

1.9 Behavioral Studies

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1.9.1. AIDS-Awareness, intervention and service delivery for CSW of Beria tribes of Agra Commissionery (NACO funded project)

Scientists : S. Qamra, T. Husain and V.M. Katoch (Co-ordinator)
Technical and other supporting staff : Haresh Kumar, Arti Pathak, Bharti Devi and C.L. Choudhary

Duration : 2002-2005

Background

The study has been initiated to understand the behavioral factors responsible for the transmission of HIV in a community of commercial sex workers which have been associated with this trade as a family tradition. This investigation is being carried out in the backdrop of some of the earlier research and implementation programmes of interventions on records which indicate not only the professional training, but the quality of professional training also need to be reviewed, according to changing societal behaviour.

The target of the present project is to approach on top priority "Beria" community as they are most sensitive high risk behaviour community in Agra, and may be responsible for rampant spread of HIV infection as their profession is to run organised professions of CSWs (within their own community as well as with the purchased CSWs). The second but not the least important target group will be the families of asymptomatics, as the test figure indicates that it is 100% reported category those who came forward voluntarily for HIV testing (given their consent) and thus proposed to screen the actively engaged individuals in this profession of Beria community for HIV testing.

Objectives

Main objectives of the study are:

- To create awareness and subsequently to promote safe sex behaviour amongst CSW (Commercial Sex Worker), their recipients and in the entire community of Beria tribe through counseling & interventions.
- To create awareness in low risk group (age: 10-14 years, who are likely to be the future risk groups) through counseling & interventions about mode of transmission of STD/STI/RTI/HIV and prevent themselves from contraction of such infections.



- c. To promote organizational support to people living with AIDS by providing them socio-psycho-eco-counseling & marginal financial assistance on need base.
- d. HIV testing of CSWs, their recipients and actively engaged population of Beria tribe in this trade will be carried out.

Methodology

- A. **Design of the study:** The proposed project is ACTION RESEARCH PROJECT and has two major approaches to introduce inter-disciplinary design:
 - a. To measure the actual dimension of the problems of identified study groups amongst 'Beria' tribe of Agra commissionerary.
 - b. To implement the various tools and techniques as proposed in G-5 to achieve the objectives.
- B. **Sampling:** The sampling for this study is multi-stage stratified random sampling.

Techniques

For Lab Research: The trained staff and basic infrastructure is available for testing HIV. It is being done using established standard ELISA techniques at CJIL & OMD, Agra.

For field research

- a. Dry Run
- b. Pre-pilot testing of existing tools of training provided by NACO and to modify it according to our requirement through spot study of some intervention programmes already on-going in other parts of the country such as Kolkata and Mumbai.
- c. Pilot testing of tools to make them more precise and applicable keeping in view of local factors.
- d. Final administration of tools.

For implementation

- a. To train field staff for counseling
- b. To motivate literate youth (Men/Women) from the affected society (Beria) and then to train them as 'Peer Educators' for their community because they will have easy accessibility to their own community and to have feedbacks from the field also.
- c. To train women from voluntary organization as Lions/Rotary/Jaycees/FICCI and other social organizations to act as educators to strengthen the mass participation concept for public at large.



For the field research, schedules/modules (prepared, modified or procured from NACO or any other agency) will be printed after pre testing before training field staff and implementing them in the field. Automobiles and TV/VCR/Projector will be hired on rent as and when required.

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Work done earlier

The Project began in April 2002. In the first phase of field work, authorities (DM, SSP, District Health Authorities) were contacted. Endeavor was made to collect census details of Beria Tribe from 7 districts of Agra commissionerary but was unsuccessful. Thereafter, a pilot testing of the schedule was carried out and based on the lacunae observed a revised schedule was prepared.

Work was begun on CSWs in Aligarh and Firozabad districts in 2002. Sixty three CSWs in Aligarh and 17 in Firozabad were identified and blood samples collected from 45 CSWs, 5 male members for HIV testing and of 1 family where a case of AIDS was present. Preparation to start the work at Etah district has begun. Simultaneously, attempt to contact Beria community residing in Dauki, Shamshabad and Fatehabad has been made to create awareness about HIV/AIDS and safe sex behaviour.

Work done during the year

Till the end of year under report, 716 families have been studied which include 610 families from Beria community and remaining 106 families from other communities of CSWs (Table 16). This work has been completed after visiting several villages and several urban areas of different districts of Agra Mandal. Several houses of Beria families were found locked. As told by neighbors, they lived most of the time in metropolitan cities in connection to their business of commercial sex. Only 77 children could be studied from these families. It was almost impossible to interview children as they were either not available or left alone to be interviewed.

Table: 16. Details of Subjects studied

	Total	Beria	Non-Beria
Community	716 (families)	610	106
CSW	130	99	31
Clients	244	9	235
Children	97	77	20
Organisers	6	4	2



In total, 130 CSW's (67 during the year) have been interviewed from Agra Mandal except for Hathras. Of these 99 were from Beria community. Along with these CSWs six organizers were also interviewed. 244 clients were studied. As no CSW agreed to provide the names of their clients, these clients have been taken through various camps organized at different places of Agra Mandal. Only those persons have been interviewed who admitted their relations with CSW's of any community or with other women or both.

