

consistently since 1988 by 94% whereas the new case detection rate has remained stable with small variation between years. However, in 1998 there was a marked reduction of 23% compared to 1997 and a further decline of 11% was observed in 1999.

Efforts will be intensified in the few countries and areas that did not reach the elimination while targeting elimination at sub national level in large countries that already reached the elimination.

However, major challenge will be the design and implementation of a cost effective post elimination surveillance system, which may be based on the followings:

1. Establishing leprosy services in selected and designated referral centres, preferably dermatology services, to maintain expertise in diagnosis and case management;
2. Making leprosy a notifiable disease, integrated into the general disease surveillance and health information system;
3. Sustaining awareness on leprosy through yearly national campaigns to ensure community and general health workers participation in case finding and management;
4. Periodic evaluation.

WHO-WPRO, Manila, Philippines Phone : 0063-2-5289706

Fax : 0063-2-5211036 Email : diletoc@who.org.ph

### Co 373

#### WHAT STRATEGY AGAINST LEPROSY?

*Dr.H.Sansarricq & Dr.D.Daumerie* WHO, Geneva, Switzerland

The tremendous impact of the elimination strategy (i.e. 10 million patients having been cured in one decade) fully justifies the existing strategy. Since we still lack a primary prevention tool however, it is fully justified to extend the elimination plan up to 2005.

In implementing the elimination strategy, technical problems are few and relatively easy to solve. But operational difficulties are many and tend to be more and more serious when elimination activities move to areas not yet covered, which is now generally the case. Of special importance are the problems related to adequate MDT coverage, integration of services, information and motivation of all groups concerned. WHO has developed various activities to help in solving these operational problems and is undertaking operational research projects that address other specific difficulties. Problems can be expected in relation to the decrease of political will of national authorities when the number of remaining patients has decreased sharply, or even in relation to humanitarian disasters. It could also be that, at global level, cooperation requires

strengthening between the various partners of the recently launched Global Alliance for Elimination of Leprosy.

On the whole, the impact of the elimination programme has been impressive so far, but the ongoing problems are tremendous. Even if the elimination target could be reached at national level in all endemic countries by 2005, there is serious doubt about the possibility of reaching elimination at sub-national level in several countries.

For these reasons there is an urgent need to stimulate vigorously both basic and applied research on leprosy. Subjects of prime importance are *M.leprae* infection and disease transmission, and the development of reliable test(s) for subclinical infection and incubation period. The sequencing of the *M.leprae* genome, now complete, opens promising avenues in many disciplines. The scientific community appears to be ready for this new beginning of leprosy research, but coordination of efforts requires streamlining to achieve maximum results without further delay.

WHO, Geneva, Switzerland Phone : 0041-22-79113919 Fax : 0041-22-7914850 Email : daumaried@who.int

### Ep 13

#### ANALYSIS OF PERSONAL HYGIENIC HABITS OF MULTIBACILLARY HANSEN'S CASES WITH RELATION TO DEVELOPMENT OF NEW CASES IN COMMUNITY

*Dr.Bansod Baliram S*

Assistant Director, Health Services (Leprosy), Chandrapur, Maharashtra

The disease is known since time immemorial to mankind. The disease and its consequences of visible deformity contributes for social stigma, which further leads to discrimination, disintegration of patients and families from society. The disease also affects directly or indirectly the productivity and economic growth.

The early detection, and case holding for prompt treatment is of paramount importance to uphold the Leprosy Elimination strategy. It is also observed that the operational researches and technical with academic researches on socio-cultural and habitat of community vis a vis suffering patients, so that the necessary precautionary measures can be taken and modalities can evolve for effective health education.

In the state of Maharashtra, the District Chandrapur was having high prevalence 139/10000 (1987) and now also 8.1/10000 (1999) compared to other Districts. The NCDR is also highest (10.6/10000) in state: which attracts the attention to analyse: the disease activity, its transmission and spread in community and its attributable factors.

The study conducted in 45 villages having 97 cases (M.B. and child) in 1,33,482 population. The 97 patients interrogated (interviewed) through pretested interview forms. Out of them Labourers (34), Farmers (25), Income group below Rs.500/pm (14), 500-1000 (51), Personal habitat Cigarette/Bidi smokers (24), Alcoholics (18) Pan and Tobacco chewers (64), Living/Sleeping in single room (49). Their contacts examined 27 and new cases detected 8. Spitting habit (indiscriminately) (56) out of which 7 new cases detected from contacts of 14 patients. Working together for 8 hrs/day (67) contact examined 28, from which new cases detected-3. Total contacts of 97 patients-281 out of which new cases detected(21) 8 M.B., 10 P.B., 3 S.S.L. i.e. NCDR (747.3/1000).

