



# **Track Record**



## **The Institute of Health Systems**

Established: 1990.

HACA Bhavan, Hyderabad, AP 500004, INDIA.



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# Organization and Structure

## Mission and Goals

IHS mission is to groom skills, gather evidence and generate knowledge, for people's health. The Institute strives to build local capacity and the global knowledge base for public health and socioeconomic development. IHS activities fall into research, education, training and various other services. The Institute conducts health systems research on applied and operational issues to improve equity and efficiency of the health care sector. IHS offers training programmes to improve managerial skills and health system research capability in India. The Institute strives to maintain a balance between various modes of learning and application to provide an environment for intellectual development, knowledge based work; and at the same time keep the skill set of its faculty well grounded to realities of social services delivery in India and other developing countries. While seeking to develop itself as a premier school of public health in India, the Institute has chosen a different organisational path to sustain a high level of creativity and operational efficiency. IHS is a civil society institution and has so far been entirely funded out of revenue generated by its faculty and staff through sponsored research programmes, tuition fee collections and other service charges.

## Legal Status

Institute of Health Systems (IHS) is a civil society institution. It was established in 1990 and registered under the Societies Registration Act<sup>1</sup>. The IHS is registered as a charitable scientific institution under section 12A of the Income Tax Act<sup>2</sup>. Contributions to IHS are eligible for exemption under section 80G of the Income Tax Act<sup>3</sup>. The District Collector, Hyderabad, recognised and commended the welfare activities, in the field of education, taken up by the Institute<sup>4</sup>. The Institute has been granted permanent registration by the Government of India, Ministry of Home affairs under the Foreign Contributions Regulation Act<sup>5</sup>. Starting with the first meeting held in July 1994 annual general body meetings are conducted every year, around December. IHS files its audited accounts with the Income Tax department every year. Annual reports are filed with the registrar of societies and are accessible to public through the registrar of documents. In addition the annual reports, and audited accounts of the Institute are made available, along with other publications of the institute, to interested persons for a small charge. Membership of the institute is open to any person who has consistently evinced interest and demonstrated commitment towards objectives of the institute and to institutions with complementary objectives.

## Administrative Structure

The Institute is governed by a system of authorities consisting of an executive committee, a general body and the board of governors. The General Body and the Board of Governors meet annually. The Executive Committee oversees management of the Institute, appoints the Director and the Finance Officer. Office Bearers of the Institute consist of the Chairman and

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<sup>1</sup>Registration number 3748/90, under the AP Telengana Area Societies Registration Act. 1350 Fasli.

<sup>2</sup>Commissioner of Income Tax (CIT), Hyderabad letter No.II/12A & 80G/64/90-91 dated 19 December, 1990.

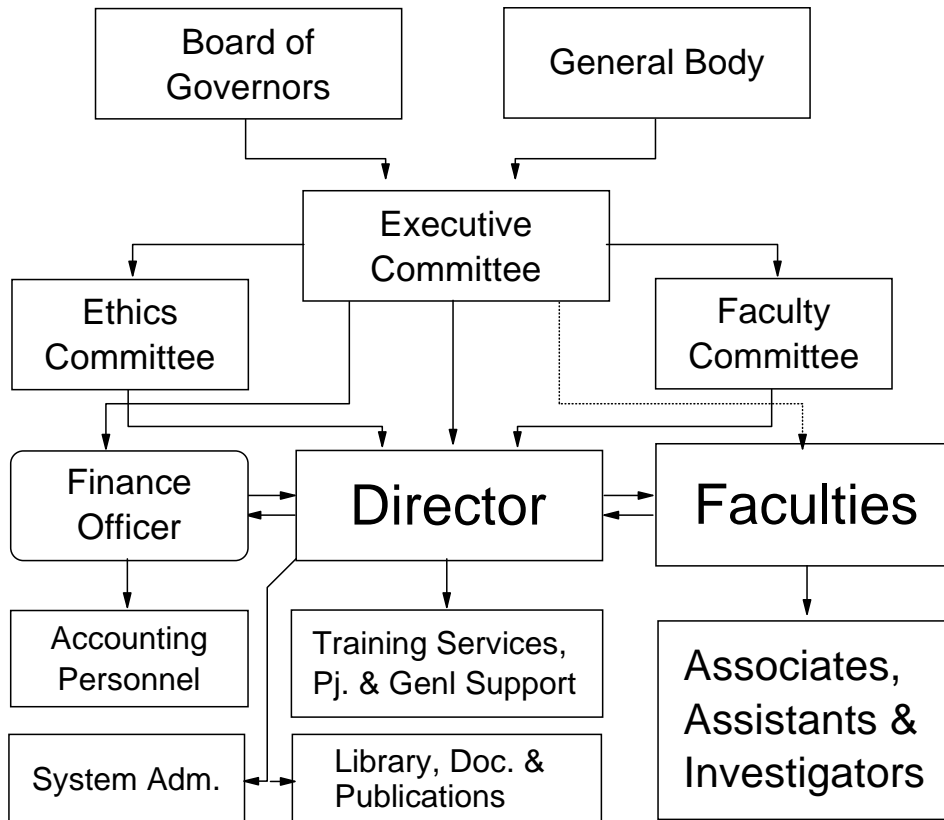
<sup>3</sup>First granted by CIT AP-II, Hyderabad letter no. H.Qrs. No.II/12A & 80G/64/90-91 dated December 31, 1990 and periodically renewed there after. Latest renewal for the period 01-04-2002 till 31-03-2005 was granted by the CIT, AP vide proceeding number DIT(C)/77/80G/2002-03, dated 05-12-2002.

<sup>4</sup>District Collector, Hyderabad, proceedings no D1/3499/2003 dated 25/05/2003.

<sup>5</sup>IHS permanent FCRA registration number is 010230292 vide Govt. of India, Ministry of Home Affairs letter no. II/21022/61(4)/93-FCRA-III, dated 10 Jan 1994 and 24 Sep. 2002.

the President. The Chairman presides over the meetings of the Board of Governors and the General Body. The President chairs the Executive Committee. The Director presents a report on the Institute's activities to the General Body every year, along with the Audited accounts of the Institute. These documents are available for purchase by interested members of the public across the Front office.

## IHS-Organisation Chart



### Ethics Committee

Research projects taken up by the institute adhere to the high moral and ethical standards in choice of methodology to test various hypotheses. The ethics committee reviews the proposals for research to assess among other considerations whether the research so designed would yield meaningful results that could not be obtained by other methods. The ethics committee also assesses whether voluntary and informed consent of the individuals participating in the study is obtained and whether the study has been planned in a manner so that the degree of risk taken and inconvenience caused does not exceed that determined by the humanitarian importance of the problem to be solved by the experiment and also sees that the study will be conducted by persons who possess the requisite competence and qualities to carry out the research. The ethics committee consists of about five members, two of the members are from outside the institute. Director of the institute is a member and convener of the committee. Life of the committee is permanent, with members joining it according to the terms of their appointment. The committee after examining the details of a proposal may either certify that the project has obtained the committees' clearance as such or with specific conditions, or advise appropriate modifications to methodology so as to meet social ethical considerations.

## IHS Faculty

Programmes and activities of the institute are carried out by a team of faculty and staff lead by the Director, who is the chief Academic and Executive Officer of the Institute. The Institute is equipped with a core group of multidisciplinary and interdisciplinary full time faculty. These include people from various backgrounds including Community Health, Nutrition, Health Economics, Social Sciences, Health Care Management, Environmental Sciences, Biotechnology, and Computer Applications. Every Faculty is involved in research or applied work, assumes teaching responsibility and is available to health care organisations for consultation. The combination of theoretical, practical, and educational work by each of the faculty fosters an enriched environment for creativity, relevance, authenticity and effectiveness. The Institute is constantly searching for people interested in health sector, and with interdisciplinary skills to contribute towards health systems development. For many such extraordinary people a full time association with the Institute may not be feasible. The Institute seeks out such distinguished guest faculty, usually from a wide range of health and related disciplines. The Institute-Guest Faculty connect happens in many ways such as; (a) active and directed search for a person with a given profile to meet a specific requirement, (b) serendipitous encounters between the IHS and potential guest faculty, and (c) active and directed search by people for an institution like that of the IHS. Individual profile of current faculty is available elsewhere as a separate chapter / document. The Institute's faculty meet from time to time to review the Institutes research activities, academic programmes and share information about their respective projects. The faculty committee advises the director about academic matters and general management of the Institute.

## Accreditation and Affiliations

- ✓ The IHS is a member of the National Consortium of Training Institutions in Community Health (NCTICH)<sup>6</sup>, organised by National Institute of Health & Family Welfare (NIHFW), New Delhi.
- ✓ The Institute is recognised by the NTR University of Health Sciences, for practical training of MD(SPM) students<sup>7</sup>
- ✓ The IHS is affiliated to Andhra Pradesh State Board of Technical Education and Training<sup>8</sup> for conducting courses in Health Informatics.
- ✓ The IHS is an institutional partner of the Alliance for Health Policy and Systems Research (AHPSR), World Health Organization (WHO), Geneva<sup>9</sup>.
- ✓ The IHS is a member of the HL7 organisation<sup>10</sup>, which is an international professional body for development and use of health informatics standards.
- ✓ The Institute is recognized by the Council for Advancement of People's Action and Rural Technology (CAPART), Ministry of Rural Development, Government of India for campus recruitment under the Young Professional (YP) Scheme and placement of Institute's students with reputed NGO's.<sup>11</sup>
- ✓ Provisional affiliation to NTRUHS for conducting a Masters in Public Health course<sup>12</sup>

<sup>6</sup>NIHFW Letter No. ET/NCT/2002, dated 29/04/2002.

<sup>7</sup>NTR University of Health Sciences, Vijayawada, Letter No.7204/ag/90, dated 20/09/2000.

<sup>8</sup>Proc. of the Chairman State Board of Tech. Edu. & Trg and Commissioner of Tech. Edu., AP., B1/3108/2003 dated 8/05/2003, B1/3108/2001, dt. 29/07/2001; B1/3108/2000, dt. 27/07/2000 and B1/5495/97, dt 21/01/99.

<sup>9</sup>Dr. Miguel Gonzalez Block, AHPSR Pgm Mgr, e-mail dated 24 Feb., 2000 and Ltr dt 17 June, 2003.

<sup>10</sup>Health Level Seven, Inc., 3300 Washtenaw Ave., # 227 Ann Arbor, MI 58104-4250, USA. Letters dated March 1, 2001 & March 7, 2002.

<sup>11</sup>CAPART, New Delhi Letter, DO No. DD(CD)/Misc/2002, dated 2nd May 2003

<sup>12</sup>NTRUHS Lr. No.5222/A5/02 dated 11-08-04

## Contributions to the National Health System

### Research and Consultancy Projects Sponsored by the Government of India

#### Institutional Assessment of the National AIDS Control Program

This study was commissioned by the National AIDS Control Organization<sup>13</sup> to assess the institutional arrangements of the National AIDS Control Programme at the national, state and district level and to make recommendation for their strengthening, prior to the launch of the third National AIDS Control Project (NACP-III). The assessment was based on the perusal of documents, discussion with concerned persons and visits to four states (Delhi, Andhra Pradesh, Madhya Pradesh and Assam) and one district in each of them. Key entities of NACP was analyzed in terms of (1) institutional structure, which captures organizational resources, design, and components; (2) institutional functioning, which captures organizational systems, policies, and procedures, and impact as defined by program/service delivery; and (3) institutional culture, which captures additional elements, such as organizational values, political will, and leadership style. The study provided recommendations for organization structure and staffing of key entities at the national, state and district level. In addition, the study also recommended mechanisms for convergence of NACP with the NRHM; NACP-RNTCP convergence; Partnerships for capacity development and program support; Public-private partnerships for service delivery; and a governance framework for the NACP. Recommendations of the study provided inputs to the preparation of the Project Implementation Plan of the NACP-III. The study began in October 2005 and was completed in May 2006

#### Out of Pocket Expenditure in Public Hospitals of India

National Health Accounts data of 2001-02 indicate that out of pocket health expenditure contributes a significant 72% of the total health expenditure in India (GOI, 2006). Out of pocket expenditure refers to direct and indirect costs incurred by the individual and /or household in securing or maintaining their health and includes health service user fees, contribution to health insurance, costs on drugs, medicines and diagnostics and additional cost incurred for securing and maintaining health, such as that on nutritional supplements and transport costs. Currently the primary source of such data comes from household surveys conducted by the NSSO. While such data is useful in understanding trends and making overall estimates of out of pocket expenditure, the format in which data is collected is not amenable for a more in-depth analysis of out of pocket expenditure on specific items such as that on drugs and consumables at specific levels of care. Given the 1 year recall period for expenditure on hospitalization, data is subject to recall bias and misclassification. Further such surveys do not provide much information on the volume of drugs and investigations purchased privately by patients seeking care at public hospitals. Given that cost of the same drug can vary significantly from manufacturer to manufacturer and the often unethical marketing and prescription practices, it is highly likely that patients may be actually spending more than what is required. Data for such expenditure is also not available. Such estimates will help generate evidence for appropriate allocation of resources for provision of drugs and investigations in public hospitals and framing of policies regarding prescription of drugs. This study has been commissioned the MoHFW to address some of these issues. The study is sponsored by the World Health Organization and is expected to be completed by September 2007<sup>14</sup>

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<sup>13</sup>NACO, MoHFW, GOI contract dated: 5th Sept. 2005

<sup>14</sup>WHO India allotment: IND HSD 001 RB 06 (Sticker No. SE/07/116434), dt: 21/12/2006

## Development of NHA Manual for India

The MOHFW, GOI has brought out the National Health Accounts for the year 2001-02 and is committed to developing NHA for the subsequent years. Several State Governments have evinced interest in developing State Health Accounts in their respective States. In the Indian context, state health accounts are more important, because many of the major policy decisions concerning resource allocation to health and social sector are made at the state level. The MoHFW has commissioned the IHS to develop a training manual that will ensure uniformity in NHA methodology and its replicability. It is envisaged that the manual would assist existing and new NHA teams as well as academic researchers by imparting comprehensive theoretical knowledge as well as practical classroom experience regarding NHA. The manual would contain training material for both trainers and trainees. The manual will provide guidance for learning and teaching the NHA methodology including providing an interactive 'hands-on' learning for the target audience. The target audience includes: (1) Potential NHA team members and /or researchers who will need extensive theoretical and practical information and (2) Senior decision makers who would benefit from understanding NHA, to use the findings presented by NHA teams in health policy making. The project is funded by the World Health Organization and is expected to be completed by October 2007<sup>15</sup>.

## Health Care Financing and Expenditure of Non-Profit Organizations in India

The National Health Policy (NHP 2002), emphasizes the need for improved and comprehensive information through national health accounts and accounting systems and sought to establish national health accounts, conforming to the 'source-to-users' matrix structure, by 2005. The Central Ministry of Health and Family Welfare has constituted a "NHA cell", which is working towards institutionalizing the NHA process in the country. This study was commissioned by the Ministry of Health and Family Welfare and the WHO to fill in a crucial data gap of the NHA exercise<sup>16</sup>. The objective of the study was to: (1) Outline the methodology and procedures for estimation of total health spending by NGOs in the country (2) provide national level estimates for the years 2001-02 and 2002-03, of: (a) Revenues of NGOs by source of funding (b) Health expenditure of NGOs; and (3) Application of the NHA framework to trace the flow of funds for health care through NGOs. A database of health care NGOs was prepared and a thousand organizations were randomly selected for the study. Field visits were made to 5 states, one in each geographical region; Delhi, Tamil Nadu, Maharashtra, Assam and Orissa. Data on financing and expenditure including audited reports and FC-3 reports were collected. Data for other states were collected via a mailed survey and telephonic follow-up. Household were the major source of funds of NGOs (about 42%). International agencies, central government and the state government contributed 26%, 12% and 6% of the funds respectively. Other sources of funds included: private firms, PRIs, financial agencies and own resources of NGOs. About 42% of the funds were spent on curative care services and 24% on disease prevention and health formation. The remainder was spent on research and training, dispensation of medical goods, provision of ancillary services and capital formation<sup>17</sup>. The study provided inputs to the NHA prepared for the country by the MoHFW. The study began in June 2005 and was completed in January 2006

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<sup>15</sup>WHO India allotment:SE IND HFS 001 RB 06 (Sticker No. SE/06/426951), 13/11/2006

<sup>16</sup>WHO India Allotment No.: SE IND GPE 002 RB 04 (Sticker No. SE/05/205858),dt: 15/04/2005

<sup>17</sup>C.K. George, N.S. Reddy and G.S. Pattnaik, *Health Financing and Expenditure of the NonProfit Sector in India, Report Prepared for World Health Organization: IHS RP 33/2006*

### **Burden of Disease and Socioeconomic Impact of HIV/AIDS:**

This study was a collaborative effort of the National AIDS Control Organization (NACO), United Nations Development Program (UNDP), Indian Council of Medical Research (ICMR), National Council of Applied Economic Research (NCAER), and the Institute of Health Systems (IHS)<sup>18</sup>. The study aimed to assess the burden of disease and socioeconomic impact of HIV/AIDS in 6 high prevalence states of the country; viz Maharashtra, Karnataka, Andhra Pradesh, Tamil Nadu, Manipur and Nagaland. The Institute was responsible for developing the study design for estimation of burden of disease due to HIV/AIDS. The IHS organized a study workshop on 2nd and 3rd of December, 2003, towards developing reliable estimates of burden of disease and socioeconomic impact of HIV/AIDS within the country. In addition to representatives from partner organizations, other professionals with expertise relevant to the study participated in the workshop. Based on the workshop findings a study design for a HIV prevalence survey was developed and submitted to the NACO Steering Committee.

