resulting in progress towards immunization, particularly as regards a vaccine and to the development of better serological tests. Research has also been proposed on the sensitivity of treponemes to antibiotics, the response to treatment and the criteria for cure including the study of the results of treatment with penicillin and on the development of a simple reliable test of sensitivity to penicillin. Apart from the above the following areas of research have also been suggested: the incidence of congenital and acquired syphilis, studies of antigens and attempts to identify the antigen fractions responsible for treponematoses, etc. It has also been pro-

posed that fundamental biological research on the ultrastructure, cytology and metabolisms of Neisseria, ecological studies and other types of microbial flora existing in the same anatomical regions, studies of the possibility of typing gonococci and the development of standard methods for the primary isolation, characterisation and sensitivity testing of meningococci and gonococci by culture should be encouraged. Research on non-specific urethritis and chlamydia deserve the highest priority. It should include studies on their prevalance, prevention and their relationship with Reiter's syndrome and the possible role of mycoplasma and the organisms should be determined. Research on herpes infections comes second in order of priority and should include studies on epidemiology and treatment on the possibility of developing a vaccine and on the potential role of these infections in the etiology of cancer of cervix and of prostate. It has also been thought of carrying on research work on host microorganism relationships on the factors which are conducive to or inhibit growth when more than one sexually transmitted organisms, is present on anaerobic infections in this group on the significance of sexual transmission as far the virus of B hepatitis is concerned and on the development of vaccines against hepatitis and cytomegaloviruses.

In order to undertake the proposed research work sophisticated equipments like Fluorescent Microscopes, TPHA kit, spare parts, ELISA reader and accessories etc. have been proposed to be indented from abroad.

Surveys to determine magnitude of the problem

The exact magnitude of the problem in the country could only be known by undertaking survey work in the tribal and backward areas of the country. The Regional STD Survey-cum-Mobile unit would undertake the survey work in the remote and backward and tribal areas, industrial belts, tourist spots, religious/ places of pilgrimage, educational centres etc. to know the epidemiology of the disease. These survey units would also provide immediate therapy to the patients suffering from sexually transmitted diseases. These units would also survey the tribal areas/belts to identify the cases of Yaws and the population at risk and also provide immediate therapy to these patients thereby reducing the quantum of infection in the region. The survey unit besides conducting the survey work will also co-ordinate with the district and periphery level health functionaries in involving the rural/village people for community education in making them aware about the disease and the measures for its prevention. These survey unit will also make a record of all the sero positive cases of STDs and Yaws for followup action.

Health education

Health education including community education is one of the important aspect of bringing about awareness about the sexually transmitted diseases amongst the general public. During the preceding plan periods nothing much has been done about raising consciousness amongst the general masses about the ferocity of the disease. Only posters were printed for supply to the vulnerable areas of the country. On monitoring the impact of these posters amongst the population at large, it is understood that not much impact could be made by such supply of posters to these areas. Subsequently it was felt that instead of supplying such posters the mass media, audio visuals etc. could be utilised to make some impact on the minds of the people. During the current plan period this feeling was given a shape by thrusting the malady of the disease through pamphlets, folders, newspaper ads, radio spots, cinema slides, and vedeo films. Since funds are a constraint not all these measures could be launched at one time but has to be spread over years. It is essential that external assistance should be forthcoming in assuming wider dimension of the health education programme. Besides, community health workers are also to be involved in health education of the people at the village level, too. ○

ENVIRONMENTAL SANITATION — A Study in a village of Andhra Pradesh

DR N. AUDINARAYANA

The health status of a man/woman is the outcome of the interaction between his/her internal and the external environment. The rural environmental problems mainly include safe water supply, sanitary disposal of human excreta and the disposal of waste water. The present study was conducted to find out some of the environmental sanitation conditions in a village in Andhra Pradesh.

ENVIRONMENT is a combination of the air we breathe, the water we drink, the food we eat, the earth we live on, the village/city or house we live in and the things we use and discard. The health status of a man is the outcome of the interaction between the internal environment and the external environment of man. In India, nearly 76 per cent of the population are living in villages only, where the basic needs like food, clothing, shelter and safe drinking water are hardly within their reach. The rural sanitation problems are mainly safe water supply, sanitary disposal of human excreta and disposal of waste water. Therefore, in the present study an attempt has been made to find out some of the environmental sanitation conditions in a village of Andhra Pradesh.

