

SUPPORTING FACILITIES

Two institutes of ICMR, the National Institute of Epidemiology (NIE) located at Chennai and Institute for Research in Medical Statistics [renamed as National Institute of Medical Statistics (NIMS) in November 2005], New Delhi provided consultancy and statistical support to scientists of the Council's head quarters, its institutes and other non-ICMR institutions. The NIE is conducting a field-epidemiology training programme. Besides, both the institutes are participating in various multicentric trials.

International collaboration in biomedical research between India and other countries and with international agencies, is ongoing. The Council also arranges exchange visits of biomedical scientists to and from Indian foreign laboratories. The Council also coordinates the WHO Biennium programme of fellowships to Indian scientists.

The Council has undertaken to protect new knowledge generated in the field of biomedical sciences by establishing an Intellectual Property Rights (IPR) Unit. The Unit is engaged in organizing programmes for IP awareness, protection and dissemination among the scientific community.

NATIONAL INSTITUTE OF EPIDEMIOLOGY (NIE), CHENNAI

Indian Ocean Tsunami

On 26 December 2004, a tsunami secondary to the major Indonesian earthquake had struck the coast of Tamil Nadu. The NIE conducted a community-based survey in tsunami-affected coastal fishing village with the major objective of estimating the prevalence of post-traumatic stress disorder (PTSD) and identifying the risk factors for PTSD. Activities were also continued on mental health following tsunami. A longitudinal study of mental and social health outcomes is planned in collaboration with University of Southern California, USA.

Field Epidemiology Training Programme (FETP)

The NIE has been conducting a two-year field epidemiology training programme (FETP) since 2001. A total of 45 scholars from 14 states were admitted for the course till January 2006 and 15 scholars have graduated. The scholars represent different states in the country namely Andhra Pradesh, Orissa, West Bengal, Bihar, Madhya Pradesh, Tamil Nadu, Himachal Pradesh, Maharashtra, Uttaranchal, Mizoram and Andaman and Nicobar islands.

FETP scholars investigated several outbreaks during the year 2005-2006. Some of the important outbreaks include one of hepatitis in Mehragaon village, (Uttaranchal), of measles in Hussendih, Purulia district (West Bengal), diarrhoea in an expatriate community in New Delhi, of chickenpox in Binjha village (Jabalpur), outbreak of acute febrile illness in a local club in Patna (Bihar), hepatitis E outbreak in Hyderabad (A.P.) and Chikungunya outbreak in A.P.

Clinical Trial with *Vijaysar (Pterocarpus marsupium)* for Type 2 Diabetes Mellitus

The NIE continued a multicentric trial to study the blood glucose control in type 2 diabetes with *Vijaysar* in patients already on an allopathic monotherapy and to determine adverse effects of this plant remedy. Results revealed that *Vijaysar* is safe at 6g daily dosage for treatment of type 2 diabetes. No side effect was attributable to it nor were there any signs of overt hypoglycemia. Out of 503 patients considered for analysis, 196 completed 20 weeks of treatment and 179 of them had their blood glucose controlled.

Multicentric Feasibility Study of Intradermal Administration of Tissue Culture Anti Rabies Vaccine

Multi-site intradermal administration of small doses of cell culture and purified embryonated rabies

vaccines protects humans bitten by proven rabid animals. Intradermal administration is an effective way of decreasing the cost of these vaccines in developing countries. Several countries have been successfully using these vaccines intradermally for the control of human rabies. The ICMR undertook a multicentric study to assess the feasibility of clinical trial of intradermal administration of these vaccines. Four indigenous vaccines (Abhayrab PVRV, Coonoor PVRV, Rabipur PCECV and Vaxirab PDEV) were administered intradermally. French PVRV (Aventis) was given intramuscularly. A sample size of 10 was selected for each of the vaccine arm in the three participating centres. The findings of the study indicated that all the vaccines given intradermally were safe. Three vaccines *i.e.* Abhayrab PVRV, Coonoor PVRV and Rabipur PCECV produced immune response above the protective level in almost all the volunteers by day 14 and the immune response was sustained till 90 days of follow up. The response to Vaxirab PDEV, however, was low as compared to other vaccines (Fig. 1). The findings of the feasibility survey in selected districts

