

# N I M S

## Annual Report 2005 - 06



**National Institute of Medical Statistics**  
(Indian Council of Medical Research)  
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## PREFACE

This gives me immense pleasure to share the activities done by the institute in last one year. I am happy and proud to present the annual technical report of the Institute, which has been recently named as National Institute of Medical Statistics (NIMS). Prof. N.K.Ganguly, DG, ICMR formally declared the Institute renamed on November 9, 2005 in presence of previous directors of Institutes - Dr. A.D.Taskar, Dr. S.S.Verma and Dr. Padam Singh. During the reporting period, renovation of the old office building was completed by UP Rajkiya Nirman Nigam Ltd. The new building has a modern conference room and training room with Internet facilities.

The institute organized five training workshops viz. (i) Summer training program for students (M.Sc. Statistics) of Banaras Hindu University and Kurukshetra University, (ii) Estimation of number of orphans and vulnerable children due to HIV/AIDS in collaboration with USAIDS future groups for scientific staff of the Institute (iii) Statistical Methods in Clinical Trials for technical staff of Central Council for Research in Ayurveda & Siddha, New Delhi (iv) National Workshop on Issues concerning large scale surveys on health and nutrition which was attended by renowned professionals from different institutes of India; (v) three regional sensitization-cum-capacity building workshops on Health Sector Policy reform option (HS-PROD) data base for state level officials and representatives from non-governmental organization was organized. The online database is being developed for Central Bureau of Health Intelligence, MOHFW, with assistance from European Commission Technical Assistance (ECTA), New Delhi. For capacity building, institute deputed several scientists to various national and international workshops.

During the reporting year, the Institute handled eighteen research projects; of which seven have been completed and eleven are ongoing. Most of the projects are extra-mural, supported by organizations such as ICMR, National AIDS Control Organization (NACO), UNAIDS, UNICEF, World Food Programme (WFP), DGHS, Govt. of Delhi, CARE-India, EPOS, New Delhi, Family Health International (FHI), New Delhi; Bill and Melinda Gates Foundation (BMGF) India and Department of Biotechnology (DBT), Department of Science and Technology, National Institute of Communicable Disease and National Commission on Population, MOHFW.

Some of the salient findings of the completed projects of the institutes contained in the annual report may be useful for researchers, programme planners and policy makers. The study on Impact Assessment of ICDS Food Fortification in state of Madhya Pradesh was reported as complete. The study showed significant decline in prevalence of clinical sign of Bitot Spot between the control and experimental group, the number of severely malnourished children also reduced significantly. The Point Prevalence of Tuberculosis among Mw vaccinated population at Ghatampur, Kanpur is reported as completed The study found that two doses of killed Mw vaccine administered at a interval of six months to healthy contacts leprosy cases appear to have prophylactic role in the prevention of pulmonary tuberculosis. The study was done in collaboration with JALMA, Agra. Another collaborative study done with the Institute of Cytology and Preventive Oncology, (ICPO) NOIDA, on bio-behavioral risk factors associated with cervical cancer in collaboration with was reported as complete. The study reviewed the risk factors associated with cervical cancer and screening techniques and the abridged version of the review has been published in an indexed journal.

The study on causes of death by verbal autopsy in Rajasthan and Bihar was reported as complete. The study found that 80% of total deaths were due to four major causes, infection and parasitic diseases, respiratory disorder circulatory disorder. The study is supported by ICMR. The institute successfully completed a study that examined the components of under-five mortality during 1978–2002. The analysis shows decline in under-five mortality in India during the period 1978–2002. The study concluded that India might not be able to achieve the set target of 30 by 2010 unless extra effort through RCH services is put into place. Another study, which is reported complete, is treatment seeking behavior and reporting pattern of patients to health services centre in two selected districts of Assam for fever. The study was undertaken by RMRC, Dibrugarh, while analysis and report writing was done in the Institute. Delay in accessing health care services for fever was more among people living in foothills than plains. The major reasons for delay in accessing health facilities in rural areas was due to poor financial status, lack of transport facilities and prior work commitment. The sixth study reported as complete is an explorative study done to assess the level of job satisfaction among scientists working in various institutes of ICMR. The response rate was above 85% and the report has been submitted to ICMR.

The eleven *ongoing studies* are (i) Analysis of data of India's District Household Survey (DHS) under RCH programme (ii) Impact Assessment of ICDS Food Fortification in the State of Uttaranchal, (iii) Health Sector Policy Reform Options Database (HS-PROD), (iv) HIV Estimation and Analytical Study of HIV Sentinel Surveillance Data 2005 (v) Integrated Analysis of HIV/AIDS Epidemic in India (vi) Estimation of Mortality due to HIV/AIDS (vii) Estimation of Orphans and Vulnerable Children (OVC) due to HIV/ AIDS, (viii) Integrated Behavioral and Biological Assessment (IBBA) National Highway Segments (ix) Statistical Modeling of HIV/AIDS Epidemic (x) Development of Health Research Information System. (xi) Infrastructure and Capacity Building for Clinical Trial Registration.

Findings of the research projects and related methodological developments are disseminated in the form of research papers/concept papers in national and international conferences/symposia. Papers are also published in journals and books of national and international repute.

Arvind Pandey  
Director

## 1. INTRODUCTION

The institute started its humble beginning in 1977. Over the years it has grown in stature due to its contributions in the field of Behavioural sciences and epidemiology and this led the Indian Council of Medical Research (ICMR), New Delhi, to rename the Institute of Research in Medical Statistics (IRMS) to National Institute of Medical Statistics (NIMS). Prof. N.K. Ganguly, Director General, ICMR formally declared the Institute renamed on 9 November 2005 in the presence of former directors of the Institute- Dr. A.D. Taskar, Dr S.S. Verma and Dr. Padam Singh.



IRMS building - Old



NIMS building - New



Renaming ceremony



The institute is engaged in wide spectrum of research, which ranges from core areas of statistics, cancer epidemiology, nutrition, infectious diseases, morbidity and mortality, reproductive and child health, research methodology for behavioral and clinical trials and sampling methodology. It works closely with the National AIDS Control Organization (NACO), Govt. of India for the estimation of HIV burden in the country. It has been associated with the expert group on population projection at the Office of the Registrar General of India. In addition, the institute organizes capacity building programmes throughout the year for the staff of ICMR, other institutes of national and international repute, non-government organizations and students from various colleges and



universities spread across northern and northeastern part of the country. Besides, the institute provides technical support for the evaluation of national programmes carried out by the Ministry of Health & Family Welfare and other line department. NIMS also provide technical support to international organizations including WHO & UN agencies. Being the only Institute of Medical Statistics, the staff of the institute works closely with policy issues surrounding health. The Institute proposes to start National Clinical Trials Registry.

During the reporting period, the renovation of Institute building was completed by UP Rajkiya Nirman Nigam Ltd. The Institute now has an excellent conference hall with a capacity to accommodate 60 persons, training room with Internet facility and an excellent library. All scientific staff of the Institute has access to Internet facility at their desk.

The report is divided into six sections, namely, Trainings/Workshops, Projects, Publications, Capacity Building of Scientists, Statistical Consultancy, NIMS Library, List of Members of Scientific Advisory Committee (SAC), List of Ethics Committee and List of Officers of the Institute. The projects of the institute are arranged into 5 groups –Policy and Programme Evaluation, Epidemiology, Modelling and Statistical Commuting, Data Management and Others.

## 2. TRAINING/WORKSHOPS

May 20 – July 6, 2005

Summer Training on Applied Statistics was organized for the students of M.Sc. (Statistics) from Benaras Hindu University (BHU), Varanasi. The students prepared a document as course assignment.

August 24 - 25 2005



Sitting on dias from the left:  
Dr. Arvind Pandey, Director, IRMS; Ms. Shubra Singh, Director NRHM; Dr. Ashok Kumar, Director, CBHI and Dr. Paula Quigley, ECTA, New Delhi.

Organized the first regional “Partnership Workshop on Health Sector Policy Reform Options Database (HS-PROD) “ for state level officials and officers of state units of Central Bureau of Health Intelligence, MoHFW and non-governmental organizations was organized in Delhi. The two-day workshop was organized at ICPO, Delhi and attended by representatives from northern states- Rajasthan, Madhya Pradesh, Delhi, Haryana, Himachal Pradesh, Uttranchal and Jammu & Kashmir. The objective was two-fold: (a) sensitize the participants about the website that contains examples of state/district/ local initiatives to improve delivery and management of health care services. (b) Collate information on state level initiatives to improve the health of the population. The workshop was inaugurated by Ms. Shubra Singh, IAS, Director NRHM, and attended by 100 participants. The website is a property of CBHI. The funds were made available through MoHFW and European Commission Technical Assistance (ECTA) provided technical support.

September 26-30, 2005



Dr Abha Aggarwal at the centre taking the lecture on statistical methods

Organized training programme on “Statistical Methods in Clinical Trials” for the forty scientists from Central Council of Research in Ayurveda and Siddha (CCRAS), New Delhi. The training programme was organized at CCRAS premises. The topics covered were statistical considerations used in clinical trials, randomization, blinding, determination of sample size for testing Bioequivalence, emphasizing multi-centric trials and interim analysis; different statistical packages including SPSS was also covered.

December 6-8, 2005

Organized a workshop on “estimating the number of orphans and vulnerable children (OVC) due to HIV/AIDS” in collaboration with USAID and Future group. John Stover, USAID facilitated the workshop.

December 9-10, 2005



NIMS HS-PROD Team

Second Regional Partnership workshop on HS-PROD was organized at State Institute of Health and Family Welfare, Bangalore for representatives’ from states of Andhra Pradesh, Karnataka, Kerala, Tamil Nadu, Gujarat and Goa. Representatives made presentations on various strategies being used by their states to improve the management of health services. Participants were given a chance to surf the website and give suggestions to improve the same. Shared the proceedings of the workshop with the participants and the project partners.

December 19-20, 2005



From the Left: Dr. Arvind Pandey, Director NIMS; Dr. Mona Sharma, IAS, DWCD, GoO; Dr. Kar, Director RMRC, Bhubaneswar and Director-PBRSTI.

Third Regional Partnership workshop on HS-PROD was organized at Prasar Bharati, Regional Staff Training Institute, Bhubaneswar with logistic support from Regional Medical Research Centre, ICMR, Bhubaneswar. Fifty participants from the states of Orissa, West Bengal, Bihar, Jharkhand, Chhattisgarh, and north eastern states. Each of the representatives made presentations on various strategies being used by their states to improve the management of health services. Ms. Mona Sharma, IAS, Secretary DWCD, Govt. of Orissa inaugurated the workshop. Participants were given a chance to surf the website and give suggestions to improve the same. Shared the proceedings of the workshop with the participants and the project partners.

January 10-18, 2006



Prof. Hari Dayal from Texas University along with Dr. Arvind Pandey, NIMS Scientists and the students from Kurukshetra university.

Organized training workshop on Medical Statistics for Post-Graduates (Statistics) students from Kurukshetra University. The topics covered: research methodology, Sampling Methodologies, Survival Analysis etc. Prof. Hari Dayal, Medical Branch, University of Texas, USA introduced the students to Bayesian Statistics, Clinical Trials and Pooled Analysis.

February 3-4, 2006



The workshop being inaugurated by Prof. N.K. Ganguly, Director General, ICMR

Organized national workshop on Issues Concerning Large Scale Surveys on Health & Nutrition. The objectives were: (1) to prepare a document on various surveys undertaken on Health and Nutrition enlisting the problems and their management, and (2) to share experiences in conducting and dissemination of information on large-scale surveys with the experts and researchers. The papers presented covered following areas UNICEF Multiple Indicator cluster surveys, Health Surveys by NCAER, National Sample Survey (NSSO) Experience, National Family Health Survey (NFHS), District Level Household Survey Under RCH Project, Youth in India: Situation and Needs Study, Information on Health Status through Sample Registration System (SRS), Nutrition Survey Methodologies with Special Reference to Anemia etc. The Institute received financial support from WFP, EPOS and CARE-India. There were about 50 participants to the workshops who were both data users and data producers. Prof. N.K. Ganguly, DG, ICMR inaugurated the workshop. Institute is going to publish the proceedings after reviewing the research papers.



