

## Generic and Specific Drug Prescription – The Rural – Urban Divide

DR. PANKAJ NAINWAL,

Department of Pharmacy,

Graphic Era Hill University, Dehradun, Uttarakhand, India 248002

### Abstract

The current climate of widespread irrational drug use and the subsequent rise in drug resistance makes the study of drug use patterns among medical professionals very important. To improve people's health in the twenty-first century, we need a health care delivery system that works efficiently. According to the Alma-Ata statement of 1978, the two basic components of the primary health-care approach are the appropriate treatment of regularly occurring illnesses and accidents and the distribution of needed medications. Inappropriate use of antibiotics and injections, as well as underuse of medications on the essential pharmaceuticals list, are all highlighted by this research.

**Key words:** Drug prescriptions, essential drugs, general practitioners, inappropriate prescribing, primary care physicians

### Introduction:

Essential medications are those that meet the requirements of the majority of the population in terms of health care, and as such, they should be readily accessible at all times in sufficient quantities and suitable dose forms, and at prices that are affordable to the community as a whole. These medications are essential for the treatment of 90% of the most frequent local medical disorders, and they need to be of good quality, safe, and effective without breaking the bank. More than 60,000 different medication formulations are now on sale in India. Yet just roughly 10% of all medications on the market are needed to cure 90% of all common disorders. The notion of "essential drugs" should gain popularity for a variety of reasons, including those related to health, finance, society, and management.

A rational approach to drug usage is one in which medication is used only when clearly

necessary and in a quantity, frequency, and duration calculated to provide the desired therapeutic result. If the procedure of prescription is done properly, the requirements for rational medication usage will be met. The six stages are as follows: (i) Identifying the root of the patient's issues (diagnosis). (ii) Determining what constitutes a drug-free or low-risk therapy. (iii) Choosing the Right Medicines Planning to monitor treatment responses (vi) Writing a suitable prescription informing patients adequately (iv) Dosage and duration

Poor prescription practises almost always result in inadequate and risky therapy, worsening or prolonging of the patient's condition, increased suffering, and more damage. More than half of all drugs prescribed, administered, or sold globally are used incorrectly, and almost half of patients do not take their medications as recommended. Antimicrobial resistance, poor dosing, excessive injections, prescribing

outside of evidence-based practise, and self-medication were identified as frequent forms of irrational drug use. An added economic burden, decreased medication therapy quality, resource waste, higher treatment costs, a higher risk for adverse drug responses, and the evolution of drug resistance are all possible outcomes of irrational pharmaceutical usage.

**Misuse and over use of medicine :** Overuse of antibiotics and injections are two examples of prevalent irrational drug usage. When antimicrobials are employed, the issue of resistant microorganisms persists. The overuse and abuse of antimicrobials have made the situation worse by creating conditions that promote resistance to treatment. Antimicrobial resistance is a huge danger to public health because it increases the difficulty and expense of treatment while decreasing the likelihood of a positive result for the majority of patients. It is believed that up to 90 percent of injections are unnecessary since there are other, safer ways to administer the drug. In nations where injection safety cannot be ensured, excessive injection usage is a major public health risk, especially in low-income countries.

Because of the current epidemics of both irrational drug use and medication resistance, research into GPs' drug use habits is more important than ever. Therefore, it was chosen to investigate general practitioners' (GPs') prescription habits in a sample of both urban and rural South Indian locations using a WHO-approved instrument.

**Studies based on WHO standarlized tool :** The WHO's "How to look into drug use in health facilities" tool was used in a community-based descriptive study to gather 600 prescriptions from the catchment regions of rural and urban healthcare education centres at a medical school.