Subjects studied in different study groups were given awareness about self prevention from HIV/AIDS/STD/STI/RTI through lectures, inclusive of showing films, Natak, posters and distributing IEC material and condoms. 20 health camps and 2 workshops were organized to create HIV/AIDS awareness either independently or on request of other agencies. As CSW's refused to reveal their clientship, group of clients were drawn through camps. Only those individuals were considered clients who accepted their sexual relations either with CSW / other women or both. Through these activities stated above, 1812 blood samples have been collected and 86 were found positive for HIV. Towards mass awareness activities Radio Talks, HIV/AIDS through newspaper and comprehensive programme on TV were given so that message about prevention from HIV/AIDS may reach the public of Agra Mandal. In addition, lectures about prevention about HIV/AIDS have been given to NCC students of Agra Mandal, Staff of Bharat Petroleum Corporation Limited and Mathura Refinery and to prisoners inclusive of Jail staff. Apart from this, educational material was disseminated in factories of Firozabad, railway stations and other important places.

The interim analysis of the data collected is progressing.

Future programme

The study will be continued according to approved plan.

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1.10 Epidemiological Studies

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1.10.1. Epidemiological studies of leprosy in Agra district (U.P)

Investigators	:	Anil Kumar, B.K.Girdhar, V.S.Yadav, and Anita Girdhar
Technical and Field staff	:	Rajendra Kumar, Sanjeev Kumar, Rabendra Kumar, Amar Singh, G.P. Singh and Raghvendra Singh
Project duration	:	1999-2008

Background and work done

These studies are being carried out to assess the disease burden in this effect and to assess the impact of some regimens on leprosy situation in this area.

- Studies on prevalence and new case detection rate in Agra district** : During the period under report, emphasis has been on to complete the survey in those area where it was not done (Block level). Extensive survey was conducted in 5 areas of Agra city (NLEP funding). Resurvey has been conducted in areas where first survey was conducted during 1999-2000 to have estimates of incidence rate beside all the patients detected are being followed up every month and MDT/ROM, as the case may be, was being distributed and assessment of the disease done.

The details of the population examined in the survey are given in table 17. The survey work done in Kiraoli and Kheragad has shown relatively lower prevalence of leprosy but in Agra city prevalence has been about 15/10,000.

Table : 17. Prevalence and NCDR of leprosy in Agra district 1/1/2003-31/03/2004

Tahsil	Population Surveyed	Prevalence/10,000	NCDR/ 10,000
Agra (City)	235582	14.8(348)	13.5 (319)
Etmadpur	4341	4.6 (02)	4.6 (02)
Kiraoli	15826	3.2 (05)	3.2 (05)
Fatehabad	1920	(14)*	(14)*
Kheragad	16369	3.7 (6)	2.5 (4)
Bah	3711	40.4 (15)	37.7 (14)
All	277748	14.1(390)	12.9 (358)

* Cases found mainly during follow up, Prevalence/NCDR thus not computed

70



Leprosy situation in Agra city: The details of the work done in Agra (LEC), are given in table. 18. It can be seen that prevalence in areas of Jamuna Kinara, Shahganj and Lohamandi is high as compare to the areas of TajGanj and Dhanoli. In all 92% (264) of the cases were found to be those without any history of treatment. Of this, 33.7% were SSL Cases, 51.5% PB cases and 14.8% MB cases. 95% of all the patients detected are given the respective treatment and being followed monthly.

Prevalence of leprosy among females was 16.4 as compare to 12.5 among males; difference could be due to the fact that more females were examined in the survey since males go out to work places. The socio-economic conditions in the populations seem to be poor (Table 19) . Data reveal that 78% of the patients detected did not have any schooling, about 30% were engaged in gainful employment, 12% lived in jhopdi type houses, 12% had no access to direct sunlight, 75% had no toilet facility, 33% did not have proper clean housing and 78% did not have clean surroundings. The majority was engaged in leather industry and other labour oriented works.

Table : 18. Cases detected in LEC survey in Agra city, 13 April-31 July, 2003

Area	Persons Exam.	Cases Detected				%New Cases (New/Total)		Rate/10,000	
		SSL	PB	MB	All	Prevalence @	NCDR		
Jamuna Kinara	35058	14	31	9	54	85.2 (46/54)	15.40	13.12	
ShahGanj	63910	53	72	28	153	93.5 (143/153)	23.94	22.38	
TajGanj	49886	7	17	1	25	92.0 (23/25)	5.01	4.61	
Lohamandi	37547	14	26	9	49	93.9 (46/49)	13.05	12.25	
Dhanoli*	12749	1	4	1	6	100.0 (6/6)	4.71	4.71	
Total	198150	89	150	48	287	92.0 (264/287)	14.48	13.32	
New Cases Detected		89	136	39	264				
% Patients given Treatment (n)		96.6 (86)	96.3 (131)	84.6 (33)	94.7 (250)				

***Survey incomplete, So far only 44% of target population (4.5 Lakh) could be surveyed. @Includes cases with history of incomplete treatment but active.**



