Identification of Factors Contributing to Out-of-Pocket Expenditure on Medicines (2019-2020)

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List of Abbreviations

LMIC	Low- and Middle-Income Countries
OOP	Out of Pocket
OOPE	Out of Pocket Expenditure
CHE	Catastrophic Health Expenditure
NKP	National Knowledge Platform
NHSRC	National Health Systems Resource Centre
ICMR	Indian Council of Medical Research
PGIMER	Postgraduate Institute of Medical Education and Research
JIPMER	Jawaharlal Institute of Postgraduate Medical Education & Research
SHRC	State Health Resource Centre
NSSO	National Sample Survey Office
SDG	Sustainable Development Goals
UHC	Universal Health Coverage
THE	Total Health Expenditure
CD	Communicable disease
NCD	Non-Communicable Diseases
DID	Defined daily dose per 1000 inhabitants
DDD	Defined Daily Dose
NSS	National Sample Surveys
HDI	Human Development Index
DH	District Hospital
CHC	Community Health Centre
PHC	Primary Health Centre
MC	Medical College
OPD	Out Patient Care
IPD	In Patient Care
INR	Indian Rupee
WHO	World Health Organization
HAI	Health Action International
FIFO	First in First OUT

FEFO	First Expiry First OUT
TMSCL	Tamil Nadu Medicine Service Corporation Limited
EDL	Essential drug List

Executive summary

Providing affordable and quality healthcare is a major challenge in low- and middle-income countries (LMICs). Households in India bear significant financial burden on account of medical treatment and over three-fourth of all healthcare payments are paid out of pocket (OOP) at the point of service delivery. Medicines account for the single largest component approximately 63% of these payments. There may be numerous factors contributing to high out-of-pocket expenditure such as poor availability of essential medicines, poor affordability, inadequate public spending and lack of adequate health insurance coverage. In view of this, the present study was done to investigate the share of medicines in overall out of pocket expenditure (OOPE) and financial risk protection as a result of medicines, availability of medicines in public health facilities and prescription pattern. The present study focuses upon the extent of out-of-pocket expenditure on medicines, catastrophic health expenditure and determinant of out-of-pocket expenditure. Further, the study addresses the extent of availability of medicines and prescription practices in public sector health facilities.

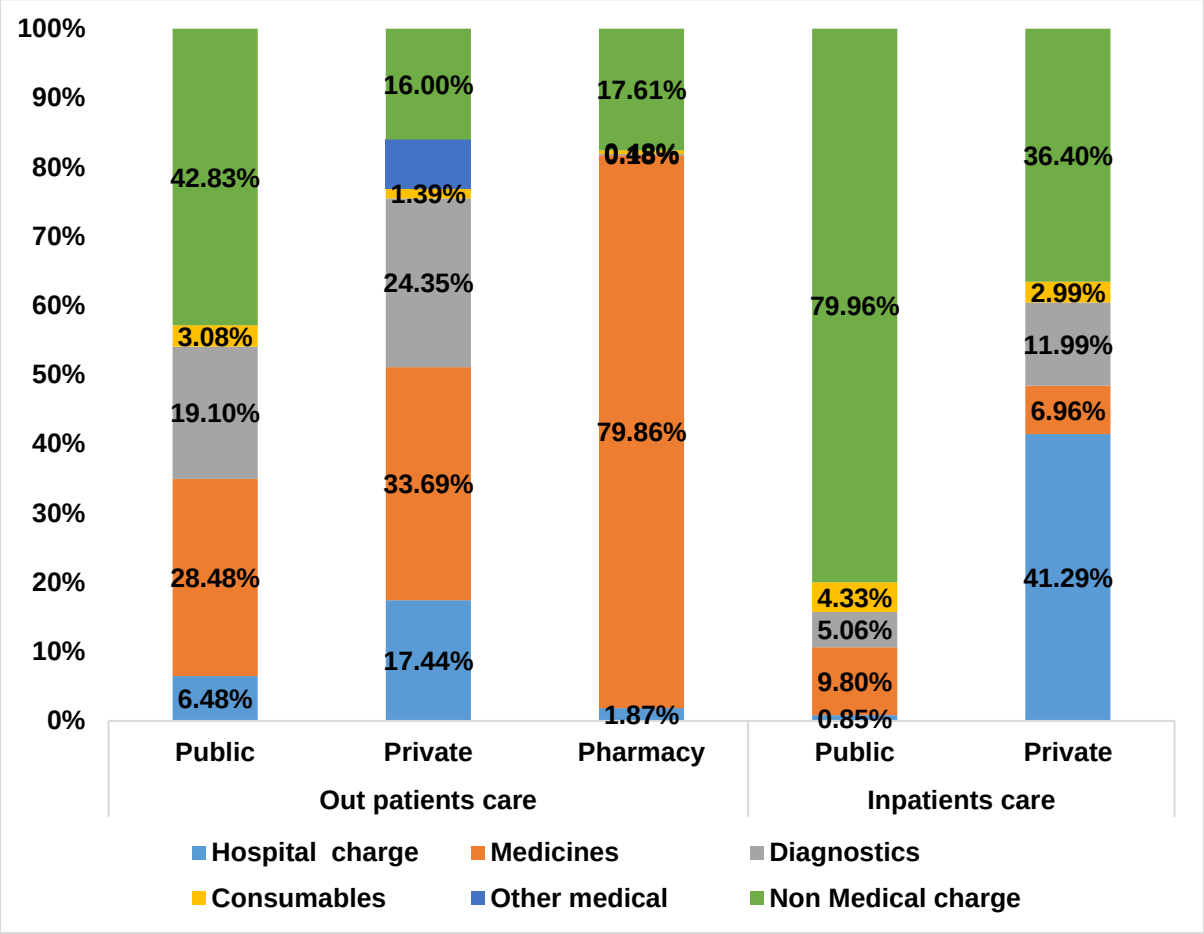
The report is structured in in four individual chapters. The first chapter focuses upon the availability of medicines in the public health facilities where overall availability of medicines in the public health facilities was 60.3%. Availability of the medicines was higher in the Tamil Nadu (65.5%) followed by Haryana (62.3%) and Chhattisgarh (53.6%). Maximum of the medicines were stock out for 4-6 months in the Haryana and Chhattisgarh and in Tamil Nadu it was more than 6 months. About 95.4% of medicines were dispensed free from the public health facilities in all three states. The difference in the availability of medicines in the three states may be due to working of the medical service corporation limited and number of medicines in the state essential drug list (EDL).

In the second chapter the drug prescription practices in the public health facilities were analysed. Mostly the drugs were prescribed in the generic form, with maximum in Tamil Nadu followed by Chhattisgarh and Haryana. Drugs prescribed in abbreviated form was much more in Haryana (Around 36%) whereas in Tamil Nadu it was much less (Around 5%). This may be due to strict mechanisms that may be followed in Tamil Nadu which may restrict doctors to prescribe drugs by trade names or promoting purchase of drugs from open market. Further, 74.5% of patients were prescribed medicines from EDL. Tamil Nadu had the highest number of drugs prescribed from EDL whereas in Haryana and Chhattisgarh it was 74.7%. This higher proportion of EDL drugs being prescribed is reassuring and may be due to better implementation of STGs and prescriptions in the respective state. The highest proportion of injections (for any ailment) were prescribed in Chhattisgarh (30.2%) whereas highest proportion of antibiotics were prescribed in Haryana (48.6%). This could be attributed to an

increased demand for supplementary drugs and antibiotics due to COVID-19 pandemic and associated health consciousness. The higher drug requirement could also be due to seasonal variation of infections. Children <5 years received maximum drugs in the form of injections and children from 5–17-year age group received maximum antibiotics (57.4%). Incidence of poly pharmacy was highest in Chhattisgarh as almost one-third of the patients were prescribed five or more drugs. The incidence was least in Tamil Nadu with only 5% of the patients being prescribed five or more drugs.

Share of out-of-pocket expenditure on health care services and further its distribution on other heads according to the novel methodology was analysed in the next chapter. Overall mean OOPE for outpatient care and inpatient care was INR 815.2 (S.E-23.2) and INR 4840 (S.E-431) respectively. Overall mean OOPE for outpatient care in private and public health facilities was INR 1212.1 (S.E: 31.5) and INR 340.9 (S.E: 37.1) respectively. Similarly, overall mean OOPE for inpatient care in private and public health facilities was INR 13210 (S.E:1325.1) and INR 1724.3 (S.E:148.4) respectively. Medicines (33.6%) formed a major part of OOPE in private health facilities in out-patient care whereas in public health facilities, a major chunk of expenditure was spent on non-medical items (42.8%) like transportation etc. in outpatient care. In comparison to our study, NSSO 75th round reports nearly two times mean OOPE in outpatient care at public health facilities. Expenditure on medicines in present study is less in comparison to NSSO at both public (INR 97.1 S.E:14.9) and private health facilities (INR 408.3S.E:12.5). When compared for inpatient settings, the mean OOPE is reported much higher for both public and private health facilities by NSSO as compared to our study. These differences could be attributable due to the fact that the present survey is the client-based survey, where the individuals were interviewed about the expenditure incurred on the services they received at the facility. Whereas NSSO and other studies are household surveys, where there is recall period for 15 days in case of outpatient care and 365 days in case of inpatient care. As a result of which in the present study there is less chance of recall bias and clubbing of expenditure under one head i.e., under medicines that might occurs at private clinics where the tangible service that patient gets is medicines. Also, better availability of free medicines may also be reason for less expenditure on medicines in the current study.

Determinants of OOPE incurred at public and private health facilities and at standalone pharmacies.



Finally in the last chapter, determinants of OOPE and catastrophic health expenditure due to OOPE on health care services was estimated. We found out that has shown that socio-demographic factors and prescription pattern plays an important role in out-of-pocket expenditure and catastrophic health expenditure. Overall, 9.41% of individuals had catastrophic health expenditure at 40% threshold. Patients attending private health facilities faced 5.64 times more catastrophic health expenditure in comparison to public health facilities. Further, the patients who were insured had less catastrophic health expenditure when compared to those who were not insured. This might be due to more investment in the form of demand side financing mechanisms like publicly financed health insurance schemes (PMJAY- Central or state sponsored schemes.

Our results show marked differences in the availability of medicines and prescription practices at public health facilities, with a lot of scope for improvement. Better inventory management protocols should be put in place, with associated trainings for the human resources in health

for better management of these functions. The expenditures are high at private health facilities, posing financial risk to the patients, especially to those belonging to the lower strata. These factors require urgent policy interventions, with programmatic focus towards making healthcare services more accessible and affordable by reducing these out-of-pocket expenditures. Steps need to be taken to universalize enrolment and utilization of health insurance schemes for financial risk protection. Since our results show a significantly less share of medicines in total out of pocket expenditure, there is a need to review the traditional methods employed for estimating the same in national surveys. A better understanding of these concepts will not only have an impact on national health accounts, these will help to refine the policy design and implementation approach for achieving universal health coverage in the count.

Background

Households in India bear significant financial burden on account of medical treatment. Over three-fourth of all healthcare payments are paid out of pocket (OOP) at the point of service delivery where purchase of medicines (approximately 58.7%) account for the single largest component of these payments.(1) There are numerous factors contributing to high out-of-pocket expenditure such as poor availability of essential medicines, poor affordability, inadequate public spending and lack of adequate health insurance coverage.(2) About 90% of the population in developing world, purchase medicines on an out-of-pocket basis which is contrary to most developed countries, where OOP payments for prescription medicines are a small proportion of total spending on health.(1, 3, 4) The share of out-of-pocket expenditure (OOPE) in India for outpatient and inpatient care is 82% and 42% respectively.(5)

Recent evidence from the National Health Accounts for India points out that during 2013–2014, households alone contributed 68.1% on healthcare out of which 63.2% was out of pocket and a major chunk was on medicines.(1) A study by Selvaraj et al (2018) also found that medicine's OOP expenditure alone contributed to an estimated 11% of financial catastrophe.(6) In absolute numbers, this translates to a scenario where an estimated 46 million households appear to face catastrophic expenditure on account of OOP payments while 29 million households faced such hardship because they had to pay for medicines from their pockets. It was also found that outpatient-based treatment cost constitutes more than three-fourth of the total health care cost in India. This may be due to the smaller frequency of hospitalizations compared to outpatient visits in general. It is especially true for chronic diseases which require multiple consultations and long-term/ lifelong medication. Further, published literature reports that if OOP payments for either medicines or outpatient care are removed, only 0.5% people are found to be impoverished due to health expenses.(6) Despite of these, none of the publicly financed schemes in India universalizes the provision of drugs. They cover only inpatient expenses, increasing the likelihood of households entering the debt and vicious cycle of poverty while seeking outpatient care.

Various economic costing studies, conducted to assess the overall cost of healthcare in India using bottom-up costing methodology, have reported that medicines should constitute 5-15% share in overall cost of care in public sector. NSSO data, on the other hand reports that medicines constitute 70% of OOP payments.(7-10) This may be because of lack of availability and accessibility of medicines at public health care facilities, due to in-effective drug procurement and distribution practices.(11) Although India is known as Pharmacy of South, 65% of its population does not have access to essential medicines.(12) This forces patients to purchase medicines from private pharmacies, where medicines are significantly higher

priced and more branded formulations are dispensed than generic, resulting in affordability issues. Even though, public sector procurement prices are reasonably low due to bulk purchase of medicines but it does not translate into low patient prices. Hence, there is a need to estimate the extent of availability of drugs at different levels of public health facilities and to explore factors contributing to the same in order to analyse consumption pattern and facilitate rational drug budgeting and better procurement planning.

Lately, it has also been argued that the methodology followed by NSSO in capturing out-of-pocket expenditure of households does not capture the break-up of OOPE accurately. Although respondents report the total OOPE correctly, they are not able to accurately provide the break-up of OOPE. This is more pronounced for consultations in private sector, where medicines are often provided by the consultant himself as part of consultation, and medicines are the only tangible products for the patient. Therefore, the respondents tend to attribute the whole OOPE, including consultation charges, to medicines during their visit to private health care facility.

With this background, the present study was conducted to help generate evidence on share of OOPE on medicines in public and private health care facilities. Further, the study aimed to identify key factors contributing to OOPE on medicines. Thirdly, the study intended to generate evidence for policy makers to streamline the overall process of drug procurement, indenting system and supply-chain system. It is hoped that the study results will play an important role in moving forward towards achieving the Sustainable Development Goals (SDGs), specifically SDG-3 which emphasizes on ‘financial risk protection, access to quality essential health-care services and access to safe, effective, quality and affordable essential medicines and vaccines for all’ to achieve Universal Health Coverage (UHC) by 2030.(13)

Study objectives

This study aimed to:

- Investigate the share of medicines in overall OOP expenditure and financial risk protection as a result of medicines, using a novel methodology.
- Assess the determinants of OOP expenditure on medicines and the extent of financial risk protection due to OOP expenditure for medicines
- Estimate the extent of availability and stock out of essential medicines in public health care facilities.
- Analyse the drug prescription pattern at public health care facilities

Chapter 1

Survey on Availability of Medicines in Primary, Secondary and Tertiary Public Health Facilities in Selected States of India

1.1 Introduction

"Right to health" means attainment of highest possible level of health without any difference in relation to caste, race, religion and socio-economic condition. One can achieve this highest possible level of health only when, if the individual has access to essential services such as food, housing, proper working condition and quality healthcare services. In healthcare services, medicines form an integral part of the health system as it plays a key role in protecting, maintaining, restoring health and improve the quality of life of an individual. To ensure this aspect, the concept of essential medicines was introduced in 1977 that further evolved and matured as an important element in healthcare systems across various countries. Despite of such progress, almost half of the global population lacks access to essential health services(14) and almost one-third of them lacks access to essential medicines.(15)

Importance of essential medicines can be made out from the fact that almost 10 million lives could be saved by improved access and availability to essential medicines. Of these, four million lives could be saved in Africa and South-East Asia alone.(16) Major reason for these numbers is because the challenges in low- and middle-income countries to provide access to essential medicines, as shown by the fact that the average availability of medicines in low middle-income countries (LMICs) in the public sector is only 35%.(3) Medicines are an indispensable part of healthcare system but poor availability of essential medicines in the public health facilities has pushed up household out-of-pocket (OOP) expenditure, making them the largest household expenditure item after food. Currently, 800 million people in world spend at least 10% of their household budget on health with maximum of health expenditure is done on medicines and diagnostics.(14)

India, though known as the "Pharmacy of Global South," still has almost 68% of the population with limited or no access to essential medicines.(17) Studies conducted in various parts of India have showed wide variability in the availability of medicines ranging from 45.2% to 88%.6.(18-21) Nearly 80% of total health care expenditure is borne by the patients out-of-pocket in India, of which 70% is constituted by medicines.(22) Due to this, large numbers of households are pushed under poverty line every year. No country can achieve its goal of universal health coverage without making the essential medicines accessible. Hence, the current study was done to assess the availability of essential medicines in public health facilities of three states at the pharmacy of the facility and actual availability to the patients against the prescribed medicines.

1.2 Materials and methods

1.2.1 Study setting

A cross-sectional survey was carried out in primary, secondary and tertiary healthcare facilities of public sector of three diverse states of Chhattisgarh, Haryana and Tamil Nadu. The survey was conducted over a period of three months (September to November 2020) and the overall project duration was 10 months (February to November 2020) for all the three states.

The state of Chhattisgarh is one of the tribal dominated states of India accounting for about one-third of the total population. The state ranks 17th in the per capita income and 23rd in human developmental index of the country. Nearly three-fourth of the population in the state resides in the rural area.(23) Tamil Nadu and Haryana are among the wealthiest states of the country ranking third and fifth in terms of per capita income respectively.(24, 25) Tamil Nadu is the most urban state of the country, accounting for almost half of the total population.

Healthcare services in all these states are provided by a three-tier delivery system (similar to the rest of the country). At the primary level, sub-centres (SCs) and primary health centres (PHCs) are responsible for provision of healthcare delivery. In secondary level, community health centres (CHCs) and district hospitals (DHs) are responsible for providing specialist secondary services while medical colleges are responsible for tertiary care services.

All these states have established government bodies under the Department of Health and Family Welfare known as Medical Service Corporation Limited that procure medicines and consumables for the public health facilities in the state. The Tamil Nadu Medical Service Corporation Limited (TNMSCL) was established and the corporation in other states have been modelled after it. While the Chhattisgarh Medical Service Corporation Limited (CMSCL) started working in 2010 and Haryana Medical Service Corporation Limited (HMSCL) became functional only in 2014.

1.2.2 Sampling strategy

A multi-stage stratified random sampling was employed for the selection of public health facilities.

Stage 1: States were classified into three categories according to share of medicines in the overall OOP expenditure (low, medium and high)(26) and one state was randomly selected from each stratum namely Tamil Nadu (Low), Chhattisgarh (Medium) and Haryana (High). From the selected states, all the districts were stratified into three categories (low, medium and high) based on their human development index (HDI) scores. The reason for choosing HDI to stratify the districts was that the indicators in HDI were representative of important

demand side characteristics explaining the health status, care seeking behaviour and ability to pay for OOP expenditure. One district from each of these strata was selected randomly. Geographical representation was ensured at the time of selection of states and districts.

Stage 2: A total of 13 public health facilities were selected covering all the three levels of healthcare service delivery (primary, secondary and tertiary) from each state. The selected facilities included a tertiary care hospital/medical college (selected on the basis of patient load), three DHs (one from each district), three CHCs (under the three selected DHs), and six PHCs (under the three selected CHCs.

Stage 3: The district level sample size was distributed across facilities in the district as per their patient load **(Table 1)**. This was further distributed among OPD and IPD services in the ratio of 70:30. This was done considering 60-70% of OOPE to be incurred on the OPD services.(1)

Table 1: Public health facilities' wise patients recruited for the study in selected states

Category of Facility	**Number of Facilities (Per state)**	**Haryana (No. of individuals)**	**Chhattisgarh (No. of individuals)**	**Tamil Nadu (No. of individuals)**	**Total Facilities**	**Total sample**
Tertiary care						
Medical college	1	140	140	140	3	420
Secondary care						
District hospital	3	300	300	300	9	900
Community health centre	3	150	150	150	9	450
Primary care						
Primary health centre	6	120	120	120	18	360
Total	**13**	**710**	**710**	**710**	**39**	**2130**

1.2.3 Data collection

A team of investigators were recruited as data collectors for this survey. A week-long training was provided to familiarize them on data collection methods, tools and inventory management process at the facility. Both primary and secondary data was collected during the survey.

1.2.3.1 Inventory management

Structured interviews were conducted with facility officials responsible for handling procurement and dispensing of medicines at the facilities using inventory management tool. Information regarding the indenting process, number of medicines indented per indent, average number of medicines indented per month, storage process and condition, dispensing practices etc. were recorded using the tool.

1.2.3.2 Medicine availability

The chief pharmacists were interviewed and record registers inspected for details on medicine availability at the facility. A “Medicine availability tool” was prepared and used to gather information on medicine availability, stock outs in the past six months and presence of any expired medicines on the shelf during the survey. This tool included a basket of 97, 118 and 138 medicines at PHC, CHC and DH level of care respectively. The medicine list for the survey was selected from the state specific essential drugs list (EDL) and classified on the basis of therapeutic category such as antibiotics, NSAIDS, anti-allergic, etc.

1.2.3.3 Patient Exit Interview

Patient exit interviews were done with both OPD and IPD care patients. The OPD patients were recruited at their exit from the pharmacy co-located at the facility, while IPD patients were recruited at the time of discharge from the facility. All details of the medicines prescribed during the hospital stay and prescribed at the time of discharge were captured. Photograph of the prescription slips were also taken to match and clarify the details obtained during the interview. Additionally, data on socio-demographic characteristics of the patients, symptoms and duration of illness were collected. Further data was collected on medicine details like number of medicines prescribed; number of medicines dispensed within the facility; number of medicines bought from private pharmacies; dose; duration and frequency of medicines. Exact availability of the medicines against prescribed medicines was assessed using a patient exit interview tool. This tool was developed based on the “World Health Organization/Health Action International” (WHO/HAI) core drug use indicators (patient care indicators).

Analysis 1: Medicine availability under each therapeutic category at all the levels of healthh care

To check the availability of medicines under the therapeutic category 138 pre-selected drugs were used at DH level. At CHC and PHC level, 118 and 97 drugs were respectively selected. On the day of the survey, the availability of these selected drugs and their stock outs were examined. The baskets of selected medicines were first classified based on the therapeutic category. A medicine was recorded as available if it was present in the facility on the day of visit. Each dosage form was considered a separate item. Overall availability of medicine by therapeutic category at a particular level of facility was computed by the following formula:

$$\textit{Overall availability of medicine by therapeutic category at a particular level of facility} = \frac{\Sigma\,(ni) * 100}{M*N}$$

Where, ni is the number of medicines that were available at the time of survey within that therapeutic category for a particular level of facility, M is number of facilities surveyed at that particular level of care (like 8 PHC were surveyed in Haryana) and N is total number of medicines that were selected within that therapeutic category. M*N gives total number of medicines that must be present during the survey within that therapeutic category for all the facilities providing that particular level of care.

Suppose 8 (N) antibacterial medicines were surveyed in 8 (M) PHCs, then a total of (M*N) 64 items must be present during the survey. Now if 5 medicines were present in 5 PHC and 4 medicines were present in 3 PHC, then a total of 37 [(5*5) + (4*3)] medicines were present within that therapeutic category in all the PHCs that were surveyed. Then, the availability of medicine is 57.8% [(37*100)/64] within the antibacterial therapeutic category at PHC level.

For overall availability of medicines within a therapeutic category at all levels of care, the following formula was employed:

$$\textit{Overall availability of medicine by therapeutic category at all level of care} = \frac{\Sigma\,(ni) * 100}{\Sigma\, Mi*Ni}$$

Where ni is number of medicines that were available at the time of survey within that therapeutic category in a particular level of facility. Mi is number of facilities surveyed in that particular level of care and Ni is total number of medicines that were selected within that therapeutic category at a particular level of care.

Analysis 2: Medicine availability at all the levels of healthcare against prescribed medicines

Here, the availability of medicines was measured at the patient level using WHO/HAI Core drug use indicators (Patient care indicators).

Percentage of medicines actually dispensed to measure the extent of actual availability of medicines to the patient.

$$\textbf{Percentage of medicines dispensed} = \frac{\textbf{Total number of medicines dispensed * 100}}{\textbf{Total number of drugs prescribed}}$$

In addition, other patient care indicators were also measured to understand the patient perspective while assessing the services at the facility.

1.2.4 Ethics

Ethical clearance was obtained from Institute Ethics Committee of the Post Graduate Institute of Medical Education and Research, Chandigarh, India. Administrative approvals to collect data were also obtained from concerned authorities of health departments in three states. Further, administrative approval was taken from the civil surgeon prior to data collection at the district level. Written informed consent was taken from the participants and they were informed that their participation is voluntary and no information obtained from them will be divulged to anyone other than investigator; the confidentiality of data was strictly maintained. Participants were also informed that failure to comply will not result in any penalties or loss of benefits.

1.3 Results

The inventory management process and availability of medicines against each therapeutic category were assessed for primary and secondary care facilities (PHC, CHC and DH) in the three states (Haryana, Chhattisgarh, Tamil Nadu). The inventory management process could not be assessed for tertiary care facilities (medical colleges) as requisite permissions could not be obtained. However, availability of medicines against the prescribed medicines was assessed in the medical colleges of Chhattisgarh and Tamil Nadu.

Inventory management process of the medicines

All the public healthcare facilities (PHC, CHC and DH) in Haryana, Chhattisgarh and Tamil Nadu had dedicated storage space with proper temperature control system and cold storage facilities for medicines. Medicines were also stored in a systematic manner at all the facilities in the three states. None of the facilities had evidence of pests at the storage space. All the public healthcare facilities in Chhattisgarh and almost half of the facilities in Haryana and Tamil

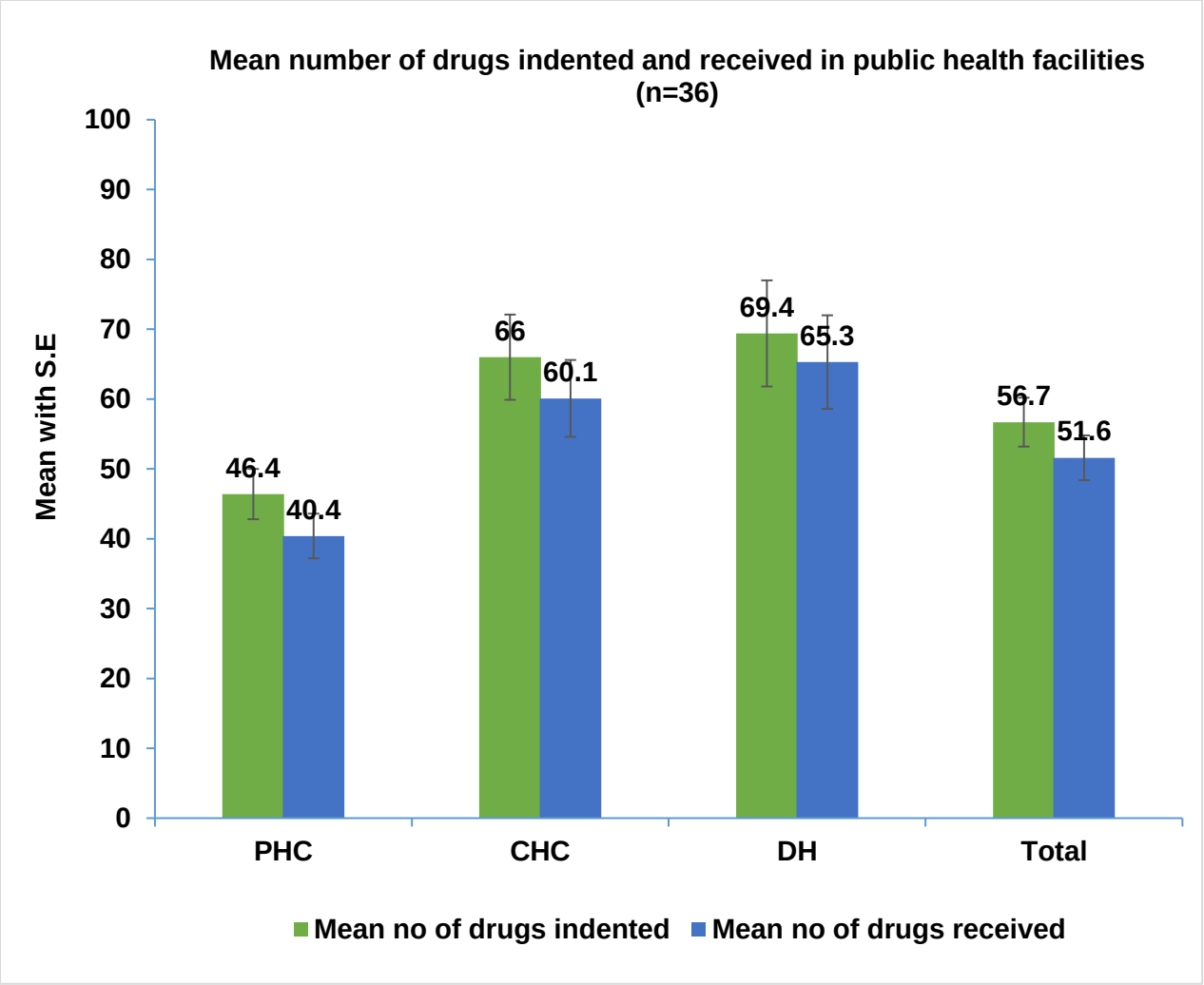
Nadu followed both First in First out (FIFO) and First Expiry First out (FEFO) method of inventory management (**Table 2**).

Table 2: Inventory management processes observed at public health facilities of Chhattisgarh, Haryana and Tamil Nadu

	Chhattisgarh			Haryana			Tamil Nadu		
	PHC (n = 6)	**CHC (n = 3)**	**DH (n = 3)**	**PHC (n = 6)**	**CHC (n = 3)**	**DH (n = 3)**	**PHC (n = 6)**	**CHC (n = 3)**	**DH (n = 3)**
Storage space	6	3	3	6	3	3	6	3	3
Temperature control system	6	3	3	6	3	3	6	3	3
Cold storage	6	3	3	6	3	3	6	3	3
Medicine stored in systematic way	6	3	3	6	3	3	6	3	3
Evidence of pest at storage space	0	0	0	0	0	0	0	0	0
FEFO Method of inventory management	0	0	0	3	0	1	0	0	1
FIFO Method of inventory management	0	0	0	0	0	0	4	1	1
Dual method of inventory management	6	3	3	3	3	2	2	2	1
Average interval of indenting (days)	30	30	30	30	30	30	90	90	30

Average duration between two successive indents of medicines was 30 days at the facilities in Chhattisgarh and Haryana and DH in Tamil Nadu, while it was 90 days at PHCs and CHCs in Tamil Nadu. Average interval for receiving the medicines after indenting was longest for Chhattisgarh (9-10 days), while it was shortest for Tamil Nadu (3-5 days) in all the public health facilities. **Figure 1** depicts the number of medicines indented and received (per indent) at public health facilities. Medical Officer was present at 28 out of 36 facilities on the day of survey, while pharmacist was present at 35 facilities.

Figure 1: Mean number of drugs indented and received at public health facilities (n=36)



Availability of medicines under each therapeutic category in public health facilities

Table 3 depicts the proportion of drugs available under therapeutic category for health care facilities at all three states. Below we have described the state wise availability of specific classes of drugs.

