WHO-India Essential Drugs Programme

Annual Report Year 2000

DELHI SOCIETY FOR THE PROMOTION OF RATIONAL USE OF DRUGS

CONTENTS

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PREFACE

The WHO-India Essential Drugs Programme implemented by the Delhi Society for the Promotion of Rational Use of Drugs has, in the year 2000 not only expanded its activities to twelve states but has also ventured into new areas. Some of these areas are to enhance rational use of drugs in the private sector, to provide a leading role to pharmacists in implementing such programmes, to explore areas such as health insurance and provision of information about medicines to the patients and the public.

Another new development has been the service role being played by the Society to the national government, state governments and national and international organizations. This was not originally the mandate of this programme but requests for carrying out analysis of the drug situation in the states, for taking responsibility for quality assurance of drugs being supplied by donor agencies, for preparing plans for establishing efficient drug procurement and distribution systems are some of the areas in which our Society has actively helped - largely because there is no other agency in the country which can carry out some of these activities under one roof.

Again, seeing that there was a void in an area which needed filling the Society organized a well attended Dialogue on HIV/AIDS and Traditional Medicine which has served as a catalyst and set up a stream of innovative activities. This was the first time that traditional medicine practitioners, researchers of the allopathic medicine and policy makers met together to resolve a serious threat to our country. The meeting was co-sponsored with the Global Initiative for Traditional Systems of Medicine, Oxford.

The number of doctors and scientists taking part in the programme has grown and there are about one hundred and fifty such persons scattered throughout the country. The report contains the names of the key persons in the different states.

It is my sincere hope that the programme is further consolidated and sustained in the years to come.

The Society is very appreciative of the dedicated workers in the Society and others who have made this programme possible. Our grateful thanks go to

the World Health Organization Geneva and the Regional Office at New Delhi for their constant help, support and advice.

Special mention needs to be made of the sterling role played by Dr. Harsh Vardhan, former Minister of Health and Family Welfare - Delhi State and Dr. Hans V. Hogerzeil of the Essential Drugs and Medicine Programme, WHO Geneva in our programme. Our thanks also go to the team of Dr. (Mrs.) Usha Gupta, Dr. J.N. Gupta and Ms. A. Banerji for preparing the Annual Report for the year 2000.

PROF. RANJIT ROY CHAUDHURY
PRESIDENT, DELHI SOCIETY FOR THE
PROMOTION OF RATIONAL USE OF DRUGS

Introduction

Programme on Rational Use of Drugs: The Beginning

The programme on the rational use of drugs was initiated in the state of Delhi in the year 1994, when the then Health Minister of Delhi, Dr. Harsh Vardhan, found that despite the government spending 30%-35% of the health budget on medicines, they were not generally available to poor and needy patients. To tide over this situation, a drug policy for the state of Delhi was developed and adopted. This policy is based on the concept of essential drugs as proposed by the World Health Organisation (WHO) and successfully implemented in several countries. In keeping with this policy, an Essential Drugs List (EDL) for hospitals under the government of the National Capital Territory (NCT) of Delhi was developed, and a system of pooled procurement of drugs as per the EDL was launched for all the hospitals and health centres under the government of Delhi.

The WHO introduced the concept of essential drugs more than twenty years ago in order to increase the accessibility of drugs to the majority of the population at affordable prices. These are the lines on which the government of the NCT of Delhi started working to reach its goal of providing good quality drugs to the majority of the population.

Formation of the Delhi Society for the Promotion of Rational Use of Drugs (DSPRUD)

This society was formed in 1996 to coordinate efforts on all aspects of the rational use of drugs, including drug procurement, storage, supply, quality control and monitoring, and research. It is important to note that mere formulation of a national or state drug policy alone is not sufficient. What is important is the formation of a "triangle" of politicians, bureaucrats and technical experts, all dedicated to the cause of the rational use of drugs. The DSPRUD was formed precisely for this reason---to coordinate and facilitate the smooth functioning of this triumvirate.

Good results followed, and by 1997-within three years of the launch of the drug policy in Delhi-there was a dramatic change in the scenario regarding drug availability in the capital's hospitals. Pooled procurement enabled the government in Delhi to obtain drugs at about 30% of the rates being paid by other government agencies. More than 90% of the budget for drugs was now being spent only on essential drugs that were on the EDL. Unwanted drugs and combination drugs

were gradually phased out and shortages became less frequent. A functional system of quality control was established, raising the overall quality of the medicines dispensed to patients.
Finally, there was a remarkable rise in the awareness of both medical professionals and the general public about the benefits of rational drug use, which was achieved through several training workshops and media exposure.
Drug availability in hospitals and dispensaries in Delhi improved to the extent that this endeavour was christened the 'Delhi Model' amongst development and health circles.

The WHO-India Essential Drugs Programme: The Objectives

The main objective of the WHO-India Essential Drugs Programme (WHO-India Programme) is to improve the availability of good quality medicines to all sections of society, and to ensure that these medicines are prescribed and used rationally. Based on the 'Delhi Model', one may, however, enumerate the following objectives:

- **Improving the availability of safe and effective drugs:** Essential drugs should be available at all times and in sufficient quantities at all levels of healthcare without any bias or discrimination against patients.

- **Establishing a quality control and assurance system:** In the absence of such a system, there can be no guarantee that the drugs available are safe and effective.

- **Improving procurement, storage and distribution systems for medicines:** This is necessary to implement objective (1), enlisted above, and also to promote economic efficiency.

- **Encouraging rational prescribing and use of medicines:** This is a fundamental objective. Only the most appropriate drugs should be prescribed in the correct dosage and for the correct duration.

- **Strengthening and expanding health education programmes:** The concept of rational use of drugs (RUD) needs to be introduced in the medical and pharmacy curricula. The WHO-India Programme also aims to continually raise the awareness of practising medical and paramedical personnel about the benefits and developments in the field of RUD.

- **Increasing patient awareness:** Making the general public aware of the hazards of irrational drug use is an important part of the programme, as it raises the level of health consciousness and lessens the incidence of drug resistance and misuse of medicines.

- **Research and monitoring on all aspects of drug use:** The final objective of the WHO-India Programme is to promote research and monitoring on drug use so as to provide a guide for future improvements and gauge the impact of the interventions made.

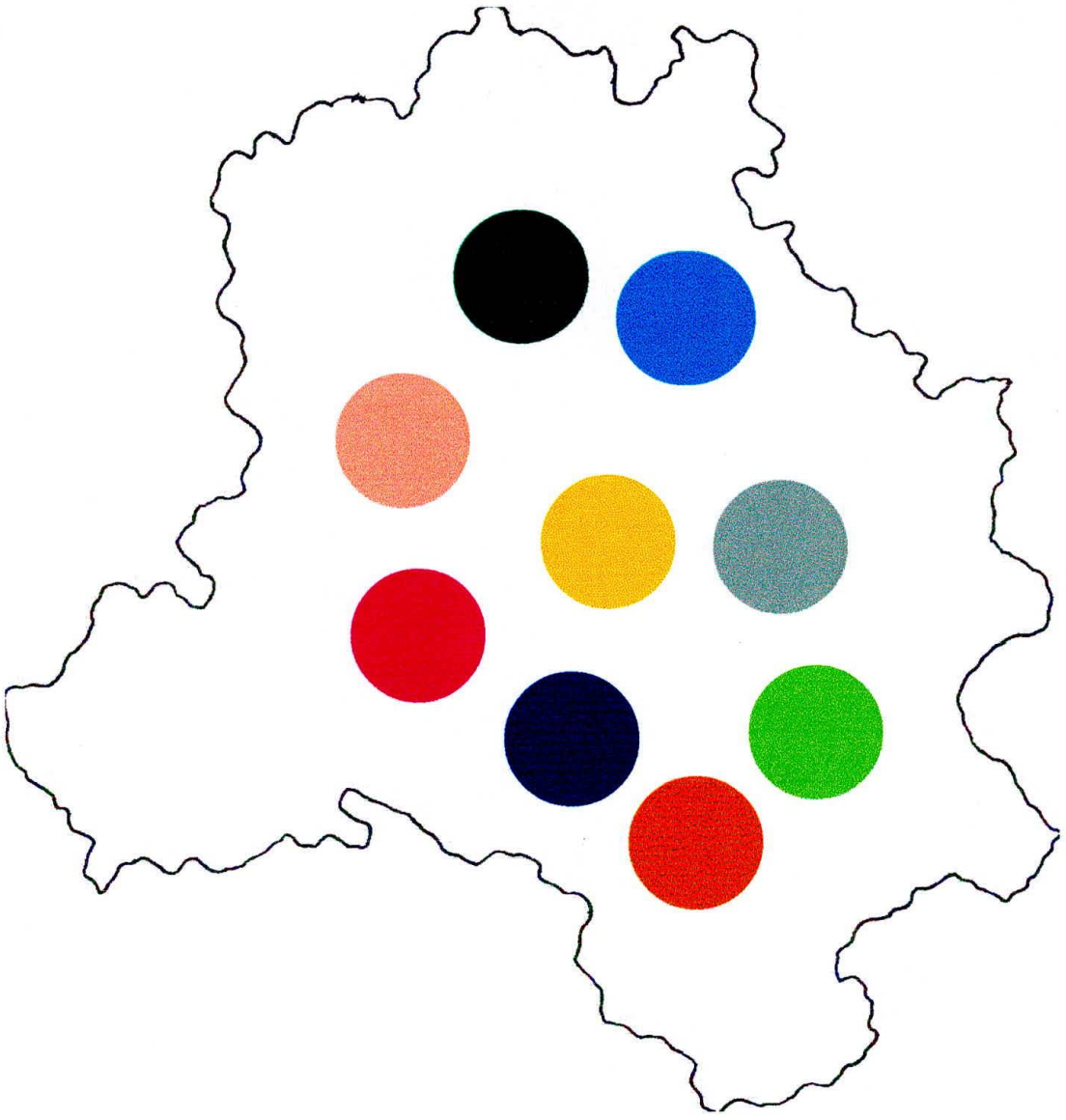
Components of the WHO-India Essential Drugs Programme

Based on the objectives enumerated above, the programme has been working to implement the following nine components:

1. **Development of a drug policy**
2. **Selection of a list of essential drugs**
3. **Establishment of a pooled procurement**
4. **Development of a quality assurance system**
5. **Training in rational prescribing**
6. **Provision of objective information to doctors about medicines**
7. **Research leading to monitoring and evaluation of the programme**
8. **Human resource development in the field of rational use of drugs**
9. **Provision of information to patients for improving patient compliance.**

While work on the last component commenced only in the year 2000, the other components are already being implemented. Details of these components have already been discussed in the activity report of the programme for the years 1998-1999.
The following chapter of this document contains a brief statement of the activities undertaken in various states of India under this programme in 2000.

EDP Components Operative in Delhi



- Drug Policy
- Essential Drugs List
- Pooled Procurement
- Quality Assurance
- Training in Rational Prescribing
- Information to Prescribers
- Research & Monitoring
- Human Resource Development
- Information to Patients

Activities in the State Of Delhi

The year 2000 witnessed a quantum leap in activities in Delhi. Numerous projects were undertaken to implement the many enumerated components of the WHO-India Essential Drugs Programme (WHO-India Programme). While implementing the various ongoing components, such as conduct of training courses, lectures and workshops, and research and monitoring activities on the rational use of drugs (RUD), several new dimensions were added to the programme, like provision of information to patients, interaction with general practitioners and the extension of cost analysis of treatments and traditional herbal medicine. A brief survey of the various activities and projects is given below:

(1) **Developments in the field of pooled procurement:** The pooled procurement system is now in place for all the thirty-one hospitals and one hundred and fifty primary healthcare centres under the government of the National Capital Territory (NCT) of Delhi. Drug procurement storage and distribution is now streamlined and fully computerised. Paperwork has decreased because a single procurement agency working under the Directorate of Health Services of the government of the NCT of Delhi is purchasing drugs for all health establishments under the government of Delhi.

(a) **Revision of qualifying criteria for manufacturers:** An important development in the area of pooled procurement is that the qualifying criteria for manufacturers have been revised. The ceiling of the minimum annual turnover of manufacturing firms has now been raised to rupees twelve crores from the earlier figure of rupees eight crores. Reputed firms, for example, Novartis, Glaxo-Wellcome, Astra-IDL and SmithKline and Beecham are amongst those which have recently supplied drugs to the government of Delhi. Thus, poor patients visiting Delhi government hospitals can now be sure that the drugs supplied to them by the government are those, which previously could only be afforded by the affluent, and are of the best standard.

(b) **Further savings in drug purchase:** Another very significant aspect of pooled procurement is that despite all inflationary trends in recent years, the prices at which drugs are being procured under this scheme have not shown any significant increase. Drugs purchased under this scheme, using a two-envelope selective tender system, are

already 30%-35% cheaper than those purchased by government agencies using an open tender system. The prices of certain important drugs have shown a further decline in the year 2000, with the exception of a few drugs such as Inj. Sodium Thiopentone, Inj. Crystalline Penicillin and Homatropine eye drops. This trend is illustrated in Table 1.

