

ANNUAL REPORT

2000



**INSTITUTE FOR RESEARCH IN MEDICAL STATISTICS
(Indian Council of Medical Research)
New Delhi**

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PREFACE

In all, the Institute has handled 15 research projects during the reporting year. Six of them were ongoing from the previous year and the rest nine were initiated during the reporting year. Two research projects were completed during the reporting year. Five each, among the ongoing and the new projects were extramural projects supported by the organizations like World AID Foundation, CARE India, CSO, Govt. of NCT, MOHFW and the ICMR. In addition, the Institute got associated with the second round of the National Family Health Survey, 1998-99 (NFHS-2) at the International Institute for Population Sciences (IIPS), Mumbai, making a large data base available with it on various indicators of morbidity, mortality, reproductive health and nutritional status of women and children. The Institute was also involved in conducting need based training programmes in medical statistics for the on job personnel of the institutions medical sciences and inter-disciplinary seeking help in biosocial research methodology. Institute provided consultancy to various users, researchers and scientists. These activities aimed to develop a health network and to achieve the following objectives set for the Institute.

- To help coordinate and standardize the collection of medical and health statistics in the country.
- To promote and undertake research in statistical techniques and methodology in the field of health, medicine, epidemiology and other allied area.
- To provide statistical services and assistance to Centre, States and local bodies in handling problems related to the dynamics of population, health and medicine.
- To exercise surveillance to ensure the statistical adequacy and validity in the Council's programme.
- To conduct training in applied statistics for biostatisticians, medical and paramedical personnel.

The Institute had a project on the final evaluation of the integrated Nutrition and Health Project (INHP) from Care India with the following focus:

- To evaluate changes in specific coverage rates in the project area since baseline through mid-term.
- To evaluate the usefulness of specific strategies followed during the project period, particularly capacity building, demonstration sites and nutrition and health days.
- To evaluate CARE's capacity-budding efforts put in for change in grassroots level service providers through changes in their knowledge/skills/practices.
- Identify gaps in service delivery and possible areas that need further strengthening.

In this study four categories of outcome indicators, namely, Antenatal Care, Receipt of Supplementary Food from AWC, Immunization of Children and Infant Feeding Practices were considered. Information on other related indicators were also gathered and discussed in state specific detailed reports.

The second project *An Innovative Study of Awareness about STD/AIDS among Truck Drivers in India* aimed at the control of spread of STD/AIDS among the high risk group by creating awareness and putting interventions. Having collected the base line information about the truckers, CSWs and commercial sex-agents, education, material has been prepared to be used as a part of the innovative study.

The third project *Usages and Acceptability of Indian System of Medicine and Homeopathy* is to explore the utility and acceptability of Indian system of Medicine with the focus objective of popularizing and providing these system to a parallel level of Allopathic System. Information are being is collected at various levels viz. Hospitals , Dispensaries, Patients at dispensaries and households in 35 districts of 19 States. The project is progressing satisfactorily .

Baseline Survey in Trans-Yamuna Area for the Preparation of Healthy City is collecting base-line data on various aspects including mortality and morbidity before starting intervention programmes in the area. The information gathered would be utilized for planning and implementation of various intervention programmes to improve the health status of people in the trans-Yamuna area under Healthy Cities Project of WHO. This study has been initiated after the finalization of the instruments to collect desired information from about 20,000 households spread in four rounds over a period of 8 months, viz. September-November, December-January, February-March and April-May.

Another project *National Nutrition Monitoring Bureau (NNMB)* in Uttar Pradesh is taken up in collaboration with the National Institute of Nutrition (NIN), ICMR. The first round of monitoring with special reference to Adolescents has been completed .

The project on *Causes of Death: A Pilot Study* is also supported by ICMR. It is aimed to conduct a pilot study in Rajasthan to explore the collection of reliable data on causes of death which is essential for meaningful planning of health care and allocation of resources.

A Study on the *Birth & Death Registration in India* is a new project. It has received grant from CSO, New Delhi. It aims to review the existing system of Birth and Death Registration. It is propose to study the registration in two areas; one with lowest registration and the other with highest registration. It will augument the remedial measures to improve the existing system of birth and death registration.

National Household Survey of Drug and Alcohol Abuse in India is a collaborative research project with AIIMS, New Delhi. This study is a National Survey of the extent, patterns and trends of drug abuse in India. This project is aimed to evaluate drug use in a nationally representative non-institutionalized male population between the age of 12-60 years in 24 states of the country.

Institute has proposed to organize a workshop on the *Access and Utilization of Official Statistics (Health)* with a view to appraise the current status, quality, accessibility and possible uses of such statistics. The proposal was submitted to CSO which has assured a token grant for the conduct of the workshop.

Lot Quality Assurance Sampling (LAQS) as a rapid assessment technique for programmed evaluation is a new study aiming to develop the appropriate theory to determine the acceptance number for given sample size for complex survey designs; work out the tables (ready Rekener) on the basis of theory derived; and illustrate the application of the theory with simulated and possible real data.

Determination of Point-Prevalence of Tuberculosis in the area of field trial of Mw Vaccine is a collaborative study between IRMS, New Delhi and the Central JALMA Institute of Leprosy, Agra, with the major objective to ascertain the point prevalence of tuberculosis in household contacts of leprosy patients where Mw vaccine had been administered to study the immunoprophylactic effect on leprosy. The study has been assured of support from DBT.

The study on Exploratory Methods for the Projection and Classification of the Progression of HIV to AIDS is to explore the existing data and develop new models. It will compare different methods of HIV/AIDS projections like Bayesian methods, penalized maximum likelihood, Ridge regression, splines and EM algorithm, and classify the progression of HIV to AIDS in relation to sources of infection and other personal covariates.

Two projects, *The third survey of the Field Trial of Mw Vaccine* in Kanpur Dehat and *A Study on Quality of Life of Cardiac Surgery Patients* were completed during the reporting year. The results are presented in the report.

Findings of the research projects and related methodological developments are disseminated in the form of research papers/concept papers through their presentation in national and international conferences/symposia. Papers are also published in journals and books of national and international repute. The Institute has been continuously providing essential inputs for the finalization of X Plan documents and participated in various working groups of the Planning Commission, Department of Family Welfare, National AIDS Control Organization, etc., of Ministry of Health & Family Welfare.

Arvind Pandey
Director

1. Final Evaluation of CARE India's Integrated Nutrition and Health Project (INHP) : Quantitative Survey

Introduction

The Integrated Nutrition and Health Project (INHP) is a five year initiative launched by CARE India in October 1, 1996 and is supported by the USAID Food for Peace Program and the Government of India. The Project works in close association with the ICDS system in selected blocks of the 7 states of the country, namely, Andhra Pradesh, Bihar, Madhya Pradesh, Orissa, Rajasthan, Uttar Pradesh and West Bengal. The general goal of the project is to improve the health and nutritional status of women and children. It specifically augments:

- (1) pregnant and lactating women and children 6-23 months to receive and consume supplemental food;
- (2) children 12-23 months to be completely immunized by age 1;
- (3) pregnant women to receive and consume 90 or more IFA tablets before delivery;
- (4) pregnant women to receive two doses of TT before delivery;
- (5) new borns breastfed within 6 hours of delivery;
- (6) infants exclusively breast fed for the first 6 months;
- (7) infants initiate complementary foods in addition to breast milk by 6-10 months.

The programme was launched with the following strategy:

High Impact Strategy to demonstrate that communities can continue structures and systems to improve coverage rates and unimproved community health and nutritional status (with the operational plan to provide food and educate mothers for their own health care as well as the care of the child).

Capacity Building Strategy to demonstrate that counterparts can implement high impact strategies which enable communities to achieve health improvements, following capacity building and action-planning sessions (with operational plan to train health workers including ANM, AWW to implement the action plan.)

Basic Nutrition Strategy to involve a systematic transition from existing activities focused on monitoring receipt of food by the Anganwadi Center to improved targeting and monitoring of the receipt of food by the eligible women and children (whether food provided by the Anganwadi Centre).

Food Monitoring Strategy with increased participation of counterparts to make more efficient monitoring, management, and movement of food commodities (whether mothers and children received).

Over a period of time, the above strategies were planned to converge and all project areas would follow the capacity building strategy. Following the suggestion and findings of the mid-term evaluation conducted in May 1999, the INHP adopted the capacity building strategy in all project areas starting around December 1999. Under this strategy there was a reorganization of staff such that there is currently one Field Officer responsible for 4-6 blocks, throughout the project area.

The project has also been moving from the demonstration phase to a replication and scale-up phase. According to the strategy, each block contains some AWCs as demonstration sites, which are used both to demonstrate and promote replication of successful strategies. (Operationally it considered to train chain agents including Health Workers, Nutritionists, Block Coordinator (1 every 100 villages) etc.)

The project at IRMS is for the quantitative study, which has the following objectives:

- To evaluate changes in specific coverage rates in the project area since baseline through mid-term.
- To evaluate the usefulness of specific strategies followed during the project period, particularly capacity building, demonstration sites and nutrition and health days.
- To evaluate CARE's capacity-budding efforts put in for change in grassroots level service providers through changes in their knowledge/skills/practices.
- Identify gaps in service delivery and possible areas that need further strengthening.

Sampling Design and Methodology

During the mid-term survey, 1600 women having a child under 2 years of age were interviewed per state. They were selected from 6 blocks per state and 15 AWCs per block. The blocks were selected from four strata 2 each from HI and CB and 1 each from BN and FM. In the final evaluation (quantitative), we have proposed the sampling design based on the following assumptions:

1. Since the interventions of the project relate to pregnant/lactating mothers and children up to 2 years of age, the target unit to be interviewed would be a mother having a child under 2 years of age at the time of survey (referred to as index mother). This has a survival bias (i.e., it does not take into account the mothers whose children have died or the pregnancies that did not reach term and resulted in delivery). Since the same sampling unit was used for baseline and mid-term, this bias may not affect the comparability.
2. In order to determine the minimum sample size required for the survey it is assumed that there has been a change of 10 percentage points in a majority of the indicators since the baseline.
3. The survey takes into consideration the length of time and intensity of the project in the area.
4. The survey collects data in a manner consistent with baseline and mid-term to ensure comparability of data.
5. In order to assess one of the major project strategies i.e., the development of demonstration sites, a separate sample of demonstration sites are selected.