Table 3: Availability of medicines (%) under each therapeutic category in public health facilities in the three states

Drug category	Chhattisgarh			Haryana			Tamil Nadu			Overall		
	PHC	CHC	DH	PHC	CHC	DH	PHC	CHC	DH	PHC	CHC	DH
Analgesic/Antipyretic/NSAID	82	73	69	81	83	64	79	72	72	81	76	68
Anti-Bacterial	48	63	70	71	68	77	64	67	77	62	66	75
Anti-Allergic	38	71	95	62	67	71	65	82	76	57	74	78
Vitamins and Minerals	50	73	60	62	67	75	74	75	79	64	71	73
Anti-Asthmatic	44	95	79	67	75	75	50	50	67	52	78	75
Antacid	78	89	89	38	67	60	72	75	83	60	75	75
Anti-Helminthic/Anti-Parasitic	93	75	75	58	92	83	50	67	56	68	79	73
Anti-Fungal	33	33	44	67	33	67	33	67	50	40	40	52
Anti-Spasmodic	42	33	50	50	67	33	67	33	100	50	42	58
Anti-Emetic	67	50	83	57	73	67	33	53	67	49	61	69
ORS	100	100	100	100	100	67	100	100	100	100	100	89
Anti-Hypertensive	42	44	52	30	59	55	65	70	81	46	58	62
Anti-Diabetic	67	78	75	58	67	67	83	83	67	69	76	69
Thrombolytic	NA	25	50	NA	0	27	NA	0	58	NA	16	44
Anti-Depressant/Mood-Stabilizer/Anti-Psychotic/ Anti-epileptic	10	40	29	42	50	57	33	48	67	25	46	48
Anti-Viral	NA	33	8	50	67	44	67	83	78	58	61	40
Uterotonics	67	67	67	33	47	40	16	27	67	36	44	56
Miscellaneous	28	47	49	39	74	70	64	44	79	39	53	63
Anti-Cancer	NA	NA	NA	NA	NA	33	NA	NA	100	NA	NA	44
Anaesthetic	33	20	61	50	78	44	67	56	89	48	46	64
Total	47	58	59	57	68	65	60	64	74	55	63	66

Chhattisgarh:

Almost 90% of the CHCs and DHs had the listed medicines, under the categories of anti-helminthic/anti-parasitic, antacid and anti-asthmatics, available during the survey. All the public health facilities had medicines under ORS category. Analgesics, antacids, anti-emetics and anti-diabetics had around 60% availability at the PHC and CHC level. DH had higher availability rates, with more than 70% of anti-bacterial drugs and anti-diabetics available.

Haryana:

In Haryana, the overall availability of medicines varied from 57% at PHC level, 65% at DH level to 68% at CHC level. Medicines under the therapeutic categories of analgesic/antipyretic/NSAID, anti-allergic, anti-asthmatic, anti-fungal, ORS were available in higher numbers, ranging from 80-100% at all levels of healthcare facilities during the survey. However, medicines listed under thrombolytic drugs were not available at all levels of healthcare facilities.

Tamil Nadu:

The overall availability of medicines in Tamil Nadu varied from 60% at PHC level, 64% at CHC level to 74% at DH level. PHCs, CHCs and DHs had 100% availability of ORS, while the DHs had 100% availability of auto-immune drug and anti-spasmodic drugs. Analgesics, anti-bacterial, vitamins, antacids etc. had 70-80% availability. Medicines under therapeutic category such as anti-depressants and thrombolytic drugs were available in less numbers.

Stock-out duration of essential medicines:

In Chhattisgarh, the drugs that were found unavailable during the survey were out-of-stock for last 4-6 months. These included 70-80% of the anti-viral, anti-spasmodic and anti-depressant/anti-epileptic. Antacid (86%) and anti-helminthic (87%) drugs were out of stock for last 1-3 months. **(Figure 2)**. Among the medicines that were unavailable during the survey in Haryana, majority of the drugs were out-of-stock for 4-6 months. These excluded some anti-fungal drugs, anti-asthmatics, and anti-viral, that were out of stock for less than one month. Around 70-90% of the medicines that were unavailable under rest of the therapeutic category were out-of-stock for 4-6 months **(Figure 3)**. In Tamil Nadu, almost all the drugs that were unavailable during the survey were out-of-stock for a duration of 180 days.

Figure 2: Proportion of facilities reporting different stock out periods of therapeutic drugs in Chhattisgarh state

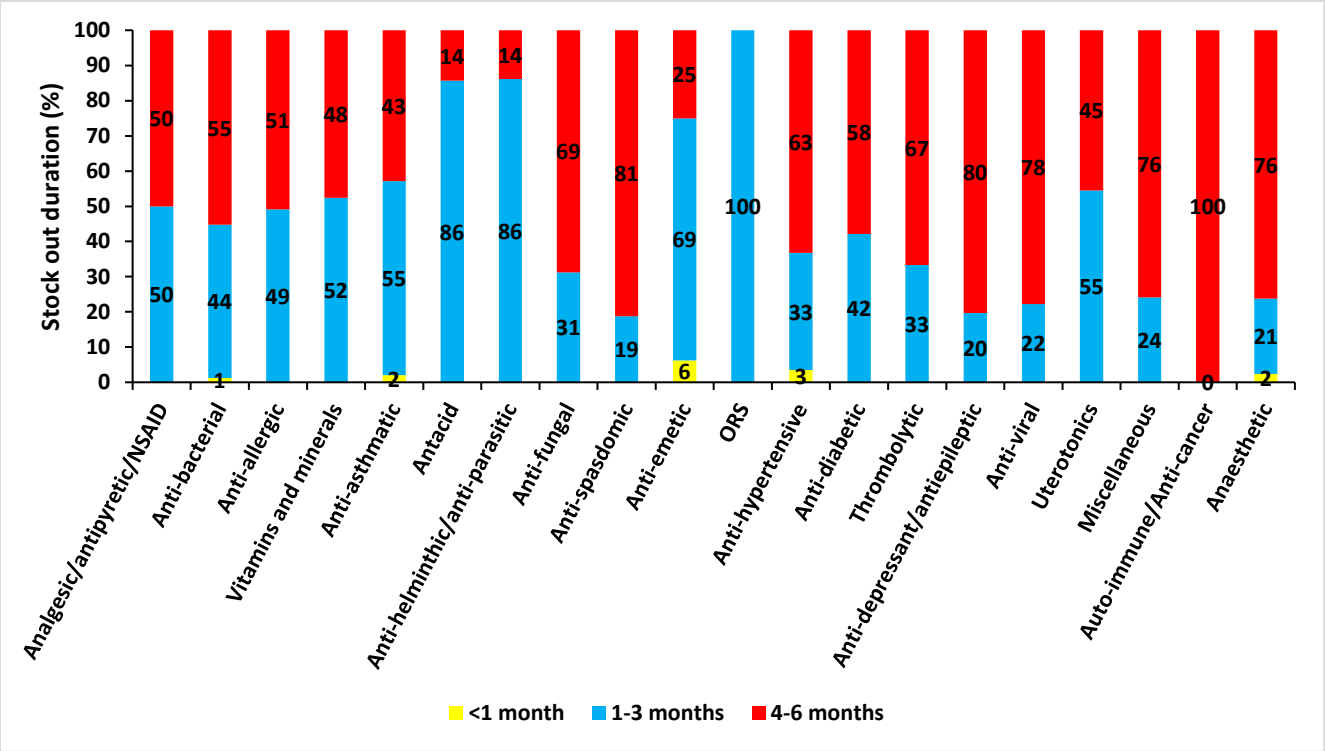
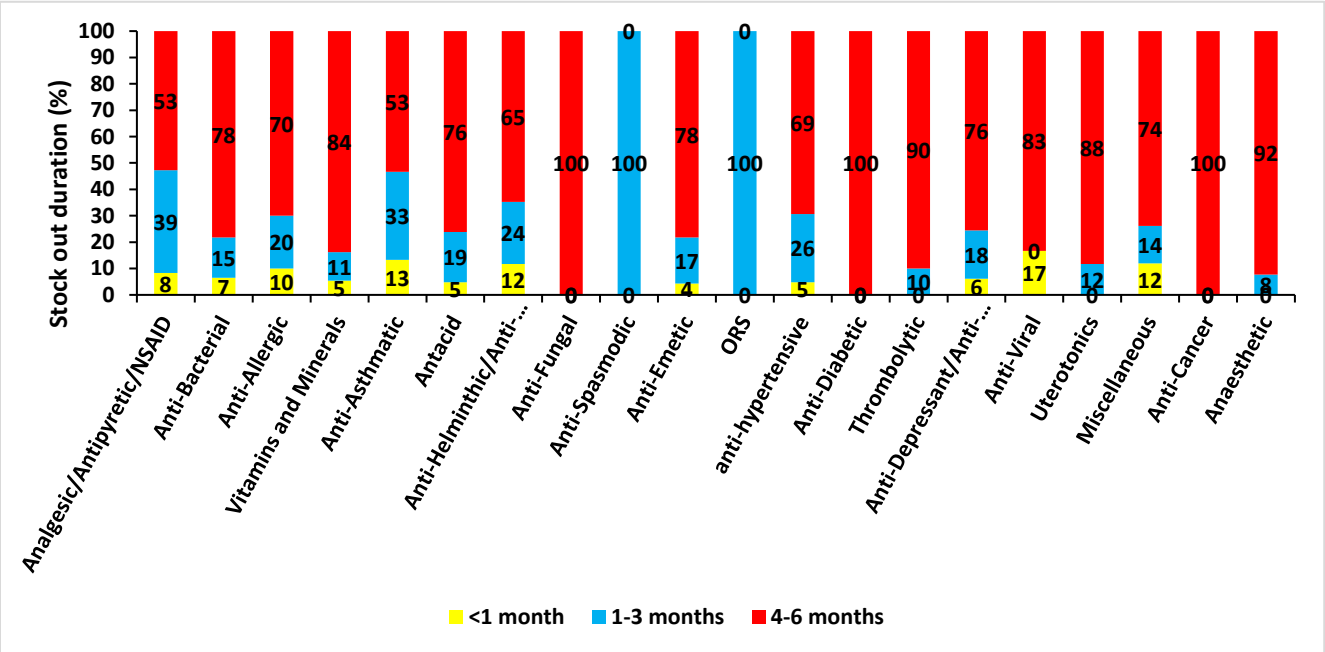


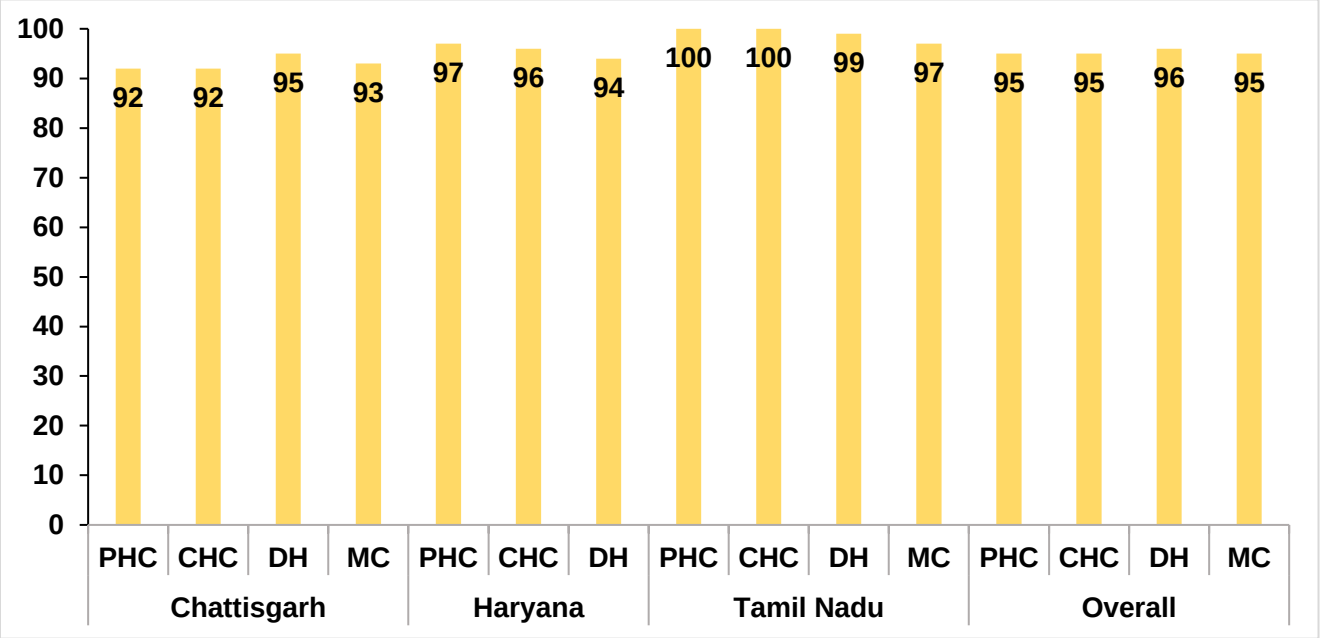
Figure 3: Proportion of facilities reporting different stock out periods of therapeutic drugs in Haryana state



Availability against prescribed medicines:

The overall availability of prescribed medicines in the public health facilities was around 95% at all the levels of healthcare (PHC, CHC, DH and medical colleges). Among the three states surveyed, Tamil Nadu's PHCs and CHCs had the highest availability against the prescribed medicines. In Tamil Nadu, 100% of the prescribed medicines were available at PHC and CHC, 99% at DH and 97% at medical colleges. This was followed by Haryana, where 97% prescribed medicines were available at PHCs, 96% at CHC and 94% at DH. Chhattisgarh had 92% availability at PHC and CHC, 95% at DH and 93% at medical college **(Figure 4)**.

Figure 4: Availability of medicines (%) against the prescribed medicines in public health facilities



Discussion:

WHO has recommended that the essential medicines should be made available to the patients at all times within a functioning healthcare system.16 It is critical in protecting the patients from financial catastrophe and an important component for achieving universal health coverage.17 However, in India, out-of-pocket expenditure still persists as a major source of healthcare spending, with almost three-fourth of these expenditures contributed by medicines/drugs.15 Hence, we conducted this survey to know the extent of medicine availability, inventory management, stock-out duration and availability against prescribed medicines in three major states of India (Chhattisgarh, Haryana, Tamil Nadu).

We found that the overall availability of medicines had wide variation across the three states ranging from 47% at Chhattisgarh PHC to 74% at Tamil Nadu DH. Also, nearly 80% of the medicines not available during the survey, were out-of-stock for 4-6 months in Chhattisgarh and Haryana. In Tamil Nadu, all the medicines that were unavailable during the survey had stock-out duration of 180 days. Non-communicable are the leading cause of morbidity and mortality in our country. Patients suffering from non-communicable diseases requires long-time therapy, even up to their entire lifetime. In spite of such high burden of the disease, the availability of anti-diabetic, anti-hypertensive, anti-depressant, anti-epileptic was poor at some facilities surveyed in the present study. Such lower availability of the essential medicines at the public healthcare facilities forces the patients to buy medications from private pharmacies as they have higher medicine availability with higher costs resulting in catastrophic health expenditure.(27)

Previous survey conducted in public sector health facilities of two North Indian states (Haryana and Punjab) revealed overall availability of 45.2% and 51.1%.6 Among the medicines which were not available at the time of survey; nearly 60% and 40% were out-of-stock for nearly 3–6 months respectively.(18) This shows an increase in the availability of medicines in Haryana compared to previous survey. However, the stock-out duration has increased in the present survey for many numbers of drugs under different therapeutic categories. A survey carried out in public health facilities of Chhattisgarh showed 65% availability of prescribed medicines.7 This was in contrast with the current survey findings as almost 90% of the prescribed medicines were made available to the patients. A survey carried out in public health facilities of 17 states of India assessing the availability of five essential medicines such as paracetamol, Vitamin A, ORS, Zinc and Cotrimoxazole for children reported an overall mean availability of 80%.8 The findings were similar to the present survey findings with respect to these five medicines as the availability of medicines under these therapeutic categories were found to be higher.

Major reason for a lower availability and higher stock-out duration in all these states could be the COVID-19 pandemic that has impacted the healthcare sector throughout the world.(28) India is one of the worst affected nations in the world, ranking second in the total number of cases.(29) This led to several challenges towards the pharmaceutical sector such as the severe supply chain blockade (due to reduction in the air cargo capacity, and other transport logistics), export restrictions by the supplier countries and the massive slowdown in the production of essential medicines.(28) Apart from COVID-19 pandemic, other factors that might be responsible for lower availability and higher stock-out duration could be lack of funding, inefficiencies in procurement and distribution system, prescription patterns, and incorrect forecasting of medicine requirements.(3) Another possible scenario could be that the

health care facilities might have stocks of alternate drugs from the EDL under the explored therapeutic categories which were not included in the package of drugs selected for survey.

The current survey findings were in contrast with the share of medicines in total OOPE of the respective states. Tamil Nadu having the least availability amongst the three states comes under lower category (lower share of medicines in the total OOPE), while Haryana having highest availability comes under higher category (high share of medicines in total OOPE).(26) Though, the average number of days to receive medicines was least for Tamil Nadu (3-5 days) compared to Chhattisgarh (9-10 days) and Haryana (7-8 days), the average interval of indenting is longest for Tamil Nadu (90 days) compared to the other two states (30 days). TMSCL being one of the oldest and most advanced procurement spent high proportion on expenditure on procurement of medicines in public health facilities as compared to other Medicines Service Corporation Limited like CHMSCL, HMSCL etc.(17) In spite of such robust procurement model, the findings in our survey could be contributed by the fact that Tamil Nadu is one of the worst affected state in our country due to COVID-19 pandemic.(30) This might have led to procurement and distribution issues leading to non-availability of certain drugs and longer stock-out durations. However, Tamil Nadu had the highest availability against the prescribed medicines followed by Haryana and Chhattisgarh.

Our study has certain limitations. We have reported on availability of medicines, inventory management and stock-out duration in our study. However, assessment of issues related to procurement, selection, distribution, pricing, market regulation will provide a comprehensive evidence on the factors responsible for our findings. In addition, we did not employ the WHO/HAI methodology to assess the medicine availability, which was employed in previous studies conducted in India. For our study purpose, we have included only a set of medicines from the essential drug list in each therapeutic category, not all the medicines under the category.

In spite of these limitations, our study has several programmatic implications. The COVID-19 pandemic has left several short-term and might have led to several long-term impact on the pharmaceutical sector in India. Current survey provides baseline information on the availability of essential medicines along with inventory management and stock-out duration in public health facilities across different states in the country. This information will guide the policymakers for evidence-based planning and decision making to overcome the challenges in availability of essential drugs. Though various recommendations have been proposed in the previous literature to improve the medicine availability, special situations as the one we are facing now requires intensive planning and innovative solutions supported by robust procurement, distribution, supply chain, regulation and prescription practices.(31-33) Similar

studies should be performed by including private sector and compare the level of price competition in the market. More intensive research critically analysing and finding the best practices followed during such special situations like pandemic should be conducted.

Chapter 2

Drug prescription pattern in primary, secondary and tertiary public healthcare facilities: A cross-sectional survey in selected states of India

2.1 Introduction

Drugs play a crucial role in healthcare system and disease prevention as they help in protecting, maintaining and restoring health of an individual.(34) Multiple drugs combinations and advancements in pharmaceutical sector has unfortunately led to irrational use of medicines in healthcare system. This issue of irrational use of medicines has been pounding since decades and has become more and more challenging during the recent years. "World Health Organization (WHO)" has defined the rational use of medicine as *"Patients receive medications appropriate to their clinical needs, in doses that meet their own individual requirements, for an adequate period of time, and at the lowest cost to them and their community".(35)* However, 50% of all the medicines globally are prescribed, dispensed, or sold inappropriately, while 50% of the patients fail to take them correctly.(35)

Polypharmacy has always been one of the primary reasons for irrational use of medicines. Published literature reports that globally the average number of drugs per prescription is well above the WHO recommended levels.(35-37) It has now become a trend to prescribe multiple medicines, not necessarily required by the patient, at majority of the profit seeking healthcare facilities under the influence of big pharma companies. This leads to side effects, drug interactions, and high drug costs, while ultimately having a negative impact on the quality of life of patients.(35, 36, 38)

Further, the reduction in the effectiveness of antimicrobial agents due to its overuse is also a major area of concern in the public health domain. Previous evidences have indicated that the overuse of antibiotics is scientifically unjustified and uneconomical, as the overuse not only leads to antimicrobial resistance, but also economic burden to the households.(39-41) Similarly, injection overuse has become more common in both developing and developed nations and prescribed well above the WHO recommended limit.(38, 42-44) Minimal utilization of injections reduces the danger of contamination through parenteral course and cost incurred in treatment.(45)

These abusive drug prescription practices, and their implications, can only be checked by referencing to evidence based clinical guidelines and strictly adhering to them in clinical practice. They not only play an important role in promoting rational use of medicines, but also provide a standard for treatment and diagnostics against which comparisons can be made.(38) Poor-quality prescriptions, on the other hand, leads to irrational use of medicines, ultimately leading to drug interactions, high out of pocket expenditure (OOPE) and poor quality of life.(38, 42, 46)

Prescription writing thus mirrors a doctor's aptitude in the diagnosis and mentality towards choosing the most fitting financially savvy treatment.(47) Hence, prescriptions should be persistently evaluated and refined reasonably through a prescription audit. Feedbacks from such audits have shown to improve the quality of prescription pattern, further promoting the rational use of medicines.(48) In view of the above-mentioned issues, the present study was undertaken to analyse the drug prescription pattern using WHO core drug use indicators in three diverse states of India viz., Chhattisgarh, Haryana and Tamil Nadu.

2.2 Materials and methods

2.2.1 Study setting

A cross-sectional survey was carried out in primary, secondary and tertiary healthcare facilities of public sector of three diverse states of Chhattisgarh, Haryana and Tamil Nadu. The survey was conducted over a period of three months (September to November 2020) and the overall project duration was 10 months (February to November 2020) for all the three states.

The state of Chhattisgarh is one of the tribal dominated states of India accounting for about one-third of the total population. The state ranks 17th in the per capita income and 23rd in human developmental index of the country. Nearly three-fourth of the population in the state resides in the rural area.(23) Tamil Nadu and Haryana are among the wealthiest states of the country ranking third and fifth in terms of per capita income respectively.(24, 25) Tamil Nadu is the most urban state of the country, accounting for almost half of the total population.

Healthcare services in all these states are provided by a three-tier delivery system (similar to the rest of the country). At the primary level, sub-centres (SCs) and primary health centres (PHCs) are responsible for provision of healthcare delivery. In secondary level, community health centres (CHCs) and district hospitals (DHs) are responsible for providing specialist secondary services while medical colleges are responsible for tertiary care services.

All these states have established government bodies under the Department of Health and Family Welfare known as Medical Service Corporation Limited that procure medicines and consumables for the public health facilities in the state. The Tamil Nadu Medical Service Corporation Limited (TNMSCL) was established and the corporation in other states have been modelled after it. While the Chhattisgarh Medical Service Corporation Limited (CMSCL) started working in 2010 and Haryana Medical Service Corporation Limited (HMSCL) became functional only in 2014. These states also have an established standard treatment guideline (STG) for evidence-based practice and rational use of medicines.

2.2.2 Sampling strategy

A multi-stage stratified random sampling was employed for the selection of public health facilities.

Stage 1: States were classified into three categories according to share of medicines in the overall OOP expenditure (low, medium and high)(26) and one state was randomly selected from each stratum namely Tamil Nadu (Low), Chhattisgarh (Medium) and Haryana (High). From the selected states, all the districts were stratified into three categories (low, medium and high) based on their human development index (HDI) scores. The reason for choosing HDI to stratify the districts was that the indicators in HDI were representative of important demand side characteristics explaining the health status, care seeking behaviour and ability to pay for OOP expenditure. One district from each of these strata was selected randomly. Geographical representation was ensured at the time of selection of states and districts.

Stage 2: A total of 13 public health facilities were selected covering all the three levels of healthcare service delivery (primary, secondary and tertiary) from each state. The selected facilities included a tertiary care hospital/medical college (selected on the basis of patient load), three DHs (one from each district), three CHCs (under the three selected DHs), and six PHCs (under the three selected CHCs.

Stage 3: The district level sample size was distributed across facilities in the district as per their patient load **(Table 4)**. This was further distributed among OPD and IPD services in the ratio of 70:30. This was done considering 60-70% of OOPE to be incurred on the OPD services.(1)

Table 4: Public health facilities' wise patients recruited for the study in selected states

Category of Facility	Number of Facilities (Per state)	Haryana (No. of individuals)	Chhattisgarh (No. of individuals)	Tamil Nadu (No. of individuals)	Total Facilities	Total sample
Tertiary care						
Medical college	1	140	140	140	3	420
Secondary care						
District hospital	3	300	300	300	9	900
Community health centre	3	150	150	150	9	450
Primary care						
Primary health centre	6	120	120	120	18	360
Total	**13**	**710**	**710**	**710**	**39**	**2130**

2.2.3 Data collection

A team of investigators were recruited as data collectors for this survey. A week-long training was provided to familiarize them on data collection methods, tools and inventory management process at the facility. Both primary and secondary data was collected during the survey.

2.2.4 Data analysis

The collected data was entered in Microsoft Excel and analysed in SPSS ver. 16.0 (SPSS for Windows, Version 16.0. Chicago, SPSS Inc). World Health Organization core drug use indicators (prescribing indicators) were computed to examine prescribing patterns and summarized as proportions. The results were segregated for different states and socio-demographic classes. A list of prescribing indicators that were measured along with their purpose has been provided below.

- The average number of drugs prescribed per encounter (calculated to measure the extent of poly pharmacy in public and private health facilities).
- Percentage of medicines prescribed from EDL (calculated to check the extent of use of EDL list in public health facilities).
- Percentage of drugs prescribed by generic name (calculated to measure the extent of use of generic medicines in public and private health facilities).
- Percentage of encounter with antibiotics (calculated to measure the extent of use of antibiotics in public and private health facilities)
- Percentage of encounter with injections (calculated to measure the extent of use of injections in public and private health facilities).

2.2.5 Ethics

An ethical clearance was sought from Institute Ethics Committee of the Post Graduate Institute of Medical Education and Research, Chandigarh, India. Administrative approvals to collect data were also obtained from concerned authorities of health departments in three states. Further, administrative approvals were taken from civil surgeons prior to data collection at the district level. Written informed consent was obtained from the participants after informing them about their rights.

2.3 Results

A total of 2354 patients were interviewed from the public health facilities in the three states against the sample size of 2130. Detailed breakup of this information has been provided in

Table 5. Almost 60% of the participants were females. More than half of the participants (51.2%) belonged to the age group of 18-44 years. Majority of the participants (46%) were interviewed from DH in all the three states.

Average number of drugs prescribed per person was highest in Chhattisgarh (3.9), followed by Haryana (3.2) and Tamil Nadu (2.7) **(Table 6)**. Females were prescribed higher number of drugs than males in Chhattisgarh (4.2 vs 3.5) and Haryana (3.5 vs 2.9) whereas it was almost similar for both the sexes in Tamil Nadu (2.7). The average number of drugs prescribed for a patient were highest for those aged between 18 and 44 years in all the three states. Children <5 years were prescribed the minimum number of drugs. Amongst the health facilities, the maximum number of drugs (4.1) per person were prescribed at CHCs in Chhattisgarh, followed by DHs in Haryana (3.7) and Tamil Nadu (2.9). We also found that most drugs were prescribed in an abbreviated form at PHC level at Haryana (44%). Almost 90% of the prescribed drugs were generic at Tamil Nadu DHs and the lowest proportion of generic drugs was prescribed at MC level in Chhattisgarh (32.8%) (**Figure 5**).

Table 5: Basic demographic characteristics of the patients enrolled under study from public facilities in the states of Chhattisgarh, Haryana and Tamil Nadu

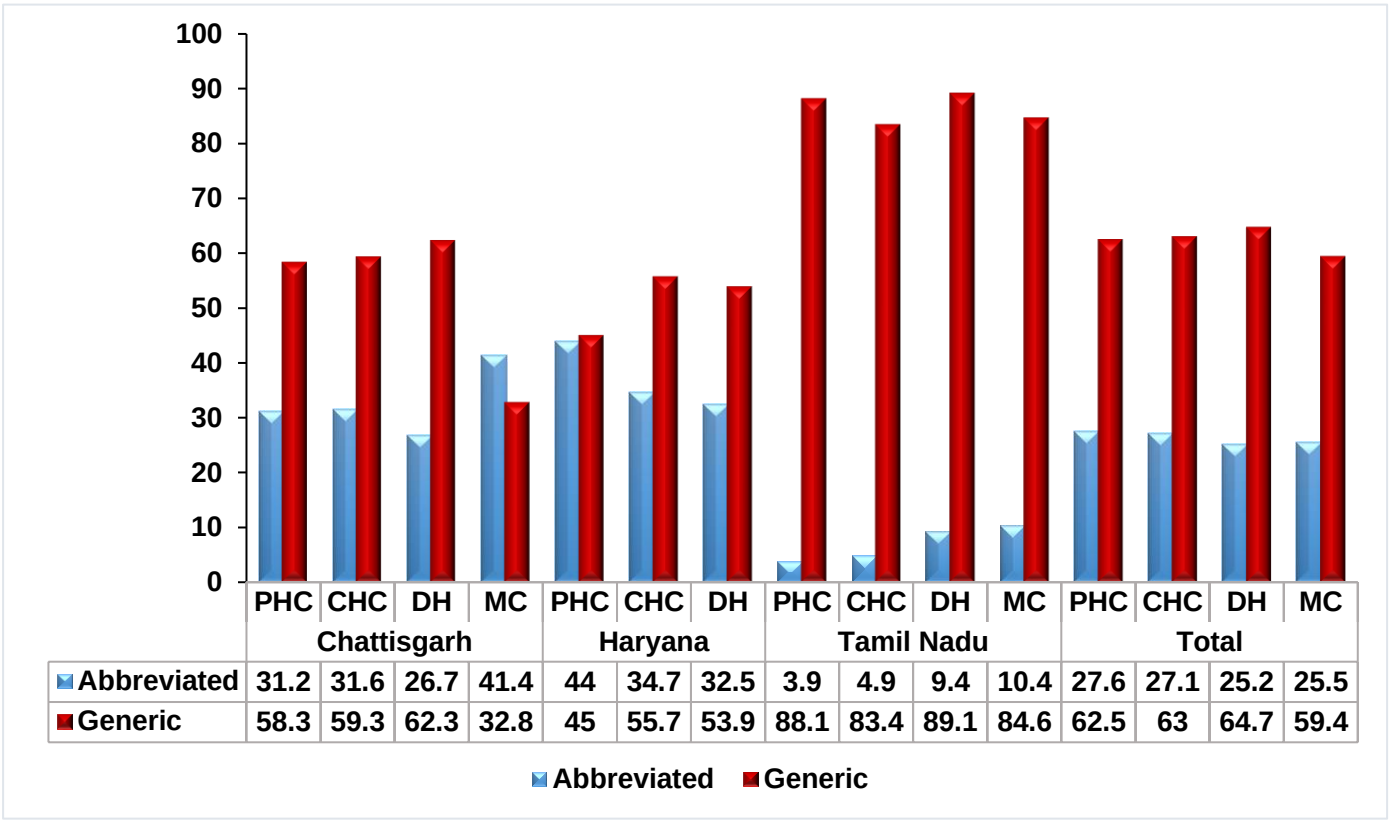
	Chhattisgarh n (%)	**Haryana n (%)**	**Tamil Nadu n (%)**	**Total n (%)**
Gender				
Male	334 (42.7)	343 (42.8)	274 (35.6)	951 (40.4)
Female	448 (57.3)	459 (57.2)	496 (64.4)	1403 (59.6)
Age				
0-4	35 (4.5)	40 (5)	5 (0.6)	80 (3.4)
5-17	56 (7.2)	81 (10.1)	11 (1.4)	148 (6.3)
18-44	436 (55.8)	442 (55.1)	328 (42.6)	1206 (51.2)
45-59	128 (16.4)	129 (16.1)	237 (30.8)	494 (21)
60 and above	126 (16.1)	110 (13.7)	189 (24.5)	425 (18.1)
Type of facility				
MC	144 (18.4)	-	200 (26)	344 (14.6)
DH	342 (43.7)	440 (54.9)	300 (39)	1082 (46)

CHC	167 (21.4)	220 (27.4)	148 (19.2)	537 (22.8)
PHC	129 (16.5)	142 (17.7)	122 (15.8)	391 (16.6)
Total	782 (33.2)	802 (34.1)	770 (32.7)	2354 (100)

Table 6: Average number of drugs prescribed by age, sex and type of health facility in the state of Chhattisgarh, Haryana and Tamil Nadu

	Chhattisgarh Mean (S.D)	**Haryana Mean (S.D)**	**Tamil Nadu Mean (S.D)**
Gender			
Male	3.48 (1.6)	2.95 (1.59)	2.66 (1.05)
Female	4.22 (1.89)	3.46 (2.55)	2.7 (1.06)
Age			
0-4	3.11 (1.64)	2.38 (1.68)	2 (0.70)
5-17	3.32 (1.28)	3.19 (1.91)	2.73 (1.10)
18-44	4.11 (1.94)	3.47 (2.58)	2.78 (1.08)
45-59	3.74 (1.53)	3.03 (1.55)	2.66 (1.02)
60 and above	3.81 (1.70)	2.96 (1.36)	2.57 (1.04)
Type of facility			
MC	3.68 (1.68)	-	2.8 (1.11)
DH	3.86 (1.81)	3.69 (2.66)	2.91 (1.06)
CHC	4.08 (1.68)	2.85 (1.20)	2.33 (0.90)
PHC	4.05 (2.06)	2.46 (1.35)	2.38 (0.94)
Total	3.90 (1.81)	3.24 (2.21)	2.69 (1.05)

Figure 5: Proportion of drugs prescribed in abbreviated form and by generic name at public health facilities in the states of Chhattisgarh, Haryana and Tamil Nadu



	Chattisgarh				Haryana			Tamil Nadu				Total			
	PHC	CHC	DH	MC	PHC	CHC	DH	PHC	CHC	DH	MC	PHC	CHC	DH	MC
Abbreviated	31.2	31.6	26.7	41.4	44	34.7	32.5	3.9	4.9	9.4	10.4	27.6	27.1	25.2	25.5
Generic	58.3	59.3	62.3	32.8	45	55.7	53.9	88.1	83.4	89.1	84.6	62.5	63	64.7	59.4

In total, 1753 (74.5%) patients were prescribed drugs exclusively from the EDL across all the three states, while 3.5% of the patients were prescribed all drugs not included in EDL (**Table 7**). Tamil Nadu had the highest number of drugs prescribed from EDL (96.2%) (**Figure 6**). Haryana and Chhattisgarh had 74.7% of drugs prescribed from EDL. Amongst the healthcare facilities, DH had the most drugs prescribed from EDL (78.9%) out of all levels of healthcare facilities.