### **Structure and Dynamics of Private Health Sector. Implications for India's Health Policy:**

This study sought to map the structure and dynamics of the private health sector and the implications for India's health policy. The study collected primary data from three type of health care institutions (HCI), namely (a) large hospitals, (b) small hospitals, and (c) clinics or primary health centres. These were randomly selected from out of all private and public health care institutions in three urban centres and the rural areas around them. Both private and public HCIs were sampled for comparative purposes. Altogether 150 private (both for-profit and nonprofit) and 106 public HCIs were surveyed. Diagnostic facilities and alternate private practitioners located near by the sampled institutions were also surveyed. The survey collected information about each institution and their activities. In addition client satisfaction and job satisfaction surveys were done by randomly selecting clients and employees. The study reviewed world experience with private forprofit health care providers, their relative performance vis-a-vis nonprofit and public providers. Primary data collected by this study along with secondary sources of information on private health sector in India and AP were analysed to understand the structure and dynamics of private health sector in Andhra Pradesh and how they relate to experiences from elsewhere in the world. Report of the study was submitted to the Government of India (GOI). Results of the study has also been published<sup>19</sup>. The study was sponsored by the Government of India Ministry of Health<sup>20</sup> and was paid for by the World Bank Delhi office. Started in August, 1999 and completed by March, 2002.

### **Estimating Burden of Disease Among Women and Children in India:**

The GOI - Department of Family Welfare, commissioned<sup>21</sup> the IHS to estimate burden of disease among women and children in India. Purpose of the study was to provide required evidence and information for formulation of reproductive and child health programs for the 10th five year plan. The report had to be prepared at very short notice. The work was assigned in April, 2001 and the report was prepared by end June, 2001. The Institute's contribution was incorporated as a chapter in the report of the Planning Commission's working group on Women and Children's Health.

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<sup>18</sup>MOU dated 06/09/2003 between NACO, UNDP, NCAER, ICMR, IHSUNDP India Allotment No. IND/PRO/300 (Health)

<sup>19</sup>Mahapatra Prasanta; Sridhar P.; Rajshree KT. Structure and dynamics of private health sector in India. A study in Andhra Pradesh, 2000. Hyderabad: Institute of Health Systems; 2001.

<sup>20</sup>GOI - MOHFW DO No.M-11035/7/99-BP dated 11 June, 1999 and 21st June 1999.

<sup>21</sup>GOI - MOHFW Dept of Family Welfare No. N.11027/3/2001-T.O.(Pt) dt. 12 June, 2001, & 27th Aug. 2001.

## Health Insurance and Family Health Protection Plans for India:

The Institute has developed community health insurance based family health protection plans for consideration by the government of India. An income line for health and housing higher than the poverty line has been recommended, for purposes of administration of state financing of health insurance coverage to families. The benefit package in the proposed family health protection plans include comprehensive ambulatory primary care, and access to first referral hospital services. The plans would mostly use private clinics for the ambulatory care and public or nonprofit providers for hospital services. Minimum quality of service standard have been recommended for clinics. The plans will provide better access to public hospitals and help improve their utilisation. Nonprofit mutual health organisations are envisaged to underwrite the health care coverage risk and administer the plans. The task was assigned by the GOI - Department of Family Welfare<sup>22</sup>. Project started in July, 2002. Final report was presented to the government by end of March, 2003<sup>23</sup>. The proposal is under active consideration of the government.

## Health Policy Analysis Support to the Prime Minister's Office:

The Institute has made modest contributions by being available to the Prime Minister's Office (PMO) and in rendering assistance, according to its capacity. The Institute's comments on the draft new national health policy was sought<sup>24</sup>. Accordingly a presentation was made at the PMO on 17 Jan 2002. Senior officers from the PMO and various ministries of the GOI were present. Suggestions and comments about expanding the health care coverage to ex-servicemen, sought by the PMO, was submitted. In response to another requirement<sup>25</sup>, the Institute submitted its comments and suggestions about packaged drinking water quality standards. The Institute's Director is a member of the Task Force on Public Private Partnership, which works from the PMO. Institute has been contributing towards generation of creative ideas and identification of opportunities for public private partnerships to improve public health.

## Other Research Activities of National Importance

### Estimating National Burden of Disease:

World wide interest in summary measures of population health and descriptive epidemiology intensified following the publication of the Global Burden of Disease (GBD) results in the World Development Report 1993. Subsequently, The World Health Organisation (WHO) launched a Global Program on Evidence and Information for Health Policy. The IHS has been associated<sup>26</sup> with the GBD studies right from the inception of these studies at the Harvard Burden of Disease Unit. The AP Burden of Disease (APBD) study was one of the first<sup>27</sup> National Burden of Disease (NBD) studies taken up after publication of the GBD 1993 report. The APBD study started at the IHS in 1994 in collaboration with the Administrative

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<sup>22</sup>Govt. Of India MOHFW DO No. N.23011/19/2000-Ply, dated 24 Jan. 2002, 30/3/2002, and 12 Jun. 2002.

<sup>23</sup>Mahapatra Prasanta, Samatha Reddy. Family Health Protection Plans for India - A Health Insurance Model. Institute of Health Systems, WP/51, 2003.

<sup>24</sup>PMO Letter DO No.S20/31/C/24/2001ES2 dated 3 Jan. 2002.

<sup>25</sup>E-mail message dated 31 March, 2003 from Ms Pushpa Subramanyam, Director, Prime Minister's Office.

<sup>26</sup>The IHS President, Prasanta Mahapatra, happens to be a founding member of the Harvard Burden of Disease Unit and contributed to the GBD 1993 Estimates. See World Bank. World development report 1993. Investing in health. New York: Oxford University Press (OUP; 1993. p182.

<sup>27</sup>See World Bank. World development report 1993. Investing in health. New York: OUP; 1993. P27. And Notes 1 at p 67 in Murray Christopher J.L.; Lopez Alan D., Editors. The global burden of disease. A comprehensive assessment of mortality and disability from diseases, injuries, and risk factors in 1990 and projected to 2020. Boston: Harvard School of Public Health; 1996.

Staff College of India. Subsequently the study moved in 1997 to the IHS full time. The APBD study focused on the issue of anchoring of NBD estimates to local data. Accordingly it engendered a suite of related studies, for example, the community based health state valuation study and the cause of death studies described elsewhere. Computational tools for NBD were developed, for example the BDAP described elsewhere and DISMOD<sup>28</sup>. Results of the AP Burden of Disease study was published in 2001<sup>29</sup>.

### Cause of Deaths Statistics for National Burden of Disease Study:

Reliable statistics on causes of death in a population are essential for setting of priorities in the health sector. Most developed cause of death reporting systems rely on medical certification of cause of death according to the International classification of Diseases (ICD - 10), and have invariably achieved near total coverage. Developing countries like India depend on lay reporting of the cause of death for rural areas, where adequate medical facilities are not available, using a sample registration system. Usability of the cause of death statistics in India is questioned in view of poor coverage, and poor compliance with guidelines for cause of death reporting, coding and classification. Research work on cause of deaths started in IHS around 1993 and is an ongoing activity supported by various sources of funding<sup>30</sup> and when no funding is available, by time contributions from faculty and staff. Work at the Institute lead to identification of Maharashtra and Goa states, where a large number of deaths are medically certified. A pilot study on cause of deaths in rural areas of AP provided some preliminary information about the Survey of Cause of Death (SCD) Rural statistics. Accordingly the Global Burden of Disease study, 1996<sup>31</sup> used the Maharashtra medically certified cause of death (MCCD) data to estimate cause of death pattern for urban areas and the applied some corrections to the SCD-Rural data to estimate the same for rural India. Further work at the IHS on cause of death reporting system in India lead to the publication of two landmark articles<sup>32, 33</sup> in the National Medical Journal of India. These articles reviewed the performance of cause of death reporting system in India and argued for its improvement. Review of the world literature on verbal autopsy and systematic assessment of India's verbal autopsy based cause of death reporting system contributed to appreciation of the SCD-Rural statistics and appropriate design of the newly introduced SRS based cause of death reporting system. Results of the study to estimate cause of deaths in rural areas of AP contributed to the National Burden of Disease estimation for Andhra Pradesh and has provided more accurate cause of death statistics for policy analysis.

### Health Care Quality Systems:

Quality of health care is a matter of public concern, since technical quality of care is directly

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<sup>28</sup>Lotus 123 spreadsheet precursors of DISMOD was developed by the IHS President Dr. Mahapatra at IHS and Harvard Burden of Disease Unit. The DISMOD software was developed at the Harvard Burden of Disease Unit. Dr. Mahapatra happens to share the patent of this software along with others and the Harvard University.

<sup>29</sup>Mahapatra Prasanta. Estimating National Burden of Disease. The Burden of Disease in Andhra Pradesh 1990s. Hyderabad: Institute of Health Systems; 2001 Oct.

<sup>30</sup>Funding agencies thus far, include the WHO, Geneva, Center for Global Health Research, St. Michael's Hospital, Toronto, Canada, and the World Bank Delhi office.

<sup>31</sup>Murray Christopher J.L.; Lopez Alan D. Estimating causes of death: new methods and global and regional applications for 1990. in: Murray Christopher J.L.; Lopez Alan D., Editors. The global burden of disease. A comprehensive assessment of mortality and disability from diseases, injuries, and risk factors in 1990 and projected to 2020. Boston: Harvard School of Public Health; 1996. Page 150.

<sup>32</sup>Mahapatra Prasanta, Chalapati Rao PV. Cause of death reporting system in India: a performance analysis. National Medical Journal of India (Natl Med J India) 2001;14(3):154-62.

<sup>33</sup>Mahapatra Prasanta. Priority setting in the health sector. Why is a good cause-of-death reporting system important? National Medical Journal of India (Natl Med J India) 2002;15(2):90-2.

linked to health outcomes and responsiveness of health care institutions is an important contributor to patient satisfaction. Quality assurance system is needed to aid consumers in their effort to clearly identify the services that they are seeking to purchase<sup>34</sup>. Standards and quality systems contribute to better management of health care services. The health care standards and quality subsystem has been slow to develop in India. Early efforts in this direction include; (a) the standard classification of hospitals, and basic requirements for 30 bedded hospitals by the Bureau of Indian Standards; (b) Classification, nomenclature and normative range (matrix) of services of first referral hospitals<sup>35</sup>, specification for hospital mattresses and linen<sup>36</sup>, and public hospital formulary<sup>37</sup> developed by the Andhra Pradesh Vaidya Vidhana Parishad (APVVP). The IHS has built on these early efforts to develop national capacity in health care quality assurance. The Institute is connected with voluntary accreditation agencies elsewhere in the world, including the American Joint Commission on Accreditation of Health Care Organisations (JCHAO). IHS personnel have spent time with hospitals in the USA to study about their accreditation and quality assurance practices. Research at the IHS on health care quality assurance started with studies<sup>38,39</sup> to assess the demand for quality assurance of services and the need for accreditation system. This line of research and capacity building has been sustained at the IHS through various projects. Structural standards for reproductive health services by nursing homes and private hospitals, has been developed<sup>40</sup>. These standards were developed with help of local experts using a consensus development process. The standards give minimum equipment and staffing requirement for basic maternity services like normal delivery, caesarian section, and medical termination of pregnancy. An integrated framework for assessment of health care quality has been developed in the context of the study on structure and dynamics of private health sector in AP<sup>41</sup>. The study also included an exit interview survey to compare quality of service perceptions among patients from public and private health care institutions.

### District Family Health Survey (DFHS):

Conventional measures of mortality like infant mortality and maternal mortality continue to play an important role in health policy. Currently the SRS is the primary source of mortality estimates, but only at the state level. This study explored the feasibility of generating these estimates at the district and sub-district level. This pilot study was conducted in 3 districts of Andhra Pradesh, Chittoor, Nellore and Mahboobnagar, representative of the three political regions of AP. The indirect methods of estimation such as children ever born (CEB) technique for infant mortality rate (IMR), and Sisterhood Survival method for maternal mortality rate (MMR) were used. The sample was selected using a two-stage proportional stratification followed by random selection of clusters within strata assigning probability proportionate to population size. IMR estimates show significant variation in mortality in different districts and revenue divisions. One revenue division in Mahboobnagar district had IMR as high as

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<sup>34</sup>Mahapatra Prasanta. The private health sector in Andhra Pradesh. IHS Report Series, 1998; 1: 1-111.

<sup>35</sup>Mahapatra Prasanta. Role of Standardisation in Planning and Development of Hospital Services, Bulletin of Hospital Services, Andhra Pradesh Vaidya Vidhana Parishad, Hyderabad. 1989. 1(3) pp.8-10.

<sup>36</sup>Standard Specification Of Mattresses For Hospitals. Andhra Pradesh Commissionerate of Medical Services. 1990.

<sup>37</sup>Andhra Pradesh Vaidya Vidhana Parishad. Approved Drug List & Hospital Formulary. Andhra Pradesh Commissionerate of Medical Services. 1990.

<sup>38</sup>Mahapatra Prasanta, Shailaja, R. Assessment of demand for accreditation services in Hyderabad: A pilot study. IHS Working Paper 1994; 6:1-14.

<sup>39</sup>Nandaraj Sunil. Situation review and analysis of accreditation system in India. IHS Working Paper 1998;21

<sup>40</sup>Srilatha S. An enquiry into the quality of reproductive health care provided in private hospitals and nursing homes and women's perception in Andhra Pradesh. Final Report. Hyderabad: IHS, 1998 Sep.

<sup>41</sup>Mahapatra Prasanta; Sridhar,P;and Rajshree,K.T. Structure and dynamics of private health sector. Hyderabad, IHS, 2002.

125/1000 live births, which is twice as high as the state average IMR of 66/1000 live births. We hope that identification of such high mortality risk areas would help in better targeting of public health interventions. The results of this study highlight the need for decentralised area specific planning and implementation of public health programmes in the state. It would be desirable to put in place a regular system of District Family Health Surveys, till such time as the vital registration system improves to provide accurate statistics. The study was sponsored by the Commissioner Family Welfare, government of AP<sup>42</sup>. The study started in January 2000 and report<sup>43</sup> published by August 2001.