### **3. SCIENTIFIC PROJECTS**

#### **A. POLICY & PROGRAMME EVALUATION**

##### **Completed Studies**

#### **1. Impact Assessment of ICDS Food Fortification in the states of Uttar Pradesh.**

In order to assess the impact of ICDS food fortification, a baseline and end line survey was undertaken in two blocks of the Kanpur Dehat district, UP. The objective was to examine the prevalence of iron and Vitamin-A deficiencies among children aged 6-59 months using clinical and biochemical indicators in intervention as well as control block. In addition, the project also monitored the supplementation programme. The study was supported by WFP

From each of the 2 blocks, 30 clusters were identified and from each 25 children were selected for clinical assessment of Bitot spot and Anemia. On the whole, the total sample size for clinical assessment was 1500 and for 300 cases blood /biochemical test was done. The salient features of the study are as follows:

- There is considerable improvement in the prevalence of any anemia in both the blocks. Though, significant decline in anemia was noticed in intervention block.
- Significant improvement in Vitamin A deficiency among children at the end line stage in both the blocks.
- Significant decline in the incidence of diarrhea in both the blocks.
- The percentage of severely malnourished children reduced significantly in both the blocks from base line to End line.
- In both the blocks, decline in prevalence of clinical signs of Bitot's Spot was observed. However, significant difference was observed in intervention block vis-à-vis control block.

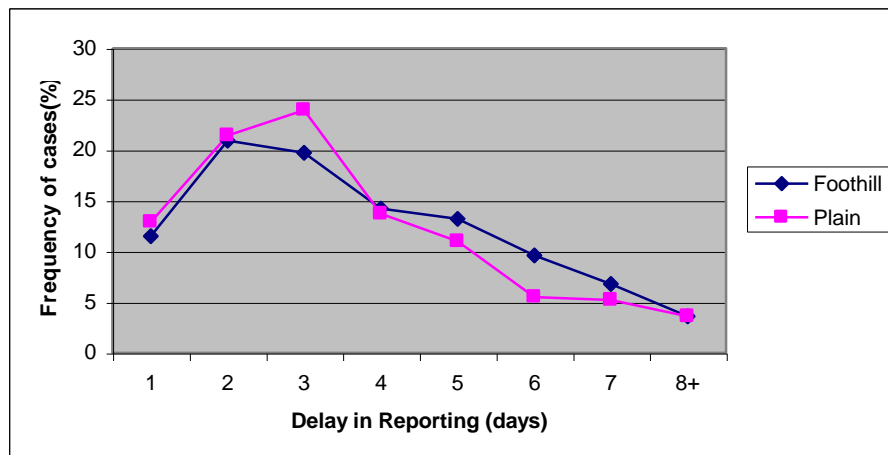
#### **2. A Study on treatment seeking behaviour and reporting pattern of patients to health service centers especially with fever symptom**

The study aimed to understand health/ treatment seeking behaviour of people suffering from fever in two districts of Assam. The fieldwork was undertaken by RMRC, Dibrugarh in the year 2003-05 and data analysis and report writing was done in the Institute. The survey covered 1,989 households who had recently (within 3 months) taken treatment for fever/malaria.

The study found that the patients suffering from fever first approached /consulted Ojha for Tantra & Mantra, Traditional Vaidya, sacrificed birds and performed secret Puja before coming to health centre for treatment. The common symptoms associated with fever were cough and cold (89%), headache (68%), shivering (23%) and vomiting (32%). Though people were aware of malaria symptoms, but they did not consider it important to undertake blood test to confirm the fever; nor

do they understand the need to take early treatment. They also lack adequate knowledge about ways to prevent the spread of malaria. About 40% of the fever cases were observed/treated at home for more than 3 days. During the period, sick patients were given home made medicines (8%), taken to local doctors (6%) and health worker (3%) and about 18% purchased medicines from medical store directly. Delay in reporting to the health center was observed more among households in foothills than those from plains (see the fig 1). The reasons cited for delay in visiting a health centre was difficulty in arranging money for the treatment (37%), lack of transport (15%), not getting leave (5%) and prior commitment of work (22%). While, 36 % of households took fever patients to health centre only when they perceive the condition to be serious. It was the senior family member or males in the household who decided on whether to visit health center or not.

Figure 1: The delay in reporting pattern of household fever cases to health centers.



Indoor patients at government and private hospitals seem to be satisfied (87.7%) with nursing and care. However, 53.4% of patient's reported unsatisfied of medicines supply and this was reported more by patients admitted in the Govt. health centre than private health centre

Strengthening the Govt. health service centers, especially in rural areas like PHC/Community Centers/Sub-Centers needs to be given priority. Initiative to start more health centres with public private partnership can also be encouraged. Regular community health education programs in rural areas could encourage people to seek health services for fever without much delay. The employers, who are mainly tea garden owners, should be encouraged, to provide paid leave to their employee suffering from fever.

## Ongoing Studies

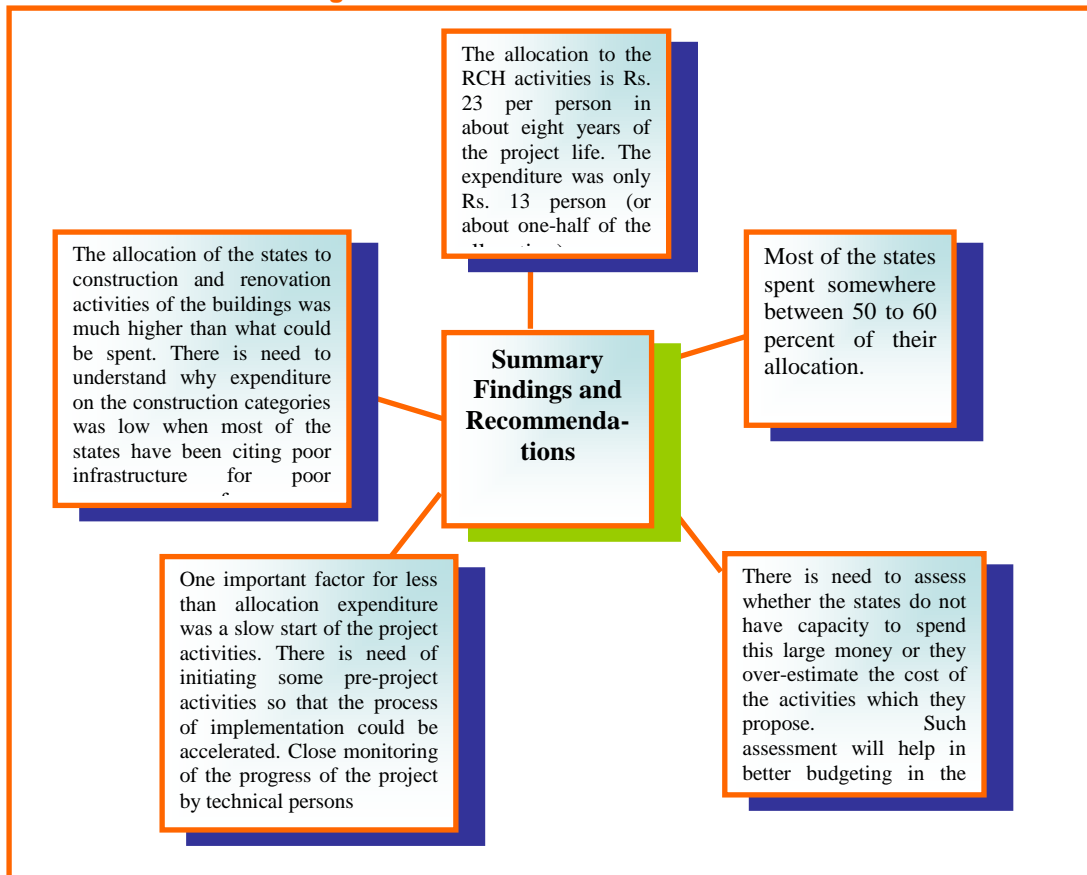
### 3. Impact Assessment of ICDS Food Fortification in the State of Uttarakhand

The objective of the study is to determine the baseline prevalence of iron and Vitamin-A deficiencies among children aged 6-59 months using clinical and biochemical indicators for the state of Uttarakhand. The study proposes to do a baseline survey followed by end line survey in two blocks of Uttarakhand to assess whether ICDS food fortification has been able to reduce prevalence of iron and vitamin A deficiencies. Besides, the study also monitored the supplementation programme. The study was supported by WFP. The baseline survey is completed. At present, analysis of end line dataset is in progress.

### 4. Analysis of data of India's District Level Household Survey (DLHS) under RCH programme finding out the impact of first phase of RCH programme

The objective of the study was to review the RCH Programme and assess the impact of the same. The methodology was to analyze the DLHS data collected during the two phases (1998-1999 and 2002); identify the common districts covered in the two phases; analyze the health status of the country in these two periods based on the indicators. The study is supported by the MOHFW.

#### Schematic diagram on allocation of RCH funds and utilization



The project has finalized the indicators through consultative meetings with experts. An appraisal of the RCH programme inputs was made. Two hundred and seventy nine (279) districts have been identified as common in the two phases. Tabulation plan for the analysis by linking various inputs with the output indicators finalized. The analysis is in progress. First chapter of the report is completed which describes the allocation of funds and resources to different RCH activities and its utilization.

## **5. Integrated Behavioral and Biological Assessment (IBBA) National Highway Segments**

The study is supported by Bill and Melinda Gates foundation. Family Health International (FHI) is providing technical support.

The objectives of the study are as follows:

- Measure trends in key behavioral and biological indicators among the Avahan target groups to provide feedback to programs
- Make available data that will be used for estimating sizes of populations targeted by the project
- Provide selected data for impact modeling

The Key indicators are as follows:

### Behavioural

1. Sexual risk behavior including number and type of sex partners (“commercial”, “regular” & “non-regular”)
2. Condom use with different types of sex partners
3. Other practices related to condom use & safe sex
4. Drug & substance use (including injecting & equipment sharing)
5. Exposure to Avahan & other HIV/AIDS prevention interventions

### Knowledge

6. Knowledge of STIs & STI care-seeking behaviors
7. Knowledge & attitudes toward HIV/AIDS
8. Perception of HIV & STI risk

### Mobility

9. Mobility patterns influencing sexual behavior and risk
10. Biological Indicators
11. STI prevalence
12. HIV prevalence
13. HIV incidence (BED-CEIA validated for Indian sub-type C)

The study population consists of truck drivers/helpers aged 18 years and above who travel more than 800 km on a single trip along the identified national highway corridors. The proposed survey plans to collect data from the drivers waiting at transshipment locations (TSL) where various transport establishments (booking agents/transport companies) have their offices. The sampling methodology has two stages- primary sampling units (PSU) are the transport establishments/brokers/transporters/fleet owners and from these offices truckers would be selected. Time location cluster sampling (TLCS) will be used to sample out of long distance truckers/helpers from PSUs, i.e., the truckers who are operating through the selected brokers. The total sample size sample size of truck drivers is 3000 drivers and 500 helpers.

At present pre-survey assessment of the study is being planned before the execution of sampling framework development and tool for the main survey is undertaken.

## **B. EPIDEMIOLOGY**

### **Completed Studies**

#### **6. Point Prevalence of Tuberculosis among Mw Vaccinated population of Ghatampur, Kanpur**

The study was carried out in collaboration with JALMA, ICMR, Agra, during 2001-03. The study was funded by Department of Biotechnology, Government of India. A brief discussion of the study is as follows:

- A house-to-house survey was carried out 10 to 13 years after vaccine, to identify and subsequently treat cases suffering from pulmonary tuberculosis in the defined population.
- The net target population was 23,261 of which 11,520 were in the vaccinated group and 11,741 were in the placebo-administered group.
- About 74% of the population could be examined and 69 cases of pulmonary tuberculosis patients were identified.
- Twenty-nine cases belonged to vaccinated group while 40 cases were from the placebo-administered group.
- Eighteen cases were new sputum smear positive cases (Category I) of which 5 were from the Mw vaccinated group and 13 were from the placebo-administered group. The protective efficacy for this type of TB patients has been estimated as 62%.
- The rest of the cases, i.e. 51 cases have taken treatment irregularly earlier and belonged to Category II.
- On analyzing the records as well as old history and clinical examination of the defined above population, 137 patients were diagnosed as having suffered from pulmonary tuberculosis during the intervening period of 1992-2001 (53 in the vaccinated group and 84 in the placebo administered group)
- The occurrence of pulmonary tuberculosis was significantly lower in the Mw vaccinated group as compared to placebo-administered group.
- All the patients responded to DOTS, and no case of drug resistant tuberculosis was found in the area.