It suggests that the adverse socio-economic, socio-cultural and personal habitats had much more influence in spread of disease. Therefore a multiprong action is needed, including health education for effective implementation of Leprosy Elimination Strategy

Directorate of Health Services, Chandrapur, Maharashtra State, India

### Ep 32

#### TREND IN LEPROSY IN PURULIA DISTRICT AND POST 2000 AD PRIORITIES Dr.Prasun Kumar Das

Leprosy Control Unit (Sadar), Purulia, West Bengal

In West Bengal, the district of Purulia is one of the highly prevalent district. Purulia is one of the first two districts in India where MDT was started in the year 1982. However, the total patients of the district were brought under MDT in the year 1985.

The prevalence rate of leprosy was 40.55 in the year 1990-91 declined to 18.81 in the year 1999-2000 per ten thousand population. The deformity rate also has a decline from

3.3% in the year 1990-91 to 1.91% in the year 1999-2000. But the child rate has been increased to 21.41% in 1999-2000 from 18.8% in 1990-91.

In spite of the decline in the total case load, the New Case Detection Rate (NCDR) remains almost static for the last 10 years. The present study shows that the New Case Detection Rate was 20.88 in the year 1990-91, while it is found to be 25.06 in the year 1999-2000 per ten thousand population.

The above study indicates that still there are hidden cases in the community and also indicates the need to further epidemiological and laboratory experimentation to find out the other possible mode of transmission which are not yet established. It is suggested that an intensive and all out drive supporting all the components of leprosy work has to be undertaken to combat the situation.

Leprosy Control Unit (Sadar), Deben Mahata (Sadar) Hospital,

P.O. & District - Purulia - 723 101, West Bengal Phone : 0091-3252-24527

Fax : 0091-3252-22480

### Ep 58

#### LEPROSY IN AGRA - SOME EPIDEMIOLOGICAL OBSERVATIONS FROM ONE YEAR FIELD WORK (1999-2000)

Anil Kumar, Anita Girdhar & B.K.Girdhar Central JALMA Institute For Leprosy, Agra

AIM : To find New Case Detection (NCDR) & Prevalence Rate (PR) in Rural/Urban Agra and also its correlates.

Methods : During July 99-June 2K, 64 villages and 26 urban units with each about 40 households have been surveyed by the team consisting Medical Doctor, Epidemiologist, Statistician and PMWs. A total of 13244 persons in rural and 3841 in urban have been examined. Details about individuals and household characteristics are recorded besides the clinical examination details. If a case is found, the person is given the required treatment.

Results : In rural areas, NCDR was observed to be 5.36/1000 and 3.12/1000 in urban areas. The prevalence was 6.12/1000 in rural and 3.91/1000 in urban respectively. Detail analysis suggests that more males are afflicted with the disease in rural and urban areas. This has also been found that households with poor sanitation facilities in and around the house has significantly higher prevalence of leprosy. Detail findings would be presented.

Conclusion : Agra has never been labeled as endemic for leprosy but the current data reveals its endemic nature with prevalence ranging ( 95% C.I.) from 45 to 67 per 10,000, thus requiring more attention of programme managers for case detection activities if its control is to be achieved.

Central JALMA Institute For Leprosy, Tajganj, Agra - 282 001 Phone : 0091-562-331751

Fax : 0091-562-331755

Email : jalma@nde.vsnl.net.in

### Ep 181

#### LEPROSY PROFILE IN A POPULATION OF 3,50,000 DURING THE LAST TWO DECADES - TEN YEARS BEFORE AND TEN YEARS AFTER MDT

Dr.K.R.Ratre, B.Chandu & Dr.N.K.Nanda, B.L.Hospital, The Leprosy Mission, Champa, Madhya Pradesh

The Leprosy Mission Hospital at Champa, Madhya Pradesh, was given an area in the year 1976 to carry out leprosy control activities. The present population

of the area is approximately 350000. This area lies in the Chhatisgarh region of Madhya Pradesh, the centrally located state of India. This area is endemic for leprosy. MDT was introduced much later in the area as late as in the year 1989. Therefore monotherapy was given to leprosy patients before 1989.

Statistics have been collected in the following categories to know the leprosy profile before and after the introduction of MDT. Statistics have been collected from the year 1981 to 1999 on:

- \* No. of new cases
- \* MB/PB ratio of new cases
- \* Deformity rate among new cases
- \* Child rate among new cases
- \* Prevalence rate
- \* New case detection rate
- \* Mode of detection

The statistics will be presented with discussions.

B.L.Hospital, The Leprosy Mission, Champa, Madhya Pradesh Phone : 0091-7819-45743, 45243

Fax : 0091-7819-45243

### Ep 186

#### LEPROSY IN CHILDREN - A RETROSPECTIVE STUDY OF CHILD CASES DETECTED DURING THE LAST FIVE YEARS IN NORTH EASTERN SUBURBS OF GREATER MUMBAI

*Sachin R.Salunkhe, A.A.Samy, Joy M, P.R.Dewarkar & Vincent A.K.*, ALERT-INDIA, Mumbai

Early detection of large number of child leprosy cases is one of the significant indicators of the continued presence of leprosy infection in a given geographical region. This study is based on the data of child leprosy cases detected over a five year period (1995 to 1999) at ALERT-INDIA's urban leprosy control projects in North Eastern suburbs of Mumbai.

