



## **Evaluation of drug use in the Urban Health Centre of tertiary health care using drug use indicators developed by WHO**

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### **ABSTRACT**

The aim of the present study is to tackle ever increasing out of pocket health expenditure by the poor people, the Government of India has brought in National Health Mission with many strategies. One of the essential strategies is rational usage of drugs. To assess the status of drug used at the field level, a cross sectional observational study was conducted with the help of a questionnaire developed based on WHO indicators for rational drug use at Urban Health Center at Nandambakkam attached to Sri Muthukumaran Medical College & Research Institute involving 200 out patients in a period of ten weeks. The center does not have Essential Drug List (EDL) and Standard Treatment Guidelines (STG). Under the prescribing indicators, 80 % (79%±2.35) of drugs prescribed were by Generic names. Percentage of Drugs prescribed from the EDL was 100%. Under the patient care indicator average consultation time was 2.38minutes (2.30±18 secs), which is very very less indicating less attention received by the patients. Patients' knowledge of correct dosage is also inadequate. Under the faculty Indicators regarding availability, almost all the drugs were available except a few, that too for a short period. The outcome of study indicate that the EDL and STG should be made available at the center moreover the medical officers as well as pharmacist, should be trained in handling of the drugs appropriately to improve at the centers rational drug usage.

**Keywords:** Rational Drug Usage, National Health Mission, WHO indicators of RDU, Essential Drug List

### **INTRODUCTION**

India has the largest number of health programs (more than 25) in the world. Having analyzed that expected progress has not been attained even after five decades of independence, the then government has brought out a huge plan of action reorganizing health services and the strategies through National Rural Health Mission in 2005 with a huge layout of Rs.60,000 Crore for the mission period (2005-2012).

The National Rural Health Mission catered to the rural areas. For urban areas, Urban Health Mission was formulated and they were brought together enhancing the scope of the mission throughout the country as National Health Mission. The main aim of the mission is to reduce the out of pocket expenditure for healthcare by the poor people. Hence the Government has to provide free health care and services to the fullest possible extent to its

people. Needless to say that the health care services include free supply of adequate drugs. This becomes important in the context of ever-increasing price of drugs. Even though the Government tries to allocate sufficient budget for drugs at every level, it becomes mandatory to see that the drugs are rationally used and not wasted. In the rural areas first contact of patients is at the primary health center.

As we have more than 22,000 Government PHCS and sufficient no of Urban and rural health centers run by private medical colleges, the utilization of drugs right from dispensing to taking by patients has to be strictly monitored at these centers and as they have constantly changing new young medical officers, they have to be trained in rational use of drugs. Aim of the present work is to evaluate drug use practice in a Urban Health Centre using known drug use indicators developed by the WHO.

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## METHODS

**Type of Study:** Cross Sectional observational study

**Place of Study:** Urban health center at Nandhambakkam, attached to SMMCH&RI, Chennai.

**Urban Health Center Nandhambakkam:** The urban Health Training Center at Nandhambakkam is situated in Kundrathur Panchayat Union at distance of 9 km from the college. It is one of the centers managed by Sri Muthukumaran Medical College, the other one being Rural Health Center at Amarambedu. It has sufficient health infrastructure as per MCI norms.

It covers to 6,000 population in the area with daily out patients attendance of 60 patients. Patients coming for the common conditions except diabetic mellitus and hypertension were selected for the study. After consultation with medical officers and getting the drugs from the pharmacy the patients were interviewed and the responses analyzed, under the following indicators. 1. Prescribing indicators, 2. Patient care indicators, 3. Facility indicators.

## RESULTS

For 10 weeks period 200 patients were interviewed. Viral Fever and Myalgia were most common conditions followed by URI, Anaemia, Acute Trauma and Diarrhoea were minimal. Average Number of Drugs per encounter  $2.92 \pm 0.13$ , Percentage of Drugs prescribed by Generic Name were  $80.99\% \pm 2.35$ , Percentage of Drugs Prescribed from the EDL 100%. Average Consultation Time, Average Dispensing Time are inadequate, Patients Knowledge of Correct Dosage inadequate, Percentage of Drugs Actually Dispensed only 50%, Percentage of Drugs Adequately Labeled are not seen. Only oral instructions were given to the new doctors when they joined. The indent of drugs and other stationaries were maintained by the clerks according to the instruction given by the medical officer. Total number patients not attached the review were 25%, Number of patients on irregular treatment were 35%, Patients improved with treatment were 45%, Number of patients who reported adverse effects only 41%.

## DISCUSSION

The WHO indicators are divided into 3 groups: Prescribing indicator; Patient care indicators; and Facility indicators.

The most commonly used drugs in PHC are NAID (24%) and this is similar to what is reported from other countries<sup>4</sup>. This study highlights the various indicators tested.