Figure 6: Proportion of drugs prescribed by EDL in public health facilities of the state of Chhattisgarh, Haryana and Tamil Nadu

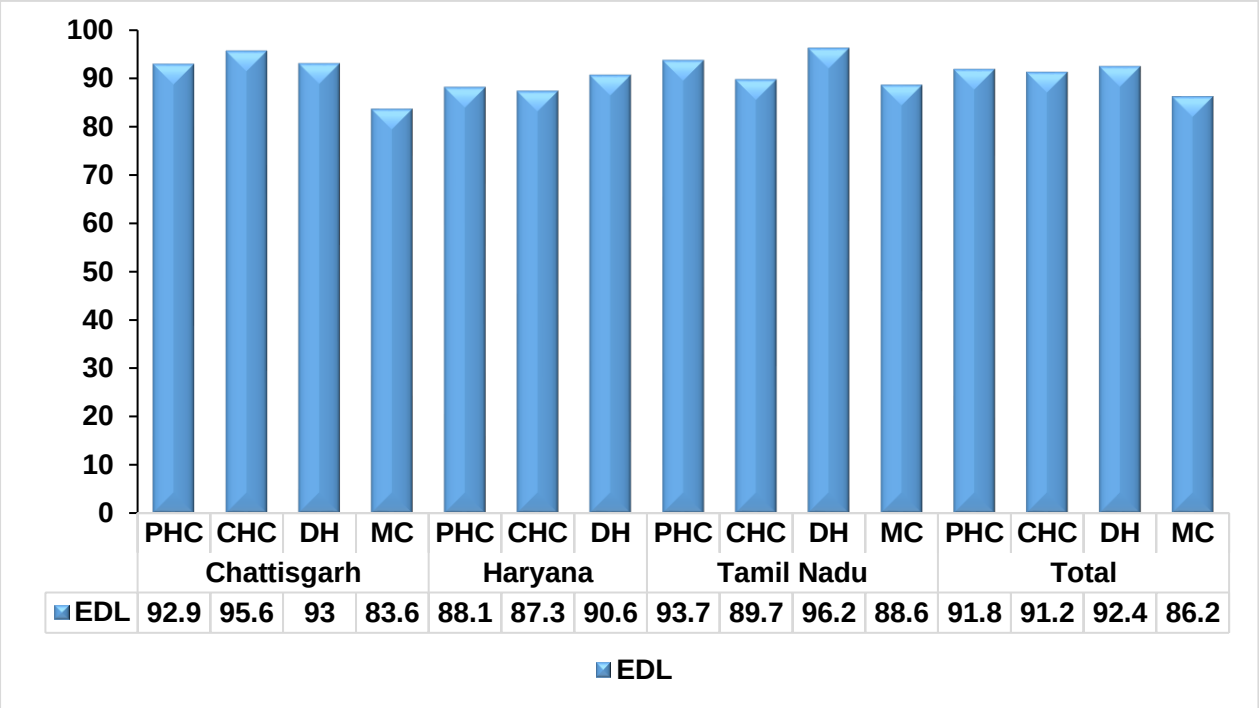


Table 7: Proportion of drugs prescribed from EDL at public health facilities in the states of Chhattisgarh, Haryana and Tamil Nadu

	Chhattisgarh				Haryana				Tamil Nadu				Total			
	All EDL n (%)	**Less than 50% EDL n (%)**	**At least 50% EDL n (%)**	**No EDL n (%)**	**All EDL n (%)**	**Less than 50% EDL n (%)**	**At least 50% EDL n (%)**	**No EDL n (%)**	**All EDL n (%)**	**Less than 50% EDL n (%)**	**At least 50% EDL n (%)**	**No EDL n (%)**	**All EDL n (%)**	**Less than 50% EDL n (%)**	**At least 50% EDL n (%)**	**No EDL n (%)**
Gender																
Male	261 (78.1)	2 (0.6)	60 (18)	11 (3.3)	225 (65.6)	5 (1.5)	84 (24.5)	29 (8.5)	216 (78.8)	0 (0)	51 (18.6)	7 (2.6)	702 (73.8)	7 (0.7)	195 (20.5)	47 (4.9)
Female	323 (72.1)	3 (0.7)	117 (26.1)	5 (1.1)	314 (68.4)	6 (1.3)	116 (25.3)	23 (5.0)	414 (83.5)	0 (0)	74 (14.9)	8 (1.6)	1051 (74.9)	9 (0.6)	307 (21.9)	36 (2.6)
Age																
0-4	23 (65.7)	0 (0)	12 (34.3)	0 (0)	19 (47.5)	1 (2.5)	13 (32.5)	7 (17.5)	5 (100)	0 (0)	0 (0)	0 (0)	47 (58.8)	1 (1.2)	25 (31.2)	7 (8.8)
5-17	45 (80.4)	1 (1.8)	9 (16.1)	1 (1.8)	48 (59.3)	1 (1.2)	27 (33.3)	5 (6.2)	10 (90.9)	0 (0)	1 (9.1)	0 (0)	103 (69.6)	2 (1.4)	37 (25.0)	6 (4.1)
18-44	307 (70.4)	3 (0.7)	118 (27.1)	8 (1.8)	303 (68.6)	6 (1.4)	112 (25.3)	21 (4.8)	271 (82.6)	0 (0)	46 (14)	11 (3.4)	881 (73.1)	9 (0.7)	276 (22.9)	40 (3.3)
45-59	99 (77.3)	0 (0)	26 (20.3)	3 (2.3)	89 (69)	3 (2.3)	28 (21.7)	9 (7.0)	185 (78.1)	0 (0)	49 (20.7)	3 (1.3)	373 (75.5)	3 (0.6)	103 (20.9)	15 (3.0)
60 and above	109 (86.5)	1 (0.8)	12 (9.5)	4 (3.2)	80 (72.7)	0 (0)	20 (18.2)	10 (9.1)	159 (84.1)	0 (0)	29 (15.3)	1 (0.5)	348 (81.9)	1 (0.2)	66 (15.5)	15 (3.5)
Type of facility																
MC	89 (61.8)	3 (2.1)	41 (28.5)	11 (7.6)	-	-	-	-	146 (73.0)	0 (0)	50 (25.0)	4 (2)	235 (68.3)	3 (0.9)	91 (26.5)	15 (4.4)
DH	265 (77.5)	2 (0.6)	71 (20.8)	4 (1.2)	321 (73.0)	8 (1.8)	104 (23.6)	7 (1.6)	267 (89)	0 (0)	30 (10)	3 (1)	853 (78.8)	10 (0.9)	205 (18.9)	14 (1.3)
CHC	138 (82.6)	0 (0)	28 (16.8)	1 (0.6)	144 (65.5)	1 (0.5)	72 (32.7)	3 (1.4)	115 (76.7)	0 (0)	29 (19.3)	6 (4)	397 (73.9)	1 (0.2)	129 (24.0)	10 (1.9)
PHC	92 (71.3)	0 (0)	37 (28.7)	0 (0)	74 (52.1)	2 (1.4)	24 (16.9)	42 (29.6)	102 (85)	0 (0)	16 (13.3)	2 (1.7)	268 (68.5)	2 (0.5)	77 (19.7)	44 (11.3)
Total	584 (74.7)	5 (0.6)	177 (22.6)	16 (2.0)	539 (74.7)	11 (1.4)	200 (24.9)	52 (6.5)	630 (81.8)	0 (0)	125 (16.2)	15 (1.9)	1753 (74.5)	16 (0.7)	502 (21.3)	83 (3.5)

Table 8 shows the proportion of patients who were prescribed injections (for any ailment) and antibiotics in the three selected states. The highest proportion of injections were prescribed in Chhattisgarh (30.2%) and antibiotics in Haryana (48.6%). Prescription of injections and antibiotics were almost similar between males and females. Children < 5 years received maximum prescription of injections (18.8%), while children between 5 and 17 years received maximum prescription of antibiotics (57.4%). With respect to type of health facilities, prescription of injections was maximum at MC level (19.5%), while the prescription of antibiotics was maximum at CHC level (39.3%).

Table 8: Proportion of patients who were prescribed injections and antibiotics in Chhattisgarh, Haryana and Tamil Nadu

	Chhattisgarh		Haryana		Tamil Nadu		Total	
	Injection n (%)	**Antibiotic n (%)**	**Injection n (%)**	**Antibiotic n (%)**	**Injection n (%)**	**Antibiotic n (%)**	**Injection n (%)**	**Antibiotic n (%)**
Gender								
Male	99 (29.6)	151 (45.2)	13 (3.8)	166 (48.4)	16 (6.5)	19 (6.9)	128 (13.5)	336 (35.3)
Female	137 (30.6)	211 (47.1)	39 (8.5)	225 (49)	16 (5.8)	68 (13.7)	192 (13.7)	504 (35.9)
Age								
0-4	13 (37.1)	21 (60)	2 (5)	21 (52.5)	0 (0)	0 (0)	15 (18.8)	42 (52.5)
5-17	21 (37.5)	36 (64.3)	5 (6.2)	47 (58)	0 (0)	2 (18.2)	26 (17.6)	85 (57.4)
18-44	123 (28.2)	207 (47.5)	40 (9)	221 (50)	19 (5.8)	62 (18.9)	182 (15.1)	490 (40.6)
45-59	40 (31.2)	53 (41.4)	3 (2.3)	46 (35.7)	8 (3.4)	18 (7.6)	51 (10.3)	117 (23.7)
60 and above	38 (30.2)	44 (34.9)	2 (1.8)	56 (50.9)	5 (2.6)	5 (2.6)	45 (10.6)	105 (24.7)
Type of facility								
MC	42 (29.2)	59 (41)	0 (0)	0 (0)	25 (12.5)	13 (6.5)	67 (19.5)	72 (20.9)
DH	88 (25.7)	144 (42.1)	50(11.4)	201 (45.7)	6 (2)	63 (21)	144 (13.3)	408 (37.7)
CHC	73 (43.7)	95 (56.9)	1 (0.5)	112 (50.9)	0 (0)	4 (2.7)	74 (13.8)	211 (39.3)
PHC	33 (25.6)	64 (49.6)	1 (0.7)	78 (54.9)	1 (0.8)	7 (5.8)	35 (9)	149 (38.1)
Total	236 (30.2)	361 (46.2)	52 (6.5)	391 (48.8)	32 (4.2)	87 (11.3)	320 (13.6)	839 (35.7)

Incidence of poly pharmacy was highest in Chhattisgarh as almost one-third of the patients were prescribed five or more drugs. The incidence was least in Tamil Nadu with only 5% of the patients being prescribed five or more drugs (**Table 9**).

Table 9: Incidence of poly pharmacy in states of Chhattisgarh, Haryana and Tamil Nadu

No. of drugs per prescription	Chhattisgarh n (%)	Haryana n (%)	Tamil Nadu n (%)	Overall n (%)
1	45 (5.8)	82 (10.8)	99 (12.9)	226 (9.8)
2	118 (15.1)	194 (25.6)	254 (33)	566 (24.5)
3	188 (24)	225 (29.7)	245 (31.8)	658 (28.5)
4	200 (25.6)	157 (20.7)	134 (17.4)	491 (21.3)
5	117 (15)	42 (5.5)	38 (4.9)	197 (8.5)
>5	114 (14.6)	58 (7.7)	0 (0)	172 (7.4)

On assessing the encounter of patients with drugs from different therapeutic categories, analgesics and vitamins were found to be the most prescribed drugs in all the three surveyed states. Antibiotics and antacids predominated prescriptions in Chhattisgarh and Haryana whereas more patients were prescribed anti-hypertensives and anti-diabetics in Tamil Nadu (**Table 10**).

Table 10: Proportion of patient encounters by drug therapeutic categories in Chhattisgarh, Haryana and Tamil Nadu.

Therapeutic category	Chhattisgarh n (%)	Haryana n (%)	Tamil Nadu n (%)
Analgesic/antipyretics/NSAIDS	352 (45)	410 (51.1)	282 (36.6)
Antibiotics	362 (46.3)	391 (48.8)	87 (11.3)
Antacid	288 (36.8)	329 (41)	133 (17.3)
Vitamins and Minerals	437 (55.9)	278 (34.7)	423 (54.9)
Anti-depressant/mood stabilizer-Anti-psychotic/Anti-Epileptic	18 (2.3)	59 (7.4)	14 (1.8)
Miscellaneous	270 (34.5)	156 (19.5)	56 (7.3)
Anti-Hypertensive	51 (6.5)	43 (5.4)	262 (34)
Anti-Allergic	124 (15.9)	222 (27.7)	24 (3.1)
Anti-Anxiety	8 (1)	25 (3.1)	2 (0.3)
Anti-Fungal	34 (4.3)	106 (13.2)	32 (4.2)
Anti-Heart Failure/Thrombolytic	13 (1.7)	12 (1.5)	46 (6)
Anti-Asthmatic	18 (2.3)	23 (2.9)	6 (0.8)
Anti-Anginal	3 (0.4)	5 (0.6)	15 (1.9)
Anti-Diabetic	57 (7.3)	16 (2)	196 (25.5)

Discussion:

This was one of the very few surveys attempted to understand the drug prescription pattern in different levels of healthcare facilities across India. Though several studies were conducted in this regard, majority of them were conducted in a single centre or focusses primarily on single class of drugs or level of healthcare.(49-55) Our study findings have raised serious concern over the excessive use of antibiotics, injections and polypharmacy across different levels of healthcare in India. However, the positive finding was that majority of the patients are still prescribed drugs from EDL and in generic form at all the surveyed states in India. These findings were almost similar to the previous survey conducted in two North states (Haryana and Punjab).(43)

A key indicator for ideal prescription practices is the mean number of drugs per prescription. The mean number of drugs ranges widely from 2.7 to 3.9 across the three states with maximum drug prescription and polypharmacy in Chhattisgarh (3.9) followed by Haryana (3.2) and Tamil Nadu (2.7). It was significantly higher than the results obtained in the previous studies(49, 51, 54) and more than two times that of ideal standards (1.6-1.8).(56) The higher number of prescribed drugs in this study could be attributed to an increased demand for supplementary drugs and antibiotics due to COVID-19 pandemic and associated health consciousness. This might also be the reason for analgesics/antipyretics, antibiotics and vitamins being the most prescribed therapeutic categories in the present study. The higher drug requirement could also be due to seasonal variation of infections. But risk for adverse drug reactions increases with use of more drugs and polypharmacy. Hence, it is essential to provide proper training to the prescribers for judicious and timely use of drug combinations and supplements. In addition, policy or guidance for appropriate antibiotic prescription should be established in facilities at all the levels of healthcare and the same should be closely monitored through the prescription audits.

Around 70-80% of the patients received all of their drugs from EDL list, with the lowest being from Haryana and highest from Tamil Nadu. This was comparatively higher than the findings observed from previous literatures where the proportion was as low as 37% or ranging around 50-70%.(49, 57, 58) This higher proportion of EDL drugs being prescribed is reassuring and would result in better implementation of STGs and prescriptions.

The total proportion of generic medicines prescribed in all three states ranged from 59% at MC level to about 65% at DH level. The lowest proportion of generic drug prescription was recorded from Chhattisgarh followed by Haryana. In contrary, Tamil Nadu had significantly higher drugs being prescribed in generic form. Public health system in Tamil Nadu has strict mechanisms restricting doctors to prescribe drugs by trade names or promoting purchase of drugs from open market. Such stringent mechanisms, protocols and guidelines need to be in place across all the states to encourage the prescription of EDL and generic drugs. Generic prescription would also help in reducing misinterpretation of the sounding trade names.(57)

This study has certain strengths. This was a multicentric study conducted amongst the representative states across India through stratification based on the medicine share in total OOPE of patients. This study has also managed to cover the primary, secondary and tertiary tiers of health system. However, there were certain limitations in our study. The ongoing COVID-19 pandemic has limited our study plan and created certain technical and administrative restrictions in collecting the data from facilities (unable to collect data from MC in Haryana). Paper based data collection and subsequent entry in the Microsoft excel sheet

could have caused entry errors. However, we have tried to overcome this limitation by conducted regular data quality checks. We did not account for the drop-outs, i.e., patients not requiring drugs after the consultation or patients not purchasing the drugs from hospital pharmacy. Due to the ensuing COVID-19 pandemic, there might be a possibility of drug shortages during the data collection period, which could influence the prescribing pattern. Further, Various, clinical and behavioural characteristics of the patient, pressures from drug firms, behaviour pattern of patients, peer influence of physicians (community of physicians), and education and advertising affects physician's prescription pattern. All these factors will further affect the expenditure on medicines.(59-61) However, this was beyond the scope of the present study, which did not try to assess the factors influencing the prescription behaviour. However, the prescription practices have been analysed and reported. Understanding the factors influencing prescription patterns could be further research area.

In spite of these limitations, our study has several programmatic implications. Current survey provides important baseline information on the prescription pattern of medications in all the three levels of healthcare in India. This information will guide the policymakers for evidence-based planning and decision making to overcome the challenges in irrational use of drugs in public health facilities. Various recommendations have been proposed in the previous literature to improve the drug prescription behaviour such as development of evidence based STGs, information pamphlets to make the patients aware about the rational use of medicines. However, special situations as the one we are facing now requires intensive planning and innovative solutions. Pharmacovigilance, drug utilization, pharmacoeconomic and pharmacoepidemiologic studies should be conducted to provide relevant and reliable information to revise these STGs and develop patient-oriented packages and policies. Similar studies should be performed by including private sector and compare the level of irrational use of medicines in the healthcare facilities. More intensive research critically analysing and finding the best practices followed during such special situations like pandemic should be conducted.

Chapter 3

A novel methodology to estimate the contribution of medicines in out-of-pocket expenditure.

3.1Introduction

Providing affordable and quality healthcare is a major challenge in low- and middle-income countries (LMICs). Like many other LMICs, households in India bear significant financial burden on account of medical treatment and nearly three-fourth (65%) of all healthcare payments are paid out of pocket (OOP) at the point of service delivery.(1) Medicines are credited to be the single largest component of these OOP payments. Nearly 70% of the total OOP payments in India are reported to be attributable to medicines.(2) Since OOP are the major share of current health expenditure (CHE), medicines are also estimated to account for 36.8% of the CHE.(1)

The share of spending on medicines as a proportion of THE in India is 2-5 times of what is reported in developed countries (7% to 15%).(1, 5, 62) This difference may be potentially attributed to either or multiple of the following three reasons – high prescription or consumption rate of medicines; high medicine prices; or high burden of non-communicable diseases (NCDs) in India. However, there is no evidence to support either of these reasons. The medicine prescription rate in India is less than the developed countries. A study on antibiotic consumption showed that antibiotic consumption in India 16.0 DID (Defined daily dose per 1000 inhabitants' per day), which was significantly below the mean consumption among European Surveillance of Antimicrobial Consumption Network (ESAC-Net) countries (21.5 DID).(63) Another study showed similar results where defined daily dose (DDD)/1000 inhabitants/day in India for metformin was 10.5 whereas the DDD ranged from 12.6-20.9 in developed countries like France, Germany, Australia, United Kingdom. Similar results were seen in other class of drugs for diabetic treatment in these studies.(64, 65) Similarly, average number of drugs for neonates prescribed in intensive care unit were 5.7 compared to 11.1 in the developed country.(66, 67) Secondly, the prices of medicines in India, are lesser than the developed countries. The nominal price of new medicine for Hepatitis C for a 12-week course was around US$ 539 in India which was 120 times less than USA (US$64,680).(68) Another study reported that whether it is generic or branded, the global median price for medicine is -73.8% for India, when compared other high and medium income countries.(69) Another study reported that the median price of patented drug was minimum in India ($ 1515) and maximum in USA ($ 8694). Similarly, median price of generic drug was less than 1/5th in India.(70) Lastly, the burden of NCDs, which could also be attributed a higher spending on medicines, are also lower in India as compared to other countries. The share of mortality due to NCDs in India stands at 63%, compared to 86-91% among countries which have a much lower share of spending on medicines.(71) If none of these explanations justify the high share of medicine in THE in India, is this often reported finding a result of the methodology of household surveys

which are used for collect data on OOP expenditures,(22) and further the application of this evidence to National Health Accounts.(1)

As is the case with several LMICs, sample survey is carried out in India to determine the extent of health care utilization and OOP expenditures. In these national sample surveys (NSS), individuals in households are interviewed to recall for any illness or hospitalization, type of health care provider sought, and its consequent OOP expenditures. Further, the data collected on OOP expenditures – both in outpatient setting and hospitalization, are further disaggregated into its constituents such as doctor fee, medicines, diagnostics, procedures, travel, food, boarding or lodging etc. The OOP expenditure per hospitalization is multiplied by the annual hospitalization rate to determine total OOP spent on hospitalization. Similarly, the OOP expenditure per outpatient visit is multiplied with the fortnightly outpatient utilization rate times a factor of 24.3. The factor of 24.3 is multiplied to determine the annual number of outpatient visits.(72)

Nearly 41.4% of patients in rural India access care at a single doctor clinic or registered medical practitioner or informal provider.(22) The services during such a transaction usually include a doctor consultation, prescription, provision of all or some medicines, and occasionally a few diagnostic tests. While the patient makes OOP payment for such a service provision, breakup into costs for each service rendered is usually not provided by the provider. For the patient, the tangible service obtained is medicine. In such a situation, when an individual is interviewed during the survey regarding breakup of OOP expenditure – he or she is likely to report medicines as the basis of OOP expenditure. Since, the share of outpatient OOP expenditure in THE is very high consequently the share of medicines in THE seems to be overestimated in India. The fact that the share of medicines in THE is overestimated could also be considered true as most of the costing studies which estimate the cost of provision of services report the share of medicines at primary, secondary and tertiary care facilities in the range of 11.3% to 21.8%.(73)

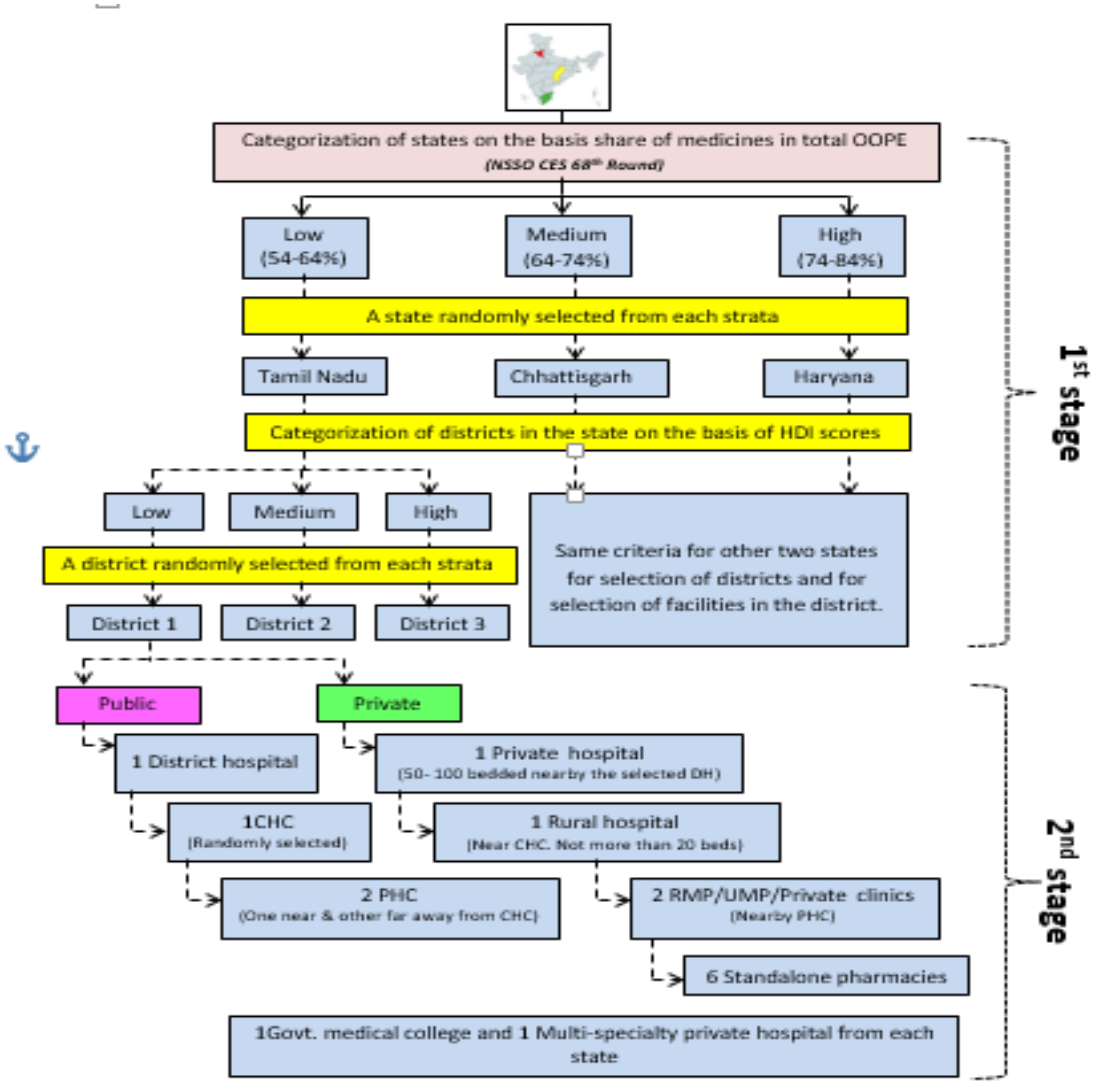
Since this is an important evidence to support policies for universal health coverage, the National Knowledge Platform of the Government of India identified the issue of factors affecting OOP expenditures as an important area of research.(74-77) In view of this, we undertook the present study to investigate the share of medicines in overall OOP expenditure and financial risk protection as a result of medicines, using a novel methodology.

3.2 Methodology

3.2.1 Study setting and Sampling

For the selection of the states, districts and facilities, a multi-stage stratified random sampling was followed **(Figure 7).** In the first stage, states were classified into three categories (Low, Medium and High) according to share of medicines in overall OOP expenditure.(26) One state was randomly selected from each strata. Next, districts in each state were categorized into three categories based on human development index (HDI) scores and 1 district from each stratum was randomly chosen i.e., 3 districts per state. This was done since the HDI includes indicators which are representative of important demand side characteristics which explain health status, care seeking and ability to pay for OOP expenditure.

Figure 7: Flowchart showing selection criteria for section of states, districts and facilities



In the second stage, the health facilities for the study were selected from the list of public and private healthcare facilities in the district. In the public sector, one tertiary care hospital with the highest patient load was selected from each state. Further, District Hospital (DH), 1 Community Health Centre (CHC) and two Primary Health Centres (PHC) were selected from each district selected under the study. While the CHCs were selected randomly, the two PHCs included were the ones geographically closest and farthest to the CHC. Therefore, a total of 13 public health care facilities, including 1 tertiary care hospital, 3 DH, 3 CHCs and 6 PHCs, were selected in each state. An equivalent number of facilities were selected for study from the private sector. This selection was done keeping in consideration equivalency to the level of healthcare services provided by the chosen public healthcare facility in the same city, to ensure the comparability of infrastructure, resources and service outputs. In addition to this, 6 stand-alone pharmacies (from both rural and urban areas) were randomly selected from each district on the basis of proportion of rural and urban population. Thus, the overall study sample included 44 health care facilities (13 public, 13 private and 18 stand-alone pharmacies) in each state, adding up to 132 health care facilities in three selected states **(Table 11).**

Table 11: Facility wise sample size of the study

Category of Facility	**Total Number of Facilities**	**Number of study participants**			
		Haryana	**Chhattisgarh**	**Tamil Nadu**	**Total**
Public facilities					
Medical college	3	140	140	140	420
District hospital	9	300	300	300	900
Community health centre	9	150	150	150	450
Primary health centre	18	120	120	120	360
Private facilities					
Multi-specialty hospital (More than 100 bedded)	3	140	140	140	420
Private hospital (50- 100 bedded)	9	300	300	300	900
Rural hospitals (Not more than 20 beds)	9	150	150	150	450
RMP[1]/UMP[2]/Private clinic	18	120	120	120	360
Standalone pharmacies	54	360	360	360	1080
Total	**132**	**1780**	**1780**	**1780**	**5340**

[1] RMP - Registered Medical Practitioner
[2] UMP - Unregistered Medical Practitioner

A total of 1780 patients were decided to be interviewed at the selected facilities in each state, with a total of 5340 patients from the three states. These patients were to be selected from public health facilities, private health facilities and in standalone pharmacies of the state in proportion of their service delivery outputs (Table 1). The sample size in each facility was distributed in outpatient and inpatient setting in a ratio of 70:30, as 60-70% of OOPE occur at outpatient care.(78) For outpatient care, patients were recruited at the pharmacy of the facility so that patients from all specialties could be captured at the secondary and tertiary care hospital. Patients were selected consecutively till the sample size for that facility was completed. For hospitalized cases in multispecialty hospitals, the sample size was distributed equally in four major specialties i.e., Medicine, Obstetrics and Gynaecology, Surgery and Paediatrics. Hospitalized patients were recruited at the time of discharge, assuming that most of the expenditure has been incurred by that time.

3.2.2 Data collection

Patients were interviewed to collect data on their general socio-demographic and clinical characteristics as per health care provider. Further, data on medicines was abstracted from prescription slips in terms of the name of medicine, dose, duration, route of administration, and quantity of each medicine on a structured schedule. Thirdly, data on OOP expenditures incurred at the health facility on medicines, consultation charges, and registration or other user fee, travelling, diagnostics etc. was collected. Each patient was also given a follow up call 1 day after the recruitment to collect data on OOP expenditure incurred on medicines or diagnostic tests from facilities other than the place of recruitment.

