Summary Report of

A Study of Supply and Use of Pharmaceuticals in Satara District

Dr. Anant Phadke
Audrey Fernandes
L. Sharda
Dr. Amar Jesani

Foundation for Research in Community Health
84-A, R.G. Thadani Marg,
Worli, Bombay - 400 018
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A STUDY OF SUPPLY AND USE OF PHARMACEUTICALS IN SATARA DISTRICT

(Summary)

In India, about Rs. 7000/- crores of drugs are consumed every year. It is acknowledged that substantial part of these drugs are irrational combinations which are also wrongly used. In the Government sector, there is a great deal of shortages of drugs. The current study tries to go into the details of the supply and use of drugs in an average district in Maharashtra. No such district level study has been done so far in India.

Part I

SUPPLY OF PHARMACEUTICALS IN SATARA DISTRICT

1. Objectives

To study the amount and the pattern of drug supply to the public and private sector in Satara district, the shortages in the public sector.

2. Methodology

Based on socio-economic indicators of development, (CMIE index), drug supply and OPD attendance in public health facilities, Satara district was chosen as an average district in Maharashtra. Based on socio-economic considerations, the talukas in Satara district were divided into developed, average and drought-prone zones. Three PHCs and one Rural Hospital from each zone (9 out of 69 PHCs and 3 out of 10 RHs), one Cottage Hospital (out of two) and the district Civil Hospital were selected to study the amount of each drug indented and supplied to the Government health facilities, shortages, if any, and the dynamics of supply, utilization and shortages. The total number of drugs and their formulations supplied, were recorded in physical terms as well as their prices to arrive

at the drug-expenditure. All these data were re-arranged as per the categories of the WHO Essential Drug List.

To study the regularity of availability of drugs, the date of supply and the date of nil stock were recorded for each drugs. Depending upon the availability in days, of different drugs, they were grouped into six categories - i> Always Available ii> Regularly Available iii> Irregular iv> Very Irregular v> Effectively Not Available vi> Never Available.

An estimate of the total sale of drugs in the private sector was made on the basis of informal yet very reliable sources of information.

3. Results

3.1 - Total Drug Supply

Our findings of representative sample of PHCs and Rural Hospitals if extrapolated to the district level, give the cost of all category of drugs (excluding Leprosy, Contraceptives and vaccines under the immunization programmes) supplied to the public sector as follows.

	Average cost of supply/unit (1991-92)	No. of Units	Total
PHC	Rs. 39,495.80	69	2725210.20
RH	Rs. 95,697.49	10	956974.90
Cottage	Rs. 2,15,080.00	1	215080.00
Civil	Rs.17,26,029.00	1	1726029.00
	Total		**5622862.80**

The total supply to the public sector in 1991-92 was Rs.5622862.80 i.e. around 56 lakhs while the lowest estimate we had for the private sector for 1991-92 was 21.28 crores (Rs. 87 per capita).

3.2 - Range of Drugs Supplied

The nine PHCs were supplied on an average of 42 generic drugs each (range - 27 to 50) in 171 formulations and dosage forms like

Table 1

Availability of Drugs at 9 PHCs and 3 Rural Hospitals in Satara District. (1990-92)

Sr. No.	Type of Availability	PHCs		RHs	
		No. of Drugs	As % of total no. of drugs	No. of Drugs	As % of total no. of drugs
1.	AA - Always Available	0	0	2	1.25%
2.	R - Regular (available 76 to 99% of days)	4	2.68%	18	11.32%
3.	I - Irregular (available 51 to 75% of days)	10	6.71%	26	16.35%
4.	VI - Very Irregular (available 25 to 49% of days)	45	30.02%	60	37.73%
5.	EN - Effectively Not available (available 1 to 25% of days)	81	54.36%	51	32.07%
6.	NA - Not Available through the year	9	6.04%	2	1.25%
	Total	**149**	**100%**	**159**	**100%**

Note : The Data excludes anti-TB drugs and very marginal supplies.

combination drugs, tablets, syrups, injections in various dosages. The corresponding average figures for the three Rural Hospitals were - 35 generic drugs in 189 formulations. The Cottage and Civil Hospital were supplied with 129 and 151 generic drugs respectively in a large number of formulations.

3.3 - Regularity of Availability

The above figures denote only the total number of drugs supplied over a period of one year. It is also quite important to study the availability

of drugs on a day to day basis. It was found that in those nine PHCs, only 14 out of 149 formulations (9.4%) were available for more than half the days of the year. In case of the three Rural Hospitals, 46 out of 159 formulations (29%) were available for more than half the days. Thus there are continuous, gross shortages at PHCs and RHs of even these Essential Drugs. Some of the details of availability are given in table No.1.