If we sum up the prices of one unit of each of the nineteen essential drugs purchased for Delhi hospitals shown in the Table, we find that the total price of the purchase in 1996 was Rs.2319.87, declining over the years to Rs.2105.51 (1997), Rs.2055.71 (1999) and Rs.1985.23 in the year 2000. This shows a persistent increase in savings, which has benefited poor patients in Delhi government hospitals. This is because the capital saved is spent on purchasing more drugs, and in the process, increasing the availability of good quality essential drugs for the common people.

A similar trend was observed in the prices of the drugs purchased for primary health centres under the government of Delhi.

(c) **Meeting with representatives of drug manufacturers:** Another milestone achieved was the organisation of a meeting between representatives of drug manufacturers and central procurement agency officials of the Delhi government. This meeting was held under the auspices of the DSPRUD on March 15th, 2000. It was a unique event, in which representatives of over seventy pharmaceutical houses participated. This was the first time that a meeting was held directly with representatives from manufacturing companies. Various problems in the field of drug procurement were discussed at the meeting:

- Pharmaceutical firms manufacturing but not quoting prices of certain drugs in the tendering process.
- Pharmaceutical firms quoting for certain drugs but not supplying them when the rate contract was given.
- Supplying these drugs in insufficient quantities.

Several steps were taken in order to further streamline the procurement of drugs. The results of the meeting were gratifying, and established manufacturing houses are now supplying drugs to the Delhi government under this scheme.

Table 1

Cost of some essential drugs purchased under the pooled procurement scheme for Delhi Government hospitals

Sl. No.	Drug Name	Price in Rs.			
		1996	1997	1999	2000
	Drugs showing decrease in price in the year 2000				
1.	Inj. Ampicillin, 500 mg vial	3.20	3.42	3.45	3.40
2.	Inj. Ceftazidime, 1 gm vial	187.72	128.94	124.46	84.41
3.	Cap.Omeprazole,20 mg 10caps	11.54	10.33	7.30	6.47
4.	Inj.Pentazocine, 30 mg amp	4.09	4.03	4.18	3.90
5.	Cap Rifampicin,450mg 10caps	29.20	29.50	28.98	24.42
6.	Inj. Deriphylline, 1 amp	1.20	1.18	2.12	1.98
7.	Inj. Dextrose 5%, 1 bottle	5.50	6.47	8.53	8.22
8.	Inj. Normal Saline, 1 bottle	5.25	6.47	8.53	8.22
9.	Inj. Diclofenac Sodium, 1 amp	1.07	1.00	1.19	1.05
10.	Tab. Phenobarbitone, 60 mg 10 tabs	1.17	1.45	2.52	2.00
11.	Inj. Streptokinase, 15 lac unit vial	1770.00	1625.00	1540.00	1540.00
12.	Polymer degraded gelatin, 500ml bottle	109.00	99.00	133.58	99.00
13.	Soln. Amino Acid, 200 ml bottle	105.00	109.00	103.00	99.00
	Drugs showing increase in price in the year 2000				
14.	Inj. Crystalline penicillin, 4 lac unit vial	3.30	3.16	3.00	3.50
15.	Inj. Sodium Thiopentone, 1 gm vial	23.44	23.04	27.00	28.22
16.	Inj. Hydrocortisone, 1 vial	12.94	9.60	11.42	11.84
17.	Inj. Antispasmodic, 1 amp	4.36	3.64	2.45	3.56
18.	Homatropine Eye Drops,1 vial	5.00	5.50		8.20
19.	Inj. Heparin 5000 IU/ml, 5 ml amp	36.89	34.78	44.00	47.84
	Total	2319.87	2105.51	2055.71	1985.23

TABLE 2

Effect of providing written information on leaflets to patients, on their knowledge about drug use

Parameters	Knowledge of Patient			
	Read leaflet n = 109		Not read n = 9	
	Pre	Post	Pre	Post
Sum of Primary indicators	9.51	***15.71	7.55	*15.11
Sum of Supplementary indicators	***3.30	9.75	2.89	**6.67

** P < 0.01
* P < 0.02
*** P < 0.000

(2) **Impact of drug information on patients' knowledge about drug use and compliance:** The objective of this study was to provide verbal and written information to patients about the drugs prescribed to them so that they use medicines in an appropriate, safe and judicious manner. The study also desired to assess the impact of drug information on patients' knowledge on drug use.

Leaflets on forty commonly used drugs were prepared in Hindi and were distributed to patients in the outpatients' department of the Deen Dayal Upadhyay Hospital, New Delhi (DDU, New Delhi). The leaflets contained information on dosage, precautions and commonly observed side effects of drugs in layman terms. Pre-intervention and post-intervention studies were done on a hundred patients in a sample study group and an equal number of patients in a control group in order to find out the extent of their knowledge about the drugs prescribed to them.

Results of the study showed that as a result of the intervention, patients' knowledge about drugs improved remarkably in the sample study group as compared to the control group. The knowledge of the patients about the drugs prescribed to them was measured using the scores for primary and secondary indicators of drug use.

(3) **Impact of an educational intervention on prescribing behaviour of physicians, especially the extent of antibiotic use in acute respiratory infection (ARI) and acute diarrhoea at primary health centres in Delhi:** The objective of the study was to study the extent of antibiotic use and other drug use problems in the treatment of ARI and acute diarrhoea at health facilities in Delhi. The study was conducted in three phases:

Phase One dealt with determining the extent of the use of antibiotics in ARI and acute diarrhoea, by evaluating prescriptions from thirty-two primary health centres (PHs), seven community health centres (CHs) and three peripheral hospitals. The extent of usage was found to be very high—in 80% of the cases.

In **Phase Two**, intervention was done by way of group discussions with prescribers, as well as the introduction of therapeutic guidelines for the treatment of these conditions. The role of prophylactic use of antibiotics, reasons for the development of drug resistance, and the 'P' Drug concept were discussed, using the *Guide to Good Prescribing*. Information on the use of Essential Drug Lists and the Essential Drug Formulary was also given.

Phase Three entailed the assessment of the impact of intervention on the use of antibiotics in the cases of ARI and acute diarrhoea. This was done by means of a prospective prescribing survey, after six months of intervention. The result showed an appreciable retention of the effect of intervention by prescribers.

(4) **Publication and distribution of a medical newsletter:** The primary purpose of the project is to publish and circulate a newsletter to medical professionals, based on published articles and up-to-date drug information, in order to provide objective information on commonly used drugs. The first issue of the newsletter was released in July 1999, and the second issue included a questionnaire seeking feedback on the newsletter from medical professionals. There has been a positive response to this newsletter, though it still remains to be seen whether its circulation has brought about any changes in prescribing habits.

(5) **To study the impact of an educational intervention on prescribing by using the 'Guide to Good Prescribing' amongst private practitioners:** This was the first effort to involve private practitioners in the RUD programme. A workshop was conducted by the DSPRUD, in collaboration with the Delhi Medical Council (DMC) and the East Delhi Branch of the Indian Medical Association at the Institute of Human Behaviour and Allied Sciences (IHBAS), Shahadra, in March 2000. The objective of this workshop was to sensitise the private practitioners of East Delhi (the area of Delhi where irrational prescribing is reported to be most rampant) to the essential drugs concept and the principles of rational prescribing using the *Guide to Good Prescribing*, published by the WHO. In addition to this book, the Delhi State Formulary of Essential Drugs and handouts for various sessions were also distributed to the participants.

Professor Ranjit Roy Chaudhury, the President of the Delhi Medical Council, Professor J.S. Bapna, Director, IHBAS, Chairman of the Continuing Medical Education Committee, DMC and other experts, inaugurated the workshop. The feedback received from the participants was very positive. As a part of programme evaluation, the participants stated that the programme would help them to improve their prescribing. Suggestions were also given on possible topics of discussion as well as the timings of the programme, to suit the practitioners' needs and hours of practice. Overall, the response from the participants was that such programmes were extremely beneficial and, therefore, essential.

(6) **Cost analysis for the treatment of mild hypertension and mild chronic bronchial asthma:** This is the first cost analysis carried out by the DSPRUD. The objective of the study was to observe drug use patterns and costs of treatment in mild hypertension and mild chronic bronchial asthma.

A hundred prescriptions each for the two ailments were collected from the outpatients' department of Lok Nayak Hospital (a tertiary educational hospital), and from the Malviya Nagar and Kalkaji hospitals, two colony hospitals of Delhi. These prescriptions were analysed using a detailed pro forma to delineate the patterns of drug use.

For making standard treatment guidelines (STGs) for mild hypertension and bronchial asthma, a meeting of specialists from these two areas of expertise was called, and STGs were prepared on the lines suggested by the WHO. The cost analysis of these prescriptions is currently in progress.

(7) **Effect of rational prescribing on cost therapy in acute respiratory infection (ARI) and diarrhoea:** The aim of this project was to determine the cost of therapy in cases of ARI and diarrhoea, with and without the use of STGs, and to compare the costs of both in order to observe any possible savings made by using the Standard Treatment Guidelines.
The methodology involved the collection of thirty prescriptions each for ARI and diarrhoea from several health facilities under the government of the NCT of Delhi. The facilities were divided into study and control groups, and STGs were introduced into the study groups during interventional workshops.
The results showed that the average cost of therapy in all the health facilities was much higher than it would be if the STGs were adhered to.

(8) **Training programme for healthcare professionals in the rational use of drugs (RUD) at Deen Dayal Upadhyay (DDU) hospital:** This programme was held as a workshop at the DDU hospital, New Delhi on 7th and 8th of July 2000. The objective of the workshop was to sensitise doctors to the concept of RUD, and to highlight the irrational patterns of drug use in the departments of medicine and surgery. Twenty-four doctors from the two departments participated in the workshop. The areas discussed were the components of rational prescribing, the 'P Drug' concept, antibiotic policy and infection control, patient education and the use of STGs. A post-intervention study showed that most of the participants found the programme "very good".

(9) **Preparation of standard treatment guidelines (STGs) for hospitals in Delhi:** Encouraged by the positive response to STGs for primary health centres and sub-centres in Delhi, it was decided that the same would be prepared for Delhi government hospitals as well. The objective of the project was to prepare standard treatment protocols for about one hundred priority health problems, as well as to print and distribute these to government and private doctors all over Delhi. As a first step, the morbidity and mortality data from various departments of Delhi government hospitals has been collected and analysed to decide which conditions are to be included in the STGs. An editorial committee and several sub-committees of experts have been formed to write on the different sections of the STGs. These committees have been meeting regularly to finalise the write-ups. The project is on in full swing at present and the STGs are likely to be released in the initial months of the year 2001.

(10) Training programme for drug store managers: This two-day workshop was held at the Institute of Human Behaviour and Allied Sciences (IHBAS), Shahdara, on the 6th and 7th of May 2000. The participants comprised forty-five pharmacists working in various drugstores at hospitals under the government of Delhi. The aim of the workshop primarily was to sensitise pharmacists to good drug store management practices. The issues discussed at the workshop included methods for quantification of drugs for procurement, systems for receiving supplies and accounting, warehousing and computerisation at drugstores. The participants felt that the programme was a successful educational intervention, and its recommendations were documented.

(11) International meeting on HIV/AIDS and traditional medicines: This was the first international meeting of its kind in India which was organised by the DSPRUD on the 10th and 11th of November 2000 at the India International Centre, New Delhi, in collaboration with the Global Initiative for Traditional Systems (GIFTS) of Health, Oxford. The World Health Organisation (WHO) primarily funded the meeting. Some financial support was also provided by the Indian Council of Medical Research (ICMR) and the Population Foundation of India.

The meeting was very appropriately titled *'A Journey to Dialogue'*, bringing together, on a common platform, researchers in various traditional and complementary remedies like ayurveda, siddha, unani and homeopathy, as well as researchers and experts in medicine, epidemiologists, bureaucrats and policy makers on health matters.

Seventy-six participants from India and all over the world held discussions on several relevant issues. Seven renowned practitioners of ayurveda, siddha and homeopathy treating patients of HIV/AIDS in various parts of India presented their findings to international delegates. The meeting was addressed by, among others, Professor Ranjit Roy Chaudhury, President, DSPRUD; Dr. Gerry Bodeker, Chairman, GIFTS of Health; Dr. Palitha Abekoon, Director, Health Technology and Pharmaceuticals, South East Asia, Office of the WHO, New Delhi; Ms. Shailaja Chandra, Secretary, Department of Indian Systems of Medicine and Homeopathy, Government of India; Vaidya Shriram Sharma, Secretary, All India Ayurveda Prachar Sabha, Mumbai; and Dr. Harsh Vardhan, former Health Minister of Delhi.

The meeting was concluded with a set of recommendations for various agencies working for the cause of medical research, traditional medicine and HIV/AIDS. These recommendations are currently being circulated. The proceedings of the meeting would be compiled in book form in the near future. This activity is in the planning stage at present.
The meeting received wide media coverage in the national newspapers.
It is hoped that the meeting will help mitigate the plight of HIV/AIDS victims in the country by enhancing the accessibility of cheaper and effective traditional medicines.

(12) **Preparation of a list of essential herbal medicines:** A list of essential herbal medicines has been prepared by the Department of Indian Systems of Medicine and Homeopathy, Government of India, in technical collaboration with the DSPRUD. The WHO-India Essential Drugs Programme (WHO-India Programme) has ventured into this new area of essential herbal medicines in order to promote the rational use of inexpensive herbal medicine in the numerous villages of India, where access to modern medication is limited.