Eligible couples of the village were selected based on the following criteria: (1) the woman must be currently married and within the age group of 15-44 years; and (2) the couples should have minimum of two living children. Thus, a sample of 140 eligible couples was selected and interviewed for this study. However, the data for the environmental conditions were collected from the husbands only.

FINDINGS

Housing and ventilation conditions

Housing and ventilation were to some extent responsible for the status of a man's/woman's health and well-being. Despite the abundance of space in the countryside, houses were crowded and of poor quality either in structure or in terms of ventilation.

In the village under study, out of the selected 140 households, 83 (59.3%) are huts, 42 (30%) are of *kutcha* type and only 15 (10.7%) are *pucca* houses. Regarding ventilation, most of the houses (71 and 59, respectively) were having poor and moderate ventilation facilities (50.7% and 42.1%, respectively), whereas only 10 houses were having sufficient ventilation facilities (7.2%). Based on the size of the windows with wooden/glass doors and the existence/non-existence of glass/wooden frames in the walls, ventilation facilities were classified as poor (small window with wooden door and non-existence of glass/wooden frame in the walls), moderate (Small/Medium size windows with wooden/glass doors and the existence of glass/wooden frames in the walls) and sufficient (Big window with glass doors and and the existence of glass frames in the walls). Interestingly, on analysis of ventilation facilities by type of house, it was found that a large number of huts were having poor ventilation facilities (65 out of 83), most of the *kutcha* houses were having moderate ventilation facilities (31 out of 42); whereas a greater number of *pucca* houses were having sufficient ventilation facilities (11 out 15).

Further, it was observed that flies and mosquitoes were common in almost all the houses (132 out of 140) and only in a few houses fly nuisance was not there.

The causes for more fly nuisance were the improper disposal of house refuse, poor ventilation and open field defecation.

Disposal of waste

In the selected village, majority (57.1%) of the respondents reported that the house refuse like dust, ash, rotten vegetables, fruits, etc., were properly disposed of from the surroundings of the houses and these were stored in small-size pits (like manure pits) or on earth. These pits were mostly near the farms. In the remaining 43 per cent of the houses, the disposal of waste was not properly done. The wastes were being disposed and stored either by the side or in the surroundings of house itself. These heaps of waste would facilitate breeding of mosquitoes and flies, which affect not only the health of the persons belonging to these houses but also the health of the members living in other houses.

Disposal of waste water

The water which has been used for such domestic purposes as washing utensils, washing clothes and bathing etc., is termed as "House Sullage Water".

In the village under study, there was no drainage system at all. However, most of the houses (91 out of 140) were having underground storage pits for the disposal of waste water. In the remaining houses, the house sullage water was directed to accumulate first into a pit dug outside the house for this purpose or this water would go to the nearby farms.

Disposal of human excreta

Proper disposal of human faecal material is important for the environmental sanitation of a community. Surveys in different parts of the country have revealed that as high as 98 per cent of the people in rural areas go to the open fields for defecation.

In the village under study also, not a single latrine was available and men and women were going to the open fields for defecation. Even the rich and educated people also had no latrines. Though most of the respondents told that though latrines were useful, they were not using them because of the bad smell of the latrines and the cost.

Availability of sanitary water for drinking

An adequate supply of pure drinking water and sanitary disposal of human excreta are not only essential for the prevention of some of the common diseases but also for the provision of facilities for a decent standard of living. The physical conditions of water supply were unsatisfactory in the selected village. Water for drinking and cooking purposes was obtained from unprotected wells. A majority of households (129 out of 140) were getting water from the village wells (Public wells) and for only 11 households, water was available from their own wells. However, except four owned wells, all the wells were open and except seven wells (6 owned wells and 1 public well) remaining wells were even without parapet also. Open wells obviously stand in a greater danger of pollution and contamination and therefore constitute a constant source of disease.