### **Maternal Mortality Surveillance System:**

Maternal mortality reflects the risk to mothers during pregnancy and child birth and is an useful indicator of maternal health. Unfortunately, an accurate estimate of maternal mortality rate (MMR) is not feasible in the absence of a regular source of relevant data. A developed cause of death reporting system and civil registration of vital events would yield precise estimate of MMR. While efforts are on develop civil registration and cause of death reporting in India, these are likely to take some time to yield the representative sample sizes required for estimation of MMR. The reproductive and child health (RCH) programs, in the mean while, require a feasible and costeffective system to monitor MMR trends in different parts of the country and relate them to programmatic efforts. This study to develop a prospective surveillance system of estimating MMR has been designed for this purpose. The proposed system will follow up about 25000 pregnancies through a set of randomly chosen sub centres from any given population for which MMR estimate is required. All pregnant women will be recruited into the study through public or private health care providers from whom such women may seek antenatal care. Those not actively seeking antenatal care will be recruited into the study and assigned to the local sub centre for antenatal care. Two field visits will be made. First will gather socioeconomic characteristics, health data and collect all contact addresses for the woman. Each pregnant woman will be followed up to ascertain the pregnancy outcome. Second visit will be made within six month of the expected date of delivery (EDD) to document the nature of delivery and its outcome. A pilot study has been proposed to take place in Mahboobnagar district of Andhra Pradesh. This proposed study design was short listed by the Indo-Dutch Program on Alternatives in Development (IDPAD) through a competitive process. The IDPAD has included the study in their shelf of proposals for consideration as and when funds are available. The study will be implemented as soon as funding is received.

## **Human Resource Development for Public Health**

### **Training of ICMR Scientists in Burden of Disease Research Method:**

Epidemiological transition, increasing cost of health care, the unfinished agenda of controlling infectious and parasitic diseases and persisting gaps in access to primary health care, has made the job of health care policy and planning more complex than ever. The complexities of dealing with multifarious health problems have lead to refocused world wide attention on descriptive epidemiology and burden of disease. Summary measures of disease burden have been developed to combine mortality and morbidity experience of a population. The burden of disease estimation method is of recent origin and has developed very fast during the 1990s and there after. Most countries, lack national capacity in burden of disease research methods.

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<sup>42</sup>Commissioner Family Welfare, AP Rc.No.SP/DD/(Demo)/98-99 dated 6 Aug 1999.

<sup>43</sup>Mahapatra Prasanta; Chalapati Rao PV; Satish Kumar K. District Family Health Survey (DFHS) 2000. A pilot study in three districts of AP to estimate IMR, Fertility and Maternal Mortality. Hyderabad: IHS, RP08, 2001.

Fortunately, the Institute of Health Systems has been involved in this frontier area of research right from the beginning, starting with the publication of the Global Burden of Disease estimates in the 1993 World Development Report. The Indian Council of Medical Research (ICMR) approached<sup>44</sup> the IHS for training of their scientists and building of India's national capacity in burden of disease research methodology. A two week workshop was designed to train epidemiologists in the burden of disease estimation method. Two scientists each from various ICMR laboratories attended the workshops conducted at the IHS in two batches during November, and December, 2001. Two scientists from the Post Graduate Institute of Medical Research, Chandigarh also participated. The IHS is continuing to assist in consolidation of this capacity through e-mail support, and follow up workshops organised by the ICMR. More training programs in related areas of the burden of disease research methodology are contemplated.

### **Training of ICMR Scientists in Cause of Death Research Method:**

Accurate cause of deaths statistics is an important input for estimation of disease burden. Unfortunately cause of death reporting system in India is poorly developed. The IHS has been pursuing research works to assess the usefulness of cause of death statistics in India, and to estimate causes of death in India. These works lead to publication of a landmark article in the National Medical Journal of India on cause of death reporting systems. The Institute's work to estimate causes of death in rural areas of Andhra Pradesh, provided the mainstay of the AP Burden of Disease study. The National Institute of Epidemiology (NIE), Chennai (an ICMR laboratory) approached the IHS for training of their scientists in cause of death research. An Independent Study on Cause of Death Reporting Systems was designed. Two scientists from the NIE visited the IHS for one week during July 2001, and received the training. The ICMR has assigned the Institute to conduct training programs in cause of death research methodology for their scientists. Two batches have been planned.

### **Training of Scientists in Health State Valuation Methodology:**

Health state valuation studies are required to measure people's valuation of different morbidity or health states. Alternative terms with similar meanings include health state preferences, health status measurement, and measurement of disability weights. Disability / health state weights represent our judgment about the severity of a health state. The disability / health state weight is a crucial input for computation of burden of disease. Measurement of functional health status has wider application in clinical medicine and biomedical research. A community based health state valuation study was conducted at the IHS during 1998-99. Methodology and tools for community based measurement of health state values were developed. Scientists from the National Institute for the Mental Health and Neuro Sciences (NIMHANS), Bangalore and the All India Institute of Medical Sciences (AIIMS), Delhi, needed to train their personnel to take up a study that required health status valuation. A one week training program was organised during September, 1999 for this purpose. The participants were introduced to theoretical concepts of health status valuation and were familiarised with the health state valuation kit developed at the IHS. Participants received practical training to work with respondents and elicit their valuation of a health state.

### **Enterprise Development and Government Effectiveness (EDGE) Program Development for the NISIET, Hyderabad:**

The IHS designed a short term two week course on enterprise development and government effectiveness (EDGE). The first course was offered by the National Institute of Small Indus-

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<sup>44</sup>ICMR letter No.5/16/24/2001-ECD-II dated 7/9/2001.

try Extension and Training (NISIET), Hyderabad during August 1998. The Institute's role was to elucidate the program philosophy, design the syllabus, resource personnel profiles, and reading materials for the first course, which was offered to a group of senior civil servants from Sri Lanka. The EDGE program believes that incidence of entrepreneurs and development of enterprises in a country, is ultimately linked to its culture. Having a vision is a necessary prerequisite but is not enough to make change happen. At a more practical level, cultural and natural resource endowments have to be exploited for economic development. That calls for an understanding of emerging technologies, forces of social change, international economic and political relationships, etc.. Shared understanding of the vision, goals and the environment enables planning, coordination and program development. Finally the plans are to be implemented. Governments can enable development, understand emerging technical, economic environment, have the skill to formulate and then execute plans. These men and women must be personally competent and skilled to comfortably deal with the emerging technical, economic environment. Thus the EDGE program coverage includes; political - bureaucratic vision about enterprise development, economic - political environment, emerging technologies, government effectiveness, and personal skills of participants.

### **Verbal Autopsy Skills for the SRS Surveyors:**

Starting with January 1999, the Registrar General of India shifted to a SRS based cause of death reporting system. The earlier survey of cause of death rural (SCD-Rural) was discontinued. A landmark article analysing performance of the cause of death reporting system in India, based on work at the IHS was published in the National Medical Journal of India in 2001. A small group of researchers in India and abroad got together and offered to collaborate with the RGI to systematically design the SRS based cause of death reporting system. The IHS was a cofounder of this SRS-Collaborative group. Work at the IHS as well as other centres in the country contributed to development of detailed guidelines for verbal autopsy by SRS surveyors. The IHS conducted training programs at Hyderabad, in December 2002, and Bhubaneswar, in January 2003, for SRS surveyors from AP and Orissa respectively. The Institute's faculty also assisted in training at Bhopal of SRS surveyors from Madhya Pradesh.

### **Introduction to the Methods of Epidemiology:**

Knowledge of epidemiology of diseases and health states is essential for health policy analysis and health systems research. Epidemiology deals with distribution of disease and determinants of disease frequency. This one week full time course provided an orientation to epidemiology as a basic science for public health. It also provided the quantitative approach to measurement of disease frequency and association. Emphasis was laid on descriptive epidemiology. This course helped to build skills needed by public health professionals to interpret critically the epidemiologic literature. The course was designed for health system researchers, post graduate students in community medicine, medical officers joining biomedical research projects, public health officials, biomedical scientists, and health policy analysts. The course was organised in October, 2001 and was mostly attended by faculties and researchers working at the IHS.

### **Advanced Studies in Public Health (APH):**

Continuing its efforts to build capacity in various areas of public health, the IHS has developed a certificate of Advanced Studies in Public Health (APH) program. The program aims to equip students with essential public health competencies in such areas as research methods, policy analysis and management. The curriculum promotes an interdisciplinary and comprehensive approach to issues related to health, development and provision of health services. The program is designed to provide multiple opportunities for students to practice public health skills and foster critical thinking about issues addressed by them. Students are drawn

from a broad range of medical, allied health, technical, humanities, physical and social science disciplines. The program requires four semesters of full time course work and two inter semester field placements. The first batch started in January 2003 with four students each coming from different parts of the country (Jammu & Kashmir, Gujarat, Andhra Pradesh, and Orissa). The Government of Gujarat sanctioned sponsorship for two candidates in the first year. The Institute has received provisional affiliation from the NTRUHS to offer the programme as a Masters in Public Health and is awaiting government sanction for the same.

### **IHS- University of Iowa Collaboration**

The Institute has entered into a tie-up with the University of Iowa, US. The University of Iowa, is a comprehensive public university, established in 1847, with about 1700 faculty, 6000 professional and scientific staff and three hundred thousand students, spread over 13 colleges. The College of Public Health of the University is accredited by the American Council for Education in Public Health and is a leading public health training and research agency in the United States of America. The collaboration is in furtherance of the Memorandum of Cooperation between the State of Iowa and the Government of Andhra Pradesh. The collaboration will focus on:

- i. Joint educational, training and/or research activities.
- ii. Exchange of invitations to scholars (faculty, research personnel, and graduate students) for lectures, visits and sharing of experiences.
- iii. Exchange of invitations to scholars for participation in conferences, symposia and seminars.
- iv. Exchange of information in fields of interest to both parties.
- v. Exchange of faculty, research personnel, and graduate and undergraduate students for study and research.
- vi. Practical training in pre-identified or otherwise selected field sites.

### **Health Informatics Infrastructure for India**

**The Advanced Diploma in Health System Informatics (ADHSI) Program:** Recognizing the success of the Institute's Certificate in Health Intranet System Administration program, the State Board of Technical Education and Training (SBTET) have accredited the IHS for an Advanced Diploma course in Health System Informatics (ADHSI). This is a full time, 18 months course. The course consists of three semesters, two semesters each of 3 months duration and third semester comprising of an internship of one year. The third semester is devoted to a stipendiary internship and guided on the job training in appropriate organizations.

### **Certificate Course in Health Intranet System Administration:**

The Institute of Health Systems has been making efforts to build health informatics infrastructure in India. The IHS offers a training program to build manpower to meet system administration needs of hospitals and health care organisations. This certificate course offered by the IHS is a 15 month training course consisting of three months full time training followed by one year internship. The course teaches skills in administering and implementing windows NT, which is accredited to the State Board of Technical Education and Training. CHISA graduates are more versatile as they are trained for system administration PC hardware trouble shooting and building up small local area networks. The program started in 1999. Intake is between 20-30 students each year. Many students are sponsored by the SC<sup>45</sup>

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<sup>45</sup>APSCFC Proc. No. D5/1796/APSC/99 dt 7/7/1999, 1/3/2000, 9/7/2001, & P3/1473/APSC/2002 dt 20/8/02.

and BC<sup>46</sup> welfare department of the Government of Andhra Pradesh. The course has been recommended by the GOI Ministry of Social Justice, to the Social Welfare administration of various states as an innovative scheme for employment<sup>47</sup>. Three batches of CHISA students are already working in different hospitals and in reputed software companies. The feed back to us has been positive. And our fourth batch finished their training and are in the internship phase.

### **Certificate Course in Health Care Software Development:**

Application of information technology to the domain of health care delivery is referred to as Health Informatics. The IHS offers a training program in software development for health care field. This is a fifteen month program consisting of three months full time course work and one year internship. The program started in 2000. Intake is between 5-10 students each year. Two batches have completed the course and are working in different software development organisations. Third batch finished their training and are in their internship phase.

### **Health Level 7 (HL7) Training Program:**

Health Level 7 standard is for electronic data exchange in all health care environments with special emphasis on inpatient acute care facilities. The primary goal is to provide standards for the exchange of data among health care computer applications that eliminate or reduce the custom interface programming. This training is to create awareness about the HL 7 protocols for personnel who are in health care field. The program covers all major modules including patient administration, observation reporting from a developers point of view. Software firms interested to develop health care software particularly for export usually avail of this program to familiarise their developers with the HL7 standard. These include; Citadel Health Limited, Karishma Software Limited, Pentasoft Technologies Ltd., Axsys Health tech, CDR Hospital, Quest Syscon International Pvt. Limited, and Frontier Institute of Information Technology.

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<sup>46</sup>APBCFC Procs. No. M/956/99 dt 24/6/99, 7/2/2000, 7/6/2001, and APBCWD E2/6329/2002 dt 16/9/2002.

<sup>47</sup>Govt. of India Ministry of Social Justice & Empowerment (SCD) Division, ltr no. 11014/30/99-SCD-II dt 11 Jan, 2002, addressed State Secretaries in charge of the Welfare of Scheduled Castes.

## Contributions to the AP State Health System

### Projects Sponsored by the Government of AP

#### Technical Assistance to Andhra Pradesh Health Sector Reform Program

The Government of Andhra Pradesh (GoAP) is developing a state health policy based on the Health Sector Reform Strategy Framework and agreed prioritised milestones for achieving improved utilization of health services especially by the poorest people and in the under-served areas. The objective of the AP Health Sector Reform Programme (APHSRP) is for AP to reach the health MDGs, provide new models for improving systems and deliver better health services to the poor. The Institute has been commissioned to assist the Department of Health, Medical and Family Welfare (DoHMFV) of GOAP for initiating planning for the first year's activities of the AP health Sector Support program so that momentum is maintained and program can be launched as soon as the funds are approved for the reform process. Specifically the Institute will provide assistance to plan and set up the Programme Implementation Unit, prepare the action plans for the achieving the 1st year milestones and integrate it within the annual plan of the DOHMFV and initiate work on the district planning process and the tribal health plan The Medium Term Strategy and Expenditure Framework for Health and the NRHM framework will serve as the blueprint for initiating planning for the first year's activities of the AP health Sector Support program . Diagnostic analysis including assessment of existing processes in the areas will be done. Following which detailed action plans will be prepared. The consultancy team will assist the Director of Health in Implementing the Action Plan and will conclude the assignment with an informal appraisal to assess readiness of the Department for implementing the reform process. The project has begun from June 2007 and is sponsored by the DfID<sup>48</sup>

#### Assessment of Critical Gaps in Rural Health Care System of AP

The study aims to assess current critical gaps in health care system of rural areas of Andhra Pradesh and suggest remedial measures for improvement of the same. Specifically the study aims to (1) assess the availability of health services in rural areas of Andhra Pradesh (2) identify critical gaps in health infrastructure facilities in rural areas (3) identify "software gaps" in PHCs in the form of non-availability of essential manpower, i.e., Medical Officers and Nursing Personnel and assess the criticality of software gaps on health care delivery in rural areas (4) identify other factors contributing to the deficient health care in rural areas., and (5) suggest actionable recommendations for improvement of identified facility scarce districts, which need priority attention. The study uses both qualitative and quantitative research methods and makes use of both secondary and primary data sources to achieve the objectives of the study. The 23 districts of AP were listed in ascending order of IMR. A total of 6 districts have been selected for the study -one high IMR district and one low IMR district from each of the three geographical regions of the State. They include: Krishna (Low IMR, Andhra); Karimnagar (Low IMR, Telangana); Cuddapah (Low IMR, Rayalaseema); Vizianagaram (High IMR, Andhra); Mahaboobnagar(High IMR, Telangana); Anantapur(High IMR, Rayalaseema). Within each of the above districts six PHCs have been selected by random sampling. Inspection of physical facilities, infrastructure, equipment, drug and consumable stores, registers etc have been conducted as part of an observational study to assess the current status of physical facilities. In addition interviews have been conducted with health care providers, community leaders and patients at each PHC. The study has been commissioned by

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<sup>48</sup>DFID Contract No. CNTR/MSAP/HSR/DSC/2007/2531, Dt. 28/05/07.

the Department of Planning, Government of Andhra Pradesh<sup>49</sup>. The study began in March 2006 and was completed by June 2007.