## Results

Results from this survey showed that the most often recommended medications were multivitamins (19.5%), antibiotics (19.3%), GIT medicines (18%), analgesic non-steroidal anti-inflammatory drugs/ (NSAID's) (15.1%), and antihistamines (12.5%). Amoxicillin (49.2%), followed by gentamicin (31.7%), was the antibiotic administered most often. Nearly 62% of doctors provided patients with the generic versions of their medications, and 55% of patients' prescriptions included an antibiotic. Poly-pharmacy, or the practise of prescribing many medications to a single patient, was shown to be almost five times more common in metropolitan areas than in rural ones. Eighty percent or more of doctors in both urban and rural areas were recommending at least one injection. Prescriptions were found to have illegible handwriting, excessive abbreviations, insufficient medication data, and no practitioner signatures, according to the study. Both urban and rural regions of Tamil Nadu were included in a community-based descriptive research. There are 15,922 people living in the three urban administrative wards and 11,506 people living in the nine rural villages that make up the research area. The research used a stratified random sampling technique. Before beginning the research, clearance was given by the Institutional Ethical Committee. It was chosen to examine 600 prescriptions, 300 each from urban and rural settings. Information was gathered by a household survey that adhered to the minimum requirements laid forth by the WHO's "How to investigate drug use in health facilities" instrument. Investigators asked whether anybody in the household had used a public or private health care facility located within the catchment area during the preceding six months. The current prescription was analysed, and pertinent data was gathered, using the

WHO's standard data collection forms developed for "How to investigate drug use in health facilities." The research group gathered data on five prescription variables and created descriptive tables to present the results.

### Discussion of Findings

The following conclusions concerning medication usage trends based on prescription indicators were drawn from the aforementioned research. Both urban and rural primary care physicians engaged in poly-pharmacy, defined as the prescription of more than or equal to three different medications to a single patient.

Both urban and rural general practitioners administered approximately five medications per patient on average. Almost 71% of urban GPs were prescribing the medications by generic name, whilst just 52% of rural GPs were doing so. Eighty percent or more of general practitioners in both urban and rural areas prescribed at least one injectable per prescription, and over half of all GPs prescribed antibiotics [Table 1]. Additionally, it was found that 40% of urban GPs and 34.7% of rural GPs administered medications included on the essential medicine list.

**Table 1: Distribution of the core drug use indicators based on the prescribing practices**

Sr. No.	Prescribing Indicators	Rural Practitioner	Urban Practitioner	Overall
1	Average No. of drugs/prescription	4.03	5.05	4.54
2	% of drugs as prescribed as per its generic name (%)	52	71	62
3	% of prescription with prescribed antibiotic (%)	53	57	55
4	% of prescription with prescribed injection (%)	81.7	80	81
5	% of drugs prescribed from the list of Essential Drug (%)	34.7	40	37.3

Source: Study in Tamil Nadu

**Vitamins Most Prescribed :** Multivitamins were found to be the most often recommended medication out of the 600 samples, followed by antibiotics, GI medications, pain relievers, antihistamines, and fever reducers (Table 2).

When comparing the two regions, we find that cough medicine, hematinics, anti-helminthic and malarial medications were the least prescribed..

**Table 2: Distribution of Commonly prescribed drugs by the Practitioner**

Sr. No.	Types of Drug	Rural GPs	Urban GPs
1	Multi-vitamin	19.6	19.3
2	Antibiotic	20.3	18.3
3	GIT Grugs	17.0	19
4	(NSAID's) Analgolic	17.3	13
5	Anti-histaminic	11.7	13.3
6	Anti-pyretic	10.7	8.3
7	Bronchodilators (Cough syrup)	1.0	4.7
8	folic acid (Hematinics)	0.6	1.0
10	Anti-helminthes	0.6	0.3
11	Anti-malarial/ anti-filarial	0.30	0.3
12	Others	0.3	2.1

Note: GPs= General Practitioners, NSAID = Non-Steroidal Anti-inflammatory Drugs, Source: Tamil NADU Study

Amoxicillin capsules (49.2 percent) and gentamicin injections (31.7 %) were the most

regularly recommended antibiotics in both urban and rural regions, whereas co-

trimoxazole remained the least usually prescribed antibiotic (11.5%). In both regions, doctors often prescribed injections. Antibiotic gentamicin (31.7% of injections) and painkiller diclofenac sodium (32.5%) were the most prevalent drugs provided by general practitioners. Vitamin B12 and paracetamol were also often administered through injection, although ranitidine or chlorpheniramine maleate were prescribed far less frequently.