(13) **Enhanced media advocacy:** Extensive coverage has been given to the concept of rational use of drugs (RUD) and the WHO-India Programme in the year 2000 in both the electronic and print media. Doordarshan, the national government-owned television network, along with other private broadcasting networks, invited senior experts from the DSPRUD and telecast their interviews on several occasions. More than six interviews were telecast on Doordarshan alone. These interviews concentrated mainly on the benefits of RUD and the dangers of irrational drug use, especially that of antibiotics.

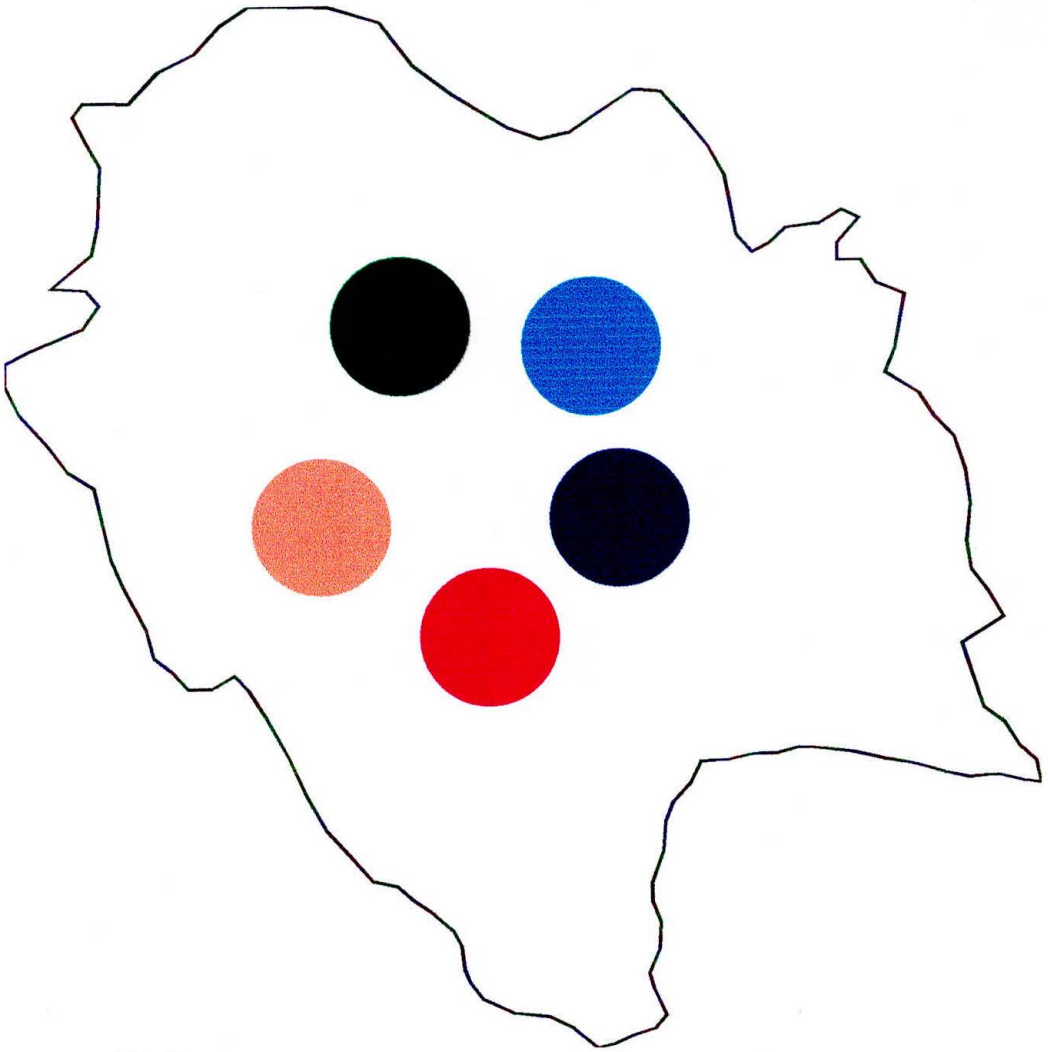
(14) **The Annual Coordination Meeting:** This meeting was held on the 27th and 28th of November 2000, at Hotel Mountview, Chandigarh. The objective of this conference was to review the work completed during the course of the year and to make a plan of action for the forthcoming year. The participants included Dr. H.V. Hogerzeil, WHO, Geneva, Dr. Graham Dukes, consultant to the World Bank, as well as the coordinators from the different states.

The two-day meeting commenced with thematic sessions on the programme activities of human resource development, quality assurance, and research and monitoring. Presentations were made by representatives of the states on the activities being carried out in their respective states. Two field visits were also organised, to the National Institute of Pharmaceutical Education and Research, Chandigarh, and to the Government Medical College, Chandigarh. After the two day meeting at Chandigarh a few members of the group including Professor Roy Chaudhury, President, DSPRUD, and Dr. Hans V. Hogerzeil from WHO Geneva visited Himachal Pradesh. In this hilly state, a programme of rational use of drugs is being implemented since the last two years. Visits to a zonal health centre, a sub-centre and the drug testing laboratory were organized en route to Shimla.

The Health Minister of the state, Mr. J.P. Nadda, formally released the Himachal Pradesh Essential Drugs Formulary and the Standard Treatment Guidelines.

(15) **Meeting with various international development agencies:** A meeting with representatives from international development agencies was held at the DSPRUD office on 1st of December 2000. The activities of the Society were presented to the participants at this meeting. The participants included Dr. H.V. Hogerzeil, Professor Ranjit Roy Chaudhury and other senior persons participating in the India-WHO Programme in Delhi. Some of the international agencies that were represented were the World Bank, DFID, the European Commission and the UNICEF.

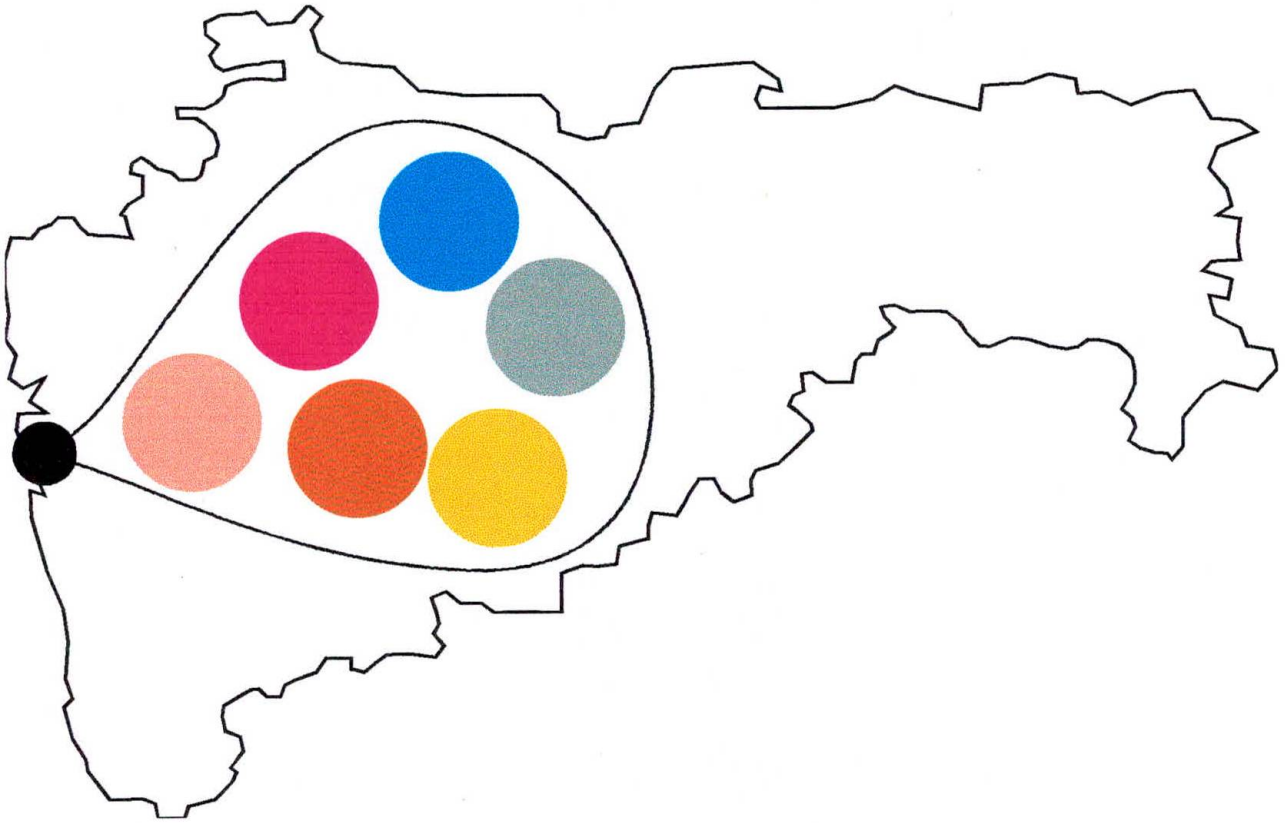
EDP Components Operative in Himachal Pradesh



- Drug Policy
- Essential Drugs List
- Pooled Procurement
- Quality Assurance
- Information to Prescribers

EDP Components Operative in Maharashtra

(Municipal Corporation of Greater Mumbai)



- Essential Drugs List
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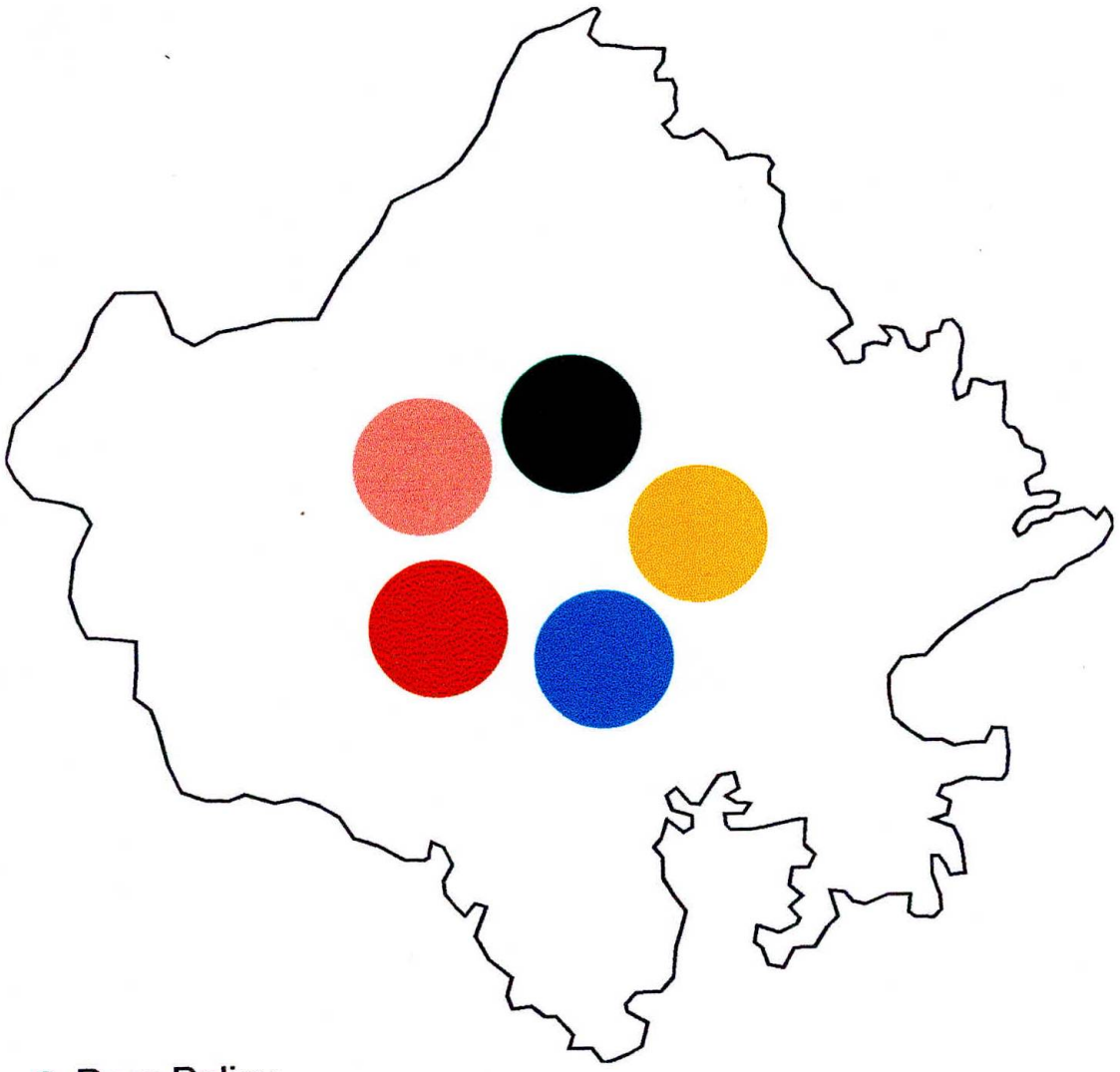
- Information to Prescribers
- Research & Monitoring
- Human Resource Development

EDP Components Operative in Rajasthan



- Drug Policy
- Essential Drugs List
- Training in Rational Prescribing
- Information to Prescribers
- Human Resource Development

Activities in Other States

Besides Delhi, three other states, namely Maharashtra (Municipal Corporation of Greater Mumbai), Rajasthan and Himachal Pradesh, are implementing the WHO-India Essential Drugs Programme (WHO-India Programme) comprehensively. Eight other states and union territories have been implementing some of the components. These are Andhra Pradesh, Assam, Chandigarh, Madhya Pradesh, Karnataka, Punjab, Tamil Nadu and West Bengal.