Table : 19. Socio-economic conditions of the leprosy patients in Agra City

Socio-economic conditions		% (n)
Education		
None		78.0 (224)
<5 years		03.8 (11)
5-10		16.7 (48)
>10		01.4 (4)
Work		
No/Old		16.4 (48)
Students		05.6 (16)
H/W		53.0 (136)
Manual		28.2 (81)
Shopkeepers		02.4 (7)
House		
Kacha/Jhopdi		11.5 (33)
Pakka		56.1 (161)
Semi-Pakka		32.4 (93)
Sunlight		
Sufficient		88.5 (254)
Insufficient- Little		11.5 (33)
Toilet		
Yes		24.7 (71)
No		75.3 (216)
Housing		
Clean		67.2 (193)
Dirty-Very Dirty		32.8 (94)
Surroundings		
Clean		22.0 (63)
Dirty		45.6 (131)
Very Dirty		32.4 (93)

Of the total patients, 53.7% patients had atleast 1 thicken nerve; 39% have been found with ulnar nerve involvement, 25% with Lateral Popliteal, 11% with Radial and about 8% other (Muscular cutaneous etc.) nerves and about 4% had grade ≥ 2 deformity.

Mean duration of the disease among new patients was 29 months and 54 months among those with history of incomplete treatment.



2. **The incidence rate** among 24802 persons reexamined after about 2-3 years has been found to be 9.3/10,000. Detail data analysis is in progress.
3. **Therapeutic trials**

Table : 20. Details of cases included in the trials in Agra field area

Duration	SSL		PB		MB	
	ROM	C-ROM	ROM	MDT	ROM	MDT
6/2001-12/2002	50	44	49	48	21	19
1/2003-3/2004	56	52	72	71	1	59
Total	108	99	121	119	22	86
Required intake	300		240		100	
% intake	69		100		86	
% Completed treatment	100		77		44.4	
No. of relapses	3	1	0	3	0	0

Study ongoing

This field trial was started in July 2001 and the intake is still ongoing for SSL and MB cases since ROM-arm in MB group was suspended. There have been some relapses so far, detail is given in the table above.

1.10.2 Field programme for epidemiological studies at Ghatampur

- Scientists** : K. Katoch, P. Sachan, Mohan Natrajan, Raj Kamal, S. Jain*, U. Sengupta, V.M. Katoch, U.D. Gupta, V.D. Sharma, D.S. Chauhan, K.K. Mohanty, Pragya Sharma*, Mallika Lavania and Mohini Sharma
- Technical and Field staff** : Hari Shanker, Anil Sagar, Mohan Pun, Vijay Pal Verma, Suresh Chand, Itrat Ali Siddiqui, Santosh Bajpai, Akhilesh Pandey, Sanjay Singh, Sunil Mishra, Kamal Yadav, Saurabh Sachan and Raju
- Duration** : 2002-2005
*Left the project

Background

This task force project was sanctioned by ICMR in December 2002 for epidemiological studies in Ghatampur, Dist Kanpur. The main objectives of the project are:

To study the disease profile in the community

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To study the difference in incidence of disease in relation to age, sex, relation and type of contacts, effect of hygiene and socio-economic status etc on the prevalence and incidence of leprosy.

To study the effect of treatment regimens in the field

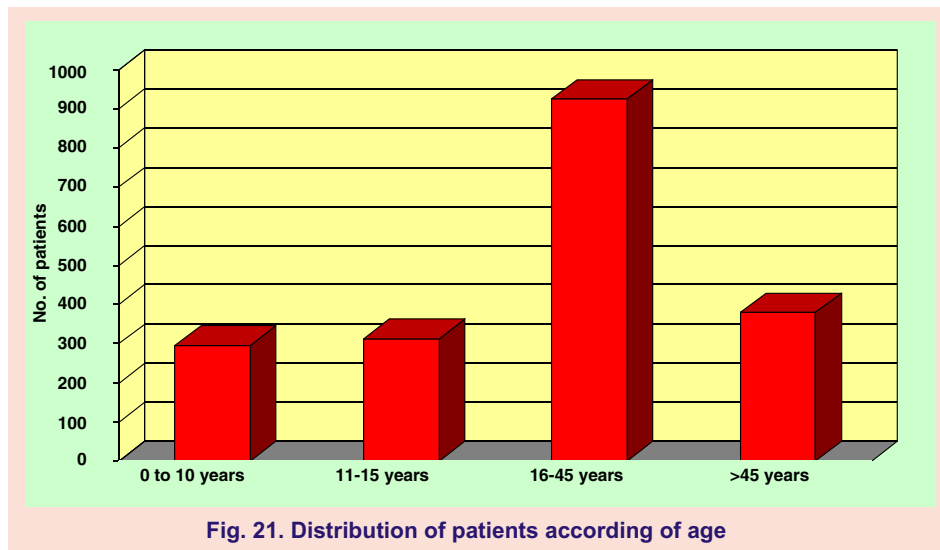
To study the transmission of the disease.

Work done

Field staff consisting of 1 medical scientist, 3 project assistants, 5 paramedical workers,, 6 field investigators and one attendant has been recruited.