General practitioners in urban areas were more likely to prescribe more than one antibiotic (28.7%) compared to those in rural areas (13%). More than one injection was prescribed for each patient by roughly 48.3% of urban GPs & 12.3% of rural GPs.

Prescription quality was evaluated based on a number of criteria, and the results were tallied. All doctors were seen entering patient information (name, age, and gender) into prescriptions. The percentage of readable prescriptions written by urban doctors was much higher than that of rural doctors (22.7%). Only 72% of urban doctors and 79% of rural doctors included a diagnosis in their prescriptions. While general practitioners in both urban and rural areas tended to utilise abbreviations, the trend was more pronounced in the latter. Roughly half of rural doctors have signed their prescriptions, whereas three quarters of metropolitan doctors have. Among rural areas, just 0.7% of GP prescriptions had dose and strength information, whereas only 11% did in metropolitan areas.

Many studies have been conducted on drug use practises in both developed and developing countries. These studies have used the World Health Organization's (WHO) and the International Network for the Rational Use of Drugs' (INRUD) standard set of drug indicators to compare drug use patterns across nations

and regions, as well as between different facilities. Hogerzeil et al. under the WHO's action programme on essential medications piloted these drug use indicators in low- and middle-income countries, and they reported their findings and recommendations for how to gather data on drug use and prescription habits. The primary aim of the present research was to compare urban and rural GPs' medication prescribing habits in terms of what was prescribed to patients at each health facility visit.

Antibiotics and multivitamins were found to be the most often recommended medications based on data collected from general practitioners. Nearly 20% of prescriptions included multivitamins, which may be prescribed for the placebo effect on the conditions. Nearly half of all prescriptions in Goa include vitamins and tonics, despite the lack of evidence supporting their utility. Tonics and vitamins were prescribed at a rate that grew from 20% to 52% as the number of pharmaceuticals prescribed per patient increased, contributing to polypharmacy and rising healthcare costs. Nutritionists have long been able to show that a healthy diet eliminates the need for vitamin supplements for the vast majority of people. The kidneys are burdened unnecessarily by the excess vitamins that are supplemented and then expelled.

Increases in antibiotic prescriptions suggest that these drugs are being overused to treat routine infections. About 55 percent of prescriptions included an antibiotic, with amoxicillin being the most frequent antibiotic and gentamicin coming in second; this trend was particularly prevalent among metropolitan GPs.

Similar results were found by Moghadamnia et al. (2002) and Hasan (1997), both of which

found that antibiotics belonging to the penicillin group (mostly amoxicillin) were the most often given medications, followed by sulfonamides. Antibiotics and nonsteroidal anti-inflammatory medicines were listed as the most often recommended medications by both Moghadamnia et al. (2002) and Bharti et al. (2008).

The total antibiotic prescription rate was 69.4 percent, with broad variance noted, according to a research conducted in basic and secondary health-care institutions in public/government and commercial settings at four locations in India. Rural and public/government sector physicians prescribed antimicrobials at higher rates than their urban and private sector counterparts.

Penicillin and co-trimoxazole accounted for two-thirds of all antimicrobials given, while quinolones and cephalosporins accounted for more than 40 percent of private sector prescriptions.

The World Health Day 2011 topic "Antimicrobial resistance: no action today, no cure tomorrow" draws attention to the fact that antibiotic overuse may result in serious antimicrobial resistance. Specific national health programmes in the country, such as the Revised National Tuberculosis Control Programme (RNTCP), the National AIDS Control Programme, etc., have clear regulations and guidelines for the proper use of antimicrobials at the national level. Hospitals are responsible for their own antibiotic policies and infection-control standards when it comes to treating various illnesses of public health relevance, such as enteric fever, diarrhoea, and respiratory infections.