For inpatients, a list of patients to be discharge from the facility on the day of survey was obtained from each of the four selected departments. These patients were then interviewed for obtaining all the information as outlined above. Additionally, information regarding doctor/surgeon fee, duration of stay, bed charges, consumables etc. were also elicited. The hospitalized patients were also followed up after 1 day to collect information on any additional OOP expenditure incurred on medicines after the discharge.

Further, both outpatient care and inpatient care patients were followed up telephonically on 15th day of their last consultation or day of discharge. During the telephonic follow-up interviews, data were collected on any further consultation if made, type of health care provider, OOP expenditures incurred at the health facility on medicines, consultation charges, registration or other user fee, travelling, diagnostics etc. This 15 days' period for subsequent follow-up was considered appropriate in order to standardize with existing surveys which interview individuals for OOP expenditure for outpatient visits using 15 days recall period.

For standalone pharmacies, patients were interviewed at the time of their visit to buy medicines. Data on details of the healthcare facility visited for consultation before coming to the pharmacy, and OOPE incurred on consultation, medicines, diagnostics etc. were collected from them. Rest of the data collection process and follow-up telephonic call on 15th day was similar to the outpatients enrolled at health facilities.

In addition to this, average market prices of medicines and diagnostic tests were extracted from the pharmacists of each study area to estimate actual OOP expenditure on medicines and diagnostics. This information was collected by interviewing pharmacists for the lowest and the highest market price of each medicine. Further, prices listed on online pharmacy portals & diagnostic tests websites, and documents of Pradhan Mantri Jan Aushadi Pariyojna was also used as reference for average market prices.

3.2.3 Data Analysis

Data, after cleaning, was subjected to descriptive analysis. Mean OOP expenditures along with their standard errors were computed for different types of health facilities. The share of expenditure on medicines and diagnostics was estimated as reported by patients. In view of the system of provider payments, especially in private facilities, which leaves the patients unable to accurately recall the break-up of OOP expenditure, we made a second set of estimations.

In this alternative scenario, we generated a revised estimate of OOP expenditure after imputing the average market prices based on the type and quantity of medicines prescribed. If the overall estimated OOP expenditure on medicines was less than the patient reported value, we adjusted the balance amount by inflating the doctor consultation fee (outpatient care) or hospitalization charges (inpatient care). We computed the mean OOP expenditure and the share of OOP expenditure on medicines using both the traditional and alternative imputation techniques. We also computed the differences in the patient reported and estimated OOPE for medicines and diagnostics according to type of care, type of facility and type of illness.

3.2.4 Ethics

An ethical approval was obtained from Institute Ethics Committee of the Post Graduate Institute of Medical Education and Research, Chandigarh and Jawaharlal Institute of Postgraduate Medical Education & Research, Puducherry. Participants were informed about the voluntary nature of their participation and the confidentiality of information collected from

them. Further, administrative approvals for data collection were obtained from the health department in three states.

3.3 Results

For collecting expenditure on health services received in public and private health care facilities and standalone pharmacies, a total of 5827 patients were interviewed against the sample size of 5340 patients. **Table 12** demonstrates the characteristics of patients receiving health services from OPD and IPD. More than half of patient attended private health facilities (53%), around 40% of patient attended public health facilities, and rest received services from standalone pharmacies (7%). Around 90.1% of the subjects included had received services from outpatient care and 9% from inpatient care. **(Table 12)**

Table 12: Characteristics of the patients receiving OPD and IPD services enrolled in the study.

Characteristics of patients	**Categories**	**OPD Care N (%)**	**IPD Care N (%)**	**Total N (%)**
Age of the patients	**0-14**	438(8.3)	38(6.6)	476(8.2)
	15-45	2990(56.9)	391(68)	3381(58)
	46-60	1180(22.5)	93(16.2)	1273(21.8)
	>60	644(12.3)	53(9.2)	697(12)
Sex	**Male**	2497(47.5)	191(33.2)	2688(46.1)
	Female	2755(52.5)	384(66.8)	3139(53.9)
Residence	**Rural**	3215(61.2)	358(62.3)	1189(20.4)
	Urban	2037(38.8)	217(37.7)	4638(79.6)
Education level	**Illiterate**	1078(20.5)	111(19.3)	1189(20.4)
	Up to primary	157(3)	5(0.9)	162(2.8)
	Up to Middle	1320(25.1)	135(23.5)	1455(25)
	Up to Matric	816(15.5)	118(20.5)	934(16)
	Higher secondary/certificate/other	850(16.2)	93(16.2)	943(16.2)

	Graduate and above	1031(19.6)	113(19.7)	1144(19.6)
Employment	**Self Employed**	977(18.6)	73(12.7)	1050(18)
	Casual Labour	369(7)	33(5.7)	402(6.9)
	Services	979(18.6)	70(12.2)	1049(18)
	Unemployed	2927(55.7)	399(69.4)	3326(57.1)
Socio-economics Status	**Poorest**	826(18.8)	150(30.4)	976(16.7)
	Poor	889(20.3)	87(17.6)	976(16.7)
	Medium	891(20.3)	86(17.4)	977(16.8)
	Rich	878(20)	98(19.9)	976(16.7)
	Richest	904(20.6)	72(14.6)	976(16.7)
Insurance coverage	**Government funded insurance#**	2131(40.6)	314(54.6)	2445(42)
	Social health insurance (CGHS, ESIS)	9(0.2)	1(0.2)	10(0.2)
	Employer supported voluntary health protection	20(0.4)	2(0.3)	22(0.4)
	Individual voluntary public insurance	248(4.7)	11(1.9)	259(4.4)
	Individual voluntary private insurance	25(0.5)	(0)	476(0.43)
	Others	38(0.7)	2(0.3)	40(0.7)
	Not covered	2781(53)	245(42.6)	3026(51.9)
Health care provider	**Public**	1935(36.8)	419(72.8)	2354(40.4)
	Private	2936(55.9)	156(27.1)	3092(53.1)
	Standalone pharmacy*	389(7.2)	-	389(6.7)
Total		**5252(90.1)**	**575(9.9)**	**5827(100)**

**** Only OPD patients were interviewed at standalone pharmacies***

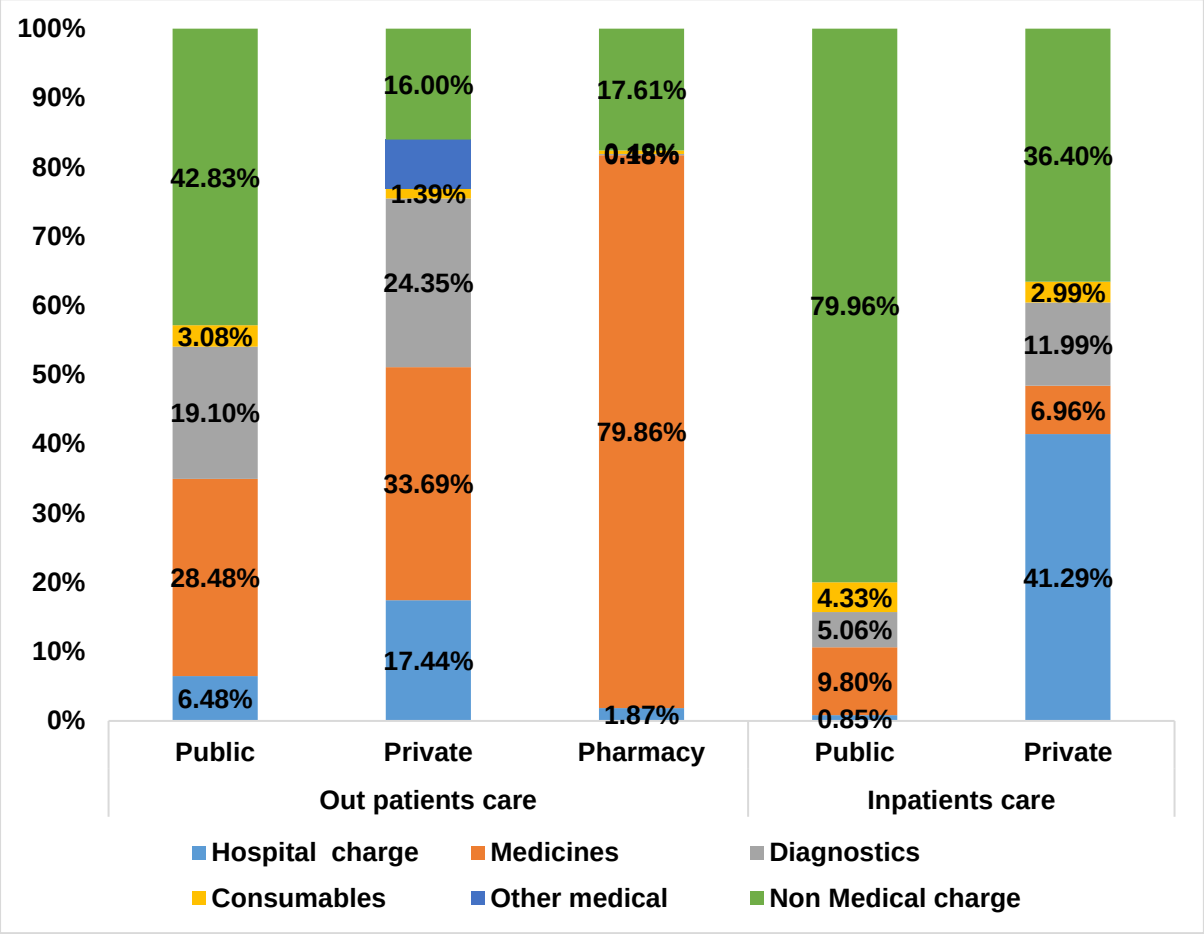
The study included 2688 men (46.1%) and 3139 women (53.9%) and majority of the patients (58%) were from 15-45 age group. Around 80% of the patients has their residence in urban area. Further most of the patients were literate (80%) and nearly half of the patients were employed. Nearly 48% of the patients were having insurance coverage, of which around 88% (2445) have been insured under government insurance scheme (Centre as well as state sponsored schemes) **(Table 12).** The mean OOPE in out-patient care was INR 815.2 (S.E: 23.2)). Overall mean OOPE for outpatient care in private and public health facilities was INR 1212.1 (S.E: 31.5) and INR 340.9 (S.E: 37.1) respectively **(Table 13).** Further, medicines (33.6%) formed a major part of OOPE in private health facilities in out-patient care, followed by diagnostics (24.3%) and consultation charges (17.4%), whereas in public health facilities, a major chunk of expenditure was spent on non-medical items (42.8%) like transportation etc., followed by diagnostics (28.8%) and medicines (19.1%) **(Figure 8).**

Table 13: Mean OOPE incurred by patients for Out Patient care (OPD) and In Patient care (IPD) at public and private health facilities.

Categories	Outpatient care				Inpatient care		
	Public	Private	Pharmacy	Overall	Public	Private	Overall
	Mean (SE)	Mean (SE)	Mean (SE)	Mean (SE)	Mean (SE)	Mean (SE)	Mean (SE)
Hospital charge #	22.1(12.3)	211.4(4.1)	3.1(1.3)	126.6(5.3	14.7(4.9)	5454.8(145.2)	1490.6(274.1)
Medicines	97.1(15)	408.3(12.5)	132.4(10.8)	273.6(9.2)	169(51.1)	919(129.7)	372.5(53)
Diagnostics	65.1(11.6)	295.2(13.6)	0.3(0.3)	189(8.9)	87.2(22.1)	1583.6(145.2)	493.2(50.7)
Consumables	10.5(8)	16.8(3.5)	0.8(0.8)	13.3(3.5)	74.6(20.9)	395.5(82.5)	161.7(27.7)
Other medical expenditure	0(0)	86.6(6.7)	0(0)	48.4(3.8)	0(0)	173.4(41)	47(11.6)
Medical Exp. (1)	194.9(31.6)	1018.2(24.3)	136.5(11)	650.9(18.8)	345.5(61.8)	8526.2(1054.5)	2565(326.4)
Non-Medical Exp. (2) ##	146(15.9)	1993.9(14.4)	29.2(1.6)	164.3(10)	1378.8(119.2)	4683.9(384.1)	2275.5(148.7)
Total OOPE (1+2)	340.9(37.1)	1212.1(31.5)	165.8(11.3)	815.2(23.2)	1724.3(148.4)	13210.1(1325.1)	4840.5(431)

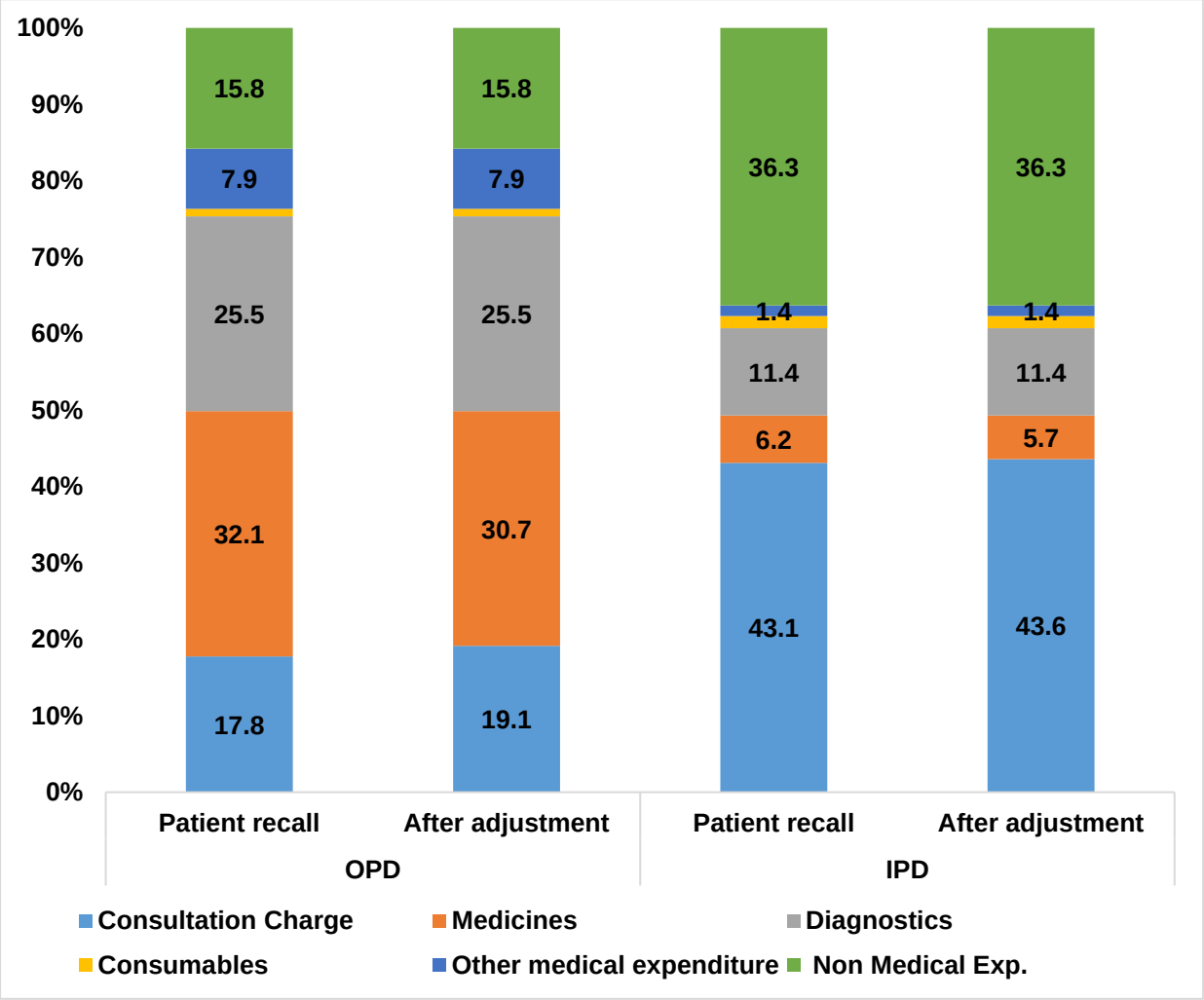
#Hospital charges include consultation fee, registeration fee, bed charges and Doctor and surgeon fee.
Non-medical expenditure include transport, stay, food and others.

Figure 8: Determinants of OOPE incurred at public & private health facilities and at standalone pharmacies.



The mean OOPE on inpatient care was INR 4840 (S.E:431). Overall mean OOPE for OPD care in private and public health facilities was INR 13210 (S.E:1325.1) and INR 1724.3 (S.E:148.4) respectively **(Table 13).** Hospital charges, which included registration fee, consultation fee, bed charges, contributed to 41.2% of total OOPE in private health facilities (Figure 2). Medicines only contributed to 9.8% and 6.9% of total OOPE in public and private health facilities respectively **(Figure 8).** A detailed state wise analysis of OOPE is given in the annexures **(Table 1 and 2 Supplementary).**

Figure 9: Adjustment in share of medicines in total OOPE at private health facilities as per market prices.



While the patient reported results showed medicines contributed to around 32% and 6.2% of total OOPE in outpatient care and inpatient care respectively, after adjustment this was reduced to 30.7% for outpatient care and 5.7% for inpatient care. **(Figure 9).** The mean OOPE was INR 352.8 (S.E:11.7) and INR 773.7(S.E:127.1) in outpatient care and inpatient care respectively on patient recall, which reduced to INR 337.8(S.E:11.7) and INR 709.8(S.E:120) for outpatient care and inpatient care after adjustment as per the alternative computations. **(Table 5 Supplementary)**

In comparison to our study, NSSO 75th round reports nearly two times mean OOPE in outpatient care at public health facilities. At private health facilities, the mean OOPE for outpatient care is nearly similar to that reported by NSSO75th round **(Table 14)**. Expenditure on medicines in present study is less in comparison to NSSO at both public (INR 97.1 S.E:14.9) and private health facilities (INR 408.3S.E:12.5) **(Table 14)**. When compared for

inpatient settings, the mean OOPE is reported much higher for both public and private health facilities by NSSO as compared to our study. State wise detailed comparison of mean OOPE with NSSO results has been provided in annexures **(Table 3 and 4 Supplementary).**

Table 14: Comparison of study results with NSSO$^{75th\ round}$ findings.

	Public		Private		Total	
	Present study Mean (S.E)	**NSSO Mean (S.E)**	**Present study Mean (S.E)**	**NSSO Mean (S.E)**	**Present study Mean (S.E)**	**NSSO Mean (S.E)**
OPD						
Consultation	6.6 (0.5)	14.3(1.5)	200.8(2.3)	150.7(6.60	118.2(4.9)	105.6(4.4)
Medicine	97.1 (14.9)	398(39.7)	408.3(12.5)	643.6(10.1)	273.6(9.2)	562.6(14.7)
Diagnostics	65.1 (11.6)	56.1(3.2)	295.1(13.5)	119.6(4.5)	189(8.9)	98.6(3.2)
Transport	98 (12.5)	73.8(1.7)	149.5(8.4)	51.7(5.7)	121.8(6.6)	70.2(1.2)
Others	24.8 (4.7)	26.9(2.3)	23.2(3.5)	51.7(5.7)	22.2(2.6)	43.5(3.9)
Total	340 (37.1)	627(41.1)	1212(31.5)	1081.47(23.9)	815(23.2)	931.7(21)
IPD						
Consultation	8.3(1.4)	576.2(33.2)	483.3(46.8)	8668(118.3)	135.7(15.7)	4931.4(67.3)
Medicine	169(51)	2981(55.5)	919(129.7)	10804(146.5)	372.5(53)	7191.3(84.2)
Diagnostics	87.2(22.1)	1146.5(27.5)	1583(145.1)	4900(60.5)	493.2(50.7)	3167(35.7)
Transport	544.5(66.6)	609.4(9.2)	1275(157.4)	991.3(14.3)	742.7(65.9)	815(8.8)
Others	327.8(46.8)	932.9(38.4)	1154(219.1)	3987(89.4)	552(70.1)	2577(51.6)
Total	1724(148.3)	7829(139.3)	13210(1325.1)	36808(413.7)	4840(431)	23426.3(238.5)

Discussion

As medicines forms an indispensable part of healthcare system both in public and private and no country can achieve universal health coverage without making the medicines available at affordable price. The current published literature reports that 60-70% of total out of pocket expenditure on healthcare services is incurred on medicines.(5, 26) These studies used standard methodology for estimating OOPE where the recall period was of 15 days for outpatient care and 365 days for IPD care. Our study utilized a novel approach to estimate the

share of medicines in total OOPE, by interviewing patients at their exit from outpatient care and at the time of discharge from inpatient care in order to arrive at more accurate estimates. Further, in the second part of the analysis the prices on medicines paid by the patient were replaced by the market prices for those patients whom the medicines were dispensed within the facility.

We found out that the overall mean OOPE for out-patient care and inpatient care was INR 815.2 (S.E-23.2) and INR 4840 (S.E-431) respectively (Table 3). In private health facilities OOPE for OPD care was INR 1212.1 (S.E-31.5) which was nearly four times of public health facilities INR 340.9 (S.E-37.1) (Table 3). Similar trend was seen in IPD care where the mean OOPE was nearly eight times more in private health facilities INR 13210 (S.E-1325.1) than public health facilities INR 1724.3 (S.E-148.4) (Table 3). Further, the present study reports overall mean OOPE on medicines for both public and private health care facilities was INR 97.1 (S.E-15) and 408.3 (S.E-12.5) in OPD care and INR 169 (S.E-51.1) and INR 919 (S.E-129.7) in IPD care (Table 3). As a result of which medicines form a major share in total OOPE in private health care facilities (OPD care) but in public health facilities medicines contribute only to 28.4% of total OOPE, with major share (43%) spent on non-medical items like transportation etc. (Figure 2). In IPD care of both public and private health care facilities medicines constitute only 9.8% and 6.9% of total OOPE on medicines with major of share spent on non-medical items and on hospital charges (Figure 2). Further, even after adjustment according to current methodology followed in the paper, the results showed minimal decline in OOPE on medicines i.e., 32% to 30.7% and 6.2% to 5.7% in OPD care and IPD care respectively in private health facilities.

The results were in consistent with the NSSO 75th round survey where mean OOPE in private health facilities much more than public health facilities in both outpatient and inpatient settings (Table 3). NSSO 75th round reports overall mean OOPE in OPD care of public and private healthcare facilities INR 582.5 and INR 1,156 respectively whereas in IPD care it was INR 5,348 and INR 43,157 respectively (Table 4). Similar results were seen in other studies conducted in these settings reported mean OOPE more in private health facilities when compared to public health facilities (6, 79-81). But if we look at the share of individual head of total out of pocket expenditure, the results were inconsistent with the recent NSSO 75th round survey (Table 4). NSSO reports mean OOPE on medicines in OPD care and IPD care INR 468.5 and INR 8,119 (Table 4). This constitutes 49% and 30.6% of total OOPE for medicines for outpatient care and inpatient care respectively (Author calculation). Further, similar results are reported other studies conducted which reports majority of share on medicines ranging from 65%-72% of total out of pocket expenditure.(5, 6, 82) The difference in the mean OOPE and share of OOPE of total OOPE may be due to the fact that the present survey is the client-

based survey, where the individuals were interviewed about the expenditure incurred on the services they received at the facility. Whereas NSSO and other studies are household surveys, where there is recall period for 15 days in case of outpatient care and 365 days in case of inpatient care. As a result of which in the present study there is less chance of recall bias and clubbing of expenditure under one head i.e., under medicines that might occurs at private clinics where the tangible service that patient gets is medicines. Similar results are seen one of the studies that households reported higher values of OOPs compared to the provider when the patient is allowed to recall at a period of 6 month and 12 months.(83) Also NSSO, reports that its results are only valid at state and national level but not at micro level (example district) due to small sample size. Further, the present survey reported much less expenditure on medicines in case of inpatient care which may be due to the less sample that was covered in the study due to Covid-19 pandemic and in that also majority of the patients were from obstetrics and gyanecology. Further the difference in mean OOPE on medicines for both public and private health care facilities was INR 97.1 (S.E-15) and 408.3 (S.E-12.5) in OPD care and INR 169 (S.E-51.1) and INR 919 (S.E-129.7) in IPD (Table 3) may be due free availability of prescribed medicines in the public health facilities.

Further, as a part of second analysis the present study looked at any change in proportion of OOPE on medicines after adjustment according to market prices as medicines. The results of the study showed minimal change in the proportion of OOPE medicines i.e., from 32% to 30.7% in OPD care and 6.2% to 5.7% in IPD care (Figure 3). These results after adjustments also points to fact that there are less chances of recall bias and clubbing of expenditure under a particular head when a patient is interviewed on the same day the patient receive services.

The study results provide some implications for policy and research as the estimates of OOPE can provide an important evidence to support policies for universal health coverage, the National Knowledge Platform of the Government of India. In the present study, a client-based interview was done for estimating OOPE on health care services where the patients were interviewed on the same day that they received the services. Whereas NSSO uses a 15-day recall period for OPD care and 365-day recall period for IPD care where the chances of recall bias is higher and also chances of error are more in reporting correct expenditure under each head. As the estimates of NSSO survey is also used in preparing national health accounts, the present methodology can provide better estimates relating to out-of-pocket expenditure. Since our results show a significantly less share of medicines in total out of pocket expenditure, there is a need to review the traditional methods employed for estimating the same in national surveys. A better understanding of these concepts will not only have an impact on national health accounts but will also help to refine the policy design and implementation approach for achieving universal health coverage in the count. In addition to

this the present study should be compared with other facility-based surveys which or with client-based satisfaction surveys conducted in healthcare facilities. These studies shows that healthcare utilization rates are more 18-45 years age group but it is seen maximum of OOPE due to NCD occur in people with 50 plus age group.(84-88) Further, the present study acknowledges certain limitations. First, the sample size that was required to be surveyed in the inpatient care settings was not enough to comment upon expenditure incurred in these settings. This was due to the Covid-19 situation which was at peak during the time of survey. Also, the patients that were interviewed in inpatient care setting maximum of them belonged to obstetrics and gyanecology department. Second, the study results are less likely can be compared with traditional household surveys where there is some recall period for both outpatient and inpatient settings.

Chapter 4

Determinants of out-of-pocket expenditure

4.1 Introduction

In the view of universal health coverage (UHC) as the overreaching goal, every nation aspires to provide free and quality health care services to its citizens.(89, 90) The 65th World health assembly recognized that UHC is the single most powerful concept that public health has to offer.(91) The key concept of universal health coverage is that every individual is able to attain healthcare services to its fullest without facing any financial hardship.(91) Medicine forms an imperative part of the health care services and the focus on access to affordable medicines has been doing rounds for more than a decade now. Essential medicines serve as the central strategy for promoting health and achieving sustainable development goal (SDG) for health. SDG 3.8 explicitly specifies the significance of "access to safe, effective, quality and affordable essential medicines and vaccines for all" as a focal component of (UHC).(92)

Despite of all these efforts, nearly 100 million of the global, and about 20 million of Indian population is pushed below poverty line due to lack of essential healthcare services in public health sector and resultant out-of-pocket expenditure on procuring health services from private sector.(93, 94) Studies conducted globally have identified non-availability of essential medicines at public health facilities, irrational use of medicines, over prescription of antibiotics and injections, prescription of branded medicines, low public spending on health and lack of adequate regulation on prices of medicines as the key factors responsible for OOPE on medicines.(3, 6, 18, 36, 95)

Previous studies have reported that catastrophic health spending has varied enormously among India's states.(96) Shahrawat and Rao have earlier reported that insurance schemes that cover only hospital expenses do not adequately protect the poor against impoverishment due to spending on health, because medicines and OOPs for OPD visits were the main share (72%) of total OOP payments.(5) Complex age group interactions between determinants of out-of-pocket health expenditure have also been reported, where economic inequality and inequities in essential health care delivery to older people are much higher.(97) Some studies suggest no additional protective effect of health insurance in preventing households from catastrophic health expenditure.(98). Another study reported that catastrophic health expenditure among the illiterates was 32 per cent.(99). Li et al in their study found out that age, sex, education, household size, employment status and location were the determinants for the risk of catastrophic health expenditure.(100) So, the true extent of these attributions is still unknown and adjustments for many other factors need to be done for arriving at accurate results.

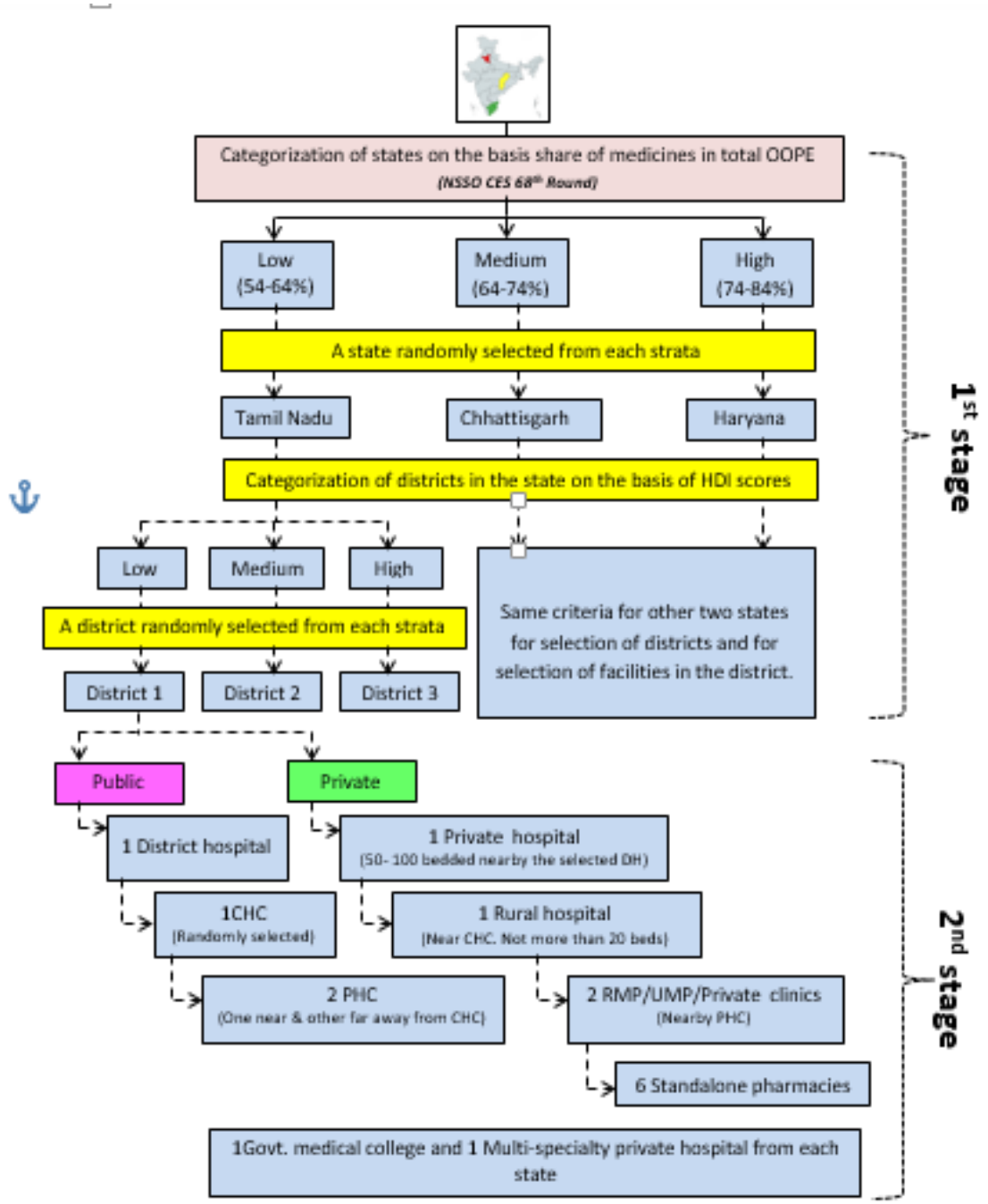
The national knowledge commission of India identified the problem of high OOP expenditure on medicines as a major area of research to generate evidence for adoption of policies to mitigate the problem. In the view of this, we undertook this study to assess the determinants of OOP expenditure on medicines and the extent of financial risk due to OOP expenditure on medicines. We evaluated the effect of variations due to differences in the design and methodology of previously reported national level household surveys with the present study, differences due to type of healthcare provider (Public or Private), prescription patterns of medicines (Generic or Branded), availability of medicines at public health facilities and type of illnesses (Acute or Chronic).