### Medium Term Expenditure Framework (MTEF) for Health in Andhra Pradesh

The Government of Andhra Pradesh is in the process of developing a medium term strategy and expenditure framework for health in the state for the years 2006-11. The Institute was commissioned by the Department of Health and Family Welfare to develop the MTEF<sup>50</sup>. The study involved analysis of health expenditure by sources of funds, functions of care, providers and resource categories; estimation of the resource envelope; costing of medium term strategies and development of the MTEF by reconciling bottom-up estimates of the cost of carrying out policies, both existing and new with the resource envelope available for public health expenditure. Health budget data of the last five years was analyzed up to detailed head level using National Health Accounts framework adopted by the Government of India to understand trends in public health spending and make projections for a “business as usual” scenario. Data included Demand for Grants of DoHMFw and other line departments such as Department of Women and Child Welfare, Department of Labour and Department of Tribal Welfare, and receipt and expenditure statements of disease prevention and family welfare societies established by the government. Costing of medium term health strategies using GOI, GoAP, National Macroeconomic Commission for Health (India) recommended norms<sup>51</sup>. The study began in October 2005 and was completed in May 2006.

### Public Private Partnership for Monitoring of Water Quality in Reservoirs of Hyderabad City

The provision of an adequate supply of safe water one of the eight components of primary health care. In Hyderabad, HMWSSB caters to drinking water needs of about 6 million people including those living in about 800 slums. Existing mechanisms for water quality testing are not enough to meet the challenge of a large city like Hyderabad. Therefore the HMWSSB has partnered with the IHS to augment the Board’s quality control mechanisms as a third party check. IHS Field staff does daily monitoring of water quality in 22 reservoirs. They visit the reservoirs daily and collect water samples from designated sampling points. All samples are tested for “Residual Chlorine” using N,N Diethyl -P-Phenylene Diamine (DPD) method at the site itself. If Chlorine levels are unsatisfactory, a sample is taken for microbiological analysis. IHS personnel record their observations pertaining to any circumstances that could have an impact on water quality: such as: improper functioning of chlorine machines, availability of chlorine cylinders, absence of operators, power failures, damage to pipes etc. Results communicated to Board daily. Weekly, monthly and quarterly consolidated reports are also submitted. There has been significant improvement in quality of water in reservoirs since the partnership was put in place. When the partnership became operational about 12% of the samples were found to be unsatisfactorily chlorinated, compared to current levels of 2%. The project was commissioned by the HMWSSB and has been in operation since April 2005<sup>52</sup>.

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<sup>49</sup>Department of Planning , GoAP sanction letter G.O Rt. No. 165 dated 4/3/2006

<sup>50</sup>Contract No. : CCG/CTR/05(P)/06(2)/05-06

<sup>51</sup>C K George, Medium Term Expenditure Framework for Health in Andhra Pradesh. Report prepared for the Department of Health and Family Welfare, Government of Andhra Pradesh: IHS: RP 38/2006

<sup>52</sup>Letter No. MD/HMWSSB/IHS/2004-05, Dt. 11/04/2005, Letter No. MD/HMWSSB/IHS/2005-06/299, Dt. 31/03/2006

## Public-Private Partnership for Prevention of Waterborne Diseases in Urban Slums of Hyderabad

The Institute is partnering with the Hyderabad Metropolitan Water Supply and Sewerage Board to identify risks associated with spread of waterborne diseases in slum areas of Hyderabad and provide suggestions to address these risks. As part of this partnership, the Institute regularly monitors quality of water supplied to residents of identified slums. Samples are collected from various sources and tested for residual chlorine and bacteriological contamination. IHS personnel also record their observations pertaining to any circumstances at the slum site that could have an impact on water quality, such as leakage of the tap, damage of the sewerage pipelines and sewerage overflows, cross connections with sewerage pipes, cracked or eroded tap stand, presence of open defecation in the near vicinity, presence of farm animals or industrial pollution etc. Board is notified of all sewerage overflows, with exact address. When the overflows are from within houses, respective households are informed of their potential health hazards. The status followed up during repeat visits. A key focus of the partnership is to empower residents for prevention of waterborne diseases. Field staff inform concerned residents about the potential health hazards and advice remedial action. During outbreaks, the residents were educated about good hygiene practices and measures to prevent water contamination. Community Mobilization by Focus Group Discussions with women in slum is also conducted in each slum. In addition quality of water supplied by hotels, street vendors, eateries etc., in the slum areas are also monitored. Reports are provided on a daily, weekly, monthly and yearly basis to the Board. The presence of external monitoring and direct reporting of findings to senior most level of Board management, has to a great extent ensured that lower level staff are more vigilant and prompt in carrying out their routine work. Data indicate that there has been an overall improvement in levels of chlorination of water supplied to the slums, during the reporting period. Further, communication of findings on a real time basis to the officers of board, ensures prompt response in taking corrective measures. The project was commissioned by the HMWSSB and has been in operation since February 2005<sup>53</sup>.

## Baseline RCH Survey for RCH-II Project

The Reproductive and Child Health (RCH) Project -II in the state of Andhara Pradesh is being implemented from April 2005 and will continue over the years 2005-2010. The RCH programme is an integrated, focussed and participatory program aimed at meeting the unmet demands of the target population. It aims to reduce the infant mortality rate from 59 to less than 30 per 1000 live births, reduce neonatal mortality rate from 36 to 15 per 1000 live birth, reduce maternal mortality ratio from an 340 to less than 100 per 100,000 live births; and increase the institutional delivery from 64% to over 90 % by the end of the project period. The main objectives of the Baseline Survey are to provide district level data on key maternal and child health indicators such as infant mortality rate, ANC coverage, delivery care, postnatal care, breastfeeding practices, prevalence of diarrhoea and ARI, contraceptive use, child immunization coverage, reproductive track infections and awareness of selected health interventions under RCH-II. Data on these indicators will provide an idea of regional imbalance in the current health status and provision of MCH services. Data generated from the survey will be useful to formulate district-specific interventions and for allocation of resources. IHS was commissioned by the Commissionerate of Family Welfare to conduct the survey in three districts<sup>54</sup>. The study has been completed in November 2006

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<sup>53</sup>Letter No. MD/HMWSSB/IHS/2004-05, Dt. 25/01/2005 Letter No. MD/HMWSSB/IHS/2005-06/299, Dt. 31/03/2006

<sup>54</sup>Commissioner of Family Welfare, DoHMF, GoAP, Rc. No.: 276/CFW/D&E- 2/2006

## National Rural Health Mission: Preparation of District Health Action Plan

Recently the Government of India constituted the National Rural Health Mission (NRHM) for achieving greater integration of national health programmes and improving the reach of the public health services. A key focus of the NRHM is local level planning and involvement of PRIs. The Institute was commissioned by the Commissionerate of Family Welfare to help prepare the District Action Plan for Anantpur district<sup>55</sup>. The work involved conducting of a situational analysis, eliciting views of multiple stakeholders and preparing an action plan and budget. The study was completed in December 2006

## Andhra Pradesh Yogadhyayna Parishad Systems and Procedures: Assessment and Documentation

The Institute has been commissioned by the Andhra Pradesh Yogadhyayna Parishad (APYP) to develop systems and procedures relating to general functioning, academic, accounts and other management functions of the organization. The work includes: preparation of job charts of functionaries, framing of service rules, framing of rules of admission and discharge of patients and yoga trainees at nature cure centres run by the Parishad, framing of rules and regulations relating to admission and management of internship, hostels, staff accommodation etc., framing of rules and regulations relating to post graduate courses and paramedical courses affiliated to NTRUHS. The IHS has also been asked to review and revise the bye-laws of the organization. The work was commissioned by the Department of Health and Family Welfare<sup>56</sup> in October 2005 and is expected to be completed by August 2007.

## APVVP Hospital Performance Analysis:

An important goal of the AP Vaidya Vidhana Parishad (APVVP) is to improve hospital efficiency and quality of service using performance measurement and analytic techniques on a regular basis. The APVVP administers about 150 first referral hospitals in AP consisting of Community, Area and District hospitals. The IHS was commissioned<sup>57</sup> by the APVVP to undertake a performance analysis of these hospitals on monthly basis. Every month hospital activity indicator and service mix data are collected from the APVVP hospitals. Hospital wise performance analysis is done. Each month the Institute's researchers would visit about 20 hospitals to collect qualitative information and to verify data accuracy. These periodic analysis of hospital performance reports<sup>58</sup> including the field visit reports are furnished, every month, to the hospital management for further action. The Institute assisted the APVVP for about three years between July 1998 to 2002. There after the APVVP is doing their performance analysis in-house.

## Patient Satisfaction Surveys in APVVP Hospitals:

Patient satisfaction survey is a reliable yardstick to assess the quality of health care extended by the health institutes. The aim is to generate statistically accurate estimates of patient's feedback for each hospital, so that inter hospital comparison is possible. It generates data for theoretical importance and for practical purposes such as planning, administration and evaluation of health care services. The Institute was commissioned<sup>59</sup> by the APVVP to conduct patient satisfaction surveys in APVVP hospitals at half yearly intervals between June 1999 and

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<sup>55</sup>Letter No. Rc. 307/CFW/D&E- 5/2006, dt: 28.07.2006

<sup>56</sup>G.O. Rt . No. 495 HM & FW (R1) Dept. Dt: 06/05/2005

<sup>57</sup>APVVP Proc. Rc.No.7552/WB(D)/98 dated 24 Aug 1999, 18 Dec. 1999, 6 Apr 2000, and 12 Apr 2001.

<sup>58</sup>IHS; Periodic Analysis of Hospital Performance: APVVP Monthly Reports from July-December, 1998. Hyderabad: Institute of Health Systems, RP05/1998. Jan-Dec, 1999: RP06/1999; Jan-Dec. 2000: RP07/2000; and Jan-Dec 2001: RP23/2002.

<sup>59</sup>APVVP Proc. Rc.No.7552/WB(D)/98 dated 24 Aug 1999, 18 Dec. 1999, 6 Apr 2000, and 12 Apr 2001.

March 2002. These surveys provide useful feedback on functioning of different areas in the respective hospital and helpful insights about patients' preference. The study obtained feedback from patients and, in case the patient could not be interviewed, the attendant. For the survey a modified version of the Patient Satisfaction Questionnaire-III originally developed by the Rand Corporation Medical Outcomes Study<sup>60</sup> was used. In each hospital, list of patients staying more than 5 days were obtained. The list was stratified by major wards and a random sample were drawn from each ward, proportionate to its bed strength. The Institute brought out five half yearly<sup>61-62,63,64,65</sup> beginning June 1999.

### Herbal and Traditional Medicine Policy Study:

Around the last quarter of the twentieth century, people gradually realised that sub tropical forests are a rich source of medicinal herbs which the local tribes and traditional practitioners have been using for various ailments. This ethnobotanical information is likely to be lost unless cared for. Herb based pharmaceuticals have gained wider acceptance in the industrialised economies. Many modern pharmaceuticals were developed from chemicals using structural and functional insights gained from plant sources. The intellectual property rights of traditional inhabitants of an area from where the basic plant material, leading to the discovery of new drugs, is collected and has been increasingly recognized and preserved. This local knowledge about medicinal herbs has an economic significance, for the indigenous people. This study made comprehensive review of literature and highlighted the long term economic potential of ethnobotanical knowledge base in our country. MEDFLOR-India a database of medicinal flora in India was set up at the Institute. The database contains information about ethnobotanical knowledge base in AP. A structured format for collection of ethnobotanical information was developed<sup>66</sup>. The study contributed to highlight the economic importance of herbal and traditional medicine, ethnobotanical knowledge base etc. Many official efforts are now in place towards this end.

Another aspect of the same project was to review the adequacy of the formal primary health care (PHC) systems in tribal areas of AP. It was found that the PHC System in tribal or remote areas are a simple extension of such systems in plains, with some concessions in population norms. This study highlighted inadequacy of this approach and recommended restructuring of the PHC set up in tribal areas. One of the recommendations eventually lead to creation of a separate Tribal Health Service in Andhra Pradesh.

The study started in March 1991 and report<sup>67</sup> was prepared by to Nov. 1992. The study was sponsored by the Girijan Cooperative Corporation<sup>68</sup>, Government of Andhra Pradesh.

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<sup>60</sup>Hays RD, Davies AR and Ware JE; Scoring the Medical Outcomes Patient Satisfaction Questionnaire; PSQIII. MOS memorandum, Rand Corporation, Santa Monica, 1987, reproduced in Wilkin et al., Measures of need and outcomes for primary health care, New York, Oxford Medical Publications, 1992 (p233-234).

<sup>61</sup>IHS; APVVP Patient Satisfaction Survey, 1999. Hyderabad: Institute of Health Systems, RP24, 2002.

<sup>62</sup>Mahapatra Prasanta, Srilatha S., Subhasree Srinivasan, Sarikonda Sreenivasa. APVVP Patient Satisfaction Survey, June 2000. IHS Report Series 2000;2000(25).

<sup>63</sup>Mahapatra Prasanta, Sarikonda Sreenivasa. APVVP Patient Satisfaction Survey, December 2000. IHS Report Series 2002;2002(26).

<sup>64</sup>Mahapatra Prasanta, Gop Bhagirath. APVVP - Patient Satisfaction Survey, June 2001. IHS Report Series 2002;RP(27):1-35.

<sup>65</sup>Mahapatra Prasanta; Srinivas Kallam APVVP Patient Satisfaction Survey, December 2001. Hyderabad: Institute of Health Systems, RP21, 2002.

<sup>66</sup>IHS; Proceedings of the seminar on Medflor- India and Ethnobotanical research in Andhra Pradesh, India. Institute of Health Systems, wp04, 1992.

<sup>67</sup>IHS; Potentiality and relevance of herbal and traditional medicine for promotion of health and development of tribal economy in Andhra Pradesh. Institute of Health Systems, WP 05, 1992.

<sup>68</sup>GCC VC&MD Proc Rc.No.2625/91-MHD dated 12 Jun 1991, 6 Jan 1993, and 26 Apr 1993; and RC No.1630/93/MHD dated 31 Dec 1993.

## Reproductive Health Services and Sector Reform in AP:

The IHS was commissioned<sup>69</sup> by the Government of AP to prepare a State Action Plan for reproductive services and health sector reform. The current status and time trend of reproductive and child health in the state was reviewed<sup>70,71</sup>. Reproductive and child health program implementation in the state was reviewed with the help of independent sources of outcome and process indicators and data collected from program implementation authorities. Qualitative information about implementation of reproductive and child health services in rural areas was collected using focus group discussion with ANMs<sup>72</sup> in the state. Further insights about delivering reproductive health services in rural areas of the state was gained from a group of randomly selected well reputed PHC Medical Officers<sup>73</sup>. Simultaneously, the state government had commissioned policy reviews on various aspects such as (a) workforce management, (b) decentralization, (c) rational use of infrastructure, and (d) analysis of financial systems. Available results of these policy reviews as well as the states vision 2020 health goals were referred to. Earlier the Institute has done a study to understand performance of the cold chain system in AP<sup>74</sup>. Results from these exercises contributed to the development of a state action plan. Major recommendations in the state action plan include; (a) basic package of services, drugs, equipment, supplies and furniture to be made available at the Sub center; (b) improvement of locational convenience and accessibility of PHCs and sub centres; (c) expansion of a scheme to increase institutional deliveries, using private partnerships, etc. Work on preparation of the state action plan started in August, 2001 and was completed in November, 2002.

## Private Health Sector in Andhra Pradesh:

The Institute has been actively studying various aspects of the private health sector, with special emphasis on standards and quality assurance. A computerised database of health institutions in AP has been set up. The private hospitals and nursing homes component of this database was incorporated in 1993 and was further validated in 1994. Feasibility of accreditation systems in India and Andhra Pradesh has been explored. The IHS was commissioned<sup>75</sup> by the AP First Referral Health Systems Project (APFRHSP), to take stock of the private health sector in Andhra Pradesh and identify appropriate policy choices for their overall development. A workshop was organised in May 1998, with participants from the private health sector and public health officials. Result of the studies spearheaded by the IHS were presented in the workshop and various issues were discussed. A comprehensive report<sup>76</sup> on the private health sector in AP and policy recommendations regarding the private sector has been brought out. Although the studies and workshop were organised in the context of Andhra Pradesh state, the issues, findings and solutions proposed here are relevant to the health systems of all states in India as well as many other developing countries.

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<sup>69</sup>Govt. Of AP Commissioner Family Welfare Rc.No.5001/FW/EC/2001 dated 26 May 2001.