RAJASTHAN

Outstanding progress was made in Rajasthan in the field of RUD in 2000. This progress can be summed up in the following manner:

1. **Preparation and release of the Rajasthan State Essential Drugs List (RSEDL) 2000:** the Rajasthan Society for The Promotion of Rational Use of Drugs (RSPRUD) prepared this list in consultation with senior state government functionaries and was released by the Honourable Chief Minister of Rajasthan, on the 3rd of February 2000 in the presence of the Honourable Health Minister of the state, as well as members of the RSPRUD.
   A most significant aspect of the RSEDL is that the state government has released it with certain mandatory guidelines, which have to be followed by the State bureaucracy. The RSEDL 2000 guidelines are as follows:

   (a) The doctors working under the State government shall only prescribe and use medicines listed in the RSEDL 2000 as far as possible.

   (b) The RSEDL will benefit public servants, medicine relief cardholders and pensioners, in the sense that the drugs included in the list would be available to them free of cost. The Store Purchase Organisation of the State medical and health departments will circulate an approved rate contract for all the medicines listed in the RSEDL, on the basis of which various institutions would procure medicines as per their demands.

   The State government has also appointed a committee to oversee the implementation of the RSEDL, and has issued guidelines about requests for alterations in the list.

2. **Orientation programme on RUD for the faculty members of Zanana Hospital, Jaipur:** This programme was held on the 9th of May 2000 on the request of the Professor and Head of the Gynaecology and Obstetrics Department, SMS Medical College, Jaipur. The aim of the programme was to sensitise faculty members of Zanana Hospital about rational drug use. It was inaugurated by the Honourable Health Minister of Rajasthan and presided over by the Secretary to the State government. The resource persons were the President, Secretary and other senior members of the RSPRUD.
   Over fifty faculty members and resident doctors of Zanana Hospital attended and appreciated the programme, which was given extensive media coverage.

3. **Workshops on rational prescribing for faculty members of medical colleges at Jodhpur and Udaipur:** Two workshops were held at Jodhpur and Udaipur in the months of August 2000 and October 2000, respectively. The objective of the two workshops was to sensitise faculty members of various medical colleges in the two cities of Rajasthan to the use and importance of essential drug lists. Mr. Rajendra Chaudhary, the Honourable Health Minister of Rajasthan, inaugurated both programmes and stated that all doctors should support the Essential Drugs Programme (EDP) in the state, especially to help people living below the poverty line.
   Both the workshops received wide coverage in the state newspapers and television news channels, and encouraging feedback was received from participating doctors. The resource persons for the two programmes were senior programme participants from the Delhi Society for the Promotion of Rational Use of Drugs (DSPRUD) and the Rajasthan Society for the Promotion of Rational Use of Drugs, Jaipur (RSPRUD).

4. **Inclusion of the RUD Sensitisation Module in the induction training programme of state medical officers at the State Institute of Health and Family Welfare (SIHFW), Jaipur:** Induction training programmes are organised for newly recruited doctors by the State government each year, in which ten batches of thirty doctors each, take part. A one-day training module on the rational use of drugs (RUD) has been included in this induction programme, which was designed by a joint collaboration of senior members of the DSPRUD, the RSPRUD and the organisers at the SIHFW. The module focuses primarily on rational and irrational prescribing and communication skills. Five such one-day modules were conducted in the year 2000 and the response from the participants was very encouraging. The contents and methods of presentation were well received.

5. **RUD sensitisation module for doctors attending the in-service training programme:** Encouraged by the success of the one-day training module on RUD at SIHFW, Jaipur, a similar one-day training module was included in the in-service training of medical officers at the three regional Health and Family Welfare Training Centres in the state of Rajasthan. These centres are situated in Jaipur, Jodhpur and Ajmer, where the government nominated thirty doctors for each of these two-week training courses. Twenty such one-day modules have been completed in the year 2000 under the technical and financial support of the WHO-India Programme.
   The resource persons for this particular programme were active members of the RSPRUD, and the response from the participants was extremely positive.

6. **A prescription audit study for an antibiotic policy for teaching hospitals:** This study is being pursued by the Department of Microbiology, SMS Medical College, Jaipur, under which an audit of prescriptions has been done for five hundred patients (250 outpatients and 250 inpatients) from the urology and general surgery departments. The drug susceptibilities of the isolates are being studied.

   The emerging resistance pattern of E. coli to common antibiotics found in this study is quite alarming. The resistance of this organism to common antibiotics is as follows: Ampicillin (100%), Chloramphenicol (94.4%), Co-trimoxazole (88.9%), Tetracycline (88.9%), Norfloxacin (83.3%) and Ciprofloxacin (72.2%).

HIMACHAL PRADESH

The RUD Programme in Himachal Pradesh was formally inaugurated with a sensitisation workshop at the State Institute of Health and Family Welfare, Parimahal, Shimla, on the 10th and 11th of November 1998. Following this, the programme has witnessed continual progress in the implementation of its various components.

The state drug policy was formulated under the technical guidance of the WHO-India Programme, adopted by the State Cabinet and released in August 1999. The state Essential Drugs List was prepared, printed and released along with the drug policy by Mr. J.P. Nadda, the Honourable Health Minister of Himachal Pradesh.

In accordance with the objectives laid down in the drug policy, two core documents—the Standard Treatment Guidelines (STGs) and the Essential Drugs Formulary (EDF)--were prepared, and these were released in November 2000 by the Health Minister of the state.

The Publication of Standard Treatment Guidelines (STGs): This exhaustive document offers guidelines for the treatment of commonly encountered ailments in the outpatients departments of the various healthcare facilities under the government of Himachal Pradesh. It also provides guidelines for the management of medical emergencies. The STGs have been prepared with the technical and financial support of the WHO-India Programme and the DSPRUD, and published by the Department of Health and Family Welfare, Government of Himachal Pradesh.
The morbidity pattern of the state at different levels of the healthcare system for the last five years was obtained from statistical reports and analysed during the Reproductive and Child Health (RCH) Training Workshop, conducted on the 6th to the 8th of September 1999. An editorial committee was constituted with Dr. S.K. Gupta as its convenor. The committee comprised twelve eminent experts in the fields of medicine, surgery, paediatrics, obstetrics and gynaecology, dermatology, ophthalmology, otorhinolaryngology and psychiatry. Sub-committees for different disciplines were formed and guidelines for treatment of the commonly encountered disease conditions were written. The draft was finalised and published after several in-depth discussions under the technical guidance of Dr. Usha Gupta, Professor of Pharmacology, Maulana Azad Medical College, New Delhi.

The publication of the Essential Drugs Formulary (EDF): In keeping with the objectives laid down in the Himachal Pradesh drugs policy, this was the second core document on RUD released in the year 2000. The Himachal Pradesh EDF has been prepared along the lines of the Delhi state EDF. Published by the Himachal Pradesh Society for the Promotion of Rational Use of Drugs (HPSPRUD), Directorate of Health Services, Shimla, this document was released by the Honourable Health Minister of Himachal Pradesh in November 2000, in the presence of representatives from the WHO-India Programme and the DSPRUD, as well as senior officials of the state health department.

In the preface to the formulary, both the state Chief Minister, Mr. Prem Kumar Dhumal, and the Health Minister, Mr. J.P. Nadda, expressed the hope that the formulary would provide objective information about drugs and therefore maximise the use of the essential drugs list.

Dr. Usha Gupta once again provided technical assistance for the preparation of the formulary as a DSPRUD consultant, while Dr. S.K. Gupta, Municipal Health Officer, Shimla, was the convenor of the formulary editorial committee. There were eight members in this committee from various medical disciplines, under the chairmanship of Dr. Sukh Ram Chauhan, Director, Health Services, Himachal Pradesh.

Drug information in this manual is organised in therapeutic groups and lists the category of the drug, its indications, contraindications, precautions to be taken, side effects, drug interactions, usage in special circumstances like pregnancy, lactation, hepatic and renal failure, and dosage instructions. The dosage has been indicated in mg/kg of body weight in most of the cases. There are also additional notes on the use of the drug wherever this is necessary. The information provided is not necessarily the same as that inside the packages of the products. The drugs have been listed in the same sequence as that of the EDL of Himachal Pradesh.

Included at the end of the formulary is a feedback form to invite any suggestions for the inclusion/deletion of a drug(s). This has been done with the objective of making this document an interactive one and encouraging active participation in the decision-making process. A second edition of the formulary will be released in two years time.

Training Programmes: Following the release of the RUD documents, sensitisation courses on the concept of essential drugs are now being planned. These courses will be held as a part of the various training programmes being organised for health personnel by the state Health and Family Welfare Department.
Training courses for drug store managers and pharmacists are also being proposed under the Himachal Pradesh Essential Drugs Programme.

MAHARASHTRA

In this state, the Municipal Corporation of Greater Mumbai (MCGM) has taken the initiative of implementing a programme of essential drugs in healthcare facilities under its administrative control. The MCGM is a large administrative body that caters to a population of around nine million people. Its health facilities include a hundred and seventy-six health posts, a hundred and sixty-two dispensaries, twenty maternity homes, sixteen peripheral hospitals, five specialist hospitals and three teaching hospitals.
Besides the MCGM, work on RUD under the auspices of the WHO-India

Programme has also been initiated in the district of Pune. The Maharashtra Institute of Medical Education and Research, Telegaon Dabhade, Dist. Pune has prepared its own EDL and is propagating the concept of RUD through this list.

Another significant development is the introduction of the concept of RUD in undergraduate medical curricula by the Maharashtra University of Health Sciences (MUHS), Nasik in over thirty medical colleges under its control.

Some of the major projects undertaken in Maharashtra in the year 2000 are as follows:

- **Preparation of Standard Treatment Guidelines (STGs) for indoor patients:** STGs for outdoor patients of the three levels of healthcare in the MCGM were published. Following this, the coordinators of the programme in Maharashtra commenced a similar programme for inpatients. Morbidity data has been collected from three teaching hospitals and sixteen peripheral hospitals. STGs for common conditions have been prepared and submitted to the Drugs and Therapeutics Committee of the MCGM for suggestions and modifications. Disease conditions have been categorised into twenty-one different headings pertaining to the various specialities and super-specialities in hospitals under the MCGM.
  Detailed information on specialised procedures like maintenance of central venous pressure, correction of metabolic acidosis, mechanical ventilation and several other procedures in adult and paediatric intensive care and cardiac units has been provided.

- **A post-intervention study on adherence of doctors in the STGs and the EDL in the outpatients' departments:** The STGs for outpatients and the EDL have been distributed to all medical facilities under the MCGM in 1999. This survey was done to observe adherence to STGs, using tracer diseases in the departments of general medicine and paediatrics of healthcare facilities.
  Another objective was to find out the extent of change, if any, in prescribing patterns in healthcare facilities in the course of one year.
  A hundred and twenty prescriptions from each of the sixteen peripheral hospitals and thirty randomly selected dispensaries were analysed for this study. The analysis showed that adherence to STGs in the peripheral hospitals varied from 16% to 59%, a variation that is below acceptable levels. Similarly, in dispensaries, adherence to STGs was found to be poor, varying from 17% to 60%. These figures confirm that it is not enough to merely publish and distribute lists and guidelines to ensure adherence.

Training medical officers in the proper use of STGs is equally, if not more, important, and this is now being planned. A post-intervention study will follow to assess the impact of the training.

- **A pre-intervention drug use study at Pune:** The aims of this study were to measure drug use indicators in a representative group of medical facilities in Dist. Pune and to compare the performance of individual facilities. It was conducted over a period of six months, in which a total of 1729 prescriptions were studied and core drug use indicators were analysed. On analysing the data, it was found that the general prescribing pattern in primary healthcare facilities of Pune district was quite similar to the pattern found in the medical facilities under the MCGM, Mumbai. For instance, encounters with injections were found to be as high as 31%-36%, the average consulting and dispensing time was very low, as was the percentage of drugs labelled. An intervention is being planned.

- **A post-intervention study in the MCGM, Mumbai -- Effects of training on pharmacists:** Training courses for pharmacists were conducted in the MCGM Mumbai in 1999 in which a hundred and three pharmacists participated. This survey was carried out to assess the effects of training on the dispensing practices of these pharmacists.

  The dispensaries under the MCGM were divided into two groups, namely trained and untrained pharmacists. Twenty dispensaries from each group were randomly selected. Core patient care indicators for a hundred and twenty patients in each dispensary were assessed as per the recommendations of the WHO.
  The figures reveal that after training, there was a significant change in the labelling of drugs dispensed to the patients, although this change was expected to be higher. This implies that some other form of intervention at the pharmacy level is required.

