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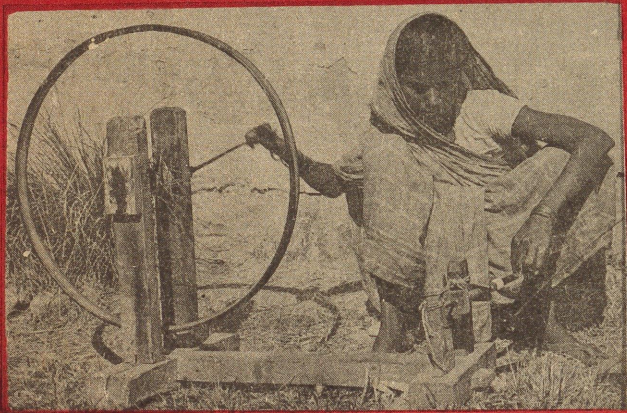
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LEPROSY ERADICATION

Mahatma Gandhi's martyrdom day — 30 January — is also observed as the Anti-Leprosy Day in India. For, India ranks foremost among the countries saddled with the burden of leprosy sufferers. It accounts for 2.5 million cases of the world load of Leprosy patients. The Government of India had launched the National Leprosy Eradication Programme in 1983 with the objective to arrest the transmission of the disease by the year 2000 A.D. It is a 100 per cent Centrally-Sponsored Programme.

Keeping this in view this issue of *Swasth Hind* is devoted to the

Anti-Leprosy Day—1993

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.

**SWASTH HIND WISHES ITS READERS
A VERY HAPPY NEW YEAR**

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

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

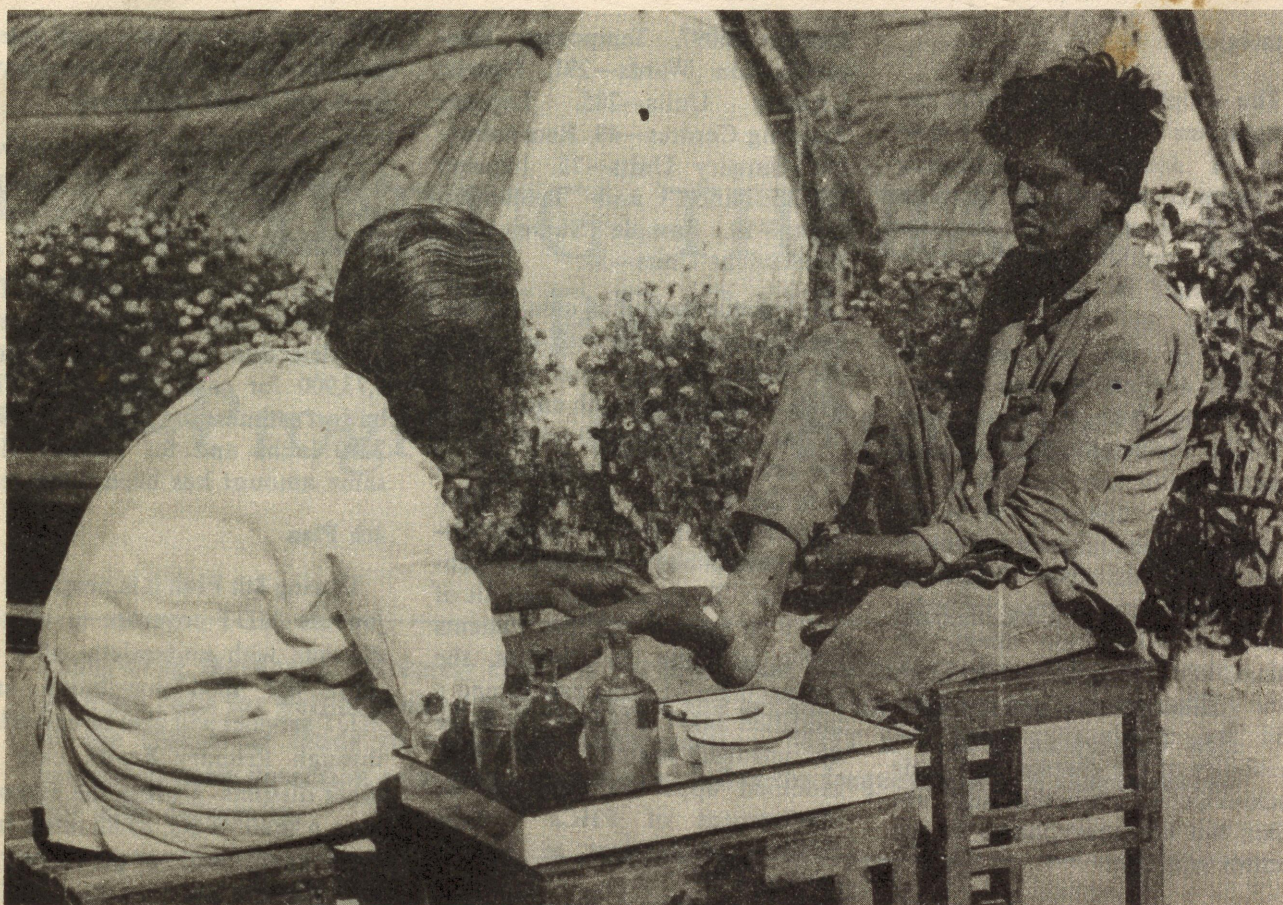
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NATIONAL LEPROSY ERADICATION PROGRAMME

T. K. DAS

INDIA ranks foremost among the countries saddled with the burden of leprosy sufferers. As many as 2.5 million cases of leprosy are estimated to be found in India. The disease is widely spread all over the country. The prevalence rate of leprosy exists above 5 per 1000 population in 201 districts out of 468 districts of the country. About 15% of the leprosy suf-

ferers are children below 14 years of age. The proportion of infectious cases varies from 15 to 20% and equal number of patients suffer from deformities. At the time of launching of the National Leprosy Eradication Programme in 1983 the disease was highly prevalent in the States/UTs of Tamilnadu, Andhra Pradesh, Lakshdweep, Pondicherry, West Bengal, Maharashtra, Karnataka,

Bihar, Nagaland, Sikkim, Andaman & Nicobar. Now the problem of leprosy has been reduced in many of these States.

Programme objectives

The Government of India launched the National Leprosy Eradication Programme in 1983 with the objective to arrest the transmission of the disease by 2000 A.D. It is a 100% Centrally-sponsored programme.

Strategies

The adopted strategy under the Programme involves: (a) Provision of domiciliary multi-drug treatment coverage in 135 districts, having problem of 5 or more cases per 1000 population, by specially trained staff in leprosy, (b) Introduction of modified MDT scheme in the remaining 66 endemic districts through existing health care staff, (c) Introduction of MDT services through existing general health care services in the low endemic districts, (d) Multi-drug therapy to Dapsone refractory cases in other districts. Treatment with combination of drugs includes treatment with three drugs, viz. Rifampicin, Clofazimine and Dapsone. Education of the patients and the community about the curability of the disease and their socio-economic rehabilitation are other two key components of the control strategy.

Infrastructure

Over the years, a vast infrastructure of leprosy workers has been developed in the country, specially trained for providing leprosy services. In the endemic rural areas these services fan out from Leprosy Control Units (one for 0.4 to 0.5 million population) while its urban counterpart called the Urban Leprosy Centre caters to a population of about 30 to 40 thousand. Temporary hospitalization ward having 20-bed capacity has been established, at least one in each endemic district to render hospitalization services. Under the programme 49 Leprosy training Centres are engaged in providing training to various categories of health workers in leprosy. Following infrastructure exists at the end of March, 1992: Leprosy Control Units—758, Urban Leprosy Centres—900, Survey Education and Treatment

Centres—6097, Temporary Hospitalization Wards—291, District Leprosy Units—285, Leprosy Training Centres—49, Reconstructive Surgery Units—75, Leprosy Rehabilitation and Promotion Units—13, Sample Survey-cum-Assessment Units—39.

Infrastructure thus created has been predominantly established by the States in the endemic districts. In districts with endemicity of less than 5 per 1000 population, the general health care staff provide the services. However, there are still gaps in the 66 endemic districts due to financial constraints. To extend the benefit of MDT to over 0.7 million patients living in these 66 districts, the Government of India sanctioned a modified MDT approach in these districts from January, 1991. This modified approach includes the involvement of PHCs in the delivery of services to leprosy patients.

Achievements

Currently, about 70% of leprosy patients are getting the benefit of multi-drug therapy in the country. Available information indicates that MDT is well accepted by the patients, the tolerance is good and side-effects are minimum. There is marked reduction of over 90% in the prevalence rate in the 40 districts which have completed MDT of 5 years or more. All the 201 endemic districts and 41 low endemic districts have been covered under multi-drug therapy. Regular training in leprosy has been provided to about 20,000 technical staff. As many as 6.39 million cases have been discharged as cured by March 1992.

Target and achievements in 1991-92

During the year 1991-92 against the target of 3,35,200 for new case detection and treatment, a total of

5,03,390 new cases have been detected out of which 5,00,242 cases have been put under treatment.

The target for case discharge was 6,12,500 during 1991-92 against which 8,16,538 cases have been discharged.

The physical target allocated for 1992-93 consists of 2,89,600 cases for detection and treatment and 5,73,900 for case discharge. The budget estimate for 1991-92 was Rs. 2280 lakhs and for 1992-93 also same amount has been allocated.

8th Plan

During 8th Plan it is proposed to provide MDT coverage to all the districts with endemicity of 2 or more per 1000 population and MDT services will also be extended through Primary health care in other districts. During the seventh plan a total of Rs. 85.82 crore has been spent and a provision of Rs. 150 crore has been kept during the eighth plan. The financial assistance proposed from World Bank will be in addition to this allocation.

World Bank assistance

To spread the MDT coverage to uncovered areas and to further intensify the efforts, the Government have sent a comprehensive proposal to World Bank for financial assistance of Rs. 300 crores. In the proposed World Bank Project, it is envisaged to provide the leprosy services with separate workers in the 66 endemic districts currently under the modified MDT Programme, and additional 77 districts would be taken up for introducing the Modified MDT Programme. The monitoring information would be strengthened and a foundation laid to embark on a rehabilitation programme. Δ

SWASTH HIND

MULTIDRUG THERAPY IN LEPROSY —Progress and Prospects

DR S. K. NOORDEEN

Multi-drug therapy is extremely effective for individual treatment. Because MDT programme calls for well-organised case-detection and because the high patient acceptability of the treatment tends to encourage self-reporting, MDT is usually associated with increased early detection rates and a consequent fall in the frequency of new cases presenting with deformity.