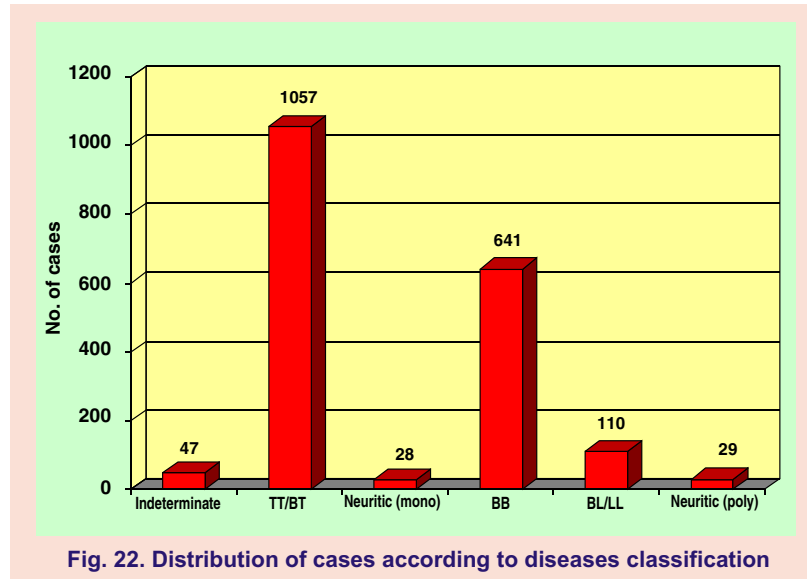
A house to house survey of about 110 villages has been completed. The census population of these villages is about 1,82,956 while the actual population according to the Pradhan's head count is about 1,79,884. Twenty-nine thousand of the population has either left their homes for employment etc and 116 patients have died. Of the remaining population 1,22,346 persons have been examined (84%) and a total of 1912 cases have been identified and put on standard treatment. 1019 have been released from treatment. The distribution of cases according to sex is 1172 males and 740 females (male to female ratio of 5:3.3).

The distribution of cases according to age grouping is shown in the fig. 21. The number of cases in children i.e. up to 15 years of age was 608 which is 31.8% of the total cases detected and shows that transmission is continuing.



Of the total cases detected, 16 patients refused treatment, of which 8 are BT cases, 4 are BB cases, and 2 each are BL and LL respectively.

According to the operational NLEP classification 1132 are PB cases and 780 are MB cases. The detailed disease classification is shown in fig. 22.



Deformities : 10 MB and 2 PB patients had deformities like claw hand, drop foot before starting treatment. None of the patients have developed any deformity after starting treatment. However, 5 PB patients and 21 MB patients developed reversal reaction while on treatment. The reaction has been controlled with administration of steroids and a there is a more frequent follow-up and care of these patients. None of the patients developed ENL reactions. The overall incidence of reactions is 1.6%.

Soil and water : In order to understand the possible effect of exposure to environmental mycobacteria, mycobacteria from soil and water from different areas of Ghatampur were isolated. Techniques have been standardized on samples from this area and investigations are progressing.

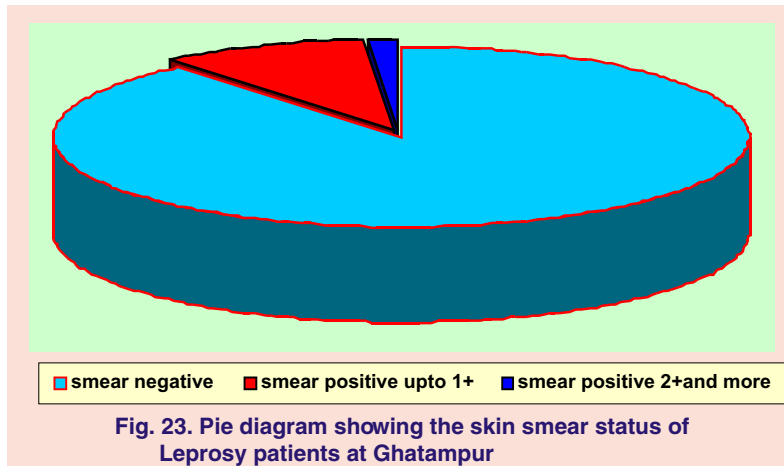
Nasal positivity : Nasal smears from leprosy cases and their contacts are being investigated by smears for acid fast bacilli and nucleic acids by PCR.

Skin smear positivity for acid fast bacilli (AFB) : Skin smear test for AFB could be done in 1645 (86%) of the cases. Skin smears were positive in 182 cases (11.1%). Smear positivity of 2



and more than 2 was observed in 24 of these cases which is 13.2% of the smear positive cases and 1.45% of the total cases in whom skin smear testing was done (Fig. 23)

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1.10.3. Determining the point prevalence of tuberculosis in *Mw* vaccinated population of Ghatampur, Kanpur area (DBT funded study)

Scientists : K. Katoch, M. Natrajan, H.B. Singh, D.S. Chauhan, S. Jain, V.M. Katoch and A.S. Sachan* (*Former Head of the Department of Tuberculosis and Chest Diseases and Principal, S.N. Medical College, Agra) A. Pandey and S.K. Benara (IRMS, New Delhi).