**Prescribing indicators:** These results obtained are not very different from other studies reported. Sangeetha et al in 2002 reported that the average number of drugs per prescriptions for URI and acute diarrhoea from outpatient departments of 39 dispensaries in Delhi were 2.88<sup>3</sup>.

Al Nasser AN from Saudi Arabia has also reported it to be 2.3 in 1991<sup>6</sup> of encounters with injections per prescription in  $3.19\% + 2.32$  which is much less compared to Ethiopia where it was 37%<sup>4</sup>

Percentage of drugs prescribed by generic name was  $80.99\% + 2.32$  which is comparable to the 85.38: t 6.9 reported by Sangeetha *et al*<sup>3</sup> from Delhi.

Percentage of antibiotic use in this study is  $9.54 + 0.78$  but specifically for the Upper Respiratory infection it is 96.07% In the Delhi study<sup>3</sup> the percentage of antibiotic prescribed was 60.5%. As with other studies antibiotic use was irrational in treating URI<sup>6</sup>.

The percentage of drugs prescribed from the EDL is 100% and in the Delhi study<sup>3</sup> it was 94.76: t 5.70%. This is can be attributed to the specific instruction from the government to prescribe only from the list of EDL and if the drugs were not available to refer the patients to other bigger government hospital'. Kshirsagar NNJ et al<sup>7</sup> have reported less than 60% prescriptions only accounted for those from EDL.

**Patient care indicator:** The average consultation time is 2 min 38 sec  $\pm 18$  sec. the only explanation that can be offered is the large number of patients and small number of doctors available at any time in the present study. The average dispensing time was 1 min 38sec  $\pm 0.20$  sec and this is similar to that reported by Desta Z et al  $1.5 : t 0.7$  min<sup>5</sup>. The percentage of drugs actually labeled is NIL. The explanation again could be due to increase in number of patients and shortage of available pharmacists.

Percentage of drugs actually dispended is  $51\% \pm 2.83$ . This is because all drugs – in the list are not always available. Ibuprofen, Diclofenac and Ampicillin were often out of stock periodically. Falkenberg T et al in Sweden in their study show the quantity control system is impaired and does not have capacity to quality control all drugs on the market. The availability of essential drugs is good whereas essential drugs are poorly prescribed,

injections common and there is a high average number of drugs per prescription, both in the public and private sectors. Violations are common and enforcement of regulations weak. On top of this there is an active commercial advertising and marketing of drugs. These findings identify priorities for action to improve the present situation in other developing countries such as Vietnam<sup>15</sup> and could well be applied to the Indian situations. Patient compliance to treatment was evaluated and 25% of patients did not return for the follow up after 4 day as requested. The percentage of patients who did not take the treatment as prescribed was 35.22%. 45.28% patients improved with treatment. Adverse effects were seen in 41.58% 38 patients out of the 158 patients reviewed had ADR of varying degree. Most were mild (76%), moderate (24%) and none of them severe.

Patient perspective of the doctor of the doctor of the future should be considered in decisions about health care policy<sup>16</sup>. Cabeza – Barrea – J et al in Spain in their study suggested, according to the indicators used the quality of prescriptions improved in 1995 compared to 1994<sup>16</sup>. American Journal of Health system Pharmacy reported that the study of clinically relevant indications use will continue to look for measures of appropriate

medication use for elderly patients in ambulatory care setting<sup>17</sup>. This is a preliminary study to evaluate drug use in a primary health care. Using this as a base line various interventions are planned at a later date to assess the impact of simple interventions.

**CONCLUSION**

The result of this study will provide a base line for further assessment. This study shows reasonably acceptable prescribing and patient care indicators which can be further improved by educational interventions involving the health care providers and consumers. The facility indicators are not upto the mark but can be easily remedied by providing the required drug list, drug formulary and standard treatment guidelines. However periodic reinforcement with appropriate interventions are needed to improve the situation.

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**Table I:** The total number of patients studied during the 10 weeks period:

Disease	Number of patients	No of Male patients	No of female patients
Viral fever	48	34	16
Myalgia	52	38	14
Upper Respiratory Infection	51	29	22
Anaemia	36	25	11
Acute Trauma	6	5	1
Diarrhoea	7	4	3
Total	200	133	67

For 10 weeks period 200 patients were interviewed. Viral Fever and Myalgia were most common conditions followed by URI, Anaemia, Acute Trauma and Diarrhoea were minimal .