The cases were studied from the epidemiological and clinical aspects as well. Case detection was initially done through school surveys and mass surveys. As high as 36% were child leprosy cases of the total 3,461 detected cases. Follow-up examination of the family contacts of these children revealed that sizeable number of them were members of multiple leprosy case families.

Critical analysis of the data confirms the persistence of the chain of transmission as a primary factor leading to the appearance of new cases in the community.

ALERT-INDIA, B-9 Mira Mansion, Sion (West), Mumbai - 400 022 Phone : 0091-22-4033081, 4033082

Fax : 0091-22-4072558

Email : [byelep@iname.com](mailto:byelep@iname.com)

### Ep 202

#### EPIDEMIOLOGICAL, SOCIAL AND CULTURAL DETERMINANTS OF LEPROSY IN ASIATIC ENVIRONMENTS

##### A STUDY WITH SPECIAL REFERENCE TO TREATMENT AND CONTROL IN INDIA

*Dr.S.Shanmuganandan & Dr.V.Saravanabavan*, Madurai-Kamaraj University, Madurai

Leprosy is one of the oldest diseases known to mankind since centuries. For centuries, since the disease is socially stigmatized, it becomes very difficult to reduce the prevalence, however the most sophisticated treatments are available. As leprosy is viewed as a major social and public health problem in Tamilnadu, the present study thus made an attempt to analyze the spatial and spatio-temporal variation of the disease in the last 10 years in order to understand the health status due to leprosy. As leprosy poses the double jeopardy not only the integration of the disease in the immunological and biological influences but also and perhaps more importantly, the cultural impact on the social status of the patients that results in the gender bias in health, beliefs, attitudes and behaviours. The study also made an attempt to explain the health status and situation in Asia as a result of leprosy and also to identify the major dimensions with reference to social stigmatization, particularly in Tamilnadu with the help of variables selected from cultural, social, behavioural, epidemiological and health care factors.

In addition, elucidating the emergence of gender bias within Indian culture thus provides a backdrop for understanding the specific problems experienced by the leprosy patients in Indian subcontinent. The study has also identified the spatial patterns of leprosy in Asiatic environments in relation to epidemiological background of the disease besides analyzing the sociocultural and socioeconomic dimensions drawn from the primary data survey conducted among leprosy patients of Tamilnadu. The data were analyzed with the help of multivariate statistical techniques to identify and group the spatial patterns and also attempted to model the cultural and behavioural factors responsible for prevention and control of the disease. The dimensions such as impact of MDT treatment, patients care history, treatment capacity, social ostracism and patients satisfaction, leprosy workers perception on the disease, etc. strongly suggested not only the leprosy situation in Asia but also throws light on the problems that are essentially to be addressed in future for prevention and control of the disease.

Department of Geography, Madurai-Kamaraj University, Palkalainagar, Madurai - 625 021

Email : [iseh@pronet.net.in](mailto:iseh@pronet.net.in) and [Anandan9@yahoo.com](mailto:Anandan9@yahoo.com)

**Ep 222****CHANGING SCENARIO OF LEPROSY IN MADHYA PRADESH***K.K.Thassu, Mrs.Anshu Vaish & P.Prakash Bhopal*

Madhya Pradesh is the largest state in India. It caters to 8,18,89,412 population distributed in 61 districts. MDT was started in 2 districts during 1987, 11 more high prevalent districts, were covered with MDT during 1989-1992. Entire state was brought under MDT by September 1995. The prevalence rate of leprosy during 1987-1988 was more than 43.4 cases per 10,000 population. Gradually it has come down to 4.4 per 10,000 by March 2000. During these 13 years, 337990 new cases were detected and put on MDT, 4,33,707 cases were released from treatment.

Strategy of leprosy elimination in Madhya Pradesh includes MLEC, LEC, ULEC, RLEC, VRC, SAPEL, Skin Disease Diagnosis & Therapeutic Camp (SD-DTC), POD camps, Khel Khel Mai, Empowering Women to reduce gender inequality apart from traditional Survey Education Treatment (SET) done in routine.

The present (March 2000) situation of leprosy in Madhya Pradesh is as follow - Total registered cases - 35855 Prevalence rate - 4.4/10,000 New case detection rate - 5.5/10,000 MB case % - 46% Disability grade II among new cases - 4.7%

Child cases among new cases - 11% No. of districts having PR. more than 10 per 10,000 - 3 No. of districts having PR. more than 5 per 10,000 - 18 No. of districts having PR. more than 2 per 10,000 - 22 No. of districts having PR. more than 1 per 10,000 - 14 No. of districts having PR. less than 1 per 10,000 - 4

Now the NLEP has been integrated with the GHC system (w.e.f. July 2000) and leprosy elimination is being attempted through community education & involvement.