- **Treatment failure in tuberculosis—the causes of drug therapy failures:** The number of patients with multiple drug-resistant tuberculosis has increased significantly in the last few years, particularly in crowded metropolitan cities like Mumbai. One of the main reasons for this increase is irrational drug prescribing by clinicians and lack of compliance by patients. This study was carried out to look into the causes of this scenario. Patients attending three types of healthcare facilities—DOTS centres, tertiary care centres and private practitioners—were interviewed.

(a) **Results found at DOTS centres:** Out of the 258 DOTS centres in Mumbai, forty-five were randomly selected and a total of 1708 patients from these centres were interviewed to evaluate their knowledge on anti-tuberculosis drug use. On analysis of the data collected, it was found that the patients' knowledge about the duration of treatment and details of drug therapy was negligible. Hence, intervention at the community level is essential in order to increase patient awareness on this particular disease.

Other causes of patients not coming to DOTS centres for treatment were socio-economic ones like homelessness, alcoholism, shifting for treatment to private practitioners and to native places during summer vacations. Another reason why patients do not come regularly to the DOTS centres is the fact that they cannot afford the frequent trips in terms of costs of commuting.

(b) **Results found at tertiary care centres:** 240 cases of tuberculosis at two tertiary care centres were studied. It was found that a high percentage of patients had a fair understanding of the dosages of drugs, duration of treatment and adverse drug effects. Wide variations were found to exist in the treatment schedules offered to patients in both pulmonary and extra pulmonary tuberculosis. Therefore, intervention is necessary at the tertiary level to promote the proper prescribing of medicines and to prevent a further increase in the development of drug resistance.

(c) **Results found at private healthcare facilities:** An attempt was made to examine the regimens followed by private practitioners for treating tuberculosis in order to detect any potential deficiencies in the regimens that could contribute to the development of drug resistant tuberculosis. The results suggested the following: (i) Most of the practitioners depended on criteria like weight gain and increased appetite for assessing any improvement in tuberculosis, despite the availability of good diagnostic laboratories; (ii) Only 28% of practitioners recommended sputum examinations in diagnosis as well as a follow up of the cases; (iii) Only 10% of practitioners recommended that the decision regarding the treatment of non-responsive cases would be based on a sensitivity report; and (iv) About 25% of practitioners would add a single drug to supplement the existing treatment.

These findings suggest serious implications for the epidemiology of the disease, and imply a need for immediate intervention measures.

- **Introduction of the concept of RUD in the undergraduate medical curriculum:** The Maharashtra University of Health Sciences (MUHS), Nasik, has taken the first step in this direction, with the introduction of wide curricular changes in the second MBBS study course. The need for incorporating rational drug use at the undergraduate level arises due to irrational prescribing, which is very prevalent, especially among young doctors. The current courses in pharmacology tend to concentrate on a drug-oriented approach, while the course in clinical medicine emphasises primarily on diagnosis. As a result of this, the field of proper therapeutics, i.e. accurate prescribing and communication skills, is neglected.
  Hence, by inducting the concept of RUD into the second MBBS level, it is expected that students will be able to rationally select drugs, learn to avoid unnecessary drugs, and critically evaluate drug information.
  The process of change was initiated in 1999 with a workshop at Nasik, in which representatives of all the thirty-three medical colleges affiliated to the MUHS were present. A committee was formed by the representatives of the WHO-India Programme (Maharashtra unit) to finalise the changes to be made in the curriculum. It is hoped that these changes will prove to be trendsetters for other medical colleges in the country.

  Programme for Interns: A programme termed 'Shidori' is being conducted for interns at the GS Medical College, Mumbai, in which two important aspects of RUD are being covered in a two-hour session. These aspects are: (a) The concept of rational therapeutics; and (b) interaction with medical representatives and ethics of drug promotion. The concept of rational therapeutics includes, among other things, the 'P-Drug' concept..

  Pharmacy Courses: Suitable interventions to include the concept of RUD in teaching courses for pharmacists are being planned in Mumbai and Pune district in the year 2001.

ANDHRA PRADESH

Activities in the southern coastal state of Andhra Pradesh commenced in July 1999 with a seminar on RUD at the Department of Health and Family Welfare, Hyderabad. Drug procurement and supply in the state is partly funded by the state government and partly by the World Bank.

A survey on the consumption of drugs in Andhra Pradesh was conducted as a preparatory step towards a programme on the rational use of drugs. The

importance of the survey lies in the fact that Andhra Pradesh is a large state with a total of 1,336 primary healthcare centres (PHCs), thirty-four area hospitals, ninety-seven community health centres (CHCs) and nineteen district hospitals. Moreover, one single authority does not control these medical facilities. The PHCs function under the supervision of the Directorate of Health Services, while the Commissionerate of Medical Sciences looks after secondary care hospitals, and the tertiary hospitals, by the Directorate of Medical Education. Hence, it was felt that there was a great need to gauge accurately the pattern and extent of drug use in the state. It was with this objective that a project entitled ' Drug Consumption Profile in Rural and Urban Andhra Pradesh' was started in the year 2000.

Drug Consumption Profile in Rural/Urban Andhra Pradesh: This project is being carried out by the National Institute of Nutrition, Hyderabad with the technical and financial assistance of the WHO-India Essential Drugs Programme (WHO-India Programme).
The project began in June 2000, and is scheduled to be complete by May 2001. The activities carried out under the project so far include identifying the health facilities to be surveyed, recruitment of workers for the survey and finalisation of the pro formae to be used. Sixteen PHCs, four CHCs and one district hospital, located in different parts of the state, were selected as the sample for the survey.

A pilot survey for the same was carried out at the PHCs and CHCs in districts near Hyderabad. On the basis of this pilot survey, the procedure was modified several times and a final format for the study has now been agreed upon.

Data collection suffered a temporary setback in the year 2000 because of flash floods and severe inundation. However, field investigators from Nizamabad, Cuddapah and West Godavari districts are currently collecting the necessary information in their respective areas, and the programme is now underway and would be completed according to schedule.

ASSAM

Activities in Assam started in the year 2000 at the Guwahati Medical College Hospital, the premier teaching institution in the northeast region of the country. To get the programme off the ground, consultants from the DSPRUD visited the state in early 2000. The North Eastern Society for the Promotion of Rational Use of Drugs (NESPRUD) was subsequently formed. A distinctive feature of this society is that it is not confined to the state of Assam, but will be involved in the

cause and promotion of RUD in all the seven northeastern states of India. The first activity undertaken by the society was the organisation of a workshop on RUD in Guwahati.

Awareness workshop on RUD at the Guwahati Medical College: This workshop was held on the 8th of April 2000. Resource persons from the DSPRUD visited Guwahati to speak to the participants about the importance, concept and advantages of rational drug use. The participants comprised faculty members and paramedical staff of the Guwahati Medical College, clinicians, medical students, senior health officials of the state government, representatives from non-governmental organisations (NGOs) working in the field of health in Assam and some members of the general public. The workshop was appreciated not only by the participants, but also by the local newspapers and the regional centre of Doordarshan, the national television network of India. Articles by the NESPRUD on the subject of RUD were published in the local newspapers, dealing with the prescription of inexpensive, safe and effective drugs to needy patients. Besides this, Doordarshan, Guwahati telecast a discussion on the promotion of RUD on the 11th of April 2000, in which both the President and Secretary of the NESPRUD participated.

Preparation of an essential drugs list (EDL): Work on this project has just begun and is likely to be taken up as a full-fledged activity in 2001. NESPRUD members have started visiting all the member states. Two visits to the states of Manipur and Meghalaya have been made with the objective of starting RUD activities in 2001. In the first visit to Imphal, the capital of Manipur, on the 16th of July 2000, the President, NESPRUD met the Professor and Head of the Department of Pharmacology, Regional Institute of Medical Colleges, Imphal and handed over core documents on RUD.
In the visit to Shillong, later in the year 2000, the executive body of the NESPRUD met the Health Minister of Meghalaya, the Health Secretary, the Director of Health Services of the state as well as the Director of the North East Regional Indira Gandhi Post Graduate Institute of Medical Sciences, Shillong. More such visits are being planned in the near future.

THE UNION TERRITORY OF CHANDIGARH

The major activities undertaken in the Union Territory of Chandigarh in 2000 were:

1. **A workshop on the rational use of drugs (RUD):** A workshop on RUD was conducted at the Chandigarh Medical College on the 29th and 30th of January 2000 with the objective of educating faculty members on the importance of introducing the concept of RUD in the medical curriculum. Experts from the DSPRUD, New Delhi addressed the participants of the workshop on this issue. The workshop was a follow up of the 'Chandigarh Dialogue', held in July 1999, in which the status of the programmes in Chandigarh, Haryana, Himachal Pradesh and Punjab were discussed.

2. **A drug utilisation study at the Punjab University Health Centre (PUHC), Chandigarh:** The PUHC caters to the medical needs of a population of about 2500. The centre has an outpatients' department that runs six days a week, and the drugs, if available, are dispensed by a pharmacy. With a view to streamline the availability of drugs, a drug utilisation study was undertaken by a senior faculty member of the Institute of Pharmaceutical Science, Punjab University, Chandigarh.

   The purpose of the study was to assess the rational use of drugs through prescription monitoring by observing the pattern of drug prescribing and dispensing. Five hundred randomly selected prescriptions were monitored over a period of six months. Several parameters were taken into account, including demography, drug related parameters (category of the drug, dose, dosage form, frequency, duration, single or fixed combinations of drugs and whether the drug generic or proprietary), and patient-related parameters such as the time of consultation, information provided by the prescriber/dispenser, the labelling of drugs dispensed and the patient's understanding of drugs to be taken.

The prescription auditing revealed the following:

(a) **The types and categories of drugs prescribed were:** Generic (50.57%), branded (49.43%), individual (81.73%), fixed dose combinations (18.27%), antibiotics (22.76%), analgesics (21.76%), antihistaminic (12.56%), drugs for gastrointestinal tract (9.47%), steroids (3.57%) and drugs for CVS (3.16%).

(b) **Dosage and diagnosis:** Doses were mentioned for 19.28% of the antibiotics prescribed. The diagnosis was written only in 12.75% of the prescriptions monitored.

(c) **Instructions on drug use:** Written instructions on the container were not given by the pharmacist for any of the drugs dispensed; 85.51% of the prescribed drugs were available from the PUHC pharmacy, of which 43.23% were dispensed in loose envelopes (without labelling).

(d) **Patients' knowledge:** Only 17.25% of the patients were aware of the nature of the medication prescribed to them, and 68.25% were aware of the medication schedule.

Follow up: The above observations were shared with the physicians and pharmacists of the PUHC. The issues were related to administrative problems and procurement and distribution of drugs. An intervention study has been initiated and is in progress.

KARNATAKA

The RUD Programme in Karnataka was launched on the 20th of October 1999 at a conference held in Bangalore, the capital of the state. Members of the state health department and the Karnataka Medical Council (KMC) participated at this conference. It was addressed by Professor Ranjit Roy Chaudhury, coordinator of the WHO-India Programme. An interesting feature of the programme is that the initiative has been taken by pharmacists rather than by doctors. The Karnataka State Pharmacy Council (KSPC) has taken on the responsibility of introducing RUD in the state and has formed an RUD committee for this purpose. The President of the Karnataka State Branch (KSB) of the Indian Medical Association (IMA) is a member of this committee.

A number of activities have started in the year 2000, such as the training of doctors and pharmacists in RUD, the study of prescription trends in the state hospitals and the preparation of an essential drugs list (EDL).

Given below is a brief account of the programme:

1. **The inclusion of RUD as a module in quality care and ethical practice workshops:** These ongoing workshops were initiated at six different places in Karnataka—Gulbarga, Belgaum, Kolar, Shimoga, Mysore and Davanagere— by the government of Karnataka. One workshop is held every month, and six hundred doctors working in hospitals under the government of Karnataka have already participated in these workshops in 2000. On the request of the RUD committee of the KSPC, a module on RUD was included in the workshops.

2. **Public education in RUD:** Work on this aspect has been started by the KSPC. A two-hour lecture-cum-discussion titled 'Public Education in the Rational Use of Drugs' was held on the 24th of September 2000 at the Banashankari Consumer Protection Society meeting, in which over forty-two members of the public participated.

   The KSPC has also established links with the Institute of Social Sciences, Bangalore to publish articles on RUD in the Institute's vernacular monthly newsletter, the readership of which includes around 10,000 members of the Panchayati Raj Institution.

3. **A training programme for doctors and pharmacists:** The first training programme was held on the 18th of October 2000, in which doctors and pharmacists from eight project hospitals of the Karnataka Health Systems Development Project (KHSDP) took part. The participants were sensitised to the rational use of drugs and antibiotics, and measuring drug use indicators in hospitals.
   One doctor and one pharmacist from each of the participating hospitals were selected to form a team to help promote the cause of RUD in their hospitals.