LEPROSY is a major disabling condition in the world with an estimated load of 5.5 million patients of whom about 3.1 million are registered in over 85 countries of Asia, Africa and Latin America. Over 82% of all registered cases in the world are accounted for by only five countries (India, Brazil, Nigeria, Myanmar and Indonesia, in descending order of magnitude) and nearly three quarters of the world's known leprosy patients are in South-East Asia. Yet despite its relatively low prevalence and low ranking as a cause of morbidity and direct mortality, leprosy is for many countries an intolerable relic from the past, one that takes a disproportionately heavy toll on the social, economic and psychological wellbeing of whole families and communities. It is in recognition of its insidious repercussions on a community's overall health and of the difficulty that many countries with leprosy face in allocating

resources to intensive leprosy control activities, that the World Health Organization now considers leprosy at a prevalence rate of at least one case per 10,000 population within a country or area to constitute a public health problem.

Dramatic change

Nevertheless over the past three decades there has been a dramatic change in the global picture of leprosy. In 1966, for example, when reporting of leprosy cases had become reasonably efficient in many, if not most, countries, there was a total of 2.8 million known cases. Twenty years later, the total had risen to 5.4 million. This increase was probably due partly to intensified detection of new cases, particularly in South-East Asia. A significant proportion of the increase, particularly in the 1970s and early 1980s, however, can be attributed to failure of leprosy con-

trol programmes, many of them unable to cope with rising rates of resistance to dapsone. Between 1985 and the end of 1992 the number of registered patients in the world declined—for the first time—from 5.3 million to 3.1 million, a fall of over 41%. By 1992 MDT was being administered to 1.3 million patients and had released 2.9 million patients from treatment.

Implementation of MDT tends to produce a bell-shaped curve of leprosy statistics. Since organized case detection is an integral part of any well-run MDT programme and since the short duration and low toxicity of MDT tend to encourage self-reporting, the institution of an MDT programme is generally followed by a rise in numbers of registered cases. Indeed, much of the increase in numbers of registered cases worldwide in the 1980s can be reasonably attributed to the

advent of multidrug therapy. After a few years of MDT implementation, discharge of patients completing therapy produces a dramatic decline in numbers of registered cases. This trend is more clearly seen in district or country leprosy figures, and the unprecedented 41% fall in global leprosy prevalence between 1985 and 1992 to a large extent is attributed to successful MDT campaigns, particularly in countries, like India, with large numbers of patients.

On the positive side, multidrug therapy is extremely effective for individual treatment. Early lesions in many instances resolve within a few months of starting treatment and infectivity is generally lost within a few days of starting MDT. Most paucibacillary patients can be discharged within six to nine months and most multibacillary patients within two to three years of starting treatment. Relapse rates have been extremely low, averaging, globally, 0.1% a year for paucibacillary leprosy and 0.06% for multibacillary leprosy (vs. 1-2% a year for dapsone monotherapy).

Patient acceptability

Because it is effective, finite, of short duration and association with fewer type 2 (erythema nodosum leprosum) reactions than any other treatment regimens, MDT, despite the skin discoloration linked to its clofazimine component, enjoys a high degree of patient acceptability: compliance rates average between 80 and 90% in most areas, vs. a maximum of 50% for dapsone monotherapy. As a result, MDT offers a rapid solution to a country's leprosy problem and thus a rapid return on capital invested in an MDT campaign. Backed by strong national commitment and the provision of adequate resources, a well-run MDT programme

can reduce a national leprosy case-load by 70-80% within five years, thereby releasing funds for other, possibly longer-term, needs.

Because an MDT programme calls for well-organized case-detection and because the high patient acceptability of the treatment tends to encourage self-reporting, MDT is usually associated with increased early detection rates and a consequent fall in the frequency of new cases presenting with deformity.

WHO's contribution to its newly proclaimed target of elimination of the disease as a public health problem by the year 2000 is mainly one of coordinating and supporting the many institutions, agencies and organizations that have joined in the effort to achieve this aim. WHO receives invaluable support from many participants in this effort, including the Japan Shipbuilding Industry Foundation, the International Leprosy Association, the International Leprosy Union and the International Federation of Anti-Leprosy Associations.

Working group of leprosy experts

In recognition of the critical stage that the world leprosy situation has reached as a result of the steady progress made over the past five years in control activities, WHO has set up a working group of leprosy experts to oversee world efforts to increase the momentum created by recent progress. This leprosy control working group meets periodically to advise on ways of stimulating countries to intensify their leprosy control efforts and of ensuring greater support from and coordination of the different agencies working in leprosy control. It also seeks ways of improving control strategies and sets priorities related to changing epidemiological and socio-economic conditions. Part of the working group's mandate is also to

evaluate scientific progress and assess the applicability of research findings to leprosy control. Overall, the working group provides the stimulus and direction to the "race" towards leprosy elimination by the year 2000.

Examples of WHO's programme development functions include: helping individual countries to plan and implement leprosy control activities, particularly through general health service facilities; helping countries to organize the technical backup needed for efficient leprosy control activities, including epidemiological evaluation and treatment monitoring; providing, at all levels of leprosy control, updated technical guidelines on diagnosis, treatment and prevention of leprosy; setting leprosy control policy on all major aspects of leprosy control, including diagnosis, treatment, follow-up, and prevention and management of disability; training of health personnel at all levels and for all aspects of leprosy control; in particular, WHO is organizing national training courses in leprosy control for managers.

Under its research promotion activities, WHO supports field tests of shorter, more effective and operationally more readily implemented multidrug regimens and new antileprosy drugs; supports and coordinates health systems research on (a) the most cost-effective leprosy control policies, especially those that provide for the integration of leprosy control with the general health services with programmes set up for the control of other diseases; (b) the organization of rehabilitation services and their integration within existing rehabilitation programmes; (c) improving case-detection and management; (d) social and economic factors, including educational activities, related to community involvement in leprosy work; and organizes, supports and coordinates the field-testing of leprosy vaccines for prevention. Δ

NATIONAL LEPROSY ERADICATION PROGRAMME : RETROSPECTS AND PROSPECTS

DR B. N. MITTAL
DR N. S. DHARMSHAKTU

Target has been fixed that by the year 1995 all the districts of the country will be brought under the coverage of multi-drug therapy which is likely to be achieved much before. The additional 77 districts with prevalence rate between 2 to 4.9 cases per 1000 population are likely to be covered on MDT during the next year with World Bank assistance. Endemic pockets in remaining low endemic districts are to be identified and such endemic pockets will be supervised by 20 zonal officers for operation of MDT.

LEPROSY has been known for many centuries and reference to it is found in the ancient Hindu Scriptures. Until a few decades ago the disease was one of neglect. Leprosy control work was started by the Government in 1941 for the first time though the voluntary organisations and philanthropists had started the same earlier. After independence a committee was established in 1954 to suggest the leprosy control measures. In 1955 the Government of India started the National Leprosy Control Programme with the objective to control leprosy through domiciliary sulphone treatment. It started as a centrally-aided scheme with its focus on rural areas of high and moderate endemicity. In the low endemic areas expectation was to provide the services through the existing infrastructure. The scheme was converted into a centrally-sponsored scheme in 1969-70 to give

impetus to control work. The programme suffered because of various reasons:

- (a) Non-availability of potent drugs for quick and complete cure.
- (b) The duration of treatment with dapsone monotherapy was long.
- (c) Population was not fully cooperative due to social stigma attached to the disease.
- (d) Detection of all the estimated cases was not possible due to inadequate coverage, ignorance and stigma.

As a result of such various reasons many patients started developing resistance to dapsone.

NLEP in Retrospect

WHO recommended multi-drug therapy for treatment of leprosy patients in 1981 based on its experience in many coun-

tries. Trial with multi-drug therapy began in India in 1981 and in the year 1983 the Government of India re-designated the National Leprosy Control Programme as the National Leprosy Eradication Programme. The programme is operated as 100% centrally-sponsored scheme and has since been included in the 20-Point programme. The objective of NLEP is to arrest the disease activity in all the known cases of leprosy by the year 2000. The World Health Organisation has also set the goal of elimination of leprosy by the year 2000 which is defined as achievement of reduction in prevalence below one case per 10,000 population by the year 2000 A.D. Leprosy being a least communicable disease, its transmission in the community is broken if the above level of reduction is achieved in the prevalence rate.

Multi-drug therapy services have been meticulously planned in endemic districts on vertical pattern. In such districts MDT has been launched after creation of complete infrastructure required on vertical pattern, filling up of the posts and training of the staff, detection of most of the estimated cases and commitment of the State Government. Before launching of MDT, a District MDT Society is formed and the funds are directly released to the Society. MDT Services are made available nearest to the homes of the leprosy patients so that no patient will have to travel more than 2 kms for availing of the same.

The vertical MDT Scheme has been made operative in 135 endemic districts and in the remaining 66 endemic districts Modified MDT Scheme has been sanctioned as complete vertical staff could not be created in these districts. Since the progress of MDT is slow in 66 endemic districts on modified pattern and the case-load is also high, they are proposed to be converted into vertical pattern with World Bank Assistance.

Available information with Leprosy Division indicates that till March 1992, a total of 6.34 million leprosy patients have been discharged, out of which about 50% have been discharged as a result of MDT. Out of 1.69 million patients on record till March 1992, 70% were receiving multi-drug therapy. There has been marked reduction in prevalence rate by over 90% in the districts which are on multi-drug therapy for over five years. MDT has been accepted well and its side-effect has been minimal.

The pattern has been developed for extension of MDT to low endemic districts. So far, 41 low endemic districts have been covered under multi-drug therapy scheme.

NLEP in Prospects

The target has been fixed that by the year 1995, all the districts of the country will be brought under the coverage of multi-drug therapy which is likely to be achieved much before. The additional 77 districts with prevalence rate between 2 to 4.9 cases per 1000 population are likely to be covered on MDT during the next year with World Bank

assistance. Endemic pockets in remaining low endemic districts are to be identified and such endemic pockets will be supervised by 20 zonal offices for operation of MDT. The above 20 zones will implement the MDT in the pockets identified and the same is likely to be started by 1993 with World Bank assistance. Community awareness activities will be strengthened and training of general health care staff will be carried out for all the districts. The facility for ulcer care and correction of deformity including provision of footwear will also be expanded. Monitoring system is planned to be strengthened. A comprehensive proposal has been submitted to World Bank for assistance of about Rs. 300 crores for strengthening of leprosy programme on the aspects indicated above.

Attempts are being made to further reduce the duration of treatment with still much more potent drugs. Anti-leprosy vaccines are also under field trial.

In the light of the above it can be said that the target elimination of leprosy by 2000 A.D., can be achieved. Δ

WORLD AIDS DAY MARKED AT UN HEADQUARTERS

Secretary-General Boutros Boutros-Ghali on 1 December told a meeting of the General Assembly marking World AIDS Day that he had created a single interagency advisory group within the United Nations system, with strengthened terms of reference. The Group, which had held its first meeting last month, would meet regularly and was committed to create a 'coordinated and effective response' to the AIDS endemic Mr. Boutros-Ghali said.