- It was observed that contacts suffered from leprosy did not suffer from pulmonary tuberculosis and vice-versa.
- Two doses of killed Mw vaccine administered at an interval of 6 months to healthy contacts of index leprosy cases appears to have a prophylactic role in the prevention of pulmonary tuberculosis in the area.

## **7. An exploratory study related with bio-behavioral risk factors associated with cervical cancer**

The objective of the study is to review the risk factors associated with cervical cancer and also review the screening strategies used for the control of the same. Carcinoma of the cervix is one of the leading malignancies in the developing countries including India. The data generated through the National Cancer Registry Program of ICMR shows that breast and cervix cancer accounts for about half of the total cancer in females.

Review of the Risk factors associated with cervical cancer is completed. The work has been published in peer-reviewed journal. The review of the risk factors is based on the data available from the developed countries, which rely mainly on cytology screening on regular basis. The important life styles factors associated with cervical cancer which are amenable to primary prevention strategies such as health education are, early sexual debut, multiple sexual partners, menstrual hygiene and unprotected sex. These factors are essentially conducive to the transmission of an etiological agent; the high-risk type of human papilloma viruses, the more proximal cause in the web of causation. Barrier method of contraception and prophylactic vaccine in future could help to check the transmission of the virus. Role of smoking and oral contraceptives was also examined. Thus, review of literature shows that, till the facilities for mass scale screening are developed in developing countries, the primary prevention approaches could certainly help to check the incidence of the disease.

Currently, review of the screening strategies is in progress. The aim is to identify appropriate strategies that could be adopted in countries like India where resources are scarce but female susceptible to such cancer is quite large. Hence, alternate strategies need to be examined on the basis of relative efficiency. Hospital based opportunistic screening has been considered as one of the initial approaches that could be adopted. Unaided and aided Visual inspection of the cervix is one of the strategies that could be adopted for the community settings. The procedure has been improved by applying 5% Acetic acid to the cervix and then carrying out visual inspection, the procedure has been termed as VIA. Various studies carried out in different parts of the world have demonstrated that with the application of acetic acid, the specificity improves to about 75%. This could be considered as the optimum strategy in developing countries. It has also been demonstrated that the paramedical workers could be trained to view the cervix. HPV screening has been demonstrated as the most efficient strategy in developed countries, which could be adopted on limited basis in Indian settings. Various methodological issues related with different strategies have been discussed.

## Ongoing Studies

### 8. Integrated Analysis of HIV/AIDS Epidemic in India

This project was taken up with the following objectives:

- To gain comprehensive understanding of the factors that have largest impact on HIV epidemic in India
- To understand the data requirements for using models to estimate the HIV trend and its impact parameters.
- Models to be used for assessing the level of behavior change that has to be achieved in order to get desirable control of the epidemic. Models will also help to understand the care and support needs including treatment for adults and children

UNAIDS has developed new packages like Estimation and Projection Package (EPP), Spectrum and AIDS Impact Models (AIM) that helps to understand the dynamics of HIV/AIDS epidemic. However, the specific data required for using these models effectively are rarely available due to the sensitive nature of the epidemic characteristics. In the absence of reliable information on these parameters, an attempt has been made to incorporate current HIV estimation procedure in the package and study the epidemic spread in STD and ANC population. WHO supports the project.

The study is in progress. The expert group on model based estimation of HIV burden in India suggested to disaggregated estimates at state level and to utilize the data generated at state level more effectively. Capacity building of the state for the use of the models was also mentioned. It was decided that initially four regional Institutes would be capacitated in order to partner with the Institute for implement the activity at state level. Accordingly, a workshop was organized to train scientists from five Institutions, International Institute for Population Sciences, Mumbai for West; National Institute of Epidemiology, Chennai for South; PGI, Chandigarh for North and RMRC, Dibrugarh for East and North East. Capacity building of the states with respect to the estimation of HIV burden will basically concentrate on (a) Indian system of HIV surveillance (b) Areas of small research required with guidelines to improve the surveillance (c) Increase the ownership of data by the states and (d) Quality of surveillance through effective monitoring. At National level NIMS compared the HIV estimate using three approaches and the comparison of models for assumptions used in each and the methodology is in progress.

## C. MODELLING & STATISTICAL COMPUTING

### Completed Studies

#### 9. Baseline Information and Projection on Maternal and Child Health Condition in India

The present investigation aimed to study the changes in each of the components of under-five mortality (U5MR) during the period 1978–2002; analyze the factors associated with the apparent stagnation of child mortality rate in India and develop projection scenarios of the Infant Mortality Rate (IMR) and U5MR by

states by the year 2016. The study also examined the impact of utilization of antenatal and natal services on neonatal mortality. The study was partially supported by National Commission on Economics and Health, MOHFW, Govt. of India.

The trend of U5MR in India and its states have declined during the period 1978-2002. However, the pace of decline has not been constant; it has sometimes slowed down or stagnated and at times it has increased. Analysis of two rounds of National Family Health Survey (NFHS-1, NFHS-2) depicted an inverse relationship between child mortality and the socio-economic factors including education of mother and standard of living of the household. Keen observation of child mortality data revealed that the differences in child mortality continued even after controlling the effect of socio-economic status of the household. The differences in child mortality can be attributed to complex set of social, economic and biological factors. In addition, the decline in child mortality could also be a result of programme factors such as public health reforms, access and quality of health care services and community mobilization.

The trend in IMR for the country over the past 25 years revealed that the share of neo-natal mortality has remained more or less constant but an appreciable decline was observed in case of post-neonatal mortality. The decline in post-neonatal mortality may be due to strengthening of antenatal, natal and delivery care interventions. Further, a rapid decline observed in IMR and U5MR during 1980-90 was followed by a period of stagnation from 1993, as it was hovering around 72 per thousand live births. The stagnation indicates that the programmes addressing reduction in child mortality were not effective in reducing the IMR as a large proportion of infants were dying in neonatal stage. Thus, the programmes such as Reproductive and Child Health (RCH) programme, immunization programme and ICDS were not really geared towards capturing infants dying during the neonatal stage. The other reason of IMR stagnation could be inadequate access to health and other types of services among disadvantaged/vulnerable groups.

The study concluded that India would not be able to achieve the set target of 30 IMR by 2010 unless concerted efforts are made to improve the content and quality of RCH services and concentrate on community mobilization strategies. In addition, economic and social reforms should continue along with programme interventions so as to bring about appreciable reduction in IMR and child mortality in the near future.

## **10. Causes of Death by Verbal Autopsy**

The objectives of the study was to first know the socio-economic profile of households that have reported maternal and neonatal deaths in the two states, namely Bihar and Rajasthan and second to assess the probable causes of deaths. The funding was made available by ICMR.

In each of the two states, the study covered urban and rural population on a sample basis. In all, 180 clusters, 49 wards from urban, 131 villages from rural areas were selected. In the selected cluster, information on deaths during reference period (January-December) was collected. Information on possible medical causes of death, including stillbirth was collected using verbal autopsy

through a detailed questionnaire. The questionnaire also had a module on socio economic factors contributing to causes leading to death.

Total population covered in Rajasthan was 3, 25,614. The cause specific analysis, based on ICD-10 classification, revealed that 80 per cent of total deaths were due to four major causes, infectious and parasitic diseases (56%), respiratory disorders (22%), circulatory disorders (13%) and sign and symptoms disorders (10%). It was also observed that infectious and parasitic diseases accounted for 56% of the deaths in the age group of 1-5 years. The common causes of stillbirths were disorders related to short gestation period and low birth weight, ante-partum hemorrhage in the mother, anemia, obstructed labour, premature rupture of membrane etc. The leading causes of neonatal deaths were disorders related to short gestation period followed by pneumonia, tetanus neonatal, birth asphyxia, diarrhoea and gastroenteritis of presumed infection origin and others. The post-neonatal deaths were predominantly result of diarrhoea and gastroenteritis followed by pneumonia, injury, fever and protein energy malnutrition. The causes for maternal deaths were post-partum hemorrhage followed by anemia, and others. Both post-partum hemorrhage and anemia could be easily prevented by proper obstetric care. The study reinforces a need to have emergency obstetric care centers at first referral units, especially in rural areas.

### Ongoing studies

#### 11. HIV Estimation and Analytical Study of HIV Sentinel Surveillance Data 2005

The institute is involved in HIV estimation since 2002 when NACO invited the Institute to Review the HIV estimation methodology and validate the assumptions, provide estimate HIV burden in the country every year based on HIV sentinel surveillance (HSS) data. Since 2002, the Institute along with National Institute of Health and Family Welfare (NIHFW), New Delhi is carrying out independent analysis of HSS data to minimize error. The assumptions on urban-rural and male-female ratio in respect of HIV infection and STD prevalence used for estimation since 1998 had been validated on the basis of sentinel surveillance data and community based survey on STI prevalence in the year 2003. Before the release of HIV Estimates, NACO and ICMR jointly convene a series of meetings with a group of experts consisting of eminent Epidemiologists, Bio-statisticians and experts from international organizations such as WHO, UNAIDS etc.

The population considered from all the risk groups included only the age group 15-49 so that the HIV estimate derived is for the adult population prone to be exposed by high-risk behavior and/or exposed to bridge population. However, the newborn HIV children are also estimated using the information on infected mothers. Following table gives the assumptions that have been used to estimate HIV burden of the country.

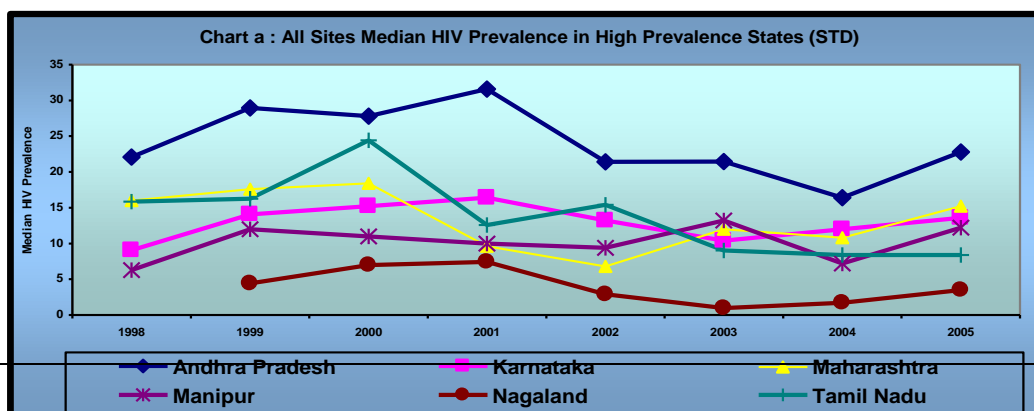
Assumptions used in HIV estimation

STD	Assumptions/Epidemic Zone
-----	---------------------------

Prevalence		1998-2002			2003-04		
		High	Moderate	Low	High	Moderate	Low
	Urban	10%	7%	5%	6%	6%	6%
	Rural	5%	5%	5%	6.3%	5%	5%
Urban-Rural Differential in HIV prevalence	Assumptions/Epidemic Zone						
		1998-2002			2003-04		
		High	Moderate	Low	High	Moderate	Low
	STD	3:1	3:1	3:1	1:1	1:1	1:1
	ANC	8:1	8:1	8:1	2.4:1	2.4:1	2.4:1
Male-Female Differential in HIV prevalence STD attendees	Assumptions/Epidemic Zone						
		1998-2002			2003-04		
		High	Moderate	Low	High	Moderate	Low
		1.2:1	2:1	3:1	1.2:1	2:1	3:1
Replacement for 'zero' prevalence	Average Prevalence of Low Prevalence States						
		1998-2002		2003	2004	2005	
	STD	1.6		1.61	1.43	1.32	
	ANC	0.5		0.32	0.25	0.169	

In 2005, the total number of sentinel sites was 704, which included 175 STD sites, 268 ANC sites, 30 IDU sites, 18 MSM sites, 83 FSW sites, 126 ANC (rural) and 2 TB sites, 1 Military Recruitment Group (MRG) and 1 Eunuchs site. IDU, MSM and FSW sites include targeted intervention sites. The HIV estimates are derived on the basis of HIV prevalence observed from STD, ANC, IDU, MSM and FSW sites. ANC rural sites are included for studying the epidemic characteristics in rural area. They are not included for estimation as the people from both urban and rural areas are attending usual sentinel sites. The HIV estimates for the year 2005 are based on information available from 532 out of 574 sentinel sites where more than 75% of the sample size was covered. This includes 157 STD sites, 261 ANC sites, 25 IDU sites, 17 MSM sites and 72 FSW sites. The estimated HIV infection for the year 2005 is 5.206 million. In addition, estimate of HIV infected children born to infected mother was 56,787. The annual fluctuations on observed prevalence in high and moderate prevalence states for STD patients and ANC women are shown in charts a to d below.