4. **Preparing an essential drugs list (EDL):** The preparation of an EDL has been initiated in consultation with clinicians from various disciplines. A consolidated list has been prepared by referring to seven different EDLs, such as the WHO EDL, Government of India EDL, the EDL for health centres and sub-centres in Delhi, the EDL for Delhi hospitals, the Karnataka Rate Contract EDL, the MCGM, Mumbai EDL and the Tamil Nadu EDL. Morbidity data for Karnataka has also been collected.

5. **A special feature on RUD in the Karnataka Medical Journal:** This journal is circulated amongst approximately 8000 doctors in the state of Karnataka. A special feature on the rational use of drugs is being planned for the journal, and is likely to be released sometime in 2001.

MADHYA PRADESH

The Madhya Pradesh Society for the Promotion of Rational Use of Drugs (MPSPRUD) was formed in September 1999. Professor Ranjit Roy Chaudhury, President of the DSPRUD, visited Gwalior on the 21st of April 2000 and a programme has since been initiated:

1. **A project for 10+2 level school children:** This is a unique project for the poor in rural and urban slums, where there is a complete absence of healthcare facilities. Under this scheme, 10+2 level school children are being trained in the use of a few important and commonly used drugs, to be administered to members of the community in times of need. It is a joint project involving several agencies and departments, led by the WHO-India Programme in the state of Madhya Pradesh. The modalities of the project are currently being worked out.

2. **A workshop on the rational use of drugs (RUD) in reproductive and child healthcare (RCH):** This workshop was organised in Bhopal, the capital of Madhya Pradesh, from the 28th to the 30th July 2000, jointly by the DSPRUD and the Family Panning Association of India (FPAI) through their Small Family by Choice Project (SFCP). The most significant aspect of this workshop is that it was a specialised RUD effort—the first of its kind by the WHO-India Essential Drugs Programme. Medical professionals from the FPAI took part in this workshop. The importance of this programme is that if rational prescribing is adopted in family planning and RCH activities, it will enhance and promote the image and concept of family planning in India.
   Shri Digvijay Singh, the Honourable Chief Minister of Madhya Pradesh, inaugurated the workshop. A team of gynaecologists and clinicians from FPAI, Mumbai were also present, while Professor Roy Chaudhury, coordinator of the WHO-India Programme and Dr. S.A. Dahanukar from KEM hospital, Mumbai (on behalf of the DSPRUD) provided the expertise in RUD. The sessions of the three-day meeting included the basic principles of RUD, nutrition in pregnancy, management of complications in pregnancy and labour (hypertension, eclampsia, antepartum and post-

partum haemorrhages), safe abortions, reproductive tract infections, sexually-transmitted infections, pelvic inflammatory disease, care of the neonate, choice of drugs in common conditions like malaria and tuberculosis, with reference to pregnant and lactating women, and various contraceptive techniques and devices.
The workshop was given extensive news coverage in the local media.

3. **A workshop on the rational use of drugs for private practitioners:** This sensitisation workshop, the second of its kind for private practitioners, was organised at Gwalior, jointly by the WHO-India Programme and the Gwalior branch of the Indian Medical Association (IMA), on the 6th of August 2000. More than a hundred and twenty private practitioners participated in the workshop. Experts from the DSPRUD discussed the principles of RUD at length.

4. **Other activities in Madhya Pradesh:** A drug policy for the state is on the anvil and will be adopted by the State Assembly in the following year. The publication of core documents for Madhya Pradesh is being planned. These publications include an essential drugs list (EDL) for various levels of healthcare and a set of standard treatment guidelines (STGs). The WHO-India Programme will provide financial support for these activities, and the State government will be actively involved in the programme. This is essential as these publications are to be officially circulated to all medical facilities in the State.

   A system to strengthen the quality assurance of drugs purchased by the State government, by the inspection of pharmaceutical houses for good manufacturing practices, is also being worked on.

PUNJAB

Drug procurement in Punjab is done by the Punjab Health Systems Corporation (PHSC) and is funded by the World Bank. The PHSC has adopted the EDL for Delhi hospitals for its purchases. However, drug purchasing is done in accordance with the procurement guidelines laid down by the World Bank, such as pre-qualification criteria and GMP certificates.

An awareness symposium on the rational use of drugs (RUD): A major activity in Punjab this year was a symposium on RUD at Ludhiana. This two-day symposium was organised by the Department of Pharmacology, Christian Medical

College (CMC), Ludhiana on the 13th and 14th of November 2000. Doctors from the college participated at the symposium. Dr. A.G. Thomas, Principal, CMC, chaired the inaugural session. Dr. T.M. Jaison, Deputy Director, CMC and the Civil Surgeon, Ludhiana were also present on the occasion. Dr. Thomas appreciated the relevance of the theme of the symposium in the existing scenario in India, where a large number of drugs can be bought over the counter, leading to misuse of drugs. He also emphasised the need to observe rationality in drug prescribing in terms of drug selection, number of drugs, dosage and toxicity.

The sessions of the symposium focused on the following themes:

(a) Types of irrationalities observed in prescriptions, leading to therapeutic failures and iatrogenic disease
(b) The concept of essential drugs, the importance and advantages of an essential drugs list (EDL)
(c) Guidelines for the safe use of drugs for the geriatric category
(d) A systematic approach to the proper selection of anti-hypertension drugs
(e) The utilisation of antimicrobials to avoid drug resistance
(f) The critical evaluation of promotional literature on drugs
(g) The importance of communication skills for physicians.

The participants started the preparation of an EDL as a group activity. One of the recommendations of the symposium was that a drug review committee should be constituted, comprising health authorities, excise department officials, clinicians and pharmacologists. The committee should also look into the real needs of the patients and formulate guidelines on the procurement and prescription of safe, effective and inexpensive drugs.

TAMIL NADU

In this southern state, where an independent essential drugs programme has been in operation since 1994, the role of the WHO-India Programme has been to provide technical assistance. The Tamil Nadu Medical Services Corporation (TNMSC), in collaboration with DANIDA, is implementing the programme. The State has its own EDL and Drug Formulary. The TNMSC has been successful in ensuring the availability of essential drugs to a large percentage of the rural population.

Most of the activities of the WHO-India Essential Drugs Programme in Tamil Nadu are concentrated at the Christian Medical College (CMC), Vellore. The assistance provided has mainly been in the form of organising seminars and making training modules on RUD for medical officers and pharmacists, conducting surveys on drug use in primary healthcare centres, and in the establishment of a drug information centre.

WEST BENGAL

Although the World Bank is supporting the healthcare system in West Bengal, a programme on the rational use of drugs was launched with technical and financial assistance from the WHO-India Programme towards the end of 1998. It was felt that in order to effectively introduce the programme in West Bengal, it was important to have accurate information on the disease pattern in the community. While in urban areas, it would be sufficient to gather data from the records of morbidity and drug utilisation in government and private health institutions, it would not be a suitable method in the case of rural areas due to lack of medical institutions and, therefore, statistical records. Rather, a door-to-door survey of morbidity and mortality, and attitudes of the rural community towards professional healthcare is the only alternative. Hence, a project entitled 'A Study on Morbidity and Mortality in a Rural Community of West Bengal' was carried out in Bankura District. This study was undertaken by the Joypur Harajyoti Udyog Society, Bankura, West Bengal. The main objectives of this study were:

- To find out the point-prevalence rate of morbidity during different seasons
- To examine the relative frequency of different diseases, both acute and chronic in nature
- To study the characteristics (age, gender and occupation) of patients suffering from such diseases
- To delineate the attitudes of the rural community towards professional medical care in times of illness.

During the course of this study, one or two members from each of the 1500 families of panchayat areas of villages studied were questioned. A total of 1781 persons were surveyed, and study was carried out over a period of three months in the summer, monsoon and winter seasons. A pre-designed and pre-tested semi-structured pro forma was used to conduct the door-to-door survey. This was done by trained, non-medical investigators. To ensure qualitative data, a trained medical supervisor monitored the investigators. It was found that around 32% of the population was in the age group of forty years or below, and only 9.5% lived

in proper concrete houses. The most common diseases were found to be enteric (40%), followed by cough and cold (28%) and fever (11%). Forty-four percent of persons did not seek professional medical care, while 19% went to health centres, and 3%, to hospitals. In the case of pregnant women, 53% of the deliveries were done at home, and 33%, in hospitals.

A complete assessment of the generated data is being made in order to plan suitable intervention measures.

New States

The WHO-India Essential Drugs Programme (The WHO-India Programme) has constantly strived to include into its fold more and more states and spread the programme of rational use of drugs (RUD) to benefit as much of the Indian population as possible. This programme is being implemented in twelve states, and it is its endeavour to spread its wings to reach out to those states that have been hitherto untouched, and therefore, deprived of the merits and value of the programme.

UTTAR PRADESH (U.P.)

Dr. Harsh Vardhan, former Health Minister of Delhi, held detailed discussions with Mr. Ramapati Shastri, Health Minister, U.P. as an initial step in the direction of launching the programme in the state of U.P. This was followed by a visit to Lucknow, the state's capital, by a senior consultant from the Delhi Society for the Promotion of Rational Use of Drugs (DSPRUD). As a consequence of this visit, a committee has been formed for the induction of the programme in the state. The members of this committee include two senior officials of the Health and Family Welfare Department and the Health Secretary of the same. During the meetings of the DSRPUD representatives with senior State health officials in Lucknow, strategies for the implementation of the RUD programme were discussed.

Formulation of a drug policy: One of the priorities of the committee would be to formulate a drug policy for U.P. Once the State Cabinet accepts this policy, the other components of the programme on RUD can be initiated. The political leadership in the state and bureaucrats in the health department are eager to follow the 'Delhi Model' and have communicated this to the representatives of the WHO-India Programme, New Delhi, who have assured them of their support.

Assistance to the Sanjay Gandhi Post Graduate Institute of Medical Sciences (SGPGIMS), Lucknow: While the preparatory work at the level of the state government is underway, assistance from the DSPRUD in the area of drug purchase has been sought by the SGPGIMS, Lucknow, a premier medical institution of U.P. This prestigious institute has an annual drug budget of rupees sixty crores. In order to streamline the supply of essential medicines to thousands of poor patients visiting the institute, the SGPGIMS would like to use the EDL used by Delhi hospitals and also buy these medicines from the

same suppliers under the same terms and conditions. They would also like to adopt the GMP inspection protocol followed in Delhi to ensure the supply of good quality medicines. The SGPGIMS has also expressed the desire to apply the Delhi course content in the training of pharmacy managers in their hospitals.

GUJARAT

Activities in this state were initiated at the beginning of the year 2000, at a meeting at New Delhi between the President of the DSPRUD and Mr. Ashok Bhatt, former Health Minister, Gujarat, who had shown keen interest in the RUD programme. However, due to a political change in the state, the launching of the programme suffered a setback and the proposed visit of the President, DSPRUD to Ahmedabad was postponed. Dr. Usha Gupta from the DSPRUD visited Gujarat later in the year and held meetings with senior state health officials. At these meetings, the Commissioner of Food and Drugs Control Administration has been given the responsibility of convening RUD activities in the state. A drug policy statement for Gujarat is being prepared after which, it would need to be approved by the State Cabinet.

Assistance was provided by the DSPRUD to non-governmental organisations working in the field of health in Gujarat last year, namely SEWA and Lo Cost, to conduct workshops in the state on RUD.

ORISSA & KERALA

Programmes on RUD in these two states are expected to commence in the near future. Sensitisation workshops on rational drug use are being planned for the year 2001. In the state of Orissa, the Health Secretary to the state government has taken a keen interest in the planning process, and executive members of the DSPRUD will be visiting the two states to define and implement the plans.

Research Activities

The following research activities were taken up in different states under the WHO-India Essential Drugs Programme in the year 2000:

DELHI

1. Impact of drug information on patients' knowledge about drug use and compliance

   Investigators: Professor Ranjit Roy Chaudhury, Professor Usha Gupta, Dr. Jeevan Jha and Dr. Sangeeta Sharma

   The objective of the study was to provide verbal as well as written information to patients on the drugs prescribed to them and to assess the impact of this information on their knowledge and compliance about drug use. This was a randomised and controlled clinical study carried out at the Deen Dayal Upadhyay Hospital (DDU Hospital), New Delhi. The sample size of the intervention and control groups was a hundred patients each.

   Leaflets in colloquial Hindi with information on drugs prescribed to them, and about primary indicators (purpose, dose, frequency and duration of treatment) and supplementary indicators (adverse effects, precautions, missed doses and future appointments) of drug use were prepared and distributed amongst patients in the intervention group. In addition, pharmacists and young medical students briefed them on the drugs on a one-to-one basis.
   The results of the study showed that as a result of the information provided to the patients in the intervention group, their knowledge of drugs had improved remarkably, almost twofold on primary indicators and threefold on supplementary indicators.

2. The impact of educational intervention on the prescribing behaviour of physicians, especially on the extent of antibiotic use in acute respiratory infection (ARI) and acute diarrhoea at primary healthcare centres in Delhi:

   Investigators: Professor Ranjit Roy Chaudhury, Dr. Sangeeta Sharma, Dr. Usha Gupta and Dr. J.S. Bapna.