Noting that AIDS demanded a multi-sectoral, integrated approach from the United Nations, he recalled his report to the Economic and Social Council earlier this year in which he stressed that 'the need for the

United Nations to mount a comprehensive and coordinated response' was clear. There were now 135 national AIDS programmes in operation, which have been planned, set up and assisted through the collaboration of United Nations bodies and agencies, governments and the private and voluntary sector, the Secretary-General said.

The World Health Organization (WHO) estimates that the HIV Virus has infected about 11 to 13 million people worldwide. More than two million people have developed AIDS and most of them have died.

—UN Newsletter
5 Dec. 1992.

SWASTH HIND

SOCIO-ECONOMIC ASPECTS OF LEPROSY CONTROL

PROF. A.R.K. PILLAI

People's participation in leprosy eradication is of utmost importance and the existing pattern of collaborative work between Government and voluntary agencies may be further strengthened so that net working possibilities can cover almost every corner of our vast country. It is time that we open our eyes to ground realities and create long-term vision of a progressive, healthy India, says the author.

LEPROSY is a major public health problem in our country and the national goal is to eradicate leprosy by 2000 A.D. There is political will in the country to attain this goal and the series of steps taken by the Union Government and State Governments bear ample testimony to this fact. We must bear in mind the huge size of our country and massive population. According to the 1991 census figures, our population was 843.9 million with a density of 267 persons per sq. km. The national literacy level stood at 52.11% with female literacy as low as 39.42%.

Background

It will be appropriate to look at certain statistical data available to us. The growth rate in population is as high as 2.11% despite focus on family planning measures over several years. The population below the poverty line was estimated at 37% during 1984. In the backdrop of these data, number of leprosy patients in the world was estimated at 12 million with India's total of about 4 million. However,

the estimated number of leprosy patients has come down in India to 2.8—3.00 million, thanks to the vigorous efforts put in by the Government and Voluntary Agencies.

Leprosy has two major dimensions—medical and social. There has been substantial improvements in the medical area concerning leprosy. Today leprosy is completely curable with modern drugs. Multi-Drug Therapy (MDT) offers complete cure for leprosy at any stage of the disease with treatment span ranging from six months to two years. The prevalence rate has come down drastically where MDT had been introduced and deformity rates too have registered a steep fall.

Social Dimensions

However, leprosy has social stigma attached to it over the generations. Reasons are many. For centuries, there was no definite cure for the disease. It is a disfiguring and crippling disease with the patient landing up in deformities. It is a visible disease. All

these factors made the patients of leprosy subject to the additional burden of social boycott because of stigma. They are rejected by the society and patients suffer loneliness, poverty and allied areas of social rejection. In view of this anyone having symptoms tend to hide the disease as long as they can, rather than face rejection.

The number of leprosy afflicted persons till about five years ago was estimated to number about four million. Of these about eight lakhs constituted children below the age of fourteen. The patients and their families face social ostracism and they are normally prevented from participation in the national stream of life. The patients are thrown out of their jobs and places of residences. Consequently they go about wandering as beggars while most of them could have pursued their vocations, contributed to gross national income and earned their livelihood with respect. The loss of production and national income of four million population is a colossal waste occasioned by biased be-

haviour of an ignorant society. Social stigma carried down from generation to generation has remained far too long and the society in general has not updated in the knowledge on leprosy and its ramifications from a public health angle. We as a people are far too slow in correcting our attitudes and approaches towards leprosy and its sufferers. While contributory reasons are many, there has been appreciable change in the scenario. This welcome change has to be taken further to help elimination of leprosy from the Indian soil.

Main Factors

There are three main factors in leprosy control and eradication, viz., drastic reduction/elimination of reservoirs of infection in the community, clipping all possible channels of transmission of the disease and improving the immunity levels of the population at risk. While we proceed in the matter, we have to bear in mind rapid urbanisation and large mobility of villagers into towns and cities causing near collapse of civic facilities in urban areas like lack of adequate housing, transport and the like. Poverty, illiteracy, superstitious beliefs and a host of allied factors play important contributory roles in leprosy control effort.

We have 66 hyperendemic (prevalence 10 plus) and 135 endemic (between 5 and 10 prevalence rate) districts in India and the prevalence is not uniform in various districts. MDT had been introduced in several districts with great advantage and good results are coming up. The National Leprosy Eradication Programme (NLEP) aims at elimination of the disease by bringing the prevalence rate to 1 per 10,000 population by the year 2000.



The leprosy patients and their families face social ostracism and they are normally prevented from participation in the national stream of life.

Major Constraints

What are our major constraints and how can we overcome them? If the average citizen knows the simple facts about leprosy and goes to a medical centre for check-up on seeing symptoms, the major battle is won. For this two factors must be established. *First* systematic and continuous campaign to educate the public on facts about leprosy. In a country like ours where literacy is too low, audio-visual communications may be taken advantage of. Education through TV, Cinema and Radio should be given adequate emphasis. *Secondly* conditions must be brought about in the community not to des-

pise leprosy patients. Treating leprosy like any other disease and lending societal support for the sufferers will help those with symptoms to come forward and take treatment. Testimonial cases must be given wide publicity with appropriate media targeting to get the desired results. Leprosy treatment at Government and voluntary agencies is completely free throughout India and this should be made available through primary health centres as is being done progressively.

Women's Status

Women's status in Society is a pivotal factor in a nation's development. The declining sex ratio of

929 females to 1000 male population revealed by 1991 census is noteworthy.

Investments in educating the girls can yield the highest returns to the society at large and the family as well. Major initiatives to increase female education have potential to transform society over a period of time. Educated mothers and daughters are an asset to any society. They choose to have fewer children, whom they can care well.

Though educating boys and girls may be similar in its cost impact, girls' education is a safer long-term investment towards generating rich social benefits.

With higher female literacy levels, greater autonomy for women and higher avenues for self-reliance, better health and higher quality of life will certainly result. The States must lay adequate stress on this area. Kerala is a standing example before us to show how female literacy and self-reliance have brought out excellent results.

Conclusion

Complete MDT coverage where needed, with concurrent training of primary health workers, continuous education of the people through mass media channels, updating awareness levels in the community and simultaneously

improving the living standards of the people can bring about lasting results in leprosy control and eradication efforts. People's participation is a must and the existing pattern of collaborative work between Government and voluntary agencies may be further strengthened so that net working possibilities can cover almost every corner of our vast country. We have made rapid strides in elimination and by increasing the tempo, wonderful results can follow!

It is time that we open our eyes to ground realities and create long-term vision of a progressive, healthy India. Δ

SCREENING FOR GASTRIC CANCER

A SIMPLE blood test may soon be all that is needed to detect patients at high risk of stomach or colonic cancer.

This advance is in prospect as a result of investigations carried out in North Staffordshire in the English Midlands to discover why the area has the country's highest incidence of gastric cancer and lowest survival rate among female colonic cancer sufferers.

Three members of the Keele University's school of postgraduate medicine in Staffordshire, surgeon Prof James Elder, biochemist Dr Richard Strange and epidemiologist Dr Terri Knight, applied their different disciplines to the subject and came up with what have been described as "exciting discoveries".

Dr Strange explained: "Our preliminary findings in the laboratory show an exciting link between a susceptibility to gastric and colorectal cancers, and an inability to

make an enzyme called glutathione S-transferase.

"This enzyme appears to be necessary for the proper detoxification of a number of recognised carcinogens. Some people appear unable to make the enzyme, which puts them at an increased risk of cancer." Modern technology is now allowing the study of an individual's DNA using molecular biological techniques by means of a small blood test. The new approach would allow simple screening of the relatives of individuals with cancer, with monitoring carried out in hospital pathology labs.

Professor Elder said the eventual aim would be for patients with a family history of gastric or colonic carcinoma, to be able to go to their GP and be given information on their chances of contracting the disease. Δ

—SPECTRUM
Sept.-Oct. 1992

JANUARY 1993

2-15/DGHS/92

REHABILITATION IN LEPROSY WORK —Role and Experiences of NGOs

S. P. TARE

Voluntary agencies have played the pioneering role in leprosy as well as rehabilitation of patients. Indeed, it is the voluntary agencies who are implementing, through trial and error, the concept of community-based rehabilitation which seems to be the only sensible way to fully solve the complex problem of rehabilitation.

THERE is probably no other disease which gives rise to so much physical mutilation (with the exception of yaws) as leprosy. This characteristic along with a few others, has wrapped leprosy into myth and mystery, and has made it a most abhorred disease. For centuries, a patient of leprosy is recognised only when he has obviously visible deformities, and it is at that stage that he has been shunned and hounded, over centuries, from job, home and society. Being a chronic disease, and not a killer, the person afflicted with leprosy has to carry the cross till he dies, years later, either due to some other reason or old age.

Leprosy is as much a medical problem as a social one. And of the variety of problems which have to be faced, the most formidable one is that of rehabilitation of leprosy patients. It arises that the patient is de-habilitated from society.

It is thus no wonder that it came to the lot of voluntary agencies to

try to alleviate the social sufferings of leprosy patients.

