



# PRESCRIPTION PATTERN OF ANTIBIOTICS IN DEPARTMENT OF GENERAL MEDICINE IN GENERAL HOSPITAL JAYANAGAR

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## ABSTRACT

**Introduction:** Effectiveness of established treatment is reduce when there is an inappropriate selection of antibiotic and also lead to the development of resistance, which increase the cost of treatment as well increase the rate of treatment failure. This observational study is done to assess the antibiotic prescribing pattern which will assist physician to select appropriate antibiotic and reduce the cost of treatment.

**Methodology:** A hospital based prospective observational study was carried out for a period of 6 months in General Hospital Jayanagar, where prescription containing antibiotic were enrolled for study and analyzed for antibiotic prescribing pattern.

**Results:** In total of 114 prescription, 191 antibiotics were prescribed, where Cephalosporin (46.60%) were selected most. Parenteral route were much preferred (76.43%) over oral route (23.57%). 74.87% antibiotics were prescribed as generic name. Ceftriaxone was the most preferred drug as a single therapy.

**Conclusion:** The study clearly concluded that early detection of organism can reduce inappropriate choices of antibiotics. Involvement of clinical pharmacist in prescription analysis of antibiotics can help the physicians on the current prescribing practices, reduce the cost of treatment and development of resistance.

**Keywords:** Antibiotics, Resistance, Inappropriate, Rational.

## Introduction:

Antimicrobial agents are most widely, often injudiciously used therapeutic drugs worldwide and it has been estimated that most of the patients receive at least one during hospitalization.<sup>1</sup>The use of it significantly brought down mortality and morbidity from communicable diseases but continuous indiscriminate and excessive use can leading to emergence of antibiotic-resistant organisms.<sup>2,3</sup> Prescriber's factors such as fear, lack of information, excessive and unnecessary prescribing, incorrect dosage or route of administration, prescribing for non-bacterial infections and patient demands are also the cause to develop bacterial resistance.<sup>4</sup>

The prescribing pattern study is generally a part of medical audit that looks for appraisal and if required, modification in the prescription to obtain rational and cost effective medical care.<sup>5</sup> For the rationality in prescribing, a thorough understanding of antibiotic prescribing pattern and the prescriber's knowledge, attitude and practice towards diagnosis and management of diseases is important.<sup>6,7</sup>Globally India was the largest consumer of antibiotics for human health i.e. 10.7 units per person and also highest in the bacterial disease burden,<sup>8,9</sup> we carried out this study to assist a physician in rational use and to effective pharmaceutical care.

**Methodology:**

A prospective observational study was carried out in the department of General Medicine for the period of 6 months. Prescription containing antibiotics were enrolled into the study by considering inclusion and exclusion criteria. The enrolled patient were intensively monitored during hospital stay and details include medication history for the class of antibiotic, dosage form, duration of use were documented in a definite patient case record form and analyzed.

**Inclusion criteria:**

- All the general medicine patients between 18 years to 60 years of age.
- Prescription containing antibiotics.

**Exclusion criteria:**

- Prescription which does not containing antibiotics.
- Age below 18 years.
- Pregnant women and psychiatric patients.

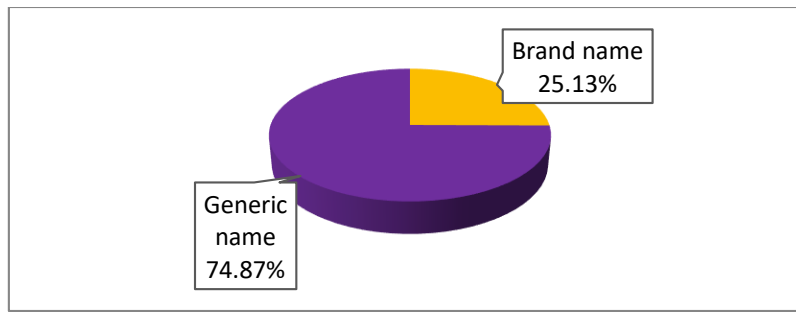
**Result and Discussion:**

A prospective study was done in In-Patient Department of General medicine, Jayanagar General Hospital, Bangalore, which include 114 patients prescribed with a total of 191 antibiotics. Among them 62(54.38%) were male and 52(45.62%) were female. This was in accordance to a study conducted by Ram *et.al.*<sup>1</sup> carried out in the year 2016 in Hyderabad, India (54.76%) males and 45.24% (females). Our results showed that 146 (76.43%) were administered parentally and 45 (23.57%) orally, which is similar to a study conducted by Mollahaliloglu *et.al.*<sup>8</sup> carried out in the year 2009 in Turkey. The study revealed that, the antibiotics were prescribed more in generic name 143 (74.87%) than compared to brand name 48 (25.13%), that coincides with the study conducted by Mollahaliloglu *et.al.*<sup>8</sup> carried out in the year 2009 in Turkey.