ARI and acute diarrhoea were selected for this study because antibiotics are particularly misused in these two conditions. The aims of the study and the method adopted for it have already been discussed in Chapter One (Activities in the State of Delhi) of this report. The findings show that antibiotics were employed in 80%-100% of the cases of acute diarrhoea in the pre-intervention phase. Although there was a decline in this figure in the post-intervention phase, more in some health facilities than others, it was felt that one educational intervention was not sufficient for changing prescribing behaviour.

3. Cost analysis for treatment of mild hypertension and mild chronic bronchial asthma:
Investigators: Professor Ranjit Roy Chaudhury, Dr. Anita Kotwani and Dr. Usha Gupta

The aim of this study was to examine the pattern and cost of drug use in the conditions of mild hypertension and chronic bronchial asthma. A hundred randomly selected prescriptions for each of these conditions were collected from the outpatients' departments of three hospitals under the government of Delhi. A detailed pro forma was used to collect this data, the analysis of which is underway.

4. The effect of rational prescribing on the cost of therapy in acute respiratory infection (ARI) and acute diarrhoea:

Investigators: Dr. Rajkumari Gulati, Dr. Sangeeta Sharma, Professor Ranjit Roy Chaudhury, Dr. Usha Gupta and Dr. J.S. Bapna.

The objective of the project was to study the cost of therapy in ARI and acute diarrhoea, with and without the use of standard treatment guidelines (STGs) and pooled procurement. Thirty prescriptions for each of these conditions were collected from each of the twenty-five randomly selected health facilities under the Delhi government. The health facilities were divided into study and control groups, and STGs were introduced into the study groups during interventional workshops. The results suggested significant savings in the cost of treatment as a result of the adoption of the pooled procurement system. Adopting a pooled procurement system of medicines, rather than the buying of medicines from the market enhances the extent of savings. ARI and diarrhoea are two common diseases in India, and the saving in the cost of therapy in these two conditions would have a greater impact

on the healthcare budget. This study demonstrates that the savings in the cost of therapy in these two conditions is over 100% as compared to the minimum cost at which the drug is available in a retail centre. The results of the study are summarized as follows:

1. a) The cost of therapy in diarrhoea calculated as per the STGs (if followed completely) would be Rs.11.20.

   b) In control health facilities, the average cost of therapy in diarrhoea was Rs.17.82 and Rs.15.97 respectively in both the pre intervention and post intervention periods.

   c) In study health facilities, the average cost of therapy in diarrhoea was Rs.13.88 and Rs.14.42 respectively in the pre intervention and post intervention periods.

   d) In diarrhoea the cost of therapy at retail prices was nearly 106-135% more than when the prices were calculated at CPA rates.

2. a) In ARI, the cost of therapy as per STGs, if followed, was calculated to be Rs.4.75

   b) In control health facilities, the average cost of therapy was found to be Rs.9.56 and Rs.10.19 respectively in the pre intervention and post intervention periods.

   c) In study health facilities, the average cost of therapy was found to be decreased from Rs.9.31 to Rs.8.29 following intervention.

   d) When a comparison was made between the two modes of procurement of drugs (for the cost therapy of ARI) - CPA and Retail sector - it was observed that the cost was nearly 80% more at retail sector rates than at Pooled procurement rates (CPA).

The average cost of therapy in diarrhoea did not reduce following intervention. This probably could be due to the fact that there is not much of a difference between the cost of therapy as per STGs (Rs.11.20) and cost of therapy in practice in health facilities. The average cost of therapy in ARI decreased following intervention though not significantly. The cost of therapy in ARI would further

reduce by nearly 100% if STGs are implemented successfully. In diarrhoea, the CPA system of procurement of medicines reduces the cost of therapy by 106-135%. In ARI, the CPA system of procurement of medicines reduces the cost of therapy by nearly eighty percent.

RAJASTHAN

5. A prescription audit study for an antibiotic policy in teaching hospitals

   Investigators: Dr. Sati Pathak, Department of Microbiology, SMS Medical College, Jaipur.

   In this project, the prescriptions of five hundred patients (250 inpatients and 250 outpatients) from the Departments of Urology and General Surgery, SMS Medical College are being studied, and the drug susceptibilities of the bacterial isolates are being analysed.

   The results show an alarming pattern of antibiotic resistance amongst the common pathogens. As an example, the resistance pattern of E.coli is indicated in the table below:

The emerging resistance pattern of E.coli to common antibiotics in patients from the Urology Department of SMS Medical College, Jaipur.

	Percentage resistance		Percentage resistance
Ampicillin	100%	Tetracycline	88.9%
Chloramphenicol	94.4%	Norfloxacin	83.3%
Co-trimoxazole	88.9%	Ciprofloxacin	72.2%

MAHARASHTRA

6. A post-intervention study of the adherence of doctors to standard treatment guidelines (STGs) and essential drugs lists (EDLs) in the outpatients' departments

   Investigators: Dr. S.A. Dahanukar and Dr. Urmila Thatte

The purpose of this study was to assess the adherence of doctors to the STGs and EDLs of the outpatients' departments of the healthcare facilities under the MCGM, Mumbai. The adherence of doctors in the departments of general medicine and paediatrics was studied using prescriptions issued for certain tracer diseases. The outpatients' STGs and EDL have already been distributed in 1999.

A hundred and twenty prescriptions were analysed for each of the sixteen peripheral hospitals and thirty randomly selected dispensaries under the MCGM. The analysis revealed that the adherence to STGs in the peripheral hospitals varied from 16%-59%, a range below the acceptable level of adherence. In dispensaries, too, the level of adherence to STGs was found to be low, varying from 17%-60%. These figures confirm that in addition to printing and distributing written information, the training of medical professionals in the proper use of STGs is essential.

7. **A pre-intervention drug use study at Pune**

   Investigators: Dr. V.A. Pandit, Department of Pharmacology, Bharati Vidyapeeth, Pune.

   The objectives of this study were to measure drug use indicators in a representative group of medical facilities in District Pune, and to compare the performance of individual facilities. The study was conducted over a period of six months, during which 1729 prescriptions, and core drug use indicators, were analysed.

   On the analysis of the data acquired, it was found that the general prescribing pattern in the primary healthcare centres of Dist. Pune was similar to the pattern found in the medical facilities under the MCGM, Mumbai. For instance, encounters with injections amounted to 31%-36%, the average consulting times and the percentage of drugs labelled were very low. Intervention is being planned.

8. **A post-intervention study at the MCGM, Mumbai—the effect of training on pharmacists**

Investigators: Dr. S.A. Dahanukar, Dr. Urmila Thatte and others.

Training courses for pharmacists were conducted at the MCGM, Mumbai in 1999, in which a hundred and three pharmacists trained. This survey was

carried out to assess the effects of training on the dispensing practices of these pharmacists.

The dispensaries under the MCGM were divided into two groups, namely trained and untrained pharmacists. Twenty dispensaries from each group were randomly selected. Core patient care indicators for a hundred and twenty patients in each dispensary were assessed as per the WHO recommendations.

The figures reveal that after training, there was a significant change in the labelling of drugs dispensed to the patients, although this change was expected to be higher. This implies that some other form of intervention at the pharmacy level is required.

9. Treatment failure in tuberculosis—the causes of drug therapy failures

Investigators: Dr. S.A. Dahanukar, Dr. Urmila Thatte and others.

The aim of this study was to assess the reasons behind the rapidly increasing incidence of drug resistant tuberculosis, especially irrational drug prescriptions by physicians and lack of compliance by patients. Patients attending three types of healthcare facilities—DOTS centres, tertiary care centres and private practitioners—were interviewed for this study and the results are as follows:

DOTS centres: Out of the 258 DOTS centres in Mumbai, forty-five were randomly selected and a total of 1708 patients from these centres were interviewed to evaluate their knowledge on anti-tuberculosis drug use. On analysis of the data collected, it was found that the patients' knowledge about the duration of treatment and details of drug therapy was negligible. Hence, intervention at the community level is essential in order to increase patient awareness on this particular disease.

Other causes of patients defaulting from DOTS centres for treatment were socio-economic ones like homelessness, alcoholism, shifting for treatment to private practitioners and to native places during summer vacations. Another reason why patients do not come regularly to the DOTS centres is the fact that they cannot afford the frequent trips in terms of costs of commuting.

Tertiary care centres: 240 cases of tuberculosis at two tertiary care centres were studied. It was found that a high percentage of patients had a fair understanding on the dosages of drugs, duration of treatment and adverse drug effects. Wide variations were found to exist in the treatment schedules offered to patients in both pulmonary and extra pulmonary tuberculosis. Therefore, intervention is necessary at the tertiary level to promote the proper prescribing of medicines and to prevent a further increase in the development of drug resistance.

Private healthcare facilities: An attempt was made to examine the regimens followed by private practitioners for treating tuberculosis in order to detect any potential deficiencies in the regimens that could contribute to the development of drug resistant tuberculosis. The results suggested the following: (i) Most of the practitioners depended on criteria like weight gain and increased appetite for assessing any improvement in tuberculosis, despite the availability of good diagnostic laboratories; (ii) Only 28% of practitioners recommended sputum examinations in diagnosis as well as a follow up of the cases; (iii) Only 10% of practitioners recommended that the decision regarding the treatment of non-responsive cases would be based on a sensitivity report; and (iv) About 25% of practitioners would add a single drug to supplement the existing treatment.
These findings suggest serious implications for the epidemiology of the disease, and imply a need for immediate intervention measures.

ANDHRA PRADESH

10. A drug composition profile in rural urban Andhra Pradesh

Investigators: Dr. Kamala Krishnaswamy and Dr. B. Dinesh Kumar (National Institute of Nutrition, Hyderabad) and others.

A study on the consumption of drugs in Andhra Pradesh was conducted as a preparatory step towards a programme on the rational use of drugs. The project began in June 2000, and is scheduled to be complete in May 2001. The activities carried out under the project so far include identifying the health facilities to be surveyed, recruitment of workers for the survey and finalisation of the pro formae to be used. Sixteen primary healthcare centres (PHCs), four community health centres (CHCs) and one district hospital, located in different parts of the state, were selected as the sample for the survey.

A pilot survey for the same was carried out at the PHCs and CHCs in districts near Hyderabad. On the basis of this pilot survey, the procedure was modified several times and a final format for the study has now been agreed upon.

Data collection suffered a temporary setback in the year 2000 because of flash floods and severe inundation. However, field investigators from Nizamabad, Cuddapah and West Godavari districts are currently collecting the necessary information in their respective areas, and the programme is now underway and would be completed according to schedule.

UNION TERRITORY OF CHANDIGARH

11. A drug utilisation study at the Punjab University Health Centre (PUHC), Chandigarh

Investigators: Dr. S.K. Kulkarni (Professor of Pharmacology, Institute of Pharmaceutical Sciences, Punjab University, Chandigarh)

The PUHC caters to the medical needs of a population of about 2500. The centre has an outpatients' department that runs six days a week, and the drugs, if available, are dispensed by a pharmacy. With a view to streamlining the availability of drugs, a drug utilisation study was undertaken.

The purpose of this study was to assess the rational use of drugs through prescription monitoring by observing the pattern of drug prescribing and dispensing. Five hundred randomly selected prescriptions were monitored over a period of six months. Several parameters were taken into account, including demography, drug related parameters (category of the drug, dose, dosage form, frequency, duration, single or fixed combinations of drugs and whether the drug generic or proprietary), and patient-related parameters such as the time of consultation, information provided by the prescriber/dispenser, the labelling of drugs dispensed and the patient's understanding of drugs to be taken.

The prescription auditing revealed the following:

(a) The types and categories of drugs prescribed were: Generic (50.57%), branded (49.43%), individual (81.73%), fixed dose combinations (18.27%), antibiotics (22.76%), analgesics (21.76%),

(b) antihistaminic (12.56%), drugs for gastrointestinal tract (9.47%), steroids (3.57%) and drugs for CVS (3.16%)

(c) Dosage and diagnosis: Doses were mentioned for 19.28% of the antibiotics prescribed. The diagnosis was written only in 12.75% of the prescriptions monitored.

(d) Instructions on drug use: Written instructions on the container were not given by the pharmacist for any of the drugs dispensed; 85.51% of the prescribed drugs were available from the PUHC pharmacy, of which 43.23% were dispensed in loose envelopes (without labelling).

(e) Patients' knowledge: Only 17.25% of the patients were aware of the nature of the medication prescribed to them, and 68.25% were aware of the medication schedule.

Follow up: The above observations were shared with the physicians and pharmacists of the PUHC. The issues were related to administrative problems and procurement and distribution of drugs. An intervention study has been initiated and is in progress.

WEST BENGAL

12. A study on morbidity and mortality in a rural community of West Bengal

Investigators: The Joypur Harajyoti Udyog Society, Bankura District.

Although the World Bank is supporting the healthcare system in West Bengal, a programme on the rational use of drugs was launched with technical and financial assistance from the WHO-India Essential Drugs Programme towards the end of 1998. It was felt that in order to effectively introduce the Who-India Programme in West Bengal, it was important to have accurate information on the disease pattern in the community. While in urban areas, it would be sufficient to gather data from the records of morbidity and drug utilisation in government and private health institutions, it would not be a suitable method in the case of rural areas due to lack of medical institutions and, therefore, statistical records. Rather, a door-to-door survey of morbidity and mortality, and attitudes of the rural community towards professional healthcare is the only alternative. Hence, a project entitled 'A Study on Morbidity and Mortality in a Rural Community of West Bengal' was carried out in Bankura District. This study was undertaken by the Joypur Harajyoti

Udyog Society, Bankura, West Bengal. The main objectives of this study were:

- To find out the point-prevalence rate of morbidity during different seasons
- To examine the relative frequency of different diseases, both acute and chronic in nature
- To study the characteristics (age, gender and occupation) of patients suffering from such diseases
- To delineate the attitudes of the rural community towards professional medical care in times of illness.