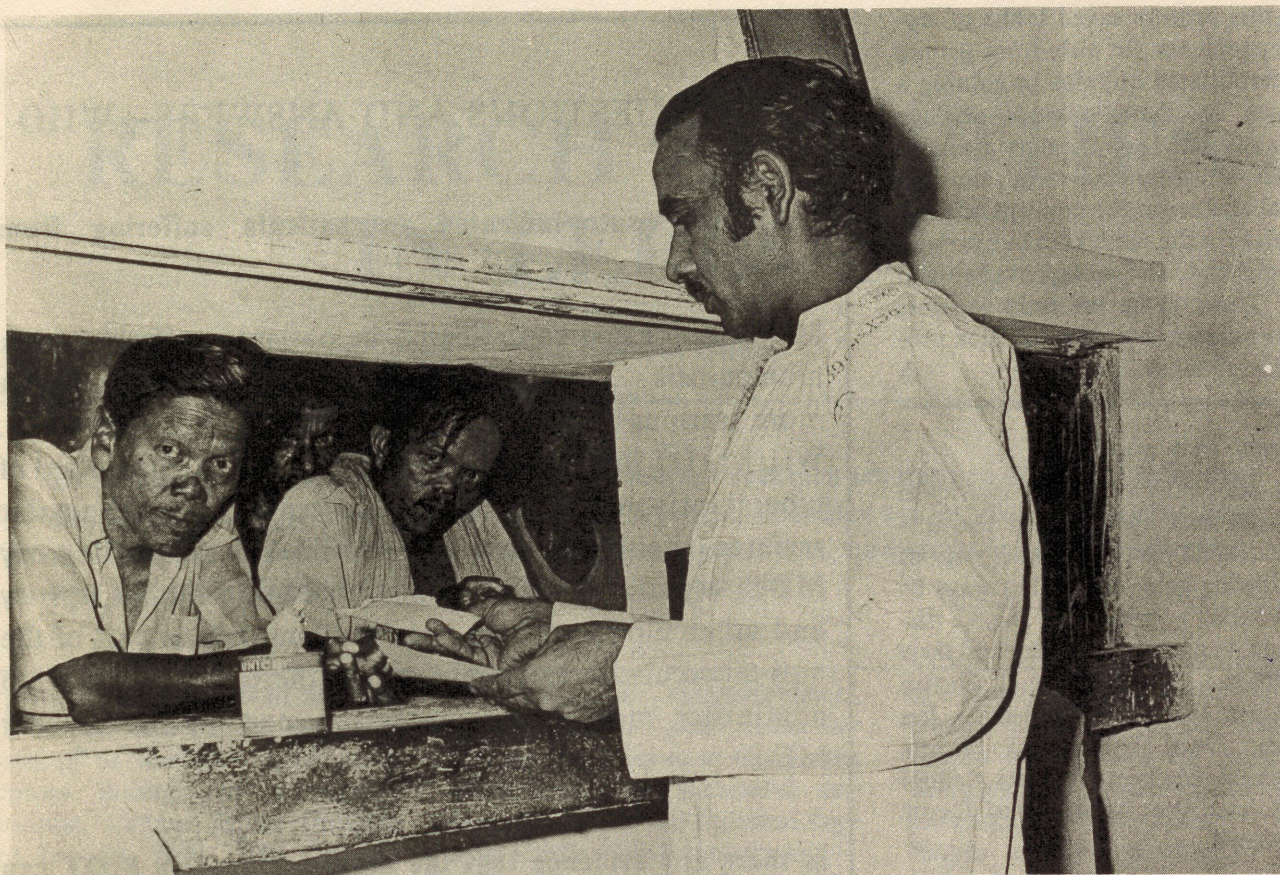
Rehabilitation made popular

Rehabilitation—a term borrowed from social welfare field—was given a very restricted meaning in leprosy field in the period soon after Independence. What they were actually doing was providing vocational engagement to their inmates within the confines of their premises. It was the Gandhi Memorial Leprosy Foundation, which spear-headed the movement to make an entirely difficult concept of rehabilitation popular. It was stressed that rehabilitation is essentially a decentralising process through which patients are helped, by training them in some skill or craft, and to go back to their original environment and win back respectful place in their original milieu. Any effort which falls short of “sending the patient back” is not rehabilitation in the real sense of the term; it is an alternative arrangement made out of failure to rehabilitate a leprosy patient to his former environment.

There was almost total lack of any follow-up of the patients so discharged, and consequently the patients found themselves lost after discharge. The only alternatives available were either to become a beggar or a landless labourer.

It was again the efforts of some pioneering voluntary agencies to explore other avenues of employment for their patients. They tried to help the patient to do whatever job/work he was doing earlier, and in some instances, through avenues of self-employment. The patients were helped in obtaining funds through loans or advances to take up poultry, or dairy or to take up vending of things of daily requirement. The capital necessary for such activity was small and could be had from numerous Government schemes for poverty-alleviation, employment generation etc. Such efforts were very cost-effective as compared to institutional-based rehabilitation where the cost was found to be too heavy.

The National Leprosy Eradication Programme as it was originally



We now have the spectacle of 25 lakhs of the leprosy patients staying in their homes and in their villages while taking medicines through out-patient clinics.

conceptualised had an in-built programme for preventing dehabilitation which in fact, should be the major thrust to solve the problem of rehabilitation in the long run. SET programme brought about slow but definite changes in the Societal attitude of intolerance and we now have the spectacle of over 25 lakhs of the leprosy patients staying in their homes and in their villages while taking medicine through out-patient clinics. Even a deformed leprosy patient (whose number has dwindled to less than 10%) is able to remain in society and home.

Community-based Rehabilitation

The efforts as mentioned above made by the voluntary agencies in getting the patients gainfully en-

gaged in society is very similar to what is now being technically termed as "Community-based rehabilitation (CBR)". The patients have the support of the entire society in whatever they do to assure their independence, and get assimilated in the society fully. This is very satisfying to the patient himself because his integration with society is complete. It is very cost-effective as compared to "institution-based rehabilitation" (IBR) which is very expensive and has very dubious results.

There is however no doubt that the concept of CBR is not yet fully understood even by the workers engaged in rehabilitation and there is still reluctance to involve the community fully by leaving all initiative to them. It will take

some more time for the workers and agencies to get correctly oriented to the concept of CBR and accept for themselves the role more of a facilitator rather than that of the initiator or the service-provider.

To sum up, the voluntary agencies have played the pioneering role not only in the field of leprosy but also in the field of rehabilitation of patient and have been the only agency to take care of that aspect. The Governments have only recently become aware of the importance and urgency of rehabilitation and may make monetary provision to help the voluntary agencies. It is also evident that the voluntary agencies have tried and experimented with different models of rehabilitation and

in this process saved lakhs of leprosy patients not only from getting debilitated but also in gaining a place in their original society. Finally, it is the voluntary agencies who are implementing, through trial and error, the concept of CBR which, in the context of our present knowledge, and means available to us, seems to be the only sensible way to fully solve the complex problem of rehabilitation. Δ

(Contd. from page 23)

the same may vary from district to district and even within the district. One or other category of following personnel will always be available within the district: Anganwadi workers and their helpers, Community Health Guides, Village Trained Dais, Jan Bhagi Dars (Volunteers), Mahila Mandal Workers, Primary School Teachers, Post Men, Forest Deptt. Staff, etc.

4. Special care be given to ensure that the messages reach women folk in the villages and girl students in the schools as well.

5. The Para-medical Worker to population ratio in tribal areas should be 1 for 10000 population in view of scattered population as being done in Andhra Pradesh.

6. Whenever a tribal patient has to travel more than 5 Kms. to collect the drugs, Rs. 10—20 per visit be provided to him towards his wage loss and travel cost as it is found in the study that a few patients had expressed difficulty for want of money in connection of drugs from the nearest place located 13 Kms away from their village and there is no public transport.

7. Adequate POL provisions be provided for districts having difficult terrain for holding group camps in the villages. Δ

MDT QUESTIONS AND ANSWERS—WHO

Is MDT contra-indicated in patients suffering from tuberculosis?

MDT is not contra-indicated in patients suffering from tuberculosis. It must be remembered that tuberculosis is a more serious disease and must be treated promptly. WHO/MDT for leprosy is not adequate for the treatment of tuberculosis and therefore an appropriate anti-tubercular regimen should be given, in addition to the antileprosy MDT, to patients who are diagnosed to have both leprosy and tuberculosis—except if daily rifampicin is part of the anti-tuberculosis treatment, then there is no need to administer monthly rifampicin as part of the leprosy MDT.

Is there any evidence that the drugs included in MDT can antagonize each other's antibacterial activity?

All experimental and clinical evidence indicate that there is no antagonism among the drugs included in MDT. The experience with MDT so far has shown the combination to be the most effective.

Is MDT safe during pregnancy and lactation?

Since leprosy is exacerbated during pregnancy it is important that MDT be continued. All evidence so far indicates that MDT is safe during pregnancy. A small quantity of anti-leprosy drugs are excreted through breast milk but there is no report of adverse reaction due to this except for mild discolouration of the infant due to clofazimine.

*From: Indian Journal of Leprosy
July-Sept. 1992.*

RESEARCH ACTIVITIES IN LEPROSY

DR SUSHMA GUPTA

Even though clinical trials for the available leprosy vaccines are under way, research is continuing to develop yet another vaccine for leprosy.....Studies are in progress to elucidate mechanisms of deformities developing in leprosy patients, and steps for their prevention, and effective surgical techniques for their correction.

THE Indian Council of Medical Research carries out the major parts of its Research activities in leprosy through its permanent institute, Central Jalma Institute for Leprosy, Agra. The Council also provides grant-in-aid for open ended projects and fellowships in various Medical Science Colleges.

The overall goals of the research programme of the council have been (i) to assess current methods of diagnosis, treatment etc., and improve upon them, (ii) to develop newer methods and tools which will serve these purposes better, (iii) to improve our understanding of the disease process and the complications that add to the morbidity of the disease, (iv) to increase our knowledge about the causative organism so that we may develop better methods to destroy it, (v) to improve our understanding of the disease dynamics in the community and (vi) to carry out a comparative trial of candidate vaccine preparations.

The Central Jalma Institute for Leprosy, Agra, mainly continues to investigate leprosy and related problems through various clinical,

immunological, epidemiological, microbiological and molecular biological studies so as to help the Government in successful implementation of the National Leprosy Eradication Programme.

Though clinical diagnosis of an obvious case of leprosy is easy, there are enormous problems in the classification of early lesions. Molecular biological methods e.g., probes, gene application techniques like Polymerase Chain Reaction (PCR), immuno-histology and histology are used to classify early lesions of leprosy.

Leprosy, known to be a disease of nerves, macrophages and skin is also a disease of altered lipid metabolism. In a recently concluded study, it was observed that there was a significant increase in the circulating high density lipoproteins and lipoproteins-a levels in lepromatous leprosy as compared to control and the tuberculoid leprosy patients. It appears that these lipoproteins have a role in immunological aspects of nerve injury in leprosy.

Leprosy in the majority of the cases can be diagnosed on the basis

of a proper examination of the case alone. Therefore a set pattern should be followed for examination e.g. clinical and bacteriological examination, histamine test, biopsy and immunological test. However, the diagnosis of early leprosy has always been a challenge. Newer *in vitro* tests such as lymphocyte transformation test (LTT) and leucocyte migration inhibition test (LMIT) have been developed and they are used to detect the level of immunodeficiency. The recent advance in study of the epidemiology of leprosy is the development of serological tests which gives hope for a better surveillance. The fluorescent leprosy antibody absorption test is now widely used for identification of subclinical infection.

Till date there is no immunodiagnostic test available for leprosy diagnosis in the National Leprosy Eradication Programme. A serological assay standardised at CJIL, using peroxidase labelled MLO4 (SACT-ELISA) was compared in terms of their sensitivity and specificity with two other currently

available serological tests developed by other laboratories (PGL-ELISA and PGL-AGGLU). SACT-ELISA was found to be more specific and sensitive than the other two assays.

In lepromatous leprosy there is a poor immunological response to *M. leprae*. In a recently concluded study to find out whether this is related to interleukin-1 and/or 2 production, it was observed that there was some immunological defect with respect to production of IL-1 in all forms of leprosy. Lepromatous Leprosy(LL)/ Border line (BL) patients do not show defective IL-2 production and after 6 months of multidrug treatment (MDT), its production rises significantly.

Various viability assays for rapid determination of *M. leprae* are being developed. These viability assays could be applied to paucibacillary leprosy which remain therapeutically and prognostically important in this country. Three gene amplification techniques along with highly sensitive ATP bioluminescent assay system are being applied for viability assessment.

New methods

Several new methods based on analysis of lipids, isoenzymes, immunological relatedness of enzymes have been developed. Evaluation of *protein electrophoregrams and zymodemes in several mycobacteria* including *M. leprae* had shown that combination of different zymodemes and protein electrophoregrams can be used for rapid identification & characterization of various pathogenic mycobacteria. Further the detailed analysis of *Restriction Fragment Length Polymorphism (RFLP)* of rRNA gene region has shown that this technique & probes are useful to characterise various mycobacteria including *M. tuberculosis*, *M. avium* and *M. leprae* at species, subspecies and even strain level.