As regards knowledge of measures used for purifying water, almost all of the respondents (132 out of 140) mentioned that water was purified by some medicine, though they did not know the exact name of that medicine. According to them "somebody from the health department will come and pour medicines into the well" for the purification of the water. This showed their poor knowledge in health education. However, only some (8) educated persons told that the purification of water was done with the help of chlorination and they have also reported that, Block Health Workers and Multi-purpose workers, workers from the nearby PHC were doing this work at regular intervals. Interestingly, a few of them reported that even these workers were not allowed to do chlorination in some of the owned wells.

Suggestions

Based on the findings of this study some of the suggestions are given below to improve the environmental sanitation in the village in general.

(1) The villagers must be educated about the environmental health and health education. This can be done by showing films, slides, and through other mass media materials and also through inter-personal contacts.

(2) The key leaders of the villages may be trained in the nearby PHCs about the community health in general and about the environmental sanitation in particular. Then they may be asked to communicate the importance of health to all the individuals in their villages. Further, these leaders may be asked to co-operate with the health workers to do regular activities for maintaining the cleanliness of the environment.

(3) Health Workers and Health Guides should encourage the village youth towards composting, manurepits, purification of water, etc., for improving the sanitary conditions in the villages. ○

REPORT

NATIONAL WORKSHOP ON TRAINING IN COMMUNITY EYE HEALTH EDUCATION

DR S. VENKATESH

TWO to five per cent of all persons above 40 years of age have raised intra-ocular tension. Glaucoma is an important cause of blindness which could be avoided if glaucoma is detected at an early stage. People above 40 years of age should have their eye tension examined alongwith general health check-up for early detection of glaucoma.

For proper planning of eye health educational activities at district level, the Programme Officer should be conversant with the knowledge, prejudices and practices concerning the important eye problems in the area including glaucoma. He should have complete information about all resources available for delivery of eye care in the district and for organising community eye health education and should be able to mobilise all the resources for effective programme planning and implementation.

Training in eye health education should be provided for functionaries in the periphery. They may be organisation based—like Health Assistants and Health Workers or Community based—like Health Guides, Dais, Anganwadi Workers, Mahila Mandal and Youth club volunteers, teachers at primary schools, village leaders, etc. The existing training manuals need to be amended.

With the developments of communiaction technology new opportunities and challenges are available for existing media co-operation in mobilising support, stimulating awareness and demand and involving the community in action for promoting eye health. The material presently available from different sources for community eye health education and training of workers needs to be categorised and up-dated. Sustained efforts should be made to involve the mass media such as radio, TV and press to spread messages on eye health care. Opportunities available for eye health education through traditional and folk media like street-dramas, Lavani, Katha-varta, puppet show, etc. should also be explored.

Dr Mahendra Dutta, Deputy Director General of Health Services (Planning), seated on left, inaugurated the National Workshop on Training in Community Eye Health Education on 5 May, 1987, in New Delhi.

A view of the audience.

These were some of the recommendations of the participants at the Workshop on 'Training in Community Eye Health Education of appropriate personnel with some emphasis on glaucoma' organised from 5—7 May, 1987, at the Central Heath Education Bureau, New Delhi. This Group Educational Activity was supported by the W.H.O. under its project ICP. PBL 003 on Prevention of Blindness.

The objectives of the Workshop were to review and develop guidelines for programme planning and education at district level, training and media activities for community eye health education.

The participants at the Workshop numbering 17, included Ophthalmologists, public health/PSM Specialists, trainers, health educationists, Programme Officers, media experts and representatives of voluntary health agencies. They were guided by a set of Faculty and resource persons.

Inaugural session

Welcoming the participants on 5 May, 1987 Dr (Smt.) V. K. Bhasin, the Workshop Director, emphasised the role of eye health education as a part of comprehensive primary eye care and its importance in achievement of Health for All by 2000 A.D. She stressed that glaucoma should also be emphasised in view of the avoidable and irreversible blindness caused by this condition, if neglected in early stages.

Dr S. Venkatesh, the Workshop Co-Director, then explained the objectives and methodology of the Workshop.

In his inaugural address, Dr Mahendra Dutta, Deputy Director General of Health Services (Planning), called upon the participants to consider the matters in depth and be practical in their recommendations keeping in view the existing infrastructure and facilities as this would assist the National Programme on Control of Blindness in its health educational efforts.