Field and Paramedical staff : Hari Shanker, Raghvendra Singh, Shailendra Singh and Raju

Duration : 2002 - 2003 (extended upto June 2004)

Background and work done

Mycobacterium w has shown good immunomodulatory action against leprosy in humans and against *M.tuberculosis* infection in experimental animals. This study is being carried out to ascertain the point prevalence of tuberculosis in household contacts of leprosy patients, in whom *Mw* was given to study its immunoprophylactic effect in leprosy.

As detailed earlier, a door to door survey was carried out in 272 villages. The contacts of index leprosy cases in these villages had received the *Mw* vaccine earlier in a double blind manner. The details of survey conducted 10-13 years after vaccination were presented earlier.



Contacts were divided into 4 groups at the time of vaccination. Contacts of group C1 and C4 received *Mw*, whereas contacts of Groups C2 and C3 received the placebo. 74.3% of these contacts have been examined during the survey (Table 21). 69 patients of tuberculosis identified and were treated with DOTS.

Table : 21. Coverage of target population

Contacts	Vaccinated group (C1+C4)	Placebo group (C2+C3)	Total
Net target*	11520	11741	23261
Target covered in the survey	8631	8670	17301
% coverage	74.9	73.8	74.3

***Total contacts vaccinated minus the deaths that occurred since vaccination or who left the area**

In this survey 29 cases of tuberculosis were detected in the groups in which the contacts received *Mw* vaccine and 40 cases in the contacts who received placebo. The number of patients in the four groups are as follows:

C1 : 18 and C4 : 11
C2 : 21 and C3 : 19

Out of 29 cases of tuberculosis detected in the survey in the vaccinated group, 5 cases were of Category I while the rest of the 24 cases were of Category II. Similarly there were 13 cases of Category I in the placebo group while the rest of the 27 patients were of Category II. Category I patients had recent evidence of pulmonary tuberculosis, while the Category II patients have had the disease for some time and had taken treatment off and on earlier also but had not completed the treatment due to various reasons.



Table : 22. Protective efficacy of *Mw* vaccine against Category I pulmonary TB after 10 to 12 years post vaccination

Category I TB cases in vaccinated group / Category I TB cases in placebo group	Population covered in vaccinated group / population covered in placebo group	Odds ratio	Protective efficacy
5 / 13	8631 / 8670	0.39	61 %

The relative efficacy of the vaccine calculated as incidence in controls minus incidence in vaccinated group divided by the incidence in the controls was found to be 61% which is nearly the same as that obtained by calculating the Protective efficacy (1-Odds ratio)

The rest of the TB cases detected in this survey had contacted the disease before the survey and had taken some treatment earlier. There were 24 such cases in the vaccinated group and 27 in the control group who received the placebo. In order to find out the total prevalence during these approximately 10 years, history of tuberculosis in the family contacts was elicited after *Mw* vaccination and cases who had documented evidence of taking treatment during these years were recorded. It was observed that 23 contacts in the vaccinated group and 44 contacts in the control or placebo group showed documented evidence of taking ATT (anti-tubercular treatment) during this period. It is known that documentation by history alone in a prospective study is not accurate assessment of the prevalence of disease but as this was done by totally different persons who did not know the code and were associated with the trial earlier, this data appears to be unbiased. The results are presented in the table 23.

Table : 23. Overall prevalence of TB cases in different groups

Group of contacts	Category II TB cases in contacts during 2001-2003	TB cases in contacts since <i>Mw</i> vaccination till 2001(history)	Total cases
Vaccinated	24	23	47
Placebo	27	44	71

The odds ratio for occurrence of pulmonary TB was 0.66 and the protective efficacy of 34% was estimated. However, if the protective efficacy is calculated only on the results of the present survey and both Category I and II patients are included the odds ratio comes to 0.72 and the protective efficacy is 28%.

Detailed analysis of data for various possible factors is continuing and firm conclusions will be drawn after its completion.



1.10.4. Investigations on the relationship between filarial infections and leprosy

Scientists	:	Anil Kumar, Kiran Katoch and others
Field and	:	Sunil Sharma and Ashis Bajpei
Technical Staff	:	
Duration	:	2002-2004

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Background and work done

Presence of different concurrent infection could be altering the Immunological balance. Such relationships have been noticed in HIV & TB, Filaria & Malaria, Onchocerciasis & TB and also between Onchocerciasis & Leprosy. The chronicity of infection with immune perturbation may tilt the balance. Earlier pilot survey conducted in one of the villages of Ghatampur suggested high endemicity. Another study in progress (Dr K. Katoch) has indicated that whole area is highly endemic for leprosy.

The aim of the study to analyze relationship, if any, between the presence of lymphatic filariasis and leprosy in a selected population.