4. Conclusion

The drug supply to the Public Health Facilities in Satara District is too less, less than 3 percent of the drug-supply to the private sector. There are continuous, gross shortages of even commonly required medicines in the PHCs and Rural Hospitals.

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PART II

USE OF PHARMACEUTICALS IN SATARA DISTRICT

Objectives

The overall aim of this second phase of this study was to study the use of pharmaceuticals in Satara district. In pursuance of this overall aim, the following specific objectives were delineated.

A) To study the prescriptions of doctors in public and private sector in order to assess their rationality ; the extent of the use of unnecessary, irrational, hazardous drugs and unnecessary injections. To correlate these aspects of prescriptions with the educational status of doctors, and the relevant socio-economic factors.

B) To study the factors affecting prescription behaviour of doctors, viz the Continuing Medical Education of doctors, the extent of competition amongst doctors; the marketing practices of the drug-companies and drug-stores etc.

C) To assess the knowledge status of - nurses in PHCs about the drugs they commonly use and thereby to study indirectly the use of drugs by such nurses.

D) To study the extent and nature of sale of prescription-drugs (schedule drugs) which are sold over the counter (OTC) without prescription.

E) To estimate the wastage in both public and private sector on account of use of irrational drugs by doctors.

F) To study the extent of expenses incurred by patients on account of "private - prescriptions" given by doctors in the Public Health Facilities. (PHFs).

G) To study the morbidity pattern in PHC-OPD (Out-Patient -Department) and to estimate the average drug requirement and drug

budget of PHCs if all the cases coming to the PHC-OPD were to be adequately and rationally treated. To compare this need with the actual supply of drugs to PHCs.

Methodology

The methodology for each of the sub-components of this study was tailored according to the objectives and has been described at the beginning of each of the corresponding subsection of this report. The overall sampling frame has been described in the section-A i.e. Prescription-Analysis. The specific methodologies as given in different sections are to be seen in the context of this sample frame.

A PRESCRIPTION - ANALYSIS

It is widely believed by critics that doctors' prescriptions in India are irrational to a large extent, leading to a lot of financial wastage. However, barring one exception, there are no systematic studies in India which have analysed a representative sample of doctors' prescriptions in relation to the diseases for which they are given. The current study has conducted such an analysis of 1944 prescriptions collected in 59 visits to Out - Patient Clinics of 30 public health facilities and of 1638 prescriptions from 62 visits to 19 private clinics from different parts of Satara district.

A - 1 : Objectives

To study the prescriptions of doctors in Satara district in public and private sectors, in order to assess the rationality of these prescriptions and the extent of use of unnecessary, irrational, hazardous drugs, and unnecessary injections.

To co-relate these aspects of prescription-behaviour with the educational status of doctors, their being in the private or public sector and the geographic situation of prescribing doctors (urban or rural area, developed or backward area).

A-2. : Materials and Methods

A-2.1 : Selection of Public Health Facilities

To get a representative sample, the Satara district was divided into three zones - backward, average and developed zone as in the first part of the study. Atleast five Primary Health Centres and one Rural Hospital from each of these zones, (25 out of 69 PHCs in 1991-92 and 3 out of 10 RHs in the district,) the only functioning Cottage Hospital (out of two) and the District Civil Hospital were selected for the study through purposive sampling, a total of 30 Public Health Facilities (PHFs).

A-2.2 : Selection of Private Clinics

For the study of private sector, doctors from each of the following educational backgrounds were chosen from each of the three zones. Post-graduate, MBBS, non-allopathic degree (Ayurvedic or Homeopathic - both types as a rule prescribe allopathic medicines) and Registered Medical Practitioner (who doesn't have any recognised degree as such).

Private Practitioners were generally selected from the same village or town from where doctors from public sector were chosen so that comparison between the two becomes more meaningful.

A-2.3 : Prospective Data Gathering

To record all drugs given to the patient, the data were collected prospectively by posting pharmacist- investigators for a day in each of the clinics to record both types of drugs - those given in the dispensary and those prescribed for buying from a medical shop for first 30-35 cases.

A-2.4 : Rationality Indicators

Selection of appropriate indicators for assessing rationality of prescriptions is an important issue. We chose the following rationality/ irrationality/indicators.