The HIV epidemic trend in India is analyzed according to the three epidemic zones considering mean and median prevalence for all sites and consistent sites (STD and ANC sites). Table 1 presents the districts in different states that have showed statistically significant changes in HIV prevalence during 1998-2005. The six districts that have showed statistically significant increasing trend in STD are: Gulbarga in Karnataka, Pune and Chandrapur in Maharashtra, Central district of Delhi, Balasore in Orissa and Bardhaman in West Bengal.





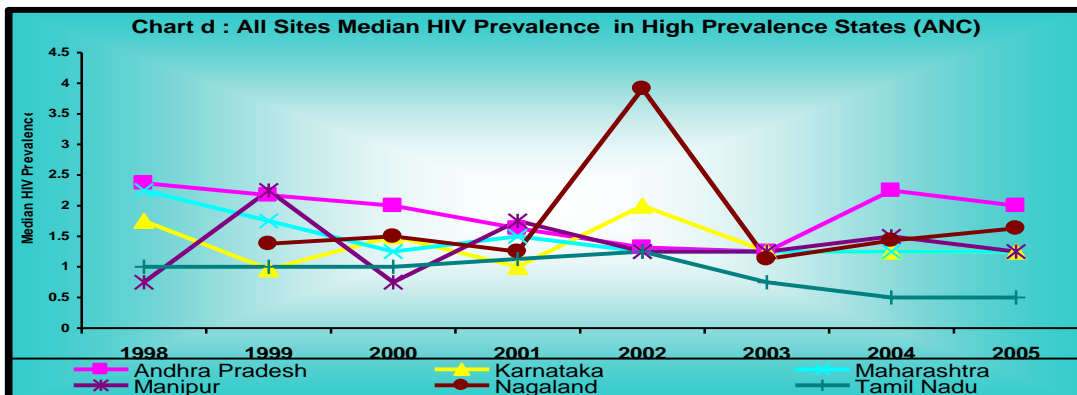
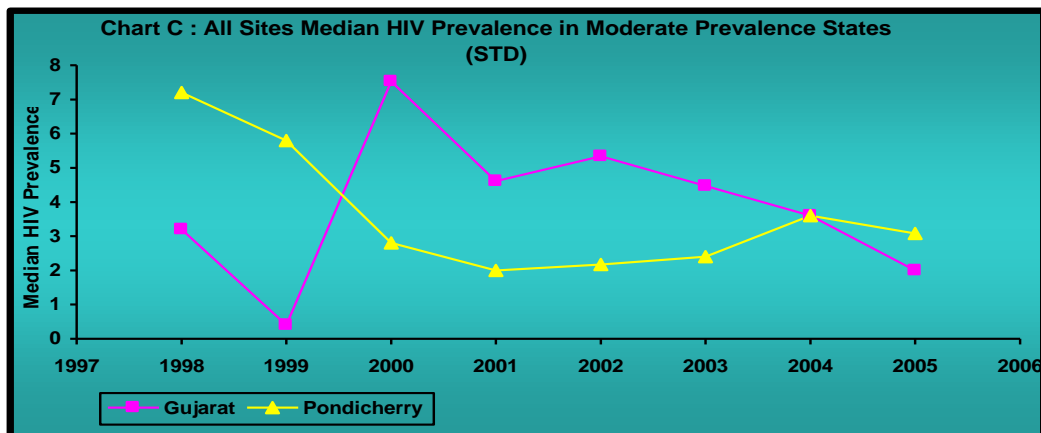
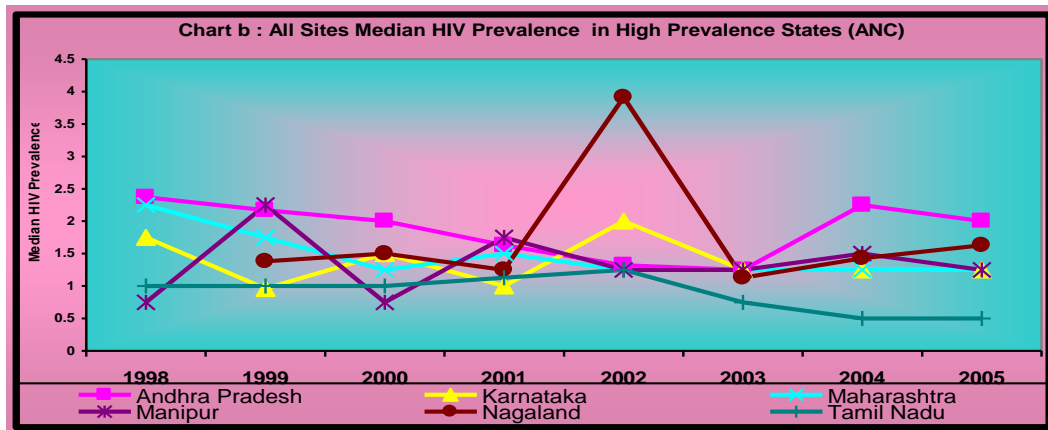


Table 1 Districts with significant changes in Prevalence (1998-2005)

State	District	Risk	Direction of Change	P value
Andhra Pradesh	East Godavari	STD	decreasing	0.0290
Karnataka	Gulbarga	STD	increasing	0.0030
Maharashtra	Pune	STD	increasing	0.0170

While, five districts showed statistically significant decreasing trend and they are East Godavari in Andhra Pradesh, Selam in Tamil Nadu, Banaskanta and Vadodara in Gujarat and Ghaziabad in UP.

In case of general population, statistically significant declining trend in HIV prevalence was observed in five districts, viz. Chennai in Tamil Nadu, Rajkot in Gujarat, Sagar in Madhya Pradesh, Thrissur in Kerala and Pondicherry. None of the districts in India showed statistically significant increase in HIV prevalence among general population.

## **12. Estimation of Mortality due to HIV/AIDS**

The technical subcommittee for estimation of mortality related to HIV/AIDS constituted by the National Expert committee on AIDS mortality estimation suggested the following activities:

- Estimating excess deaths which could be attributed to AIDS in HIV high prevalence states using SRS age-specific death rates of males and females aged 15-49 using kink regression method.
- Analyze data from the civil registration system particularly under the medical certification of causes of deaths in urban areas from two states for the estimation of mortality related to HIV/AIDS.
- Application of spectrum model for estimating AIDS mortality using the sentinel surveillance data
- Production of a detailed report with comparisons of AIDS deaths estimates using SRS data, surveillance data and spectrum model.

The committee identified National Institute of Health and Family Welfare (NIHFW), New Delhi for estimating excess deaths. For Application of spectrum model the committee identified International Institute for Population Sciences, Mumbai and National Institute for Medical Statistics (NIMS), New Delhi. The Institute was also given the task to prepare a detailed report with comparisons of three methods. The study is undertaken with a grant from UNAIDS.

The study is in progress. The results of the initial analysis carried out for a few states were presented before the experts. The suggestion was to improve the results incorporating additional data available from SAPA data. The SAFA data was reviewed and the information available is not appropriate for estimation.

### **13. Estimation of Orphans and Vulnerable Children (OVC) due to HIV/AIDS**

Adult and child mortality rates have increased substantially in many countries due to HIV/AIDS. Many people who die from AIDS leave behind young children as orphans. More children are orphaned in India from other causes than AIDS, but AIDS orphans face stigma and discrimination. It was, therefore, proposed to Estimate the number of HIV+ children, AIDS and non-AIDS orphans, and maternal, paternal and dual orphans for strategic planning for support to orphans.

### **14. Statistical Modeling of HIV/AIDS Epidemic**

The objectives of the study are as follows

- To derive probability distribution of the time to develop AIDS (incubation distribution) since HIV infection assuming Weibull distribution.
- Estimate the HIV intensities and projection of AIDS cases from reported AIDS cases using EM algorithm.
- Classify the progression of AIDS since HIV infection using simulated CD4+ count and viral load values at the time of seropositivity diagnosis and
- Estimate the HIV transmission rate among different risk groups and project the number of HIV infections in various stages.

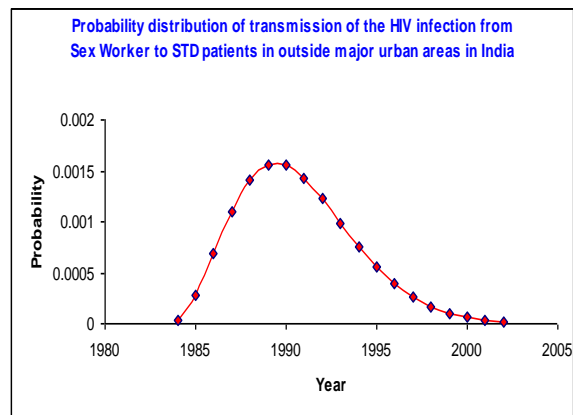
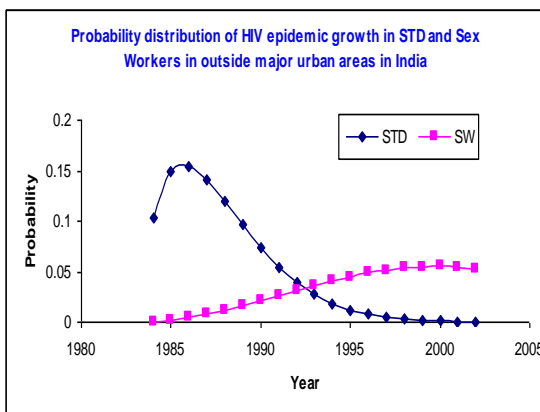
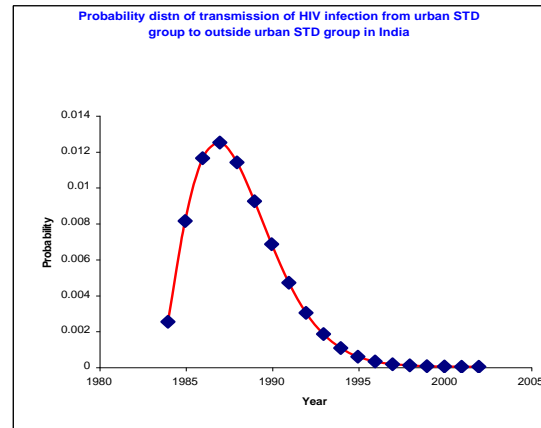
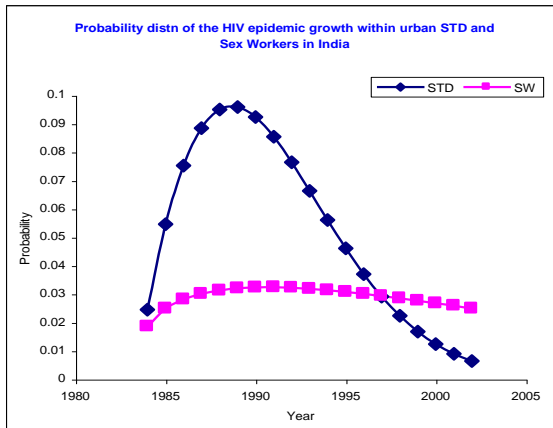
This is a project sanctioned under ICMR Task Force in Statistics.