Table : 24. Results of filarial and leprosy surveys in selected areas

Village	Filariasis Survey				Leprosy survey		
	N_d	Disease Rate	N_{mf}	MF Rate	N_{lep}	Cases	Prev/10000
Ramsari	2228	2.0	1608	10.1	2686	23	85.6
Mirzapur	882	1.5	620	7.3	882	16	181.4
Chandanpur	470	0.2	294	4.1	-	-	-
Kanthipur	923	7.4	838	9.6	1158	51	440.4

N_d , N_{mf} and N_{lep} are examined population for filarial disease, microfilaraemia and leprosy

Initial survey work done in three villages revealed that microfilaraemia rate varies from 4.1% to 10.1% and disease rate from 0.2% to 7.4% while leprosy prevalence is high in all villages. Available data suggest the presence of co-infection (filariasis and leprosy both) in some of the cases. Work is progressing and data will be analysed on completion.



1.10.5. A survey of the prevalence of anti-TB drug resistance in Agra and Kanpur (Ghatampur) districts (A study funded by Government of India, TB division of DGHS)

Scientists	:	V.M. Katoch, K. Katoch, M. Natrajan, H.B. Singh, D.S. Chauhan, and A.S. Sachan* (Former Head, Department of Tuberculosis and Chest Diseases Principal, S.N. Medical College, Agra); State TB Officer, District TB officers and Medical Officers of selected centres
Duration	:	2003-2006

Background and Objectives

This project proposal is being initiated as a part of operational research programme of RNTCP of Govt. of India. It is proposed to conduct a surveillance study of drug resistance in tuberculosis in Agra district and Ghatampur (Kanpur district). The aims of this will be to determine the changes if any in the prevalence of initial and acquired drug resistance in order to use the levels of drug resistance as a performance indicator for the tuberculosis programme of the state and to assess whether recommended regimens are appropriate and to establish the foundation for routine surveillance of drug resistance in order to observe the future trends in drug resistance.

Design

The study will be conducted according to protocol designed by TRC Chennai for such surveys in the country. The entire Agra and Ghatampur area of Kanpur district (as well as other selected centres of Kanpur nagar district) will form the survey area. The district tuberculosis centres (DTCs) district head quarters, the x-ray centres (XCs) in the sub-division and the major PHCs of the entire Agra district, Ghatampur Tehsil of Kanpur as well selected other centres of Kanpur will be the diagnostic centres where patients will be registered. From each of these diagnostic centres 2 samples of sputum from all the new smear positive tuberculosis cases in a one month period, about 300 cases in Agra and well as Kanpur each, will be collected and sent to the National Reference Laboratory. The diagnostic centres will also fill in a form giving information about any previous anti-TB treatment the patient has had which will be of help in distinguishing between initial and acquired resistance. Central JALMA Institute for Leprosy & Other Mycobacterial Diseases, Agra will function as the Regional Reference Laboratory for this survey for cultures, identification and drug susceptibility testing.



The following parameters will be included in the final analysis : total number of diagnostic centres identified in the survey area and listed for selection, number of sputum smear positive patients registered per month in each centre in the corresponding month of the previous year and total number of patients registered, number of diagnostic centres selected, defined intake period, total number of patients/ strains evaluated by culture and susceptibility testing with proportion of males and females and age distribution, total number of patients found to be infected with a resistant strain with proportion of males and females and age distribution, distribution over centres selected of all patients evaluated and those infected with a resistant strains, number and proportion of patients with no previous treatment, cured after treatment, not cured and unknown outcome of previous treatment, number and proportion of patients in each of these categories infected with resistant strains, number and proportion of patients classified as having initial or acquired resistance, number and proportion of strains resistant to any one of the four drugs tested, of those resistant to two or more drugs except those resistant to H and R, of those resistant to at least both H (isoniazid) and R (rifampicin) and all results broken down by initial and acquired resistance, and assessment of prevalence of initial drug resistance in young age groups. This project design is based on the proposal/protocol developed by lead centre TRC, Chennai and quality control mechanism for the laboratory and overall protocol will be put in place and maintained in collaboration of NTI/TRC. Earlier only Agra district was proposed but Kanpur (Ghatampur Tehsil and some selected centre) is being included as per suggestion of TB division.

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Work done

The study has been initiated during early 2004.



1.11 AIDS Surveillance Centre

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Scientist	:	T. Hussain
Technical Staff	:	K. K. Kulshreshtha, P.N. Sharma, K.L. Verma and Sushil Prasad (UPSACS)*
Research Fellow	:	Shikha Sinha (CSIR)
Counsellors*	:	Sumita Sood and Mohd. Arif (UPSACS) *Staff positions funded by the UP State AIDS Control Society (UPSACS), Lucknow
Duration	:	1989- No specified duration

1.11.1. Serosurveillance of HIV in different population groups

As a part of surveillance study, routine screening of blood samples is being carried out from different high-risk population groups, namely-

- HIV-suspected patients referred from different hospitals,
- Commercial Sex Workers (CSWs) resident at Government Protective Home (Nari Niketan),
- Foreign students studying at different educational institutions and universities of Agra.
- Individuals opting for Voluntary HIV testing.
- Cases referred by Superintendent, District Jail, Agra and
- Cases referred by District Magistrate, Agra.