<sup>70</sup>Mahapatra Prasanta, Pushpa Latha, Reproductive Health Status in Andhra Pradesh. Institute of Health Systems, WP/46, 2002.

<sup>71</sup>Mahapatra Prasanta, Pushpa Latha, Samatha Reddy, Child Health Status in Andhra Pradesh. Institute of Health Systems, WP/47, 2002.

<sup>72</sup>Mahapatra Prasanta, Samatha Reddy, Pushpa Latha, Mary Nancy, Reproductive Health Services and Health Sector Reform. Focus Group Discussions with ANMs. A Report. Institute of Health Systems, RP/18, 2002.

<sup>73</sup>Mahapatra Prasanta et al., Proceedings of PHC Medical Officers' Workshop on Health Services and Health Sector Reform in Andhra Pradesh. Institute of Health Systems, RP/19, 2002.

<sup>74</sup>Mahapatra Prasanta, Swati Gayathri, Samatha Reddy, A Study of Cold Chain System in Andhra Pradesh. Institute of Health Systems, WP/45, 2002.

<sup>75</sup>PD APFRHSP Proc. Rc.No.2249/WB/F/98 dated 9 April, 1998.

<sup>76</sup>Mahapatra Prasanta, The Private Health Sector in Andhra Pradesh. Institute of Health Systems, RP01, 1998.

## Medium Term Financing Strategy For Health Sector in AP:

The IHS was appointed as the State Consultant, by the Government of AP for the development of medium term financing strategy for the health sector<sup>77</sup> with financial support from the Department for International Development (DFID) of the Government of United Kingdom<sup>78</sup>. The health sector reform is to fulfill the State's structural adjustment targets pertaining to financing of primary health care. The Institute conducted a strategy development workshop in April 2001 to kick start the strategy development process<sup>79</sup>. The DFID appointed Harvard School of Public Health - International Health System Group (IHSG) to continue the strategy development work in a two phase process. This Institute, introduced the Harvard IHSG team members to key stake holders, familiarised them with relevant official documents and literature and provided other inputs gained from our experience in working with the AP health system. In addition, the IHS reviewed existing information and analysis on burden of disease in AP, suggested important gaps in current priorities and highlighted strengths of current priorities from a burden of disease perspective<sup>80</sup>. Phase two of the exercise involves analysis and projection of the resource envelope for the MTFHS, development of specific strategies including the priority areas identified in phase one, and formulating Medium Term Strategy Expenditure Framework in collaboration with the state government. Phase two of the project started on 10th September, 2002. The IHS role during this second phase is to contribute towards preparation of state health accounts for AP. This work started in March 2003 and is expected to be complete by June 2003.

## Obstetric Facility Assessment Study:

Although most Obstetric complications cannot be predicted or prevented, they can be treated. Since all pregnant women are at a risk of complications, they need to have access to emergency obstetric care (EmOC). This study conducted in the year 2001, assessed the infrastructure for Emergency Obstetric Care (EmOC) in Medak and Adilabad districts<sup>81, 82</sup>. Five categories of public health care institutions (HCI), namely; PHCs, Round-the-clock PHCs, Community hospitals, Area hospitals and District hospitals, were included. Overall 26 HCIs in Medak and 27 HCIs in Adilabad were studied. The District hospitals, only had comprehensive EmOC facilities. All other HCIs had some deficiency or other. Effective availability of EmOC equipment was a problem in both districts. Availability of obstetricians, and anaesthetists was a major hindrance. Either available equipment are not maintained, or the required equipment were not available. While some equipment remained unutilised. The study built up an inventory of private EmOC facilities around primary health centres (PHC) equipped to provide round-the-clock EmOC services. Functional status and adequacy of facilities in PHCs, Area and District Hospitals were assessed. The study was sponsored by the Commissioner Family Welfare, Government of AP<sup>83</sup>, and was funded by the UNICEF office at Hyderabad.

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<sup>77</sup>Govt. Of AP GO Rt. No. 338 dated 22/03/2001.

<sup>78</sup>Funds for the Strategy Dev. Workshop was received from the DfID India. Funds to support the IHSG team was through Harvard Univ. sub contract dt 4 Dec. 02, - DfID prime contract No. DCPS/APST/SSHE/SUP/01/463.

<sup>79</sup>Institute of Health Systems SDW Team. Proceedings of the Strategy Development Workshop for Health Sector in Andhra Pradesh. Institute of Health Systems, RP12, 2001.

<sup>80</sup>Mahapatra Prasanta and George CK. The State of Health and Burden of Disease in Andhra Pradesh, about 2000AD. Annex 6 in Berman A Peter et al., Development of Medium Term Health Sector Strategy and Expenditure Framework for Andhra Pradesh, Phase I: Final Report. Harvard School of Public Health and International Health Systems Group, Boston, July 24, 2002.

<sup>81</sup>Sridhar P. Obstetric Facility Assessment. A Study in Medak, 2001. Institute of Health Systems, RP15, 2001

<sup>82</sup>Sridhar P. Obstetric Facility Assessment. A Study in Adilabad, 2001. Institute of Health Systems, RP15, 2001

<sup>83</sup>Govt. Of AP, Office of the Commissioner Family Welfare RC.No.10103/JD(MCH)/2001 dated 27 Mar 2001.

### **GE Manual for Health Workers in AP:**

Government of Andhra Pradesh Commissioned<sup>84</sup> the Institute to prepare a comprehensive manual to achieve better control of the gastroenteritis (GE) situation in the state. This manual departs from traditional program implementation manuals and is addressed to every one who have a role towards control of gastroenteritis. The manual starts with a brief overview of the causes of GE and basic insights relevant for an understanding of control measures. The book describes proper use of water for drinking, and personal hygiene to avoid gastroenteritis. Tips of recognition of gastroenteritis are provided. Steps for preparation of oral rehydration solution and its usefulness in management of GE are described. The book gives instructions about surveillance of drinking water and food quality, early detection of GE outbreaks and medical management of GE cases. The need for proactive information and education strategy to secure community involvement in control of GE outbreaks is emphasised. Health officers are expected to proactively release press notes giving information about the cause of outbreak, and what can people do to avoid or minimise its adverse effect. Myths and misconceptions about the role of vaccination and the futility of running after vaccination to control adverse effect of a GE outbreak is highlighted. Case studies of a few actual GE outbreaks reported by the public health department are given. To facilitate work of public health officials and empower general public in testing of water or food quality, addresses and where ever available contact telephone numbers of public health laboratories, water and / or food testing laboratories, both in public and private sector have been given. Food hygiene tips for caterers and food handlers is provided. The manual is a comprehensive handbook for health workers, health educators and a good reference for the general public. Government of AP have printed 5000 copies and distributed among health workers in the state. The book has also been published by the IHS for general reference<sup>85</sup>.

### **Malaria Manual for Health Workers in AP:**

The Institute has developed a manual on control of malaria. The manual gives an overview of mosquito, its causative relationship with malaria and basic insights on the malaria problem. Entomological field techniques are emphasised to help build a strong surveillance system. A model syllabus on applied entomology is recommended to study of entomology in colleges and universities and their involvement in assessment of local entomological profile. Indicators to assess malaria situation are discussed. The manual helps individuals, families and neighbourhoods to recognise their role towards prevention of malaria. Importance of personal protection measures is discussed. Practice guidelines for diagnosis and treatment of malaria by medical practitioners and health care delivery institutions are presented. The environmental, chemical and biological control measures of mosquito vector has been highlighted. The preparation of manual was commissioned by Government of Andhra Pradesh<sup>86</sup> in December, 2000 and was published by June, 2001<sup>87</sup>.

### **Quality of Family Planning Practices in AP:**

This enquiry gathered information towards a wider range of contraceptive choices for women and to increase acceptance, by men, of various contraception measures. The study documented quality concerns of the users and non users of family planning methods<sup>88</sup>. Social, cul-

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<sup>84</sup>Government of AP GORt. No. 1495 dated 7/12/2000, HM&FW department.

<sup>85</sup>Mahapatra Prasanta, Samatha Reddy. A Manual on Control of Gastroenteritis with Special Reference to Andhra Pradesh, India. Institute of Health Systems, 2001.

<sup>86</sup>Government of AP GORt. No. 1495 dated 7/12/2000, HM&FW department.

<sup>87</sup>Mahapatra Prasanta, Sai Kumar, Dhanaraj. A Manual on Control of Malaria with Special Reference to Andhra Pradesh, India. Institute of Health Systems, 2001

<sup>88</sup>George Alex. Performance, Acceptability and Quality of Family Welfare Practices in AP. IHS, WP15, 1997

tural, economic and related factors affecting the acceptance of family planning methods were studied. Data was collected from three high performing and three low performing districts. This study has found a positive appreciation of vasectomy by its adopters as opposed to the negative biases of its non adopter males and also females, and also thrown important clues on quality of family welfare that is being provided. The study was started in April, 1996 and was completed by February, 1997. Funding was provided by the Commissioner Family Welfare<sup>89</sup>, Government of Andhra Pradesh.

### **Air Pollution and Cause of Deaths in Hyderabad:**

This study has been designed to understand the cause of death pattern in Hyderabad city and identify deaths due to causes attributable to air pollution. The study also aims to strengthen the medical certification of cause of deaths and reporting of cause of death statistics in the city of Hyderabad. Data on air pollution has been collected from the Andhra Pradesh Pollution Control Board. Cause of Death data is being collected from the vital statistics division of the municipal corporation of Hyderabad. The quality of the medical certification of deaths will be assessed and where required reassessment of cause of death will be done using verbal autopsy tools. The study has been commissioned by the Ministry of Environment and Forests<sup>90</sup>, Government of India and began in May 2005.

### **Epidemiology of Road Traffic Accidents in Hyderabad:**

The process of rapid and unplanned urbanisation has resulted in an unprecedented revolution in the growth of motor vehicles worldwide. The alarming increase in morbidity and mortality owing to road traffic accidents (RTA) over the past few decades is a matter of great concern globally. Currently motor vehicle accidents rank ninth in order of disease burden and are projected to be ranked third in the year 2020. In India, more than 80,000 people get killed due to RTA every year, and this needs to be recognised as an important public health issue. Very few studies have attempted to understand the epidemiology of risk factors associated with RTA in Indian cities. The present study being carried out by IHS from 1st June 2004 is under the aegis of Indian Council of Medical Research (ICMR)<sup>91</sup> and aims to examine the magnitude of this multifaceted problem in a rapidly developing Hyderabad metropolis. The study is designed to understand epidemiology of risk factors associated with high level of accidents. Causative linkages between accidents and road design, road user behaviour, traffic regulation, and road worthiness will be explored. Data collection and preliminary analysis has been mostly done. The study is expected to be completed by July 2007.

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<sup>89</sup>Govt of AP Commissioner Family Welfare Rc No.4004/NTP(IPP.VI)/F/96 dated 1 Feb 1996.

<sup>90</sup>GoI Ministry of Env. F. No. Q11011/21/2003 EHC dt: 17th March 2005

<sup>91</sup>ICMR No.5/4/-5/1/ADR/NCD-1/2002 dated 27/6/2002.

## Projects Sponsored by Other Agencies

### Assessing Risk Associated with Water Quality for Establishing Health Based Targets for Drinking Water Safety in Support of Water Safety Plans, Hyderabad.

The Hyderabad Metropolitan Water Supply and Sewerage Board (HMWSSB) which caters to the drinking water needs of about 6.5 million people, is in the process of developing pilot WSPs in three sites, in collaboration with the WHO and the USEPA. A key requirement for the development of the WSPs and verification of their successful implementation is the establishment of health based targets. These targets are to be developed taking into account the disease burden in the community, exposures that contribute most to disease and the socio-economic determinants of exposure to risks. The Scientific Working Group which was held recently in Hyderabad to establish Health Based Targets in support of the WSPs, considered various alternatives by which data on burden due to waterborne diseases and risks associated with them could be collected. In the absence of institutional mechanisms to collect the required data, the Group decided that a cross-sectional survey among a representative sample of population in each of the three project areas, was the best option to collect reliable data to support the WSP. The Institute was commissioned by the WHO to carry out the study which is expected to be completed by August 2007<sup>92</sup>.

### Frontiers Prevention Program (FPP) Outcome Evaluation

Frontiers Prevention Program (FPP) aims to support the delivery of a comprehensive package of interventions on targeting populations, who are seen as key to HIV/AIDS epidemic dynamics: sex workers, men who have sex with men, and people living with HIV/AIDS. These interventions occur within specific geographic sites that are seen as potential high HIV-transmission areas. The outcome evaluation seeks to measure the effect of the interventions. The study aims to evaluate: whether the FPP empowerment for prevention approach increases the level of social capital (community trust, reliance, responsibility and civic participation) among key populations actively involved in the interventions and wider key populations exposed to the interventions; and whether increased social capital lead to increasing empowerment for prevention, actual reduction in risk behaviours and changes in knowledge attitudes and behaviour. The study also seeks to evaluate whether the FPP approach lead to an enabling environment in which stigma and discrimination are reduced; the relationship between an enabling environment and social capital; to what extent are NGOs / CBOs and the services they provide participatory, client - centered and community based, and how does this change over time as a result of capacity building and other inputs. The baseline study of the outcome evaluation was completed in December 2005 and findings published<sup>93</sup> Results from the study was presented at the XV and XVI International AIDS Conference. The study was sponsored by the International HIV/AIDS Alliance and Horizons (Population Council).<sup>94</sup> The Institute has been commissioned to conduct the end of project evaluation which is expected to be completed by August 2007<sup>95</sup>

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<sup>92</sup>WHO India allotment : SE IND PHE 400 XD 06 4, SE IND PHE 011 RB 06 (Sticker No. SE/07/117196 & SE/07/112566), dt: 16/01/2007

<sup>93</sup>Letter of contract from The International HIV/AIDS Alliance, UK, dt: 10.02.2004

<sup>94</sup>C.K. George , Kavitha Krishna, N.S. Reddy and B. Srikanthi, Social Context Assessment for HIV/AIDS Prevention Programmes in Andhra Pradesh. Report of the Outcome Evaluation of the Frontiers Prevention Programme : IHS RP 32/2005.

<sup>95</sup>Subcontract under agreement no. AI03.32A between Population Council and the International HIV/AIDS Alliance with funding from United States Agency for International Development (USAID). Dt: 25th July 2006

## Health Equity in AP

Health Metrics Network established by the WHO is working with countries on the development of a set of standards and tools to improve synthesis, analysis and data use for major health planning and decision-making, such as health sector reviews and strategic plans. In India it has commissioned the IHS to conduct an assessment of health and equity. The study will assess different aspects of equity for some important stratifies: e.g., urban/rural inequalities, wealth inequalities, gender and education-related health inequalities on health variables such as MR, U5MR, measles vaccination, skilled birth attendance, preventive therapy of malaria in pregnant women, malnutrition in children (stunting), and combined variable called co-coverage. Some of these inequalities in health will be decomposed into the contributing factors. The study is expected to be completed by August 2007<sup>96</sup>

## Trends and Analysis of Health Status in AP

Health Metrics Network established by the WHO is working with countries on the development of a set of standards and tools to improve synthesis, analysis and data use for major health planning and decision-making, such as health sector reviews and strategic plans. In India it has commissioned the IHS to conduct a situation and trends analysis which will build upon existing review process and data-gathering mechanisms. The review will be based on service data, data on health resources (human resources, financing, infrastructure), health system immediate outcomes, and health status data (mortality, morbidity and causes of death). Data from different sources will be reconciled to develop best estimates and to make health projections where possible. The study is expected to be completed by August 2007<sup>97</sup>

## Technical Consultancy on Data Management for Field Trial to Assess Impact of Systemic Changes in Provision and Promotion of Health Care on Neonatal Mortality

Collaborative effort between Naandi Foundation and London School of Tropical Medicine and Hygiene. The Field Trial is being implemented in Nagarkurnool Division of Mahabubnagar District of AP. The trial covers over 400 villages with equal number of study and control villages. The field team includes over 400 surveyors and about 20 supervisors. IHS has been selected as a technical consultant for the study. The Institute has been providing technical support for developing of forms and training manuals, training of surveyors and supervisors and quality control over the length of the trial. Institute has developed survey forms, verbal autopsy tools and training manuals. Training of surveyors is currently underway. The project has been commissioned by the Naandi Foundation<sup>98</sup>

## State Health Accounts for Andhra Pradesh:

National health accounts (NHA) document total health care financing and expenditure within a particular health system. Health expenditure consists of financial outlays that service the health system. NHA trace the resources invested and consumed in the production of health and facilitates further research and meaningful policy analysis. In the Indian context, state level studies are at least as important as overall national analyses. In some respect, state health accounts (SHA) are more important, because many of the major policy decisions concerning resource allocation to health and social sector are made at the state level. The Institute has developed a comprehensive State Health Accounts for Andhra Pradesh. Secondary

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<sup>96</sup>WHO, Geneva:MHI/HSE, Proj. Allot. No. GL/GLO/IER/013/XG/06.999.00, Obligation No.: HQ/06/053856, dt: 17/07/2006.