A-2.4.1 Average number of drugs prescribed and percentage of prescriptions containing more than 3 drugs.

A-2.4.2 Percentage of prescriptions Containing -

a) irrational drug/s
b) unnecessary drug/s
c) hazardous drug/s
d) unnecessary injection/s

A-2.4.3 Scores Obtained by Prescriptions -

The above indicators study only specific aspects of prescriptions. An indicator is necessary which would study the prescription as a whole. Such an indicator viz. - marks obtained by each prescription as compared to a possible maximum of 30 assigned marks per prescription, was developed for this study. For this purpose, Standard Drug Treatment Regimens (SDTRs) for all the 92 commonly found diseases in these prescriptions and 16 Prescription Analysis Guidelines (PAGs) divided into 4 categories were developed. Marks were given to each prescription on the basis of these SDTRs and PAGs. Prescriptions were grouped in three slots - rational (25 to 30 marks), semi-rational (15 to 24 marks), irrational (upto 14 marks).

A-3 : Results

A-3.1 : Rationality-Indicators

The data were inputted and analysed with the help of the LOTUS system. 2 sample t test, chi-square test and F tests were carried out to test statistical significance. The important, summarized results of prescription analysis are as follows - (For details, please see Table No.2 and 3). In general, the level of rationality of prescriptions in Satara district is quite low.

1> The **average score per prescription is very low -**

The proportion of Rational Prescriptions is low and of irrational prescriptions high in all types of doctors in spite of liberal guidelines used

Table no. 2

Prescription Analysis of Doctors in Satara District
Sector-wise and Area-wise Comparison

Sector	No. of visits to Clinics	No. of prescriptions	No.of drugs per RX	No. of Prescriptions containing					Grading of prescriptions			Avg Score per RX (out of 30)
				More than 3 Drugs	Irrational Drug	Hazardous Drug	Unnecessary Injection	Unncessary Drug	Rational (R)	Semi-rational (S)	Irrational (I)	
Total Sector	121	3582	2.8	1767	680	376	851	1698	651	1327	1604	14.22
(%)		(100)		(49.3)	(19)	(10.5)	(23.8)	(47.4)	(18.2)	(37.0)	(44.8)	
Total Public Sector	59	1944	2.8	871	107	129	485	828	424	752	768	16.14
(%)		(100)		(44.8)	(5.5)	(6.6)	(24.9)	(42.6)	(21.8)	(38.7)	(39.5)	
Rural Public	40	1234	2.6	521	73	69	262	456	264	476	494	16.22
(%)		(100)		(42.2)	(5.9)	(5.6)	(21.4)	(37)	(21.4)	(38.6)	(40.0)	
Urban Public	7	271	2.8	141	6	11	67	133	86	108	77	16.34
		(100)		(52)	(2.2)	(4.1)	(24.7)	(49.1)	(31.7)	(39.9)	(28.4)	
Small Towns	12	439	3.0	209	28	49	156	239	74	168	197	15.76
(%)		(100)		(47.6)	(6.4)	(11.2)	(35.5)	(54.4)	(16.9)	(38.3)	(44.9)	
Total Private Sector	62	1638	3.0	896	573	247	366	870	227	575	836	12.52
(%)		(100)		(54.7)	(35)	(15.1)	(22.3)	(53.1)	(13.85)	(35.10)	(51)	
Rural Private	14	371	2.9	186	103	44	80	148	56	138	177	14.42
(%)		(100)		(50.1)	(27.8)	(11.9)	(21.6)	(39.9)	(15.1)	(37.2)	(47.7)	
Urban Private	27	726	2.9	437	265	109	116	411	94	256	376	12.55
(%)		(100)		(60.2)	(36.5)	(15)	(16)		(12.9)	(35.3)	(51.8)	
Small Towns	21	541	3.3	273	205	94	170	311	77	181	283	11.36
(%)		(100)		(150.5)	(37.9)	(17.4)	(31.4)	(57.5)	(14.2)	(33.5)	(52.3)	