Table : 25. HIV positivity rates in different study groups

HIV positivity in different population groups (till the end Dec. 2003)	No. Screened	HIV Positives
(i) HIV suspected patients	101	44
(ii) Foreigners	10	0
(iii) Individuals opting for Voluntary HIV testing	178	77

1.11.2. HIV Seroprevalence in different risk groups

- In order to study the prevalence of HIV infection among the Leprosy patients, blood samples from every third patient of Medical Unit-1 attending the Out Patient's Department (OPD) of the hospital are being collected daily. The serum samples are then screened for HIV-1/2 antibodies. Till now, about 2000 patients have been tested out of which only six were found to be positive. Three of the 6



ELISA samples showed strong antibody reaction to all the major gene products of HIV-1, namely Gp 160, p68, p55, and p25 as revealed by Western Blot. The patients are being followed up at an interval of six months to monitor disease progress.

- (ii) Earlier studies at the AIDS Surveillance Centre revealed that 2-3.5% of the adult population suffering from TB is also infected with HIV.
- (iii) **Participation in National Programmes** : In the sixth round of National Annual Sentinel Surveillance (NASS) programme (August- November, 2003) this centre carried out the unlinked anonymous testing of about 900 coded sera samples received from STD, ANC clinics and Obstetrics & Gynaecology OPDs of different District Hospitals of UP for HIV and VDRL. The results were sent to UPSACS, Lucknow and NACO, New Delhi.

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1.11.3. Cross-reactivity of HIV constitutive proteins with mycobacterial diseases (CSIR funded)

Western blot yields an unacceptably high percentage of indeterminate results which are characterized by reactivity with group specific (viral) proteins antigens. Possible explanation could be 1) the early stage of donor's seroconversion to HIV-positivity, 2) biological variability of the response to HIV, 3) cross reaction with other retro-viral antibody, or antibodies, and 4) technical artifact. Causes of indeterminate WB results include non-specific antibody reactions due to lymphoma, multiple sclerosis, liver diseases and autoimmune disorders.

Our earlier investigations on HIV ELISA negative samples from Leprosy patients across the spectrum, (BT, BL, BB, BL-LL, BT-BB, LL, BB-LL and neuritic patients) showed reactivity to a wide range of bands. In order to compare the reactivity with other mycobacterial diseases, sera samples from active TB patients were also screened for HIV antibodies by ELISA test. ELISA HIV negative samples were further screened by Western blot. 40% of the specimens showed reactivity to a very few bands whereas none of the healthy controls showed reactivity to any bands. Patients are being followed-up.



1.11.4. HIV-1 subtyping and detection of HIV-1 recombinants in India

The Institute is collaborating with NARI, Pune for HIV subtyping and detection of HIV-1 recombinants by providing DNA samples from HIV positive individuals.

1.11.5. HIV-seroprevalence among patients with multi-drug resistant tuberculosis

Scientists : T. Hussain, U. Sengupta, V.D. Sharma, D.S. Chauhan, Ram Das, Pradeep Sharma* and Rajesh Gupta**, CJIL & OMD, *TBDC and **SNMC

This study has been initiated to identify MDR-TB patients with HIV-infection. TB patients unresponsive to standard anti-tubercular treatment (ATT) attending the OPD of the TBDC and S.N. Medical College will be screened for HIV infection. Those found positive by ELISA will be confirmed by Western Blot assay. Sputum cultures for isolation of mycobacteria and drug-sensitivity screening will be done for common anti-mycobacterial drugs (Rifampicin and Isoniazid) and these findings will be correlated. The study is progressing and about 200 patients have been included.

1.11.6. AIDS : Awareness, Intervention and Service Delivery for CSWs of Beria Tribe of Agra Commissioner (NACO).

HIV / AIDS Unit is involved in the laboratory aspect of the project. Till now 2071 samples from CSWs, their clients and organisers etc. and volunteers attending the Health camps have been screened for HIV 1/2. Out of these, about 75 have been found to be positive for HIV antibodies. The study is in progress

1.11.7. Additional services provided by AIDS Surveillance Centre

- (i) The centre has now been named as Voluntary Confidential Counseling and Testing Centre (VCCTC). This centre has been recognised as State Referral Centre for HIV testing. In addition to the research activities, the Centre has provided additional services like Blood group, HBsAg and VDRL testing and HIV testing at a very nominal rates for Volunteers i.e., Rs. 10/-, providing pre and post test Counseling services. This centre provides the list of individuals undergoing HIV testing along with the test report comprising of the details of individuals (e.g. age, sex, marital status, education, profession, complaints, etc.) to the Project Director, UP State AIDS Control Society, Lucknow, in the first week of every month in a sealed cover.



- (ii) Individual attention is given to each person at the AIDS Surveillance Centre of the Institute. Pre and Post-Test Counseling is provided to each individual undergoing HIV testing namely, Volunteers, HIV-suspected patients referred by the doctors of Government/Distt. Hospital, Commercial Sex Workers (CSWs), or cases referred by the Superintendent, District Jail, Agra as well as District Magistrate, Agra. Those found HIV-positive are referred to the Infection Control Officer (I.C.O.) and Nodal Officer nominated by the UPSACS at the S.N. Medical College, Agra for further care and management.
- (iii) Foreigners staying for variable periods of time are also tested, if the need arises.
- (iv) In addition, Blood grouping, Hepatitis B surface antigen, Rheumatoid Arthritis and VDRL (Syphilis) testing facilities for cases referred by the OPD of the hospital are also provided.