Sample Size and Sampling Procedure

Based on the above considerations and the lessons learnt in on the quantitative study of mid term evaluation in every state, the whole population of project area was divided into 3 mutually exclusive strata-

- (a) Set of blocks which had HI as a strategy for at least 2 years;
- (b) Set of blocks which had capacity building as a strategy for at least 2 years;
- (c) Remaining blocks ;

Based on the minimum sample size required to estimate the increase or decrease from the baseline levels (two sided test) of parameter values by 10 percentage points at 5% level of significance and power of 80 percent, the minimum sample size required would be 540 index mothers per set, per state. This figure includes 10% extra sampling to overcome non-response or non-availability of the respondents selected to overcome non-response or non-availability of the respondents selected in the sample. Taking into account that there would be heterogeneity among the blocks or there will be a design effect of 1.5 times between set (a) and set (b), minimum 540 and 810 index mothers were sampled from set (a) and set (b) respectively. A minimum sample of 540 index women were sampled from set C.

- We select 3 blocks individually from set (a) and (b) by random sampling. Further, we select 10 AWCs (total 30 AWCS) per selected block (by PPS) and then select 18 index women per selected AWC. This led to a sample of 540 index women each from set (a) and (b).
- We select 8 blocks from the set (c) by random sampling. This is because the total number of blocks in set (c) would be relatively more than the total number of blocks in set (a) or (b) and the assumption of design effect of 1.5 have been made. Further, we select 8 AWCs (total 64 AWCS) per selected block (by PPS) and then select 13 index women per selected AWC. This leads to a sample of 832 index women from set (c).
- A panel sample of formerly HI blocks is considered. One particular block within the formerly HI blocks was surveyed, both during baseline and midterm. In case this block is not selected during the random sampling this block is purposely selected as a booster sample. Further, 10 AWCs and 18 respondents per AWC are selected from this block.

- In order to make some assessment of Demonstration Sites, again a minimum sample size of 540 index women and 30 AWCs would be required. Hence, within the AWCs selected in set (a), we identify those which were DS for at least 1 year. This number would be certainly less than 30. In order to complete the required number of 30 DS, we select a booster sample of required number of DS from the remaining DS among the three selected blocks in set (a).
- In order to select the required number of index women in the AWC selected, geographically we divide the whole AWC area into three equal clusters and then select 6 index women per cluster in set (a) and (b) and 4 index women per cluster in set (c) on first contact basis.
- Weighting the sets in proportion to the U2 mother population from set (a), (b) and (c) derives the estimates of coverage rates for the state. The booster samples obtained from panel sample of HI block and Demonstration Sites, is not included in obtaining these estimates.
- In addition to the above, all the AWWs of the selected AWCs and all the ANMs serving the selected AWC areas (approx. 50) are interviewed.
- In order to ensure the quality of the data collected, re-checking of 3% of the filled-in questionnaire (selected randomly out of the whole lot) is done.

Survey Findings

The major focus of INHP is on four categories of outcome indicators, namely, Antenatal Care, Receipt of Supplementary Food from AWC, Immunization of Children and Infant Feeding Practices. The assessment of the project is therefore, based on achievements in the indicators of these four categories of parameters. Information on other related indicators has also been collected and discussed in state specific detailed reports.

As stated earlier four key intervention areas emphasized in the project were Antenatal Care, Receipt of Supplementary Food from AWC, Immunization of Children and Infant Feeding Practices. The achievements of the project, therefore, are assessed by

comparing their levels in the final evaluation survey with that of baseline survey. Since the project had also set targets for these indicators, an attempt has also been made to assess how far these targets have been achieved. Here we attempt to look at the achievements (against the baseline survey levels and against the set targets) in all the seven project states in a consolidated fashion.

Antenatal Care

The percent women receiving 3+ ANC check ups during their pregnancy has increased in 5 of the 7 states; Uttar Pradesh and West Bengal have not shown such increases in the indicator values. In the case of West Bengal, the baseline survey levels were quite high and that level did not change much in the final evaluation survey. The final levels when compared with the targets show similar picture; five of the seven states have shown achievements in the demonstration sites, as compared to the target. It may be worthwhile to note that the levels observed in most of the states in this project were found to be higher than in NFHS-2.

There was an increase in the indicator value “percent pregnant women receiving 2+ doses of TT” in all the states. Their values in the final survey were quite high, compared to the baseline level. Five of the seven states have achieved the target set by the project on this indicator for demonstration sites. The achievements are higher in the demonstration sites as compared to the achievements in the overall project area.

Small percentage of women have reported to have received 90 or more IFA tablets during pregnancy. This is across all 7 states. One possible explanation could be inadequate supplies of IFA tablets during the period 1998-99. This is also substantiated by the reporting of AWCs and Sub-centres. Only four states could achieve the targets set, that too only in demonstration sites.

Receipt of Supplementary Food from AWC

There was a general increase in percent pregnant and lactating women and children in the age group 6-24 months receiving food from AWC. This was found in all the 7 states, though the degree of increase varied.

Four states have shown higher level of receipt of food from Anganwadi centers in the demonstration sites by pregnant and lactating mothers and children aged 6-24 months, relative to the set targets.

Immunization of Children

Five states, namely, Andhra Pradesh, Bihar, Madhya Pradesh, Orissa and West Bengal showed increase in percentages of infants fully immunized by the age 1 year, in the final evaluation survey, as compared to their levels in the baseline survey. No such changes were observed in Rajasthan and Uttar Pradesh.

Out of seven, five states have shown increased level of fully immunized children in the demonstration sites than the target set by the project. It was also noticed that the level of fully immunized infants in the project areas were higher than those found in the NFHS-2 for the whole state.

Infant Feeding Practices

There was a general increase in the percentage of infants put on breast milk in the first 8 hours of life. All the 7 states showed that the levels of this indicator were higher in final survey than in the baseline survey. But only five states showed higher achievement in the demonstration sites against the set targets. It may be noted that this intervention was only implemented in demonstration sites.

A low percentage of infants were kept (in final survey) on exclusive breast feeding for first 4 months in Andhra Pradesh, Bihar, Orissa and Rajasthan. The states of Madhya Pradesh, Uttar Pradesh and West Bengal had shown higher percentage of children on exclusive breast feeding for first 4 months.

When achievements of the project were compared with the targets, it was found that five of the seven states had achieved targets in the demonstration sites. Andhra Pradesh and Rajasthan have fallen short of the target.

The practice of complementary feeding of semi-solid and solid food during 6-9 months did not change in the states of Orissa and UP. The other states showed that more women are giving complementary feed of semi-solid and solid food during 6-9 months to their children in the final survey. Five states have achieved the target in demonstration sites.

Except for Orissa, all other states have shown decline in the percentage of malnourished children (children below 2 SD in weight for age criteria) as compared to the baseline figures. Only four states (Madhya Pradesh, Uttar Pradesh, Rajasthan and West Bengal) show some decline in the percentage of severely malnourished children (children below 3 SD).

FINAL SURVEY - ALL

INDICATORS	ANDHRA PRADESH	BIHAR	MADHYA PRADESH	ORISSA	RAJASTHAN	UTTAR PRADESH	WEST BENGAL
ANC			#		#	#	
IFA	#	#			#		#
TT			#				
Supp. food Pregnant women		#					
Supp. food Lactating women			#			#	
Supp. food Children	#		#				
Immunisation		#					
Breast fed 8 hrs			#		#	#	
Exclusive BF 4 months					#		
BF + Solid/Mushy food	NA		NA			NA	NA
<u>Undernourished</u> —							



More than or equal to Target

More than 90% Target

#

More than BLS but less than 90% of Target



No improvement over BLS

NA

Not available

FINAL SURVEY - DS

INDICATORS	ANDHRA PRADESH	BIHAR	MADHYA PRADESH	ORISSA	RAJASTHAN	UTTAR PRADESH	WEST BENGAL
ANC						#	#
IFA	#						
TT							
Supp. food Pregnant women							
Supp. food Lactating women							
Supp. food Children			#			#	
Immunisation							
Breast fed 8 hrs			#			#	
Exclusive BF 4 months					#		
BF + Solid/Mushy food	NA		NA			NA	
Undernourished							



More than or equal to Target



More than 90% Target

#

More than BLS but less than 90% of Target



No improvement over BLS

NA

Not available

2. An Innovative Study of Awareness about STD/AIDS among Truck Drivers in India

Study Design & Methodology

In the study four hundred truck drivers travelling from Delhi to Bombay route, 50 sex workers are included initially in this study. Information regarding KAP about STD, places of contact, type of persons coming in contact, circumstances under which contact made, money transition, use of money, role of mediators etc. would be collected in pre-designed, pre-tested questionnaires designed for different category of personnel. They were planned to be interviewed at Dhabas or at their work places.

Progress

Fifty truck drivers and 10 sex workers who adopted preventive measures and/or having knowledge with attitude towards acceptance of preventive measures are identified from the above study population and their services are due to be utilized to motivate their professional colleagues and contact partners for the acceptance of preventive measures. Self explanatory need based educational material are also to be prepared from the base line information.

Training to this selected study cases are given especially by interpersonal discussion using models. Emphasis are given on the topics such as basic knowledge about the disease, preventive measures and impact on the society and how to motivate their colleagues and sex partner involved in this high risk practice towards the acceptance of preventive measures. Necessary preventive (e.g. . condom) and educational material etc. are being planned to supply free of cost to the study population.

Pre and post evaluations are the in-built components in the project to assess the impact and its feasibility in other parts of the country. Six follow up and mid- year evaluation with necessary amendments are planned before final evaluation (20th month). During follow-up, emphasis on development of chain system of motivation are to made.

As per the recommendations of SAC, the Institute organised a workshop on 28 July 2000. Having clearly mentioned the focus of the proposed study, instruments to assess the awareness about STD/HIV/AIDS of truckers, CSWs, and mediators were discussed in the workshop. The workshop was attended by a number of experts from NACO, IIPS (Mumbai), ICMR, JNU and some Delhi based SAC members of the Institute. The instruments were pre-tested and finalised subsequently.

Baseline data of four hundred truckers belonging to different transport companies and thirty six workers have been collected by interviewing team at their working place. Analysis of the data is in progress.

3. Usages and Acceptability of Indian System of Medicine and Homeopathy

Introduction

Department of Indian System of Medicine & Homoeopathy (ISM&H), Ministry of Health & Family Welfare, Govt. of India, has sponsored this study to know the extent of availability of facilities in the hospitals/ dispensaries under ISM&H and also the extent to which it is being utilized by the people in treatment during illness. The study sets out the following objectives.

- To assess the availability of facilities in the hospitals / Dispensaries under ISMS&H in rural/urban areas and also Govt./Non-Govt. sectors.
- To assess the extent of utilization of these services.

- To assess the perception of the private practitioners, patients attending the dispensaries and households towards the ISM & H in health care.
- To know the factors coming in the way for utilization of these systems.