Table no. 3

Prescription Analysis of Doctors in Satara District
Education-wise Comparison

Sector	No. of visits to Clinics	No. of pres-criptions	No.of drugs per RX	No. of Prescriptions containing					Grading of prescriptions			Avg Score per RX (out of 30)
				More than 3 Drugs	Irra-tional Drug	Hazar-dous Drug	Unne-cessary Injec-tion	Unnce-ssary Drug	Rational (R)	Semi-rational (S)	Irra-tional (I)	
Total Sector	121	3582	2.8	1767	680	376	851	1698	651	1327	1604	14.22
(%)		(100)		(49.3)	(19)	(10.5)	(23.8)	(47.4)	(18.2)	(37.0)	(44.8)	
All Consultants	16	504	3.1	290	166	25	29	252	126	209	169	15.64
(%)		(100)		(57.5)	(32.9)	(5.0)	(5.8)	(50)	(25.0)	(41.5)	(33.5)	
Public	3	144	3	67	4	6	15	59	60	55	29	19.65
(%)		(100)		(46.5)	(2.8)	(4.2)	(10.4)	(41)	(41.7)	(38.2)	(20.1)	
Private	13	360	3.0	223	162	19	14	193	68	152	140	14.71
(%)		(100)		(61.9)	(45)	(5.3)	(3.9)	(53.6)	(18.9)	(42.2)	(38.9)	
All MBBS	72	2238	3	1055	266	176	572	1029	437	851	950	15.34
(%)		(100)		(47.1)	(11.9)	(7.9)	(25.6)	(46)	(19.5)	(38.0)	(42.5)	
Public	51	1624	2.7	737	91	101	415	694	342	638	644	16.30
(%)		(100)		(45.4)	(5.6)	(6.2)	(25.6)	(42.7)	(21.0)	(39.3)	(39.7)	
Private	21	614	3.0	318	175	75	157	335	95	213	306	13.03
(%)		(100)		(51.8)	(28.5)	(12.2)	(25.6)	(54.6)	(15.5)	(34.7)	(49.8)	
All Non-Allopaths	28	719	3.1	355	214	138	199	355	77	224	418	11.28
(%)		(100)		(49.4)	(29.8)	(19.2)	(27.7)	(19.4)	(10.7)	(31.2)	(58.1)	
All RMPs	5	121	2.2	67	34	37	51	62	11	43	67	10.09
(%)		(100)		(55.4)	(28.1)	(30.6)	(42.1)	(51.2)	(9.1)	(35.5)	(55.4)	

for analysis. The proportion of rational prescriptions and the average score per prescription rises with the **educational qualification** of the doctor. Though the overall score of consultants (post graduate doctors) is slightly better, they tend to use more unnecessary drugs.

2> A very high proportion of prescriptions of all types of doctors contain **irrational/unnecessary/hazardous drugs or unnecessary injections** or more than 3 drugs.

3> **Public sector** prescriptions are more rational than **private prescriptions**. However, proportion of irrational injections in the public sector is slightly higher than in the private sector.

Most of the differences in performance of different types of doctors in the level of rationality as assessed by different rationality indicators, were **statistically significant.**

A-3.2 : Other Observations

A-3.2.1 : Average score for Most Common Diseases :

Fourteen most common diseases who's combined share in the total morbidity is more than 60% (61.05%) were listed. The grading of prescriptions for these 14 diseases was as follows :

Rational - (25 to 30 marks) - Nil
Semirational (15 to 24 marks) - 6 diseases
Irrational (upto 14 marks) - 8 diseases

A-3.2.2. : Diseases with Irrational Prescriptions :

Diseases whos share in the morbidity load at OPD is more than 1% and who have received less than 15 marks; i.e. whos prescriptions are irrational have also been listed. Obviously special attentions will have to be given to the drug-treatment of these disease in Continuing Medical Education of doctors.

A-3.2.3. : Grossly Irrational Prescriptions

We came across many prescriptions which were grossly irrational. They contained either a totally wrong selection of the main drug or use of contraindicated drug or two or three analgesics or haematinics etc. We have reproduced 25 such grossly irrational prescriptions encountered the collection of prescriptions during Winter 1993. This is only an illustrative list. Many more such examples were found.

Surprisingly, all types of doctors from RMPs in a small village to post-graduate doctors in large town were found to be writing grossly irrational prescriptions.

B FACTORS INFLUENCING PRESCRIPTION BEHAVIOUR OF DOCTORS

Different factors other than the needs of rational therapeutics influence doctors' prescriptions - level of Continuing Medical Education (CME) of doctors, the marketing strategy of the drug companies, extent and type of competition amongst doctors, availability of medicines, socio-economic background of patients etc. In this exploratory exercise, we studied some of the factors that in their own perception, influence doctor's prescriptions in Satara district.

B-1 Materials and Methods

This study is in two parts. In **Part-I,** we explored the gambit of factors that contribute to doctors' irrational prescribing. In **Part II,** we used the results of analysis of doctors' prescriptions (from section A of the study), to compare their rationality score with the socio-economic factors influencing their prescriptions.