<sup>97</sup>WHO, Geneva:MHI/HSE, Proj. Allot. No. GL/GLO/IER/013/XG/06.999.00, Obligation No.: HQ/06/053856, dt: 17/07/2006.

<sup>98</sup>Naandi Foundation Letter & Contract dated 15th Feb 2007

data pertaining to health expenditure was collected from various state government departments and central ministries, CGHS and ESIS, private insurance companies, local bodies, etc. Primary surveys were done to estimate health expenditure by NGO's, voluntary and charitable organizations, public and private sector firms. The work started in March 2003 and was completed in May 2004. The results of the study has been published<sup>99</sup> and has been cited in national policy documents such as the report of the National Macroeconomic Commission for Health. The project was funded by the Department for International Development (DfID), Government of U.K.<sup>100</sup>

### Cause of Death Coding for AP Rural Health Initiative

The Andhra Pradesh Rural Health Initiative is a collaborative effort of the Byrraju Foundation, The George Institute for International Health Sydney, the Centre for Chronic Disease Control in New Delhi and the CARE Foundation, Hyderabad to develop cost effective solutions for providing health care to rural communities. As a part of this Initiative, it is required to carry out mortality/morbidity surveillance in about 45 villages of East & West Godavari. Trained personnel conduct verbal autopsy using specially structured Verbal Autopsy Forms, which are sent to the IHS. At the Institute the cause of death (COD) is assigned to each form as per the ICD-10 codes. The project which began in June 2004 is for a minimum of three years and is sponsored by the Byrraju Foundation<sup>101</sup>. Till date we have coded about 4000 VA Forms.

### AP Health Systems Responsiveness Survey:

Health system performance measurement is important: first as a means of identifying the shortcomings of health systems, as in explaining why countries with similar levels of income fail to achieve similar levels of health; secondly, for providing indicators that allow evaluation of a health system over time. Both these activities in turn could contribute in the future to a pool of evidence that can provide the basis for confirming or rejecting if specific financing and provision mechanisms are particularly appropriate under given conditions. Health system performance involves three discrete aspects: medical, responsiveness and fair financing. This study measured responsiveness of the health system in AP to individuals' expectations regarding the non-clinical enhancing aspects of the health system. The study used a multistage stratified random sampling procedure for selection of household clusters in rural and urban areas of Andhra Pradesh. Clusters were randomly selected with probability proportionate to the population in the cluster. A total of 221 clusters were selected statewide. From each cluster a simple random sample of 25 households was drawn. A total of 5134 households were surveyed. One adult from each household, was randomly selected to give a age sex representative respondent population. Kish tables were used for this purpose. The survey sought to measure eight distinct aspects of health system responsiveness pertaining to elements related to respect for human beings as individuals, that are largely subjective and judged primarily by the client, and the more objective elements related to how a system meets commonly expressed concerns of patients / clients and their families as consumers of health system. Anthropometric measurements, information on prevalence of 15 non communicable diseases and details of deaths in the family within the past 24 months, of each respondent was also collected. In addition, case studies of habitations and wards were done to capture valuable qualitative information.

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<sup>99</sup>George C K, Pattnaik G S, Andhra Pradesh State Health Accounts 2001-02: IHS, RP 31/2004

<sup>100</sup>DFID Contract No: CNTR/APST/SSHE/CON/816, dt: 21/02/03

<sup>101</sup>Byrraju Foundation Agreement & Letter dt: 23rd June 2004

The study provided valuable insights into responsiveness of the health system to patient/client needs and expectations. Respondents in urban areas had better access to health care institutions than those in rural areas. The average time taken for people to access health care was 56 minutes and 142 minutes in urban and rural areas respectively. It was found that people in urban areas have better access to public health care institutions than those in rural areas. Respondents in rural areas preferred to go to a private provider as they could not rely on the primary health centre for any serious health care need. Of the eight dimensions of health system responsiveness studied (respect for dignity, respect for confidentiality, respect for autonomy over treatment, prompt attention, communication, basic amenities, social support and choice of provider), 53% of the respondents rated prompt attention to their needs as most important. Communication of information relating to health condition and respect of dignity of patient was rated as most important by 23% and 14% of the respondents respectively. Only 3% of the respondents rated choice of provider as most important. The survey found that 36% of the respondents did not seek any health care because they could not afford it. About 16% of the respondents said that they were refused health care because they could not afford it. The survey also found that 31.6% of female respondents and 27.8% of the male respondents had varying degrees of Chronic Energy Deficiency (CED). About 15% of both male and female respondents were found to be obese. The obesity levels in the survey were 4 to 5 times higher than that reported by the National Nutrition Monitoring Bureau (NNMB) survey in 1996-97. The age specific death rates computed from survey data was more or less similar to SRS 1996-97 rates. The study started in 2000, and results were reported by December 2001<sup>102</sup>. Funding was provided by the WHO, Geneva<sup>103</sup>.

### Assessment of Household and Community Water Quality in Guntur, Krishna and East Godavari Districts

The Research Triangle Institute, US along with TNS India is conducting an environmental assessment in three districts of the State. A key focus of the study is to assess quality of household and community water supplies. The TNS has commissioned IHS to provide training for their surveyors and test the water samples. The study was completed in December 2006

### Indoor Air Pollution Exposure Atlas Study:

This household survey was part of a collaborative study to develop a predictive model of exposures to indoor air pollution (IAP) from qualitative information about fuel use, and housing characteristics. Other collaborators were; (a) Sri Ramachandra Medical College (SRMC), Chennai (indoor monitoring of RPM), and (b) the Center for Occupational & Environmental Health (COEH), University of Berkeley (modeling). About 1450 households, in 15 villages of Rangareddy, Warangal and Nizamabad districts were surveyed for qualitative information including the 420 households in which another collaborator monitored RSPM levels. A large proportion of households cook their food in the open air. Biomass fuel use was prevalent in all rural households of the three districts. Majority of the households use wood for cooking and were found to be traditional stove users (72-81%). Households using mixed fuels have the highest RSPM concentrations (732 mg/m<sup>3</sup>). Households with poor kitchen ventilation had a twofold risk of having high kitchen concentrations compared to households with good ventilation. The project was sponsored by the World Bank - Delhi Office<sup>104</sup>. Work started in November, 2000 and report was prepared by March 2002.

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<sup>102</sup>Nanda Lipika. Andhra Pradesh Health and Health Systems Responsiveness Study 2001. IHS, RP11, 2001

<sup>103</sup>WHO File E50-445-1. Allotment GL GLO GPE 222 XG 00 S999 00. Obligation No. HQ/00/113185.

<sup>104</sup>Purchase Order No. 7113080, dated Nov 10, 2000.

## Health Effects of Air Pollution in Hyderabad:

Adverse health effects attributable to air pollution are an important public health problem. Air pollutants such as particulate matter have damaging effects on human health. Estimates of the health damages associated with air pollution are required to assess the size of the problem and to evaluate the impact of specific pollution control measures. The IES programme was designed to integrate solutions for multiple benefits. The health effects analysis study aimed to identify and analyze the air quality, public health and GHG mitigation “co-benefits “ in transportation and industrial sectors, to develop an initial estimation of the health impacts of PM<sub>10</sub> (Particulate matter of 10 microns diameter) in Hyderabad and their social costs. The analysis was conducted for Business as Usual (BAU) and four identified alternative mitigation scenarios. The magnitude of health impacts in relation to PM<sub>10</sub> exposure was calculated using both a health risk assessment approach and percentage increases of mortality or morbidity per unit increase of air pollutant concentration. The analysis was based on Concentration Response (CR) functions derived from available epidemiological studies. Health benefits were computed using Human Capital Approach (HCA) for mortality valuation, and the Cost of Illness (COI) approach for valuing morbidity. Transportation sector is the largest contributor to air emissions (approx. 70% of the total load) in Hyderabad. The effective bus transit mitigation scenario resulted in, 1/3<sup>rd</sup> reduction of PM<sub>10</sub> concentrations compared to BAU levels, and the most significant decreases in mortality and occurrence of CVD and other respiratory diseases. The transportation sector was recognized as an area, where significant air quality and public health benefits could be realized through the IES, India Analysis. The project started in November, 2002 and was funded by the USAID<sup>105</sup>.

## Socioeconomic Impact of Asthma:

During the working group<sup>106</sup> discussion of the socioeconomic panel of the WHO-NHLBI “Global Strategy for Asthma Management Project”, it became evident that very few studies on social, economic and cultural aspects of asthma has been done in the industrialized and developed economies. In the developing world such studies were not available at all. Without any such studies the panel was handicapped in making recommendations about socioeconomic impact of asthma all over the world. At the same time, the time table of the full project could not be held up because of this. Hence it was decided to go for a few quick exploratory studies. This study<sup>107</sup> was a result of the decision. The social impact of asthma advances far beyond the bar numbers of affected individuals. It creates a burden not only for the individual but also for society, with reduced productivity, quality of life, and economic costs. Social institutions, family practices and behavioral responses can all contribute towards coping with the morbidity. These social and cultural opportunities should not miss the attention of medical and public health professionals. The study<sup>108</sup> sought to develop tools to assess socioeconomic aspects of asthma and to describe them. It revealed that the illness ‘asthma’ is an easily identified problem both in rural and urban areas. In the rural area, the poor preferred to avail services from the government health facility. Majority (75%) of those suffering from the disease had to either avoid (40%) or restrict (35%) work on account of asthma. The children among them lost on an average 2.66 days of school per month and the adults lost about 1.65 days work per month. In addition to the direct burden of asthma due to loss of school or work

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<sup>105</sup>Third tier sub contract No. IES India/EPTRI/02 dated 6 Nov. 2002.

<sup>106</sup>Dr. Prasanta Mahapatra, President and Director, IHS was a member of WHO scientific group on Asthma

<sup>107</sup>The survey and writing of this paper was made possible by a grant from the NIH-WHO Global Strategy for Asthma Management Project and the Division of Lung Diseases. NHLBI . NIH . Bethesda. MD 20892. U.S.A.

<sup>108</sup>Global Strategy for Asthma Management and Prevention - NHLBI/WHO Workshop Report, Global Initiative for Asthma, Ch 8; pg 120-137; NIH, NHLBI, USA, 1995.

for the affected person, families with an asthmatic experience loss of work by other members of the family to attend on the affected person and quite significant expenditure for treatment of the disease. For example the top two causes cited by asthmatics who perceived their condition as a burden were; (a) overall cost of the treatment takes away a big chunk of the family income, (b) the need for assistance by at least one family member during attacks. Major part of the financial burden was on account of medicine purchase. Thus lowering of prices of asthma medication is likely to increase utilization of the drugs and reduction of morbidity. The report is also brought out as a working paper by IHS<sup>109</sup>.

### **People's Perception Towards Directly Administered Anti TB Treatment:**

This study in five villages of Adilabad District in Andhra Pradesh, surveyed 200 households consisting of 1104 individuals. There were 348 illness episodes among them. Information about the type of illness, treatment and health facility utilization were gathered for these illness episodes. About 51% of the reported illness episodes were treated by private doctors. Prevalence of tuberculosis (TB) cases was 12 / 1000 persons. Although 95% of the respondents claimed to know about TB, their knowledge about the causes of TB did not reflect a very high level of awareness. Responding to a multiple answer question, only 46% of the respondents incriminated germs, 80% linked it to smoking, 76% to alcohol and 26% linked it to sexual indulgence. Moralistic cultural taboos appear to confound rational knowledge. Cough and blood-in-sputum were identified as major symptoms of TB by 80% and 69% respectively. Social taboo around TB was evident from the fact that about 47% respondents chose to not answer a question about TB among their friends and relatives. Regarding the mode of transmission of TB, 73% identified water, 63% attributed to spit, and only 43% cited the airborne route. Sixty four percent knew that TB is a killer disease, and nearly same percentage of people were aware that it is curable. About local sources of treatment for TB, 22% of the respondents were aware of the PHC, 23% identified Sub Centres, and 21% recognised health workers. When asked about treatment sources outside the village, respondents cited nursing homes (30%), District (28%) and Taluk (26%) hospitals. On Directly Observed Treatment for TB, about 45% of respondents expressed preference to have the drugs distributed in their houses, and another 43% asked for distribution in their village. People preferred to receive the drugs from local volunteers (15%), dais (15%), teachers (15%) or the ICDS workers (10%). For supervision of TB drugs administration people also preferred the local volunteers (40%), teachers (22%), dais (17%) and the ICDS workers (16%). Apparently most respondents preferred local people who are somewhat educated and whom they perceive to be sincere to take up the various functions for DOT. This study was undertaken by ACTION AID, India. Analysis and study report<sup>110</sup> was done by the IHS, in 1997.

### **Child Labour, Health and Education in Aqua Culture Areas:**

Purpose of this study was to estimate prevalence of child labour in aqua culture industry and health effects of child labour participation, if any. A cross sectional survey of 5-15 year old children was done in the study area. Nellore and Srikakulam districts, known to have active aqua culture industry were chosen for selection of study area. A cluster of habitations with at least 2000 population from among those known for intensive aqua culture activity was selected from each of the two study districts. Altogether five habitations, with 945 households and 4653 population were studied. 77% of the 1214 children in the target age group were

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<sup>109</sup>Social, economic and cultural aspects of Asthma: An exploratory study in Andhra Pradesh, India. IHS, WP03, 1993.

<sup>110</sup>George Alex; Srilatha S. People's Perception Towards Directly Administered Anti Tuberculosis Treatment Programme - A Pilot Study. Report prepared for Action Aid India. IHS Report Series - RP 29/2003, Hyderabad, 2003.

covered. Information about children participating as labourers in aqua culture industry and a comparison group of non participating children was collected through household survey, medical examination, non participant observation of the aqua culture work by children, focus group discussions with mothers of working children and community leaders. The study found that between 32-69% children in the respective villages were participating in the aqua culture industry. Almost all children above 10 years from both sexes in all habitations covered by this study participate in one or other form of work for wages. About 50% of children suffer from severe to moderate protein calorie malnutrition. Anemia, vitamin B complex deficiency, intestinal worms, dental carries, scabies, otitis media, and tonsillitis are other common childhood morbidities in the study area. But there was no significant difference in health status of child labourers and other children. Enrollment in primary school was about 60%. The study author pondered about possible causes of the child labour participation, under enrollment in schools, health problems among children and suggested remedial measures. The study, sponsored by the UNICEF's Hyderabad office<sup>111</sup>, was started in October 1999 and report<sup>112</sup> prepared by August 2000.

### Quality of Reproductive Health Care by Private Hospitals in AP:

Objectives of this study were to ascertain the perceptions and expectations of the women regarding quality of reproductive health care offered in private hospitals of AP, and to assess quality gaps in the provision of reproductive health care by them. A sample of 127 private hospitals and nursing homes were chosen from four districts, namely; Krishna, Nellore, Mahboobnagar, and Cuddapah. An exit survey of female patients with reproductive problems was done to assess women's expectations. Draft standards for selected reproductive health procedures, namely, normal delivery, Caesarean section, and medical termination of pregnancy, were developed by a core group in the Institute. The core group used information about women's perceptions and expectations from hospitals. A multidisciplinary standards panel consisting of stake holders consisting of obstetricians practicing in small to medium nursing homes, teaching hospitals etc., women activists, nursing and allied health personnel was formed. Satisfaction of quality of reproductive health service standard by private hospitals and nursing homes was assessed by comparing their actual facilities with the standard. The study found that a large number of inadequately trained personnel are being used by private hospitals and nursing homes to perform nursing, pharmacy and laboratory technician functions. Basic minimum infrastructure such as physical facilities, and equipment are lacking in many private hospitals and nursing homes. Management of emergencies is poorly organised. Medical record maintenance was poor. Work on the project started in March, 1996 and final report<sup>113</sup> released by September, 1998. Funding was provided by the John D & Catherine T Mac Arthur Foundation, Chicago<sup>114</sup>.