4.2 Methodology

4.2.1 Study setting and Sampling

For the selection of the states, districts and facilities, a multi-stage stratified random sampling was followed **(Figure 10).** In the first stage, states were classified into three categories (Low, Medium and High) according to share of medicines in overall OOP expenditure.(26) One state was randomly selected from each strata. Next, districts in each state were categorized into three categories based on human development index (HDI) scores and 1 district from each stratum was randomly chosen i.e., 3 districts per state. This was done since the HDI includes indicators which are representative of important demand side characteristics which explain health status, care seeking and ability to pay for OOP expenditure.

Figure 10: Flowchart showing selection criteria for section of states, districts and facilities



In the second stage, the health facilities for the study were selected from the list of public and private healthcare facilities in the district. In the public sector, one tertiary care hospital with the highest patient load was selected from each state. Further, District Hospital (DH), 1 Community Health Centre (CHC) and two Primary Health Centres (PHC) were selected from each district selected under the study. While the CHCs were selected randomly, the two PHCs

included were the ones geographically closest and farthest to the CHC. Therefore, a total of 13 public health care facilities, including 1 tertiary care hospital, 3 DH, 3 CHCs and 6 PHCs, were selected in each state. An equivalent number of facilities were selected for study from the private sector. This selection was done keeping in consideration equivalency to the level of healthcare services provided by the chosen public healthcare facility in the same city, to ensure the comparability of infrastructure, resources and service outputs. In addition to this, 6 stand-alone pharmacies (from both rural and urban areas) were randomly selected from each district on the basis of proportion of rural and urban population. Thus, the overall study sample included 44 health care facilities (13 public, 13 private and 18 stand-alone pharmacies) in each state, adding up to 132 health care facilities in three selected states **(Table 15).**

Table 15: Facility wise sample size of the study

Category of Facility	**Total Number of Facilities**	**Number of study participants**			
		Haryana	**Chhattisgarh**	**Tamil Nadu**	**Total**
Public facilities					
Medical college	3	140	140	140	420
District hospital	9	300	300	300	900
Community health centre	9	150	150	150	450
Primary health centre	18	120	120	120	360
Private facilities					
Multi-specialty hospital (More than 100 bedded)	3	140	140	140	420
Private hospital (50- 100 bedded)	9	300	300	300	900
Rural hospitals (Not more than 20 beds)	9	150	150	150	450
RMP[1]/UMP[2]/Private clinic	18	120	120	120	360
Standalone pharmacies	54	360	360	360	1080
Total	**132**	**1780**	**1780**	**1780**	**5340**

[1] RMP - Registered Medical Practitioner
[2] UMP - Unregistered Medical Practitioner

A total of 1780 patients were decided to be interviewed at the selected facilities in each state, with a total of 5340 patients from the three states. These patients were to be selected from public health facilities, private health facilities and in standalone pharmacies of the state in proportion of their service delivery outputs **(Table 5).** The sample size in each facility was distributed in outpatient and inpatient setting in a ratio of 70:30, as 60-70% of OOPE occur at outpatient care.(78) For outpatient care, patients were recruited at the pharmacy of the facility so that patients from all specialties could be captured at the secondary and tertiary care

hospital. Patients were selected consecutively till the sample size for that facility was completed. For hospitalized cases in multispecialty hospitals, the sample size was distributed equally in four major specialties i.e., Medicine, Obstetrics and Gynaecology, Surgery and Paediatrics. Hospitalized patients were recruited at the time of discharge, assuming that most of the expenditure has been incurred by that time.

4.2.2 Data collection

Patients were interviewed to collect data on their general socio-demographic and clinical characteristics as per health care provider. Further, data on medicines was abstracted from prescription slips in terms of the name of medicine, dose, duration, route of administration, and quantity of each medicine on a structured schedule. Thirdly, data on OOP expenditures incurred at the health facility on medicines, consultation charges, and registration or other user fee, travelling, diagnostics etc. was collected. Each patient was also given a follow up call 1 day after the recruitment to collect data on OOP expenditure incurred on medicines or diagnostic tests from facilities other than the place of recruitment.

For inpatients, a list of patients to be discharge from the facility on the day of survey was obtained from each of the four selected departments. These patients were then interviewed for obtaining all the information as outlined above. Additionally, information regarding doctor/surgeon fee, duration of stay, bed charges, consumables etc. were also elicited. The hospitalized patients were also followed up after 1 day to collect information on any additional OOP expenditure incurred on medicines after the discharge.

Further, both outpatient care and inpatient care patients were followed up telephonically on 15th day of their last consultation or day of discharge. During the telephonic follow-up interviews, data were collected on any further consultation if made, type of health care provider, OOP expenditures incurred at the health facility on medicines, consultation charges, registration or other user fee, travelling, diagnostics etc. This 15 days' period for subsequent follow-up was considered appropriate in order to standardize with existing surveys which interview individuals for OOP expenditure for outpatient visits using 15 days recall period.

For standalone pharmacies, patients were interviewed at the time of their visit to buy medicines. Data on details of the healthcare facility visited for consultation before coming to the pharmacy, and OOPE incurred on consultation, medicines, diagnostics etc. were collected from them. Rest of the data collection process and follow-up telephonic call on 15th day was similar to the outpatients enrolled at health facilities.

In addition to this, average market prices of medicines and diagnostic tests were extracted from the pharmacists of each study area to estimate actual OOP expenditure on medicines

and diagnostics. This information was collected by interviewing pharmacists for the lowest and the highest market price of each medicine. Further, prices listed on online pharmacy portals & diagnostic tests websites, and documents of Pradhan Mantri Jan Aushadhi Pariyojna was also used as reference for average market prices.

4.2.3 Data Analysis

Main variables construction

The data on consumption expenditure was collected as sum total of monetary values of all the items (i.e., goods and services) consumed by the household of the patient on domestic account during a specified reference period. It also included the imputed values of consumption of goods and services which were not purchased but procured otherwise for consumption. The value of goods received in exchange of other goods and services were imputed at the rate of average local retail prices prevailing during the reference period. Value of the home-produce was imputed at the ex-farm rates. The reference periods for different sets of items were different, ranging from 1 week to 1 year. These were all consolidated to arrive at monthly expenditures, by dividing the annually reported expenses by 12 and multiplying weekly reported expenditures by 4.3.

Expenditure on procuring healthcare services were collected for OPD consultations and hospitalizations in last 24 hours preceding the survey. This included hospital charges (Registration, Doctor/surgeon's consultation, and bed charges), expenses on medicines, diagnostic tests and consumables. Expenditure on logistics (Transportation, stay/lodging, Food and other) were classified under non-medical expenditure. Wealth quintiles were generated by dividing the entire sample into five equal parts arranged as per their monthly consumption expenditure.

Statistical Analysis

The data collected was entered in MS Excel and analysed using SPSS 21.0 (IBM Corp., Armonk, New York, USA). Descriptive statistics like mean, standard deviation, standard errors and medians were computed along with their 95% Confidence Intervals. Bivariate and Multivariate linear regression analysis were performed to identify determinants of out-of-pocket expenditure (OOPE) incurred on out-patient and in-patient care. Multivariate logistic regression analysis was performed to identify determinants of catastrophic health expenditure due to hospitalization. All analysis was performed at 5% level of significance and p value less than 0.05 was taken as statistically significant.

4.2.4 Ethical consideration

An ethical clearance was sought from Institute Ethics Committee of the Post Graduate Institute of Medical Education and Research, Chandigarh, India. Administrative approvals to collect data were also obtained from concerned authorities of health departments in three states. Further, administrative approval will be taken from civil surgeon prior to data collection at the district level. Written informed consent was taken from the participants and they were informed that their participation is voluntary and no information obtained from them will be divulged to anyone other than investigator; the confidentiality of data will be strictly maintained; and failure to comply will not result in any penalties or loss of benefits.

4.3 Results

Table 16 demonstrates the detailed characteristics of patients availing OPD and IPD healthcare services recruited under study. Nearly 53% of these patients attended private health facilities, around 40% attended public health facilities, while the rest received services from standalone pharmacies (7%)**.** The study included 54% women and majority of patients were from 15-45 age group (58%). Nearly 80% of the patients were literate and around 57% of patients were unemployed. Majority of the patients lived in urban areas (79.6%); about 48% of the patients reported having health insurance coverage. Most of these (around 42%) were enrolled under government funded insurance schemes, which included both center as well as state sponsored schemes. In terms of prescription practices, majority of the patients (88.4%) were dispensed all prescribed medicines free of cost at public health facilities, while around 75% of these were prescribed all medicines from the states essential drug list **(Table 16)**. Around 42% of patients were prescribed all medicines in generic form at both public and private health facilities. In relation to poly pharmacy, only 14% of patients were prescribed more than four medicines **(Table 16)**

Table 16: Characteristics of the patients receiving OPD and IPD services enrolled in the study.

Characteristics of patients	Categories	OPD Care N (%)	IPD Care N (%)	Total N (%)
Age of the patients	0-14	438(8.3)	38(6.6)	476(8.2)
	15-45	2990(56.9)	391(68)	3381(58)
	46-60	1180(22.5)	93(16.2)	1273(21.8)
	>60	644(12.3)	53(9.2)	697(12)
Sex	Male	2497(47.5)	191(33.2)	2688(46.1)
	Female	2755(52.5)	384(66.8)	3139(53.9)
Residence	Rural	3215(61.2)	358(62.3)	1189(20.4)
	Urban	2037(38.8)	217(37.7)	4638(79.6)
Education level	Illiterate	1078(20.5)	111(19.3)	1189(20.4)
	Primary below primary	157(3)	5(0.9)	162(2.8)
	Up to Middle	1320(25.1)	135(23.5)	1455(25)
	Up to Matric	816(15.5)	118(20.5)	934(16)
	Higher secondary/certificate/other	850(16.2)	93(16.2)	943(16.2)
	Graduate and above	1031(19.6)	113(19.7)	1144(19.6)
Employment	Self Employed	977(18.6)	73(12.7)	1050(18)
	Casual Labour	369(7)	33(5.7)	402(6.9)
	Services	979(18.6)	70(12.2)	1049(18)
	Unemployed	2927(55.7)	399(69.4)	3326(57.1)
Socio-economics Status	Poorest	826(18.8)	150(30.4)	976(16.7)
	Poor	889(20.3)	87(17.6)	976(16.7)
	Medium	891(20.3)	86(17.4)	977(16.8)
	Rich	878(20)	98(19.9)	976(16.7)
	Richest	904(20.6)	72(14.6)	976(16.7)

Insurance coverage	**Government funded insurance#**	2131(40.6)	314(54.6)	2445(42)
	Social health insurance (CGHS, ESIS)	9(0.2)	1(0.2)	10(0.2)
	Employer supported voluntary health protection	20(0.4)	2(0.3)	22(0.4)
	Individual voluntary public insurance	248(4.7)	11(1.9)	259(4.4)
	Individual voluntary private insurance	25(0.5)	(0)	476(0.43)
	Others	38(0.7)	2(0.3)	40(0.7)
	Not covered	2781(53)	245(42.6)	3026(51.9)
Health care provider	**Public**	1935(36.8)	419(72.8)	2354(40.4)
	Private	2936(55.9)	156(27.1)	3092(53.1)
	Standalone pharmacy	389(7.2)	**-***	389(6.7)
Dispensation of free medicine from the facility	**None**	15(0.8)	1(0.2)	16(0.7)
	Partial	205(10.8)	46(11)	251(10.9)
	All	1671(88.4)	372(88.8)	2043(88.4)
Share of generic medicine out of total medicine prescribed	**None**	2033(42.3)	62(10.8)	2095(39)
	Partial	1584(33)	330(57.4)	1914(35.6)
	All	1186(24.7)	183(31.8)	1369(25.5)
Poly-pharmacy	**1-2**	2385(45.4)	92(16)	2477(42.5)
	3-4	2285(43.5)	234(40.7)	2519(43.2)
	>4	582(11.1)	249(43.3)	831(14.3)
Prescription from Essential drug list	**None**	38(2)	1(0.2)	39(1.7)
	Partial	422(22.3)	96(23)	518(22.4)
	All	1431(75.7)	322(76.8)	1753(75.9)
Total		All medicine	**575(9.9)**	**5827(100)**

**** Only OPD patients were interviewed at standalone pharmacies***

Mean out of pocket expenditure incurred by patients receiving OPD and IPD services was INR 815.2 (S.E: 23.2) and INR 4840 (S.E: 431) respectively **(Table 17)**. The mean out of pocket expenditure at private health care facilities was much higher than at public health care facilities for both OPD and IPD care. The study results also showed higher mean out of pocket expenditure among literates and uninsured, as compared to illiterate and insured individuals. In terms of qualification of health care provider, patients who visited specialists faced more out of pocket expenditures. There was an increasing trend in out-of-pocket expenditure with increase in wealth quintile and number of medicines prescribed. Individuals receiving all medicines free of cost from the facilities and prescribed from essential drug lists reported to have incurred less out of pocket expenditure as compared to others who had to purchase from outside the facilities **(Table 17).**

Table 17: Out of pocket expenditure incurred by OPD and IPD patients classified as per determinants

		OPD				IPD			
		Mean	SE	95%CI		Mean	SE	95%CI	
				LL	UP			LL	UP
	Overall	815.2	23.2	769.7	860.7	4840.5	431	3995.7	5685.3
Type of facility	**Public**	340.9	37.1	268.2	413.6	1724.3	148.4	1433.4	2015.2
	Private	1212.1	31.5	1150.4	1273.8	13210.1	1325.1	10612.9	15807.3
	Pharmacy	165.8	11.3	143.7	187.9	-	-	-	-
Age	**0-14**	550.7	46.7	459.2	642.2	2678.3	505.3	1687.9	3668.7
	15-45	786.8	29.7	728.6	845	4951.4	485.6	3999.6	5903.2
	46-60	951.5	58.2	837.4	1065.6	5089.8	1498.5	2152.7	8026.9
	>60	877.4	64.5	751	1003.8	5135.1	1424.2	2343.7	7926.5
Gender	**Male**	873.7	40.6	794.1	953.3	5350.2	589.1	4195.6	6504.8
	Female	762.2	24.4	714.4	810	4587	575.1	3459.8	5714.2
Residence	**Rural**	709	28.1	653.9	764.1	3154.4	357.2	2454.3	3854.5
	Urban	982.9	39.8	904.9	1060.9	7622.1	950.1	5759.9	9484.3

Education	Illiterate	711.4	48.5	616.3	806.5	2473.8	477.8	1537.3	3410.3
	Below primary	590.7	72.2	449.2	732.2	13764.2	6520.4	984.2	26544.2
	Up to Middle	794.8	44.5	707.6	882	3092.5	596	1924.3	4260.7
	Up to Matric	987.3	82.2	826.2	1148.4	5418.4	1247.6	2973.1	7863.7
	Higher secondary/certificate/other	858.8	46.3	768.1	949.5	4134.6	581.4	2995.1	5274.1
	Graduate and above	811.9	47.7	718.4	905.4	8836.2	1364	6162.8	11509.6
Occupation	Self Employed	910.4	60.2	792.4	1028.4	3184.4	607.3	1994.1	4374.7
	Casual Labour	620.7	66.9	489.6	751.8	2322.1	775.3	802.5	3841.7
	Services	783.5	68.3	649.6	917.4	9108.6	1588.8	5994.6	12222.6
	Unemployed	818.6	27.1	765.5	871.7	4603	531.4	3561.5	5644.5
Insurance	No insurance	617.5	23.3	571.8	663.2	6596.7	895.7	4841.1	8352.3
	Insured	1043.4	41.7	961.7	1125.1	3543.9	333.9	2889.5	4198.3
Reason for consultation	CD	684.9	33.5	619.2	750.6	6157.9	830.3	4530.5	7785.3
	NCD	902	32.8	837.7	966.3	4467	499.7	3487.6	5446.4
	Others/Miscellaneous	626.8	49.3	530.2	723.4	-	-	-	-
Health care provider	Specialist	1267.7	48	1173.6	1361.8				
	General Physician /MBBS	670	31.3	608.7	731.3				
	Staff Nurse	9.9	2.1	5.8	14				
	Pharmacist	7.8	2.5	2.9	12.7				
	RMP	414.9	18.1	379.4	450.4				

	BAMS	570.3	68.6	435.8	704.8				
	BHMS	273.4	54	167.6	379.2				
	RMA	302.2	49.4	205.4	399				
	UMP	426.1	95.9	238.1	614.1				
	No consultation	165.8	11.3	143.7	187.9				
Wealth quintile	**Poorest**	551.5	32.4	488	615	3646.1	957.3	1769.8	5522.4
	Poorest	788.6	38.4	713.3	863.9	5424.7	800.2	3856.3	6993.1
	Medium	807.5	52.1	705.4	909.6	6524.8	1416.7	3748.1	9301.5
	Rich	716.8	50.7	617.4	816.2	5951.3	1252.9	3495.6	8407
	Richest	1172.5	68.4	1038.4	1306.6	6875.5	861.3	5187.4	8563.6
Dispensation of free medicine from the facility	**Nil**	3128.7	1872.8	-542	6799.4	3663	-	-	-
	Partial	636.9	105	431.1	842.7	2414.9	856.6	736	4093.8
	All	287.1	37	214.6	359.6	1633.7	129.3	1380.3	1887.1
Share of generic medicine out of total medicine prescribed	**Nil**	1199.7	43.6	1114.2	1285.2	6264.7	1053.5	4199.8	8329.6
	Partial	675.8	45.9	585.8	765.8	4384.3	623.4	3162.4	5606.2
	All	522.6	25.4	472.8	572.4	5180.6	664.3	3878.6	6482.6
Poly-pharmacy	**1-2**	554.9	29.1	497.9	611.9	2699	379.6	1955	3443
	3-4	867.4	32.4	803.9	930.9	5492.1	866.1	3794.5	7189.7
	>4	1677.3	107.9	1465.8	1888.8	5019.3	550	3941.3	6097.3
Prescription from Essential drug list	**Nil**	1600.6	841.2	-48.2	3249.4	3663	-	-	-
	Partial	452	70	314.8	589.2	2386.7	463.2	1478.8	3294.6
	All	283.5	39.6	205.9	361.1	1520.8	133.4	1259.3	1782.3
Total		**815.2**	**23.2**			**4840.5**	**431**		

*** Significant at 0.01 level and *significant at 0.05 level*

Table 18: Determinants of out-of-pocket expenditure for OPD and IPD after adjustment for confounders through multivariate analysis

	Out Patient Care (OPD)		In Patient Care (IPD)	
Determinants	**Beta coefficient**	**p-value**	**Beta coefficient**	**p-value**
Health care provider	**471.37**	**<0.01**	**9741.88**	**<0.01**
Age	**-33.87**	**0.20**	**-329.1**	**0.60**
Residence	**33.56**	**0.45**	**452.6**	**0.62**
Education Level	**-317.28**	**<0.01**	**-573.9**	**0.62**
Employment Level	**-85.10**	**<0.01**	**-1860.4**	**<0.01**
Insurance	**143.22**	**<0.01**	**-2673.2**	**<0.01**
Ailment reported	**-100.21**	**<0.01**	**-2515.8**	**<0.01**
Socio-economics status (WQ)	**49.57**	**<0.01**	**-96.1**	**0.76**
Poly-pharmacy	**256.94**	**<0.01**	**669.2**	**0.31**

Overall, 9.41% of respondents faced catastrophic health expenditure. Individuals between 15-45 years of age faced higher CHE as compared to others, however, the difference was not statistically significant among different age groups. Similarly, individuals living in urban areas and those who were educated faced higher catastrophe rates. Further, individuals who received treatment from private health facilities and those who received 3-4 or more medicines for their illness had more CHE **(Table 19).** A multivariate logistic regression analysis was conducted to confirm the determinants for catastrophic healthcare expenditure after adjusting for various confounders. Odds of CHE were significantly higher among those receiving treatment from private health care providers (OR = 5.64; 95% CI = 2.62–12.12) than public health providers. Further, individuals living in urban areas had 2.61 times higher CHE than individuals living in rural areas. Likewise, Odds of CHE were significantly more among poor (OR = 7.25; 95% CI = 3.16–16.6) and literates (OR = 6.21; 95% CI = 1.38–27.9) **(Table 19).**

Table 19: Association between CHE and its determinants

			Bivariate analysis		Multi-variate analysis	
Determinants	**Categories**	**n**	**Average of CHE**	**p-value**	**OR**	**p-value**
Overall		**45**	**9.41**			
Age	0-14	1	3.57	0.18		
	15-45	36	10.8			
	46-60	3	3.95			
	>60	5	11.9			
Gender	Male	20	12.82	0.08		
	Female	25	7.76			
Residence	Rural (RF)	15	5.26	**<0.01**	**-**	**-**
	Urban	30	15.54		**2.61(1.27,5.36)**	**<0.01**
Employment	Self Employed	3	5	0.09		
	Casual Labour	2	7.14			
	Services	10	18.18			
	Unemployed	30	8.96			
Education	Illiterate (RF)	2	2.15	**<0.01**	-	-
	Literate	43	11.17		6.21(1.38,27.9)	<0.05
Insurance	No insurance	25	12.25	0.07		
	Insured	20	7.33			
Socio economic status	Poor	35	15.56	**<0.01**	7.25(3.16,16.6)	<0.01
	Non-Poor (RF)	10	3.95		-	-
Place of treatment	Public (RF)	19	5.4	**<0.01**	-	-
	Private	26	20.2		5.64 (2.62,12.12)	<0.01
	None	-	-	0.96		

% Free Availability of medicines from prescribed codes[$]	Partial	2	4.88			
	All	17	5.54			
Generic	None	4	10	**<0.05**	-	-
	Partial	15	5.51		0.94(0.25,3.50)	0.93
	All	26	15.66		2.16(0.60,7.75)	0.24
Total number of medicines dispended	1-2	2	3.51	0.24		
	3-4	22	10.89			
	>4	21	9.59			
Prescribed from EDL[$]	None	-	-	0.36		
	Partial	2	2.41			
	All	17	6.42			

$ Only for public health facilities

Discussion

The present paper attempts to provide information on mean out of pocket expenditure and to assess the determinants of out-of-pocket expenditure and catastrophic health expenditure. The present study has shown that socio-demographic factors and prescription pattern plays an important role in out-of-pocket expenditure and catastrophic health expenditure.

The study results show that overall mean out of pocket expenditure for patients receiving services from OPD care was INR 815.2 (S.E-23.2) and in IPD care was INR 4840 (S.E-431) (Table 3). The results of the for the outpatient care are somewhat similar with recent NSSO 75th round but in case of inpatient care the results are totally inconsistent with NSSO 75th round. This may be due to the reason that the data collection of present study was done in covid-19 pandemic situation where the inpatient attendance was very low and also limited access to the patients in the hospitals. Further, in case of inpatient care maximum of the patient were from obstetrics and gynecology. In comparison to public health facilities mean out of pocket expenditure was much more in private health facilities (Table 3). Similar results were seen in previous studies conducted which showed higher expenditure in private health facilities.(6, 79-81, 101) The reasons could be availability of free medicines and in generic form in the public health facilities to the patients which is seen the present study also. The

study results shows that those who got all medicines free from the public health facilities had less out of pocket expenditure as compared to those who got partial or nil free medicines (Table 3). It should be noted that in patients who got all free medicines has incurred expenditure on other non-medical items like food, travel etc. The present study results also shows that those who lived in urban areas and those who belong to high wealth quintile had more out of pocket expenditure which is similar to results as reported earlier.(102, 103) The potential explanation to this may be due to imbalance in degree and nature of medical services usage among the rich and poor.(104) Also rich generally access health care services from more expensive private sector while poor look for public hospitals.(101)

Further, the present study reported overall 9.4% of individuals facing catastrophic health expenditure at 40% threshold. The present study shows that the patients attending private health facilities faced 5.64 times more catastrophic health expenditure in comparison to public health facilities (Table 6). The results lies in consistent with other studies which reported that those who attended private health facilities and those who were poor face more catastrophe as compared to their counterparts.(101, 105) The important finding from the present study is that patients who were insured had less catastrophe as compared to those who were not insured (Table 5) which is inconsistent with the previous findings that reported in earlier studies.(106, 107) This might be due to more investment in the form of demand side financing mechanisms like publicly financed health insurance schemes (PMJAY- Central or state sponsored schemes). But still is more need to be done in terms of insurance coverage and ailments that are included in it especially in outpatient care in order to achieve universal health coverage.

First, the sample size that was required to be surveyed in the inpatient care settings was not enough to comment upon expenditure incurred in these settings. This was due to the Covid-19 situation which was at peak during the time of survey. Also, the patients that were interviewed in inpatient care setting maximum of them belonged to obstetrics and gynecology department. Second, the study results are less likely can be compared with traditional household surveys where there is some recall period for both outpatient and inpatient settings. The major strength of the study was the expenditure collected in the current study was on day of services received that the patient received in case of outpatient care and on the day of discharge in case of inpatient care resulting in the minimal bias in terms of recollecting the expenditure information under individual head. The study covered all the level of care in both public and private health facilities. Despite of these strengths the study possesses some limitations. Firstly, the sample size, for determining the catastrophic health expenditure in inpatient care may not be enough to comment on national values. This was due to limited access to inpatient care patients and less admission inpatient departments in covid-19

pandemic situation. Also, the patients that were interviewed in inpatient care setting maximum of them belonged to obstetrics and gynecology department. Second, the study results are less likely can be compared other surveys as present survey was not 15 day or 365-day recall period for outpatient and inpatient care respectively.

In conclusion, the present study showed high out of pocket expenditure but not as high mentioned in previous survey. The study also shows that minimal recall period gives better estimates of expenditure incurred under individual heads.

Conclusion

As medicines form an indispensable part of healthcare system, no country can achieve universal health coverage without making them available and affordable. The current published literature reports that 60-70% of total out of pocket expenditure on healthcare services is incurred on medicines. These studies used standard methodology for estimating OOPE where the recall period was of 15 days for outpatient care and 365 days for IPD care. Our study utilized a novel approach to estimate the share of medicines in total OOPE, by interviewing patients at their exit from outpatient care and at the time of discharge from inpatient care in order to arrive at more accurate estimates. Also, the study attempted to assess the determinants of out-of-pocket expenditure and associated catastrophic health expenditure.

We found wide variations in availability of medicines across different levels of healthcare facilities in the three states, ranging from 47% at PHCs in Chhattisgarh to 74% in DHs at Tamil Nadu. Medicines that were found not available, were reported to be out-of-stock for an average duration of 4-6 months. Poor prescription practices were observed, as the mean number of drugs prescribed were higher than the ideal prescription rates. About 95.4% of medicines were dispensed free from the public health facilities in all three states. Further, the results show that the antibiotic and injectable prescription rates were also well above estimated rates by WHO.(10) Mostly the drugs were prescribed in the generic form, with maximum in Tamil Nadu followed by Chhattisgarh and Haryana. Drugs prescribed in abbreviated form was much more in Haryana (Around 36%) whereas in Tamil Nadu it was much less (Around 5%). Further, 74.5% of patients were prescribed medicines from EDL. Tamil Nadu had the highest number of drugs prescribed from EDL whereas in Haryana and Chhattisgarh it was 74.7%. The highest proportion of injections (for any ailment) were prescribed in Chhattisgarh (30.2%) whereas highest proportion of antibiotics were prescribed in Haryana (48.6%). Children <5 years received maximum drugs in the form of injections and children from 5–17-year age group received maximum antibiotics (57.4%). Incidence of poly pharmacy was highest in Chhattisgarh as almost one-third of the patients were prescribed five or more drugs. The incidence was least in Tamil Nadu with only 5% of the patients being prescribed five or more drugs.

Further, overall, the mean OOPE for outpatient care and inpatient care was INR 815.2 and INR 4840 respectively. For outpatient care overall mean OOPE in private and public health facilities overall mean was INR 1212.1 and INR 340.9 respectively. Similarly, mean OOPE for inpatient care in private and public health facilities was INR 13210 and INR 1724.3 respectively. In comparison to our study, NSSO 75th round reports nearly two times mean

OOPE in OPD care at public health facilities. NSSO 75th round reports overall mean OOPE in OPD care of public and private healthcare facilities was INR 627 and INR1081 respectively and in IPD care it was INR 7829 and INR 36808 respectively. Medicines formed a major part of OOPE in private health facilities (OPD care) contributing nearly one third share of total OOPE i.e., 33.6% whereas in IPD care it is only 9%. When compared with NSSO 75th round, the share of OOPE on medicines in OPD care and in IPD care was 60% and 38% respectively. Overall, 9.41% of individuals had catastrophic health expenditure at 40% threshold. Patients attending private health facilities faced 5.64 times more catastrophic health expenditure in comparison to public health facilities. Individual between 15-45 years of age group faced more CHE as compared to others. Similarly, individuals living in urban areas and those who are educated faced more CHE. Further, individuals living in urban areas had 2.61 times more CHE than individuals living in rural areas. Likewise, Odds of CHE was significantly more in poor and literates (OR = 7.25; 95% CI = 3.16–16.6) and (OR = 6.21; 95% CI = 1.38–27.9)

The study results provide some implications for policy and research as the estimates of OOPE can provide an important evidence to support policies for universal health coverage, the National Knowledge Platform of the Government of India. In the present study, a client-based interview was done for estimating OOPE on health care services where the patients were interviewed on the same day that they received the services. Whereas NSSO uses a 15-day recall period for OPD care and 365-day recall period for IPD care where the chances of recall bias is higher and also chances of error are more in reporting correct expenditure under each head. As the estimates of NSSO survey is also used in preparing national health accounts, the present methodology can provide better estimates relating to out-of-pocket expenditure. Since our results show a significantly less share of medicines in total out of pocket expenditure, there is a need to review the traditional methods employed for estimating the same in national surveys. A better understanding of these concepts will not only have an impact on national health accounts but will also help to refine the policy design and implementation approach for achieving universal health coverage in the count.