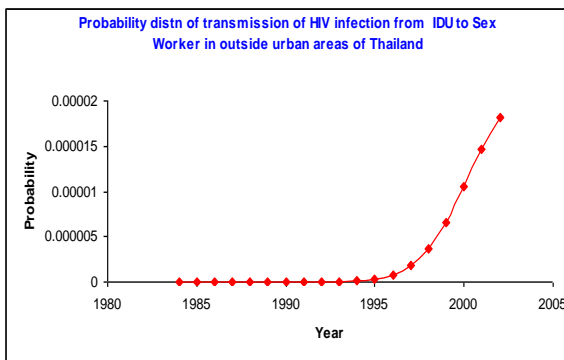
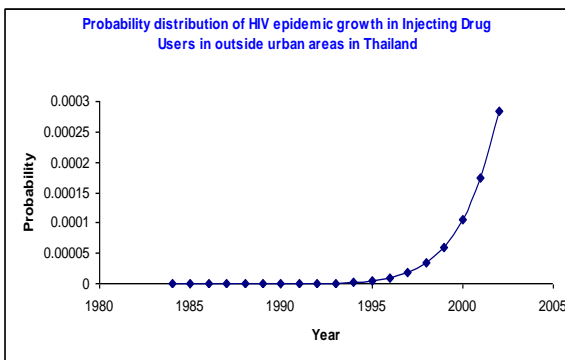
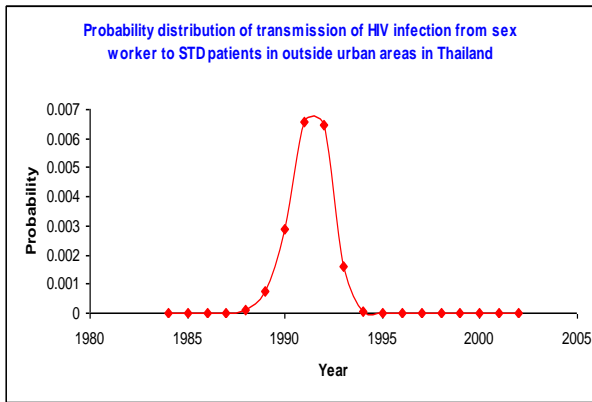
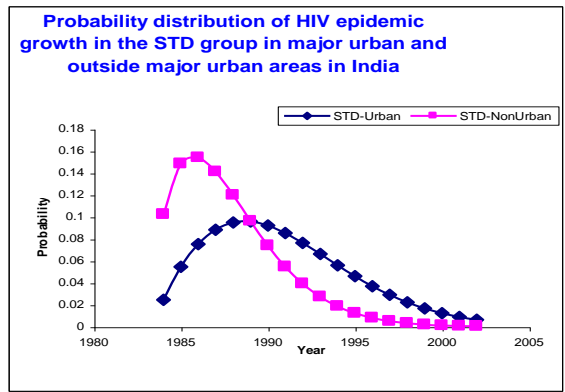
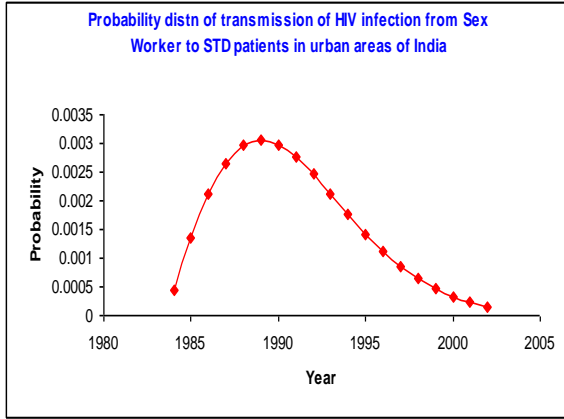
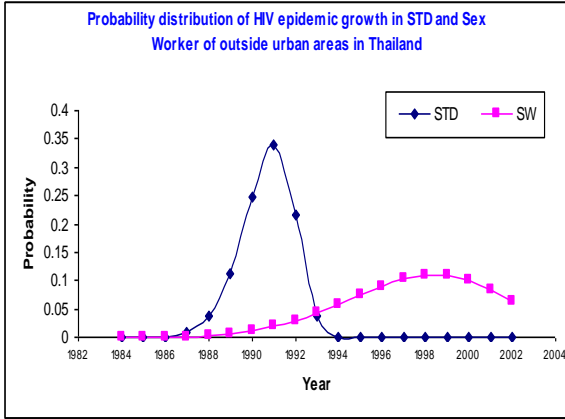
The probability distribution of incubation period and time to develop AIDS infection has been developed as part of the exploratory research on HIV/AIDS. Further, models have been developed to study the transmission rates between risk groups and spread from urban to rural areas in different countries.

The epidemic growth within each risk group and between risk groups in India and Thailand

Log-normal, Weibull, Exponential and Gamma distributions have been tried to estimate expected growth rate within the risk groups. Weibull distribution fitted

best for most of the risk groups. However, shape parameter is less than 1 the Weibull model does not fit well. The growth curve and transmission has also been studied using regression approach. The comparative interpretation is in progress. Following charts shows the growth of the epidemic within place of residence and risk groups and transmission of the infection between groups.

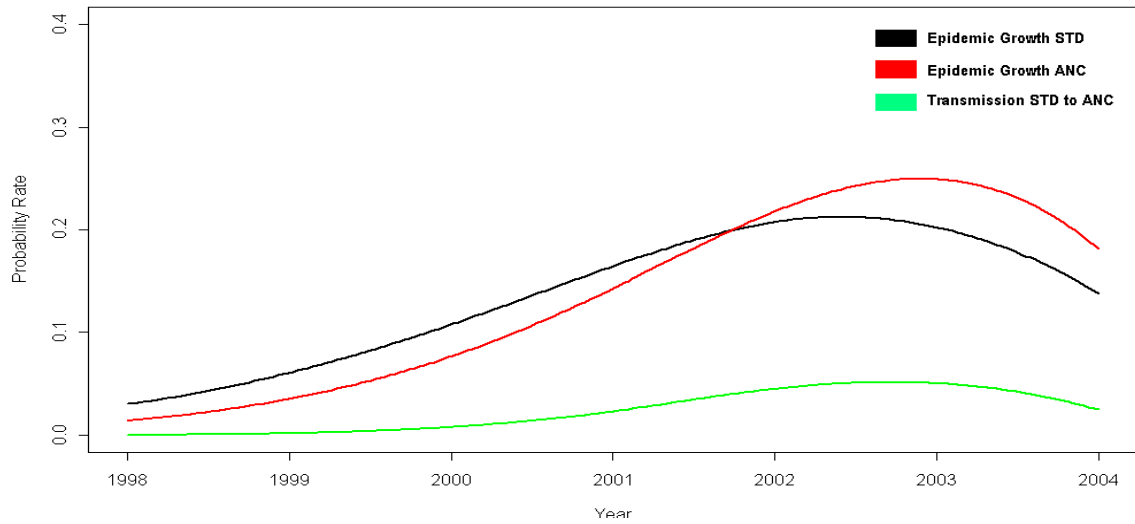




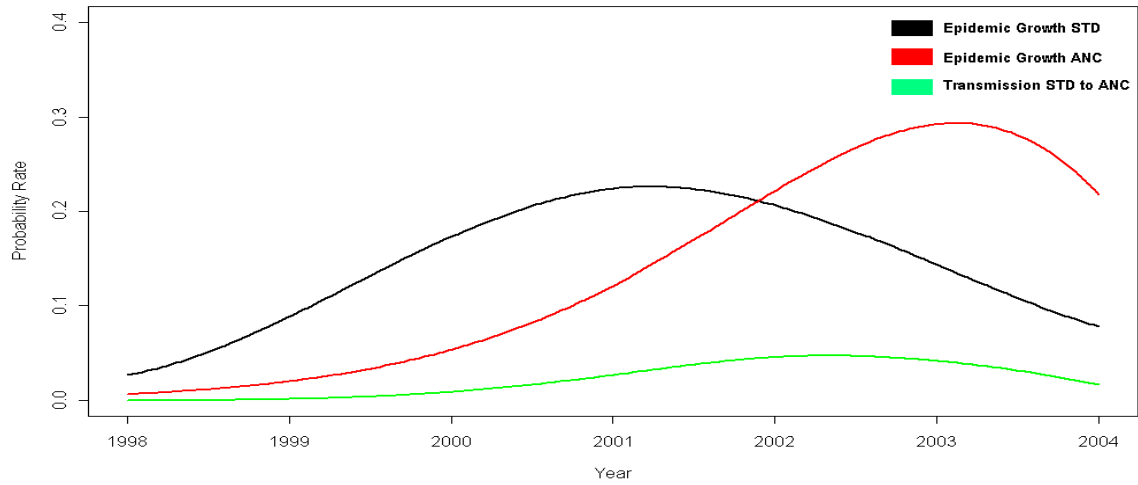
HIV sentinel surveillance data has also been used to study the spread of the epidemic from high-risk population to general population in four high epidemic states. Some of the results are shown in the following charts.



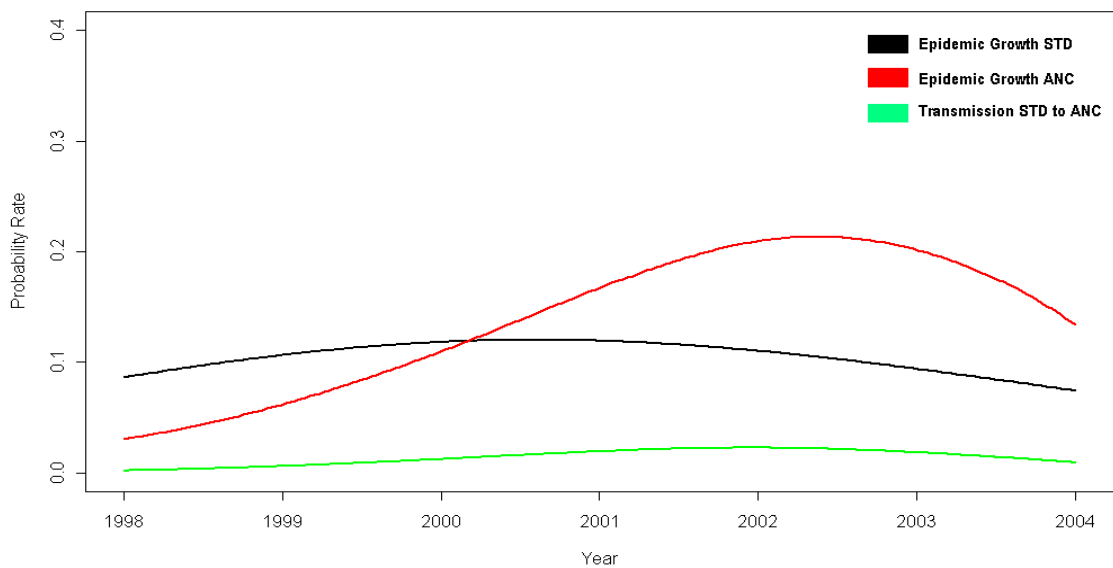
**Andhra Pradesh: Epidemic Growth of ANC and STD & Transmission Rate From STD to ANC**

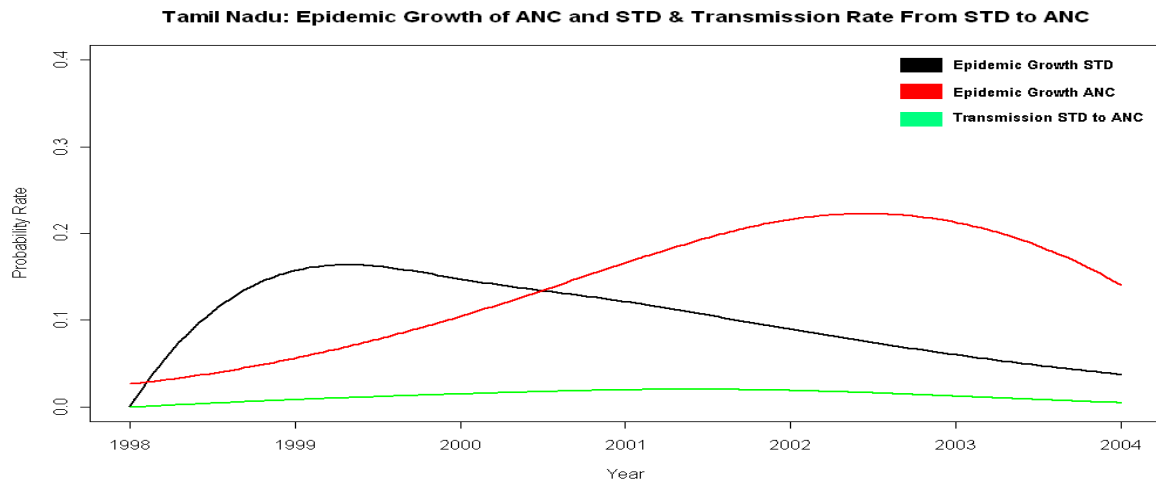


**Karnataka: Epidemic Growth of ANC and STD & Transmission Rate From STD to ANC**



**Maharastra: Epidemic Growth of ANC and STD & Transmission Rate From STD to ANC**





Number of HIV positive individuals in India has been estimated to be over 5 million since 2003 wherein crude estimate of infected new born children ranges between 55-60 thousand. For effective implementation of the prevention, care and support of the HIV/AIDS, the planners and policy makers require estimates of several parameters such as treatment cost, number of infected mothers and children, infrastructure requirement etc. Modelling is the major tool to estimate the impact parameters of HIV/AIDS and the resource requirement for support and care. India being vast in area and diverse in its socio-cultural and epidemiological characteristics, micro level capacity building is required to achieve state/regional level estimates which in turn will help achieving micro level planning for care and support of HIV/AIDS children and adults.