Ist part - Structured questionnaire plus focussed interview

As an entry point, we administered a small two page pretested structured questionnaire which sought information regarding qualifications of the doctor, his/her sources of continuing medical education, the number

of medical representatives that visited him in a week, his/her views on patients expectations, his/her opinions on drugs available in the open market.

Focussed interviews were conducted with those doctors who were willing to give information beyond this questionnaire. The guidelines to the focussed interview included various probes for the investigators to find out more about the sources that public and private doctors had to Continuing Medical Education marketing practices of drug-companies and drug-stores, availability of drugs, extent of competition.

IInd part - Questionnaire

To correlate the rationality score of doctors with certain socio-economic factors, we used a revised version of the earlier questionnaire which we first pretested. This questionnaire was brief in asking the doctors' opinions about medical companies and their practices on field, additional qualifications of the prescribers (in terms of even practical knowledge such as hospital training etc), number of medical stores in the area, number of medical representatives that visited, the peer pressure on the doctors, number of patients etc.

Sampling

We randomly picked five Primary Health Centres (PHCs) in the each of the three zones as in the rest of this study. One medical Officer each from these 15 PHCs and one or two private doctors operating in the same village or nearby villages were interviewed.

B-2 : Results

In **Part II** study, we had proposed to compare rationality scores with the socio-economic surroundings of the doctor. The rationality scores however revealed that very little co-relation was possible as majority of doctors in our sub-sample had a very low rationality score.

The Qualitative Results were as follows -

B-2.1> CME in the private sector is almost entirely left to the discretion of the individual doctors and only 12.6% actually subscribed to periodicals

other than those published by drug companies.

In the public sector, the department of health services conducted trainings at frequent intervals for Medical Officers, though these mainly stressed and centered around the implementation of National Programmes.

B-2.2> The drug company propaganda, through its printed literature (i.e. pamphlets and periodicals), and Medical Representatives forms the most important source of 'Continuing Medical Education' for doctors. Though this is promotional literature and therefore biased, it receives the sanction of more than 68.1% of private and 50% of public doctors as being a source of education.

B-2.3> Cost influenced prescribing patterns in a significant way. Rising costs of drugs have resulted in doctors changing the manner in which they dispense drugs. Though prescribing an expensive drug carries with it a higher status; doctors are cautious that the cost of the drug is not out of the purview of the patient as it may work negatively in the case of a poor patient.

Rising costs of drugs was also making it difficult for a doctor to dispense drugs as well as charge a fee. Some doctors therefore resorted to dispensing less and prescribing more.

B-2.4> Low availability of drugs at the PHC meant that MOs were compelled to prescribe drugs from the open market. However, MOs also looked at the socio-economic profile of the patient prescribing 'outside' drugs for 'important' patients etc.

B-2.5> Increased crowding of doctors has led to private doctors seeking ways to draw and keep patients leading to a change in prescribing habits. Administration of placebos, in the form of unnecessary injections, drugs, the prescribing of more expensive drugs to appease the patients' notion that the more expensive medicine the better it is : are all strategies to keep the clientele with them.

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C KNOWLEDGE OF PHC NURSES ABOUT COMMON DRUGS

Answers given by 24 nurses in 9 PHCs and their sub-centres to a questionnaire about 10 drugs they use, were evaluated by assigning marks to answers, by comparing the answers with the standard answers prepared for this purpose. The average number of marks scored by these nurses was 49.88%. The breakdown was as follows - marks for indications of drugs 68.17%, dose 75.19%, precautions 28.96%. This shows that nurses in PHCs, need continuing education about the drugs they use, especially as regards precautions to be taken while using drugs.

D ILLEGAL SALE OF OTC DRUGS

In the study of sale of drugs in a day in a drug-shop in Satara, it was found that all types of drugs were available OTC without doctor's prescription. OTC sales in a day (Rs.497.99) accounted for 11.23% of the total drug sales (Rs.4436) in a day in that shop.

E FINANCIAL WASTAGE DUE TO IRRATIONAL PRESCRIPTIONS

In part A of this study, we confirmed the earlier impressions of many critical observers that a substantial proportion of doctors' prescriptions contained irrational and/or unnecessary drugs. Such irrational prescriptions means unnecessary additional expenses on drug-treatment for the patient or the payer of the drug-bills. We are unaware of any systematic published Indian study which calculates this financial wastage due to irrational prescriptions. We therefore, decided to estimate the financial wastage/loss to the patients due to irrational prescriptions.