Plenary sessions

The first plenary session was chaired by Dr H. S. Hassan, Regional Adviser (Health Education) of the South East Asia Regional Office of World Health Oragnisation (WHO). Dr P. M. Kapoor, Assistant Director General (Ophthalmology), discussed the current status of the prevention of blindness activities in India which aims at reducing the prevalence of blindness to 0.3% by the year 2000 A.D. Dr Uday C. Gupta, Project Director, Dr A. V. Baliga Memorial Trust, drew attention to the magnitude of ophthalmic diseases and the need for identifying appropriate educators both from the field of health and outside for eye health education to the community and selected segments of it.

Dr B. S. Sehgal, Consultant in Health Education, who chaired the second plenary session, introduced the participants to the relevant parts of the National Health Policy and the primary health care strategy. The present training given to the health functionaries was critically reviewed by Dr (Smt.) K. Kathpalia, Officer on Special Duty (Training), of the Rural

A group session in progress. Seen are from left to right Dr (Smt.) V.K. Bhasin, Director, Central Health Education Bureau, Dr H.S. Hassan, Regional Adviser (Health Education), South-East Asia Regional Office, WHO and Dr P. M. Kapoor, Assistant Director General of Health Services (Ophthalmology).

Dr (Smt.) Ira Ray, Additional Director General of Health Services (Medical), third from left, delivering the valedictory address at the Workshop on Training in Community Eye Health Education on 7 May, 1987, in New Delhi.

Health Services Division of Ministry of Health and Family Welfare. The importance of health education in the early diagnosis and management of glaucoma was highlighted by Dr (Miss) H. Saiduzzafar, Professor Emeritus of Aligarh Muslim University.

In both these sessions, the introduction of the topics by the experts was followed by lively discussions which were summed up by the chairman.

The formation of the 3 working groups and the tasks assigned were then announced by Dr S. Venkatesh and the framework for preparation of guidelines was explained by Shri J. S. Manjul, Deputy Director (SHE), C.H.E.B.

The participants then met in their groups under the guidance of faculty/resource persons. The groups elected their chairman and rapporteurs and had intense deliberations.

On 6 May, 1987, the previous day's proceedings were reviewed and the group discussions were resumed. Interim reports were presented by the groups in a plenary session chaired by Dr P. M. Kapoor and several viewpoints emerged in the discussion. Following this, the reports were re-considered and modified by the groups individually and finalised.

On 7 May, 1987, the reports and recommendations of each group were presented at a plenary session under the chairmanship of Dr Mahendra Dutta, and were commented upon by members of the other two groups.

A specially designed and pretested proforma was used to obtain the opinion of the participants on several aspects relating to the conduct of the Workshop. The participants felt that the Workshop provided them with an opportunity for in-depth discussions and for aiming at meaningful and practical conclusions for action.

A special exhibition on eye health was also organised by the media division of CHEB alongwith the Ophthalmology division of DGHS. A video-film on glaucoma, produced by CHEB in collaboration with Guru Nanak Eye Centre was also shown to the participants as also the different materials for eye health education presently available.

Valedictory function

At the valedictory function of the Workshop, Dr (Smt.) V. K. Bhasin welcomed the Chief Guest. The Report of the Workshop was presented by Dr S. Venkatesh followed by presentation of group recommendations by the rapporteurs, Dr Raj Kumar, Shri Guru and Smt. K. Kaushal.

In her valedictory address, the Chief Guest Dr (Smt.) Ira Ray, Additional Director General of Health Services (Medical), stressed the need for involvement of enlightened public and workers for the success of health education programmes. The role of training of workers and proper use of media, she said, is of equal importance in education regarding eye diseases, especially glaucoma.

Shri K. L. Batra, Health Education Officer, C.H.E.B., proposed a vote of thanks. ○

Dr V. T. H. Gunaratne Passes Away

Dr Victor Thomas Heart Gunaratne has passed away in Colombo on 31 July 1987. Dr Gunaratne was the second Regional Director of WHO's South-East Asia Region, a post he held with distinction from March 1968 to February 1981. He was 75.