Our results show marked differences in the availability of medicines and prescription practices at public health facilities, with a lot of scope for improvement in this gap. Better inventory management protocols should be put in place, with associated trainings for the human resources in health for better management of these functions. The expenditures are high at private health facilities, posing financial risk to the patients, especially to those belonging to the lower socioeconomic strata. These factors require urgent policy interventions, with programmatic focus towards making healthcare services more accessible and affordable by reducing these out-of-pocket expenditures. Also, the information will guide the policymakers for evidence-based planning and decision making to overcome the challenges in availability

of essential drugs and to overcome the challenges in irrational use of drugs in public health facilities. Steps need to be taken to universalize enrolment and utilization of health insurance schemes for financial risk protection

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Supplementary tables

Chapter 1: Survey on Availability of Medicines in Primary, Secondary and Tertiary Public Health Facilities in Selected States of India

Table 1: Inventory practices at health care facilities of Chhattisgarh, Haryana and Tamil Nadu

Inventory practices	CHHATTISGARH (N=12)		HARYANA (N=12)		TAMIL NADU (N=12)		OVERALL (N=36)	
	N	%	N	%	N	%	N	%
Dedicated storage space	12	100	12	100	12	100	36	100
Temperature control	12	100	11	92	12	100	35	97
Adequate ventilation	12	100	10	83	12	100	34	94
Cold Storage	12	100	12	100	12	100	36	100
Temperature chart filled	12	100	10	83	12	100	34	94
Medicines on floor	0	0	0	0	0	0	0	0
Medicine stored systematically	12	100	10	83	12	100	34	94
Evidence of pest	0	0	0	0	0	0	0	0
MO present on survey day	6	50	10	83	12	100	34	94
Pharmacist present on survey day	12	100	11	92	12	100	35	97

Table 2: Inventory practices at health care facilities-PHCs, CHCs and DHs

Inventory practices	PHC (N=18)		CHC (N=9)		DH (N=9)	
	N	%	N	%	N	%
Dedicated storage space	18	100	9	100	9	100
Temperature control	17	94	9	100	9	100
Adequate ventilation	16	89	9	100	9	100
Cold Storage	18	100	9	100	9	100
Temperature chart filled	17	94	8	89	9	100
Medicines on floor	0	0	0	0	0	0
Medicine stored systematically	16	89	9	100	9	100
Evidence of pest	0	0	0	0	0	0
MO present on survey day	16	89	9	100	9	100
Pharmacist present on survey day	17	94	9	100	9	100

Figure 1: Mean number of drugs indented and received in Chhattisgarh (n=12)

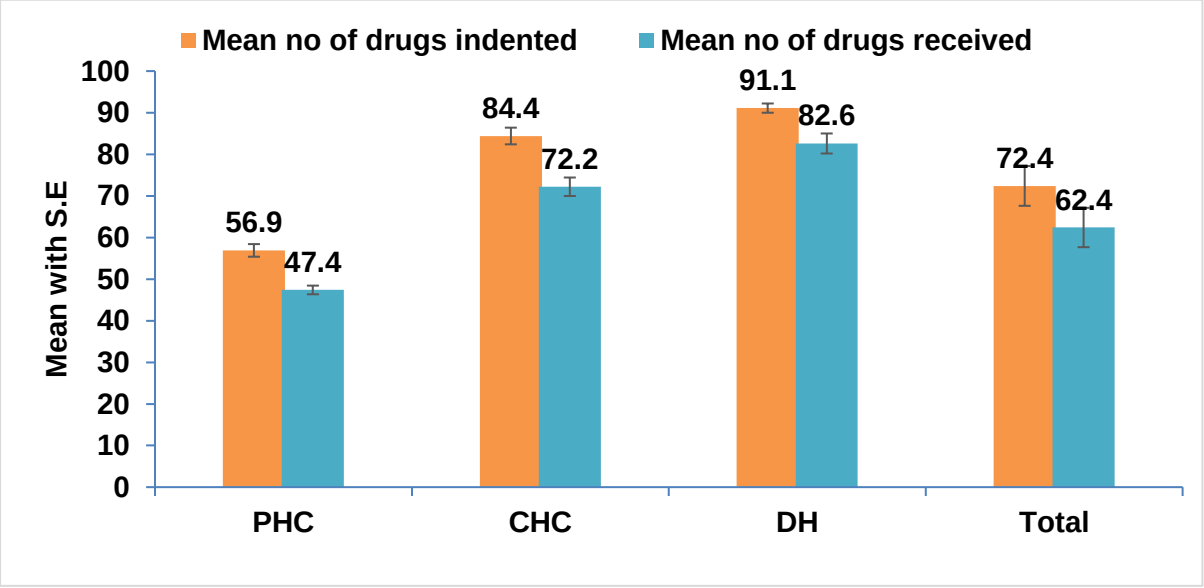

Figure 2: Mean number of drugs indented and received in Haryana (n=12)

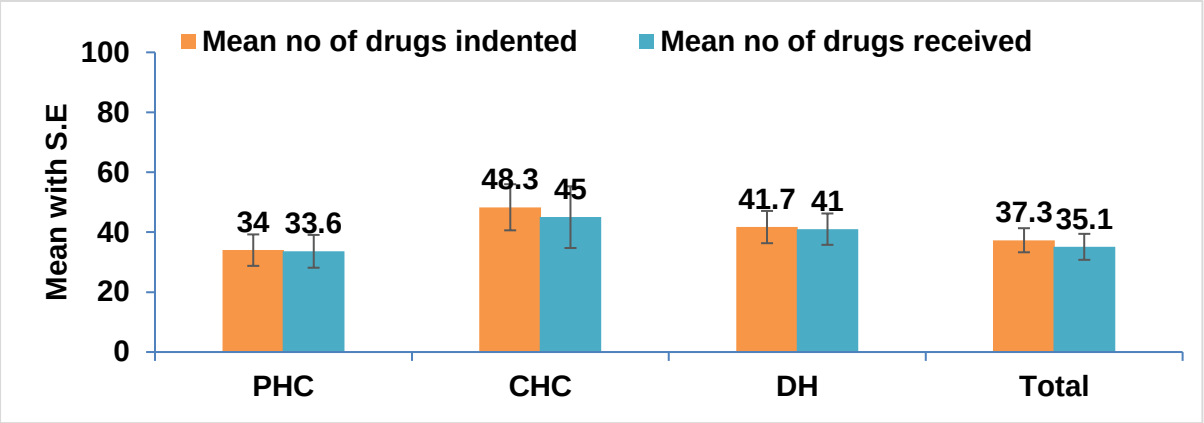

Figure 3: Mean number of drugs indented and received in Tamil Nadu (n=12)

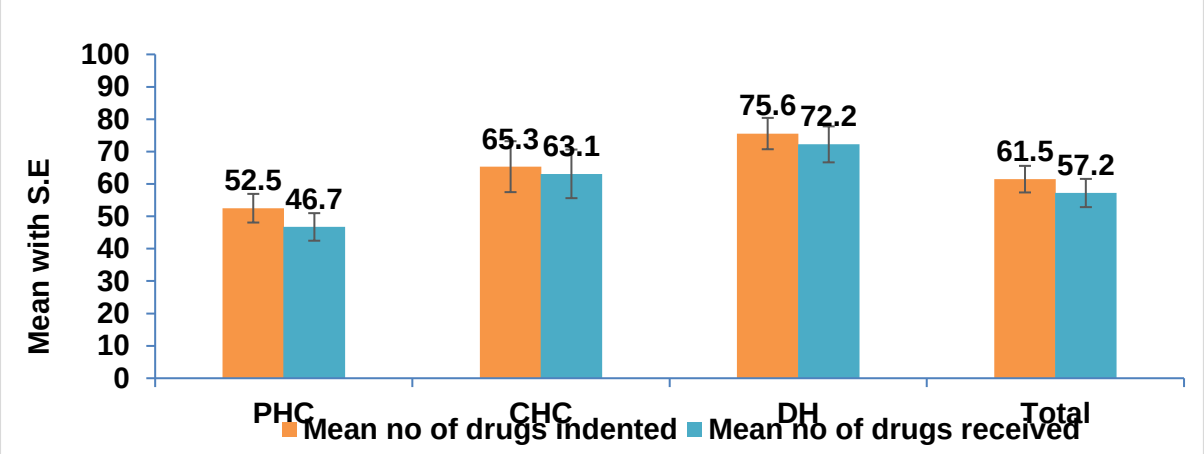

Figure 4: Mean number of drugs indented and received in public health facilities (n=36)

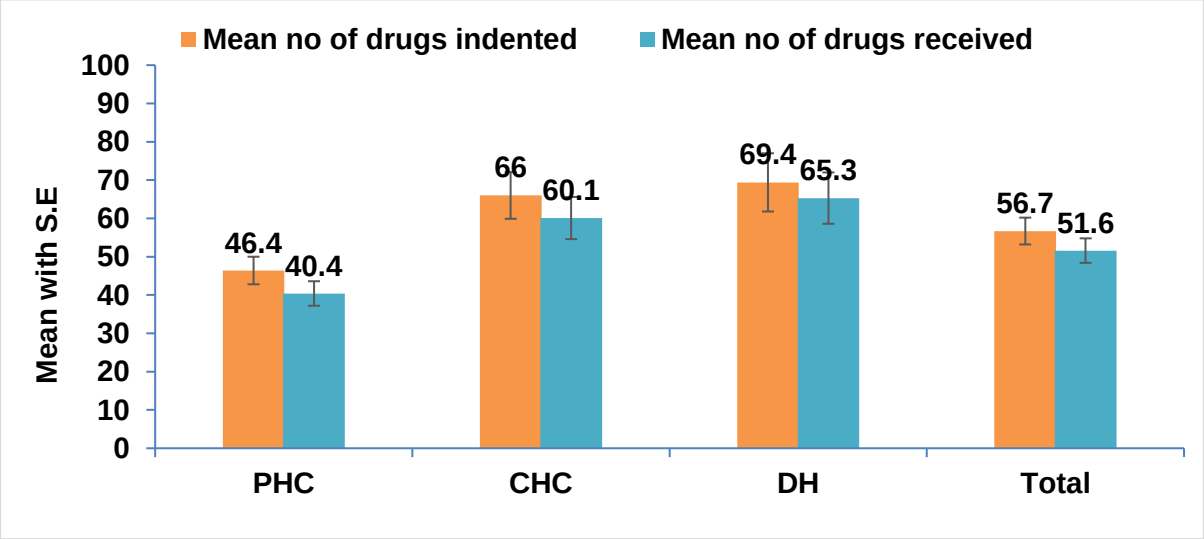

Figure 5: Proportion of drugs available at facilities based on selected stock list

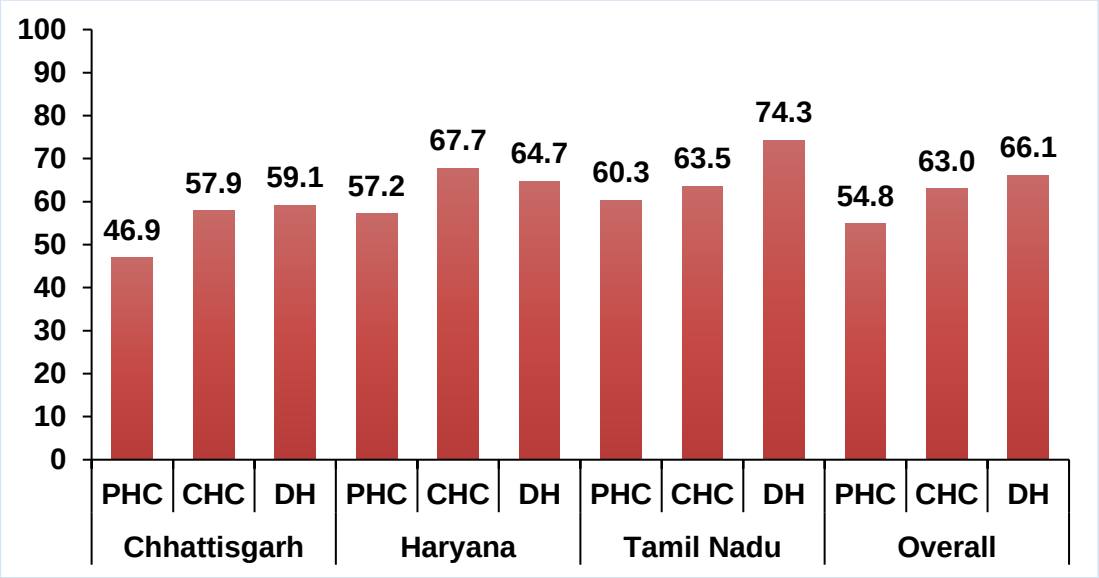

Table 3: Availability of medicines (%) under each therapeutic category in public health facilities at Chhattisgarh

Drug category	PHC (n=6)		CHC (n=3)		DH (n=3)		Total (n=12)	
	No of drugs available	Percent	No of drugs available	Percent	No of drugs available	Percent	No of drugs available	Percent
Analgesic/Antipyretic/NSAID	44	81.5	24	72.7	25	69.4	93	75.6
Anti-Bacterial	46	47.9	38	63.3	44	69.8	128	58.4
Anti-Allergic	16	38.1	15	71.4	20	95.2	51	60.7
Vitamins and Minerals	12	50	11	73.3	9	60	32	59.3
Anti-Asthmatic	16	44.4	20	95.2	19	79.1	55	67.9
Antacid	14	77.8	8	88.9	8	88.8	30	83.3
Anti-Helminthic/Anti-Parasitic	22	91.7	9	75	9	75	40	83.3
Anti-Fungal	6	33.3	3	33.3	4	44.4	13	36.1
Anti-Spasmodic	5	41.7	2	33.3	3	50	10	41.7
Anti-Emetic	8	66.7	3	50	5	83.3	16	66.7
ORS	6	100	3	100	3	100	12	100
Anti-Hypertensive	20	41.7	12	44.4	22	52.3	54	46.2
Anti-Diabetic	12	66.7	7	77.8	9	75	28	71.8

Thrombolytic	NA	NA	3	25	6	50	9	37.5
Anti-Depressant/Mood-Stabilizer/Anti-Psychotic/ Anti-epileptic	6	10	12	40	13	28.8	31	23.0
Anti-Viral	NA	NA	2	33.3	1	8.3	3	16.7
Uterotonics	12	66.7	6	66.7	6	66.6	24	66.7
Other Endocrine Drugs	NA	NA	NA	NA	NA	NA	0	0
Miscellaneous	22	28.2	24	47.1	28	49.1	74	39.8
Auto-immune/Anti-Cancer	NA	NA	NA	NA	NA	NA	NA	NA
Anaesthetic	6	33.3	3	20	11	61.1	20	39.2
Total	273	46.9	205	57.9	245	59.1	723	53.6

Table 4: Availability of medicines (%) under each therapeutic category in public health facilities at Haryana

Drug category	PHC (n=6)		CHC (n=3)		DH (n=3)		Total (n=12)	
	No of drugs available	Percent	No of drugs available	Percent	No of drugs available	Percent	No of drugs available	Percent
Analgesic/Antipyretic/NSAID	39	81.3	30	83.3	25	64.1	94	76.4
Anti-Bacterial	93	70.5	55	67.9	67	77.0	215	71.7
Anti-Allergic	37	61.7	22	66.7	30	71.4	89	65.9
Vitamins and Minerals	26	61.9	16	66.7	18	75.0	60	66.7
Anti-Asthmatic	16	66.7	9	75.0	9	75.0	34	70.8
Antacid	9	37.5	10	66.7	9	60.0	28	51.9
Anti-Helminthic/Anti-Parasitic	14	58.3	11	91.7	10	83.3	35	72.9
Anti-Fungal	4	66.7	1	33.3	4	66.7	9	60.0
Anti-Spasmodic	3	50.0	2	66.7	1	33.3	6	50.0
Anti-Emetic	17	56.7	11	73.3	10	66.7	38	63.3
ORS	6	100.0	3	100.0	2	66.7	11	91.7
Anti-Hypertensive	16	29.6	16	59.3	18	54.5	50	43.9
Anti-Diabetic	7	58.3	4	66.7	8	66.7	19	63.3

Thrombolytic	NA	NA	0	0.0	4	26.7	4	22.2
Anti-Depressant/Mood-Stabilizer/Anti-Psychotic/ Anti-epileptic	15	41.7	12	50.0	17	56.7	44	48.9
Anti-Viral	3	50.0	4	66.7	4	44.4	11	52.4
Uterotonics	8	33.3	7	46.7	6	40.0	21	38.9
Other Endocrine Drugs	NA	NA	NA	NA	NA	NA	NA	NA
Miscellaneous	14	38.9	20	74.1	21	70.0	55	59.1
Auto-immune/Anti-Cancer	NA	NA	NA	NA	1	33.3	1	33.3
Anaesthetic	6	50.0	7	77.8	4	44.4	17	56.7
Total	333	57.2	240	67.8	268	64.7	841	62.3

Table 5: Availability of medicines (%) under each therapeutic category in public health facilities at Tamil Nadu

Drug category	PHC (n=6)		CHC (n=3)		DH (n=3)		Total (n=12)	
	No of drugs available	Percent	No of drugs available	Percent	No of drugs available	Percent	No of drugs available	Percent
Analgesic/Antipyretic/NSAID	38	79.2	26	72.2	28	71.8	92	74.8
Anti-Bacterial	85	64.4	54	66.7	67	77.0	206	68.7
Anti-Allergic	39	65.0	27	81.8	32	76.2	98	72.6
Vitamins and Minerals	31	73.8	18	75.0	19	79.2	68	75.6
Anti-Asthmatic	12	50.0	6	50.0	8	66.7	26	54.2
Antacid	13	72.2	9	75.0	10	83.3	32	76.2
Anti-Helminthic/Anti-Parasitic	9	50.0	6	66.7	5	55.6	20	55.6
Anti-Fungal	2	33.3	2	66.7	3	50.0	7	46.7
Anti-Spasmodic	4	66.7	1	33.3	3	100.0	8	66.7
Anti-Emetic	10	33.3	8	53.3	10	66.7	28	46.7
ORS	6	100.0	3	100.0	3	100.0	12	100.0
Anti-Hypertensive	39	65.0	21	70.0	29	80.6	89	70.6
Anti-Diabetic	10	83.3	5	83.3	8	66.7	23	76.7

Thrombolytic	NA	NA	0	0.0	7	58.3	7	46.7
Anti-Depressant/Mood-Stabilizer/Anti-Psychotic/ Anti-epileptic	14	33.3	13	48.1	22	66.7	49	48.0
Anti-Viral	4	66.7	5	83.3	7	77.8	16	76.2
Uterotonics	4	16.7	4	26.7	10	66.7	18	33.3
Other Endocrine Drugs	NA	NA	NA	NA	NA	NA	NA	NA
Miscellaneous	23	63.9	12	44.4	26	78.8	61	63.5
Auto-immune/Anti-Cancer	NA	NA	NA	NA	3	100.0	3	100.0
Anaesthetic	8	66.7	5	55.6	8	88.9	21	70.0
Total	351	60.3	225	63.6	308	74.4	884	65.5

Table 6: Overall availability of medicines (%) under each therapeutic category in public health facilities

Drug category	PHC (n=18)		CHC (n=9)		DH (n=9)		Total (n=36)	
	No of drugs available	Percent	No of drugs available	Percent	No of drugs available	Percent	No of drugs available	Percent
Analgesic/Antipyretic/NSAID	119	79.3	79	75.2	78	68.4	276	74.8
Anti-Bacterial	224	62.2	147	66.2	178	75.1	549	67.0
Anti-Allergic	92	56.8	64	73.6	81	77.1	237	66.9
Vitamins and Minerals	69	63.9	45	71.4	46	73.0	160	68.4
Anti-Asthmatic	44	52.4	35	77.8	36	75.0	115	65.0
Antacid	36	60.0	27	75.0	27	75.0	90	68.2
Anti-Helminthic/Anti-Parasitic	45	68.2	26	78.8	24	72.7	95	72.0
Anti-Fungal	12	40.0	6	40.0	11	52.4	29	43.9
Anti-Spasmodic	12	50.0	5	41.7	7	58.3	24	50.0
Anti-Emetic	35	48.6	22	61.1	25	69.4	82	56.9
ORS	18	100.0	9	100.0	8	88.9	35	97.2
Anti-Hypertensive	75	46.3	48	57.1	69	62.2	192	53.8
Anti-Diabetic	28	66.7	16	76.2	25	69.4	69	69.7

Thrombolytic	NA	NA	3	16.7	17	43.6	20	35.1
Anti-Depressant/Mood-Stabilizer/Anti-Psychotic/ Anti-epileptic	35	25.4	37	45.7	51	47.2	123	37.6
Anti-Viral	7	58.3	11	61.1	12	40.0	30	50.0
Uterotonics	24	36.4	17	43.6	22	56.4	63	43.8
Other Endocrine Drugs	NA	NA	NA	NA	NA	NA	NA	NA
Miscellaneous	59	39.3	56	53.3	75	62.5	190	50.7
Auto-immune/Anti-Cancer	NA	NA	NA	NA	4	44.4	4	44.4
Anaesthetic	20	47.6	15	45.5	23	63.9	58	52.3
Total	954	54.6	668	62.9	819	65.9	2441	60.3

Figure 6: Proportion of drugs out of stock at facilities based on selected stock list (N=36)

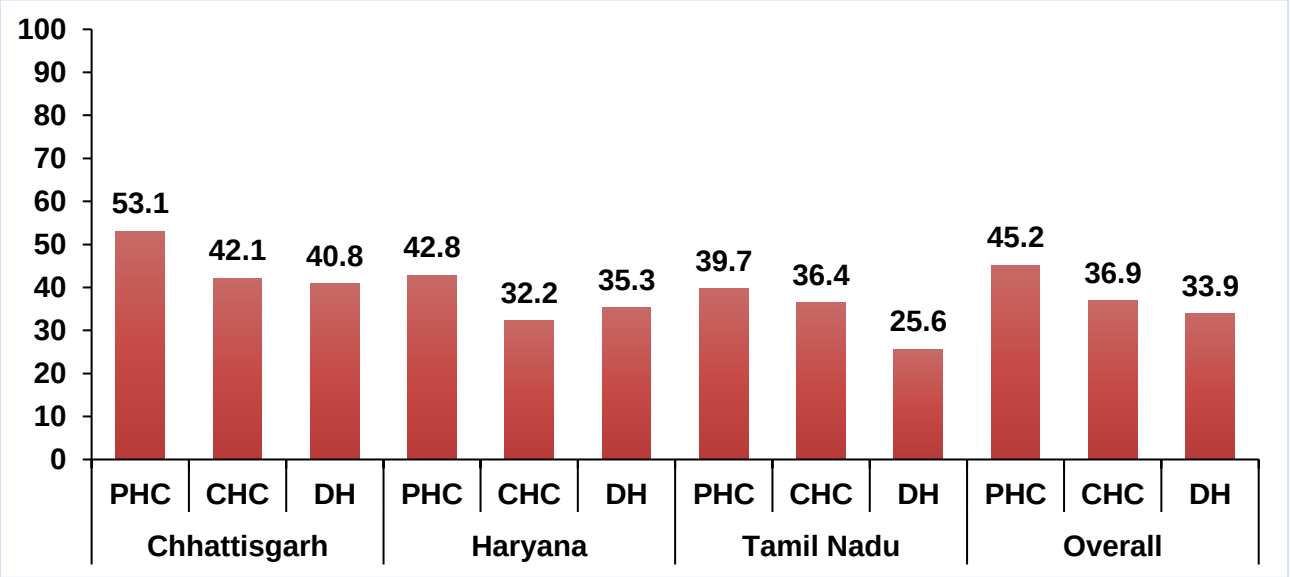

Table 7: Duration and number of stocks out of drugs in public health facilities in Chhattisgarh

Drug category	PHC (n=6)			CHC (n=3)			DH (n=3)			Total
	<1 month	1-3 months	4-6 months	<1 month	1-3 months	4-6 months	<1 month	1-3 months	4-6 months	
Analgesic/Antipyretic/NSAID	0	24	14	0	7	9	0	3	11	68
Anti-Bacterial	0	41	48	1	19	22	1	11	20	163
Anti-Allergic	0	17	23	0	8	4	0	3	2	57
Vitamins and Minerals	0	11	11	0	6	4	0	5	5	42
Anti-Asthmatic	0	16	14	0	6	4	1	5	3	49
Antacid	0	14	2	0	3	1	0	1	0	21
Anti-Helminthic/Anti-Parasitic	0	20	1	0	7	1	0	4	3	36
Anti-Fungal	0	5	12	0	2	6	0	3	4	32
Anti-Spasmodic	0	3	6	0	0	4	0	0	3	16
Anti-Emetic	0	8	2	1	3	1	0	0	1	16
ORS	0	1	0	0	0	0	0	0	0	1
Anti-Hypertensive	1	17	25	2	10	9	0	2	21	87
Anti-Diabetic	0	6	5	0	2	3	0	0	3	19
Thrombolytic	0	0	0	0	4	8	0	3	6	21
Anti-Depressant/ Mood-Stabilizer/Anti-Psychotic/ Anti-epileptic	0	6	51	0	7	17	0	10	26	117
Anti-Viral	0	0	0	0	2	4	0	2	10	18
Uterotonics	0	5	6	0	3	2	0	4	2	22
Miscellaneous	0	15	57	0	12	25	0	8	28	145
Auto-immune/Anti-Cancer	0	0	0	0	0	0	0	0	3	3
Anaesthetic	0	4	13	1	1	11	0	4	8	42
Total	0	24	14	0	7	9	0	3	11	68

Table 8: Duration and number of stocks out of drugs in public health facilities in Haryana

Drug category	PHC (n=6)			CHC (n=3)			DH (n=3)			Total
	<1 month	1-3 months	4-6 months	<1 month	1-3 months	4-6 months	<1 month	1-3 months	4-6 months	
Analgesic/Antipyretic/NSAID	2	2	7	1	3	3	0	9	9	36
Anti-Bacterial	2	3	34	1	5	20	3	6	18	92
Anti-Allergic	2	2	19	1	3	7	2	5	9	50
Vitamins and Minerals	0	1	20	1	2	4	1	1	7	37
Anti-Asthmatic	0	3	3	0	1	2	2	1	3	15
Antacid	0	3	7	0	0	6	1	1	3	21
Anti-Helminthic/Anti-Parasitic	1	3	7	0	0	3	1	1	1	17
Anti-Fungal	0	0	0	0	0	0	0	0	4	4
Anti-Spasmodic	0	1	0	0	0	0	0	2	0	3
Anti-Emetic	0	1	12	0	0	4	1	3	2	23
ORS	0	1	0	0	0	0	0	0	0	1
Anti-Hypertensive	0	9	22	0	2	9	3	5	12	62
Anti-Diabetic	0	0	0	0	0	0	0	0	5	5
Thrombolytic	0	0	0	0	0	0	0	1	9	10
Anti-Depressant/ Mood-Stabilizer/Anti-Psychotic/ Anti-epileptic	0	3	18	0	3	8	3	3	11	49
Anti-Viral	0	0	0	0	0	2	1	0	3	6
Uterotonics	0	1	15	0	1	7	0	2	8	34
Miscellaneous	0	3	19	2	2	4	3	1	8	42
Auto-immune/Anti-Cancer	0	0	0	0	0	0	0	0	2	2
Anaesthetic	0	0	6	0	0	2	0	1	4	13
Total	2	2	7	1	3	3	0	9	9	36

Table 9: Duration and number of stocks out of drugs in public health facilities in Tamil Nadu

Drug category	PHC (n=6)			CHC (n=3)			DH (n=3)			Total
	<1 month	1-3 months	4-6 months	<1 month	1-3 months	4-6 months	<1 month	1-3 months	4-6 months	
Analgesic/Antipyretic/NSAID	0	0	13	0	0	10	0	0	11	34
Anti-Bacterial	0	0	47	0	0	27	0	0	21	95
Anti-Allergic	0	0	21	0	0	8	0	0	10	39
Vitamins and Minerals	0	0	11	0	0	6	0	0	4	21
Anti-Asthmatic	0	0	12	0	0	5	0	0	4	21
Antacid	0	0	5	0	0	3	0	0	2	10
Anti-Helminthic/Anti-Parasitic	0	0	9	0	0	3	0	0	4	16
Anti-Fungal	0	0	4	0	0	1	0	0	3	8
Anti-Spasmodic	0	0	2	0	0	2	0	0	0	4
Anti-Emetic	0	0	20	0	0	7	0	0	5	32
ORS	0	0	0	0	0	0	0	0	0	0
Anti-Hypertensive	0	0	23	0	0	11	0	0	8	42
Anti-Diabetic	0	0	2	0	0	1	0	0	4	7
Thrombolytic	0	0	0	0	0	3	0	0	5	8
Anti-Depressant/Mood-Stabilizer/Anti-Psychotic/Anti-epileptic	0	0	29	0	0	14	0	0	12	55
Anti-Viral	0	0	2	0	0	4	0	0	2	8
Uterotonics	0	0	20	0	0	13	0	0	5	38
Miscellaneous	0	0	13	0	0	15	0	0	7	35
Auto-immune/Anti-Cancer	0	0	0	0	0	0	0	0	0	0
Anaesthetic	0	0	4	0	0	4	0	0	1	9
Total	0	0	13	0	0	10	0	0	11	34

Table 10: Number of injections and antibiotics prescribed in public health facilities of Chhattisgarh, Haryana and Tamil Nadu

Type of facility	Chhattisgarh		Haryana		Tamil Nadu		Total	
	Injection n (%)	Antibiotic n (%)	Injection n (%)	Antibiotic n (%)	Injection n (%)	Antibiotic n (%)	Injection n (%)	Antibiotic n (%)
MC	110 (16.4)	78 (16.4)	-	-	25 (73.6)	14 (13.8)	135 (14.4)	92 (7.9)
DH	270 (40.2)	188 (39.4)	228 (99.2)	358 (61.1)	8 (23.5)	76 (75.2)	506 (54.1)	622 (53.4)
CHC	228 (33.9)	129 (27)	1 (0.4)	140 (23.9)	0	4 (4)	229 (24.5)	273 (23.5)
PHC	64 (9.5)	82 (17.2)	1 (0.4)	88 (15)	1 (2.9)	7 (7)	66 (7.1)	177 (15.2)
Total	672 (100)	477 (100)	230 (100)	586 (100)	34 (100)	101 (100)	936 (100)	1164 (100)

Table 11: Incidence of poly pharmacy (%) in public health care facilities of Chhattisgarh, Haryana and Tamil Nadu

No. of drugs per prescription	Chhattisgarh (%)				Haryana (%)			Tamil Nadu (%)				Overall (%)			
	PHC	CHC	DH	MC	PHC	CHC	DH	PHC	CHC	DH	MC	PHC	CHC	DH	MC
1	4.7	3.6	6.1	8.3	13.9	12.4	9.3	17.5	20	7	13.5	11.7	11.8	7.7	11.3
2	13.2	7.2	19.9	14.6	25.7	26.6	25.1	41.7	36	31	28.5	26.6	23.2	25.1	22.7
3	29.5	28.1	19	26.4	29.7	31.7	28.7	27.5	34.7	35	27.5	28.9	31.4	27.4	27
4	25.6	28.1	24.6	25	19.8	22.9	19.8	12.5	9.3	18	25.5	19.4	20.7	20.8	25.3
5	11.6	20.4	13.7	14.6	6.9	4.6	5.7	0.8	0	9	5	6.6	8.2	9.2	9
>5	15.5	12.6	16.7	11.1	4	1.8	11.4	0	0	0	0	6.9	4.7	9.9	4.7

Table 12: Proportion of drugs dispensed by therapeutic category in public health facilities of Chhattisgarh, Haryana and Tamil Nadu

Therapeutic category	Chhattisgarh				Haryana			Tamil Nadu			
	PHC	CHC	DH	MC	PHC	CHC	DH	PHC	CHC	DH	M
Analgesic/Antipyretic/NSAID	15.1	16.3	18.5	11.9	18.1	19	17.7	4.5	12.3	21.8	2
Antibiotics	15.7	18.9	14.3	14.7	23.1	21.1	21.6	2.5	1.1	8.7	2
Antacid	5.7	9.4	11.8	13.9	11	12.5	15.6	0.4	1.7	10.9	6
Vitamins and Minerals	40.1	29.5	28.6	23.7	14.4	14.3	15.6	30.2	28.6	31.3	2
Anti-depressant/mood stabilizer-Anti-psychotic/Anti-Epileptic	0	0	0.5	3.4	0	0	5.4	3.5	0	4.5	2
Miscellaneous	11.9	16.3	11.4	18.8	7.6	6	7.6	0	0.9	2.3	7
Anti-Hypertensive	0.8	1.6	2.4	2.4	1.3	3.3	1.6	32.3	23.4	10.2	1
Anti-Allergic	5.7	4.4	3.9	4.9	15.5	13.7	6.1	0.4	2.3	1.3	0
Anti-Anxiety	0	0.4	0.3	0.9	0	0.5	1.6	0	0	0.2	
Anti-Fungal	1.9	0.7	0.3	0.2	7.9	6.8	3.6	0.7	2.6	0.8	2
Anti-Heart Failure/Thrombolytic	0	0	0.3	2.6	0	0.3	0.7	2.8	4	1.4	3
Anti-Asthmatic	0.8	0.6	0.3	1.9	0.8	1.4	1	0	0.3	0.1	0
Anti-Anginal	0	0	<0.01	0.4	0	0.3	0.1	0	0.3	0.9	1
Anti-Diabetic	2.5	1.6	5.7	0.8	0.3	0.3	1.3	26	22.6	9.7	1

Table 13: State-wise overall Out-of –pocket expenditure of the patients in outpatient care