Regulations for use and abuse of antibiotics in the country, the development of a national surveillance system over antibiotic resistance, a

mechanism to track prescription audits, regulating provision for monitoring application of antibiotics in human, veterinary, and industrial sectors, and the identification of particular intervention measures for proper application of antibiotics are all necessary for monitoring antimicrobial resistance.

**The international Experiences :** Several studies in both emerging and wealthy nations have found an increase in the prescription of injections. Eighty-one percent of the prescriptions in the research were for drugs that were administered through injection. According to research on inappropriate medication usage conducted in Tanzania, more than seventy percent of patients visiting private dispensaries for outpatient care got at least one injection every appointment. Injections were used in 22.63 percent of prescriptions in one Chinese research and in around 18 percent of prescriptions in one Lao PDR, Japan study.

According to data from the World Health Organization's prescribing indicators, the typical prescription contains 4.5 medications (4.03 in the rural region and 5.05 in the urban area). Nearly half of all prescriptions written seem to include five or more medications, suggesting that general practitioners in the research region engage in poly-pharmacy. This finding is consistent with that of many other studies performed in and around India in comparable contexts. Almost a third of primary care physicians never prescribed medications using their generic names. This may be due to a lack of education and oversight in this area. This result is consistent with research done in Manipal, Uzbekistan, and Jordan, as well as studies by Bharti et al.

**The Indian Variants in Drug Prescription:** Twenty-five percent of all prescriptions in Maharashtra included an injection, according to

a recent research. Injections were administered at health care institutions in six regions of Bangladesh, accounting for 77.7 percent of the cases analysed. More injections per prescription raises concerns due to the potential for harm posed by the use of contaminated syringes (which may spread diseases including HIV, hepatitis B, and hepatitis C) and the consequential increase in cost to both the patient and the healthcare system. In addition, this contributes to an increase in the region's existing biomedical waste.

Research into the quality of prescriptions found that many lacked the doctor's signature, were illegible, and provided insufficient information about the patient's condition and the medication(s) prescribed (such as dosage and frequency of administration). This demonstrates both a deficiency in the quality of prescriptions being issued and a failure on the part of professional organisations to ensure effective prescribing practises among general practitioners. There is now sufficient data to convince policymakers and medical professionals that it is critical to mandate judicious medication usage among GPs. Health care quality and medication costs both stand to benefit from such cost-cutting measures.

Therefore, injections in prescriptions, polypharmacy, and the inappropriate use of antibiotics were all commonplace in the research region. The results of the research show that general practitioners in both urban and rural areas engage in illogical drug prescription. The public health consequences, such as antimicrobial medication resistance, might be severe, yet the immediate effects of such nonsensical prescriptions are often disregarded. The research of the prescription's quality yielded disappointing findings. Doctors must follow the law and write up clear

prescriptions that can be followed by both the patient and the pharmacy.

Due to the nature of the study, the researchers did not attempt to determine what variables could have influenced the prescription. It's possible that learning about doctors' rational prescribing practises in this scenario would be best achieved by a combination of analysing prescriptions and doctors' knowledge and outlook. Acute and chronic sickness prescriptions were included in the data, but their relative medication consumption distribution was not specified. Despite these caveats, the pattern of drug usage and the incidence of illogical prescriptions were both clearly observed.

### **Conclusions**

Certain areas were discovered where intervention may be made to enhance practitioners' practise since this research focuses on their prescription practise and pattern of drug usage. The target audience here is healthcare providers, and the criteria pertinent to them have a significant impact on improved clinical decision making. Prescription medication use that is supported by scientific data is one example. Knowledge and perspective have a significant role in shaping the practise; hence, its significance must be emphasised early on.

Better prescription habits and more prudent medication usage are long-term goals that should be emphasised in medical school. A more positive outlook on the use of evidence-based rational prescription of pharmaceuticals might result from the involvement of professional groups in encouraging their members to do so. Medical professionals' motivation and, by extension, their attitude towards rational prescription, might benefit from legislative and institutional measures

promoting such a practise. In order to achieve sustainable and improved clinical results in the global medical dispensing system, it is crucial that a reform of the clinical policies be legislated.

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