Study area and its allocation

- 35 districts from 19 states.
- Two districts (one with highest level and another with lowest level of availability of ISM & H facilities and its utilization) from each state and one district each from Manipur, Tripura & Delhi.
- Each district included 12 Hospitals, 24 Dispensaries, 72 Practitioner, 240 Patients, 50 Villages/UFS blocks, 1000 Households

Instruments used

1. Hospital Schedule
2. Dispensary Schedule
3. Practitioner Schedule
4. Dispensary Patient Schedule
5. House listing Schedule
6. Household Schedule

Hospital

- To collect information on facilities available in the hospitals
- Trend of attendance in the hospital for treatment over the years.
- One hospital each will be selected randomly from the frames of hospitals of three most popular systems of ISM&H separately for Rural/Urban and Govt./Non-Govt.

Dispensary

- To collect information on facilities given by the dispensaries and level of utilization of the services by the population.

- From each of twelve lists of dispensaries, two will be selected using SRSWOR, for this purpose random number table will be used for selecting two random numbers for each list separately.
- Two dispensaries will be selected using Simple Random Sampling without replacement from each of the frames of dispensaries of three most popular systems of ISM&H separately for Rural/Urban and Govt./Non-Govt .

Practitioner

- To collect the information relating to various problems being faced by the registered private practitioners in practicing the Indian system of Medicine.
- Registered private practitioners are selected from the nearby places around the dispensary selected for the survey.
- One practitioner will be selected randomly from each of the frames of registered private practitioners around the dispensary under each of three most popular systems of ISM&H respectively for Rural/Urban and Govt./Non-Govt.

Patients

- To know the perception of the patients, a dispensary patients schedule is designed. Ten patients attending the selected dispensary will be interviewed .
- Ten patients visiting the dispensary will be interviewed through the 'Dispensary-Patient Schedule' for collecting the information on perception of patients utilizing the services of ISM&H.

Village/UFS block (FSUs)

- A sample of 50 villages/UFS blocks will be selected as first stage unit (FSU) . Allocation of 50 villages among rural & urban sectors will be made in proportion to the rural-urban population of the district. Allocated number of villages/UFS blocks will be selected by using PPS, size being the population of the villages.

- UFS blocks will be selected from the list by using circular systematic sampling with equal probability. In case of Kerala, Panchayat wards will be taken as first stage units in rural sector. For each selected FSU, a house listing schedule would be prepared by house to house visit.

Household

- House listing schedule has been designed to list households in the village/UFS block and to select 20 households from those who have availed of medical care facility during last 3 months of the date of survey. If village/UFS block is large then it is divided into suitable number of hamlet groups/ sub blocks and two hamlet groups in village/ one sub-block in urban frame survey block is selected for survey.
- In rural/urban Household schedule is designed to collect the detailed information from the households areas
- Twenty households out of the households with at least one member ill during the last three months and availed medical care services for treatment.
- To collect the information on facilities available in the hospitals and trend of attendance in the hospital for treatment over the years. One hospital will have to be selected by the investigators from each list and hospital have to be visited. On visiting the hospital the investigator will contact the M.O. (I/C) of the hospital and with their help and by seeing the records at the hospital the schedule will be filled. For selecting the hospital from any of the 12 lists prepared by the District authorities one random number will be taken from random number table and the hospital concerning to that Serial number will be selected for the survey .

Progress

Analysis of data collected from the following districts is in progress.

1. Chamba and Kangra (Himachal Pradesh)
2. Tirunvelli (Tamil Nadu)

3. Bhawnagar (Gujrat)
4. Jaisalmer (Rajasthan)
5. Bhiwani (Haryana)
6. Nilgiris (Tamil Nadu)
7. West Tripura (Tripura)
8. Dang (Gujrat)

Data collection is in Progress in the following districts.

1. Bellary and Daksin kannad (Karnatka)
2. Mehboob Nagar and Nizamabad (Andhra Pradesh)
3. Datia and Raipur (M.P)
4. Imphal (Manipur)
5. Delhi
6. Buldana (Maharashtra)
7. Ahmednagar (Maharashtra)

It is an on going study wherein the survey work has been completed in 12 districts and it is in progress in an other 10 districts. Analysis of data collected is in progress.

4. Baseline Survey in Trans-Yamuna Area for the Preparation of Healthy-City

Introduction

The Government of National Capital Territory of Delhi has felt a need to have base line data on various aspects including mortality and morbidity before starting intervention programmes. The information gathered would be utilized for planning and implementation of various intervention programmes to improve the health status of the trans-Yamuna area under Healthy Cities Project of WHO. Directorate of Health Services G.N.C.T. of Delhi has requested IRMS, New Delhi to undertake the baseline survey. The study has the following objectives:

- Mortality and Morbidity Pattern Including Water Borne Disease
- Socio-Economic Status of Residents
- Personal Hygiene, Sanitation and Other Environmental Conditions

- Health Awareness among the Community
- Present Health Infrastructure & its Utilizations

Area of Study and Methodology

Twenty thousand households from Trans-Yamuna Area of Delhi i.e., 3-5% of the total population in Trans-Yamuna area will be covered with due allocation to different strata viz.

- Village (Rural + Urbanised)
- Resettlement Colonies
- Jhuggi Jhopri Colonies
- New Urban Colonies (Planned)
- Old Urban Colonies
- DDA Colonies

Allocation of 20,000 Sample House Holds Cluster wise

Sample Cluster	# of Households	% of Households	Allocation of Households	No. of Colonies
VILLAGES (Rural+Urban)	27832	9	1800	5
JHUGGI JHOPRI	29792	10	2000	5
NEW COLONIES	26062	8	1600	4
OLD COLONIES	135596	44	8800	22
DDA FLATS	39955	13	2600	6
RESETTLEMENT COLONIES	48710	16	3200	8
	307947	100	20,000	50

Number of colonies is determined based on 400 Households to be covered per colony.

Progress

The following survey instruments were designed and pre-tested in the field. Modifications were incorporated based on field experiences.

1. Household Information
2. Details of Household Members
3. Morbidity Details
4. Mother and Child Health Care
5. Causes of Death

A preliminary meeting of the project was organized on May 10, 2000 with the concerned senior officers of DHS, experts and the scientists of the IRMS to discuss the questionnaire and scope of the project. A follow up meeting after incorporating the suggestions was also organized with the experts in the field.

This study has been initiated after the finalization of the instruments to collect desired information from about 20,000 households spread in four rounds over a period of 8 months, viz. September-November, December-January, February-March and April-May.

Project posts were advertised and filled up as per the laid down procedures. The field staff was trained for Survey instruments. They were also provided field orientation. The first round of the survey work was started in the first week of September. About five thousand households have been surveyed covering all the fifty colonies in the sample, i.e., first round of survey is complete.

Data collection for the three rounds of the survey is over and the data entry is in progress.

5. National Nutrition Monitoring Bureau (NNMB) in Uttar Pradesh

Introduction

While the previous round of National Nutrition Monitoring Bureau (NNMB) was related to the rural (study) area with special reference to tribal, the present round of

the survey puts emphasis on adolescents. In this context, National Institute of Nutrition, Hyderabad organized a workshop for all units to finalize study protocol and to impart the training to the staff who were involved in the survey. It has following objectives:

- To collect on a continuous basis, on representative segments of population in each states data on dietary pattern and nutritional status adopting standardized and uniform procedures and techniques, and
- To periodically evaluate the ongoing national nutrition programmes , to identify their strengths and weaknesses and to recommend appropriate corrective measures.

Instruments used

- Household demographic and Socio-economic status.
- Dietary Intake of individuals and Households.
- Nutritional Anthropometry on all the available members of households.
- Village level information on Population, Agricultural production, Nutrition and other developmental programmes.

Coverage

All the districts of Uttar Pradesh with 5 villages from each district has to be covered in phases. Villages are already been selected with the help of National sample survey Organization .

Progress

The survey in the districts viz, Muzaffarnagar, Kheri and Hardoi of Uttar- Pradesh has been completed and all filled in schedules are sent to National Institute of Nutrition (NIN), Hyderabad, for inclusion in the consolidated report.

6. National Family Health Survey, 1998-99 (NFHS-2)

National Report is finalised, published and disseminated in the seminar.

7. Causes of Death by Verbal Autopsy: A Pilot Study in Rajasthan

Introduction

The Reliable data on causes of death is essential for a meaningful planning of health care and allocation of resources. In India, however, information on deaths in general and their causes in particular has been quite unreliable. It is mainly due to poor performance of the civil registration system under which births and deaths are to be registered and transmitted for action. Possible ways to collect information on causes of deaths were discussed in an expert-group meeting at ICMR.

It was proposed to have a pilot study on causes of deaths in one state in the north, say, Rajasthan and one state in the south, say, Tamil Nadu. IRMS, New Delhi was entrusted to carry out this study in the state of Rajasthan with the following objectives:

- To assess probable causes of deaths in male and female population in Rajasthan in its rural and urban areas;
- To study the socio-economic profile of the households with deaths in the study population.

Methodology

As the SRS has the details of death collected in their regular 6 monthly surveys, it is thought prudent to consider the existing list of deaths available with SRS for the follow up. Having obtained the information about all deaths in the SRS, field team can contact the households where a death had occurred in the last one year and do the verbal autopsy for the cause measurement. Having obtained the information about all deaths in the SRS, field team (constituted of one medical scientist, two social scientists and one key informant) will contact the households where a death had occurred in the last one year and do the verbal autopsy for the cause measurement. In process, field team will use the services of the key informants to trace households.

The principle of multiple and competing causes will be adopted for the identification of the causes of deaths. Possible involvement of local health system – medical officers of municipal corporations/district hospitals/PHCs etc. will be explored for better cooperation and cost effectiveness of the study. Wherever the medical certification and medical records are available, they will be used in arriving at the cause of death. The study will try to collect the cause as specific as possible and ICD-10 codes up to 3 digits will be minimum.

Causes of death will be studied in all age groups. The verbal autopsy instruments developed by the SRS and PGI, Chandigarh will be validated and used for the study. Information on deaths will be subsequently linked with the household's socio-economic characteristics, place of death, type of treatment received before death etc. in order to know the socio-economic profile of the households where death has occurred.

Members approved the study and mentioned that the study, though intends to enumerate deaths recorded by SRS for cause specification using verbal autopsy, may suffer from recall lapse error. Hence, efforts may be made to enumerate deaths and ascertain the cause of death concurrently with the SRS survey. It should come out with suggestions for the system development.

Progress:

- Collected frame from the office of SRS, Office of the Registrar General of India, New Delhi.
- Instrument to collect data on causes of death by verbal autopsy has been finalized and validated with the help of the Department of Community Medicine, Maulana Azad Medical College, New Delhi.