Out of the 1080 and 810 prescriptions collected in summer 1993 from public and private sector respectively, 10% sub-sample was picked up by systematic random sampling.

This sub-sample was subjected to cost-analysis. Per day cost of drug treatment as per those prescriptions by doctors, minus the per day cost as per Standard Drug Treatment Regimens (SDTRs) gave us the

financial loss to the patients due to irrational prescriptions per day of drug treatment. It will be seen from the table E-1 that due to irrational prescriptions, a whopping 63.6% of money spent on drugs is waste! The proportion is much higher in case of private sector (69.2%) as compared to that in the public sector (55.4%). Based on available estimates of rate of morbidity in India, in the community, and the 1991-92 OPD attendance data in PHFs in Satara district, this wastage of Rs. 4.76 and Rs. 2.08 in private and public sector respectively per day, per prescription, if projected at Satara district population, (1991) amounts to Rs. 17.70 crores. This startling finding buttresses the argument that in India today, people do not get adequate drug treatment, not so much because we are poor, but mainly because a lot of money is wasted on irrational prescriptions.

Table no. E-1

Monetary Wastage Due to Irrational Prescriptions

Sr. No.		Private	Public	Total
1.	No. of Prescriptions	68	84	152
2.	Cost of doctors' prescriptions per day (in Rs.)	467.62	315.67	783.3
3.	Cost as per S.D.T.R per day (in Rs.)	144.09	140.82	284.91
4.	Wastage due to irrational prescriptions per day (in Rs.) (Sr. no. 2 minus Sr. no. 3)	323.53	174.85	498.38
5.	Wastage as % age of money spent by the patient (Sr. No. 4/2x100)	69.19	55.39	63.63
6.	Wastage per prescription per day. (Rs.) (Sr. No. 4/1)	4.76	2.08	3.28

F PROPORTION OF PRIVATE PRESCRIPTIONS IN PUBLIC HEALTH FACILITIES

Patients visiting Public Health Facilities (PHFs) should get all the drugs required for the treatment of their ailments, free of charge from the PHFs. But there is a common complaint, as well as our own observation during this study, that doctors in PHFs ask patients to buy some of the medicines by giving them "outside - prescriptions". This is because of chronic shortage of medicines in PHFs. We decided to estimate the amount spent by patients on such "outside - prescriptions" in a sub-sample of prescriptions in our study. To our knowledge, there are no published estimates about such "outside - prescriptions" given in PHFs in India.

F-1 : Materials and Methods

Out of the 561 prescriptions copied from PHFs during winter 1993, a 20% sub-sample was selected by systematic random sampling. In case of the 145 prescriptions thus selected, the drugs prescribed through the "outside - prescriptions" and the "dispensed drugs" were listed separately. The cost of both types of drugs (prescribed and dispensed) was calculated as per retail prices as given in the 1992-93 edition of Indian Pharmaceutical Guide (IPG).

In the same way cost-analysis was also done separately for prescriptions of 7 PHFs located in cities and small towns (as listed in the District Census 1981) out of total of 19 PHFs studied in winter 1993. These urban places have one or more drug-stores and hence doctors in PHFs in these places tend to write outside-prescription more often.

F-2 : Results

The cost of 'private prescriptions' in Public Health Facilities in case of these 145 randomly selected O.P.D. cases in Satara district in a day in winter 1993, was 15.43% of the cost of drugs dispensed from

these 19 clinics to these 145 patients. In absolute terms, the cost of these privately prescribed drugs if distributed over all these 145 patients, comes to only Rs.0.82 per patient (It may be noted that out of these 145 patients, many were not given any private prescription).

In the bigger and small towns also, the cost of privately purchased drugs as a proportion of cost of dispensed drugs on an average was 15.64%. It ranges a great deal from zero to 221.5%. The average cost of privately purchased drug, per prescription in these 7 PHFs was found to be Rs. 7.97, which is much higher than that found for all centres. (urban and rural together).

It appears that the overall proportion of privately prescribed drugs in PHFs in Satara district is not high but is sizeable. In some Public Health Facilities in big and small towns, where it ranges considerably, from zero to a very high of 221.5%.

Patients coming to PHFs should get all the drugs needed for their ailments and they should not be required to buy medicines at all. The present average of 15% of drugs required to be bought by patients is not high but certainly undesirable and should be zero.