As per class of antibiotic, cephalosporin's were highly prescribed 89 (46.60%) followed by fluoroquinolone 46 (24.08%). Our study coincides with the study carried out by Ahmad. A *et.al.*<sup>11</sup> carried out in year 2013 in Bangalore, India and Ram J.R *et.al.*<sup>1</sup> carried out in the year 2016 in Hyderabad, India. Single antibiotic therapy 55 (48.24%) were preferred then combination and ceftriaxone 32(58.18%) was prescribed more. This was in accordance to a study conducted by Shankar *et.al.*<sup>10</sup> carried out in the year 2002 in Pokhara, Nepal (48.27%) and Ahmad *et.al.*<sup>11</sup> carried out in year 2013 in Bangalore, India. In our study majority of the patient spent 5 days i.e. 58 (50.90%) duration of hospital stay that coincides with the study conducted by Shankar *et.al.*<sup>10</sup> carried out in the year 2002 in Pokhara, Nepal.

**Table-1: Percentage of Antibiotics Prescribed by Generic and Brand name**

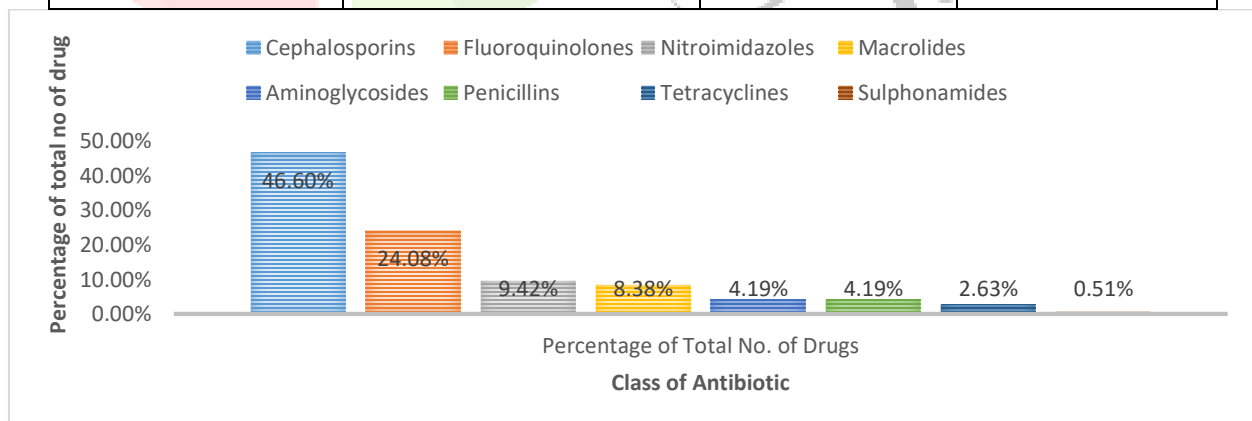
SI NO.	Drugs Prescribed by	Total No. of Drugs n = 191	Percentage of Total No. of Drugs
1	Generic name	143	74.87%
2	Brand name	48	25.13%