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1.12 Mycobacterial Repository Centre

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Scientists	:	V.M. Katoch, V.D. Sharma, D.S.Chauhan, Deepti Parashar, R. Das, Pushpendra Singh, Gaurav Pratap Singh, Anuj Gupta and H.B. Singh
Technical Staff	:	Hari Shankar, Shri Ram, S.K. Bhan, A. Robi and Noel S. Singh
Duration	:	2003-unspecified

Progress

(a) Development of infrastructure

This activity is in continuity to earlier Mycobacterial Repository Centre whose infrastructure was developed as part of DBT funded projects. This has now become a permanent facility of Indian Council of Medical Research and will be funded and maintained as an intramural activity.

(b) Establishment of linkages

As the fulfillment of all the objectives requires linkages with laboratories in medical and research institutions working on mycobacteria, efforts have continued to establish such linkages with newer institutions so as to expand the network. During this year linkage has been established with Kashmir Valley taking the number of participating centres to 38.

(c) Specific objectives

- (i) **Collection of mycobacteria of interest** : This was the first major goal of this project to serve as a collection centre for mycobacteria of common interest. In the beginning of this project efforts were made to create interest in new groups working on mycobacteria so that they can send the isolates in which they felt difficulties in identifying and could be deposited in this Repository and then maintained. A total of 3700 isolates from different parts of country are being maintained in the Repository. Now the collection will be restricted with a clear focus on research on disease and/ or epidemiology.
- (ii) **Supply of reference and well characterized strains / DNAs / RNAs / Culture Filtrates/ Lysates** : As before during this period also the Repository continued to supply the reference material to different investigators all over the country.
- (iii) **Characterization of difficult to characterize mycobacterial isolates** : To provide expertise/ help to other scientists in the characterization of mycobacterial isolates for which these laboratories faced some difficulties in identification.



- (iv) **Studies on molecular epidemiology** : To help in characterization of mycobacterial isolates by conventional and newer methods for epidemiological purposes, studies are progressing with different investigators.
- (v) **Training of Manpower** : As a part of Repository formal / informal training in identification, handling of pathogens under Biosafety conditions, preservation of isolates, sensitivity screening and newer molecular DNA fingerprinting methods for characterization of mycobacteria is provided to scientists and technicians from different parts of the country.

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1.13 Adhoc Extramural Research Projects

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During 2003-04, extramural research projects in progress at the Institute were :

1. **Collection of well characterized clinical samples and strains of drug resistant *Mycobacterium tuberculosis* for the development of molecular techniques for detection of drug resistance**

A DBT funded project with Dr. V.M. Katoch (Director) as Principal Investigator from the Institute & Coordinator (*completed*).

2. **Comparative & Functional genomics approaches for the identification and characterization of genes responsible for multi-drug resistance in *Mycobacterium tuberculosis***

A DBT funded project with Dr. V.M. Katoch (Director) as Principal Investigator from the Institute (*Continued*).

3. **Determining the point prevalence of tuberculosis in *Mtw* vaccinated population of Ghatampur, Kanpur area**

A DBT funded study with Dr. Kiran Katoch (Deputy Director Sr. Gr.) as Principal Investigator from the Institute (*Continued*).

4. **AIDS : Awareness, intervention and service delivery for commercial sex workers of Beria tribe (scheduled ex-criminal tribe) of Agra Commissionary**

A NACO funded study with Dr. S.Qamra (Asstt. Director) as Principal Investigator from the Institute (*Continued*).

5. **Identification of *Mycobacterium tuberculosis* and other pathogenic mycobacteria by a ribosomal PCR-RFLP assay**

A WHO Biennium funded study with Dr. V.M. Katoch (Director) as Principal Investigator from the Institute (*Completed*).

6. **Leprosy genomics : The genomic diversity of leprosy bacillus and expression of its genes in human host**

An ICMR (Genomics initiative) funded study with Dr. V.M. Katoch (Director) as Principal Investigator from the Institute (*Continued*).



7. Intracellular expression in mycobacteria- a proteomic analysis

A DST funded study with Dr. Deepa Bisht (Research Officer) as Principal Investigator (*Initiated*).

8. Field programme for epidemiological studies in leprosy at Ghatampur

An ICMR Task Force project with Dr. Kiran Katoch (Deputy Director Sr.Grade) as Principal Investigator from the Institute (*Initiated*).

9. Uniform MDT regimen for all leprosy cases

An WHO funded project with Dr. Kiran Katoch (Deputy Director Sr.Grade) as Principal Investigator from the Institute (*Initiated*).

10. A survey on the prevalence of anti-TB drug resistance in Agra and Kanpur (Ghatampur) district

A project funded by TB division of Ministry of health Government of India with Dr. V.M. Katoch (Director) as Principal Investigator (*Initiated*).

11. High resolution genotyping of *Mycobacterium tuberculosis* IS 6110 low copy number strains : Combining novel and portable approaches for global detection of tuberculosis epidemics.

An Indo-French (ICMR/INSERM) study with Dr. V.M. Katoch (Director) as Principal Investigator for the Institute group (*Initiated*).

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