G NEED VERSUS SUPPLY OF DRUGS

There are no systematic estimates available of drug-needs of PHCs and the total drug-needs of a district. Since such estimate is required for any rational drug-planning, we made such estimate on the basis of available data in Satara and morbidity rates in India. This drug-need has been compared with the drug-supply to Satara-district

G-1 Materials and Methods

G-1.1 Drug-need of Patients Coming to PHC

Out of the 9 PHCs chosen in Part I of our study for study of Supply of drugs, a representative sample of six PHCs was selected to estimate the drug needs so that these drug-needs could be compared with the actual supply to these six PHCs.

A five percent systematic random sample of OPD case papers

from these six PHCs was taken to find out the frequencies of various diseases reported. These frequencies were multiplied by the drug-cost of treatment per disease, as per SDTR as worked out in Annexure A-I. This gave the drug-costs for patients coming to these PHC-OPDs for curative/symptomatic care. This was compared with the drug-supply to these six PHCs.

G.1.2 : Drug-Need of All Citizens in Satara District

Patients coming to PHC-OPD are only a small fraction of the total ill-persons in the community. We therefore estimated the drug-need of all ill-persons in the community and further drug-needs for preventive care for all needy persons in Satara district.

G.1.2.1 : Drug-Need for Curative Care at OPD level

The community based comprehensive morbidity data required for this estimation are not available for Satara district. We therefore used the available estimates of rate of morbidity for Indian community to arrive at a total morbidity load in Satara district, under the assumption that rate of morbidity in Satara district (an average district in Maharashtra) would not be much different than the All-India average. This morbidity load multiplied by the average drug-cost per case (Rs. 11.74) as per SDTR, gave the total drug need for OPD level-care.

In the exercise G.1.1, we had excluded drug-cost of treatment of leprosy and tuberculosis, since the routine case-paper records at PHCs exclude TB and leprosy cases. (These data are maintained separately). For estimating the total drug-needs of the Satara district, we therefore had to add the estimated total drug-cost for all TB and leprosy patients in Satara. For this purpose, we had to again use estimated rate of morbidity for India/Maharashtra for these two diseases. This morbidity load was multiplied by cost per case as per SDTR for TB and leprosy to get total drug-cost for all TB and leprosy cases.

G:1.2.2 : Drug-needs for All Indoor Cases

The drug-expenditure for indoor cases in Civil and Cottage

Hospital accounts for most of the indoor drug expenditure in the public sector. We made a liberal assumption that the indoor-drug-expenditure in the private sector is ten times the indoor drug expenditure in these two hospitals, as given in the Performance Budget (1993-94) of Govt. of Maharashtra, and on that basis estimated the drug-cost of all indoor cases in Satara district.

G1.2.3 : Drug Needs for Preventive Care

These needs are mostly for vaccination of children and for Ante Natal Cases (tetanus immunization plus iron-calcium supplementation) in short, drug-cost for total coverage in MCH-programmes. Since the age-wise break-up of Satara-population is not available, we again used the All-India figures for percentage-wise share of various age-groups to get total number of children in age-groups - 0 to 1 yr, 1 to 2 yrs, 2 to 3 yrs, and 5 to 6 yrs and of pregnant women in Satara district. This number, multiplied by the cost of preventive medication per person as per prices of Haffkine BPCL (the public sector concern, which supplies vaccines to Maharashtra Govt.) gave us the total cost of preventive medication in Satara district.

G-2 : Results

G-2.1 : The drug-need for OPD-level curative/symptomatic care for the six PHCs under study, was an average of Rs. 67660 per PHC, Rs. 11.74 per case. (This excludes TB and leprosy cases). The drug-supply for curative, symptomatic care for these six PHCs, as found in part-I of this study was Rs. 37134 per PHC. Thus there was a short fall of Rs. 30526 per PHC, which is 8.41% of the recurring annual expenditure of Rs. 0.363 million per PHC in 1991-92. Thus, if the recurring annual expenditure for PHCs is increased by a mere 8.41% to increase drug supply to PHCs, and if all the drug-supply is used rationally, all patients coming to PHC-OPD can be adequately treated.

G.2.2 : Total Drug Needs of Satara District

As revealed by the exercise outlined in section G1.2, the total

drug-needs of Satara district in 1991-92 would be as follows :

i. For curative care for all patients at OPD level excluding TB and Leprosy	Rs. 151.70 m.
ii. For all cases of TB and Leprosy	Rs. 29.73 m.
iii. For all indoor cases	Rs. 17.82 m.
iv. For total coverage in preventive medication in MCH Programme	Rs. 6.86 m.
Total	Rs. 206.11 m.