During the course of this study, one or two members from each of the 1500 families of panchayat areas of villages studied were questioned. A total of 1781 persons were surveyed, and study was carried out over a period of three months in the summer, monsoon and winter seasons. A pre-designed and pre-tested semi-structured pro forma was used to conduct the door-to-door survey. This was done by trained, non-medical investigators. To ensure qualitative data, a trained medical supervisor monitored the investigators. It was found that around 32% of the population was in the age group of forty years or below, and only 9.5% lived in proper concrete houses. The most common diseases were found to be enteric (40%), followed by cough and cold (28%) and fever (11%). Forty-four percent of persons did not seek professional medical care, while 19% went to health centres, and 3%, to hospitals. In the case of pregnant women, 53% of the deliveries were done at home, and 33%, in hospitals. A complete assessment of the generated data is being made in order to plan suitable intervention measures.

Activities in the Area of Human Resource Development

The WHO-India Essential Drugs Programme has devoted a large amount of resources for training doctors and paramedical staff in the rational use of drugs. Following is a documentation of the training programmes held in the year 2000 in different states of the country:

DELHI

1. Training programme for healthcare professionals in the rational use of drugs at the Deen Dayal Upadhyay (DDU) Hospital, New Delhi.

2. Training programme for drugstore managers working in hospitals under the government of the National Capital Territory of Delhi at the Institute of Human Behaviour and Allied Sciences (IHBAS), Shahadra.

3. Educational intervention on the prescribing behaviour of physicians, especially the extent of antibiotic use in acute respiratory infection (ARI) and acute diarrhoea, in the primary healthcare centres of Delhi.

4. Educational intervention on prescribing amongst private practitioners at the IHBAS, in collaboration with the Delhi Medical Council (DMC).

RAJASTHAN

5. Orientation programme on the rational use of drugs for the faculty members of Zanana Hospital, Jaipur.

6. A workshop on rational prescribing for faculty members of the medical colleges of Jodhpur.

7. A workshop on rational prescribing for faculty members of the medical colleges of Udaipur.

8. Inclusion of a one-day sensitisation module on the rational use of drugs into the induction training programme for state medical professionals at the State Institute of Health and Family Welfare (SIHFW), Jaipur.

9. Inclusion of a one-day sensitisation module on the rational use of drugs for doctors into the in-service training of medical professionals at the regional Health and Family Welfare Training Centres of Rajasthan.

MAHARASHTRA

10. Introduction of the concept of rational use of drugs into the undergraduate curriculum of the medical colleges under the Maharashtra University of Health Sciences (MUHS), Nasik.

11. Programme on rational use of drugs, termed Shidori, for interns at the GS Medical College, Mumbai.

ASSAM

12. Sensitisation workshop on the rational use of drugs at the Guwahati Medical College.

CHANDIGARH

13. Sensitisation workshop on the rational use of drugs at the Chandigarh Medical College.

KARNATAKA

14. The inclusion of rational drug use as a topic into the quality care and ethical practice workshops in the state of Karnataka.

15. Training programme in the rational use of drugs for doctors and pharmacists from eight project hospitals of the Karnataka Health Systems and Development project.

MADHYA PRADESH

16. Workshop on the rational use of drugs for private practitioners at Gwalior.

17. Workshop on the rational use of drugs in reproductive and child healthcare (RCH) in Bhopal.

PUNJAB

18. Symposium titled 'Awareness of Rational Drug Use' held at the Christian Medical College, Ludhiana.

While details of these programmes have already been discussed in Chapter Two (Activities in Other States) of this report, the contents of the one-day training modules on the rational use of drugs are indicated in overleaf.

One-day Training Module on the Rational Use of Drugs Inducted into Training Courses for Doctors

Irrational Prescribing

- Concept of Rational Use of Drugs
- Evaluation of the components of irrational prescribing behaviour
- Identification of the effects of irrational prescribing
- Introduction of group tasks, using actual irrational prescriptions
- Components of an ideal prescription with group task
- Plenary discussions

Rational Prescribing

- Concept of Essential Drugs
- Enumeration of the steps involved in the rational use of drugs
- Formulation of a method of selecting a rational drug (P-Drug concept)
- Group Task: Writing prescriptions for conditions commonly encountered in primary healthcare centres

- Plenary discussions

Communication Skills

- Effective communication with patients to improve patient compliance
- Effective communication with the regulatory agency, with special emphasis on poor quality drugs available in the market

- Critical evaluation of a new drug formulation

- Role play

A Focus on New Activities

The WHO-India Essential Drugs Programme ventured into new spheres of work in the year 2000:

- Introduction of the concept of rational use of drugs (RUD) into large public sector organisations spending large amounts of money to provide medical facilities to thousands of their employees, for example, the Indian Railways.

- Inclusion of private practitioners into the RUD programme. This is essential because a sizeable percentage of the population does not visit public health facilities and depends largely on general and specialist private medical practitioners.

- Programmes on RUD in specific areas of healthcare such as reproductive and child health, cardiology and control of tuberculosis to make the concept of rational use of drugs more focused.

- Patient education programmes on the rational use of drugs. This is imperative for the improvement of patients' compliance and knowledge about drugs.

- A focus on pharmacists should be an integral part of the RUD programme, as they bridge the gap between the busy practitioner and the patient. Taking their importance into consideration, the programme was extended to include pharmacists last year.

- The WHO-India Programme broadened its horizons further to include the field of traditional and herbal medicine into its realm. Practitioners employing traditional systems of medicine offer treatment to millions of patients living in the rural areas of the country, who have little access to modern medical facilities. The condition of such patients can be improved considerably with the rational use of traditional, locally available medicines.

Given the importance of work in the areas listed above, greater attention will be paid to these activities in year 2001. A brief survey of the work done in these areas so far is as follows:

1. The Indian Railways RUD Programme: An extensive programme to launch the rational use of drugs for the Indian Railways has been planned. It will cover all aspects of RUD—development of an essential drugs list (EDL) for various levels of healthcare, the procurement of drugs, quality control, rational prescribing and patient compliance. It is expected that with the implementation of the programme, the Indian Railways would be able to purchase more drugs within the same budget.

Meeting with railway officials: The first meeting to discuss the railways project was held at the DSPRUD office in New Delhi on the 20th of November 2000. Dr. M.L. Gaur, Medical Director of the Jagjivanram Hospital, Mumbai Central and Dr. Usha Krishna, consultant obstetrician and gynaecologist at the same hospital represented the Western Railways at this meeting. Professor Ranjit Roy Chaudhury, President, DSPRUD, Mr. R. Parameswar, Vice-President, DSPRUD, Dr. Usha Gupta and Dr. Uma Tekur were also present at the meeting. It was decided that initially, the RUD project would be launched at the Jagjivanram Hospital and a few other smaller railway hospitals in Mumbai. A second meeting has been scheduled to be held in January 2001 in Mumbai to give definite shape to the programme. It was decided that at this meeting, about forty persons from the railways would take part. These would include railway officials, pharmacists, medical consultants and specialists.
The advantages of having an RUD programme and the prevailing conditions in the medical set-up would be discussed and an action plan would be drawn up.

2. Inclusion of private medical practitioners in the RUD programme: In order to have a comprehensive programme in RUD, the importance of involving private practitioners cannot be overlooked. In keeping with this view, two seminars for the orientation of private practitioners to RUD were held in Delhi and Gwalior in March and August 2000 respectively. The two seminars have been discussed in detail in Chapter Two of this report.

3. Specialised RUD programmes: The first specialised workshop of the WHO-India Programme was held at Bhopal in July 2000. It focused on the importance of applying the concept of RUD to the specialised area of reproductive and child health (RCH). Details of this workshop are given in Chapter Two (Activities in Other States) of

the report. Several specialised workshops of this kind are being planned in the areas of cardiology, intensive care, nephrology, dermatology, ophthalmology and oncology.

4. **Patient education in RUD:** This important component of the programme has been focused on in this year. The first educational and interventional study was conducted at the Deen Dayal Upadhyay Hospital, New Delhi in early 2000. Patient awareness of drug use was also assessed during the course of a drug use study conducted at the Punjab University Medical Clinic, Chandigarh. A study into the causes of the development of drug resistant tuberculosis in Maharashtra also sheds some light on patients' knowledge. These studies are discussed at length in the respective state categories in the report. Intervention measures to promote patient education are underway.

5. **The rational use of drugs in traditional medicine:** The Department of Indian Systems of Medicine and Homeopathy (DISMH), Government of India published a list of essential herbal drugs. Professor Ranjit Roy Chaudhury, Coordinator, Who-India Essential Drugs Programme, was the technical consultant for this important task.

   A meeting on HIV/AIDS and traditional medicine was organised in November 2000 at the India International Centre, New Delhi by the DSPRUD. Eminent persons from the field of traditional medicine, representatives from the DISMH, Government of India and several prominent persons from different fields participated in this 'Journey to Dialogue'.

Services to Other Agencies

The Delhi Society for the Promotion of Rational Use of Drugs (DSPRUD) has been actively involved in implementing the programme of rational use of drugs all over India. It has advised the government at the central, as well as the state, level on various areas related to drugs. The technical expertise of the society has been recognised and appreciated, as a result of which, it has been receiving requests for assistance from national and international agencies. Recently, requests have been received from Danish International Development Assistance (DANIDA), the World Bank, the World Health Organisation and the Ministry of Health and Family Welfare, Government of India.

□ **The Ministry of Health and Family Welfare, Government of India** has requested the DSPRUD to conduct a study on 'The Quality Audit of Drug kit A and B under the Reproductive and Child Health Project'. These kits are to be procured with the financial assistance of the World Bank.

□ **DANIDA** is supporting the Basic Health Services Programme in the state of Madhya Pradesh. It has sought the help of the DSPRUD to draft a drug policy for this large province. Senior consultants from the society visited Bhopal for this purpose. A draft drug policy statement has been prepared in consultation with senior health officials and is awaiting approval by the State Cabinet.

□ **The World Bank** requested assistance from the DSPRUD in monitoring drug policy indicators in Tamil Nadu (a state in south India) and Uttar Pradesh (a large state in north India). The World Bank is providing financial aid to medical services in these two states.

□ **The World Health Organisation** has asked the society to provide technical assistance in carrying out the quality assurance of anti-tuberculosis drugs being purchased by the WHO. These drugs will be supplied to the Ministry of Health, Government of India for the National Tuberculosis Control Programme in India. The DSPRUD has also been assisting the WHO in other areas, such as the scrutiny of the essential drugs lists (EDLs) of Orissa and Uttar Pradesh, organising a programme in India for a delegation of healthcare professionals who were sent by the WHO representative office in Myanmar to New Delhi. This delegation was here to study the various components of the RUD programme being implemented by the society in a number of states. They were briefed on EDLs, the pooled procurement system and other aspects of the programme. A visit was arranged for them to Jaipur to have a look at the activities being carried out in the state of Rajasthan.

Dr. Kathy Holloway, Medical Officer, Department of Essential Drugs and Medicines Policy (EDM) – WHO Geneva came to India on a visit in May 2000. The purpose of her visit was to initiate projects on the rational use of antibiotics by the community. A meeting was held at the DSPRUD office on May 31, 2000, to discuss projects with members of the DSPRUD. Dr. Urmila Thatte and Dr. Dilip from Mumbai also came to participate at the meeting. A group was identified, to start work on a project entitled "Health seeking behaviour and impact of educational intervention on rational antibiotic use in ARI in Indian urban slums".

Conclusion

The Delhi Society for the Promotion of Rational Use of Drugs (DSPRUD), has in the year 2000, progressed steadily in the implementation of the WHO-India Essential Drugs Programme. It has maintained a healthy collaboration with the political leadership, the bureaucracy and a large number of technical experts, which is of paramount importance in a programme of this magnitude.

The society, has been, since its inception, been implementing the programme of rational use of drugs in India. Slowly but surely, the programme spread to as many as twelve Indian states by the end of the year. However, besides moving on to cover new territory, the society has endeavoured to consolidate existing programmes to strengthen and enrich them.

In addition to building up the programme, the society has initiated new activities, such as providing its services to other national and international agencies in the field of drugs, activities in the area of human resource development of the programme, a programme on RUD for the Indian Railways and the rational use of traditional medicines. However, it is hoped that the programme will continue to scale greater heights and achieve much more in its future endeavours.

The WHO-India Programme would like to thank the Essential Drugs and Other Medicines (EDM) of the World Health Organisation, Geneva for all its support and guidance.

The WHO-India Essential Drugs Programme: Coordinators & Participants

The WHO-India Programme in Rational Use of Drugs owes its resounding success to the collective effort, enthusiasm and sincere involvement of persons in its various activities in the different states of India:

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