### Hospital Autonomy: A Case Study of AP Vaidya Vidhana Parishad:

The Andhra Pradesh Vaidya Vidhana Parishad (APVVP) was commissioned in 1987 to management of all secondary level hospitals in the State of AP. This is the first autonomous body of public hospitals, set up by any state in India. This experiment caught attention of the Government of India, various states in India, the World Bank and the Harvard University's Data for Decision Making office (DDM). This study was jointly conducted by the DDM and the

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<sup>111</sup>Special Service Agreement No.SSA/INDG/99/00000060-0, dated 27-28 Sep 1999, Funding code GC/98/6031

<sup>112</sup>Chalapati Rao PV, Mahapatra Prasanta, Padmavathi A. Child labour, health and education. A study on children residing near aquaculture units in Andhra Pradesh. IHS Report Series 2000(RPIII/2000):1-71.

<sup>113</sup>Srilatha S. An enquiry into the quality of reproductive health care provided in private hospitals and nursing homes and women's perception in Andhra Pradesh. Final Report. Hyderabad: IHS WP25, 1998 Sep.

<sup>114</sup>MacArthur Foundation, Chicago, Grant No.95-33406A-POP dated 30 Jan 1996.

IHS to document the case of hospital autonomy through the APVVP. The study found that full benefits of autonomy can be better realized if the right person is selected for the job. Full benefits of good leadership can be better realized if the environment is enabling. Because of its autonomous nature, APVVP has been very successful in mobilizing institutional finance and resources from public. Autonomy has also been useful in ensuring gains on other fronts, like maintenance of equipment and buildings, and to some extent, quality of care. However, autonomy has meant little or nothing to the staff employed in the organization, and has not been accompanied by any incentives for those working in the organization. While APVVP, an organization managing over 160 hospitals with a total of over 9,000 beds, is an autonomous organization, the individual hospitals, that are discrete units by themselves, are not autonomous. While the legal framework for autonomy has been in existence since the earliest days of the organization, de facto autonomy has tended to be influenced by a host of factors including the relative situation and strength of the Commissioner vis-a-vis the Health Secretary. In effect, the organization has been as autonomous as the Commissioner has been able to make it or as much as the Health Secretary has permitted it to be, or some combination of both. The study took place between August, 1995 to August, 1996 and was funded by the USAID through the HSPH Data for Decision Making (DDM) office<sup>115</sup>. Results of the study has been published by the HSPH-DDM<sup>116</sup> and the IHS<sup>117</sup>.

### Analysis of Government's Health Expenditure:

The analysis of government expenditure on health in AP happens to be one of the first contributions towards building up of state health accounts in India. This study covered not only standard medical programs like curative and preventive care, but also health related activities such as primary education, water supply, sewerage, sanitation, housing, and community development. Such an approach has the important advantage of producing a much clearer picture of government's overall orientation toward social development. The study found that during the 1980s AP government expenditure on public health nearly tripled in real terms. This was complemented by large increases in health related expenditure as well. For example, expenditures on primary education more than tripled, and the amount of funds spent on housing and community development increased more than eight fold. This is not to say that everything went well. First referral (district and sub district level) hospitals received inadequate attention relative to urban tertiary hospitals. Too little was invested in training for nurses and paramedical personnel compared with the amounts spent on educating medical doctors. The amount provided for sewerage and sanitation programs was very low. The project was started in December, 1993 and completed by August 1994. This study was funded by the International Health Policy Program (IHPP) administered by the World Bank, Washington DC. Results of these studies have been published in journals<sup>118, 119</sup> and others<sup>120</sup> in addition to the IHS publications.

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<sup>115</sup>Harvard Univ. Office of Sponsored Res. sub contract agreement No.DPE-5991-A-00-1052-00, dt 6 Jul 1995.

<sup>116</sup>Chawla Mukesh, George Alex. Hospital autonomy in India: The experience of APVVP hospitals. Harvard Schl of Public Health - DDM Paper #40, 1996 Jul. <http://www.hsph.harvard.edu/ihs/publications/pdf/No-40.PDF>

<sup>117</sup>Chawla Mukesh, George Alex. Hospital autonomy in India: The experience of APVVP hospitals. IHS Working Paper 1997;16:1-69.

<sup>118</sup>Mahapatra Prasanta, Berman Peter A. Resource Allocation for Public Hospitals in Andhra Pradesh, India. Health Policy and Planning 1995;10(1):29-39.

<sup>119</sup>Mahapatra Prasanta, Berman Peter A. Allocation of Government Health Services Expenditure in Andhra Pradesh, India, During the Eighties. Demography India 1991;20(2):297-310.

<sup>120</sup>Mahapatra Prasanta. Government Health Expenditure in an Indian State. Government Expenditure on Health in Andhra Pradesh since the 1980s: Has it Been Appropriate? IHPP Working Paper 1996 May.

To facilitate appropriate analysis of health expenditure of the state, the Institute has compiled data on public spending on health and related areas from 1980 - 1993. This was one of the first electronic compilation of government budget and accounts data. A software called Government Expenditure Analyst (GEA) was developed to allow researchers analyse expenditure data upto the sub head level. Expertise gained at the IHS in electronic compilation of government budget data contributed to preparation of the first budget data on disk in India. The first Budget Data on Disk of the Andhra Pradesh Government was released by the State Finance Minister in 1998. The IHS was one of the collaborating Institutions contributing to development and delivery of this new service.

### **Health Education and Communication Strategy for Leprosy Control:**

The Institute was commissioned by Lepra India<sup>121</sup> to assess the quality of services provided by their staff, and to strengthen its communication strategies. The study included, Knowledge, Attitude and Practice (KAP) studies of leprosy patients, family members, key informants and providers and Focus Group Discussions of leprosy patients in rural, urban and tribal areas to explore more hidden facts. In addition a few case studies were reviewed to highlight certain social issues and need of health education. Patients and their family members who participated in the study had low levels of knowledge about leprosy. While the knowledge levels of key informants such as teachers, government employees, sarpanchs, business men, students etc., were found to be high, the knowledge levels of providers such as Non medical assistants, Non medical supervisors and medical officers needs to be improved. The study highlighted the need for developing communication strategies based on local needs, training of provider staff in health education, computerization of geographical details and patient data and use of available resources for health education. The study started in September 2000 and the report was submitted in February 2002<sup>122</sup>.

## **Human Resource Development**

### **Managing PHC in Remote Areas:**

This two week training program has been designed by the IHS to develop technical and managerial skills of PHC medical officers and other staff working in tribal and remote areas. Coverage includes, primary health care organisation, program management, monitoring and evaluation, working in tribal communities and remote areas, accounting & financial management, disciplinary procedures and conduct rules, office procedures, specific disease control programmes, and use of computers in health management. The courses is designed to impart down to earth managerial and technical skills. Hence every topic of coverage consists of a theory part followed by laboratory or practical work. About 30% of learning sessions are devoted to practicals and another 5-7% are devoted to discussion. Mid term and final examination are conducted. Personal computing skills are imparted, since they have become a common personal productivity tool. Participants are introduced to EpiInfo, the public domain epidemiological analysis and surveillance software developed by the World Health Organisation (WHO) and the United States Centers for Disease Control (CDC). The course was developed in response to a request from the Commissioner Tribal Welfare<sup>123</sup>, Government of Andhra Pradesh. First batch of training was organised in December, 1998. This training is organised by the Institute at periodical intervals and has been redesigned to address the needs

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<sup>121</sup>Lepra India Letter No. LEP/PROG/CE dated 25 Jul 2000.

<sup>122</sup>Srilatha S. A Study on communication strategy in Lepra India. Institute of Health Systems, RP14, 2001.

<sup>123</sup>Govt. Of AP Social Welfare (TW BUD.2) dept. Memo No.20621/TW.BUD-2/98-1 dated 4/11/1998 and Commissioner Tribal Welfare, letter Rc.NoF1/16344/98 dated 16/11/1998.

of officers working in rural area PHCs as well. So far nine batches comprising of 119 officers have been trained through this program.

### **Training of Private Health Workers in Tribal Area:**

Private health workers are informal health care consultants and intermediaries helping people access medical and health care facilities. People in tribal areas largely resort to private health workers for informal consultations and in case of more serious illness, to access medical and health care facilities. The Integrated Tribal Development Agency (ITDA) Bhadrachalam, sought to improve skills of private health workers in their area. Better skills among private health workers, would increase health education impact, improve the quality of informal health care consultation services to tribal population and further improve their ability to access appropriate medical and health care facility when needed. The IHS was commissioned by the ITDA Bhadrachalam, to carry out a systematic training needs assessment (TNA), develop appropriate course material and impart training to the private health workers in their area. The IHS used inputs from the training needs assessment study, and review of literature to design the course and prepare appropriate course material. The draft course material was peer reviewed by medical and nurse practitioners, public health officials, and people working in voluntary health organisations. About 50 private health workers were given training in the year 1994. Course evaluation<sup>124</sup> using base line and end line measurement of knowledge and awareness level showed that the program was very highly appreciated and significantly improved private health worker's skills.

### **Training of Medical Officers and CDPOs in Paderu Tribal Area:**

In order to update and impart the necessary skills to Medical Officers and Child Development Project Officers (CDPOs) to train the ANMs and Community Health Workers, a Training of Trainers (TOT) program was coordinated by the IHS, in the tribal area of Paderu in collaboration with various other institutions. In tune with the Institute's approach that training has to be viewed as a continuous process of research and development, a survey was conducted on a systematically selected sample to understand the morbidity pattern of the area. Findings of the survey, opinion of various stake holders including officers in the Directorate of Tribal Welfare and the Integrated Tribal Development Agency (ITDA) Paderu was used to design the training program and prepare course content. Resource persons were identified to teach. The IHS compiled and distributed a collection of useful background material selected from its library. The program was conducted between July-October, 1996 and was sponsored by the ITDA-Paderu.

### **Smart Use of Computers by Health Executives:**

Use of computerised information systems in health care will be a part of any future scenario requiring cost-effective and high quality health care. Computing and telecommunication technology offer opportunities in design, implementation and maintenance of robust, sustainable health care environments. This one week course explored utility of computers in meeting needs of patients, planners, regulators, suppliers and administrators. The course focused on the use of computer applications in simple operating environments to resolve recurrent organisational and management challenges. Course sought to (a) familiarise participants with the strength as well as limitations of computers as management tool, (b) build their skills to use a word processor, a spreadsheet, personal database, and presentation graphics, all components of an office suite, and (c) provide real life problem solving activities using skills gained during the program. Two batches of District Coordinators of Hospital Services and Medical Su-

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<sup>124</sup>Ramesh P.; Umamaheswari; Mahapatra P., et al. Training of Private Health Workers in Bhadrachalam Tribal Area, Andhra Pradesh. Hyderabad: IHS, Working Paper 52, 2003.

perintendent of District Hospitals in AP were trained. Course objective was to enable senior public hospital managers familiar with personal computing skills, and introduce them to the potentiality of information technology, so that they would assume leadership in computerisation of public hospital operations. Altogether 22 officers were trained in two batches during March - April, 1999. The program was sponsored by the AP First Referral Health Systems Development Project<sup>125</sup>.

### **Continuing Education of SPM Faculty on Cause of Death Reporting:**

A workshop on “Cause of death reporting system in India” was organised in March, 1999. This three day workshop aimed to train medical and health personnel who were interested in revamping, studying or researching various aspects of cause of death reporting systems in India. The workshop took stock of the cause of death reporting system in urban and rural areas and sought to identify lacunae within these systems which usually lead to inaccurate and incomplete reporting. Participants also deliberated on measures necessary to revamp the existing schemes and to identify responsibilities towards achieving the revamped state. The workshop was attended by 12 participants, mostly faculties from the SPM departments of various medical colleges in AP.

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<sup>125</sup> AP First Referral Health Systems - Project Director, Proc. Rc.No.1325/WB/F/99 dated 1/3/99.

## Contributions to Other State Health Systems

### Medium Term Expenditure Framework for Health in Orissa

The Government of Orissa is in the process of developing a medium term strategy and expenditure framework for health in the state for the years 2006-11. The Institute was commissioned by the Department for International Development (DfID) to help prepared the MTEF. The study involves analysis of health expenditure by sources of funds, functions of care, providers and resource categories; estimation of the resource envelope; costing of medium term strategies and development of the MTEF by reconciling bottom-up estimates of the cost of carrying out policies, both existing and new with the resource envelope available for public health expenditure. Health budget data of the last five years is analyzed up to detailed head level using National Health Accounts framework adopted by the Government of India to understand trends in public health spending and make projections for a “business as usual” scenario. Data includes Demand for Grants health and other line departments such as Department of Women and Child Welfare, Department of Labour and Department of Tribal Welfare, and receipt and expenditure statements of disease prevention and family welfare societies established by the government. Costing of medium term health strategies using GOI, GoMP, National Macroeconomic Commission for Health (India) recommended norms. The study began in August 2007 and will be completed by October 2007.

### Medium Term Expenditure Framework for Health in MP

The Government of Madhya Pradesh is in the process of developing a medium term strategy and expenditure framework for health in the state for the years 2006-11. The Institute was commissioned by the Department for International Development (DfID)<sup>126</sup> to help prepared the MTEF. The study involved analysis of health expenditure by sources of funds, functions of care, providers and resource categories; estimation of the resource envelope; costing of medium term strategies and development of the MTEF by reconciling bottom-up estimates of the cost of carrying out policies, both existing and new with the resource envelope available for public health expenditure. Health budget data of the last five years was analyzed up to detailed head level using National Health Accounts framework adopted by the Government of India to understand trends in public health spending and make projections for a “business as usual” scenario. Data included Demand for Grants health and other line departments such as Department of Women and Child Welfare, Department of Labour and Department of Tribal Welfare, and receipt and expenditure statements of disease prevention and family welfare societies established by the government. Costing of medium term health strategies using GOI, GoMP, National Macroeconomic Commission for Health (India) recommended norms. The study began in October 2005 and was completed by January 2007.

### Maharashtra Hospital Data Validation and Performance Analysis:

To strengthen the Maharashtra health system, Government of Maharashtra is implementing a project titled "Maharashtra Health Systems Development (MHSDP)". There are 136 project facility hospitals under MHSDP constituting community hospitals, sub district hospitals and district hospitals. The Institute's research activity was aimed at measuring public hospital performance periodically. The MHSDP hospital statistics is analysed for its consistency and based on the performance indicators, outlier hospitals are identified. Internal consistency of data is analyzed using a set of consistency indicators and by expert appreciation of the figures. A sub set of hospitals are identified each month for field visit to understand the potential

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<sup>126</sup>DfID Contract No.: CNTR/APMP/MHSD/CON/2006/2178, dt: 4th Aug 2006

sources of poor performance and to provide on job training to the hospital data complication personnel. The Institute was selected by the MHSDP through a National Competitive Bidding Process<sup>127</sup>. Work started in May, 2002 and final report given by November, 2002.

### **Verbal Autopsy Training for SRS Surveyors in Orissa:**

To develop local capacity in cause of death research, two scientists from the ICMR's Regional Medical Research Centre (RMRC) Bhubaneswar were invited for a training program on verbal autopsy at Hyderabad. The IHS faculty jointly worked with the RMRC scientists and the Director Census Operations, Bhubaneswar to translate course material in local language and organise the training in verbal autopsy for SRS surveyors in Orissa. The training was conducted by the Institute in January 2003 at the RMRC Bhubaneswar campus.

### **Verbal Autopsy Training for SRS Surveyors in Madhya Pradesh:**

The Institute's faculty also assisted in training, at Bhopal, of SRS surveyors from Madhya Pradesh in verbal autopsy methodology.