Joint Director H.S. (Leprosy), D.H.S., 6th Floor, Satpura Bhavan, Bhopal, Madhya Pradesh

Phone : 0091-755-766898

Fax : 0091-755-766898

Email : danlep@bom6.vsnl.net.in

DESIGN : Observation study THE LEPROSY MISSION, NUAPADA.

SETTING : District of Nuapada, Orissa

PARTICIPANTS : Recorded Leprosy cases from Jan. 1997 to 2000 June.

MAIN OUTCOME MEASURES :

1. Cumulative case detection rate
2. Deformity rate
3. Smear (B.I) positivity rate.

RESULTS :

1. A. Schedule Caste people cumulative case detection rate - 204.9
- B. Non-Schedule caste people cumulative case detection rate - 76.6
2. A. Schedule Caste patients deformity rate - 9.5
- B. Non-Schedule Caste patients deformity rate - 8.4
3. A. Schedule Caste patients Smear (BI) positivity rate - 6.5
- B. Non-Schedule Caste patient Smear (BI) positivity rate - 5.2

Continued on next page CONCLUSION:

1. Schedule Caste people showing high rate in cumulative case detection in comparison to Non-Schedule Caste people.
2. Schedule Caste patients showing high rate in deformity in comparison to Non-Schedule Caste patients.
3. Schedule Caste patients showing high rate in smear (B.I.) positivity, when compared with Non-Schedule Caste patients.

It is possible that the observed difference are due to differences in Socio-economic status, such as poverty, education and hygiene.

R.Zachariah, Supervisor (S.E.T.), The Leprosy Mission, Po.-Khariar - 766 107, Nuapada District, Orissa

Phone : 0091-6671-32192

Fax : 0091-6671-32299

**Ep 238****COMPARING LEPROSY INDICATORS BETWEEN SCHEDULE CASTE AND NON-SCHEDULE CASTE PEOPLE**

*R.Zachariah & Dr.Sanjeva Rao* The Leprosy Mission, Khariar, Orissa

OBJECTIVE : To compare difference between the cumulative case detection rate, Deformity rate and Smear (B.I) positivity rate between Schedule Caste and Non-Schedule Caste People.

**Ep 336****SOME QUESTIONS OF EPIDEMIOLOGY AND FIGHTING AGAINST LEPROSY IN TURKMENISTAN**

*CDWG A.A.Gowshudow & KKB TMI A.M.Izmailow*, Turkmenistan

The systematic control for leprosy foci in Turkmenistan, hospitalization and treatment of both newly revealed patients with clinical bacterioscopic relapses, especially the application of the combined chemiother-

apy (CC) with antileprosy preparations (rifampicin, clofazimine, ofloxacin, minocycline and others) with accounting of multibacillary and little bacillary leprosy substantially influenced on the morbidity structure change and the populations leprosy affection.

On June 1, 2000 there were 120 leprosy patients registered at the dispensary accounting that more than by 2 times was less compared with 1964. Male patients were 62.5%, female patients were 37.5%. These indices did not experience substantial changes. The sufficient reduction of the patients number in Balkansky region (17.5% vs 42.3% in 1964) and considerable increase in Dashoguzky region (70% vs 41.8% 1964) happened. This explained by more late extensive antileprosy work.

If in 1964 the most morbidity was noted at the age under 30 years, according to our data it was noted under 40-60 years (56.6%). The displacement of the leprosy morbidity to more late terms of the human life points of the decrease of the affection and morbidity risk.

According to the diagnosis the patients were distributed in the following way : LL lepromatous type-39%, BL-border-lepromatous type -7.5%, TT tuberculoid type -29%, BT border-tuberculoid type-11.6%, BR border type - 12.5%.

The comparative analysis of these indices with the data if 1964 shows the considerable increase of patients with little bacillary morbidity types (tuberculoid and border) and the number reduction of patients with lepromatous type.

The noted shifts in the morbidity structure create the more favourable epidemiologic situation in the infection transmission.

### Ep 386

#### LEPROSY IN CHINA : EPIDEMIOLOGICAL TRENDS BETWEEN 1949 AND 1998 Dr.Xiang-sheng Chen, Nanjing, China

Based upon the database from the National System of Leprosy Surveillance, the epidemiological trends of leprosy for 50 years (1949-1998) in China are analysed in this paper. During the study period, a total of 474,774 leprosy patients had been detected.

The case detection rates per 100,000 population were highest in the 1950s and 1960s, and the peaks observed in the curve of case detection appear in 1957-58, 1963-66, 1969-70, and 1983-84, which correspond to the mass surveys or screening surveys in most areas or selected areas of the country. The duration of the disease at the time of detection has been shortened over the years, and disability rate was as high as more than 50% in the early 1950s and decreased gradually to 20.8% in 1997-1998, but it is still far too high. More than 50% of cases were found through active methods in 1955-58, 1965-66, and 1969-1976, but these meth-

ods are not the predominate ways to detect cases at the present. The peak prevalence was found in the 1960s remaining at more than 2 per 10,000 population and decreased annually from the 1970s onwards. By the end of 1998, the prevalence had decreased to 0.05 per 10,000 population.