Born at Madampe, Sri Lanka in 1912, Dr Gunaratne's first contact with WHO was in 1961 as a Member of his country's delegation to the World Health Assembly in New Delhi. From 1964 to 1967 he was Sri Lanka's representative to the WHO's Regional Committee for South-East Asia. He was elected Chairman of the Committee in 1964. In 1963-64 and in 1964-65 he served as a Member of the Executive Board of the WHO and of the UNICEF/WHO Joint Committee in Health Policy. He was elected President of the World Health Assembly in May 1967.

Dr Gunaratne was declared Regional Director Emeritus in September 1980.

He is survived by his wife, one son and two daughters.

World Health Day—7 April, 1988

The year 1988 marks the WHO's 40th anniversary and the tenth anniversary of Alma-Ata Declaration on primary health care. Keeping this aspect in mind, the overall theme for the World Health Day-1988 has been selected by WHO as **"Health for All : All for Health"**.

1st Short-term course in School Health Education

The Christian Medical College, Ludhiana, is committed to train 300 teachers and 25 principals, head teachers, etc. in health education during 1987 with the help of International Union of Health Education (IUHE), UNICEF, WHO and other voluntary organizations.

Inaugurating the first teachers course in School Health Education on 6 April, 1987 Dr A. V. Choudhrie, Director, Christian Medical College, Ludhiana, said that health would never come from the hospitals. It has to come from within the community. Being closely linked with other sectors, "a planned approach of the better inter-sectoral relation is the need of the day", he said. Sh. Pritam Singh, Director, Public Instructions (Primary), Punjab, who presided and Dr. S. K. Sandhu, Acting President of I.U.H.E.—SEARB—Punjab Chapter, highlighted the different steps being undertaken by the Government of India and Punjab Government for strengthening the health education component in the existing school curriculum. Over 250 participants from education sector like school teachers, principals, headmasters, head teachers, both from Government and non-government school organizations attended the session. Sixty teachers attended the weekly course.

The main objectives of this course were to (i) lay emphasis on teachers training for early detection of certain diseases like that of eye, teeth, skin, etc., (ii) encourage students participation in healthful school living, and (iii) building up school-home-community relationships. Besides the staff of the College, experts from the other allied disciplines and organizations like extension education department of Punjab Agriculture University, District Education and Health Departments also participated in the training programme. On the last day of the course the trainees were divided into three groups and each group was assigned one of these topics; (1) A critical analysis of merits and demerits of the course contents, methods of teaching, its organizational set-up. (2) To prepare an action plan of School Health Education for their respective schools, and (3) To review the existing school curriculum and the importance of said training courses.

Report of each group was presented by the group leaders at the concluding session, presided over by Dr Mary Mathew, Principal of the College, Dr H. S. Aneza, Civil Surgeon, Ludhiana congratulated the C.M.C., Ludhiana, for playing a much more extended and critical role in the delivery of comprehensive health care, especially school health education in the out-reach areas.

Dr Gurdav Singh Joshi, District Education Officer said since a teacher's contribution to the health, growth and development of a nation is greater than that of a doctor, he/she should lay more emphasis on the cultivation of healthy habits among children.

Dr Mathew, awarded certificates to all the 60 trainees.

—Dr S. C. Gupta

If You Smoke . . . . . .

If you smoke, your money is drained,
It makes your family members pained.

If you smoke, you ruin your health,
Which is more precious than wealth.

If you smoke, your body is victimised,
Various systems are unduly pressurised.

If you smoke, you reduce your age,
A verdict of every Doctor and Sage.

If you smoke, face premature death,
By suffering from the troubles of breath.

If you smoke your progeny is cursed,
Through the defective heredity disbursed.

If you smoke, your children imitate,
Who may be doomed to the similar fate.

If you smoke, your wife is annoyed,
And the domestic peace is destroyed.

If you smoke, you are down graded,
Rebukes and warnings are traded.

If you smoke, you pollute the air,
By expiring poison, here and there.

If you smoke, you will come to grief,
And suffer the fatal results in brief.

By giving up smoking, you enrich your life,
To the joy of your dear children & Wife.

— S. R. Garg

INTERNATIONAL NURSING SERVICES ASSOCIATION (INDIA)

COMMUNITY HEALTH PROGRAMME

*Are you a health professional interested in Community Health?