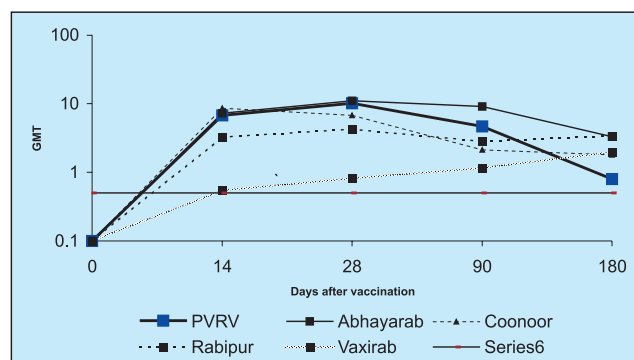


Fig.1. Geometric mean antibody titres (GMT) to different cell culture and purified embryonated rabies vaccines

indicated that most of district hospitals had the required skill and necessary facilities for intradermal administration of rabies vaccines. Based on the results of the present study, three vaccines *i.e.* Abhayrab PVRV, Coonoor PVRV and Rabipur PCECV have been recommended for intradermal administration in India.

Leprosy Vaccine Trial

The NIE is the international co-ordinating centre for the multicentric trial to assess the efficacy and

effectiveness of 6-month multi-bacillary MDT (uniform MDT) for all types of leprosy patients through general health services. Trial is being conducted at 5 centres in India and one centre in China. Till April, 2006, 2504 patients have been enrolled. Interim analysis was completed and a report has been prepared.

Mapping, Size Estimation and Integrated Behavioural and Biological Assessment in High HIV Prevalence Settings in India

Study is continuing with the aim to gather data for impact monitoring and evaluation of *Avahan* India AIDS Initiative funded by the Bill and Melinda Gates Foundation in 71 districts of six states and five national highway sites. The proposed mapping, size estimation and integrated behavioural and biological assessment will provide some of the key data needed to assess major outcomes and impacts of the interventions. The specific objectives of the study include collection of data in selected districts of the *Avahan* project states of Andhra Pradesh, Maharashtra, Tamil Nadu, Karnataka, Manipur and Nagaland and along the national highways. The NIE has been identified as the implementing agency for Tamil Nadu where the activities have been divided into 2 phases. In the I phase identification of research agency, recruitment of project staff, orientation and training of study team and launch of programme at Madurai, Salem and Dharmapuri have been done.

Prevalence and Distribution of Cardiovascular Risk Factors in an Urban Industrial Population in South India

A study was done by NIE to determine the prevalence of cardiovascular risk factors in 1163 subjects in an industrial unit in Chennai. The results indicated high prevalence of behavioural risk factors—tobacco use (39%), central obesity (63%), hypertension (31%) and diabetes (15%) among them. Effective risk factor intervention programme is being developed for this population to favourably modify the risk factors and decrease the cardiovascular disease risk in the future.

NATIONAL INSTITUTE OF MEDICAL STATISTICS (NIMS), NEW DELHI

Components of Under-five Mortality Trends, Current Stagnation and Future Forecasting Levels

The investigation aimed to study the changes in each of the components of under-five mortality during the period 1978–2002, to analyze the factors associated with the apparent stagnation of child mortality rate in India and to develop projection scenarios of the infant mortality rate (IMR) and under 5 mortality rate (U5MR) by states by the year 2016. The study examined the impact of utilization of antenatal and natal services on neonatal mortality. It has also looked into the levels of IMR and U5MR among socially and economically disadvantaged groups. Besides, the study attempted to examine the reasons for slowing down of the rate of decline in child mortality in recent years by analyzing the prevalence of high-risk births among advantaged/disadvantaged groups and relating the same to differentials in the utilization of health care services.