Cloning and sequencing of 16S genes and flanking sequences of 12 species of mycobacteria had led to identification of 9 variable regions within rRNA gene & flanking region of ribosomal genes of *M. leprae* and other mycobacteria. In addition to 17 mer probe, some more probes and primers have been designed against these variable regions and synthesized. Initial evaluation of the observation results show that a few of these probes could be useful at species/genus level. Methodological studies for the clinical application are in progress.

Gene amplification techniques like PCR using primer based on 18Kd and 36Kd antigen genes and an reverse PCR is being standardised. Based on initial results which suggest the need to further optimise technique(s) for extraction of nucleic acids from biopsies, alter assay techniques, further studies are being carried out. An *enzymatic technique for isolating the mycobacterial nucleic acids* from biopsies has been developed and is being evaluated.

Duration of anti-leprosy therapy

The optimal duration of antileprosy therapy has been an issue of debate. Studies are in progress to determine the minimal length of antileprosy therapy. The preliminary results indicate that in lepromatous patients, it takes up to 12 months by DDS and clofazimine combined to kill rifampicin resistant mutants suggesting that minimum duration of treatment should not be less than one year. With the aim to further reduce the duration of treatment, a regimen comprising of Dapson, Rifampicin and Prothionamide is also being tried.

India is playing a crucial role in developing and testing immunotherapeutic and immunoprophylactic agents for leprosy.

Anti-leprosy vaccine

In order to identify the best of the available vaccines for Indian situations, a randomised double blind controlled five arm prophylactic vaccine trial against leprosy involving two indigenously developed vaccines e.g., ICRC, M.w and Killed *M. leprae* + BCG, BCG and normal saline has been launched in Chingleput district of Tamil Nadu. By July 1993, the intake phase is expected to be completed. This will be followed by resurvey of vaccines.

Another clinical trial with ICRC vaccine for Immunoprophylaxis against leprosy is in progress. The study is being conducted by Cancer Research Institute, Bombay, in Osmanabad, Latur and Solapur districts of Maharashtra. The objective of the trial is to assess the immunoprophylactic efficacy of two vaccines containing (i) ICRC bacillus (ii) BCG by measuring the incidence of both multibacillary and paucibacillary forms of Leprosy in ICRC vaccinated as compared to BCG groups. The intake of about 34,000 households contacts has been completed and the resurvey of vaccines has started.

Even though clinical trials for the available leprosy vaccines are under way, research is continuing to develop yet another vaccine for Leprosy. At Foundation for Medical Research, Bombay, a study is being supported in which a 1.6 Kb *M. leprae* DNA protein has been identified as a potential immunodominant protein. Insert of this DNA fragment in *E. coli* holds promise of getting a recombinant *M. leprae* protein as a possible vaccine against leprosy.

Studies are in progress to elucidate mechanisms of deformities developing in leprosy patients, steps for prevention of deformities and effective surgical techniques for the correction of deformities. Δ

SWASTH HIND

LEPROSY VACCINES

—An Update

DR M. D. GUPTA

It is not impossible to conceive emergence of effective anti-leprosy vaccines some time in future. It would be essential to understand the possible roles of these vaccines in different situations. Alternative approaches and priorities for disease control will have to be taken into account. Leprosy vaccine is a distinct research goal and an area of high research priority.

IN 1990, the subject of anti-leprosy vaccine was reviewed for the readers of the *Swasth Hind*. Available information on several candidate vaccines was summarized and the subject of second generation vaccines was also reviewed. Three years is a rather short period for getting useful information on potentials of anti-leprosy vaccines in preventing leprosy. A prophylactic vaccine trial against leprosy usually takes a decade before reaching any valid conclusions. However, preliminary results from one field study in Venezuela and progress of the ongoing vaccine studies should be of interest to the readers.

Venezuela vaccine trial

An immunoprophylactic trial against leprosy using armadillo-derived killed *Mycobacterium leprae* and BCG vaccine was launched in Venezuela during 1983. The Venezuela trial is the first of the three different vaccine trials in the world where killed *M. leprae* is being used, the other two being in Malawi and India. The first report of the results of the Venezuela

trial, covering the period up to July 1991, has been published recently in *The Lancet* (Convit *et al* 1992). Zuniga, a colleague of Convit and an eminent epidemiologist, observed a sustained downward tendency of new case-detection rate from 16 per 100,000 inhabitants in 1951 to 2.5 in 1981 in Venezuela. He has drawn attention to the important demographic changes towards increased urbanization and changes in the epidemiological profile of leprosy. According to him, increase in the proportion of multibacillary cases, increase in the average age of new cases by ten years and increased proportion of leprosy in males indicated a rapid natural decline of leprosy in Venezuela. In Venezuela, the vaccine trial is being conducted in the three most highly endemic States, viz., Apure, Tachira and Merida (prevalence 6.9, 2.9 and 1.9 per thousand population and incidence 10.9, 4.3 and 3.9 per 100,000 respectively) in the household and extradomicillary contacts. As many as 29,113 contacts were included for the study. The vaccine trial in Venezuela is a large-scale, ran-

domized, controlled, double-blind trial employing BCG + killed *M. leprae* and BCG alone. The dose of BCG was decided by the tuberculin status of the individual, tuberculin negatives receiving 0.2 mg and tuberculin positives 0.04 mg.

The dose of *M. leprae* was 6×10^6 bacilli. The contacts were initially screened for leprosy and were given the *M. leprae* Soluble Antigen (MLSA) and tuberculin tests. The group of interest for the trial was that of MLSA negatives.

The participants were carefully examined for leprosy annually by doctors specialised in leprosy. Skin smears and biopsies for histopathological examination were routinely obtained. The resurveys generated 150,026 person years of observation and 59 confirmed cases of leprosy. After deleting 29 cases for reasons like pre-vaccination history of leprosy, occurrence of disease within one year, etc., the remaining 30 cases were considered for the final analysis. Fifteen each of these belonged to BCG and BCG+killed *M. leprae*, irrespective of initial MLSA status. Twenty of these 30

patients belonged to MLSA negatives at intake, and in this group of interest 11 belonged to the BCG arm and 9 to the BCG + killed *M. leprae*. The other interesting observations were, about 60 per cent protective efficacy of BCG and strong persistent MLSA positivity following BCG + killed *M. leprae* in the initial MLSA negative group. Results from the Venezuela trial remained inconclusive regarding protective efficacy of the combination vaccine over and above that of BCG alone. Whether that is on account of previous BCG vaccinations and lepromin testing, high efficacy of BCG in preventing leprosy, adoption of annual case-detection procedures or epidemiological profile is difficult to say.

BCG Story

BCG was considered as a potential tool for leprosy control following the observations on lepromin conversion. Encouraging results with respect to its protective efficacy are available from Uganda, New Guinea, Malawi and Venezuela. A prophylactic efficacy to the tune of 50% to 80% was observed in these places. Results from Burma have shown an efficacy of about only 20%. Similar moderate level of protective efficacy was observed from the recently analyzed data from the South Indian BCG trial. BCG does not appear to be a vaccine which could be globally considered for prevention of leprosy, although it might be effective in some regions.

ICRC Vaccine

ICRC bacilli were first isolated in 1958 by Bapat, Ranadive and Khanolkar. ICRC vaccine was produced in 1979. Bapat and Deo registered a patent for ICRC vaccine (C-44 strain) in 1981. The initial hospital based studies were conducted at Acworth Leprosy

Hospital, Bombay, from 1979. A prophylaxis study is in progress in Maharashtra State since February 1987.

M.w vaccine

Talwar's group in Delhi was looking for a mycobacterium having desirable cross-reactive antigens with *M. leprae* with respect to the immune reactivity of TT patients, and at the same time to have antigens evoking responsiveness in LL patients. *M.w* was selected as a candidate for vaccine production. Encouraging results from hospital-based Phase-II immunotherapeutic clinical trials have been obtained in New Delhi. A prophylaxis study in Kanpur is in progress.

Comparative leprosy vaccine trial in South India

On 30th January 1991, a comparative leprosy vaccine trial involving BCG plus armadillo derived killed *M. leprae*, ICRC and *M.w* was launched by the Indian Council of Medical Research in Chingleput district of Tamilnadu. Information on the three candidate vaccines had been discussed extensively in the Indian Council of Medical Research, by the Indian Association of Leprologists, as well as at the last Pre-Congress Workshop on leprosy vaccine trials, in The Hague in 1988. It was uniformly agreed that all these vaccines deserve to be tested for their prophylactic efficacy. The recently launched trial in South India is providing an unique opportunity to compare them together. It will take 8 years to get the first results on the prophylactic efficacy of these vaccines.

Possible second generation vaccines

A number of mycobacterial antigens have been iden-

tified. Natural or recombinant forms of these proteins are now available. Choosing antigens with possible prophylactic efficacy could prove to be a very deceptive exercise. Defining "protective antigens", and "protective and pathologic immunity" are some of the questions that are being investigated. Promising approaches for inserting different DNA sequences in BCG have been developed. However, the work on second generation vaccines is still very much in the exploratory stage.

Relevance of a vaccine

The available parameters of animal studies, sensitization to *M. leprae* antigens following vaccination and immunotherapy are only indirect measures of probable prophylactic efficacy of the candidate vaccines. Vaccines trials with different candidate vaccines against leprosy are presently in progress. Several recombinant and native antigens as well as mycobacterial components are being investigated for their role in immuno-modulation. It is not impossible to conceive emergence of effective anti-leprosy vaccines some time in future. It would be essential to understand the possible roles of these vaccines in different situations. Alternative approaches and priorities for disease control will have to be taken into account. Efficacy of case-detection and case-holding in controlling disease transmission, costs of case-detection and case-holding and the cost of preventing leprosy cases will need consideration in an overall context. Clearly leprosy vaccine is a distinct research goal and an area of high research priority. Δ

A Project Model for attempting Integration of Leprosy Services with General Health Care Services after the Prevalence of the Disease is reduced in the Endemic Districts on Multidrug Therapy for over Five Years

DR N. S. DHARMSHAKTU

MULTIDRUG therapy has been introduced in India for the treatment of leprosy cases on a large scale, in high endemic districts with prevalence of 5 or more per 1000 population, through a separate vertical infrastructure parallel to the general health care system (DGHS 1989). After the introduction of multidrug therapy in a district the prevalence rate is expected to be brought down to a very low level by 5 years and, after that leprosy care is planned to be integrated with the general health care system. Starting from 1982-83 multidrug therapy (MDT) has now been sanctioned for all the 201 endemic districts of the country, including the 66 districts for which a Modified MDT Scheme has been sanctioned. Recently, it has been proposed to change the Modified MDT Scheme into a regular vertical approach. The endemic districts where the prevalence has been reduced to 1.5 or less per 1000 population, because of MDT intervention for 5 years or more, have now been issued with Government orders for integrating leprosy services with general health care with effect from 1-4-1991 (DGHS 1991).