8. A Study on the Birth and Death Registration in India

Introduction

Reliable and efficient information system for recording of vital events is essential for better planning and programme implementation. Births and Deaths are two most important vital events and the recording of which are being used as a legal proof of identity for inheritance, insurance claims and the property disputes etc. The data from birth records could be used for planning health programmes like Maternal and Child Health Care. Vital statistics is also quite useful in making future projections, which in turn could be used in planning various programmes for the people. It has been reported that there is non-registration of events. In India Civil Registration System under RBD Act 1969 was enacted under which registration of Births and Deaths was made compulsory. The present levels of performance, however, vary widely from state to state. Under-recording of events has been observed more in rural areas as compared to that in urban areas. Consequently the need for improvement of the system has received considerable attention overtime. Yet lot could be done particularly to minimize under recording of events. National Population Policy 2000, also emphasises on achieving of 100 percent registration of births, deaths, marriages and pregnancies as one of its major objectives. In view of the above, it is proposed to undertake a study in two states of India where registration of vital events is poor, with the following objectives:

- To review the existing systems of registration in the two states proposed to be studied;
- To suggest modifications for making registration system more effective.

Methodology

All the States/UTs have been categorized into four categories according to the level of registration of births and deaths in 1995. The study will be conducted in two states of India, one having the lowest registration and the other having the highest registration as reported by R.G.Office. The two selected states could be Punjab with the level of registration as high as 80% and above and the other Uttar Pradesh with registration level as low as less than 40%. Two districts will be selected from each of the two states. From

each district, two rural and one urban area under the jurisdiction of Registrars/Sub-Registrars will be studied. Complete enumeration will be done of births and deaths events occurred during the reference period in the area and the enquiry for the registration status of the events with due confirmation from the office of registration. The study will be mainly a case study. The snowball sampling will be used for identifying the events. Reference period of the study will be two calendar years.

Major aspects for data collection would be to assess the awareness of the system, attitude towards the registration of events, reasons for non-registration of events, difficulties faced by the staff of the office of registration. Separate questionnaires will be designed for each aspect.

The study was approved with the suggestion that the study should stick only to one district with high coverage and one with low coverage preferably in the same state in two neighbouring states. It was also advised to study the system along with the coverage of events (births and deaths). Focus group discussion may be considered for assessing the opinion of people and system personnel towards non-registration of births and deaths in the study area.

9. NATIONAL HOUSEHOLD SURVEY OF DRUG AND ALCOHOL ABUSE IN INDIA (Collaborative Research Project with AIIMS, New Delhi)

Introduction

Mankind has been using one or the other altering mood substance probably ever since the beginning of existence. These substances were to begin with natural products but with increasing sophistication in technology there is availability of semi-synthetic and synthetic substances. At present there seems to be a wide range of choice extending from natural products like cannabis, coca and raw opium to semi-synthetic substances such as heroin and synthetic substances such as amphetamines and tranquilizer medication. Being probably well aware of the intoxicating and behaviour pre-process of the substances and the recognition that some users tend to develop abnormal and sustained use pattern that interfere in daily living family and the societal functioning the society always had some mechanism to check their abuse. Despite these measures some

individuals go onto developing such aberrant use styles of substances which have been understood as medical disorders too. Having recognized that abnormal use patterns exist it is imperative that mechanisms to monitor the epidemiology of the substance abuse.

In our country the information gathered so far is based primarily on epidemiological studies conducted at various times and at no more than a few sites at one time. The limitations of such data is obvious. One, that it doesn't reflect the national trend and second that it has at the most only regional policy implication. The reasons for not having conducted a nationwide survey earlier probably is the financial constraint and not the technical know-how.

It has now become possible to conduct a nationwide survey on the extent of substance use and its related disorders through the efforts of the Ministry of Social Justice and Empowerment, GOI and the United Nations International Drug Control Programme. This study is one component of the National Survey of the Extent, Patterns and Trends of Drug Abuse in India.

This project proposes to evaluate drug use in a nationally representative non-institutionalized male population between the age of 12-60 years in 24 states of the country.

Instruments used

1. Households Information
2. Respondent Information
3. Screening for drugs of abuse
4. Specific ICD 10 diagnostic criteria

Study Design and Methodology

Universe

The universe of the study will correspond to the male non-institutionalized population between the ages 12 to 60 years in all the 25 states of the country covering both the rural and urban population. Not included in the universe will be the population staying in the hostels, prisons and other institutions. Also those without a fixed address will not be included in the sample.

Sample size

To plan this study it is assumed and as is also corroborated by available literature that the prevalence of problem of drug abuse is 1%. Accordingly the sample to be interviewed will be 40,000 taking into account 10% relative deviance and 5% level of significance. Being a sensitive issue an additional 15,000 subjects will be included to account for the refusals and contacted individuals. The total sample for states will be decided in proportion of its population of its population to the country population.

Selection of Sampling Areas

In anticipation of three eligible persons in each household and to cover equal number (45) of persons from each PSU (Primary Sampling Unit), a total of 900 (approximately) PSUs will be considered in the study. The number of PSUs to be selected from a state will be decided in proportion to population of the state. However from each state at least two PSUs will be included in the study. The sampling design followed under the project will be two stage random sampling, where villages/wards are followed under the project will be two stage random sampling, where villages/wards are the primary sampling units (PSU) and household from the second stage units. The sampling unit in the first stage will correspond to the PSUs of the Census, 1991 and consist of villages in rural sector and wards in urban areas. At the first stage, the PSUs will be selected in each state through PPS (Probability Proportion to Population size) sampling, which is commonly used to get reliable estimates of the parameters under study. Selected small villages will be linked to adjacent village to form PSUs of at least 50 households. Larger villages with more than 500 households will be segmented and two segments per village will be

selected using the PPS method. Similarly in urban area, one census enumeration block consisting of approximately 150-200 households, will be selected from each selected ward using the PPS method.

Selection of Households

In view of the need of expediting execution of the project, it is better to avoid mapping and household listing operation in each sample area which could provide the necessary sampling frame for selecting households at the second sampling stage, which is obviously an ideal procedure. For this, the visiting team accompanying with the supervisor will contact key informants (village pradhan/local leader etc.) to collect approximate number of households in selected sample areas together with information on specific mohallas which are generally categorized in relation to varying levels of socio-economic status. Households will be covered with a target of covering a total of 45 eligible persons in the study per PSU. The team will start survey from any direction taking first household randomly and continue through systematic sampling till target is achieved.

10. Workshop on the Access and Utilization of Official Statistics (Health), Creation of Data Mining and Health Information System.

A workshop on this topic is planned to organize with a view to appraise the current status, quality, accessibility and possible uses of such statistics. The available information on various health topics such as Health and Demographic transition, morbidity and mortality transition due to the changes in the prevalence of chronic and acute diseases and the associated risk factors, Health Care Services, medical and health Manpower etc. are either incomplete or scattered in various organizations all over the country.

The proposed workshop will make an effort to appraise the health statistics in the country at various levels; discuss the utility of existing system of official health statistics in understanding and improving the health promotion strategies; increase the accessibility, availability, acceptability and affordability of health care services and facilities; collaborate data collection in various areas and thus avoid duplication and overlapping; and initiate benchmark studies in those areas/regions where data is not collected under various programs.

11. Lot Quality Assurance Sampling (LQAS) as a Rapid Assessment Technique for Programme Evaluation

LQAS was mentioned to be a statistical technique, which was mostly used in industry to accept or reject a lot. The decision to accept or reject a lot is taken on the basis of number of defectives found in the sample vis-à-vis the acceptance number for the given size of the sample. Tables are available which provide the value of acceptance number for different sample sizes. However these tables have been developed for simple random sampling in which units are drawn one by one using equal probabilities with unistage sampling design.

In recent years, there have been numerous attempts to apply the technique in the health sector for the evaluation of a programme, e.g. immunization programme where the performance of the programme in an unit may be taken as acceptable if the proportion of fully immunized children in its catchments area (population) is say 80 percent or higher. For this, LQAS may be used by testing of the hypothesis relative to the threshold prevalence level of the non-immunized children beyond which intervention may be required. So for the evaluation purposes, we could use LQAS and for the purpose of estimation traditional sampling procedures such as simple random sampling (SRS), stratified sampling, cluster sampling etc. may be applicable. In fact, in health situation one might be interested in classifying a given operational area with satisfactory or unsatisfactory performance with respect to various indicators relating to health goals/objectives. This would require determining the acceptance level for a given sample size for classifying the performance as satisfactory. The theory of LQAS is available under simple random sampling, which could not be straight away used in health situations since the survey designs used were different than SRS. The proposed study aimed at the following:

- To develop the appropriate theory to determine the acceptance number for given sample size for complex survey designs.
- To work out the tables (ready Renner) on the basis of theory derived.
- To illustrate the application of the theory with simulated and possible real data.

The study was approved by the committee and it was suggested that this research work might be carried out only with the objective of theoretical development. Application to health situation should be dealt cautiously.

12. Determination of Point-Prevalence of Tuberculosis in the Area of Field Trial of Mw Vaccine

It was mentioned that the study is a collaborative study between IRMS, New Delhi and JALMA, Agra, with the major objective to ascertain the point prevalence of tuberculosis in household contacts of leprosy patients where Mw vaccine had been administered to study the immunoprophylactic effect on leprosy.

It was mentioned that the study will be carried out in the same study population who were covered during the field trial of Mw vaccine for Leprosy at Ghatampur, Kanpur. The duration of the study is two years.

The study has been approved to get funding from DBT.

13. Exploratory Methods for the Projection and Classification of Progression of HIV to AIDS

The estimation of the incidence of HIV has been the pre-requisite to predict future AIDS incidence and the health care costs resulting from AIDS.

Usual methods of back calculation or back projections to reconstruct HIV infection curves assume various probability distributions for incubation periods based on large cohort studies. Other methods for this purpose include nonparametric estimates, including use of the EM algorithm with a smoothing step added to each iteration of the usual E- and M- steps for maximum likelihood. Bayesian methods, penalised maximum likelihood, ridge regression and splines are some other techniques utilised for reconstructing HIV infection curve. Considerable efforts have also been made to try with various distributions. None of them however incorporates personal covariates that affect the progression of HIV infection to AIDS and hence the incubation period.

