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## Drug utilization pattern in primary health centres surrounding a semi-urban area—An analysis

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### Abstract

**Objective:** Drug utilization pattern in primary health centers surrounding a semiurban area –an analysis  
**Methods:** A total number of five hundred prescriptions of patients attending primary health centres in Viluppuram, a semiurban area in Tamilnadu State were collected. Details such as name of drugs, dosage forms and routes of administration were noted. Demographic details such as name, age, sex were collected. All data collected as per proforma were analysed manually using WHO prescribing indicators.

**Results:** The average number of drugs per encounter was 5.56. Percentage of drugs prescribed by generic name was only 4%. Percentage of drugs encounter with antibiotics was 18.2%. percentage of drugs encounter with injection was 8.3%. Percentage of drugs prescribed from EDL was 68%.

**Conclusion:** The study revealed polypharmacy among general practitioners. There was lack of knowledge for the use of generic drugs and drugs listed under EDL. There was appropriate use of antibiotics among general practitioner. This study will help to reduce the cost, recognize and prevent dangerous drug – drug interaction.

**Keywords:** Essential drug list (EDL), WHO prescribing indicators poly pharmacy Drug interactions.

### 1. Introduction

The appropriate use of drugs in primary health care is an important issue prevailing in semi urban areas [1]. In present day practice rational use of drugs can prevent many drug related complication [2]. The prescription pattern of drugs in primary health centres in developing countries is generally not analysed much. Considering the cost of medicines, it is essential that medicines are prescribed rationally. The analysis of drug prescription is the most common and structured approach to examine patterns of drug use and to determine levels of appropriateness in prescribing [3]. It is essential to deliver better health care services especially in rural areas. Hence the study was undertaken to understand the pattern of drug use in primary health care in a semi urban area.

**2. Materials and Methods:** The Study was carried out by collecting photocopies of prescriptions from primary health centres in a semi urban area namely Villupuram, Tamilnadu state, India. The analysis was conducted for a duration of 2 months in August 2015 and Sep 2015. Totally 500 prescriptions were analyzed. All patients who were prescribed at least one medicine were included in the study irrespective of age and sex. All data collected as per proforma were analysed using WHO prescribing Indicators [4] and then using Microsoft excel 2013. Formula adopted from the WHO manual for prescribing indicators assessment.

- 1) Average member of drugs per encounter = Total member of drugs prescribed / total number of encounters sampled.
- 2) Percentage of drugs prescribed by generic name = (Number of drugs prescribed by generic name / total number of drugs prescribed) x 100.
- 3) Percentage of encounter with an antibiotic prescribed = (Number of patient encounter with an antibiotic / total number of encounters sampled) x 100.
- 4) Percentage of encounter with an injection prescribed = (Number of patient encounter with an injection / total number of encounters sampled) x 100.
- 5) Percentage of drugs prescribed from essential drugs list = (Number of drugs prescribed from essential drugs list / total number of drugs prescribed) x 100.

**3. Results:** Total number of medicines consumed by 500 patients during the study was 2780. Male patients in the study were 326 (65%) and female patients 174 (35%). patients in the age group of 51-70 years was 48%, age group of 30-50 years was 28% and below 30 years was 24%. The mean number of medicines per prescription was 5.56. The most frequently prescribed dosage forms and solids (80.4%) in which tablets were prescribed 68% and

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were 12.4%. The liquid dosage form were prescribed in 18.8% of prescription in which syrups were 10.5% and injection 8.3%. as oral (92.2%), topical (2.81) and parenteral 5%. The doctors mainly used combination therapy (92%) for the patients. A total of 108(21.69) prescription with fixed dose combination were prescribed. The behavior of brand name prescribing was (96%) very high compared to generic name (4%) prescribing.

The most frequently prescribed classes of medicines in general practice were in order of antimicrobials (22%) Vitamins and minerals (16%), respiratory medications (14%), analgesics (12%), Cardiovascular medications (13%) and gastro intestinal (10%) and others (13%).

The prescribing pattern of various categories of drugs in general practice is discussed hereunder and the overall data is presented in table. 1.

**3.1 Antimicrobials:** The antimicrobials prescribed most frequently are cefixime 36%, cefixime and ofloxacin combination 30%, Ciprofloxacin 12%, Amoxicillin + Clavulanic acid Combination 10%, azithromycin 8% and ofloxacin 4%.

**3.2 Cardiovascular Medicine**

The most frequently prescribed cardiovascular medicine are Amlodipine (35%)

Losartan (30%)

Atenolol (20)

Hydrochlorothiazide (20%)

Frusemide (5%)

Non steroidal anti inflammatory drugs were prescribed in 5% of hypertensive patients.

**3.3 Hypoglycemic Agents**

Glimipride (72%)

Metformin (60%)

Pioglitazone (15%)

Glipizide (5%)

Insulin (10%)

**3.4 Anti Allergics**

The most frequently prescribed anti allergics are

Cetirizine (42%)

Levocetirizine (24%)

Chlorpheniramine maleate (22%)

**3.5 Git Medication:** PPI are the most frequently prescribed class of GIT medicines. Totally 42% of all prescription contained at least one PPI. Other drugs are domperidone (28), Ondansetron (14%), Na picosulphate (8%), Ispaghulla (2%).