Integration of leprosy services with general health care is being practised in many countries (WHO

SEARO 1988), but this has not always been based on any definite evidence showing that the integrated approach is better than vertical approach. Since one third of world leprosy patients is estimated to be present in India, it is time for the Government and other interested agencies and persons to plan and study the feasibility of Integrating leprosy services with general health care services through well-conducted projects and gather adequate experience in the methodology of integration before introducing integration on a wider scale. Integration done without prior feasibility study may undo all the success that has been achieved under the National Leprosy Eradication Programme. However, we must also realize that we can ill afford the financial burden of maintaining the vertical structure for an indefinite period.

Here I present a project model for studying the effects of integration of leprosy with general health care based on utilisation of existing health care infrastructure.

The Case for Integration

The case for integration is well-known and is summarized below.

The general health care staff have better access to the community. For every 5,000 popula-

tion one male and one female health worker are working full time under the general health care system whereas, under the vertical leprosy services system one worker covers 25,000 population.

The general health care system has one female worker for every 5,000 population and also has the support of trained *dais* and Anganwadi workers at village level whereas, the number of female workers employed is very small under the vertical system of leprosy services. Examination of female subjects aged above 14 years is therefore likely to be better if leprosy services are provided by the general health care services in low endemic areas.

During the surveillance period, when the case-load in the community is quite low, many patients do not feel it necessary to visit the leprosy clinic as they feel they have been cured. The number of patient-health worker contact is likely to be frequent with the general health care system since patients will be approaching the general health care staff for their other health problems and this will lead to better coverage during surveillance.

Given adequate training about early diagnosis, patient follow-up

for the treatment, referral and community education about leprosy, the general health care workers will be able to give better coverage in view of their easy access to the population.

THE PROPOSED MODEL

The proposed model of integration of leprosy services with general health care services envisages: (i) Development of training curriculum in leprosy for general health care staff; (ii) Job identification for each category of staff; (iii) Short training of all general health care staff including community health workers; and (iv) Integration of information system and monitoring system with the general health care system at various levels.

The proposed model will test the hypothesis that the type of approach (TA), vertical or integrated, directly or indirectly determines: the percentage of follow-up of cases discharged as cured (%FCD), the number of persons examined for leprosy (# PE), the number of females aged 15 years and above examined for leprosy (# F 15E), the number of new cases detected (# NCD), the percentage of patients put on regular treatment (%RT), the choice of patient for the type of approach (COP) and the choice of the general public for the type of approach (CGPT). Symbolically the hypothesis may be expressed as:

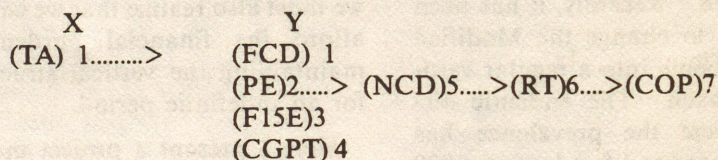
% FCD; # PE; # F15E; # NCD; % RT; COP; CGPT = f(TA) in which f is 'function of'.

Definitions of the terms used: (i) Choice of patients for the type of approach (COP): In view of the large number of patients in the study districts it may be difficult to contact each and every patient and obtain her/his choice of the system. Therefore, all the patients registered during the study period

(3 years) including those cured during this period will be considered for the study of their choice of the system. (ii) Regular treatment (RT): Patients having a minimum of 75% attendance for treatment will be considered 'regular' and treatment regularity will be estimated in terms of completed months. Any continuous break of two months or more in treatment will be considered as 'irregular'. (iii) Choice of general public for the type of approach (CGPT): Opinions of the village heads (usually male) and heads village Mahila Mandals (women's groups) regarding which approach is better and should be adopted for treatment of leprosy patients will be ascertained. The reply will be graded as vertical/integrated/not certain. The reason for the preference will also be elicited and studied. In urban areas, choices of heads of wards (usually male) and the Mahila Mandals (women's groups) will be ascertained and recorded. (iv) Persons examined (PE): This refers to the total number of persons examined for leprosy, and '# F15E' refers to the total number of females, aged 15 years and above, examined for leprosy during the study period. (v) Follow-up of cases discharged as cured (FCD): Treatment is ter-

minated in cured cases and they are required to be followed-up once in a year for 2 years and 5 years, in paucibacillary and multibacillary cases respectively, for detection of instances of relapse. '%FCD' refers to the percentage of discharged (cured) cases thus followed-up during the study period. (vi) integrated General Health Care System is one in which every health worker deals with all types of disease and health problems in the area allotted to him/her, including leprosy. (vii) 'Vertical leprosy services' refers to the system in which the worker posted under the leprosy programme deals with health problems of leprosy patients only, in the population allotted to him/her. (viii) Multidrug therapy refers to treatment of leprosy with a combination of dapsone, clofazimine and rifampicin in the dosage schedule recommended by the National Leprosy Eradication Programme.

It follows from our hypothesis that type of approach (TA) may be looked upon as the independent variable (X1) and the other parameters (% FCD, #PE...) as dependent variables (Y1, Y2... Y7). The following path diagram shows the relation between these parameters.



It can be seen that

$Y_1, Y_2, Y_3, Y_4 = f(X_1)$;

$Y_5 = f(Y_2)$; $Y_6 = f(Y_5)$ and $Y_7 = f(Y_6)$.

Choice of patient (COP) in favour of integrated services will be positively influenced by care for other diseases and negatively influenced by the levels of social stigma, stigma by the worker and self-stigma. It may also be influ-

enced by educational status, occupation, rural/urban status etc.

Choice of general public in favour of integrated services will be negatively influenced by the social and educational status of the individual.

Project Description

Two districts, 'A' and 'B', in which the prevalence of leprosy has been reduced to a very low level (preferably, less than 2/1000 population) as the result of five or more years of multidrug therapy should be selected, preferably from the same state.

A team of 4 leprosy experts should validate the alleged low prevalence rate of leprosy in the two districts.

The present vertical approach will be continued in district 'A'; but, in district 'B' the integrated approach will be adopted. The incentive salaries of vertical staff will be discontinued in district 'A' and no incentive salaries will be paid to general health care staff of district 'B'. If these two districts are selected from the ones already identified by the Government of India as ready for integration and for which orders have already been issued for stopping payment of incentives with effect from 1-4-91, there will be least administrative problems, as incentives will not be available for the control district as well.

The vertical leprosy staff of district 'B' (integrated) will be utilized for training general health care staff of the district in leprosy. After that, they may be transferred to an adjoining district where vertical approach is still being followed, or, they may be sent for training in the integrated system in an institution nearby, depending upon the needs of the State Government.

The period of training for the general health care staff in leprosy will be 5 days for medical officers and all the staff of PHCs and sub

centres and, it will be 2 days for the village level workers like *dais* and village health guides.

Male health assistants and male multipurpose workers will be involved in public awareness activities, population surveys, detection of new/suspected cases, follow-up of cases on treatment and cases under surveillance, referral of cases, defaulter action, etc. The female health assistants and female multipurpose workers will be involved in referring the detected suspected cases, bringing defaulter cases for treatment to the PHC doctor, or, to the male workers of the particular area for recording and reporting. They will also be involved in the public awareness activities about leprosy.

Immediately after training, the general health care staff (of district 'B') will be introduced to the patients and their records in that area by the vertical (leprosy) staff. This should take about five working days for each male multipurpose worker covering 5,000 population. This introduction will be done by the leprosy worker of that area under the supervision of the Non-Medical Supervisor or the Medical Officer. Each vertical worker looks after 25,000 population. Therefore each vertical worker will need 25 working days for the complete handing over of records and introduction of all the cases to the five general health care workers of that area. Incentive salaries of the vertical worker will be stopped from then on, if the worker opts to remain in the same district and become a general health care worker for which he will be sent for training in the general health care system.

In both districts, the opinion of male and female patients, general public and the workers will be ascertained at the start of the project and at the end of the study period (3 years). The same individuals will be examined on both occasions. A selfstructured questionnaire will be used for comparison. Therefore, standardization of the questionnaire will not be required.

The level of basic knowledge of general health care workers will also be assessed initially and after three years of integration. The responses to the questionnaire will be graded as correct/partly correct/wrong.

The supervision mechanism in district 'B' will be as under: (i) The 'integrated' district will continue to have a District Leprosy Unit, which will be responsible for providing supervision, technical guidance, quality check of skin smears and survey work. The staff of the District Leprosy Unit will also deliver talks on leprosy in the monthly meetings at PHC level, on rotation. The District Leprosy Officer (DLO) will work under the overall guidance of and in close coordination with the Chief Medical Officer/District Medical Officer. The Medical Officers of Leprosy Control Units in the district will be shifted to fill vacant NLEP posts, or, given duties in the primary health care set-up. The non-medical supervisors, health educators, physiotherapy technicians, laboratory technicians and other categories of workers under the NLEP set-up will be redistributed against vacant NLEP posts, or, will be reallocated appropriate duties under the

general health care set-up. (ii) Multidrug therapy in the integrated pattern will be made available at sub-centres, primary health centres, community health centres, dispensaries and hospitals. The Medical Officer of the primary health centre will be responsible for NLEP activities (including treatment delivery, case holding, follow-up and reporting etc.) in his area as a part of his/her normal duties.

The management information system will be simplified in the district on integrated set-up and the information collected will be restricted to population examined for case detection, cases detected and treated, treatment regularity, discharges and relapse.

Coverage of leprosy services will be measured after 3 years of implementation. Following data from these two districts will be compared: coverage of discharged cases under surveillance, population surveyed, new cases detected, treatment regularity of old and newly detected cases, choice of male/female patients and opinions of general public and health workers about their preference (of integrated or vertical system).

Data source and data collection: The district 'A' (vertical set-up) data will be collected from the records with the DLO, leprosy control units, urban leprosy centres and survey-education-treatment centres in the district. In district 'B' (integrated), the source of data will be the records at district, primary health centre, sub-centre level.

Assessment of efficiency of integrated approach: As indicated below, for each parameter (FCD, PE, F15E....) the values obtained for districts 'B' and 'A' are worked out and the efficiency of integrated approach is assessed by the ratio

Value of parameter for 'B'

Value of same parameter for 'A'

which should be considerably greater than 1.0 to indicate a higher efficiency of integrated approach. Thus the indicator index for each parameter will be:

1. Surveillance : $\frac{\% \text{ FCD (B)}}{\% \text{ FCD (A)}}$
2. Survey : $\frac{\# \text{ PE (B)}}{\# \text{ PE (A)}}$; $\frac{\# \text{ PE males (B)}}{\# \text{ PE males (A)}}$; $\frac{\# \text{ PE females (B)}}{\# \text{ PE females (A)}}$
3. Survey of adult females : $\frac{\# \text{ F15E (B)}}{\# \text{ F15E (A)}}$
4. New case : $\frac{\# \text{ NCD (B)}}{\# \text{ NCD (A)}}$; $\frac{\# \text{ NCD males (B)}}{\# \text{ NCD males (A)}}$; $\frac{\# \text{ NCD females (B)}}{\# \text{ NCD females (A)}}$
5. Treatment regularity : $\frac{\% \text{ RT (B)}}{\% \text{ RT (A)}}$ This may be separately calculated for old and new (registered during study period) cases.