The HIV intensity curve obtained by the application of EM algorithm to the reported AIDS cases in India from 1986 – 1998 published by National AIDS Control Organisation (NACO), assuming different incubation periods could classify the intensity level into three groups viz. high, medium or low. Since the reported AIDS cases belong to a mixture population in respect of the sources of infection, certain socio-economic and biological variables which have impact on the progression of HIV to AIDS, can be separated using appropriate methods/models. For example, an infection got through blood transfusion will have rapid progression from HIV to AIDS than the infection got through sexual transmission. Also, there are some personal covariates that affect the progression of HIV to AIDS such as baseline levels of immunological markers and viral load. Attempts made through simulated data for baseline values of these variables could classify the progression of AIDS into three classes viz. rapid, intermediate and long time survivors. The objectives set for the study are :

- (1) To compare different methods of HIV/AIDS projections like Bayesian methods, penalized maximum likelihood, Ridge regression, splines and EM algorithm, and
- (2) To classify the progression of HIV to AIDS in relation to sources of infection and other personal covariates.

The SAC members have agreed with the idea that the mathematical modeling is important to study the epidemiological process of diseases which are not otherwise observable and approved to continue with the modeling of progression of HIV to AIDS. Suggestions were made to carry out typological detailed survey of the literature first and then derive the model.

Progress

Reconstruction of HIV infection curve has been the major focus of statistical studies in the HIV/AIDS area. An exploratory work has been carried out to study various techniques of reconstruction of HIV intensities using AIDS reported cases. As a first step EM Algorithm approach was tried on reported AIDS cases in India since from 1986 - 1998 published by National AIDS Control Organisation (NACO) under the assumption of different incubation period. The HIV intensity curve thus obtained could classify the intensity level into three groups viz. high, medium or low.

Given in Table-1 is the time taken to develop AIDS in 90% and 99.99% of the HIV cohort for various assumed median incubation period. While the complete cohort of HIV positives will progress to AIDS in nine years for a median incubation of three years, the same will happen only in thirty years if the median incubation is 12 years.

Table-1 Time for pgression from HIV to AIDS in years under Weibull Distribution

	Median Incubation Period			
%Progressed	3yrs	6yrs	9yrs	12yrs
90%	5.0	9.5	14.0	18.4
99.99%	8.8	15.8	23.0	30.0

Predictions of AIDS for future years is made under the assumption that the probability of developing AIDS remain constant for some time and will remain at this level. The Constant probabilities for developing AIDS at three different levels (high, medium and low) are chosen at the point of time the HIV intensity is high, an intermediate point and the lowest point. Predictions of AIDS cases assuming three levels of intensity and using corresponding probabilities of progression is presented in table 2.

Table 2 : Prediction of cumulative AIDS for High Medium and Low Intensities

Year	EM Estimates upto			AIDS	HIV
	High	Medium	Low		
1997	8653	7256	4573	4266	19610
1998	9526	8027	5096		
1999	10330	8751	5601		
2000	11069	9429	6089		

Observed cumulative AIDS cases upto 1997 is 5181

Since the reported AIDS cases belong to different classes in respect of sources of infection and the progression rates also may have some relation with sources of infection, the three levels of intensities can be used to group the AIDS cases and to estimate the incubation period or rate of progression of disease in each group using appropriate models.

Projects Completed

14. The Third Survey of the Field Trial of Mw Vaccine in Kanpur Dehat

It was said that the Phase-III clinical trial in Ghatampur, District Kanpur Dehat, was launched in 1990 with the objective of evaluation of efficacy of the Mw vaccine from two aspects: (1) Immunotherapy, i.e., effects of Mw vaccine when used as an adjuvant to MDT of 2-year fixed duration, and (2) Immunoprophylaxis (the efficacy of Mw vaccine in imparting protection to the house-hold contacts of the index leprosy cases. Both these aspects were perused concurrently. For testing the immuneotherapeutic effect, the vaccine and placebo was to be administered to active multibacillary (MB) patients (LL.BL & BB), who were clinically active with evidence of bacilli in the slit skin smears. For evaluation of immunoprophylactic benefits, vaccine or placebo was to be given to the contacts of both MB and PB patients.

The target population (of both patients and the contacts) was divided into 4 groups I, II, III and IV. The patients were allotted P1-P4 groups and the contacts were allotted C1-C4. The comparison between group I and II would indicate the immunoprophylactic potential of vaccine, the comparison between I and III would indicate the immunotherapeutic potential, whereas group I and IV comparison would indicate both immunoprophylactic and immunotherapeutic effects. The villages were divided into "experimental" and "control" groups on random basis. Out of 272 villages in the trial area, half of the villages received Mw vaccine, while the other half of villages received placebo in a double blind coded manner. The villages in the trial areas were stratified and sub-stratified on the basis of prevalence rate of leprosy and population size to ensure that the number of subjects under different modes of treatments were comparable. The allocation into the different groups was done randomly on village basis. Thus, MB patients in a village received immunotherapeutic vaccine/placebo of particular code and the household contacts (HHC) received immunoprophylactic vaccine/placebo of same code.

The term "vaccine" as used in relation to Kanpur trials, has been used interchangeably to denote both the Mw vaccine and the Placebo. The vials containing vaccine and placebo were coded in a double-blind manner by the Institute for Research in Medical Statistics (IRMS), New Delhi. The codes are kept by the ICMR and would be opened at the end of the trial. This was the first operational activity undertaken by the field unit of NII for identification of multibacillary leprosy cases for induction. The baseline data of index cases of leprosy and their addresses were provided by NLEP unit (UP) on the basis of pre MDT survey conducted in 1988-89. The rapid pre-vaccination survey was conducted during Jan-March 1990.

Before vaccinating any one in a village, consent of the village headman (Pradhan) the elected representative, was obtained in a written format. The participation of the community was solicited and help of the village pradhans, school teachers, educated people and elders of the village was taken. The people were made aware of the

morbidity of disease and the potential benefits of the vaccine, they were also told that the inhabitants might be receiving an injection which would be helpful against tetanus.

The immunoprophylactic and immunotherapeutic trials were launched in March 1990. The vaccination coverage of the household contacts (two doses, with second dose administered at 6 month interval after the first dose) was complete by July 1994. The vaccination of multibacillary patients (immunotherapy requiring 8 doses of vaccine over 2 years at 3 monthly interval) was completed by August 1995. The first and second mid-term survey were conducted during 1993 to 1996 and 1996 to 1999 respectively. The Third survey started w.e.f. April 1999. The Deptt of Bio-technology sponsored the third i.e., the last survey to Institute of Research in Medical Statistics (IRMS), New.Delhi and JALMA, Agra. Reporting the progress of the survey it was mentioned that till Dec. 31, 1999, the field unit Ghatampur has covered 235 villages out of 272 villages. Total default rate observed was about 25%. We have strived hard to provide about 90 percent coverage to make the findings of the study statistically acceptable. The analysis of the data collected is as follows:

Methodology of Analysis

1. The analysis of the data has been attempted for comparison of groups C1, C2, C3, & C4 blind coded with respect to index cases as well as contacts. This has been done with a view to see whether these 4 groups are comparable with respect to the type of leprosy in the index cases (as well as contacts) and their distribution by sex and age, to enable the generalization of results on the incidence rates of leprosy vis-à-vis the protection provided by Mw vaccination, if any.
- 2 The analysis of incidence rate of leprosy during the third survey as well as combined for second and third survey has been attempted. The comparison of the incidence rate in the 4 groups has been done using the analysis of variance (ANOVA) technique. Further, after opening of codes, it could be ascertained whether the incidence rates are lower in the groups which received Mw vaccination vis-à-vis

the groups which were not vaccinated. The comparison has also been attempted in the incidence rate of single dose contacts, 2 dose contacts and combined .

Results

Comparison of Four Groups

The results presented on comparison of groups revealed the following:

A. Index Cases

- The comparison of 4 groups in terms of distribution of index cases by type of leprosy (PB/MB) and sex, revealed that the 4 groups are comparable,
- The distribution of index cases by age for each sex separately for PB/MB cases also revealed that the four groups are comparable.
- The four groups have also been observed as broadly comparable in terms of average number of contacts and also the type of contacts i.e., husband-wife, son-daughter, father- mother, grand son-grand daughter and others.

B. Contacts

- The four groups in terms of the distribution of contacts by type of Leprosy of index cases (MB or PB) and within each by sex, have also been found as comparable,
- The distribution of contacts by age and sex, separately for MB and PB type of leprosy index case has also been seen as broadly comparable. It is observed that as high as over 40% of the contacts were in the category of others i.e., as distant contacts (other than son/daughter, father-mother, grand son/grand daughter) indicating of special consideration for the group in the analysis.

Incidence Rates of Leprosy in four groups

The salient results on the incidence rate of leprosy in four groups and their statistical comparison has been made.

- (i) The analysis of incidence rates of leprosy combined for the second and the third survey revealed that the incidence rates were higher in groups 2 & 3 as compared to groups 1 & 4.
- (ii) Further the analysis revealed that these differences were significant up to the second survey. For the incidence rates during the third survey, the differences have not been observed as significant.

It was informed that the decoding of the groups will be carried out during 3rd/4th week of December 2000.

15. A Study on Quality of Life of Cardiac Surgery Patients

It was said that every year between 500-2500 patients suffering from cardiovascular diseases undergo cardiac surgery in the major hospitals of Delhi. The success rate for such surgery has been claimed to be more than 95% for most of the hospitals judged by the survival status of the patients at the time of discharge. Once the patients are discharged, their health status during the follow-up is not maintained properly. Hence, data from record sections cannot be compiled in the form of statistical reports to draw valid inferences. Also, little is known about the post surgery complications and the quality of life of post-surgery cardiac patients. Need was therefore felt for conducting a follow-up study on patients who had undergone cardiac surgery. In 1997 a proposal to undertake such a study in three phases on pilot basis was accepted to or the cardiac surgery patients from three major hospitals of Delhi, namely, All India Institute of Medical Sciences, G.B. Pant Hospital and Batra Hospital.

Phase I:

1. To survey patients operated in 1996 for cardiac disorder in some major hospital of Delhi.

Phase II:

1. To study the socio-economic and demographic profile of these patients by the employing postal survey techniques.
2. To estimate survival probability at the time of discharge and at subsequent time points.

Phase III:

1. To assess the quality of life of these patients by constructing an integrated Quality of Life Index (QLI).
2. To study the correlates of QLI in the study sample.

Methodology

In the first phase of the study, basic information of the patients viz. name, address, age, sex, diagnosis, duration of stay etc. was collected from the medical records of the three aforesaid hospitals. In the second phase, data was collected directly from patients by using postal survey techniques. Data collection pertains to morbidity, mortality, socio-economic and demographic characteristics, level of satisfaction with the surgery/medical care and post-operative care etc.

As per the recommendation of the SAC-1999 meeting, it was decided that the third phase of the work should be started in Delhi. Accordingly, the patients were contacted by visiting their places of residence and data were collected on their quality of life.