The study reveals that leprosy has been well controlled in China and the WHO elimination of leprosy as a public health problem has been achieved totally at the national or sub-national level. But leprosy is still distributed unevenly in the country. According to the China criteria of leprosy elimination defined as prevalence rate of less than 1/100,000 in terms of county/city, there were still more than 10% of counties/cities where the criteria have not been achieved. The special attention for reaching the elimination and final eradication of leprosy should be emphasized in future.

12 Jiangwangmiao, Nanjing - 210042, China Phone : 0086-25-5421813

Fax : 0086-25-5421323

### Ep 47

#### HUMAN IMMUNODEFICIENCY VIRUS INFECTION IN PATIENTS WITH LEPROSY - A MULTI-CENTRE STUDY

*Edward V.K., Jadhav S, Fernando A, Shinde V.S., Dutta A, Rao J.R., Babu P.G. & John T.J.*

Richardson Leprosy Hospital, Miraj, Maharashtra

While the relationship between leprosy and HIV seropositivity and/or AIDS is still unclear, such a relationship between other mycobacterial infections like tuberculosis and MAI disease and AIDS has been well documented, the former causing significant morbidity and mortality. In a study involving five leprosy hospitals of The Leprosy Mission India situated in the eastern part of India, we screened 2000 leprosy patients, 400 from each hospital as part of phase-I of our study. Half of the patients were from the leprosy control area and half from the OPD clinics. Patients were inducted irrespective of sex, leprosy type, duration of disease or treatment or absence or presence of complications. The sample age group was 16-50 years. Only two patients were found to be HIV positive confirmed by Western Blot, both from our Calcutta hospital, indicating that the problem of HIV in leprosy may be mainly urban and not significant.

In the second phase of our study, 469 patients from Calcutta and another 574 leprosy patients from our hospital at Miraj in Western India were screened. In this phase 18 patients were confirmed for HIV positivity (16 from Miraj and 2 from Calcutta). Only one progressed to full-blown AIDS. This ongoing second phase involves study of the clinical course of leprosy in patients who are seropositive for HIV. Clinical observations as seen now will be reported and discussed.

Richardson Leprosy Hospital, Miraj - 416 410, Sangli District, Maharashtra Phone : 0091-233-211213

Fax : 0091-233-211708

Email : sblabttlm@pn2.vsnl.net.in or tlmmiraj@yahoo.com

### Ep 70

#### HOUSE HOLD CONTACTS OF LEPROSY AND ITS IMPACT ON CHILDHOOD LEPROSY

*Suman Jain, Raj Gopal Reddy, Suhail Naser & Sujai Suneetha*

Lepra India, Hyderabad

A retrospective case note study was done of children who attended Dhoolpet Leprosy Research Centre (DLRC) over the past decade (1990-99). The focus of the study was to detect the incidence of family contact among these children and also to define the profile of clinical presentation and to describe the evolution of the disease in the cases who were on regular follow up.

A total of 306 children (below the age of 14 years) with leprosy attended DLRC over the past ten years. Of them 182 (60%) were male and 124 (40%) were female. The youngest case detected was 9 months old. History of contact was present in 119(38.8%) cases of which, family contact 113 (95%) & other than family 06 (5%). Among the contacts of the index case 21 (35%) suffered from PB leprosy and 39 (65%) from MB leprosy. The classification of the contact was available in only 60 patients. All contacts were from the immediate family.

The spectrum of leprosy detected in these children was as follows: TT-62 (20.3%), BT-203-(66.3%); BB-03 (1%); BL-23 (7.5%); LL-5 (1.6%) and PNL -10 (3.3%).

29 (9.4%) cases were smear positive and 277 (90.6%) were smear negative. 95 children had a single patch, 159 had fewer than 5 patches and 37 had multiple patches. 91 (29.7%) children went into reaction - 5 Type II and 86 Type I.

Conclusion: These data show that childhood leprosy cases continue to present to out-patient clinics. There is a high level of family contact with leprosy in these cases.

Lepra India, Blue Peter Research Centre, Cherlapally, Hyderabad - 501 301 Phone : 0091-40-7264547

Fax : 0091-40-7262571

Email : lepind@hd1.vsnl.net.in

### Ep 89

#### CASE DETECTION AMONG NON-HOUSEHOLD CONTACTS OF NEW SMEAR POSITIVE MB CASES

*Pratibha Kathe, Uday Thakar & Dnyaneshwar Kholgade*

Acworth Leprosy Hospital Society For Research, Mumbai

Household contacts of smear positive MB cases are generally considered as high-risk population and hence covered in routine case detection activity. However, leprosy cases like other people also spend much more time outside their homes, thereby having contact with people residing in surrounding houses, at the place of work and at the place of social activities.