**PRESCRIBING INDICATORS**

**Table. II**

Average Number of Drugs per encounter	2.92±0.13
Percentage of Drugs Prescribed by Generic Name	80.99% ± 2.35
Percentage of Encounters with an Antibiotic Prescribed	9.54 ± 0.78
Percentage of Encounters with an Injection Prescribed	3.19 ± 0.12
Percentage of Drugs Prescribed from the EDL	100%

Average Number of Drugs per encounter 2.92±0.13, Percentage of Drugs prescribed by Generic Name were 80.99% ± 2.35, Percentage of Drugs Prescribed from the EDL 100%.

**PATIENTS CARE INDICATORS.****Table. III**

Average Consultation Time	2.38 ± 18 sec
Average Dispensing Time	1.38 ± 20 sec
Percentage of Drugs Actually Dispensed	51% ± 2.83
Percentage of Drugs Adequately Labeled	Nil
Patients Knowledge of Correct Dosage	inadequate

Average Consultation Time, Average Dispensing Time are inadequate, Patients Knowledge of Correct Dosage inadequate, Percentage of Drugs Actually Dispensed only 50%, Percentage of Drugs Adequately Labeled are not seen.

**FACILITY INDICATORS****Table. IV**

Availability of Key Drugs	Not available always –Cap. Ampicillin Occasionally not available Tab. Diclofenac, Tab. Ibuprofen
Availability of EDL	Not available
Drug formulary	Not available
Standard treatment (Guidelines)	Written format not available

Only oral instructions were given to the new doctors when they joined. The indent of drugs and other stationaries were maintained by the clerks according to the instruction given by the medical officer.

**Additional information collected are following:**

**PATIENTS COMPLIANCE:** This information was collected at the review when the patients were requested to report after 4 days.

**Table. V**

Total number patients not come for review	25%
Number of patients on irregular treatment	35.22%
Patients improved with treatment	45.28%
Number of patients with adverse effects	41.58%

Total number patients not attached the review were 25%, Number of patients on irregular treatment were 35%, Patients improved with treatment were 45%, Number of patients who reported adverse effects only 41%.

**REFERENCES**

- Hogerzeil HV *et al.* How to investigate the drug use in health facilities. World Health Organization, EDM Research series no.7(1999)
- Romo Aviles C, *et al.* Rational use of non-steroidal, anti-inflammatory drugs in primary care. *Alen Primaria* 1998 Jul-Aug; 22(3);177-80
- Sangeeth Sharma, Usha Gupta *et al.* Prescribing behaviours of Physicians *Journal of health management* 2002,4,55-71
- Al Nasser AN Prescribing patterns in primary health care in Saudi Arabia. *DICP* 1991Jan;25(1);190-3
- Dests Z, *et al.* Assesment of Rational drug use and prescribing primary health care facilities in North West Ethiopia. *East Afr Med J* 1997 Dec;74(12);758-63.
- Davy, *et al.* Self reported prescribing of antibiotics for children With differentiated acute respiratory tract infections with cough. *Pediate Infec Dis J* 1998; 17 (6);457-62.
- Kshirsagar NJ, *et al.* (1998) Prescribing parremns among medical practitioners in Pune, India *Bull World Health Organization* 76(3)271-75.
- Thomas M, *et al.* Measuring the impact of focused workshops on related drug use. *Trop Doct* 1997 Oct;27(4);206-10
- Le Grand A, *et al.* Intervention research in rational use of drugs; a review. *Health policy plan* 1999;14(2);89-102
- Mengiber Torres FJ Drug costs in reformed primary care, Effect of training on drug savings. *Gac sanit* 2000 Jul-Aug 14(4);277-86
- Jinnabhai CC, *et al.* Cost analysis of the basic package, resource utilization and financing of health services at Halley stott health center and Umbumbulu clinic in Kwazuala Nalal. *SAFR MEDJ* 1997 Oct ;87(10);1359-64
- Falkenberg T, *et al.* Pharamaceutical sector in transition a cross sectional study in Vietnam. *Souteast Asian J Trop Med Public Health* 2000 Sep ; 31(3);590-7
- Hogerzeil HV, *et al.* Field tests for rational drug use in twelve developing countries. *Lancet* 1993 Dec 4;342(8884);1408-10
- Bloom JA, *et al.* Potentially undesirable prescribing and drug use among the elderly. Measurable and remediable. *Can Fam physician.* 1993 Nov;39;2298-3000,2304-7.
- Main DS, *et al.* Patient perspectives on the doctor of the future. *Fam Med* 2002 Apr;34(40);251-7.
- Cabez-Barrera-J, *et al.* Drug prescription in the outpatient clinics, peripheral specialized centers, and hospital Emergency rooms. *Fam-Hosp(Farmacia- Hospitalaria)*;1996;20(Nov-Dec);359-364
- Anon Coalition continues work on medication –use performance measures. *Am-J-Health-Syst-Pharm(American-Journal-of-Health-System Pharmacy)*;1999;56(Oct15);2022,2024.