After collecting addresses of 2584 patients in phase-I, efforts were made to contact such patients in phase-II through postal survey techniques by mailing pre-coded questionnaire printed on a reply paid inland letter along with request letters written in English as well as in Hindi. To conduct personal interviews in the third phase, all the patients of Delhi state were informed by letters about our intention of visiting them at their places of residence. For this, the entire state of Delhi was divided into seven geographical contiguous areas. Then all the registered patients in each area were allocated to the seven Senior Field Investigators and Technical Officers of the Institute for conducting personal interviews.

All patients who responded in the second phase were covered. Among the non-respondents, about 60 percent could be covered in this round. Some of the patients who had moved from their recorded place of residence (within Delhi) were also traced. At some places, our investigators revisited the house in case the patient was not available during the first visit.

The present report deals with 378 traced patients out of whom 33 died in the hospital and 35 died after discharged alive from the hospital. This sample is 42 percent of Delhi patients and more than 15 percent of the total registered cases in phase-I. For uniformity of results, data on quality of life parameters was collected from 230 adult patients (out of 310) who were of age 18 years and above.

Results

The mortality after 4 years of surgery was observed to be over 10 percent. Thirteen percent were sick while other 77 percent reported to be healthy. No sex differential was found in the proportion of deaths within 4 years time after surgery. However, there were slightly more deaths among patients with age less than 18 years (12 percent) as compared to patients with age more than 50 years (8 percent). The maximum deaths were among patients operated for Atrial Regurgitation (27 percent) followed by Mitral Stenosis (24 percent) and Tetralogy of Fallot (16 percent).

In literature different instruments of quality of life are available to assess patients suffering from various diseases. In the present study over three fourth of the instruments used in the famous Nottingham study on Quality of Life. In all 44 instruments were used to assess the quality of life. They are binary in nature indicating 1 as positive responses and 0 as the negative cases. The quality of life for each patient was ascertained by adding the scores of all 44 instruments. The percentage score attained (out of 44) by each patient is being termed as Quality of Life Index (QLI).

The mean QLI for males and females was 88 and 80 respectively. It was 88 for patients age less than 50 and 84 for age 50 and above. Examination of the frequency distribution by QLI groups (<50, 51-75, 76-95 and >95) shows that there were 47 percent patients,

whose QLI was more than 95 and 34 percent had QLI in the range of 76 to 95. About half of sample males are found to have QLI above 95 as compared to little above one-fifth females have QLI above 95. More patients in younger age groups had QLI greater than 95 percent. The distribution of QLI by diagnosis show that there were three-quarter patients of have QLI above 95 among those who were operated for Ventricular Septal Defect and Atrial Regurgitation (73%) as compared with Atrial Septal Defect (58%). Further, it was interesting to observe that only 35 percent of the patients with higher professional status had QLI more than 95 in comparison to 58 and 49 percent among middle and lower middle classes respectively. This factor needs further investigation before coming to any conclusion. There were less non-workers (37%) as compared to workers (60%) with QLI greater than 95 percent.

The percentage distribution of the sedentary workers with QLI greater than 95 was lower (45%) than patients with moderate (51%) professional activity. More than 48 percent of the vegetarian patients had QLI more than 95 as compared to 39 percent of regular non-vegetarian. More non-smokers (49%) had QLI greater than 95 as compared to 36 percent smokers in this class. Out of the 7 addicts, 5(71%) had more than 95 QLI. Forty our percent occasional drinkers and 47 percent teetotallers were found to have QLI above 95.

While the report was approved, it was sent an expert for review and positive response has been received.

II. Training programmes

- ❖ Training programme in Biosocial Research Methodology

Duration : Feb. 26 - March 3, 2000

The basic objective of the training programme was to enhance research capabilities of biomedical scientists in their research methodology. The Course consisted of lectures by experts in Medical Research and Biostatisticians followed by discussion on real data related to the topic and the group work. The course included the following topics:

- Biosocial Research Methods : An Overview
- Nature of data and their measurement, descriptive and inductive statistics, graphical representation of data.
- Bio- statistical inference: Null hypothesis, level of significance, type I and type II error, test of significance, power of test, correlation and regression analysis, 2x2 contingency table and its extension, non-parametric methods.
- Design of study: Incidence and prevalence study, case control studies, cohort study, longitudinal and follow up studies.
- Risk Analysis: odds ratio, relative risk, risk ratio and statistical analysis.
- Diagnostics: sensitivity, specificity and predictive values vis-a-vis sensitivity and robustness of estimators.
- Rapid assessment techniques including mapping
- Meta Analysis.
- Sample size determination
- Health and National Population Policy : Introduction to Vital statistics, Various indices of Fertility, Mortality and Morbidity and its application, Concept of NRR and its application in health and population policy.
- Use of Statistical Software in for data analysis.

In addition to above the Institute participated in the following training programmes:

- ❖ B.Sc. (Nursing) Delhi University
- ❖ M.Sc. (Nursing) Delhi University
- ❖ M.Sc. (Life Sciences), Jawaharlal Nehru University
- ❖ M.Sc. (Statistics), Kurukshetra University
- ❖ M.Sc. (Statistics), M.D. University, Rohtak
- ❖ In-service Training of Medical Record Officers at Safdarjung Hospital
- ❖ In-service Training of Medical Record Technicians at Safdarjung Hospital
- ❖ In-service Training in Computer Applications for ICMR Officials at NIC, New Delhi.
- ❖ Training of Trainers (ToT) for Quantitative Survey of the final evaluation for the project “Integrated Nutrition and Health Programmed” (INHP) from CARE India at India International Center, New Delhi.
- ❖ Coordinated National Seminar on Dissemination of Results of NFHS-2, New Delhi, November 16-17, 2000.
- ❖ Coordinated Workshop on the “Questionnaire of the Innovative Study on Awareness About AIDS” at IRMS, New Delhi, July 28, 2000.

III Scientific Meetings Attended

Dr. Arvind Pandey, Director

1. Meeting of NFHS-2 to discuss the Fertility Estimates in Uttar Pradesh at Nirman Bhavan, MOHFW, June 8, 2000.
2. Task Force Meeting of the Project “Causes of Deaths in India” at ICMR, New Delhi, June 29, 2000.
3. Meeting of Experts and Principal Investigators of the study on Osteoporosis in India, RHN Divn., ICMR, New Delhi, July 21-22, 2000.
4. Directors’ Meeting of ICMR’s Institutes at ICMR, New Delhi, July 27-28, 2000.
5. Meeting of SAC at the National Institute of Epidemiology, Chennai, August 16-17, 2000.
6. First meeting on the planning of a sample survey to estimate Malaria Disease Burden in India held at National Anti Malaria Programme (NAMP), MRC, Delhi, August 18, 2000.
7. Selection Committee Meeting for the post of Data Entry Operator at ICMR, New Delhi, September 8, 2000.
8. Meeting of NFHS-2 at IIPS, Mumbai, September 11-12, 2000.
9. Attended the Debate (in Hindi) on “Manav Genome Adhyayan Ke Bhavi Prabhav” at ICMR, New Delhi, September 15, 2000.
10. Meeting of UGC-NET Unit, Panel for paper evaluation in Geography (Population Studies) at Poona University, Pune, September 25-30, 2000.
11. Meeting of Technical Advisory Group, CARE India, New Delhi, October 3, 2000.

12. Meeting of the Executive Committee of Indian Association for the Study of Population at the Population Foundation of India, New Delhi, October 5, 2000.
13. Meeting of the Screening Committee for screening the applications for the post of SRO (Demography) for RMRC Jabalpur at ICMR Hq., New Delhi, October 17, 2000.
14. Meeting of the Selection Committee for the post of Professor in Biostatistics at the National Institute of Mental Health and Neuro Sciences (NIMHANS), Bangalore, October 19, 2000.
15. Attended the Sixth JRD Tata Memorial Oration by Shri K.C. Pant, Dy. Chairman, Planning Commission on National Population Policy – Role of the National Commission on Population, organized by Population Foundation of India at India Habitat Centre, New Delhi, November 3, 2000.
16. Presentation of ICMR activities at Nirman Bhawan, MOHFW, New Delhi, November 8, 2000.
17. XVIII Annual Conference of ISMS at Central Jalma Institute of Leprosy, Agra, November 18-20, 2000.
18. Selection Committee Meeting for the post of Statistical Assistant at National AIDS Research Institute, Pune, November 27, 2000.
19. Meeting of the Core Group for drafting the National Health Research Policy, ICMR, New Delhi, December 8, 2000.
20. Lecture of Prof. C.R. Rao (Centre for Multivariate Analysis, Pennsylvania State University, USA, January 1, 2001.
21. Lecture of Prof. of P.K. Sen, Department of Biostatistics, School of Public Health, University of North Carolina at Chapel Hill, January 5, 2001.]

22. Second Meeting regarding the estimation of malaria disease burden in the country in NAMP Seminar Room, 22, Sham Nath Marg, Delhi-110054 at 10.30 A.M. in MRC, January 10, 2001.
23. Review Meeting of IPP-VIII Project and technical consultation on design and methodology of end line evaluation at the World Bank Office, New Delhi, January 11, 2001.
24. Expert Group Meeting on “Estimation of AIDS cases and deaths in the Country” at National Institute of Epidemiology, Chennai, January 13, 2001.
25. Selection Committee Meeting for the post of Sr. Research Officer (Demography) for the RMRC, Jabalpur at ICMR Hqs., New Delhi, January 19, 2001.
26. Technical Advisory Committee at CARE India, New Delhi, January 19, 2001.
27. Second Meeting of Task Force Project entitled “Causes of Death” at ICMR Hqs., January 24, 2000.
28. Meeting of Executive Committee of IASP at Population Foundation of India, February 12, 2001.
29. Meeting of the Steering Committee of Family Welfare at Planning Commission, Yojna Bhavan, New Delhi, February 13, 2001.
30. First meeting of the Committee to finalize the Terms of Reference, objectives, time frame, Field Organisations, sampling design and methodology etc. of World Bank assisted IPP-VIII Project at National Institute of Health & Family Welfare (NIHFW), February 16, 2001.
31. Addressing the students of IIPS visiting to IRMS, New Delhi, February 17, 2001.
32. Executive Committee Meeting of the Indian Association for the study of Population (IASP) at Vishakhapatnam as Vice President, February 21, 2001.