**3.6 Hypolipidemics**

The most frequently prescribed hypolipidemics are

(1) Atorvastatin (68%)

(2) Rosuvastatin (22%)

(3) Nicotinic Acid (2%)

(4) Fenofibrate (10%)

**3.6 Respiratory Medications**

The most commonly prescribed respiratory medications are dextromethorphan (20%), chlorpheniramine (15%), theophylline (7.8%) and terbutaline (7.9%). Major classes are dextromethorphan and chlorpheniramine containing

antitussives (40%) bronchodilators (Terbutaline and theophylline) 35%, expectorants especially bromhexine and guaifenesin (6% each) and corticosteroids (8%), especially fluticasone.

**3.7 Analgesics:** The most frequently prescribed analgesics are paracetamol (32%), diclofenac (22%), Celecoxib (7%) and aceclofenac (28%). Opioid drugs were less frequently used than non opioid drugs.

**3.8 Sedative – Hypnotics**

The most prescribed medicines among sedative – hypnotics is alprazolam (78%) followed by etizolam (23%) and clonazpan (9%).

**3.9 Antidepressants:** The Commonly used antidepressants are escitalopram (52%) duloxetine (36%), Sertraline (22%).

**3.10 Miscellaneous Medicines:** Other classes of medicines that were less frequently used in our study population were proteolytics (0.5%), muscle relaxants (2%), antispasmodics (2%), thyroid acting drugs (1.8%), local anesthetics (0.5%) antipsychotics (3%), antiparkinson an drugs (0.04%), anti convulsants (1.8%) and alternative medicinal substances (0.7%).

**Table 1:** Drug Classes Prescribed By General Practitioners

S. No.	Category	Percentage
1.	Antimicrobials	18.2%
2.	Respiratory Drugs	14%
3.	Analgesics	12.8%
4.	Vitamins	11%
5.	Cardiovascular drugs	10%
6.	GIT Drugs	9%
7.	Hypoglycemics	6%
8.	Anti Allergics	3.4%
9.	Hypolipidemics	2%
10.	Sedative / Hypnotics	3%
11.	Anti-depressants	1.2%
12.	Others	3%

**Table 2:** Who Prescribing Indicators

S. No.	Indicators	Values
1.	Total drugs prescribed	2780
2.	Average number of drugs per prescription	5.56
3.	Percentage of drugs prescribed by generic name	4%
4.	Antibiotic prescribed	18.2%
5.	Injection prescribed	8.3%
6.	Percentage of Fixed drug combination	21.6%

**4. Discussion**

The average number of drugs per prescription is higher in our study. Such prescribing behaviour may lead to polypharmacy, which in turn lead to the increased cost in medicine therapy, unwanted adverse effects, increased risk of drug interactions, development of bacterial resistance in case of antimicrobials and affects patient compliance [5]. Prescribing by generic name is very less in our study. Prescribing by generic name should be promoted as it helps in cheaper treatment to the patients [6]. Combination therapy was also widely prevalent in our study. Such kind of prescribing may be discouraged since it will lead to unwanted side effects and even fatal drug-drug interactions [7]. In our study the percentage of drugs prescribed from EDL (India) was 68% which is less than standard (100%) to serve as

ideal. Low percentage of result could be because of decreased awareness among the doctors about EDL. Some of the prescription in our study contained NSAIDs in Hypertensive patients. In hypertensive patients, NSAIDs will raise the blood pressure. Among the anti-diabetic drugs, metformin consumption was comparatively higher in our study. Metformin is contraindicated in all patients with heart failure and respiratory failure due to potentially lethal lactic acidosis [7]. Because of fluid retention, pioglitazone is less used in our study [8]. The high use of vitamins in our study may be due to their use as placebo. Their use cannot be considered irrational although it is unnecessary and could be best avoided [9]. Prescribing Sedative hypnotics to patients is less. It appears that general practitioners are not in favour of frequent use of sedative hypnotics. This is a good clinical practice because long term use of sedatives is likely to lead to dependence. In the treatment of depression, SSRIs were frequently used than TCIs.

**5. Conclusion:** The study presents the pattern of all drugs used by general practitioners in a semi urban area of tamilnadu state, India. These findings will help government as a guideline for policy making decision in the health care system and also will be helpful in drug evaluation process. There is a considerable scope of improvement in the existing prescribing practice. Prescribing by generic name should be encouraged as it will help in reducing the drug cost.

The number of medicines to be included in prescription should be minimized as it may lead to poly pharmacy, unwanted side effects and many adverse drug-drug interactions. Appropriate use of antibiotics and injections per encounter suggests sensible use of the same. Implementation of WHO care prescribing indicators by the prescribers would help to reduce the cost, to recognize and prevent potentially dangerous drug-drug interaction and antibiotic resistance [10].

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