A rapid decline observed in IMR and under-five mortality during 1980-90 was followed by a period of stagnation from 1993 as it was hovering around 72 per thousand live births. The stagnation during this period may indicate 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 RCH programme, immunization programme and ICDS were not really oriented towards capturing infants dying during the neonatal stage. The other reason of stagnation in IMR could be the lack of access to health and other types of services to disadvantaged/vulnerable groups.

The IMR and child mortality projected up to 2016 shows that India might not be able to achieve the set target of IMR as 30 by 2010 without making concerted efforts to improve the content and quality of RCH services and concentrating on community mobilization strategies. In addition, economic and social reforms should be commensurate with the programme interventions bringing about appreciable reduction in IMR and child mortality in the near future.

Assessment of the Impact of Food Fortification on Child Health in Madhya Pradesh

The World Food Programme entrusted the project to NIMS with the objectives to study the impact of fortified food among children (age 6-59 months) in Sanchi and Vidisha districts of Madhya Pradesh and to undertake end line evaluation of the impact of supplementation. It was observed that there is considerable improvement in the prevalence of anaemia in both the blocks. As regards the level of vitamin A deficiency, the decline is significantly higher in the intervention block as compared to the control block. The percentage of severely malnourished children also reduced significantly in both the blocks from base line to end line.

HIV Estimation and Analytical Study of HIV Sentinel Surveillance Data

The NIMS is carrying out study to review the HIV estimation methodology, to validate the assumptions and provide estimate of HIV burden in the country every year based on HIV sentinel surveillance (HSS) data and carry out in-depth analysis of HSS data. Review of estimation methodology and validation of assumptions used in estimation was carried out in 2003. Every year it is reviewed and deliberated among experts after which consensus is obtained to finalize the estimate of HIV burden in the country. In 2004 it was estimated that 5.08 adults in the age group 15-49 yr were infected with HIV. In addition, there were 56,787 infected children born to infected mothers. The estimated number of persons with HIV infection in 2005 was 5.206 million. Number of HIV infections in urban and rural areas by sex during 2003 – 05 is given in Fig. 2. Fig. 3 depicts the estimated number of HIV infections in India during 2003-05. Since, inception of the sentinel surveillance in India, the number of sentinel sites has been increasing. In 2005, the total number of sentinel sites stands at 704. The population considered from all the risk groups included only the age group 15-49 yr. so that HIV estimate derived is for the adult population prone to be exposed by high-risk behaviour and/or exposed to bridge population. However, the number of newborn children with HIV was also estimated using information on infected mothers.

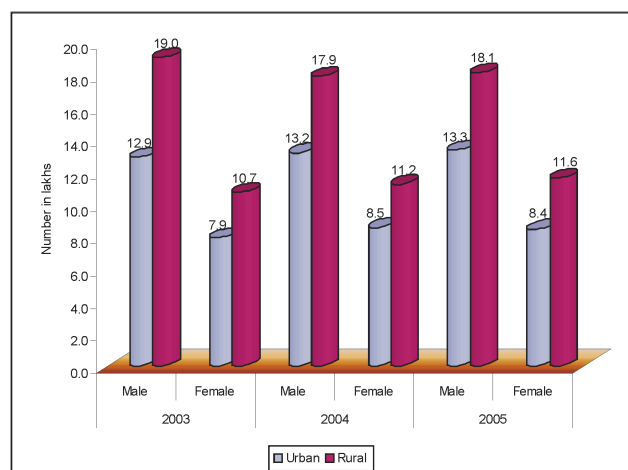
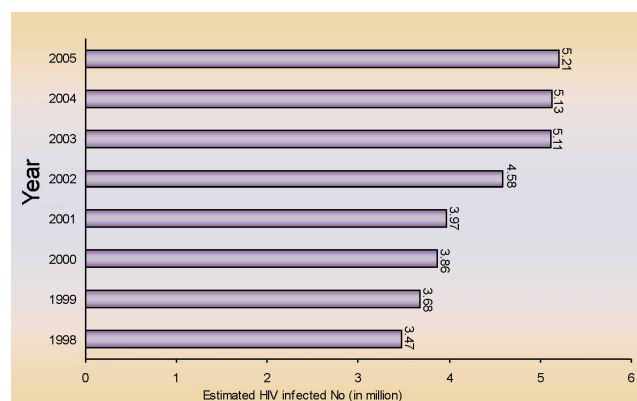