State	Public		Private		Pharmacy		Total		Public (%)	Private (%)	Pharmacy (%)	All (%)
	Mean	SE	Mean	SE	Mean	SE	Mean	SE				
Chhattisgarh												
Registration	16.7	1.8	0.6	0.2	0.7	0.4	6.4	0.7	2.6	0.0	0.3	0.5
Consultation Fee	50.6	40.6	177.5	3.1	3.6	3.6	127.4	14.8	7.9	10.5	1.3	10.0
Doctor/surgeon	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Bed charges	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hospital charge	67.3	40.7	178.2	3.1	4.3	3.6	133.8	14.8	10.5	10.5	1.6	10.5
Medicines	241.1	46.0	563.9	31.0	260.9	39.0	439.9	25.5	37.7	33.2	97.1	34.4
Diagnostic	129.7	36.4	397.7	30.0	2.4	2.4	291.1	22.8	20.3	23.4	0.9	22.7
Consumables	34.1	26.3	25.6	6.6	0.0	0.0	28.0	10.3	5.3	1.5	0.0	2.2
other medical expenditure	0.0	0.0	253.5	18.5	0.0	0.0	155.8	11.8	0.0	14.9	0.0	12.2
Medical Expenditure	472.2	101.5	1419.0	56.5	267.5	39.5	1048.6	51.7	73.8	83.6	99.6	81.9
Transportation	134.7	37.9	233.7	20.3	1.2	1.2	192.1	18.5	21.1	13.8	0.4	15.0
Stay	0.0	0.0	7.7	3.8	0.0	0.0	4.8	2.4	0.0	0.5	0.0	0.4
Food	3.7	3.4	8.5	4.2	0.0	0.0	6.6	2.9	0.6	0.5	0.0	0.5
Others	28.9	10.3	28.0	5.6	0.0	0.0	27.6	5.0	4.5	1.7	0.0	2.2
Non-Medical Expenditure	167.3	41.2	278.0	26.0	1.2	1.2	231.0	21.9	26.2	16.4	0.4	18.1
Total OOPE	639.5	115.4	1696.9	70.4	268.7	39.7	1279.6	61.4	100.0	100.0	100.0	100.0
Haryana												
Registration	4.0	0.1	1.4	0.5	0.0	0.0	2.3	0.3	3.4	0.2	0.0	0.4
Consultation Fee	0.4	0.3	176.1	3.7	0.6	0.6	97.2	2.8	0.3	19.2	0.3	17.3
Doctor/surgeon	0.0	0.0	0.9	0.9	0.0	0.0	0.5	0.5	0.0	0.1	0.0	0.1
Bed charges	0.0	0.0	4.7	4.7	0.0	0.0	2.6	2.6	0.0	0.5	0.0	0.5

Hospital charge	4.4	0.3	183.2	6.9	0.6	0.6	102.6	4.3	3.7	20.0	0.3	18.2
Medicines	61.5	12.8	354.6	14.0	149.2	20.4	230.2	9.7	52.0	38.6	87.4	40.9
Diagnostic	20.6	5.2	255.8	19.4	0.0	0.0	148.5	11.2	17.4	27.9	0.0	26.4
Consumables	0.3	0.3	4.7	2.9	0.0	0.0	2.7	1.6	0.3	0.5	0.0	0.5
other medical expenditure	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Medical Expenditure	86.8	14.1	798.3	28.0	149.8	20.5	483.9	18.1	73.4	87.0	87.8	85.9
Transportation	31.5	1.8	71.9	5.0	19.9	2.3	52.8	2.9	26.6	7.8	11.7	9.4
Stay	0.0	0.0	20.6	20.6	0.0	0.0	11.3	11.3	0.0	2.2	0.0	2.0
Food	0.0	0.0	1.6	1.0	0.0	0.0	0.9	0.5	0.0	0.2	0.0	0.2
Others	0.0	0.0	25.4	6.7	1.0	0.8	14.0	3.7	0.0	2.8	0.6	2.5
Nonmedical Expenditure	31.5	1.8	119.5	24.6	20.9	2.5	79.1	13.6	26.6	13.0	12.2	14.1
Total OOPE	118.4	14.6	917.8	40.3	170.7	21.3	563.0	24.5	100.0	100.0	100.0	100.0
Tamil Nadu												
Registration	0.0	0.0	19.3	2.3	0.0	0.0	9.9	1.2	0.0	1.9	0.0	1.5
Consultation Fee	0.0	0.0	263.1	4.8	5.3	2.6	135.5	4.1	0.0	25.8	3.9	20.5
Doctor/surgeon	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Bed charges	0.0	0.0	8.3	7.4	0.0	0.0	4.3	3.8	0.0	0.8	0.0	0.6
Hospital charge	0.0	0.0	290.7	9.9	5.3	2.6	149.7	6.3	0.0	28.5	3.9	22.6
Medicines	1.2	0.5	290.9	12.9	84.3	6.7	158.7	7.5	0.4	28.5	62.1	24.0
Diagnostic	57.2	9.0	223.2	17.6	0.0	0.0	136.2	9.9	17.6	21.9	0.0	20.6
Consumables	0.2	0.2	22.5	8.8	1.8	1.8	11.8	4.5	0.1	2.2	1.3	1.8
other medical expenditure	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Medical Expenditure	58.6	9.0	827.4	32.0	91.3	8.0	456.4	19.3	18.0	81.1	67.3	69.1
Transportation	144.0	15.3	152.5	15.6	44.3	2.1	137.7	9.9	44.4	15.0	32.7	20.8
Stay	4.5	1.9	0.2	0.2	0.0	0.0	1.8	0.7	1.4	0.0	0.0	0.3
Food	65.9	10.5	25.2	8.3	0.0	0.0	38.0	5.9	20.3	2.5	0.0	5.7
Others	51.5	11.5	14.6	5.3	0.0	0.0	27.0	5.2	15.9	1.4	0.0	4.1
Nonmedical Expenditure	265.9	30.7	192.5	22.3	44.3	2.1	204.5	16.4	82.0	18.9	32.7	30.9

Total OOPE	324.4	31.8	1019.9	42.6	135.6	8.9	660.9	26.7	100.0	100.0	100.0	100.0
Total												
Registration	6.6	0.6	6.1	0.7	0.1	0.0	5.9	0.4	1.9	0.5	0.0	0.7
Consultation Fee	15.5	12.3	200.8	2.3	3.0	1.3	118.2	4.9	4.6	16.6	1.8	14.5
Doctor/surgeon	0.0	0.0	0.4	0.4	0.0	0.0	0.2	0.2	0.0	0.0	0.0	0.0
Bed charges	0.0	0.0	4.1	2.7	0.0	0.0	2.3	1.5	0.0	0.3	0.0	0.3
Hospital charge	22.1	12.3	211.4	4.1	3.1	1.3	126.6	5.3	6.5	17.4	1.9	15.5
Medicines	97.1	15.0	408.3	12.5	132.4	10.8	273.6	9.2	28.5	33.7	79.9	33.6
Diagnostic	65.1	11.6	295.2	13.6	0.3	0.3	189.0	8.9	19.1	24.4	0.2	23.2
Consumables	10.5	8.0	16.8	3.5	0.8	0.8	13.3	3.5	3.1	1.4	0.5	1.6
other medical expenditure	0.0	0.0	86.6	6.7	0.0	0.0	48.4	3.8	0.0	7.1	0.0	5.9
Medical Expenditure	194.9	31.6	1018.2	24.3	136.5	11.0	650.9	18.8	57.2	84.0	82.4	79.8
Transportation	98.0	12.5	149.6	8.5	28.8	1.6	121.8	6.6	28.7	12.3	17.4	14.9
Stay	1.4	0.6	10.5	7.9	0.0	0.0	6.4	4.4	0.4	0.9	0.0	0.8
Food	21.7	3.5	10.5	2.8	0.0	0.0	13.9	2.0	6.4	0.9	0.0	1.7
Others	24.8	4.8	23.3	3.5	0.4	0.4	22.2	2.6	7.3	1.9	0.3	2.7
Nonmedical Expenditure	146.0	15.9	193.9	14.4	29.2	1.6	164.3	10.0	42.8	16.0	17.6	20.2
Total OOPE	340.9	37.1	1212.1	31.5	165.8	11.3	815.2	23.2	100.0	100.0	100.0	100.0

Table 14: State-wise overall Out-of –pocket expenditure of the patients in inpatient care

	Public		Private		Total		Public (%)	Private (%)	All (%)
	Mean	SE	Mean	SE	Mean	SE			
Chhattisgarh									
Registration	16.5	2.9	0.0	0.0	14.5	2.6	1.2	0.0	0.5
Consultation Fee	11.0	7.9	192.6	28.7	33.1	8.7	0.8	1.5	1.2
Doctor/surgeon	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Bed charges	0.0	0.0	74.1	74.1	9.0	9.0	0.0	0.6	0.3
Hospital charge	27.5	10.1	266.7	83.2	56.6	14.3	1.9	2.1	2.0
Medicines	292.0	107.0	1860.1	386.7	482.7	110.2	20.4	14.8	17.4
Diagnostic	156.9	44.6	1344.4	242.8	301.4	55.3	11.0	10.7	10.8
Consumables	147.8	44.0	955.6	182.1	246.0	47.8	10.3	7.6	8.8
other medical expenditure	0.0	0.0	1001.6	161.2	121.8	29.3	0.0	8.0	4.4
Medical Expenditure	624.2	126.2	5428.3	644.4	1208.5	171.4	43.6	43.3	43.5
Transportation	367.3	104.9	2798.7	671.3	663.0	133.4	25.7	22.3	23.8
Stay	0.3	0.3	2074.1	475.7	252.5	72.9	0.0	16.6	9.1
Food	106.4	21.8	870.4	254.0	199.3	39.6	7.4	6.9	7.2
Others	331.9	45.9	1359.3	369.4	456.8	63.9	23.2	10.8	16.4
Nonmedical Expenditure	805.9	123.1	7102.4	1034.8	1571.7	214.9	56.4	56.7	56.5
Total OOPE	1430.2	227.0	12530.7	1486.9	2780.2	361.8	100.0	100.0	100.0
Haryana									
Registration	5.0	0.0	0.0	0.0	3.4	0.3	0.3	0.0	0.2
Consultation Fee	8.5	8.5	316.7	114.9	105.2	39.3	0.5	10.2	5.2
Doctor/surgeon	0.0	0.0	16.7	16.7	5.2	5.2	0.0	0.5	0.3
Bed charges	0.0	0.0	1027.8	775.1	322.7	245.7	0.0	33.1	15.9
Hospital charge	13.5	8.5	1361.1	888.9	436.6	283.7	0.9	43.9	21.5
Medicines	175.1	68.0	155.9	53.7	169.0	49.5	11.3	5.0	8.3
Diagnostic	100.5	49.6	1318.1	263.5	482.8	107.6	6.5	42.5	23.7

Consumables	8.1	8.1	174.1	135.4	60.2	43.1	0.5	5.6	3.0
other medical expenditure	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Medical Expenditure	297.2	98.7	3009.2	1224.2	1148.6	408.8	19.2	97.0	56.5
Transportation	256.6	43.4	14.1	8.2	180.5	32.2	16.6	0.5	8.9
Stay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Food	878.0	137.1	11.1	11.1	605.8	103.5	56.8	0.4	29.8
Others	112.7	82.8	66.7	46.5	98.3	58.5	7.3	2.1	4.8
Nonmedical Expenditure	1247.3	188.4	91.9	61.7	884.5	142.7	80.8	3.0	43.5
Total OOPE	1544.5	249.1	3101.0	1233.2	2033.2	425.7	100.0	100.0	100.0
Tamil Nadu									
Registration	0.0	0.0	110.3	10.6	42.1	5.2	0.0	0.7	0.6
Consultation Fee	0.0	0.0	604.4	61.2	230.9	29.5	0.0	3.8	3.1
Doctor/surgeon	0.0	0.0	4295.1	1143.1	1640.8	453.8	0.0	26.7	22.0
Bed charges	0.0	0.0	2902.0	361.9	1108.6	162.7	0.0	18.1	14.9
Hospital charge	0.0	0.0	7911.8	1360.4	3022.5	569.2	0.0	49.2	40.5
Medicines	21.6	7.6	871.8	158.9	346.4	65.8	1.0	5.4	4.6
Diagnostic	0.0	0.0	1717.1	200.5	656.0	91.9	0.0	10.7	8.8
Consumables	11.8	6.7	305.9	106.9	124.2	41.8	0.6	1.9	1.7
other medical expenditure	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0
Medical Expenditure	33.4	9.9	10806.7	1524.2	4149.0	663.3	1.6	67.3	55.6
Transportation	856.8	109.4	1205.5	131.1	990.0	84.6	40.1	7.5	13.3
Stay	50.1	29.8	1273.5	131.4	517.5	64.6	2.3	7.9	6.9
Food	796.0	107.6	1392.5	116.1	1023.8	81.8	37.3	8.7	13.7
Others	400.0	101.2	1387.7	315.4	777.3	138.6	18.7	8.6	10.4
Nonmedical Expenditure	2102.8	246.4	5259.2	446.2	3308.6	246.7	98.4	32.7	44.4
Total OOPE	2136.2	246.7	16065.9	1875.5	7457.7	840.0	100.0	100.0	100.0
Total									

Registration	8.4	1.4	72.1	8.1	25.7	2.7	0.5	0.5	0.5
Consultation Fee	6.3	3.9	483.3	46.8	135.7	15.7	0.4	3.7	2.8
Doctor/surgeon	0.0	0.0	2811.2	763.9	762.7	213.2	0.0	21.3	15.8
Bed charges	0.0	0.0	2088.1	286.3	566.5	86.6	0.0	15.8	11.7
Hospital charge	14.7	4.9	5454.8	941.2	1490.6	274.1	0.9	41.3	30.8
Medicines	169.0	51.1	919.0	129.7	372.5	53.0	9.8	7.0	7.7
Diagnostic	87.2	22.1	1583.6	145.2	493.2	50.7	5.1	12.0	10.2
Consumables	74.6	20.9	395.5	82.5	161.7	27.7	4.3	3.0	3.3
other medical expenditure	0.0	0.0	173.4	41.0	47.0	11.6	0.0	1.3	1.0
Medical Expenditure	345.5	61.8	8526.2	1054.5	2565.0	326.4	20.0	64.5	53.0
Transportation	544.5	66.5	1275.0	157.4	742.7	65.9	31.6	9.7	15.3
Stay	19.9	11.8	1191.7	128.1	337.8	41.8	1.2	9.0	7.0
Food	486.6	50.6	1063.0	96.7	643.0	46.5	28.2	8.0	13.3
Others	327.8	46.8	1154.2	219.1	552.0	70.1	19.0	8.7	11.4
Nonmedical Expenditure	1378.8	119.2	4683.9	384.1	2275.5	148.7	80.0	35.5	47.0
Total OOPE	1724.3	148.4	13210.1	1325.1	4840.5	431.0	100.0	100.0	100.0

Table 15: Mean OOPE according to state and district wise for outpatient care (NSSO 75th round)

State	Facility	District		Consult. fee	Ayush medicine	Allopathy medicine	Diag.	Others	Medical expend.	Transport	Non-medical expend	Other medical expend	Total expend
Haryana	Public	Panchkula	Mean	2	0	1058	683	56	1799	233	114	348	2146
			S.E	2	0	251	638	42	776	51	16	60	815
		Jind	Mean	50	0	538	150	0	738	45	98	143	882
			S.E	50	0	331	96	0	372	14	81	72	422
		Yamunanagar	Mean	0	0	148	0	0	148	28	35	63	212
			S.E	0	0	126	0	0	126	8	11	17	117
		Total	Mean	9	0	826	486	38	1359	169	99	268	1628
			S.E	8	0	186	431	29	535	38	17	46	566
	Private	Panchkula	Mean	1281	0	1306	1154	523	4263	605	305	909	5172
			S.E	919	0	620	721	450	2662	212	174	351	2979
		Jind	Mean	109	46	337	51	9	551	42	11	53	604
			S.E	12	23	35	17	5	51	5	3	7	54
		Yamunanagar	Mean	37	16	479	8	0	541	21	7	28	569
			S.E	10	16	98	4	0	99	9	4	11	104
		Total	Mean	188	33	463	133	51	867	84	35	119	986
			S.E	82	15	67	66	39	241	23	16	36	274
	Total	Panchkula	Mean	393	0	1134	827	199	2552	347	173	519	3071

			S.E	289	0	253	491	141	971	77	55	120	1071
		Jind	Mean	104	42	352	58	9	565	42	17	59	624
			S.E	12	21	39	17	5	53	4	7	8	58
		Yamunanagar	Mean	32	14	434	7	0	488	22	11	33	520
			S.E	9	14	87	4	0	89	8	4	10	92
		Total	Mean	148	26	544	212	48	978	103	49	152	1130
			S.E	64	12	67	109	31	222	20	13	30	248
Chhattisgarh	**Public**	**Raipur**	Mean	2	22	124	8	2	158	6	1	7	164
			S.E	1	11	45	8	2	47	3	1	3	49
		Mahasamund	Mean	0	4	73	0	0	78	72	222	294	372
			S.E	0	4	15	0	0	17	55	222	276	266
		Dhamtari	Mean	0	188	65	0	1	254	19	19	38	291
			S.E	0	188	31	0	1	180	9	11	19	176
		Total	Mean	1	49	103	5	2	159	22	50	73	231
			S.E	1	35	28	5	1	43	12	46	58	69
	Private	**Raipur**	Mean	115	7	711	42	31	906	28	14	42	948
			S.E	24	7	277	26	22	282	8	7	14	285
		Mahasamund	Mean	63	735	181	53	167	1197	76	67	143	1340
			S.E	19	388	100	34	167	463	32	28	48	480
		Dhamtari	Mean	78	87	395	52	17	630	27	17	43	673

			S.E	14	87	81	32	12	112	10	9	14	113
		Total	Mean	96	144	534	46	48	869	35	23	58	927
			S.E	14	70	155	18	29	173	7	7	12	175
	Total	**Raipur**	Mean	71	13	487	29	20	620	20	9	29	649
			S.E	16	6	175	16	14	180	5	4	9	182
		Mahasamund	Mean	36	422	135	30	95	717	74	133	208	925
			S.E	13	232	57	20	95	288	29	95	119	310
		Dhamtari	Mean	58	113	310	39	13	533	25	17	42	575
			S.E	12	79	66	24	9	98	8	7	12	99
		Total	Mean	62	110	380	32	31	614	31	33	63	678
			S.E	10	47	101	11	18	116	6	17	22	119
Tamil Nadu	**Public**	**Chennai**	Mean	6	0	18	40	15	78	116	122	238	316
			S.E	2	0	6	13	5	25	37	39	75	100
		Villupuram	Mean	0	0	34	4	0	38	174	123	297	335
			S.E	0	0	23	3	0	24	62	50	110	111
		Dindugul	Mean	0	0	33	0	0	33	95	200	295	328
			S.E	0	0	33	0	0	33	71	152	222	218
		Total	Mean	3	0	25	24	9	61	135	127	263	324
			S.E	3	0	10	10	9	18	24	30	48	51
	Private	**Chennai**	Mean	286	0	990	318	67	1661	97	54	151	1812

			S.E	95	0	148	124	38	290	21	23	36	310
		Villupuram	Mean	157	36	646	89	29	957	101	100	201	1157
			S.E	29	36	125	55	19	157	20	37	55	199
		Dindugul	Mean	177	117	364	110	13	781	31	52	83	864
			S.E	32	59	85	35	5	120	6	16	18	130
		Total	Mean	237	27	807	229	49	1349	88	65	152	1501
			S.E	58	13	97	76	23	181	14	17	26	195
	Total	**Chennai**	Mean	163	0	564	196	44	968	105	84	189	1157
			S.E	55	0	94	71	22	178	14	22	28	188
		Villupuram	Mean	73	17	320	44	13	467	140	112	252	719
			S.E	17	17	71	26	9	95	35	32	64	121
		Dindugul	Mean	133	88	281	83	10	594	47	89	136	730
			S.E	29	45	71	28	4	112	18	40	57	120
		Total	Mean	133	15	460	138	31	777	109	93	201	978
			S.E	33	7	60	43	13	110	13	16	26	118
Total	**Public**	**Total**	Mean	4	12	218	119	13	366	114	102	216	583
			S.E	2	9	48	94	8	122	16	20	31	132
	Private	**Total**	Mean	183	58	603	146	49	1040	73	43	116	1156
			S.E	39	19	58	38	19	124	11	9	18	137
	Total	**Total**	Mean	121	42	468	137	37	805	88	63	151	956

			S.E	26	13	42	41	13	92	9	9	16	101

Table 16: Mean OOPE according to state and district wise for inpatient care (NSSO 75th round)

State	Facility	District		Consult. fee	Medicine	Diagnostics	Bed charges	Others	Transport	Nonmedical expend	Medical expend	Total expend
Haryana	Public	Panchkula	N	33	33	33	33	33	33	33	33	33
			Mean	30	9022	5320	518	3405	1078	1682	18295	21055
			S.E	30	2836	1394	227	1019	308	354	4725	5117
		Jind	N	5	5	5	5	5	5	5	5	5
			Mean	6000	9186	3660	1800	3000	570	2480	23646	26696
			S.E	6000	8954	3585	1800	3000	388	1895	23339	25580
		Yamunanagar	N	21	21	21	21	21	21	21	21	21
			Mean	0	876	224	0	555	719	1937	1655	4311
			S.E	0	335	192	0	321	294	783	764	1781
		Total	N	59	59	59	59	59	59	59	59	59
			Mean	526	6137	3365	442	2356	907	1840	12826	15573
			S.E	508	1797	881	197	646	204	369	3372	3680
	Private	Panchkula	N	20	20	20	20	20	20	20	20	20

			Mean	15857	11704	13135	11715	9197	1903	3530	61608	67040
			S.E	4723	2020	2864	2632	2444	438	1246	11503	12396
		Jind	N	8	8	8	8	8	8	8	8	8
			Mean	11250	4688	5038	4225	863	494	1600	26063	28156
			S.E	2589	1161	1265	731	318	140	698	4205	4350
		Yamunanagar	N	83	83	83	83	83	83	83	83	83
			Mean	7602	9540	4556	5964	4219	754	1758	31882	34394
			S.E	2031	2781	972	1136	1710	137	298	7589	7784
		Total	N	111	111	111	111	111	111	111	111	111
			Mean	9353	9580	6137	6875	4874	942	2066	36819	39826
			S.E	1765	2113	942	993	1364	136	323	6128	6336
	Total	Panchkula	N	53	53	53	53	53	53	53	53	53
			Mean	6002	10034	8269	4743	5591	1389	2379	34639	38408
			S.E	2051	1917	1467	1241	1172	257	527	5939	6385
		Jind	N	13	13	13	13	13	13	13	13	13
			Mean	9231	6418	4508	3292	1685	523	1938	25133	27595
			S.E	2751	3341	1503	850	1132	163	807	8735	9525
		Yamunanagar	N	104	104	104	104	104	104	104	104	104
			Mean	6067	7790	3681	4760	3479	747	1794	25779	28319

			S.E	1646	2244	795	935	1373	124	284	6168	6327
		Total	N	170	170	170	170	170	170	170	170	170
			Mean	6289	8385	5175	4643	4000	930	1988	28492	31409
			S.E	1208	1516	693	692	922	113	246	4253	4412
Chhattisgarh	Public	Raipur	N	43	43	43	43	43	43	43	43	43
			Mean	588	1711	661	357	345	159	615	3662	4436
			S.E	185	405	175	115	119	29	120	792	867
		Mahasamund	N	33	33	33	33	33	33	33	33	33
			Mean	443	985	294	276	318	210	1053	2315	3578
			S.E	195	264	121	122	101	61	229	782	1022
		Dhanmtari	N	26	26	26	26	26	26	26	26	26
			Mean	477	1048	403	288	354	237	393	2570	3200
			S.E	292	383	193	178	156	101	70	1148	1154
		Total	N	102	102	102	102	102	102	102	102	102
			Mean	513	1307	476	313	338	195	700	2948	3843
			S.E	124	215	97	76	71	34	94	509	571
	Private	Raipur	N	77	77	77	77	77	77	77	77	77
			Mean	5071	7947	3599	4312	2183	889	881	23112	24882
			S.E	1023	1448	646	685	514	587	178	4141	4685

		Mahasamund	N	38	38	38	38	38	38	38	38	38
			Mean	2313	4132	1041	2090	1443	387	1205	11018	12610
			S.E	577	524	214	295	416	89	266	1306	1455
		Dhanmtari	N	32	32	32	32	32	32	32	32	32
			Mean	2673	6269	2519	2695	2492	269	621	16647	17537
			S.E	402	1161	670	406	1237	96	149	3133	3285
		Total	N	147	147	147	147	147	147	147	147	147
			Mean	3836	6595	2703	3386	2059	624	908	18578	20110
			S.E	571	818	381	385	394	309	121	2328	2610
	Total	Raipur	N	120	120	120	120	120	120	120	120	120
			Mean	3465	5712	2546	2895	1524	628	785	16142	17555
			S.E	687	978	438	473	341	377	122	2800	3146
		Mahasamund	N	71	71	71	71	71	71	71	71	71
			Mean	1444	2669	694	1247	920	305	1135	6973	8412
			S.E	339	357	134	199	236	56	177	939	1054
		Dhanmtari	N	58	58	58	58	58	58	58	58	58
			Mean	1688	3928	1570	1616	1533	254	519	10336	11110
			S. E	294	743	402	284	695	69	89	2016	2096
		Total	N	249	249	249	249	249	249	249	249	249

			Mean	2475	4429	1791	2127	1354	449	823	12175	13447
			S.E	356	517	239	248	240	183	81	1472	1637
Tamil Nadu	Public	Chennai	N	104	104	104	104	104	104	104	104	104
			Mean	9	512	249	10	155	497	1504	935	2936
			S.E	5	195	96	7	51	50	143	301	310
		Villupuram	N	103	103	103	103	103	103	103	103	103
			Mean	0	425	97	10	248	918	2350	779	4047
			S.E	0	182	53	10	63	136	256	215	483
		Dindugul	N	48	48	48	48	48	48	48	48	48
			Mean	115	483	123	147	131	526	2467	999	3991
			S.E	72	338	48	116	44	104	376	432	722
		Total	N	255	255	255	255	255	255	255	255	255
			Mean	25	472	164	35	188	673	2027	884	3584
			S.E	14	125	46	22	34	63	140	170	270
	Private	Chennai	N	140	140	140	140	140	140	140	140	140
			Mean	16448	19264	8833	8970	6600	905	2063	60115	63083
			S.E	2107	2506	1093	1109	885	102	187	7353	7442
		Villupuram	N	74	74	74	74	74	74	74	74	74
			Mean	15352	25162	7439	6521	4936	1210	4057	59410	64677

			S.E	4853	9848	1687	1123	1179	151	1228	18132	19225
		Dindugul	N	57	57	57	57	57	57	57	57	57
			Mean	7457	8160	3642	6287	2537	967	3152	28083	32202
			S.E	1639	1441	685	990	545	186	623	4480	5010
		Total	N	271	271	271	271	271	271	271	271	271
			Mean	14258	18539	7360	7737	5291	1001	2837	53185	57023
			S.E	1756	3009	750	685	577	77	375	6336	6612
	Total	Chennai	N	244	244	244	244	244	244	244	244	244
			Mean	9441	11271	5174	5151	3853	731	1825	34890	37446
			S.E	1315	1556	684	696	547	63	124	4614	4673
		Chennai	N	177	177	177	177	177	177	177	177	177
			Mean	6418	10767	3166	2732	2208	1040	3064	25292	29396
			S.E	2100	4204	754	527	522	102	536	7860	8322
		Villupuram	N	105	105	105	105	105	105	105	105	105
			Mean	4100	4651	2033	3480	1437	765	2839	15702	19306
			S.E	956	878	409	616	318	113	379	2767	3057
		Total	N	526	526	526	526	526	526	526	526	526
			Mean	7358	9780	3871	4003	2817	842	2444	27830	31116
			S.E	956	1599	417	391	318	51	205	3456	3600

Total	Public	Total	N	416	416	416	416	416	416	416	416	416
			Mean	216	1480	694	161	532	589	1675	3084	5348
			S.E	79	286	140	37	102	50	107	540	597
	Private	Total	N	529	529	529	529	529	529	529	529	529
			Mean	10332	13340	5809	6347	4306	884	2139	40134	43157
			S.E	1003	1635	453	429	429	99	209	3604	3769
	Total	Total	N	945	945	945	945	945	945	945	945	945
			Mean	5879	8119	3558	3624	2645	754	1935	23824	26513
			S.E	586	943	273	260	252	60	126	2117	2211

Table 17: Change in patients reported expenditures for adjustment in medicines as per market

	Out patients care		Net Change (%)	In patients care		Net Change (%)
	Patient Recall Mean (SE)	Adj. of Medicine Mean (SE)		Patient Recall Mean (SE)	Adj. of Medicine Mean (SE)	
Hospital charge#	195.7(3.74)	210.7(3.88)	7.7	5379.5(935.2)	5443.4(934.7)	65
Medicines	352.8(11.7)	337.8(11.7)	-4.3	773.7(127.1)	709.8(120)	-8.3
Diagnostics	280.6 (13.2)	280.6(13.2)	0	1422.1(133.9)	1422.1(133.9)	0
Consumables	10.9 (2.80)	10.9(2.8)	0	201.9(48.2)	201.9(48.2)	0
Other medical expenditure	86.6 (6.70)	86.6(6.7)	0	173.4(41)	173.4(41)	0
Medical Expenditure	926.6 (23.1)	926.6(23.1)	0	7950.7(999)	7950.7(999)	0
Non-Medical Expenditure##	173.8(14.2)	173.8(14.2)	0	4527.9(364.4)	4527.9(364.4)	0
Total OOPE	1100.4(30.3)	1100.4(30.3)	0	12478.6(1250.3)	12478.6(1250.3)	0

 # Hospital charges include registration fee, consultation fee, doctor's/surgeon fee and Bed charges

Non-Med expenditure include expenditure on food, stay, transportation and others

8 Annexures

Form 1a: Inventory management assessment tool for medicines at the public facility.