*Is your institution willing to have you improve the quality of the Community Health Services?

*Do you need ongoing guidance, contact and support while working in this challenging field?

If so, come to INSA/India, Bangalore, for a 10-weeks Course in Community Health and Development commencing in January 1988. You register for Rs. 500/- and we take care of all other training costs. Application forms are available for Rs. 10/- sent by Postal Order/Money Order, to :-

The Programme Director,
INSA/India,
No. 2, Benson Road,
Benson Town,
Bangalore-560 046

Last date for receipt of the completed applications is *31st October, 1987.*

Population and Health Education Shibir at Baroda

Post Partum Unit of Medical College, Baroda, organized a three-day Orientation Training Shibir during 11 to 13 February, 1987, at Mahila Mahavidhyalaya (SNDT University) of Baroda with a general objective of disseminating planning concept of small family norm in reference to intensive primary health care at community level, through National Social Services and Population Education club of the University.

Seven sessions mainly pertaining to Menstrual cycle and reproductive system, family welfare methods, prevention of blindness and Vitamin 'A' syrup, mental and social health problems, ante-natal care with special reference to prevention of anaemia and tetanus, health education methods and media, and population problem of India were discussed with the help of film slides on each topic. The departments of ophthalmology, physchiatry, gynaecology and obstetrics were fully involved.

Pre- and post-course questionnaire were given to participants to evaluate the programme.

The whole Shibir served as preparation of clientele before marriage to 168 women who participated. They were fully convinced about benefits of late marriage and planning of Small Family.

—A. B. Shah

SOCIETY OF ELECTROCARDIOLOGY

The Indian Society of Electrocardiology will hold its Annual Conference at Armed Forces Medical College, Pune, from 21 to 25 January, 1988, jointly with the Annual Conference of the Association of Physicians of India. Its programme will include an oration, guest lectures, symposia, free paper session and award sesison.

The Society has invited free papers for presentation at the annual conference. Papers should be related to research in the field of electrocardiology. Time allotted for each paper is 10 minutes. Four copies of abstracts not exceeding 200 words should accompany the papers. The candidate should be under 40 years of age.

"Prof. R. S. Rajgopalan's Award" will be awarded to a person for his best scientific paper to be presented at the annual conference. The award consists of a cheque of Rs. 1000/-.

Details may be procured from **Dr Rohit Mody, Cardiologist, Hon. Gen. Secretary, Indian Society of Electrocardiology, 4, Milap, 90 Feet Road, Garodia Nagar, Ghatkopar (East), Bombay 400 077 INDIA.**

Alcohol and Disease

Drinking alcohol, the most widely used pychoactive drug in the world, can be a pleasure, but unless the amounts taken by regular drinkers are carefully limited many of the body's vital organs are at risk. When some of these are damaged seriously enough by the daily intake of alcohol over a number of years, the health and even the life of the drinker is threatened, warns WHO in one of a series of information sheets on alcohol misuse, prepared in collaboration with the UK's Health Education Authority.

Worldwide, the amount of alcohol-related illness puts a considerable strain on national health budgets and uses up funds which are badly needed to prevent and cure other diseases. One out of every three hospital beds in some European countries is occupied by a patient with a drink-related disease, and in developing countries sickness caused by drink is growing.

In one generation's time they will catch up with, or even exceed, the present per capita alcohol consumption in developed nations, if their consumption continues to rise at current levels. The natural outcome is likely to be a higher incidence of alcohol-related problems, and a further substantial drain on scarce economic and social resources.

Regular drinking can damage any of the organs of the body except the bladder and lungs. The brain, nerves, liver, muscles, kidney, heart, pancreas, sex organs, gullet, stomach, and bowel are all at risk. After heart disease and cancer, alcoholic liver disease (cirrhosis of the liver) is now the chief cause of death among middle-aged men in many developed countries The chances of survival depend on how soon the sickness is caught.

The brain, which when you drink is literally bathed in alcohol, is now being found by medical experts to function less well in the case of heavy drinkers One result can be difficulty in walking properly and controlling the muscles. In addition, alcohol is of course a depressant, and drinkers who experience deep depressions often commit suicide.