Finer details (like data on MB, PB cases) can be incorporated as desired.

The preference of patients and different categories of general public (rural, urban; males, females) is assessed by comparing the proportion of subjects favouring vertical and integrated approaches initially and at the end of the study period in each district.

Similarly the effect of integration on the knowledge status of general health workers is assessed by comparing the initial and final scores of these workers in each district.

Time schedule: The time scale of the various processes involved in this study is as follows:

1. Appraisal of state and district authority ½ month
2. Preparation of plan of study, training curriculum and preliminary study 1 month
3. Training of staff 2 months
4. Handing over of record and introduction of integrated approach to patients in the districts 2 months

5. Study period 36 months
6. Data collection 4 months
7. Data processing 2 months
8. Analysis 2 months
9. Report writing 1 month

Additional financial and other inputs: Any additional staff and monetary input will be restricted to only those items facilitating the study. Financial support would be required for the following items:

- (i) TA/DA for field visits of the main investigator who will be the key person for planning, monitoring and evaluation of the study.
- (ii) Support for three statistical assistants; one each will be required for the two districts and one to help the main investigator.
- (iii) Part-time secretarial support to the main investigator.
- (iv) TA/DA for statistical assistants for visits to leprosy units/general health care centres.
- (v) Support for initial and final appraisals by a team of four experts to evaluate the prevalence of the disease.

(vi) Financial support for short training of general health care staff in district 'B'.

(vii) Provision of transport/fuel, etc., for field visits. If it is not possible to use a local vehicle, a jeep may need to be provided.

Concluding Remarks

Such a study as described above may be expected to inform us how this model of integration of leprosy

services with the general health care system affects the coverage and provision of leprosy services after the prevalence has been reduced to a very low level consequent to multidrug therapy for 5 or more years. If such a study is also carried out in other districts with different levels of low prevalence of leprosy it might also help in deciding the optimum timing and prevalence level for successful integration of leprosy services with general health care services.

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Courtesy: *Indian Journal of Leprosy*
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CLOSING IN ON ASTHMA

Results of a new trial have provided further evidence that asthma is the result of cells in the immune system mistakenly becoming overactive. It has also given a pointer to the type of drugs that could block these cells.

Doctors at the UK National Heart and Lung Institute, and London Chest Hospital, have found that cyclosporin A, a drug used to suppress organ rejection after transplant surgery, produced a marked improvement in chronic asthma sufferers. At the moment, most asthmatics need high doses of steroids to control their attacks, but these can produce serious side-effects.

It has been suspected for sometime that "T helper" cells of the immune system play a central role

in asthma because their activation leads to the constriction of the airways. Cyclosporin, which is thought to work by preventing the process that activates T helper cells, was used in a double-blind trial and among the 26 people who completed it there was a clear benefit from cyclosporin. The drug is reported to have both improved the patients' breathing and reduced the number of episodes of severe asthma requiring extra steroid treatment.

Although, Dr Barry Kay, one of the leaders of the research team, believes the answer to chronic asthma is to block the T helper cells, he believes new drugs with less potential side-effects may be needed instead of cyclosporin. Δ

—Medical News from Britain

(Contd. from page 28)

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Beneficiary Study of Leprosy Services among Tribal and Non-Tribal Population in the selected Endemic Districts of Madhya Pradesh and Andhra Pradesh

DR N.S. DHARMSHAKTU, DR B. KAMESHWARA RAO, DR M.A. ARIF, DR S.L. GUPTA, DR V.K. MASHI, DR G.P. MISHRA, DR G.R.K. RAJU AND DR SRINIVASA RAO

THE Government of India launched National Leprosy Eradication Programme in the year 1983 with the objective to arrest the disease activities in all the known cases of leprosy by the year 2000. Under the programme MDT is being provided to the patients in a phased manner taking district as a unit. All 201 endemic districts have been sanctioned MDT project which include 135 districts on vertical pattern for implementation and 66 districts for modified pattern of implementation. In the rural and tribal areas of the districts there are often many obstacles which may prevent masses to make best use of services available such as inadequate motorable roads, inadequate communication, inadequate public transport, scattered villages, inadequate infrastructure, inadequacy of staff and non-availability of services nearest to the houses of the patients, illiteracy, pressure for earning of daily livelihood, ignorance about the cause and curability of the disease, stigma, etc.

In order to overcome the obstacles in the endemic rural and tribal areas in providing MDT services following provisions have been made under MDT scheme on vertical pattern:

(a) The funds for the project are directly released to the Dis-

trict MDT Society which functions under the Chairmanship of District Collector.

(b) The services are provided to all the segments of the population in the district by proper organisation of available infrastructure. In all endemic districts a District Leprosy Unit is established under District Leprosy Officer. Under the vertical pattern of MDT implementation rural areas are covered by the Leprosy Control Units and its clinics. Each leprosy control unit covers a population of 4 to 5 lakh with its headquarters and 20 clinics in the field where one para-medical worker is posted for each clinic. While the worker population ratio is one for 25000 in rural areas in general, the same is reduced to 1 for 15000 in tribal and difficult hilly areas. Each of the urban leprosy control unit provides services for 30000 to 40000 population.

(c) In the vertical pattern of MDT scheme the District Leprosy Unit and Leprosy Control Units are provided a vehicle and fund for POL. MDT allowance is given to

the Medical Officers and Para-Medical Workers. Funds are also provided for short orientation training of all categories of staff, for making community awareness and for developing records and patient cards. From the leprosy control unit and its clinics the services are carried down to the patients by dividing the area into circuits and under each circuit many drug delivery points are identified in such a way that no leprosy patient will have to travel more than 2 KMs for collection of MDT on fixed days.

(d) Each DLO Unit and leprosy control unit mostly have a post of Health Educator. The assistance of District Media Unit, Block Extension Educator and other health workers are also taken in health education campaign for creating community awareness. A provision of Rs. 24,000 per year per district is provided for community awareness activities.

The present study was conducted in tribal and non-tribal areas of Durg, Raipur and Rajnandgaon districts of Madhya Pradesh and in tribal areas of Vishakhapatnam and Vizianagram districts of Andhra Pradesh with following objectives:

- (i) Conduct demographic analysis showing geographical distribution of tribal people in the districts studied.
- (ii) Conduct analysis of service statistics in tribal and non-tribal people to determine the use of services and occurrence of new cases for each group.
- (iii) To carry out follow up interviews with male, female patients to identify their knowledge and beliefs regarding leprosy augmented by group discussions with men and women regarding the disease and control programme in the selected villages of selected districts.

Methodology : District level information was gathered by checking records available with the District Leprosy Office on a pre-designed proforma. The villages were selected randomly from tribal and non-tribal blocks respectively. In the selected villages group discussions were held based on pre-designed format with adult males and adult females respectively. Wherever school was available in the village the students of 9th and 10th standard were covered under group discussion. The response against cause of the disease, its curability, availability of treatment, programme activities and choice of treatment were graded in terms of % as correct, wrong and uncertain categories. Patients and community members were interviewed by questionnaire method and their response was graded under correct, wrong and uncertain categories. The village data verification was also done in the selected tribal and non-tribal villages

separately and information was gathered on a pre-designed proforma.

Summary of the Results : The percentage of tribal population to the total population of the district is 18.5% in Raipur, 12.6% in Durg, 25.3% in Rajnandgaon, 13.7% in Vishakhapatnam and 8.5% in Vizianagram. The % of rural population is higher among tribals as compared to non-tribal population in all these districts.

The prevalence rate of leprosy and annual new case detection rate are less among tribal community compared to non-tribal community in all the five districts under MDT project for a period of three to nine years. The awareness of both tribal and non-tribal community is good in general about curability of the disease, availability of treatment at the nearest place, visit of leprosy workers to villages and their activities and people's choice of treatment. 90% of both tribal and non-tribal patients are satisfied by improvement in their disease condition as a result of MDT and 80 to 100% patients are taking MDT regularly. 96 to 98% of patients are found living with their families. While the level of leprosy awareness in general is less among tribals in comparison to non-tribals in the district of Raipur, the same did not differ much in Durg and Rajnandgaon districts among tribals and non-tribals. This may be due to intensive health education campaign conducted in Durg and Rajnandgaon by DANIDA assistance in both tribal and non-tribal areas. Community members and patients had adequate knowledge and awareness about cause of the disease in both tribal and non-tribal areas. The feeling that leprosy deformity is not preventable and that the child born to woman with leprosy will also have leprosy still exists both among

tribal and non-tribal communities with slightly higher side among tribals. The majority of tribal and non-tribal community members stated that allopathy is the best treatment available for leprosy (75 to 100%) and small percentage of tribal community members in Raipur district still feel Ayurveda and Homoeopathy as better remedy for leprosy.

Recommendations

1. Additional funds should be provided to the District MDT Society for carrying out intensive community awareness campaigns about leprosy along with new case detection drives. A calendar of the cultural/religious events celebrated by the local people be prepared for each community block separately particularly for the tribal areas so that special group awareness and case detection drive can be launched on those days with vigour. Health education messages about cause of leprosy, its communicability and removal of stigma should be used with caution in tribal areas which may otherwise have negative effect.

2. New case detection in the tribal areas should be done by group campaigns preferably on Sundays by house visits. This will provide better coverage of the population for case detection and at the same time community awareness would increase.

3. Available local Government/Non-Government staff and the volunteers must be involved for creating public awareness, referral of cases and retrieval of defaulter patients. Identification and involvement of such categories of persons should be done by DLO and his staff as

(Contd. on page 12)

THE STATE OF THE WORLD'S CHILDREN 1992

THE United Nations Children's Fund has made an impassioned plea for a renewed international commitment to the task of ending mass malnutrition, disease, and illiteracy in the poor world. Governments of developing countries are indicated for spending, on average, only about 12% of their budgets on basic health and education services for the poor; rich countries are criticized for allocating only about 10% of international aid to health, education, and family planning.

At a time when a new world order is struggling to be born, says the 1992 State of the World's Children report, the voice of the poorest quarter of humanity must be heard. One billion people still lack adequate food, safe water, primary health care, and basic education. "For almost half a century, war and ideological division have distracted attention and diverted resources from this task", says UNICEF. "Those threats are now receding. And the time has come for the world to recommit itself to meeting basic human needs and building a new world order which will reflect mankind's brightest hopes rather than its darkest fear."