In taluka Panvel, 7946 people have been identified for having contact with 46 new smear positive MB cases by virtue of their staying in the surrounding houses (4612 people), working with the index cases (1548 people) and having social contact with the index cases (1786 people). Of these 7324(92%) had been examined to reveal 27 new cases (4 SSL, 16 PB and 7 MB).

The New Case Detection Rate (NCDR), observed among extra-household contacts of smear positive MB cases (37/10000) was found to be much higher than that is seen in routine surveys. Among three categories of non-household contacts, the maximum NCDR of 66 cases per 10000 population was observed among the people having social contacts with smear positive MB cases.

The results suggest that the non-household contacts of smear positive MB cases should also be considered as high-risk population.

Acworth Leprosy Hospital Society For Research, Rehabilitation & Education in Leprosy, Wadala, Mumbai - 400 031 Phone : 0091-22-4147256, 4150355

Fax : 0091-22-4184263

### Ep 121

#### INCIDENCE OF LEPROSY IN FEMALE IS EQUAL TO MALE - REVEALED IN MLEC II

*Bankanidhi Mohanty & Dr.P.K.B.Patnaik*, Directorate Of Health Services, Bhubaneswar

Instructions

It has been told and written in many text books that incidence of leprosy in male is two times more than female because female community in India is less exposed to infection than male community.

But outcome of II MLEC in Orissa has proved this fact and hypothesis wrong.

II MLEC in Orissa yielded 13218 number of female cases out of 13574225 female population examined

with detection rate 9.74/10,000. 13979 number of male cases were detected from 14141763 male population examined with detection rate 9.88/10,000. So it proves that incidence of leprosy in both the sexes is equal. This could happen due to involvement of more number of female volunteers in search activities of MLEC-II.

Leprosy Cell, Directorate Of Health Services, Bhubaneswar - 751 001, Orissa Phone : 0091-674-401589

Fax : 0091-674-400271

### Ep 165

#### IMPACT OF PRIOR BCG VACCINATION ON THE EFFICACY OF VARIOUS VACCINES AGAINST LEPROSY

*M.D.Gupte, R.Ramakrishnan, D.S.Anantharaman, M.Dhakshinamurthy, Y. Livingstone, A.George & C. Sagayanathan, Chennai*

**Introduction :** The efficacy of BCG vaccination against tuberculosis and leprosy has been investigated by many investigators. BCG vaccination has been included in the universal immunization schedule. Hence, in future, when most of the population would have had BCG vaccination in childhood, studies of any other vaccination has to be carried out in the backdrop of prior BCG vaccination.

**Objective :** To study the impact of prior BCG vaccination as judged by the presence of BCG scar, on the preventive efficacy of four different vaccines against leprosy.

**Methods :** A controlled, double-blind, randomized, prophylactic leprosy vaccine trial was conducted in south India. Four vaccines, namely, BCG, BCG + Killed *M.leprae*, Mw and ICRC were studied in the trial in comparison with normal saline placebo. Analysis is done based on 1,13,500 subjects concurrently vaccinated by all the five arms of the study. Due to death and immigration, there was a decrease in the cohort by about 5% per annum. In the two resurveys, the coverage for examination was more than 90%. Stratified analysis, adjusting for covariates was employed.

**Results :** There was no significant impact of earlier BCG vaccination against leprosy as seen from incidence cases in the subjects in the placebo arms of the two resurveys. The absolute level of protection offered by these vaccines is more among subjects with prior BCG vaccination, though not statistically significant.

Major V.R.Ramanathan Road, Chetpet, Chennai - 600 031 Phone : 0091-44-8265308, 8261642

Fax : 0091-44-8264963

Email : nieicmr@vsnl.com

### Ep 178

#### EFFECTIVENESS OF BACILLUS CALMETTE GUERIN (BCG) VACCINATION IN THE PREVENTION OF LEPROSY : A CASE CONTROL STUDY IN RAIPUR - A PRELIMINARY REPORT

*Rahate N.P., Zodpey S.P., Kamble K.M. & Mohapatra D.C.*

Regional Leprosy Training & Research Institute, Raipur, Madhya Pradesh

**Objective :** To estimate the effectiveness of BCG vaccination in the prevention of leprosy. Literature is sparse on the role of BCG in prevention of leprosy in Indian population despite the fact that more than a half of the world's leprosy cases are in India.

**Design :** Population-based pair-matched case control study.

**Setting :** Rural community, Raipur, Madhya Pradesh.

**Participants :** The study included 142 cases of leprosy (diagnosed by WHO criteria), below the age of 35 years registered during 1st January 1999 to 31st March. Each case was pairedmatched with one neighborhood control for age, sex and socioeconomic status. Exclusion criteria for controls included past or current history of tuberculosis or leprosy.

**Main Outcome Measure(s) :** BCG effectiveness.

**Study Factor :** BCG vaccination status was assessed by examination for the presence of BCG scar, immunization records if available and information from subjects/parents of children. Subjects uncertain about BCG vaccination were not included.