Code Yes as 1, No as 0, Don't know as 2

State	Chhattisgarh – 01 Haryana – 02 Tamil Nadu – 03
District	District 1 - _____ District 2 - _____ District 3 - _____
Type of Facility (See notes for investigator (annexure 4) for sub codes of the facility	Medical College - 01 District Hospital - 02 CHC - 03 PHC - 04 Sub Code - _ _ _ _ Name of Facility _____
Date of Interview	_ _/_ _/_ _ _ _
Job title of respondent	Medical Officer - 01 Pharmacist - 02 Procurement Office - 03 Others -04

(I) Storage Conditions

SC01 - Do you have dedicated warehouse or storage space for drugs? ***If NO skip to SC04***	Yes ___ No ___ Don't know ___
SC02 - Is there a method in place to control temperature (e.g., roof and ceiling with space between them in hot climates, air conditioners, fans, etc.)?	Yes ___ No ___

	Don't know ___
SC03 - Are there windows that can be opened or there are air vents?	Yes ___ No ___ Don't know ___
SC04 - Is there a cold storage in the facility?	Yes ___ No ___ Don't know ___
SC05 - Is there a regularly filled in temperature chart for the cold storage?	Yes ___ No ___ Don't know ___
SC06 - Are medicines stored directly on the floor?	Yes ___ No ___ Don't know ___
SC07 - Are Medicines stored in a systematic way (e.g., alphabetical, pharmacological)?	Yes ___ No ___ Don't know ___
SC08 - Is there an evidence of pests in the area?	Yes ___ No ___ Don't know ___
SC09 - Is inventory management done using first-expiry-first out (FEFO) or first in first Out (FIFO)?	FEFO ___ FIFO ___ Both ___ None ___
SC10 - Who is responsible for indenting of drugs at your facility?	_____
SC11 - How often do you indent drugs for your facility-capture the response in number of days?	Number of days ____
SC12 - Which are the major drugs you indent? **(Collect photocopy of the indent past 3 months)**	
SC13 - What is the average number of drugs that you indent each time (number of drugs and not the type of drugs)?	_____
SC14 - Do you receive all indented drugs?	_____

SC15 - How much time does it take to receive indented drugs from the day of indent	Number of days _____
SC16 – What is the number of drugs that you indented in last 3 months? ***Please get the hard copy of the drugs indented in last 3 months**	_____
SC17 - What is the number of drugs received in last 3 months (% of the number of drugs indented)?	_____
SC18 - Do you always get the drugs indented or you also receive non indented drugs in last three months?	Indented only ____ Indented +Non Indented _____
SC19 - What is the number of drugs that you purchased locally? (Number of drugs and not the type of drugs)? 19.1 Last month ***Please get the hard copy of the drugs details and prices.** 19.2 Previous 3 Months	_____ _____
SC20 - Do you consult any one before indenting?	Yes ___ No ___
SC21 - If yes, whom do you consult?	_____
SC22 - How is payment done of drugs that you receive at your facility? 22.1 From warehouse 22.2 Through Local purchase	_____ _____
(II) Human Resources	
HR01 - Who manages the drug procurement system at the facility level?	Medical Officer Pharmacist Hospital Manager Other-Pl. specify _____
HR02 - Was medical officer present there during the time of visit?	Yes ___ No ___ Don't know ___

HR03 - Was Pharmacist there during the time of visit?	Yes ___ No ___ Don't know ___
HR04 - Who is dispensing drugs during the time of visit?	Pharmacist Nurse Untrained staff Others
Any other notes	

Annexure 1: Inventory management & Facility Level Medicine Availability and Stock out Tool

Form 1b: Facility Level Medicine Availability and Stock out Tool

PCG

P = Primary health centre

C = Community health centre

G = General/ District hospital

3b01 - S.No	3b02 - Drug name	3b03 - Level of Facility	3b04 - Type of formulation	3b05 - Availability on the day of Survey Yes = 1 No = 0	3b06 - Number of days of for which the drugs were stock out **In previous 6 months**	3b07 - Is there expired medicine on shelf Yes = 1 No = 0
1	Acetyl Salicyclic acid 75mg	PCG	Tablet			
2	Acetyl Salicyclic acid 150mg	PCG	Tablet			
3	Adrenaline bi-tatrate 1mg/ml	PCG	Injection			
4	Albendazole 200mg/5ml	PCG	Suspension			
5	Albendazole 400mg	PCG	Tablet			
6	Alprazolam 0.25mg	PCG	Tablet			
7	Alprazolam 0.5mg	PCG	Tablet			
8	Aluminium Hydroxide + Magnesium Hydroxide	PCG	Tablet			
9	Aluminium Hydroxide + Magnesium Hydroxide	PCG	Suspension			
10	Amikacin 250mg/ ml, 2 ml vial	PCG	Injection			
11	Amikacin 50 mg/ ml, 2 ml vial	PCG	Injection			
12	Amlodipine 0.5mg	PCG	Tablet			
13	Atenolol 50mg	PCG	Tablet			
14	Atropine sulphate 1mg/ml	PCG	Injection			

15	Betamethasone Dipropionate 0.05%	PCG	Cream			
16	Calcium Carbonate 500mg	PCG	Tablet			
17	Carboprost 250 mcg 1 ml amp/ Vial	PCG	Injection			
18	Cetrizine 5mg/ml	PCG	Syrup			
19	Cetrizine 10mg	PCG	Tablet			
20	Chlorpeniramine Maleate 4mg	PCG	Tablet			
21	Ciprofloxacin Hydrochloride 0.3%	PCG	Drops			
22	Ciprofloxacin Hydrochloride 2mg/100ml	PCG	Injection			
23	Ciprofloxacin Hydrochloride 250mg	PCG	Tablet			
24	Ciprofloxacin Hydrochloride 500mg	PCG	Tablet			
25	Co-trimoxazole 40 + 200mg/5ml	PCG	Suspension			
26	Co-trimoxazole 80 + 400mg	PCG	Tablet			
27	Dexamethasone 4mg/ml	PCG	Injection			
28	Diazepam 5mg/ml	PCG	Injection			
29	Dicyclomine Hydrochloride 10mg	PCG	Tablet			
30	Diclofenac Sodium 50 mg	PCG	Tablet			
31	Domperidone 1mg/ml	PCG	Syrup			
32	Domperidone 10mg	PCG	Tablet			
33	Doxycycline 100 mg	PCG	Capsules			
34	Doxylamine 10 mg	PCG	Tablet			
35	Ferrous sulphate 60mg	PCG	Tablet			
36	Fluoxetine hydrochloride 20mg	PCG	Capsule			
37	Folic acid 5mg	PCG	Tablet			
38	Fourosemide 10mg/ml	PCG	Injection			
39	Furosemide 40mg	PCG	Tablet			
40	Glyceryl trinitrate 0.5mg	PCG	Sublingual tablet			
41	Hydrocortisone sodium succinate 100mg	PCG	Injection			
42	Ibuprofen 100mg/5ml	PCG	Syrup			
43	Ibuprofen 200mg	PCG	Tablet			

44	Ibuprofen 400mg	PCG	Tablet			
45	Insulin 40 IU/ml	PCG	Injection			
46	Ipratropium Bromide 20microgm/metered dose	PCG	Inhalation			
47	Isosorbide 5 mononitrate 30mg	PCG	Tablet			
48	Isosorbide 5 dinitrate 5mg	PCG	Tablet			
49	Lignocaine hydrochloride 1-2%	PCG	Injection			
50	Lignocaine hydrochloride 2-5%	PCG	Topical form			
51	Metformin 500mg	PCG	Tablet			
52	Methyl ergometrine 0.2mg/ml	PCG	Injection			
53	Methyl ergometrine 0.125mg	PCG	Tablet			
54	Metronidazole 500mg/100ml	PCG	Injection			
55	Metronidazole 200mg	PCG	Tablet			
56	Metronidazole 400mg	PCG	Tablet			
57	Multivitamins	PCG	Tablet			
58	Normal Saline 0.1%	PCG	Injection			
59	Omeparazole 20mg	PCG	Capsule			
60	ORS	PCG	Powder			
61	Oxytocin 5 IU in 1 ml ampoule	PCG	Injection			
62	Paracetamol 125mg/ml	PCG	Syrup			
63	Paracetamol 500mg	PCG	Tablet			
64	Pheniramine Malate 22.75mg/ml	PCG	Injection			
65	Phenytoin Sodium 100mg	PCG	Tablet			
66	Phenytoin Sodium 125mg/ml	PCG	Syrup			
67	Polyvalent Antisnake Venom 10ml	PCG	Injection			
68	Povidone Iodine 5%	PCG	Solution			
69	Povidone Iodine 5%	PCG	Ointment			
70	Prednisolone 10mg	PCG	Tablet			
71	Promethazine 5mg/ml	PCG	Syrup			
72	Rabies vaccine	PCG	Injection			

73	Ranitidine 25mg/ml	PCG	Injection			
74	Salbutamol sulphate 100 microgm	PCG	Inhalation			
75	Salbutamol sulphate 2mg/5ml	PCG	Syrup			
76	Salbutamol sulphate 4mg	PCG	Tablet			
77	Silver Sulphadiazine 1%	PCG	Cream			
78	Tetanus Toxoid	PCG	Injection			
79	Vitamin A 100000 IU	PCG	Capsule			
80	Vitamin D3 (Chewable) 60000IU	PCG	Tablet			
81	Acyclovir 400mg	PCG	Tablet			
82	Amoxicillin 250mg	PCG	Capsule			
83	Amoxicillin 500mg	PCG	Capsule			
84	Amoxicillin 125mg/5ml	PCG	Powder			
85	Azithromycin 100mg/5ml	PCG	Suspension			
86	Azithromycin 250mg	PCG	Tablet			
87	Azithromycin 500mg	PCG	Tablet			
88	Ceftriaxone 1gm	PCG	Injection			
89	Diazepam 5mg/ml	PCG	Injection			
90	Fluconazole 150mg	PCG	Tablet			
91	Losartan Potassium 50mg	PCG	Tablet			
92	Magnesium Sulphate 500mg/ml	PCG	Injection			
93	Nifedipine 5mg	PCG	Capsule			
94	Ondasetron 2mg/ml	PCG	Injection			
95	Ondasetron 2mg/ml	PCG	Syrup			
96	Ondasetron 8mg	PCG	Tablet			
97	Oxytocin 5 IU/ml	PCG	Injection			
98	Permethrin 5%	PCG	Cream			
99	Permethrin 5%	PCG	Lotion			
100	Amoxicillin+Pottasium Clavulanate 500 mg + 125 mg	CG	Tablet			
101	Aceclofenac 100 mg	CG	Tablet			

102	Calcium Gluconate 100mg/ml	CG	Injection			
103	Cefadroxil 125 mg/5ml, 30 ml	CG	Syrup			
104	Ketamine Hydrochloride 50mg/ml	CG	Injection			
105	Mannitol 20%	CG	Injection			
106	Medroxy Progesterone Acetate 10mg	CG	Tablet			
107	Meropenum 125 mg	CG	Injection			
108	Meropenum 500 mg	CG	Injection			
109	Pantoprazole 40 mg, vial with 10 ml diluent	CG	Injection			
110	Phenytoin Sodium 20mg/5ml	CG	Injection			
111	Pralidoxime chloride (PAM) 0.1%	CG	Injection			
112	Prednisolone 20mg	CG	Tablet			
113	Sodium Valporate 200mg	CG	Tablet			
114	Acyclovir 200mg	CG	Tablet			
115	Cefotaxime 250mg	CG	Tablet			
116	Diclofenac Supositories 50 mg	CG	Cream			
117	Digioxin 0.25mg	CG	Tablet			
118	Dopamine Hydrochloride 40mg/ml	CG	Injection			
119	Tramadol 50mg	CG	Capsule			
120	Tramadol 50mg/ml	CG	Injection			
121	Ciprofloxacin Hydrochloride 0.3%	G	Ointment			
122	Dexamethasone 0.5mg	G	Tablet			
123	Glyceryl trinitrate 5mg/ml	G	Injection			
124	Intermediate acting 40 IU/ml	G	Injection			
125	Levodopa + Carbidopa 100mg + 10mg	G	Tablet			
126	Levothyroxine 100 microgram	G	Tablet			
127	Prednisolone Acetate 0.1%	G	Drops			
128	Biphasic isophane 40 IU/ml	G	Injection			
129	Sodium Valporate 200mg/ml	G	Syrup			

130	Sodium Valporate 500mg	G	Tablet			
131	Aactazolamide 250mg	G	Tablet			
132	Acyclovir	G	Ointment			
133	Cefotaxime 500mg	G	Tablet			
134	Fluconazole 200mg	G	Tablet			
135	Heparin Sodium 5000 IU/ml	G	Injection			
136	Methotrexate 2.5mg	G	Tablet			
137	Methyl Prednisolone 40mg/ml	G	Injection			
138	Morphine Sulphate 10mg/ml	G	Injection			
139	Nifedipine 10mg	G	Tablet			
140	Streptokinase 1500000 IU	G	Injection			
141	Warfarin Sodium 2mg	G	Tablet			

Annexure 2: Tool for Patient Exit Interview on Out-of-Pocket Expenditure on Medicines

(*For Patients attending Public and private facility and* ***not*** *to be asked from patient****)***

IDENTIFICATION		
Question	**Options**	**Code**
1. Name of the State	Chattisgarh	01
	Haryana	02
	Tamil Nadu	03
2. Name of District	Dist. 1 - _____	01
	Dist. 2 - _____	02
	Dist. 3 - _____	03
3. Type of health care provider chosen to seek care	Public	01
	Private	02
4. Type of facility visited.	Medical college	01
	District hospital	02
	CHC	03
	PHC	04
In comparison to Medical college →	Private Multi-specialty hospital (More than 100 bed)	05
In comparison to DH	Private hospital (50-100 beds)	06
	Rural hospital (10-50 beds)	07
In comparison to CHC →	Nursing home (Min. Beds - 10)	08
In comparison to PHC	Private MBBS clinic	09
	BAMS Clinic	10
	BHMS Clinic	11
	RMP Clinic	12
	UMP Clinic	13
5. Sub code of the facility (See the instruction Manual)	☐☐	
6. Type of department visited	OPD	01
	IPD	02
7. Client number	☐☐☐	
8. Date of Interview	_ _/ _ _/_ _ _ _	

State	District	Type of health care provider	Type of facility	Sub code for facility	OPD/IPD	Client number

Section 1: Background Information (For both OPD and IPD case)

Section 1: Background Information (For both OPD and IPD case) ***Investigator will complete this section by asking a patient exiting the facility.***			
S. No.	**Question**	**Options**	**Code**
1.1	Name of the Patient Relationship to the patient ***Note: Here we want to know whether the patient is responding to the questions or someone is responding on behalf of the patient.***	…… ……	
1.2	Age of the patient ***Note: The age of the individual should be recorded in completed years on the day of interview in double digits like 04 years for a child of four year old.*** ***In case the individual is an infant (less than 1 year), record the age in months and days.***	Number _____ (in years)	
1.3	Gender of the Patient	Male Female	1 2
1.4	Area of residence ***Note: Ask the respondent if they live in towns, cities for Urban areas and villages for Rural areas.***	Rural Urban	1 2
1.5	Contact number ***In case of child, guardians or parents phone number should be taken.*** ***Any other phone number belonging to family member on which he/she can be contacted.***	Contact No. 1 _____ Contact No. 2 _____ Contact No. 3 _____	
1.6	Education of the Patient	Illiterate Literate without any schooling Literate without any formal education Children not going to school Literate with formal education below primary Literate with formal education above primary Middle (up till 8th) Matric Higher secondary Diploma/certificate after matric	1 2 3 4 5 6 7 8 9 10 11

Section 1: Background Information (For both OPD and IPD case) *Investigator will complete this section by asking a patient exiting the facility.*			
S. No.	**Question**	**Options**	**Code**
		Diploma/certificate after higher secondary Graduation Post-graduation Don't' know	12 13 97
1.7	What is the patient's employment?	Self-employed (agriculture) Self-employed (non-agriculture, business, shop) Casual labourer in farm Casual labourer in non-farm Government Service Private service Professional (lawyer, doctor etc.) Unemployed Unemployed (Homemakers) Unemployed (Students) Old age pensioners Old age non pensioners Unemployed (Children not going to school) Any other (specify) ……	1 2 3 4 5 6 7 8 9 10 11 12 13 96
1.8	Whether covered by any health insurance scheme?	Government funded insurance (PMJAY) Social health insurance (CGHS,ESIS) Employer supported voluntary health protection (other than govt.) Individual voluntary public insurance Individual voluntary private insurance Reimbursement Others Don't know Not covered Please specify name of insurance ……	1 2 3 4 5 6 96 97 99
1.9	In case of Inpatient: How many days were you admitted? Or In case of OPD what is duration of your illness?	Number (in days) ……	
1.10	What is the main reason for your visit to the facility? MULTIPLE RESPONSE	Infection Cancer Blood disorder Endocrine, Metabolic, Nutritional	A B C D

Section 1: Background Information (For both OPD and IPD case) *Investigator will complete this section by asking a patient exiting the facility.*			
S. No.	**Question**	**Options**	**Code**
		Psychiatric, Neurological Eye Ear CVS Respiratory Gastrointestinal Musculoskeletal Genitourinary Obstetric Injuries Dental Skin Any other (specify)	E F G H I J K L M N O P 96
1.11	Who prescribed you medicines? ***Skip for IPD***	Specialist Doctor Doctor (General physician) Staff nurse Pharmacist Lab technician RMP BAMS BHMS Rural medical assistant (RMA) Any other (specify) ……	1 2 3 4 5 6 7 8 9 96
1.12	Were you informed by the service provider about the probable diagnosis?	Yes No Need more investigation Don't know	1 0 2 97
1.13	How much time did you spend at the facility? ***Skip for IPD*** 1.13.1 Waiting for doctor's consultation (**OPD waiting time**) 1.13.2 During doctor consultation 1.13.3 In order to get medicines	Record (in minutes) …… …… ……	

Section 2: Prescription Audit & Expenditure Form

Note: Investigator to look at the prescription and record the information. *(Don't ask the Patient)*

S.no.	Observe and Record	Codes
2.1	Does the patient have prescription slip?	
	Yes	1
	No	0 → Skip to 2.9
2.2	Patients Name Mentioned	
	Yes	1
	No	0
2.3	Age Mentioned	
	Yes	1
	No	0
2.4	Weight mentioned	
	Yes	1
	No	0
	If yes, then (Record in Kgs)	…… (in Kgs)
2.5	Doctors Signature/stamp provided	
	Yes	1
	No	0
2.6	Brief History	
	Yes	1
	No	0
	(If mentioned in the prescription slip please mention)	…… …… ……
2.7	Symptoms/Provisional Diagnosis Mentioned	
	Yes	1
	No	0

	If yes Please, record the details	…… …… ……
2.8	Investigations mentioned Yes No If yes Please, record the details	 1 0 → Skip to 2.9

2.9 Name of diagnostic test prescribed or told verbally by the health care provider

(Investigator has to check prescription slip in order to fill the name of the tests that are prescribed & cost incurred according to type of facility)

2.9.1 Name of test	2.9.2 Cost of test if prescribed & done in public facility In (Rs)	2.9.3 Cost of test if prescribed & done in private facility In (Rs)	2.9.4 Cost of test if prescribed in public or private facility but done in Private lab In (Rs)	2.9.5 Average Market price of the test
(1) _____				
(2) _____				
(3) _____				
(4) _____				
(5) _____				
(6) _____				
(7) _____				
(8) _____				
(9) _____				
(10) _____				
(11) _____				
(12) _____				

***If no cost is incurred at public health facility (2.9.2) please mention "0" in front of that test**

****Use code 1 for 2.9.2 in data entry sheet. Similarly use code 2 and 3 for 2.9.3 and 2.9.4 respectively.**

*****If the patient has not incurred any cost at the time of exit interview, investigator will get the information about the cost the day after the recruitment telephonically.**

2.10 Medicine details (Investigator has to check prescription slip in order to fill the details and has to take a picture of the prescription slip &also please read the notes mentioned below & in instruction manual)																	
2.10.1 Code (1 or 2)	2.10.2 Name of medicine	2.10.3 Prescribed Dose strength (mg/gm) ***(Skip, If Patient does not have the prescription slip)***	2.10.4 Prescribed Duration (In days) ***(Skip, If Patient does not have the prescription slip)***	2.10.5 Frequency (o.d/b.d/t.d.s/s.o.s)	2.10.6 Form (Tablet/Syrup/Injection/Capsule)	2.10.7 Number of tablets/Capsule/syrup/injection dispensed	2.10.8 Dispensed Dose strength (mg/gm) **(Ask from patient/ pharmacist or see the medicines)**	2.10.9 Dispensed Duration (In days) **(Ask from patient/ pharmacist or see the medicines)**	2.10.10 Generic Yes – 1 No – 0	2.10.11 Route of administration	2.10.12 Labeling done Yes – 1 No – 0	2.10.13 From EDL Yes – 1 No – 0	2.10.14 Medicines dispensed within the facility or by healthcare provider? Yes – 1 No – 0	2.10.15 Medicines purchased from? Private pharmacy – 1 Government subsidised pharmacy – 2	*2.10.16 Cost of medicine paid (In Rs)	2.10.17 MRP of med.	2.10.18 Average market price of medicine (In Rs)

For 2.10.1 **Code 1** – In front of medicine if written on prescription slip and **Code 2** – – In front of medicine if not written on prescription slip

In case if the details regarding Question no. **2.10.5 & 2.10.6** is not mentioned in the prescription slip or the patients does not get the prescription slip from the healthcare provider (like in some aces of RMP or other clinics), then the investigator will **Code – 0 for 2.10.5 & 2.10.6** and write the details in front of code 0. Further in questions **2.10.8 & 2.10.9** investigator will see the medicines or will ask from pharmacist or patients.

In Question no. ***2.10.16** if the patient still has to buy the medicine (especially in public sector) the investigator will ask the price of the medicine via call on the next day if the patient has not bought the medicines yet.

2.11 Total expenditure incurred in case of **OPD care.** In case of IPD skip to 2.12			
Items	Cost	Items	Cost
2.11.1 Registration fee		2.11.6 Transport (include amount spent on attendant)	
2.11.2 Consultation fee		2.11.7 Stay (include amount spent on attendant)	
2.11.3 Medicines		2.11.8 Food (include amount spent on attendant)	
2.11.4 Diagnostic tests		2.11.9 Others	
2.11.5 Consumables			
2.11.10 Total expenditure in Rs - _____ ***For follow up skip to section 3***			

2.12 Total expenditure incurred in case of **IPD care**			
Items	Cost	Items	Cost
2.12.1 Doctor/Surgeon fee		2.12.5 Consumables (Medical appliances, syringes etc.)	
2.12.2 Medicines		2.12.6 Transport (include amount spent on attendant/escort)	
2.12.3 Bed charges		2.12.7 Stay (include amount spent on attendant/escort)	
2.12.4 Diagnostic tests		2.12.8 Food (include amount spent on attendant/escort)	
2.12.9 Others			
2.12.10 Total expenditure in Rs - _____			

Notes for investigator

Call 1 - To get the information for the items on which expenditure has not been incurred on the day of recruitment(when questionnaire is filled), investigator will call the patient for follow up day after from the day of his/her recruitment.

Further, at the end of patient exit interview investigator has to brief the respondent about the further process of follow up i.e he will say that today I have asked you about your illness and the expenditure that you have incurred on your illness.

In future, I will call you, on the 15th day to know about the extra expenditure incurred on the current illness. So, I request you to note down that expenditure which you might incur in future from the day after the 1st call was made.

Section 3: Questionnaire for any extra cost incurred after 15 day of recruitment

(Investigator will brief himself and also about the call)

State	District	Type of health care provider	Type of facility	Sub code for facility	OPD/IPD	Client number

Date of Interview - _ _/_ _/_ _ _ _
Scheduled date of Call 2 - _ _/_ _/_ _ _ _

Only for OPD care patients			
S.No.	**Questions**	**Options**	**Call 2**
3.1	Did you consult any healthcare provider for the same illness for which you have attended the facility last time? ***(Time period: B/w the call 1 & Call 2 or b/w Call 2 & 3)***	Yes No	1 **(Skip 3.4 & 3.5)** 0 **(Skip to 3.4)**
3.2	If yes then from which facility? ***(Record the cost incurred in 3.3)***	Medical college District hospital CHC PHC Private Multi-specialty hospital (More than 100 bed) Private hospital (50-100 beds) Rural hospital (10-50 beds) Nursing home (Min. Beds - 10) Private MBBS clinic BAMS Clinic BHMS Clinic RMP Clinic UMP Clinic	01 02 03 04 05 06 07 08 09 10 11 12 13
3.3	What all expenditure did you incur at the facility?	Registration Consultation Medicines Diagnostics/Tests Consumables Travel Others Total	1_____ Rs 2_____ Rs 3_____ Rs 4_____ Rs 5_____ Rs 6_____ Rs 96____Rs 97____Rs
3.4	Did you spend anything on your illness for which you have attended the facility last time? ***(Time period: B/w the call 1 & Call 2 or b/w Call 2 & 3)***	Yes No	1 **(Skip to 3.5)** 0
3.5	What all expenditure did you make?	Medicines Diagnostics/Tests Consumables Travel Others Total	1_____ Rs 2_____ Rs 3_____ Rs 4_____ Rs 96____Rs 97____Rs

Call 2 – To be done on the 15th day to know any extra expenditure incurred in b/w the time period i.e. from first follow up (from the day after the 1st call is made) and day 15

State	District	Type of health care provider	Type of Pharmacy	Client number		

Section 4: Tool for Patient Exit Interview at standalone pharmacy.

(See the inclusion criteria for patients to be recruited at standalone pharmacies)

IDENTIFICATION		
Question	**Options**	**Code**
1. Name of the State	Chattisgarh Haryana Tamil Nadu	01 02 03
2. Name of District	Dist. 1 - _____ Dist. 2 - _____ Dist. 3 - _____	01 02 03
3. Type of health care provider chosen to seek care	Private facility Chemist	01 02
4. Pharmacy. ***PR – Pharmacy Rural*** ***PU – Pharmacy Urban*** 5. Date: _ _/_ _/_ _ _ _ (*dd/mm/year*)	PR1 PR2 PR3 PR4 PR5 PU1 PU2 PU3 PU4 PU5	01 02 03 04 05 06 07 08 09 10
6. Client number	☐☐☐	

This section is to filled by the investigator while interviewing the patient				
S. No.	**Question**	**Options**	**Code**	**Skip**
4.1	Name of the patient Relationship to the patient ***Note: Here we want to know whether the patient is responding to the questions or someone is responding on behalf of the patient.***	…… ……		
4.2	Age of the patient ***Note: The age of the individual should be recorded in completed years on the day of interview in double digits like 04 years for a child of four year old.*** ***In case the individual is an infant (less than 1 year), record the age in months and days.***	Number _____ (in years)		
4.3	Gender of the Patient	Male Female	1 2	
4.4	Area of residence	Rural Urban	1 2	

This section is to filled by the investigator while interviewing the patient				
S. No.	**Question**	**Options**	**Code**	**Skip**
	Note: Ask the respondent if they live in towns, cities for Urban areas and villages for Rural areas.			
4.5	Contact number ***In case of child, guardians or parents phone number should be taken.*** ***Any other phone number belonging to family member (husband/wife, parents, brother, sister) on which he/she can be contacted.***	Contact No. 1 _____ Contact No. 2 _____ Contact No. 3 _____	1 2 3	
4.6	Education of the Patient	Illiterate Literate without any schooling Literate without any formal education Children not going to school Literate with formal education below primary Literate with formal education above primary Middle (up till 8th) Matric Higher secondary Diploma/certificate after matric Diploma/certificate after higher secondary Graduation Post-graduation Don't' know	1 2 3 4 5 6 7 8 9 10 11 12 13 14 97	
4.7	What is the patient's employment status (last one month)?	Self-employed (agriculture) Self-employed (non-agriculture, business, shop) Casual labourer in farm Casual labourer in non-farm Government Service Private service Professional (lawyer, doctor etc.) Unemployed Unemployed (Homemakers) Unemployed (Students) Old age pensioners Old age non pensioners Unemployed (Children not going to school) Any other (specify) ……	1 2 3 4 5 6 7 8 9 10 11 12 13 96	

This section is to filled by the investigator while interviewing the patient				
S. No.	**Question**	**Options**	**Code**	**Skip**
4.8	Whether covered by any health insurance scheme?	Government funded insurance (PMJAY) Social health insurance (CGHS,ESIS) Employer supported voluntary health protection (other than govt.) Individual voluntary public insurance Individual voluntary private insurance Reimbursement Others Not covered Please specify name of insurance ……	1 2 3 4 5 6 96 97 99	
4.9	What is the main reason for your visit to the Pharmacy? MULTIPLE RESPONSE	Infection Cancer Blood disorder Endocrine, Metabolic, Nutritional Psychiatric, Neurological Eye Ear CVS Respiratory Gastrointestinal Musculoskeletal Genitourinary Obstetric Injuries Dental Skin Chemist Any other (specify)	A B C D E F G H I J K L M N O P Q 96	
4.10	Have you taken consultation from any for the current illness before coming to chemist?	Yes No	1 0 →	**5.1**
4.11	If yes then from which facility?	Private Multi-specialty hospital (More than 100 bed) Private hospital (50-100 beds) Rural hospital (10-50 beds) Nursing home (Min. Beds - 10) Private MBBS clinic BAMS BHMS RMP UMP	5 6 7 8 9 10 11 12 13	

This section is to filled by the investigator while interviewing the patient				
S. No.	**Question**	**Options**	**Code**	**Skip**
4.12	What all services did you received?	4.12.1 Consultation 4.12.2 Medicines 4.12.3 Diagnostics/Tests 4.12.4 Consumables 4.12.5 Others	1 2 3 4 96	
4.13	Name of the diagnostic test if conducted 4.13.1 Test 1 4.13.2 Test 2 4.13.3 Test 3 4.13.4 Test 4	 _____ _____ _____ _____	Cost _____ _____ _____ _____	
4.14	How much did you pay to the health care provider during that visit?	In Rs _____		
4.15	Breakup of total expenditure made by patient there. (To be asked from the respondent)	4.15.1 Consultation_____ Rs 4.15.2 Medicines_____ Rs 4.15.3 Diagnostics/Tests__ Rs 4.15.4 Consumables____ Rs 4.15.5 Travel_____ Rs 4.15.6 Don't know the breakup		

Section 5: Prescription Audit (For patients those who had prescriptions with them)

Note: Investigator to look at the prescription slip and record the information.

Please do not ask the Patient

S.no.	**Observe and Record**	**Codes**
5.1	Does the patient have prescription slip?	
	Yes	1
	No	0 → **Skip to 5.8**
5.2	Patients Name Mentioned	
	Yes	1
	No	0
5.3	Age Mentioned	
	Yes	1
	No	0
5.4	Weight mentioned	
	Yes	1
	No	0
	If yes, then (Record in Kgs)	…….. (in Kgs)
5.5	Doctors Signature/stamp provided	
	Yes	1
	No	0
5.6	Brief History (If mentioned in the prescription slip please mention)	
5.7	Symptoms/Provisional Diagnosis Mentioned	
	Yes	1
	No	0
	If yes Please, record the details	…… ……

5.8 Medicine details (Investigator has to check prescription slip in order to fill the details and has to take a picture of the prescription slip)													
5.8.1 Code (1or2)	5.8.2 Name of medicine	**Skip for over the counter medicines** 5.8.3 Whether the medicines dispensed at the facility? Yes – 1 No – 0	**Skip for over the counter medicines** 5.8.4 Prescribed Dose strength (mg/gm)	**Skip for over the counter medicines** 5.8.5 Prescribed Duration (In days)	5.8.6 Prescribed frequency (o.d/b.d/ t.d.s/s.o.s)	5.8.7 Prescribed form (Tablet/Syrup/Injection/Capsule)	5.8.8 Number of tablets/Capsules/ syrup/injections/etc. dispensed	5.8.9 Dispensed Dose strength (mg/gm) **(Ask from patient or see the medicines)**	5.8.10 Dispensed Duration (In days) **(Ask from patient or see the medicines)**	5.8.11 Generic Yes – 1 No – 0	5.8.12 Cost of medicine (In Rs)	5.8.13 MRP	5.8.14 Average market price of medicine (In Rs)

5.9 Total expenditure incurred only at pharmacy	
Items	Cost
5.9.1 Medicines	
5.9.2 Travel	
5.9.3 Others	
5.9.4 Total	

For 5.8.1 **Code 1** – In front of medicine if written on prescription slip and **Code 2** – In front of medicine if not written on prescription slip

Section 6: Questionnaire for any extra cost incurred after 15 day of recruitment or after a month gap for Standalone Pharmacy

(Investigator will brief himself and also about the call)

State	District	Type of health care provider	Type of Pharmacy	Client number		

Date of Interview - _ _/_ _/_ _ _ _
Scheduled date of Call 2 - _ _/_ _/_ _ _ _

Only for Standalone Pharmacy patients			
S.No.	**Questions**	**Options**	**Call 2**
6.1	Did you consult any healthcare provider for the same illness for which you have attended the facility last time? ***(Time period: B/w the call 1 & Call 2 or b/w Call 2 & 3)***	Yes No	1 **(Skip 6.4 & 6.5)** 0 **(Skip to 6.4)**
6.2	If yes then from which facility? ***(Record the cost incurred in 3.3)***	Medical college District hospital CHC PHC Multi-specialty hospital Private hospital Rural hospital RMP Chemist	1 2 3 4 5 6 7 8 9
6.3	What all expenditure did you incur at the facility?	Registration Consultation Medicines Diagnostics/Tests Consumables Travel Others Total	1_____ Rs 2_____ Rs 3_____ Rs 4_____ Rs 5_____ Rs 6_____ Rs 96____Rs 97____Rs
6.4	Did you spend anything on your illness for which you have attended the facility last time? ***(Time period: B/w the call 1 & Call 2 or b/w Call 2 & 3)***	Yes No	1 **(Skip to 6.5)** 0
6.5	What all expenditure did you make?	Medicines Diagnostics/Tests Consumables Travel Others Total	1_____ Rs 2_____ Rs 3_____ Rs 4_____ Rs 96____Rs 97____Rs

Call 2 – To be done on the 15th day to know any extra expenditure incurred in b/w the time period i.e. from first follow up (from the day after the 1st call is made) and day 15.