Ending the worst of world poverty is far from being a lost cause, says the report. "We have already travelled three quarters of the way towards a world in which every man, woman, and child has adequate food, safe water, basic health care, and at least a primary education. There is no financial or technological barrier to prevent the completion of that journey in our times."

Children

The ones who are being most shamefully failed by the present world order, says UNICEF's Executive Director James Grant, are the quarter of a million children who are dying every week and the millions more who survive into half-life of malnutrition and almost permanent ill health.

"This is not a threatened tragedy or an impending crisis", says Grant. "It happened today. And it will happen again tomorrow. It is a problem which should rank in importance with any on the human agenda. But in practice, it has

been given a low priority because it is primarily a problem of the poor and the powerless."

There are some signs that this may be changing. "The needs of children are beginning to feature on the political agenda in a way that is unprecedented in UNICEF's forty year history", says Grant.

The most obvious sign of that new priority was the convening of the World Summit for Children in September 1990. It was the largest gathering of Presidents and Prime Ministers in history, and it met specifically to discuss the problems of the world's children. The outcome was an agreed programme for, among other things, preventing 4 million child deaths a year, ending mass malnutrition, eradicating polio, and ensuring clean water, family planning services, and basic education for all.

"The emergence of such an agreement, at a time when the existing world order is rapidly changing", says Grant "means that there is today a better chance than ever before of finding a place on the world's political agenda for the rights of children and for meeting the minimum needs of all families."

Immunization

The setting of such ambitious targets was prompted by the growing realization that the world now has both the low-cost means and the outreach capacity to achieve dramatic gains in children's well-being. The most convincing demonstration of that potential has been the successful attempt to reach 80% immunization coverage by the end of 1990. When that target was set in the late 1970s, vaccines were reaching barely 10% of the developing world's children. Today, immunization is saving the lives of over 3 million children a year and protecting many millions more against infection and malnutrition.

"Such programmes also help to slow population growth", says UNICEF, "because parental confidence in the health and survival of children is vital to family planning efforts."

Skewed spending

It is still too early to tell whether

the new commitments made at the World Summit for Children are real or rhetorical. The 159 nations represented agreed to draw up, within one year, national plans for achieving the new goals by the year 2000. So far, over 60 nations have completed such plans and that number is expected to rise to over 100 by early 1992. Some, like Mexico, have already begun to move; President Carlos Salinas de Gortari has instituted a six-monthly cabinet meeting to review progress towards the goals and approved a 40% increase in the budget of PRONASOL, the government programme which aims to provide basic services to the poorest fifth of Mexico's people and which has received \$1.7 billion in 1991 — over 8% of the government's total social expenditure.

As agreed at the Summit, some industrialized nations have also been reviewing aid programmes to see how they can promote progress towards the new goals. "The public in the industrialized world has long believed that the great majority of the aid it gives to the developing world is spent on directly meeting the basic needs of the poor", says Grant, "whereas in fact only a tiny percentage is used for that purpose". Only about 1% of aid goes to the primary health care systems which could prevent or treat 80% of the disease and malnutrition in the developing world. Only about 1% goes to family planning services. And less than 1% goes to primary education.

The same distortion can be seen in spending patterns within the developing world itself. UNICEF estimates, for example, that three quarters of all health budgets go to urban hospitals, usually serving only a small minority of the population. According to some estimates, 80% of the \$12 billion allocated each year to water-supply systems is spent on putting private taps in the homes of the not-so-poor and only 20% is going to the wells and stand-pipes which, with today's technology, could bring clean water to the very poorest communities at low cost. Spending on education is similarly skewed in favour of the few rather than the many. Δ

—UN Newsletter

SWASTH HIND

Role of Health Education in Leprosy Control Programme

DR MANJIT SINGH

HEALTH Education aims at healthy individuals, a healthy community and a healthy nation. Health Education is more important in Leprosy Control Programme because of long incubation period of the disease; social stigma it carries; misconceptions, wrong beliefs and long duration for which a patient has to take treatment, thereby leading to more dropout rate. *Mycobacterium Leprae* is the causative organism.

It takes 3-5 years to manifest as disease (incubation period). Gandhiji had given most of his time in the service of leprosy patients to show that it does no harm to those coming in contact with the patients, thus encouraging people to come forward in their service. People are ignorant and do not have the scientific knowledge about the cause of the disease. They believe that they get this disease because of their old sins. There still exists a misconception that those who come in contact with them or their near and dear ones only shall contract the disease.

The Government of India is committed towards eradication of the disease. It is providing services through following infrastructure in the country:

- * 758 Leprosy Control Units
- * 900 Leprosy Centres
- * 6097 Survey and Treatment Centres
- * 291 Hospital Wards
- * 285 Distt. Leprosy Units

- * 75 Reconstructive Units
- * 39 Sample Survey and Assessment Units
- Leprosy Rehabilitation and Promotion Units

Early detection of the case and proper treatment prevents disability. Depigmented patch on skin with loss of sensation should cause suspicion and the patient should get him/herself investigated further for leprosy.

A. In positive/confirmed cases,

- (i) Chemotherapy with DAPSONE (D.D.S.), M.D.T. should be continued for the period advised by the doctor. He/she should not blow nose or spit (secretions) to avoid formation of nuclei which act as a source of infection.
- (ii) Patient should be made self-responsible for continuing treatment through motivation and health education.
- (iii) Patient should continue working along with continuing treatment. His co-workers and employers need intensive health education to cast away their apprehensions.
- (iv) Patient should live and lead normal life with treatment (Drugs).
- (v) There is no sensory loss if drugs are continued for specified period.
- (vi) With proper care and treatment there is no need for rehabilitation if treatment is begun early.

B. **Contacts of the case** should be kept under surveillance to avoid any chance of having a new case.

C. **Relatives/friends/family members** should be involved in Health Education Campaign so that they do not carry misconceptions/wrong beliefs regarding the disease.

Leprosy organism produces sensory loss, as a result of which deformity, trauma, burns, etc. can occur. Health education aims at prevention of deformities by making patients aware of the consequences of sensory loss due to disease and the precautions a patient should observe so as to avoid burns and injuries etc.

D. Rehabilitation

If any one's body part is lost due to burn/injury, constructive surgery can help him to lead near normal life.

Drop-foot, claw-toes, planter ulcers, depressed nose, and multiple sinuses shall not be seen in leprosy patients if (1) detected early, (2) proper and adequate treatment is taken by patient.

Health education about possible risks due to disease should be made known to the community at large and patients in particular. Let there be no lepers. Help fight leprosy. Δ

WORLD BREASTFEEDING WEEK—1-7 AUGUST

In an effort to re-establish and sustain global breast-feeding culture, the World Alliance for Breastfeeding Action (WABA), with the support of the World Health Organization (WHO) and the United Nations Children's Fund (UNICEF), had proclaimed 1-7 August World Breastfeeding Week. This date marked the anniversary of the Innocenti Declaration of July 1990, a landmark statement which identified a set of goals for adoption in all countries to protect, promote and support breastfeeding.

World Breastfeeding Week was intended to focus attention on a variety of breastfeeding issues. The theme for 1992 complemented the Baby-Friendly Hospital Initiative recently launched by UNICEF and WHO to support and encourage breastfeeding.

Recognizing that breast milk provides the best possible start in life for all children, WHO and UNICEF paid tribute to the many

dedicated members of nongovernmental organizations that are promoting sound infant and young child feeding practices.

For many babies, breastfeeding can be a matter of life or death. In the words of UNICEF Executive Director James P. Grant, "every day, 3000 to 4000 babies die from diarrhoeal dehydration and acute respiratory infections because they are not breastfed. Thousands more succumb to other illness and malnutrition. And yet, the more science discovers about breastfeeding, the more the benefits are confirmed.

"Only a global effort, involving both North and South, can remove barriers to breastfeeding and permit mothers to offer the healthy start in life their babies deserve". Δ

—UN Newsletter

LEPROSY

—A Select Bibliography—1990-1992

K. C. SINGH AND H. KAUR

We publish below a select bibliography on Leprosy compiled by the National Medical Library (DGHS) as part of its activities aimed at providing Documentation Services to the Health Science Community in the country. It covers selected contributions on Leprosy during 1990-1992. Entries follow a classified arrangement using subject headings. Photocopies of these articles can be ordered from the National Medical Library (DGHS), Ansari Nagar, Ring Road, New Delhi-110029.

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SWASTH HIND

BOOK REVIEW

Maternal Mortality A global factbook

Maternal Mortality: A Global Factbook—Compiled
by C. AbouZahr and E. Royston
1991, 608 pages (English only);
ISBN 92 4 159001 7
Sw. fr. 50-/US \$45.00;
In developing countries: Sw. fr. 35.
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This book sets out the facts and figures needed to understand why so many women continue to die as a result of pregnancy and childbirth despite the fact that the technical means to prevent such deaths have long been available. Drawing upon a vast data base of some 3,000 reports and studies, the fact-book shows, in the form of country profiles, where women are dying, what they are dying of and what other aspects of their lives contribute to their deaths. Noting that maternal death is most often the tragic end to a life-long chain of events and disadvantages, the book tracks down the underlying factors, often rooted in sex discrimination present since infancy, as well as the more immediate factors, such as lack of access to life-saving care, that reveal the true complexity of the forces at work. Information such as that contained in this factbook provides the key for effective action, making the best use of limited resources despite the often difficult circumstances.

The main body of the factbook, which runs to some 600 pages, consists of country profiles which, for the first time ever, bring together and analyse the results of all available surveys and studies on maternal mortality, women's reproductive health and allied subjects, as well as indicators of the coverage of maternity care,

family planning and other back-ground factors. Profiles are given for each of 117 developing countries in Africa, Latin America, Asia and Oceania. Data on developed countries are also tabulated for comparison. In compiling the profiles the authors have drawn upon the unique WHO women's health data base which, in addition to the more readily available government reports and articles from scientific journals, contains information from a large variety of disparate sources, including unpublished articles, doctoral theses and consultant briefings.

To make it easier to compare countries, each profile follows a common format, starting with a section containing demographic and socioeconomic indicators that shed light on women's lives in each country: their chances of going to school, eating well, and receiving health care, the age at which they are likely to marry, their chances of planning their families, and the number of children they are likely to bear. These data provide a backdrop for the detailed statistics on coverage of care and maternal mortality which follow, and which detail the numbers of deaths, the mortality rates and ratios, the causes and circumstances surrounding each case, the groups of women most at risk of dying, and the kinds of preventive and curative actions that might have averted death.

The interpretation of this vast amount of information is facilitated through the inclusion of four background chapters. The first provides an overview of the dimensions and causes of maternal mortality and morbidity in the world today as well as of the extent of the coverage of care. The different ways of measuring maternal mortality are described in the second chapter, which discusses and strengths and weaknesses of each method. The third explains how the results of surveys should be interpreted and analyses the information that can, or cannot, be obtained from hospital studies, community surveys or registration data. The book also features a comprehensive listing of general resource materials for readers who wish to expand their knowledge on this complex issue. Δ

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