Fig. 2. Number of HIV Infections in 15-49 yr age group for 2003-05 by residence and sex



Estimated HIV infected persons (in million)

Fig. 3. HIV Estimates in India

Study of Level of Job Satisfaction among the Scientists of ICMR Institutes

The study was undertaken by NIMS to examine the level of job satisfaction of scientists from various ICMR institutes. 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 spread across the country. The response rate was around 85%. The survey work related to the study has been completed and data is being analyzed.

LIBRARY MODERNISATION

As part of modernization of ICMR libraries, the Council is undertaking electronic dissemination of information for optimal utilization of the resources available. Subscription for full text electronic database ProQuest (contains about 550+ full text medical journals) has been renewed for six ICMR libraries. JCCC (J-Gate Custom Content for Consortia) has been renewed to promote resource sharing among all libraries of ICMR institutes. To promote usage of JCCC@ICMR, regional training programmes were organized at NIN, Hyderabad (Southern Region Institutes), RMRC, Bhubaneswar (Eastern), NIV, Pune (Western) and NIMS, New Delhi (Northern). The updated print version of Union Catalogue of Journals in ICMR Libraries is ready for distribution among all medical libraries and medical research institutes in India.

INTERNATIONAL COLLABORATION

The ICMR co-ordinates international collaboration in biomedical research between India and other countries such as Bulgaria, France, Germany, USA, Cuba, Canada, China, Iran, Myanmar, Mozambique etc and national and international agencies such as WHO, Ministry of Science and Technology etc. During the year a total of 73 exchange visits of scientists to and from India were arranged under international collaborative projects / programmes. An MOU for South-South collaboration has been signed between the MRC (South Africa), FIOCRUZ (Brazil) and ICMR to work together on health issues of mutual importance. During the year five meetings of Health Ministry's Screening Committee (HMSC) were organized wherein 73 projects for international collaboration / assistance were approved by the Indian side.

To achieve the objective of building up a highly skilled pool of biomedical researchers the ICMR has taken up a new initiative and ICMR International Fellowships have been awarded to six young and three senior Indian biomedical scientists, who have successfully undertaken visits to foreign laboratories. Under the International Fellowship Programme for visit

of scientists belonging to developing countries to India for training / exposure to the latest advancements of knowledge in the area of work, one scientist has visited an ICMR institute for training.

INTELLECTUAL PROPERTY RIGHTS

The Council is taking steps for promoting a culture of identifying and protecting new knowledge that could lead to intellectual property (IP) generation for commercialization. For this, primary focus is on increasing IP awareness, generation, identification, protection, dissemination, regulation, valuation and mobilization. To fulfil these objectives, the Council has continued its ongoing activities and taken some new initiatives.

A total of 8 patents including 5 national phase applications of Patent Cooperation Treaty (PCT) have been filed at Indian Patent Office as well as in Europe, Japan, Brazil, Singapore and USA. One patent

application from VCRC, Pondicherry titled “A process for the preparation of mosquito larvicidal formulation from *Bacillus thuringiensis var. israelensis*” has been granted while one design registration application titled “New Model of Cycle Rickshaw” from ROHC (Eastern), Kolkata filed in June 2005 has been approved. Redesigned new model of cycle rickshaw is ready for technology transfer to Kolkata based company, Luna Tyre Pvt Ltd and negotiation is going on to enter into MOU. Another ICMR invention related to double fortified salt developed at NIN, Hyderabad is at advanced stage of negotiations for transferring to Hyderabad based industry- Tata Salt Pvt. Ltd.

TRAINING PROGRAMMES

Various institutes of ICMR continued to organize training programmes and workshops in areas of current interest of scientists. Besides this, consultancy and referral services were provided in all scientific disciplines.