33. First meeting of Computer Software Committee regarding the requirement of Software packages of the Council on February 19, 2001.
34. Meeting of Committee for negotiation with the vendors of different firms short listed for supply of computers/peripherals, etc. to be procured by the Council, as per the tender notice, February 27, 2001.
35. Meeting of "Task Force on Surveillance" at National AIDS Control Organisation, New Delhi, March 13, 2001.
36. 34. Visit of Prof. V.P. Hakobian, Rector Prof. A.V. Zilfian, of the Yerevan State Medical University, Armenia at IRMS, New Delhi, March 19, 2001.
37. Meeting of Population Research Centres and other Research Organisations in the field of Population in Room No. 122 at Yojna Bhawan, Planning Commission, New Delhi in connection with National Commission on Population for achieving the goals outlined in the National Population Policy on March 20, 2001.
38. Expert Group Meeting on "Finalization of Protocol for Community Based Studies on STD prevalence" at National AIDS Research Institute, Pune. (organized by NACO, MOHFW) on March 27-28, 2001.
39. Annual meetings of the Population Association of America (PAA) at Washington DC during March 29-31, 2001.
40. Visit to School of Public Health, Department of Biostatistics, MCH, Health Education and Carolina Population Centre, University of North Carolina at Chapel Hill, USA, April 1-5, 2001.
41. Workshop on "Use of Information Technology (IT) in Biomedical Research" at Institute of Pathology, New Delhi, December 13-15, 2000.

42. Attended the International Conference on Recent Developments in Statistics and Probability and their Applications, organized jointly with the International Indian Statistical Association at India International Centre, December 30, 2000 – January 2, 2001.
43. Attended Seminar on “Sharing Experiences: The Successful performance of the State: and the Districts selected for Population and Reproductive Health Programmes-2000” organized by the Population Foundation of India and Second JRD Tata Awards Function by Dr. C.P. Thankur, Hon’ble Minister of H & FW January 3, 2001.
44. Attended Annual Indian Science Congress at Indian Agricultural Research Institute (IARI), Pusa, New Delhi, January 3-7, 2001.
45. Attended and acted as a resource person VI Workshops on strengthening the research and training capabilities on Population Research Centres (PRCs) and enhancing their involvement in Reproductive and Child Health (RCH) programme in Mumbai during January 22-24, 2001.
46. Attended and chaired a session in the National Seminar on Emerging Methodologies of Data Analysis and related inferences, organized by Deptt. of Statistics, BHU, Varanasi-221005, February 5-7, 2001.
47. Attended and chaired a session in the National Seminar on Tribal Health in India: Present Status and Future Strategies: at NIHFWD Auditorium, organized by the Director, NIHFWD, February 8, 2001.
48. Attended and chaired a session in the XXIV Annual Conference of the Indian Association for the Study of Population (IASP) at Andhra University, Visakhapatnam and gave invited talk on “Recent Levels and Trends in Infant and Child Mortality”, February 22-24, 2001.

49. Lecture on Design of Larger Scale Sample Surveys in a Pre-conference Course on “Biostatistics and Research in Physiotherapy Practice” organized by India Association of Physiotherapist in its 39th Annual Conference at Safdarjung Hospital, New Delhi, February 15, 2001.
50. Invited lecture/talk on “Fertility and Family Planning” to the probationers of Indian Economic Service at Institute of Economic Growth, New Delhi, July 14, 2000.
51. Lecture at Academy of Administration, Govt. of M.P., Bhopal, September 12-14, 2000.
52. Lecture on the Evaluation of the India’s National Population Policy in view of the findings of the National Family Health Survey, 1998-99 (NFHS-2) at the Annual Conference of Indian Society for Medical Statistics held at Central JALMA Institute of Leprosy, Agra during November 18-20, 2000.

Dr. R.J. Yadav, A.D.

1. Attended the Workshop on "Proposed Post Graduate/Research Medicine Programme at Indian Institute of Technology, KHARAGPUR on May 9, 2000 for discussing the Brain drain . This workshop was organized by Indian Council of Medical Research, New Delhi in collaboration with Indian Institute of Technology, Kharagpur.
2. Invited as Expert in a Workshop on “ Priority setting in Health Research “ Jointly organized By Indian Council of Medical Research and National Medical Journal of India (Published by AIIMS) during September 10-11,2000.
3. Invited as Expert in a workshop “ National Household survey of Drug and Alcohol abuse in India “ Organized by All India Institute of Medical sciences, New Delhi. Professors of different medical colleges of the

states attended the workshop during September 12-13, 2000 at National Institute of Social Defense, New Delhi.

4. Attended ICMR – WHO Workshop on “Use of Information Technology in Biomedical Research, during December 13-15, 2000 at IOP, ICMR, New Delhi.
5. Attended a meeting under the chairmanship of Deputy Chairman , Planning Commission organized by National commission on Population on March 14, 2001 at New Delhi. The meeting was attended by Chief Secretaries / Secretaries of different states.
6. Attended Computer Awareness Programme at National Informatics Center, Ministry of Information Technology, Government of India , during April 9 – 13,2001.
7. Attended meeting on 12th May 2000 to discuss the sampling methodology and sample size for the project on Maternal Mortality Rate in IRMS conference room.
8. Attended XVIII ISMS Conference, Agra during Nov. 17-20, 2000.
9. Attended International Conference on Adolescent Reproductive Health: Evidence and Programme Implications for South Asia, at Mumbai, Nov. 1-4,2000.
10. Attended *National seminar on Emerging methodologies of data analysis and related Inference at Department of statistics, Banaras Hindu University , Varanasi, February 5-7, 2001.*
11. Attended *XXIV IASP Conference on Current levels and recent trends in Demographic and Health parameters at Andhra University ,Vishakhapatnam, February 22-24, 2001.*

Sh. Anil Kumar, S.R.O.

Dr. R.K. Gupta, A.D.

- I. Participated in the 11th Annual Conference of Indian Society for the Study of Reproduction and Fertility organized by RHN Division, ICMR, New Delhi from 9-12 Jan.,2001.

Dr. Abha Rani Aggarwal, SRO

1. Attended a meeting on 10th May 2000 for the project Base-line Survey in trans Yamuna area to make healthy city, Conference room of IRMS.
2. Attended meeting on 12th May 2000 to discuss the sampling methodology and sample size for the project on Maternal Mortality Rate in IRMS conference room.
3. Attended meeting on 22nd June to discuss the sampling methodology for the project Impact Assessment and Media Reach of Video Spots on Doordarshan during June 1999 – July 2000 in conference room, IRMS
4. Attended ICMR - WHO workshop on Use of Information Technology in Biomedical Research, during December 13-15, 2000 at IOP, ICMR in Safdarjung Hospital .
5. Attended SAC meeting on 19th Dec,2000 presented work on Lot Quality Assurance Sampling Technique.
6. Attended Delhi University Conference 29th Dec,2000 to 1st Jan,2000, International world Mathematics Year 2000 workshop on Statistical.

7. Attended International conference on “Recent Developments in Statistics and Probability their Applications” organized by International Indian Statistical Association 2000-2001 INDIA at IIC, New Delhi during 30th Dec 2000 – 5th Jan 2001.
8. Attended Computer Awareness Programme at National Informatics Centre, Ministry of information Technology, Government of India, during April 9-13, 2001.
9. Attended Workshop on the “Questionnaire of the Innovative Study on Awareness About AIDS” at IRMS, New Delhi, July 28, 2000.
10. Participated in Hindi Debate on” Manav Genome Addhayayan Ke Bhavi prabhav” held on 15th September, 2000 in ICMR HQ.
11. Attended XVIII ISMS Conference held at JALMA Agra during 18-20 November, 2000.
12. Invited as a resource person to deliver a lecture on “Quantitative and Qualitative Research Methodology” on 28th Nov, 2000 in National Institute of Public Cooperation and child Development

Dr. (Ms.) M. Thomas, S.R.O.

1. Attended XVIII Annual Conference of Indian Society for Medical Statistics at Central JALMA Institute of Leprosy, Agra.

Dr. Tulsi Adhikari

1. Attended XVIIIth Annual Conference of ISMS at Agra during 18-20 November, 2000.

IV. AWARDS/ HONOURS RECEIEVED

Dr. Arvind Pandey, Director

- Awarded “**Fellow of the Society for Medical Statistics (FSMS)**” of Indian Society for Medical Statistics for the year 1999.

Dr. R.J. Yadav, A.D.

- Awarded " **Prof. P. V. Sukhatme Award of ISMS**" for best published paper for the year 1999.

V Research Papers

Dr. Arvind Pandey, Director

1. Pandey Arvind and Abha R. Aggarwal (2000): Gender disparity in food intake among children and teenagers under 17 in Delhi, Paper in the *XVIII Annual Conference of the Indian Society for Medical Statistics* held at Central JALMA Institute of Leprosy, Agra, 18-20 November.
2. Otor Samuel and Arvind Pandey (2001): Child spacing in Sudan: An indirect estimation from the 1993 Census data, *In Dynamics of Population Change: Emerging Issues of Twenty-First Century*, (Eds.) R. C. Yadava, K.N.S. Yadava & K.K. Singh, Shipra Publications, Delhi, pp.47-52.
3. Pandey Arvind (2001): Recent levels and trends in infant and child mortality in India - Findings from the National Family Health Survey, Invited paper in the *Annual Seminar of the Indian Association for the Study of Population (IASP)* held at the Andhra University, Vishakhapatnam, 22-24 February.
4. Pandey Arvind & K.I. Shajy (2001): Clustering of child deaths in families in India: Evidences and differentials from two contrasting states, Kerala and Orissa, Paper in the *Annual Meetings of the Population Association of America* held at Washington DC, March 28-30.
5. Pathak K.B. & Arvind Pandey (2001): Estimation of induced abortion: An overview of indirect methods, Paper in the *Workshop on Abortion in Reproductive Health: Issues and Challenges*, Sponsored by the Ford Foundation and the International Institute for Population Sciences, Mumbai held at Mumbai, 22-24 January.
6. Pathak K.B., Arvind Pandey & K.I. Shajy (2001): A new method to assess the fertility impact of family planning with illustrative application to some selected states of India,

In Dynamics of Population Change: Emerging Issues of Twenty-First Century, (Eds.) R.C. Yadava, K.N.S. Yadava & K.K. Singh, Shipra Publications, Delhi, pp.268-281.

7. Pathak K.B., Arvind Pandey & T.S. Sunil (2001): An assessment of the systematic component of variation in the distribution of number of births, In *Proceedings of the National Seminar on Bayesian Statistics and Its Applications*, April 6-8, 1996, (Eds.) S.K. Upadhyay & U. Singh, Dept. of Statistics, Banaras Hindu University, Varanasi, India, pp.125-132.
8. Yadava R.C., Arvind Pandey & N.C. Saxena (2001): Methodological issues towards the estimation of the proximate determinants of fertility, Paper in the *National Seminar on Emerging Methodologies of Data Analysis and Related Inference*, Deptt. of Statistics, B.H.U. Varanasi, Feb. 5-7.
9. Arvind Pandey (2000): Status of child health and nutrition in India: Some observations from the National Family Health Survey, 1998-99 (NFHS-2), In *National Symposium on Child Health and Nutrition*, Department of Food and Nutrition, Maharaja Sayajirao University, Baroda, 21-23 December.