The digestive system is also a prime target of alcohol, and scientists have discovered it is involved in cancer of the mouth, throat and gullet, which since 1950 has been an increasing cause of death. One reason why heavy drinkers die earlier than other people is high blood pressure, caused by the effects of alcohol. There is also damage to their heart muscles which prevents the heart from pumping effectively.

The sex drive in men may be harmed by too much drinking. Sex hormone levels fall, leading to less interest in sex and a reduced ability to make love, or even impotence. Research among women has been less, but the evidence indicates that their interest also diminishes when they drink heavily.

To combat the health hazards of drinking, different approaches have been adopted from one country to another. However, the general lines agreed by experts include education, encouraging people to say within safe limits when they drink, restricting the availability of alcohol, and imposing a tax large enough to make drink a luxury. Ultimately, the responsibility rests with each one of us, aware that the less we drink, the better it is for our bodies.

—*Courtesy*: World Health, June 1987

Health Action Essential in fight Against Drug Abuse

Health measures are essential in the fight to curb drug abuse around the world, according to Dr Norman Sartorius, Director of the World Health Organisation's Division of Mental Health, because "drug abuse is a major public health problem".

In an address at the U.N. International Conference on Drug Abuse and Illicit Trafficking in Vienna, in June he called for "an international alliance against death, disease, social deterioration and misery which drug abuse is bringing to the world".

Noting that "drug abuse is both a symptom and a cause of psychosocial deterioration" and that it "strikes at youth, a most vulnerable section of the population", he urged help—not punishment—for the addict.

"WHO is concentrating its efforts to prevent the catastrophic health consequences of drug abuse", Dr Sartorius continued. WHO action is focused on improving methods for treating drug dependence, promoting the proper and rational use of drugs through the WHO revised drug strategy, and cooperation with NGO's, the scientific community and other social sectors.

National anti-drug programmes should be solidly based on prevention. "No country can claim it is dealing with the fearful threat of drug abuse unless the health sector is intimately involved in demand—reduction", he said. To reduce the demand, there is the need for countries to promote healthy behaviour.

Both narcotic and phychotropic drugs are being misused and abused throughout the world. The number of cocaine abusers is put at 4.8 million, of opium abusers at 1.7 million, and of heroin abusers at 750,000, according to figures reported at the United Nations.

The development of "designer drgus", made through the tampering of legally permitted compounds, has also added to the "catastrophic health consequences of drug abuse". These synthetic formulations have an addictive impact as much as a thousand times more than natural, plant-based substances.

The significance of the public health burden created by drug abuse has recently been further highlighted by the lethal contribution of AIDS, infesting and killing not only those injecting drugs but also spreading from them into a far wider population.—**WHO** ○

BOOKS

WHO Publications

Community-Based Education of Health Personnel

Report of a WHO Study Group

Technical Report Series, No. 746.

World Health Organization, Geneva, 1987 89 Pages. ISBN 92 4 120746 9

Price: Sw. fr 12.—/US $ 7.20

Available in English. French and Spanish versions in preparation.

This book contains a detailed explanation of the meaning of community-based education, including its objectives, conceptual foundations, and relationship to current theories of education and methods of teaching. The report, which is addressed to the directors, deans, and faculties of medical and other health-related schools, opens with a discussion of trends that have created a demand for health personnel capable of responding more effectively to community needs. Trends in both industrialized and developing countries are considered.

Against this background, the concept of community-based education is presented and discussed in terms of its underlying principles, its overall advantages, its organizational components, and the major problems and constraints facing implementation. Numerous practical examples are used to illustrate how the concept can operate in various training systems or situations where competence is acquired through close contact with real problems in the community. The remaining sections of the report set forth guidelines for implementing a community-based educational programme. An outline of the various steps and approaches is presented together with recommendations on how to foster a broader understanding of the meaning and advantages of training programmes closely linked to community needs.

The report will be stimulating reading for all educators who recognize the value of combining theory with practice in the training of health personnel.

Evaluation of the Strategy for Health for All by the Year 2000

Seventh Report on the World Health Situation.