The institute will be comparing different models for HIV estimation and also build capacity at state level to use model based estimation methods to derive state level estimates of HIV burden, mortality and other impact parameters of HIV epidemic.

UNICEF has granted funds to estimate children in need of ART for India and also to build capacity at state level to use the methods, derive state level estimates and generate data required for model input at state level.

The objectives of the study are to develop National estimates of children in need of ARV treatment, build capacity at state level to generate state specific estimates, review the results and develop advocacy strategy for policy makers through expert group meetings and build capacity of the institute in mathematical modelling of infectious diseases through participation in the short course on 'Epidemiology of Infectious Diseases' at Imperial College, London.

## **D. INFORMATION/ DATA MANAGEMENT**

### **Ongoing Studies**

#### **15. Health Sector Policy Reform Options Database (HS-PROD)**

The objective of the study is to develop an online database ([www.prod-india.com](http://www.prod-india.com)) of Indian good practices and innovations in health services management. The website is a property of Central Bureau of Health Intelligence (CBHI), Ministry of Health and Family Welfare (MOHFW). Since 2005, the Institute is working in collaboration with CBHI for the development of the website. The work entails increasing the number of entries in the website and advocating use of the website. European Commission Technical Assistance (ECTA) provides the technical support. The funds were made available by European Commission's sector Investment programme. The task included identifying the initiatives/reforms by scanning of Newspapers, websites, reports, contacting programme implementers and making a field visit. Thereafter, collated information was put in a standard format and shared with state officials for concurrence. Once the entry is completed it internally circulated before sending them for approval to Project Management Group members. Once approved by PMG, the entries are uploaded on the websites.

During the reporting period, following activities have been undertaken:

- a. Prepared the project activity plan and guidelines to review the progress;
- b. Appointed 2 Research Consultants who were given one month orientation training on development of HS-PROD by ECTA, New Delhi.
- c. CBHI constituted PROD Management Group (PMG) for reviewing the entries and monitoring the progress. The institute made presentation on its progress to the PMG.
- d. The Institute organized internal meeting of HS-PROD working group (NIMS, CBHI and ECTA) every month to monitor the progress.
- e. The website contains 134 entries of which 46 have been uploaded by the Institute in between May 2005-March 2006.
- f. 3 regional partnership workshops on HS-PROD were organized for capacity building of state health officials including those overseeing National Rural Health Mission (NHRM), officials of CBHI state units and non-government organizations.
- g. HS-PROD website was demonstrated at following forums:
  - Field visit to Rajasthan (September 19<sup>th</sup> to October 3, 2005)
    - Directorate of Health Services.
    - CARE Rajasthan.
    - State Institute of Health and Family Welfare, Jaipur.
    - Indian Institute of Health Management Research, Jaipur.
  - National Workshop on Public-Private Partnership in the Health Sector in India, organized by NIHFWS, New Delhi during 28-30 November 2005.

Preparations are being made to increase the number of entries in the website.

## **16. Infrastructure and Capacity Building for Clinical Trial Registration**

The institute has submitted a proposal to Department of Science and Technology (DST) for funding of National Clinical Trial Registry. DST has approved the project.

## **17. Development of Health Research Information System**

The aim of the project is to develop a Health Research Information System for NIMS.

Progress of the study

The prototype system software has been successfully installed. Onsite training of the software is going on. The Beta version would be installed after the successful completion of the software.

## **E. OTHERS**

### **Completed studies**

## **18. Study on Job Satisfaction Level among ICMR Scientists**

The study aims to examine the level of job satisfaction of ICMR scientists, in various institutes of Indian Council of Medical Research. In order to sustain high quality research and the growth of the organization, it is important to ensure that the scientists and the other supporting staff are satisfied with working environment, including facilities available to carry out their work and recognition of their efforts. The study intends to apprise the management about the contextual work environment of the scientific staff of ICMR spread across the country.

The survey work related to the study has been completed. The consultant and one of the coordinators of the study personally visited all the Institutes under ICMR except Port Blair. The response rate was around 85 %.

## 4. CAPACITY BUILDING

### Foreign Visits

1. Dr. Abha Aggarwal, Assistant Director, attended and presented a paper on Risk Factors for Maternal Mortality in 55<sup>th</sup> Session of International Statistical Institute held in Sydney, Australia during 5-12<sup>th</sup> April, 2005.



2. Prof. Arvind Pandey, Director participated in Workshop on Methods for HIV/AIDS Estimates and Projections, at Bangkok (sponsored by WHO) during 18-20 April 2005.
3. Dr. D. Sahu, Assistant Director, attended the 36<sup>th</sup> Summer Seminar on Population at East West Center, Honolulu, Hawaii, USA, May 31 – June 30, 2005. The seminar was on Evaluate the Impact of Reproductive Health Programmes. The funding was given by USAID MEASURE, USA



4. Prof. Arvind Pandey, Director participated in the XXV International Population Conference at France, July 18-23 2005.
5. Prof. Arvind Pandey, Director participated in Workshop a proposal for DFID Research Programme Consortia on “HIV and AIDS Treatment and Care Services” with the working titled “Joint Learning Initiative for Widening Access to HIV/AIDS Treatment for the Poor” held at the United Nations Economic commission for Africa in Addis Ababa, Ethiopia Dec 14-15 Dec. 2005.
6. Dr R.J. Yadav, Deputy Director, attended training in Clinical Epidemiology and bio statistics as a WHO fellow at Khon Khan University, Thailand during January 14- February 24, 2006.



## Meetings/Conferences/Workshops Attended

### Dr. Arvind Pandey, Director

8 April 2005	Health Sector Policy Reform Option Database (HS-PROD) at CBHI, Nirman Bhavan, New Delhi
18-20 April 2005	Workshop on Methods for HIV/AIDS Estimates and Projections, at Bangkok (sponsored by WHO)
26 April 2005	Thirty-six Governing Body Meeting of the National Institute of Health & Family Welfare (NIHFW), New Delhi.
28 April 2005	Second Meeting of the working group on NCD Surveillance under IDSP constituted by the MOHFW at Nirman Bhavan, New Delhi.
10 May 2005	Meeting of the National Family Health Survey (NFHS)-3 with Addl. Secretary at Ministry of Health and Family Welfare, Nirman Bhavan, New Delhi.
14 June 2005	National Seminar on HIV Estimates 2004: Policy & Programme Implications at IIC, New Delhi.
16 June 2005	Meeting of ART Drug Resistance Study National AIDS Research Institute/National AIDS Control Organization at Chennai
20 June 2005	CBHI Project on Policy Reform Option Database (PROD) in Health Sector at CBHI, Nirman Bhavan, New Delhi.
1-2 August 2005	Meeting of Directors/Additional Directors of Population Research Centers (PRCs), at the National Institute of Health & Family Welfare (NIHFW), New Delhi.
29-30 August 2005	HIV Sentinel Surveillance Committee Meeting at National AIDS Control Organization (NACO), New Delhi
23 September 2005	Project Advisory Committee on Project "Youth in India: Situation and Needs Study at Nirman Bhavan, New Delhi.
2-4 October 2005	Training of Trainers Workshop for NFHS-3 at Goa organized by International Institute of Population Sciences, Mumbai
20 October 2005	Second Technical Advisory Committee Meeting of NFHS-3 at National Institute of Health & Family Welfare, New Delhi.
27 October 2005	Family Health International on STI Consultative Group Meeting at India Habitat Centre, New Delhi
29 October 2005	Task Force Meeting on HIV Sentinel Surveillance Round 2005 at National Institute of Health & Family Welfare (NIHFW), New Delhi.



- 2 Nov. 2005 First Research Advisory Committee on 'India Program of Research on Human Development 2003-07' at National Council of Applied Economic Research (NCAER), New Delhi.
- 16 Nov. 2005 Meeting of the Expert Group set up under the National Population Commission for the State of Orissa" at Nirman Bhawan, New Delhi.
- 14-15 Dec. 2005 Workshop a proposal for DFID Research Programme Consortia on "HIV and AIDS Treatment and Care Services" with the working titled "Joint Learning Initiative for Widening Access to HIV/AIDS Treatment for the Poor" held at the United Nations Economic commission for Africa in Addis Ababa, Ethiopia.
- 16 January 2006 TAC, Third Round Level Household survey (DLHS) at Nirman Bhawan, New Delhi.
- 25 January 2006 Health Sector Policy Reform Option Database (HS-PROD) at CBHI, Nirman Bhavan, New Delhi
- 10 March 2006 Thirty-seven General Council Meeting of the International Institute of Population Sciences (IIPS), Mumbai.
- 17 March 2006 Population Foundation of India Meeting on "Assessing PLWHAs expectations about quality of care and support services with a view to strengthen the capacity of district Level Networks" in AP, Karnataka & Tamil Nadu.

*Meeting at ICMR & Its Institutes*

- 10 April 2005 Review Meeting on Iodine Deficiency Disorders Control Programme (NIDDCP) Guidelines at ICMR
- 11 April 2005 Meeting of IDSP (NCD) group constituted by the MOHFW at ICMR
- 13 May 2005 Meeting to finalize the protocols for the Kala Azar surveys at RMRC, Patna.
- 28 May 2005 Sampling Workshop for the Integrated Disease Surveillance Programme at ICMR.
- 15 June 2005 Meeting of Integrated Behavioural and Biological Surveys of Family Health International (FHI) at Bangalore
- 12 Sept. 2005 Forum-9 Global Forum for Health Research organized by ICMR at Mumbai.
- 24 October 2005 Meeting of the Fifth ICMR-INSERM Joint Working Group at ICMR
- 12 Nov. 2005 Meeting of the Working Group on NCD Surveillance under IDSP constituted by the MOHFW at ICMR

### *Meetings at IRMS/NIMS*

- 17 October 2005 Meeting of Working Group on National workshop on Developing Protocols for Morbidity Field Survey.
- 27 October 2005 Participants of regular course in Statistics of the International Statistical Education Centre (ISEC) & Lecture on Medical Statistics and Population Dynamics.
- 17 Dec. 2005 Presentation of research agencies for selection for Integrated Biological Behavioural Assessment (IBBA) Study.
- 2-3 Feb.2006 National Workshop on “Issues Concerning Large Scale Surveys on Health and Nutrition Developing Protocols for Morbidity Field Surveys.

### *Training Programmes*

- 27 October 2005 Training Programme for the participants of regular course in Statistics of the International Statistical Education Centre (ISEC) & Lecture on Medical Statistics and Population Dynamics to the officials of International Education Centre (ISEC), Kolkata at NIMS.
- Sept. 26-30 Training Programme in Biostatistics and Research Methodology” for the CCRAS Officers in association with IRMS at Central Council for Research in Ayurveda and Siddha (CCRAS), New Delhi.
- 9-17 Jan., 2006 Training Programme for final year students of M.Sc. (Statistics) Kurukshetra University. Co-ordinated the lectures of Prof. Hari Dayal of Univ. of Texas, Medical Branch, USA.

### *Meetings of Other Institutes*

- 9 June 2005 Scientific Advisory Committee Meeting of Central Council for Research in Ayurveda and Siddha (CCRAS), New Delhi.
- 10-11 June 2005 Meeting of Experts to finalize the road map for preparing the document “Uttar Pradesh – The State of Population 2005 Of KGMC Institute of clinical Epidemiology, KING George Medical University, Lucknow.
- 21-22 Nov. 2005 National Seminar on Health organized by Council for Social Development (CSD) Health Seminar at IIC, New Delhi.