### **Documenting the SSY Experience in Ratlam District of MP:**

The Swablamby Swasthya Yojana, a community based health insurance experiment was launched by the then Ratlam District Administration to find a solution for petitions from the poor and needy seeking assistance for treatment of serious illness. Coverage is available to all families living in rural areas of the district. Premium is graded according to paying capacity of families. The scheme helps covered families access government hospital services for effective treatment, by providing drugs and therapeutics not available in the hospital. The key distinguishing feature of the scheme is its spontaneous appearance through the efforts of a creative district administration to meet a felt need of people. The experience of this scheme has been documented by the IHS to inform health insurance and health care financing policy debate in India. The documentation was done to help the IHS task of developing a set of community health insurance based family health protection plans for India. The study was done with concurrence and support from the Madhya Pradesh Health department, the Ratlam District Administration.

### **West Bengal - Health Financing:**

The government of West Bengal has been exploring various health financing alternatives and scope for health sector reform. In recognition of the IHS expertise in health financing and health insurance, the West Bengal Government organised a "Health Talk on Health Financing and Solidarity Schemes" at Institute of Health and Family Welfare, Salt Lake, Kolkata on 4th April, 2002. The Institute's Director was invited to make the lead presentation to the state's Health Minister about "Comparative study of health financing in developed countries and policy lessons for India and Relevance of European social health insurance schemes to the Indian context." The invitation was funded by the Indo-German Basic Health Project<sup>128</sup>.

### **Gujarat - Advanced Studies in Public Health for PHC Medical Officer:**

Government of Gujarat have sanctioned sponsorship<sup>129</sup> of two Medical Officers for the Advanced Studies in Public Health (APH) at the IHS. Objective is to build public health program delivery and health care management capacity in the state and to improve the state of preparedness for disaster response. One Medical Officer was deputed for the first batch of the APH program. The Medical Officer is currently undergoing training at the IHS.

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<sup>127</sup>MHSDP / Med.Wing / Revalidation of Hospital Activity / Pub.Open.Fin.Prop / 01, dated 6Nov. 2001.

<sup>128</sup>H&FW Dept. Govt. of West Bengal, Basic Health Project ltr dt. 31 Mar 2002; gtz PN97.2049.1-001.00.

<sup>129</sup>Govt. Of Gujarat Resolution No GHS-102003-126-T dated 24 Jan. 2003.

## Contributions Towards Civil Society and Voluntary Health Organisation

### Management of Financial and Material Resources in Voluntary Health Agencies:

Literature on financing of voluntary health agencies was reviewed. Financial position of selected voluntary health agencies in AP was studied. A paper on management of financial and material resources in voluntary health agencies was prepared<sup>130</sup>. This was the first sponsored research work taken up by the IHS. The project was sponsored by the Voluntary Health Association of India (VHAI), New Delhi with funding from the Ford Foundation.

### Naandi Systems Development:

Naandi is a community public trust set up by a group of concerned citizens for development of Andhra Pradesh, by mobilising voluntary contributions. The foundation was set up in 1998 and launched by the Governor of AP in the presence of Chief Minister on November 1, 1998. The Foundation needed to develop its systems and procedures on a firm footing, to build an efficiently run organisation. The IHS was commissioned by the Foundation to design an organisational structure appropriate for the Foundation's role, develop operating manuals for program management and fund raising, general guide for the Foundation's employees and the Finance and Accounting manual. The systems had to be developed and manuals delivered in a time bound program. A multidisciplinary system development team was formed by the IHS, including professionals identified by the client organisation trustees. The Institute reviewed latest literature on civil society institutions, participated in National and International discussions on civil society, visited a few foundations and trusts and searched the world wide web to cull out the state of the art in organisation and management of community public trusts and civil society institutions. The insights gained by this process were used to develop systems for the Naandi Foundation. Work on systems design and manual development for the Naandi foundation started in November, 1998 and was completed by March, 1999. The project was paid for by the Naandi Foundation, Hyderabad.

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<sup>130</sup>Mahapatra Prasanta. Management of financial resources in voluntary health agencies. IHS, WP02, 1991.

## Contributions to the Global Health Systems

### BDAP - Burden of Disease Application Software:

One practical problem with summary measures of population health status is the requirement of massive data inputs and daunting computational load on the researchers who take up to generate these estimates. As a result many country teams are discouraged to take up computation of summary measures. The problem of computation load to generate summary measures of population health status became evident during the discussion at the session on burden of disease in Forum-3 of the Global Forum for Health Research. The country presentations in this session brought out the daunting task of handling a large number of spreadsheets. Participants from many countries expressed the need for a software that can handle the hundreds of spreadsheet that have now to be manipulated to generate the estimates. By automating the task of handling such a large number of computations, the researchers can direct their energies to analyse the results and ponder over the policy implications. The BDAP software developed by the IHS meets the computation needs of Global Burden of Diseases Estimations, and allows researchers are free to concentrate more serious issues regarding data accuracy, consistency and analysis of results. Substantial funding for development of the software was made available by the WHO, Geneva<sup>131</sup>. Development work started August 1999 and the first version of BDAP was released in August 2000. The latest version 1.18 was released in May 2003.

### Community Based Health State Valuation Study:

Disability / health state weights represent our judgment about the severity of a health state. The disability / health state weight is a crucial input for computation of burden of disease. Since the summary measures are ultimately intended to inform public policy, it is in fitness of things that the disability/health state weights are arrived at on the basis of population based surveys and wide consultation to the extent feasible. This Health State Valuation Study, conducted in the year 1999, attempted to measure peoples preferences about various health states. Two distinct sources of assessment was used in measuring people's opinion. Firstly, a series of workshops was conducted with the educated population from various professional backgrounds. Health state valuation was done using four procedures viz., card sort, Visual Analogue Scale, Time Tradeoff & Person Tradeoff methods. Second part of the study involved measurement of valuations given by general population through household surveys. Respondents were requested to give their valuations using card sort followed by visual analogue scales. This study happened to be the first community survey of health state valuations in the developing world. The study had to deal with the unique challenge of communicating health state descriptions to semiliterate, illiterate populations. This was overcome by development of a pictorial description system. This study is an important contribution to theoretical advances in health state valuation. The 6D5L health state description systems developed for this study<sup>132</sup>, theoretical and empirical aspects of community based health state valuation, their reliability and validity issues<sup>133</sup> were incorporated in the WHO publication on summary

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<sup>131</sup>WHO Allotment GL GLO HST 052 RB 98. Obligation No. HQ/99/115772.

<sup>132</sup>Mahapatra Prasanta; Nanda Lipika; Rajshree K.T. The 6D5L description system for health state valuation. Ch7.4, in: Murray Christopher JL; Salomon Joshua A.; Mathers Colin D., et al., Summary Measures of Population Health. Concepts, Ethics, Measurement and Applications. First ed. Geneva: WHO; 2002. pp. 349-67.

<sup>133</sup>Mahapatra Prasanta; Salomon Joshua A.; Nanda Lipika. Measuring health state values in developing countries - results from a community survey in Andhra Pradesh. Ch9.3, in: Murray Christopher JL; Salomon Joshua A.; Mathers Colin D., et al., Editors. Summary Measures of Population Health. Concepts, Ethics, Measurement and Applications. First ed. Geneva: WHO; 2002. pp. 473-85.

measures of population health. The study also contributed to development of Health State Valuation kits, and computation tools to facilitate work by future researchers<sup>134</sup>. Results of this study contributed for estimation of Burden of Disease in AP<sup>135</sup>.

### **Mauritius - Demand and Satisfaction Survey:**

Following the global burden of disease (GBD) approach adopted by the World Bank's World Development Report, 1993, a National burden of disease had been done for Mauritius. The Mauritius government wanted to utilise the burden of disease estimates, coupled with cost effectiveness studies to identify and set priorities for the health sector. This study was to estimate cost-effectiveness of various interventions in Mauritian context and combine the findings with burden of disease estimates to recommend health sector priorities. The project was orchestrated by the Burden of Diseases Unit at the Harvard Center for Population and Development Studies (HCPDS). The Institute of Health Systems conducted a sub study on the Demand for services and Satisfaction with the Mauritius Health System. The study used personal interviews and focus groups. An exit survey of a systematically selected sample of in patients (IP) and out patients (OP) was carried out. These persons who had used the health care system were interviewed using a structured questionnaire. Focus groups were conducted with members drawn from households and members of Local Health Committees (LHC) who were closely associated with the functioning of the peripheral health delivery institutions. The quantitative as well as qualitative data of this study was analysed at the Institute and a draft report of this project was submitted to HCPDS. The published HCPDS report titled "The Health Sector in Mauritius", contains substantial sections on the Demand and Satisfaction study conducted by IHS. Work on this project started in June 1995 and final report released by August, 1996<sup>136</sup>. The study was sponsored by the Government of Mauritius, funded by the World Bank, and executed in collaboration with the Harvard Center for Population and Development Studies - Burden of Disease Unit.

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<sup>134</sup>Mahapatra Prasanta; Salomon Joshua A; Nanda Lipika; Rajshree K.T. Measuring health state values in developing countries: Report of study in Andhra Pradesh, India. Institute of Health Systems, RP04, 2000.

<sup>135</sup>Mahapatra Prasanta; Salomon Joshua A; Nanda Lipika; Rajshree K.T. Health State Valuations Study in Andhra Pradesh: Review of Literature and Methods. Ch.6, pp 139-208; and Mahapatra Prasanta; Results from the community survey in Andhra Pradesh to measure health state valuations. Ch.7, pp 209-226, in Mahapatra Prasanta; Estimating National Burden of Disease. The Burden of disease in AP, 1990s. IHS, 2001.

<sup>136</sup>George Alex. Study on Demand of Satisfaction of the Mauritius Health System. IHS, WP17, 1997.

## Public Services

### Library and Bibliographic Services

Over the years, the IHS Library has accumulated a modest but specialized collection of health information resources comprising books, reference manuals, journals, reports, monographs, newsletters, statistical publications, government publications, newspaper clippings, annual reports, conference proceedings, audio / video resources etc. The library's collection in the area of health economics, health informatics, community health, health insurance, health services research, health policy studies, vital and health statistics includes resources not easily available elsewhere in the country. The library's official documents collection (ODC) includes communications, reports and documents on health issue, services and programmes, issued by state and central governments. Vital and health statistics related reports by the NSSO, Registrar General of India and other organizations are regularly collected. A computerized catalogue of library resources is available for easy retrieval. The catalogue gives details of the library holding, including author, title, and keywords. Two dedicated Internet access stations are provided for library users. Access to bibliographic databases such as the POPLINE and MEDLINE is available. The library is open for extended hours from 9 am to 7 pm. A full time librarian and assistants are available to help users access the bibliographic resources. Printing and photocopying services are provided to library users. Students and staff of IHS have unrestricted access to library resources. Health care professionals, researchers and general public can access library resources for a nominal membership fee. In view of the modest collection and limited availability of additional copies, issuing of materials outside of the IHS premises is usually not feasible. However, readers can issue a book from the library before its closing and read inside the Institute for as long as they want. Materials issued like this have to be deposited with the security when the user chose to depart.

### Andhra Pradesh Health Institutions Database (APHIDB)

This database of Health Care Institutions (HCIs) in the AP (APHIDB) contains basic identifying information about public, private forprofit and nonprofit HCIs. This data base was set up in the year 1993, starting with 3,000 records. As of May 2003, the data base has 19,824 HCI's listed in it. APHIDB is an effort to make comprehensive information available about HCIs in a structured way. APHIDB is made available by IHS over its local area network to visiting public, researchers and health policy analysts for reference. Standard queries to generate summaries by hospital location, size or type of service, etc. are provided. Individual hospitals can also be queried. Special queries have been written to meet specific requirement of researchers. Mostly people have used the data base to generate list of hospitals at a chosen place, or to generate a sampling frame of hospitals in a given area for purposes of research. Nominal service charges are collected for the query services.

### MEDFLOR - INDIA

The Institute of Health Systems has set up a computerised database of Medicinal flora called "MEDFLOR - INDIA". Published and unpublished literature containing ethnobotanical information are collected. These articles are coded by an ethnobiologist to yield structured information for the database. The Institute provides search and query services to researchers, research institutions, public health workers about medicinal plants. This database was set-up in the year 1993. To start with, the Institute is focusing on the medicinal plants in A.P. So far 200 unique usage entries of 400 plant species have been incorporated in the database. The database was set up in technical assistance from the department of pharmacy, University of Illinois at Chicago (UIC) and the department of botany, S K University, Anantapur, Editorial

guidelines for MEDFLOR and a format for collection of ethnobotanical information has been developed. Further development of this database is affected due to lack of funding.

## **Publications**

The Institute, as a matter of principle, publishes all its research and consultancy outputs through working papers, reports, data sets, or monographs. These publications are available to public for a nominal price, to cover cost of publication. List of IHS publications are provided in the IHS capacity statement, which is updated from time to time as well as through the Institute's web site. Publications can be obtained personally from the Institute's Front Office or by writing to the Communications and Services Officer.

## **Public Health Laboratory: Water Quality Testing Services**

The Public Health Laboratory (PHL) is being set up in a phased manner. In the first stage, the PHL has been set up to offer Water Quality Testing Services. The Secretary, Ministry of Health and Family Welfare, Government of India, inaugurated the IHS Water Quality Testing Services, on 16th March, 2004. The IHS Catalogue of "Water Quality Testing Services" which provides information to clients about various tests done at the Laboratory and a consumers guide to collection of water samples is available to the public. The Catalogue contains information on what will be done under each test, what kind of report can the consumer expect, in what situation the test is recommended, nature of sample required, time required for completion of test and reporting of results etc. A key innovation by the laboratory is the design of Water Sample Collection Kit. Presterilized bottles are packed in polythene bags along with Water Sample Collection guides, Sample Collection Record, Test Requisition Form and a carry bag to easily transport the sample to the laboratory. These bottles are available from the IHS Front Office, round-the-clock. The water quality testing services has been operational since March 2004. Testing services are made available to general public and housing colonies. Water quality testing services are also being rendered to educational and social service organizations like Nandi Foundation, Aga Khan Foundation, Indian School of Business etc., business establishments etc., for a reasonable fee. Demonstration of water quality testing is conducted for high school students and their teachers from various schools in Hyderabad. Water testing facilities are also provided to manufacturers of water purification systems to test their products. The laboratory supports the public-private partnerships between the Institute and the Hyderabad Metropolitan Water Supply and Sewerage Board (HMWSSB) in monitoring water quality in reservoirs and other high priority areas such as slums. The Water Quality Lab played a significant role in the response to the outbreak of hepatitis in Hyderabad, in March 2005. Water samples in affected areas were tested, key water quality issues identified and feedback was provided to the government for required action. In addition field teams educated residents of these areas on measures to prevent hepatitis and other waterborne diseases.

## **Public Health Symposium**

The IHS Public Health Symposia provide the platform for generation and sharing of ideas among representatives from the Government, Administrators, Policy makers, Public Health experts, Researchers, and the Media. A topic of current importance is chosen, and many experts are invited to present on various aspects of that topic. Symposia last the whole day, and include poster presentations, a book exhibition, an inaugural session, speaker presentations, Question & Answer interaction, and a valedictory session. A report of the proceedings is published along with a review of literature concerning the topic. Three Public Health Symposia have been conducted till date.

## **Public Health Lectures**

Generating the evidence and information base for health policy is necessary to improve a community's capacity to effectively deal with its health care and related issues. But mere availability of research results is not enough. A community must be able to use evidence and information through its various formal and informal institutions. Usage of evidence and information for policy is predicated on awareness by general public and knowledge among the public health community, of results from health system and related studies. Towards this end, the IHS has been striving to provide opportunity to persons interested in improvement of the Andhra Pradesh health system to share and learn from the insights of top class intellectuals and public health analysts. The Institute arranges public health lectures, whenever there is an opportunity of having the time from reputed health system researchers and health policy analysts. Title of the lecture is identified in consultation with the visiting public health analyst. The public health lectures are open to any one interested in the subject. Admission is free. The events are publicised through posters and notices sent out to institutions in Hyderabad known to be working on medical and health related issues, Universities and Colleges. The event is usually listed in the engagements column of local dailies. In addition, special invitations are sent out to members of the IHS, public health officials, news media persons, and opinion leaders in the medical and health community.