**Results :** A non-significant protective association between BCG vaccination and leprosy was observed (OR= 0.65, CI 0.36-1.17). The overall vaccine effectiveness (VE) was 34.48% (95% CI -17-64). The BCG effectiveness against multibacillary and paucibacillary leprosy was 42.86% (95% CI -95-83.28) and 31.82% (95% CI -31-64.64) respectively. The overall prevented fraction was 17.68% (95%CI -06.31-42.05).

**Conclusion :** The current population-based case control study performed in Central India (Raipur), identified although a non-significant but a beneficial role of BCG vaccination in prevention of leprosy in study population.

Regional Leprosy Training & Research Institute, Raipur, Madhya Pradesh

### Ep 228

#### PATTERNS OF HOUSEHOLD AND NON-HOUSEHOLD CONTACTS IN TWO 5-YEAR COHORTS AND ITS RELEVANCE TO TRANSMISSION OF LEPROSY

*Mehar Vani, Venkat Ram Reddy, Muzaffarullah, Suman Jain, Lavanya Suneetha & Sujai Suneetha*

Lepira India, Hyderabad

Dhoolpet Leprosy Research Centre is an out patient clinic where patients are self-drawn or referred for diagnosis and treatment of leprosy. In this retrospective study, we analyzed the pattern of contacts of patients seen at the Centre. Contacts were categorized into immediate household, extended family/relatives and other social contacts. The other variables considered were age, sex, type of leprosy and duration of onset. Conjugal spread, disease among siblings and parent to child transmission were also analyzed. The direction of probable infection was studied in relation to the index case.

2380 patients registered between 1982 & 1986 and 2155 patients between 1990 & 1994 were questioned on the history of contact with leprosy. Results reveal that overall, 617 out of 4535 patients (13.6%) gave a history of contact; 366 out of 2380 (15.4%) in the 1980s cohort study and 251 out of 2155 (11.6%) in the 1990s cohort. As in previous studies, household/familial contacts were the most frequent (83.1%), followed by relatives (7.5%) and least from social contacts (3.2%). Among household contacts, the most frequent contact was with parents (40%), followed by contact among siblings (30.2%), and then conjugal contact (13.5%). There was a higher proportion of multibacillary leprosy patients among the contacts and the disease type produced in the index case was more commonly paucibacillary leprosy. Details of comparison of the variables between the 1980 and the 1990 cohort will be discussed.

In conclusion, the study substantiates the significant impact of the immediate family and the multibacillary case in transmission of disease. Differentiation based on blood relationship suggests a familial pattern with a genetic basis in a proportion of contacts.

Lepira India, Blue Peter Research Centre, Cherlapally, Hyderabad - 501 301 Phone : 0091-04-7264547

Fax : 0091-40-7262571

Email : lepirindia@hd1.vsnl.net.in

### Ep 343

#### SEROLOGY AND PCR AS APPLIED TO THE EPIDEMIOLOGY AND PREVENTION OF LEPROSY

*Dr.S.Izumi, Dr.T.Budiawan, Dr.K.Saeki, Dr.M.Matsuoka & M.Hatta*

Kagawa, Japan

Since the early 1990s, our research group has been conducting a series of epidemiological studies of leprosy in endemic pockets of Indonesia, the purpose of

which was to attempt to explain why leprosy is so endemic in the area and to collect epidemiological data that will be useful both for the global elimination of leprosy and for preventing the disease.

Indonesia is third highest on the list of the most leprosy-endemic countries in the world. According to the / Government of Indonesia, the number of registered cases in 1999 was 21,027 with the prevalence of 1.01 per 10,000 population. During the period from April 1998 to March 1999, 16,448 cases were detected. The case detection rate is more or less stable.

Leprosy is heterogeneously distributed in the country; North Maluku and South Sulawesi are the endemic provinces. We began a cohort study in the provinces in 1991, and have since conducted a series of epidemiologic surveys, employing both serological and nose-swab-PCR techniques. As the results of a series of epidemiological study, we found the following:

1) a considerable proportion of the healthy residents of the hot spot, who are not household contacts of leprosy patients, appears to be infected with *M. leprae*; 2) *M. leprae* appear to be ubiquitous in the environment of the hot spot, and it appears reasonable to assume these environmental organisms play an important role in the infection; 3) development of new immunological tools that may be used to predict who among those at risk will develop clinical disease is one of the most important subjects of research in the future; 4) chemoprophylaxis delivered to those at high risk of developing overt disease is essential for the control of leprosy in the hot spot.

6034-1, Aji-cho, Kida-gun, Kagawa - 761 0198, Japan  
Phone : 0081-87-8713131

Fax : 0081-87-8714821

Email : izumis@oosimasei.hosp.go.jp

### Ep 371

#### DO WE UNDERSTAND THE FUTURE? LESSONS FROM THE LEPROSY SIMULATION MODEL SIMLEP

*A.Meima, W.C.S.Smith, J.H.Richardus, G.J.van Oortmarssen & J.D.F.Habbema* Erasmus University Rotterdam, The Netherlands

In many endemic countries, new case detection has not shown a downward trend in the 1990s. Operational factors, such as the leprosy elimination campaigns that were conducted in the late 1990s are partly, but to an unknown extent, responsible for this. Moreover, it is unknown how the incidence which underlies new case detection is evolving. It is therefore unclear what will happen to the leprosy problem after the year 2000.