### *Meetings of the Projects*

- 24-25 August 2005 National Workshop on “Sensitization and Capacity Building for Health Sector Policy Reform Options Database (PROD)”.

*Viva Voce/Examiner/Doctoral Committee Meeting M.Phil./PhD.*

- 25 April 2005 Viva-voce examination of Ph.D. thesis of Mr.S. Kaushik, Jawaharlal Nehru University, New Delhi.
- 31 May 2005 Viva Voce examination of M.Sc. (Statistics) at Agra University.
- 13 August 2005 External Examiner of the Ph.D. thesis entitled "Mathematical Investigation in to Effect of Non-Normality in Statistical quality Control" submitted by Ms.Shraddha Mishra, Vikram University, Ujjain.
- 2 Sept. 2005 Examiner of the M.Phil Dissertation "Nutritional Status of women and children: A Comparative View of Scheduled Tribes and Others in Six Large States of India" by Sibbrata Das, Jawaharlal Nehru University, New Delhi.
- 12 Sept. 2005 Examiner of the Ph.D. thesis entitled "Determinants of Unintended Fertility Among currently Married Women: A Study of Rural West Bengal" by Ms. Rima Ghosh , Jawaharlal Nehru University, New Delhi.
- 27 Sept. 2005 Examiner of the Ph.D. thesis entitled "Economic Incentives and Family Planning – A Case Study of Andhra Pradesh " by Mr. K.V.R. Subrahmanyam, Andhra University, New Delhi.
- 7 Nov. 2005 Examiner of the Ph.D. thesis entitled "A Study of Stochastic Epidemic Models With Preventive Measure" by Sri S.R. Gani, Karnataka University, New Delhi.
- 16 Nov.2005 Examiner of the Ph.D. thesis entitled "Economic Incentives and Family Planning – A case Study of Andhra Pradesh" by Shri G. Gavarraju, Andhra University, New Delhi.
- 6 January 2006 Examiner of the Ph.D. thesis entitled "Levels, Differentials and Determinants of Natural Fertility among rural communities of Southern Ethiopia" by Mr. Nigatu Regassa, IIPS, Mumbai.
- 24 January 2006 Viva-voce examination of Ph.D. thesis entitled "Nutritional Status of women and children: A Comparative view of ST and other in six Large states of India" by Mr. Sibbrate Das, Jawaharlal Nehru University, New Delhi.

*Invited Talk and Lectures delivered*

- 3 March 2006 Resource Person for the short course of IIPS in collaboration with the London school of Hygiene and Tropical medicine (LSHTM) on Behavioral surveillance survey (BSS) on RTIs/STIs in India at IIPS,Mumbai.
- 27 August 2005 Resource person for the Refresher Course on "Social Research Methodology: Quantitative Technique in Social Science & delivered a Research Talk on "Biosocial Research Methodology " at Tata Institute of Social Sciences, Mumbai.

- 21-22 Oct. 2005 Invited talk “Building India’s Registry: where we stand” in Public Forum & Stakeholder Meeting on “Building and Managing clinical Trial capacity in India: challenges. In ethics, equity and Efficiency” at ASCI, Hyderabad.
- 21-22 Nov. 2005 Presented a paper in the National Seminar titled “ Burden of disease, health care priorities and role of state” at Council for Social Development, New Delhi.
- 23-30 Jan. 2006 Invited as Resource Person for the Joint Govt./technical partners pptct and pediatrics AIDS Mission Meeting on Estimation of number of children & M&E :Overview of sentinel surveillance and estimations; Use of spectrum in estimation.

**Dr R.J.Yadav, Dy Director**

- June 27–29, 05 Resource person in the workshop on Systematic Review and Meta-analysis sponsored by the South Asian Cochrane Network during at Christian Medical College, Vellore (Tamil Nadu).
- July 14-15,05 Expert, Project Review Group Meeting for Maternal and Child Health on at ICMR, HQs. New Delhi for reviewing the projects submitted for the financial grant as well as progress of ongoing projects.
- September 12-16,05 Global Health Forum meeting during at Hotel grand Hyatt, Mumbai. Hon’able President of India inaugurated the meeting. About 450 scientists from all over country attended this meeting.
- October 15, 05 Special invitee member of the Governing body of Institute of Applied Statistics & Development studies, Lucknow at IRMS, New Delhi.
- November 18, 05 An invitee, XXXVII Annual meeting of the Nutrition Society of India on at National Institute of Hyderabad.
- December 20,05 An invitee, steering committee of NNMB on at National Institute of Hyderabad.

**Dr.R.K.Gupta , Dy Director**

- 12-16 Sept. 2005 Attended Global Forum for Health Research held at Mumbai
1. Jan. 9-17,2006 Lecture in training workshop for the students of the M.Sc. (Final) Statistics of Kurukshetra University and other participants.
2. Dec.28-29, 2005 Coordinated and participated as resource person for the course organized at Nehru Homoeopathic and Medical College.
3. March 2, 2006 Attended the training programme on J-Gate Custom Content for Consortia (JCCC) at NIMS.

Dec. 20,2005 Participated in the meeting on Micronutrient Situation Analysis for USAID/ India.

**H.K.Chaturvedi, Asstt. Director**

May 26, 2005 Introductory meeting of Research Consultants joined under the PROD project with ECTA and plan of orientation and training of project work at H&FWS Programme Office, Panchsheel Enclave, New Delhi.

October 19, 2005 The PROD Management Group (PMG) meeting held at MoHFW, Nirman Bhawan, New Delhi and presented the technical overview of quarterly progress of HS-PROD project.

January 25, 2006 PROD Management Group (PMG) meeting and presented to the technical overview of quarterly progress of HS-PROD project.

Jan 13, 2006 Lectures delivered on Survival Analysis during statistical training programme organized by the Institute for research fellows and Final Year P.G. students of Statistics from University.

Nov 28-30, 2006 Attended and presented the "Initiatives of Documenting Public Private Partnership for HS-PROD Website" in the National Planning Workshop on Public Private Partnerships in Health Sector in India Organized by National Institute of Health and Family Welfare (NIHFW).

**Anil Kumar, Asstt. Director**

Jan 20-22,2006 XXIII Conference of Indian Society for Medical Statistics held at Jawaharlal Nehru Medical College, Belgaun Karnataka.

Mar 2, 2006 Attended the training programme on J-Gate Custom Content for Consortia (JCCC) at NIMS, New Delhi.

Jan 9-17,2006 Lecture to Students of M. Sc (Statistics) Kurushetra University.

**M. Thomas, Asstt. Director**

January 12, 2005 Research Advisory Committee meeting for the IIHMR project HIV/AIDS Prevention & Care Programme for Rural and Tribal Youth in Orissa and Rajasthan.

January 25, 2005 Expert group meeting for finalization of HIV estimate – 2004.

February 11, 2005 Advisory Committee Meeting - HIV/AIDS Prevention and Care Programme for Rural and Tribal Youth in Orissa and Rajasthan - supported by European Commission and implemented by Oxfam (India) Trust.

June 13-15, 2005 Project consultation and orientation meeting on the IBBS at Bangalore.

June 16-17, 2005	Anti-Retroviral Drug Resistance Genotypic Characterisation of HIV-1 from India at TRC Chennai.
July 4-5, 2005	Review meeting on HIV sentinel Surveillance round 2005 for Western Region at CIRT, Pune.
July 7-8, 2005	Review meeting on HIV sentinel Surveillance round 2005 for East & North Eastern Region at Ambarish Hotel, Guhawati.
July 15-16, 2005	Review meeting on HIV sentinel Surveillance round 2005 for Southern Region at General Hospital, Pondicherry.
July 25, 2005	ICMR Epidemic forum at NIE Chennai.
August 7-19, 2005	Monitoring and Evaluation of HIV/AIDS program jointly organized by USAIDs Measure Evaluation and Mahdol University, Bangkok at Bangkok, Thailand.
October 25, 2005	Expert group meetings on Model based HIV/AIDS estimation at NIMS. estimation of HIV related mortality at NIMS.
November 16-18, 2005	USEFI Sponsored EWC/EWCA South asia regional conference Study of HIV Transmission force among Risk-Groups in South-Asian Countries.

**Dr. Abha Rani Aggarwal, Asstt. Director**

*Meetings*

July 7 2005	Meeting of the Task Force on Yaws Eradication Programme under the chairmanship of Dr. S.P.Aggarwal in MOHFW, Nirman Bhawan, New Delhi.
Sept 6 2005	Meeting for finalization of research project "Stratification of High Malarious Area Based on vector species prevalence in Different Eco-Epidemiological System for Planning Effective situation Specific Malaria Control Strategy.
Dec 23, 2005	Meeting of Technical Group Meeting in collaboration with Merck to develop protocol for Clinical Trials on HPV Vaccine in India.
Dec 27, 2005	Meeting for designing of project on "Assessment of Malaria Treatment practices" at NMRC, New Delhi.
March 9 2006	Organized and attended an 11 <sup>th</sup> Expert Group Meeting of DST for PRDSF programme for the presentation of the proposal on Establishment of National Clinical Trial Registry.

*Invited Talks*

May 6-8 2005	Invited as a resource person to deliver lecture on Determination of sample size in workshop on "Research Methodology organized by National Neonatology Forum and AIIMS at AIIMS, New Delhi.
July 20, 2005	Invited as a resource person and presented "Use of Verbal Autopsy in case control study on maternal mortality " in workshop on Facility Based Maternal Death Review at SafdarJang Hospital, New Delhi.
26-30 Sept.,2005	Extensively delivered lectures on Statistical Issues in Clinical Trials, Sample size Determination, Blinding, Randomization and Use of SPSS package at CCRAS, New Delhi.
Oct 27 2005	Lectures on Epidemiological Methods to officials of International Statistical education Centre(ISEC) Kolkata through CSO.



- Dec 21 2005 Lecture on Basic of Biostatistics in Training Workshop on Research Methodology at Central Council for Research in Unani Medicine, New Delhi.
- Dec 23 2005 Resource person to deliver lectures on Statistical consideration in clinical trial, Blinding and Bias in the conduct of controlled clinical trials in Training Workshop on Biostatistics and Research Methodology for Siddha Scientists at CCRAS, New Delhi.
- Dec 29, 2005 Resource Person to delivered lectures on “Basic Concepts of Randomization, Blinding and Bias, Sample size determination in the conduct of clinical trial at Nehru Medical College for Homeopathsists.
- Jan. 12, 2006 Lectures on Sampling Methodologies to Students of M.Sc( Statistics) Kurushetra University.
- Jan. 19 2006 Lecture on Epidemiological Studies and Clinical Trial to WHO fellows.

*International Conference/workshops Attended*

- 5-12<sup>th</sup> April, 2005 Presented a paper orally on Risk Factors for Maternal Mortality in 55<sup>th</sup> Session of International Statistical Institute conference at Sydney, Australia.
- 1-3 April 2005 International training “workshop on Survey Sampling” at Sydney, Australia and received a certificate.
- 3-5 April 2005 International training workshop on “variance estimation in complex survey” and received a certificate.
- 13-14 April 2005 International training workshop on “Design and Analysis of Repeated Survey “, Sydney, Australia and received a certificate.
- 2<sup>nd</sup> August 2005 International workshop on” Advanced Good Clinical Practices” organized by University of Pune & ICMR at India International Center, New Delhi. Trained by international trainer Dr. Francis, P.Crawley, Belgium. Received a Certificate of Participation.
- Oct 6-8<sup>th</sup> 2005 Presented a paper: Risk Factors on Maternal Mortality in VIIIth Biennial Conference International Biometric Society (Indian Region) held at Bangalore.
- 4<sup>th</sup> Oct 2005 Training workshop on Methodological Issues in Clinical Trial at University of Agricultural Sciences, Bangalore.
- 5<sup>th</sup> Oct 2005 One-day Training course on Linear Models and Application at university of Agricultural Sciences, Bangalore.
- 21-22 Oct. 2005 Interactive workshop on Building and Managing Clinical Trial Capacity in India: Challenges in Ethics, Equity and Efficiency jointly organized by ASC Hyderabad and Fordam University, New York,USA.
- 4<sup>th</sup> Nov.2005 International Conference on Malaria at National Agricultural Science Complex. Pusa Road
- 23-24 Jan. 2006 Workshop on Medical Development Congress at ASSOCHAM House, Prithvi Raj Road organized by ICMR, New Delhi.
- 3-4<sup>th</sup> Feb 2006 Workshop on Large Survey Methodology at ICMR organized by NIMS.