Dr. R.J. Yadav, A.D.

1. Yadav R.J. and Padam Singh (2000): Impact of diet and other factors on nutritional status amongst adult in Bihar, *Indian Journal of Preventive and Social Medicine*, Vol. 31, No 1&2,1-8.
2. Singh Padam and R.J.Yadav (2000): Immunisation status of children of India. *Indian Pediatrics*, Vol. 37, 1194-1199.
3. Singh Padam and R. J. Yadav (2000): Antenatal care of pregnant women in India, *Indian Journal of Community Medicine*, Vol XXV, No. 3, 112-117.

4. Valappil T., J.T. Wulu, R.J.Yadav and K.P. Singh (2000): Prevalence of AIDS in a cohort of gay men: A cross sectional study, *International Biometrics Society*, California, USA , 142 .
5. Yadav R. J. and Padam Singh (2000): Prevalence of nutritional deficiency signs among the people of Bihar, *Environmetrics*, University of Sheffield, U.K. Sept. 4-8.
6. Yadav R. J., Padam Singh, Anil Kumar and Sharad Kumar Mathur (2000): Immunisation status of children in UP, paper in XVIII , Annual conference of the Indian Society for Medical Statistics held at Central JALMA Institute of Leprosy, Agra, Nov. 18-20.
7. Yadav R. J. and Padam Singh (2000): Prevalence of protein energy malnutrition deficiency among the people of Bihar, *International Conference on Adolescent Reproductive Health: Evidences and Programme Implications for South Asia*, Mumbai, Nov. 1-4.
8. Yadav R. J. and Padam Singh (2001): Immunisation status of children and Mother in Bihar, *National Seminar on Emerging Methodologies of Data Analysis and Related Inference*, Department of Statistics, Banaras Hindu University , Varanasi, February 5-7.
9. Yadav R. J. and Padam Singh (2001): Antenatal care of pregnant women of India, *XXIV Annual Conference of the Indian Association for the Study of Population*, Andhra University , Vishakhapatnam, February 22-24.

Dr. R.K. Gupta, A.D.

1. Gupta R.K. (2001): Nutritional status of pre-school children and adults in four districts of Rajasthan - A comparative study, In *Statistical Methods and Application in Biology and Medicine*, 245-251, National Institute of Mental Health and Neuro Sciences, Bangalore, 2001.

2. Gupta, R.K. and Padam Singh (2000) : Occurrence of communicable diseases among children in Delhi slums in non-rainy season, Paper presented in the XVIII Conference of the Indian Society for Medical Statistics, Central Jalma Institute for Leprosy, Agra, November 18-20.
3. Gupta R.K. (2001): Occurrence of tuberculosis in Delhi slums-Factor analysis, Paper in the *National Seminar on Emerging Methodologies of Data Analysis and Related Inferences*, Department of Statistics, Banaras Hindu University, Varanasi from 5-7 February.
3. Gupta R.K. (2001): Nutritional status of pre-school children in some tribal districts of Rajasthan: Paper presented in the *National Seminar on Tribal Health in India: Present Status and Future Strategies*, National Institute of Health and Family Welfare, New Delhi, 8-10 February.

Sh. Anil Kumar, S.R.O.

1. Singh Padam & Anil Kumar : “ Is the norm of 2400,2100 Kcal per day and 2425 Kcal per cu appropriate” in the XVIII Conference of the Indian Society for Medical Statistics, Central Jalma Institute for Leprosy, Agra, November 18-20,2000.

Dr. Abha Rani Aggarwal, S.R.O.

1. Aggarwal Abha R. & Arvind Pandey (2000): Gender disparity in food intake among children and teenagers under 17 in Delhi, Paper in the *XVIII Annual Conference of the Indian Society for Medical Statistics* held at Central JALMA Institute of Leprosy, Agra, 18-20 November.

2. Aggarwal Abha and Padam Singh (2001): Analysis of adoption preferences of family planning methods through multiple logistic regression, *Indian Journal of Community Medicine (accepted for publication)*.
3. Singh Padam and Abha Aggarwal (2001): Nutritional assessment of residents of different types of colonies in Delhi, *Indian Journal of Nutrition and Dietetics (accepted for publication)*.

Dr. (Ms.) M. Thomas

1. Thomas M. (2000): EM Algorithm approach to estimate HIV intensities and incubation period from reported AIDS cases, *XVIII Annual Conference of ISMS*, Central JALMA Institute of Leprosy Agra, 18-20, Nov.
2. Thomas M. (2001): Prey predictor models to estimate the time to destroy CDu cells below the threshold level after HIV Infection, *International Conference on Developments in Statistics and Probability*, International Indian Statistical Association, India International Centre, New Delhi, December 29, 2000 January 2, 2001.

Dr. (Ms.) Tulsi Adhikari

1. Singh Padam and Tulsi Adhikari (2000): Estimation of exposure prevalence using case control design, In *International Journal of Epidemiology* (Communicated).
2. Singh Padam and Tulsi Adhikari (2001): Case control studies: Estimation of disease prevalence with assumed knowledge of exposure prevalence. In *Survey Methodology* (Communicated).
3. Singh Padam and Tulsi Adhikari (2000): Estimation of relative risk in case control design: Comparison of SRSWOR and inverse sampling, In *Journal of Epidemiology and Biostatistics* (Communicated).

VI Statistical Consultancies

Dr. Abha Rani Aggarwal, S.R.O.

1. Provided statistical consultancy to Dr. C.M.Chopra, a student of DNB, Venu Eye Institute, South Extension, New Delhi for his thesis “Change in Tear Film Break Up time in Soft and RGP lens wearers” .
2. Providing consultancy to Dr. Ruma Pukrait , lecture in Sagar, M.P in rectifying the comments received from the referee on her paper on discrimination of right and left bone of arm.
3. Provided sample size determination to Dr. Jhenja, MRC,for the project Population based longitudinal study to assess effectiveness of combination therapy over mono therapy to be submitted in WHO.
4. Provided Determination of Sample Size to Dr. Neena Valecha, MRC for her project Field Evaluation of ICT Malaria Pf/Pv immunochromatographic test in India.
5. Provided consultancy to Dr. Arti Roy and Dr. Ansari , M.R.C, New Delhi.
6. Provided statistical consultancy (Diagnostic Analysis) for her two research papers on “field Evaluation of Optimal rapid malaria diagnostic test in different epidemiological situation in India.”

7. Provided comments for the project submitted by DMRC “ Estimation of Morbidity Profile of Textile Industry workers by statistical Modelling”
8. Provided comment on the research paper “ A Computer Oriented Statistical Study of Cartography in Covariates of Mortality upto age of five years for Indian states.
9. Provided comments on “ Addressing the Problem of External Brain Drain in India”
10. Provided consultancy to Dr. Ruchi Goel, Consultant, Department of Ophthalmology Safdarjung Hospital for her research paper on” Comparison of post operative Astigmatism between small incision cataract surgery (6mm) and Phaco emulsification by clear corneal 4mm section”.

STAFF LIST

Director	<i>Prof. Arvind Pandey, M.Sc, PhD, FSMS</i>
Deputy Director (SG-II)	<i>Dr. I.M.S. Lamba, M.Sc, MS, PhD</i>
Deputy Director	<i>Dr. S.C. Mehta, M.Sc, PhD</i>
Assistant Director	<i>Dr. R.J. Yadav, M.Sc, P.S.C, PhD</i> <i>Dr.. S.K. Benara, MD</i> <i>Dr.. R.K. Gupta, M.Sc, PhD</i>
Senior Research Officer	<i>Mr. Anil Kumar, M.Sc</i> <i>Dr. (Ms. M. Thomas, M.Sc, PhD</i> <i>Dr. (Ms.) Abha Rani Aggarwal, M.Sc, PhD</i>
Data Processing Officer	<i>Mr. Ashok Kumar, M.Sc</i>
Admn. Officer	<i>Mr. B.S. Sharma</i>

Private Secretary	<i>Ms. Poonam</i>
Technical Officer	<i>Mr. N.L. Sharma Mr.. H.C. Joshi Mr.. S.K. Mathur Mr.. Tejpal Singh Mr. K.L. Badolia</i>
Senior Investigator	<i>Mr. Vinay Kumar Mr. Suman Kumar Bara Ms. Usha Rani Gupta</i>
Statistical Assistant	<i>Mr. Rajendra Singh Awana Mr. Bhagirath Lal Dr. Tulsi Rani Adhikari Ms. Sunita Mr. Charan Singh</i>
Data Processing Assistant	<i>Mr. Ajay Kumar Sharma Ms. Parminder Paul</i>
Data Entry Operator (Grade-D)	<i>Ms. Sita Sinha Ms. Sudarshan Khanna Ms. Kamal Anand Mr. Rajender Singh Sharma Ms. Kailash Bajaj</i>
Library Assistant	<i>Mr. Naresh Aggarwal</i>
Field Investigator	<i>Mr. Gurmeet Singh Mr. Shiv Kumar Mr. Parmatma Mahato</i>
Data Entry Operator	<i>Mr. Prem Chand</i>

(Grade-B)

Ms. Indira Rani
Ms. Geeta Sharma
Ms. Parmila Toppo
Ms. Madhu Mehra
Mr. Kapil Gautam

Field Assistant

Mr. R.K. Yadav

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Section Officer

Mr. R.S. Chadha
Mr. L.R. Chuttani

Assistant

Mr. BalRaj
Mr. Raj Kala
Ms. Shalini
Ms. Amarjeet Kaur
Mr. Mukesh Kumar Kaushik

Personal Assistant

Ms. Usha Gulati

Upper Division Clerk

Ms. Kusum Luthra
Mr. B.M. Malhotra

Stenographer

Ms. Satvinder Kaur

Lower Division Clerk

Mr. Ramesh Gupta
Mr. Shankar Lal

SUPPORTING STAFF

Senior Driver
Driver

Mr. Shish Pal
Mr. Desh Bandhu

Daftary

Mr. D.D. Manjhi

Peon

Mr. Des Raj (Working As Driver)

Mr. Ram Pal

Mr. Dharmaveer Singh

Mr. Gopi Chand

Mr. Gyan Chand

Mr. Ramesh Chand

Mr. Jagili Sabar

Farash

Mr. Ram Nath

MR. Vijay Chand

Sweeper

Mr. Vimal Kumar

Ms. Raj Mala