Uncertain aspects of leprosy epidemiology govern trends in leprosy incidence. Can everyone get leprosy? How easily is leprosy transmitted? Who is responsible



for transmission? How late are new patients detected? Do other factors than leprosy control contribute to trends in leprosy incidence? This paper explores some of the uncertainties that govern past and future trends in leprosy by applying the leprosy simulation model SIMLEP using different sets of assumptions. The observed new case detection trend in major endemic countries is mimicked from 1985 onwards, and future leprosy incidence and new case detection are projected.

Preliminary simulations show that future trends and the impact of leprosy control on these trends strongly depend on assumptions about uncertain aspects of leprosy epidemiology. It can not be excluded that leprosy incidence will decline only slowly in the near future. The epidemiological uncertainties about leprosy should be accounted for in making future policy decisions in leprosy control. Continued careful monitoring of areas with good quality MDT treatment registries may partially resolve these uncertainties.

Department of Public Health, Faculty of Medicine & Health Sciences, Erasmus University Rotterdam, P.O.Box 1738, 3000 DR Rotterdam, The Netherlands  
Phone : 0031-10-4087714

Fax : 0031-10-4089449

Email : meima@mgz.fgg.eur.nl

### Ep 372

#### DISAPPEARANCE OF LEPROSY FROM NORWAY : ANALYSIS WITH THE LEPROSY SIMULATION MODEL SIMLEP

*A.Meima, L.M.Irgens, G.J.van Oortmarssen, J.H.Richardus & J.D.F.Habbema* Erasmus University Rotterdam, The Netherlands

SIMLEP is a computer simulation program for modeling the transmission and control of leprosy which can be used to predict epidemiological trends. In the present validation study, SIMLEP is shown to reproduce the declining incidence of leprosy in Norway between 1856 and 1920 well.

In order to fit the Norway data, an autonomous declining trend in infection risks, reflecting improvement in for instance living conditions, had to be assumed. The autonomous trend and hospitalisation of patients, used at that time as preventive control measure, each explained roughly half of the decline. The decline in Norway coincided with a relative increase in incidence rates at older ages which was reproduced well by assuming that 10% of new cases had very long incubation periods. Another good fit of the data was obtained under the assumption that most infections take place in the first part of the contagious period. The assumption that incubating cases are contagious resulted in a third good fit. Autonomous trends have to be stronger for the second and third model because their assumptions reduce the effectivity of hospitalisation.

The fact that different assumptions can explain the Norwegian data about equally well, reflects the lack of a diagnostic test for leprosy infection and our lack of knowledge on the transmission dynamics of leprosy. It is of concern to today's leprosy control that the three model variants lead to different predictions about the impact of control strategies. Further, validation efforts on complete, longitudinal data from different control programmes in the dapsone and MDT eras can lead to reduction of the uncertainty about the key transmission parameters involved in leprosy.

Department of Public Health, Faculty of Medicine & Health Sciences, Erasmus University Rotterdam, P.O.Box 1738, 3000 DR Rotterdam, The Netherlands  
Phone : 0031-10-4087714

Fax : 0031-10-4089449

Email : meima@mgz.fgg.eur.nl

### CI 114

#### CLAW HAND IN A CASE OF TT LEPROSY DEVELOPING AFTER 1.5 YEARS M.D.T.

*Dr.M.Z.Mani & Dr.Emy Alexander*, C.M.C. & Hospital, Ludhiana

This case report is being presented to highlight the following points:

- i) There is a need to re-examine the efficacy of Fixed and Short Duration M.D.T. in leprosy.
- ii) There is a need for regular follow up of patients with timely intervention to prevent new paralysis, during and after M.D.T.
- iii) There is a need to be aware that some leprosy patients, as in this case, prefer to go to another doctor when their symptoms do not improve, and M.D.T. is stopped as per W.H.O. and N.L.E. P. guidelines.

#### Case Report

A 23-year old male clerk from Bihar, who is working in Punjab, developed an area of sensory loss on the right wrist 31/2 years before reporting. The patient was diagnosed outside as a case of leprosy, after a biopsy, and he was given Cap. Rifampicin 600 mg on two days a month and

D.D.S. 100 mg od for 1 years, after which his treatment was stopped. Two months after stopping treatment the patient noticed an erythematous raised anaesthetic lesion on the site of previous sensory loss on the Rt wrist. The patient returned to his doctor but was not given any further anti-leprosy treatment. Two weeks later he developed a right claw hand, but unfortunately did not return to his doctor, as he lost confidence. The patient was subsequently referred to our hospital during a skin camp in the locality.

On examination, there was a hypopigmented, and erythematous, anaesthetic lesion present on the dorsum of