**Tulsi Adhikari, R.O.**

- Aug 4, 05 Meeting on Sampling Strategy for Integrated Diseases Surveillance Project on NCD held at ICMR Hqrs, New Delhi
- Aug 17-18, 05 Training on Web based data entry for HIV Surveillance in India at NIHFW.
- Aug 31, 05 Technical Advisory Committee meeting on Workshop on Issues Concerning Large Scale Surveys on Health and Nutrition at IRMS.

- Nov 14-17, 05 Workshop on Data management for the Statisticians : ICMR Task Force project on Home Based Management of Young Infants (0-60 Days) as resource person.
- Jan 18-20, 06 Seminar on Population of Madhya Pradesh, at Population Research center, Bhopal.
- March 2, 06 Training programme on J-Gate Custom Content for Consortia (JCCC) at NIMS.
- 20/5 to 6/7, 2005 Summer training on Applied Statistics for M.Sc. (Statistics) Prev. year student from Banaras Hindu University, Varanasi.
- 9-17 Jan 2006 Training Workshop on Medical Statistics at NIMS, New Delhi

**Dr. D. Sahu. R.O.**

- May 31- June 30, 2005 Participated Workshop on Evaluation the Impact of Reproductive Health Programmes, under the Thirty-Sixth Summer Seminar on Population at East West Center, Honolulu, Hawaii, USA during May 31 – June 30, 2005 supported by USAID MEASURE , USA
- Oct. 10-12, 2005 Participated training on Spectrum and EPP packages by John Stover at Future Group & NIMS, New Delhi.
- Oct. 14, 2005 Meeting on IBBA-NH site selection for survey: Discussion with FHI, Bill Gates, and NIMS.
- March 6, 2006 Expert group meeting on Estimation HIV/AIDS Burden in India.
- Mar 30-April 1, 06 Paper presented titled “Standard Days Method Used as a Safe and Effective New Contraceptive Method of Choice: Findings from Community Based Study Experimented in Rural India’ in the 2006 Annual Meeting of Population Association of America, Los Angels, California, USA.

**Atul Juneja, R.O.**

- 11 July, 2005 PMG Meeting of HS-PROD Group at CBHI.
- 24-25 Aug. 2005 Workshop of HS –PROD for participants from Northern and Central India at IOP ICMR New Delhi.
- 31 Aug., 2005 Meeting on establishment of Disease Informatics Centre at ICMR Head Qrts.
- 5 Sept. 2005 Working Group meeting on IDSP (NCD) at World Bank Office Lodhi Estate new Delhi.
- 20 Sept. 2005 Represented the Institute in Hindi debate complementation at ICMR Head Qrts.
- 19 Oct. 2005 PMG Meeting of HS-PROD at CBHI Nirman Bhawan.
- 9-17 Jan. 2006 Training programs for final year students of M.Sc. Statistics, Kurukshetra University. Coordinated the lectures of Prof. Hari Dayal of University of Texas, Medical Branch USA.
- 18-20 March 06 Annual Conference of ISITA Israna Panipat.

## 5. PUBLICATIONS

1. Abha Aggarwal and Arvind Pandey (2006): Lot Quality Assurance Sampling in Evaluation of Immunization Programme published in *Biostatistical Aspects of Health and Population* ISBN 81-7075-081-4.
2. Abha Aggarwal, Arvind Pandey & B.N. Bhattacharya (2005): "Risk Factors for maternal mortality: A community based case control study in Indian Slums". Published in the proceedings "*The 55<sup>th</sup> Session of the International Statistical Institute Sydney*
3. Arvind Pandey & Samuel C.J. Otor (2005): Analyzing infertility in sub-Saharan Africa: A case of Sudan, *Journal of Empirical Research in Social Sciences*, Vol. 1(1), pp.1-15.
4. Arvind Pandey, B.N. Bhattacharya, D. Sahu & Rehana Sultana (2005): Components of under-five mortality: Trends, current stagnation, and future forecasting levels, NCMH Background Papers – Burden of Disease in India, National Commission on Macroeconomics & Health, Ministry of Health & Family Welfare, Govt. of India, New Delhi, pp.152-178.
5. Arvind Pandey, B.N. Bhattacharya, D. Sahu and Rehana Sultana (2005): Are Too Early, Too Quickly and Too Many Births the High Risk? An Analysis of Infant Mortality in India using National Family Health Survey, *Demography India*, Vol. 33 No. 2 pp. 127-157.
6. Atul Juneja, A.Sehgal, V. Zutshi, Arvind Pandey (2006): Cervical cancer screening in low resource settings. *Proceedings of the National Workshop of Indian Society of Colposcopy and Cervical pathology*,9-15.
7. Atul Juneja, A.sehgal, RK Tuteja (2005) High risk screening for cervical cancer in developing countries. In *Application of Mathematics in Engineering Technology* ed. JS Bhullar, Manish Bansal and Iqbal Singh.243-44, Malout Institute of Management and Information Technology, Malout.
8. Atul Juneja Book Review on Modelling Lymphatic Filariasis Transmission and Control ed Subramaniam Swaminathan print partners Ipskamp Enschede Netherlands 2004 *In Demography India* 34(2) 313, 2005.
9. Ashutosh Ojha, Nandini Roy, V.P. Ojha and D. Sahu (2006): Differentials in Reproductive Timing in Arid and Semi-Arid Regions of Rajasthan: A Hazard Model Analysis, *Biostatistical Aspects of Health and Population*, pp. 295-306. Hindustan Publishing Corporation, New Delhi.
10. H.K.Chaturvedi (2005): Initiatives of Documenting Public Private Partnerships in HS-PROD website. *Report of National Planning Workshop on Public Private Partnerships in Health Sector in India*, NIHFW, New Delhi.
11. M. Thomas, S Biswas, R Sultana, A Pandey (2006): Stochastic Models to Study the Dynamics of HIV/AIDS: An Analytical Review. *Biostatistical Aspects of Health and Population*, Hindustan Publishing Corporation, New Delhi.
12. N.S.Murthy, A. Juneja, S. Sharma (2004): Modelling Strategies for Epidemiological Process with special reference to Logistic Regression Analysis *Indian Journal of Preventive and Social Medicine*.35 (3); 136-145.
13. P Sharma, R Mukherjee, G.P. Talwar, K.G. Sarathchandra, R Walia, S.K.Parida, R.M. Pandey, R. Rani, H. Kar, A. Mukherjee, K. Katoch, S.K. Benara, Tulsi, P. Singh (2005): Immunoprophylactic effects of the anti-leprosy patients: clinical field trials with a follow up of 8-10 years, *Lepr Rev* 76: 127-143.
14. Padam Singh, R.J. Yadav & Arvind Pandey (2005): Utilization of indigenous system of medicine and homoeopathy in India, *Indian Journal of Medical Research*, Vol. 122(2), August, pp.137-142.

15. Padam Singh, Tulsi Adhikari (2006): Identification of Demographically Weak States and Districts Requiring Special Attending for Achieving Targets of TFR = 2.1 in India, *Journal of Empirical Research in Social Science*; 1(2).
16. R.J.Yadav, Arvind Pandey and Padam Singh (2006): Indigenous System of Medicine and Homoeopathy: Acceptability in North Eastern states *Journal of Empirical Research in Social Sciences* Vol. 1 No. 2.
17. R.J.Yadav, Arvind Pandey and Padam Singh (2006): Methodological Investigation in accessing the Indigenous Systems of Medicine and Homoeopathy. *Biostatistical Aspects of Health and Population*, Hindustan Publication Corporation, New Delhi, pp 70-73.
18. R.J.Yadav: Prevalence of Vitamin A Deficiency in Bihar: A Gender Perspective *Indian Journal of Preventive and Social Medicine*.
19. R.K.Gupta and Arvind Pandey (2005): Afield study on causes of Deaths in East Delhi: *The Journal of Family Welfare*, Vol.51, No. 2; 46-50.
20. R.K.Gupta and Arvind Pandey: Birth & Death registration status in Uttar Pradesh & Punjab. *Journal of Empirical Research in Social Sciences* Vol.1, No. 2; 43-45,2006.
21. R.K.Gupta and Arvind Pandey (2006): Care of the pregnant woman in East Delhi - Present status and some correlates. *Indian Journal of Preventive and Social Medicine*. Vol. 37, 1&2; 32-37.
22. Tulsi Adhikari, (2005): Interview on GIS in Health. *GIS India* 2005; 14(3); 1.
23. Tulsi Adhikari, Bhattacharya M. (2005): GIS in Health. *GIS India* ; 14(1); 7.
24. Tulsi Adhikari, Singh Padam (2005): Estimation of Relative Risk under Case Control Designs: Comparision of SRSWOR and Inverse Sampling, *Biostatistical Aspects of Health and Population*; 34-40, Hindustan Publsiing Corporation. Hindustan Publishing Corporation, New Delhi

## **6. STATISTICAL CONSULTANCY**

### **Dr. R.J Yadav**

Analysis on Thesis Title “A Study of Sexual Behaviour Pattern of Students of Senior Secondary Schools in South West District of Delhi”.

### **Dr.R.K.Gupta , DD**

- Analysis on (Homeopathy + clinical) treatment trials for treatment of T.B. Patients conducted at Deptt. of Ayurveda, Yoga and Naturopathy, Delhi Admn.
- Statistical guidance to various research projects at MAMC, New Delhi like Environmental Health Studies in Faridabad, Survey of People of Lal Kuan area Affected with Silicosis etc.
- Data Analysis of the project on ‘ Hematological Profile of HIV patience’ at Ram Manohar Lohia Hospital.
- Data analysis of the project ‘ A Study of the effect of training on Antioxidation activity in relation to estrogen level and its impact on cardio- respiratory performance in athlete’ at Sports Authority of India Dope Control Centre.
- Data analysis of the study ‘ Effect of yogic exercises on Pre- menstrual stress in Medical Students ’ from Lady Harding Medical College.

### **Dr. Abha Rani Aggarwal, Asstt. Director**

- Statistical consultancy a study on “ Evaluation of an Accommodative Intraocular Lenses” from Veny Eye Institute.
- Statistical consultancy for thesis on Comparative surgical methods for ophthalmology, M.D student from Safdarjung Hospital.

### **Dr. Tulsi Adhikari, R.O.**

- Statistical consultancy to the researchers (MD/PhD students & senior scientists) from Hospitals and Medical Colleges for the study design, data analysis and interpretation of their results.
- Study effects of Occupational Therapy management in Non-specific work related back pain using ergonomic environmental adaptations at Safdarjung Hospital.
- Statistical consultancy for a study on Socio-economic pattern in patients with alopecia areata of Diplomate of the National Board (Dermatology, Venereology & Leprology) thesis.

### **Dr. Atul Juneja, R.O.**

- Auditory Brain Stem Response at Lady Hardinge Medical College.
- Statistical consultancy to a thesis on different surgical modes of hysterectomy at MAMC.
- Dr Vimal Asst. Prof of cardiology at GBPH consulted for the analysis of hospital data on CVD.
- Data analysis to a MD thesis on Asthma at VP Chest Institute.

## 7. Library

- Library has adopted the LibSys software.
- Acquisition, cataloguing, circulation and OPAC modules are working.
- 11 Indian and journals and books of medical statistics are subscribed during the year.
- Services provided to researchers through DELNET (Development Library Network)

*Mr. Naresh Aggarwal, ALIO attended the following conferences during the year*

- MLAI conferences
- NACLIN conferences

*Training Programme Organized*

1. For the promotion of JCCC (Journal Gate Custom Content for Consortia) meeting was conducted among the NIMS scientist and Northern librarians on 2nd March 2006.
2. Lecture was delivered for the resource sharing among libraries by Shri K. Ratnagar Ex librarian Raman Institute Library, Bangalore
3. Delivered lecture on the importance of impact factor of journals and its utility by Dr. N.C. Jain, Sr.D.D.G.



### Members of Scientific Advisory Committee

1. Prof. P.S.S. Sundar Rao Chairman  
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14. Chief, Division of ECD  
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Law and Governance Division,  
Jawaharlal Nehru University,  
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4. Dr. Mala Ramanathan,  
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9. Dr. R.J. Yadav, Member Secretary  
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