The total drug-supply in Satara district was a minimum of Rs. 212.8 m. in private sector and Rs. 5.6 m. in public sector. Thus, this supply is more than sufficient to meet all the drug-needs of the Satara-district. Thus, the drug-needs of Satara-district are not being met today, not because of lack of resources, but because of wastage through irrational use.

CONCLUSIONS

The overall conclusions of this study are :

1> The drug-supply to the public sector in Satara District was a mere Rs.5.6 million, as compared to the most minimum, reliable estimate of a drug sale of Rs.212.8 m. in the private sector during 1991-92. The drug supply especially to PHCs and RHs suffers from chronic gross shortages and haphazardousness.

2> The overall quality of prescriptions of doctors both in public and private sector is low. There is very high proportion of use of unnecessary, irrational, hazardous drugs and unnecessary injections especially in the private sector. Public Sector prescriptions are more rational than private

sector prescriptions. Proportion of rational prescriptions increases with educational qualification.

3> There is very little of proper Continuing Medical Education of doctors. This along with the influence of the Medical Representatives, increasing prices drugs and competition amongst doctors influence the prescriptions of doctors in the private sector, whereas in the public sector, the chronic shortage of drugs affects prescriptions, apart from lack of proper CME.

4> Knowledge of PHC - nurses about the drugs they use is satisfactory as regards indications and dosage but quite unsatisfactory as regards precautions and side-effects.

5> Due to irrational prescriptions,69% and 55% of the money spent on prescriptions in the private and public sector, respectively, is a waste, with an average of 63%. Projected to the Satara-district level, this wastage amounts to Rs.17.7 crores out of the total drug supply of Rs.22 crores.

6> Patients visiting government clinics in Satara district have to buy 15% of the drugs prescribed to them, instead of getting all drugs free.

7> If all the patients coming to the six PHC under study, were to be adequately and rationally treated, there would be a drug-short fall of Rs. 30525.92 per PHC. This shortfall can be met by a mere 8.41% increase in the annual recurring expenditure of Rs. 0.363 million per PHC.

8> If all the patients in Satara district were to be adequate and rationally treated and if all children and women were to be fully covered in the MCH Programme in 1991-92, the drug-expenditure would have been Rs.20.61 crores, compared to the total drug expenditure of Rs.21.84 crores in Satara district. It is thus, not lack of resources, but its irrational, wasteful use, which is responsible for the unmet drug needs of the Satara district.

The overall drug situation in Satara district is that of 'Poverty Amidst Plenty' - poor drug supply to the public sector, poor quality of

prescriptions, a lot of wastage of the adequate drug-expenditure incurred by the people in Satara district.

❑

The full report - ` A Study of Supply and Use of Pharmaceuticals in Satara District' (168 pages, A-4 size), is available with the Promotion Officer, FRCH, 3-4 Trimiti `B', Apts., 85, Anand Park, Aundh, Pune-411 007, INDIA.

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This is the summary of the report of 'A Study of Supply and Use of Pharmaceuticals in Satara District', Maharashtra State. The overall conclusions of this study are :

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* The overall quality of prescriptions of doctors both in public and private sector is low. There is very high proportion of use of unnecessary, irrational, hazardous drugs and unnecessary injections especially in the private sector. Public Sector prescriptions are more rational than private sector prescriptions. Proportion of rational prescriptions increases with educational qualification.

* There is very little of proper Continuing Medical Education of doctors. This along with the influence of the Medical Representatives, increasing prices drugs and competition amongst doctors influence the prescriptions of doctors in the private sector, whereas in the public sector, the chronic shortage of drugs affects prescriptions, apart from lack of proper CME.

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* Patients visiting government clinics in Satara district have to buy 15% of the drugs prescribed to them, instead of getting all drugs free.

* If all the patients coming to the six PHC under study, were to be adequately and rationally treated, there would be a drug-short fall of Rs. 30525.92 per PHC. This shortfall can be met by a mere 8.41% increase in the annual recurring expenditure of Rs. 0.363 million per PHC.

* If all the patients in Satara district were to be adequate and rationally treated and if all children and women were to be fully covered in the MCH Programme in 1991-92, the drug-expenditure would have been Rs.20.61 crores, compared to the total drug expenditure of Rs.21.84 crores in Satara district. It is thus, not lack of resources, but its irrational, wasteful use, which is responsible for the unmet drug needs of the Satara district.

The overall drug situation in Satara district is that of 'Poverty Amidst Plenty'.