The Seventh Report on the World Health Situation, covering the period 1978-1984, has been prepared on the basis of the first evaluation of the Strategy for Health for All in accordance with a resolution in 1983 of the Thirty-sixth World Health Assembly. The report is derived principally from the contributions of WHO Member States on the evaluation of their national strategies for the attainment of their goals. Where necessary, the WHO Secretariat has made use of information from other sources, especially from programme reports and from documents of other organizations within the United Nations system.

The report consists of seven volumes: a global overview (volume 1) followed by individual reports from each of WHO's six Regions. All regional reports were prepared according to a common framework and format. Each begins with an overview of socio-economic developments, changes in the health system, and patterns and trends in health status throughout the region. An evaluation of overall achievements, particularly concerning the effectiveness of the Strategy for Health for All, is followed by an analysis of problems likely to dominate the future and the actions that might be taken. Each regional volume also features a series of richly detailed profiles on health conditions, including leading causes of death and morbidity, for each country in the region. The use of numerous tables, charts, and graphs facilitates comprehension of the vast amount of data collected and interpreted in these books.

Evaluation of the Strategy for Health for All by the Year 2000

Seventh Report on the World Health Situation Volume 1: Global Review 1987, ix + 120 pages ISBN 92 4 160271 6 Sw. fr. 19.—/US $ 11.40

Synthesizes and interprets the vast amount of information on the world health situation submitted by 147 of WHO's 166 Member States. The book has five chapters. The first provides an overview of global socioeconomic and development trends, their potential impact on health, and the related issue of equity. The principal actions taken by governments to develop and implement their national strategies for health for all are highlighted in the second chapter, which also identifies the main obstacles encountered. The third chapter traces patterns and trends in health status, indicating major trends in mortality, morbidity, and disability. Achievements are assessed in the fourth chapter, which analyses the overall results of the evaluation of the strategy, including its effectiveness and impact, and the specific factors contributing to successes or failures. The book concluded with a discussion of the main issues and factors that could influence national, regional, and global action and call for readjustment of the strategy.

Regd. No. R.N. 4504/57

OUR PUBLICATIONS

POSTERS

	Price *Per copy* Rs. P.	*Per* 100 *copies* Rs. P.
Smoking can cause cancer (English)	0.35	30.00
Our children need clean habits (English)	0.35	30.00
Our children need healthy recreation (Hindi and English)	0.35	30.00
Your sputum may spread disease (Hindi and English)	0.35	30.00
V.D. (S.T.D.) is curable (Hindi and English)	0.35	30.00
Breast milk—the best for your baby (English and Hindi)	0.35	30.00
Regular treatment for at least one year cures T.B. (English and Hindi)	0.35	30.00
Presistent cough—have sputum test (English and Hindi)	0.35	30.00
Prevent goitre (Hindi and English)	0.35	30.00
Our children need safeguards against accidents (Hindi and English)	0.35	30.00
Donate blood save life (Hindi and English)	0.35	30.00
Protect your child by Immunization (Hindi and Engslih)	0.35	30.00
Guinea worm Disease—causation, spread and prevention (Hindi and English)	0.35	30.00

Please send your order along with the money in advance by crossed Indian Postal Order, Draft or money order to:

FOLDERS

- You can prevent dysentery
- Thread worm
- Round worm
- You can prevent Dengue Fever
- You can prevent Jaundice
- When the unexpected happens
- You can prevent Typhoid
- Safe water, clean surroundings
- You can prevent Cholera
- Guinea Worm
- Goitre
- Immunization Schedule
- Oral Cancer
- Ring worm
- Hook worm
- Syphilis
- You can prevent Lathyrism
- Japanese Encephalitis
- Medical practitioners and Leprosy

Price per Folder: 0.05 paise
Price per 100 Folders: Rs. 5.00

BROCHURES

- Asha visits the Dentist

Single copy: 0.25 paise
100 copies: Rs. 25.00

The Director,
Central Health Education Bureau,
Directorate General of Health Services,
Kotla Marg, NEW DELHI-110 002.

ISSUED BY THE CENTRAL HEALTH EDUCATION BUREAU (DIRECTORATE GENERAL OF HEALTH SERVICES), KOTLA MARG, NEW DELHI-110 002 AND PRINTED BY THE MANAGER, GOVERNMENT OF INDIA PRESS, COIMBATORE-641 019.