**Graph-1: Percentage of Antibiotics Prescribed by Generic and Brand Name**

**Table-2: Class of Antibiotics Prescribed**

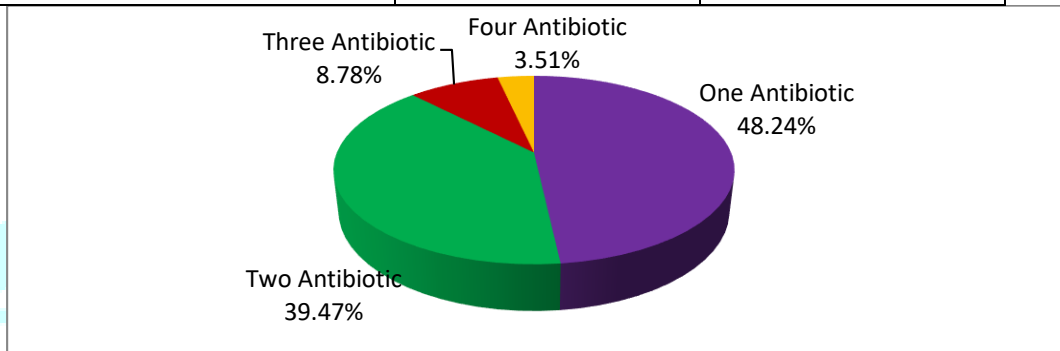
SI NO.	Antibiotic Class of Drugs	Total No. of Drugs n = 191	Percentage of Total No. of Drugs
1	Cephalosporin	89	46.60%
2	Fluroquinolones	46	24.08%
3	Nitroimidazole	18	9.42%
4	Macrolides	16	8.38%
5	Aminoglycosides	8	4.19%
6	Penicillin	8	4.19%
7	Tetracycline	5	2.63%
8	Sulphonamide	1	0.51%



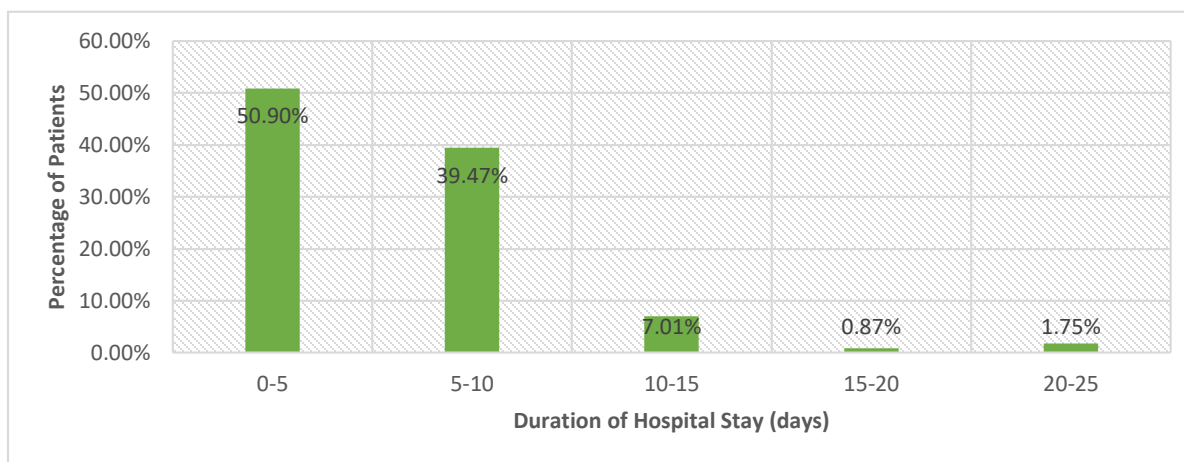
**Graph 2: Class of Antibiotics Prescribed**

**Table-3: Number of Antibiotics per Prescription**

SI NO.	No. of Antibiotics Per Prescription	Total No. of Cases n = 114	Percentage of Total No. of Cases
1	Single Antibiotic per Prescription	55	48.24%
2	Two Antibiotics per Prescription	45	39.47%
3	Three Antibiotics per Prescription	10	8.78%
4	Four Antibiotics per Prescription	4	3.51%

**Graph 3: Number of Antibiotics per Prescription****Table-4: Duration of Hospital Stay**

SI No	Length of Hospital Stay(Days)	No. of Patients	Percentage of Total No. of Patients
1	0-5	58	50.90%
2	5-10	45	39.47%
3	10-15	8	7.01%
4	15-20	1	0.87%
5	20-25	2	1.75%



**Graph 4: Duration of Hospital Stay**

#### Limitation:

Our study was conducted only in in-patients department of a government hospital where maximum drugs supplied in hospital were in the generic form and only the critically ill patient were admitted. The limit available of medication in hospital formulary.

#### Conclusion:

The study revealed that majority of the antibiotics prescribed were 3<sup>rd</sup> generation cephalosporin and ceftriaxone was the most widely used. The cost of therapy can be reduce by selecting oral drug or by switching the parenteral to oral administration. During the study period the percentage of antibiotics prescribed by generic name was high which is appreciable. This reflects cost effective prescribing practices.

The combination of three and four antibiotics in a prescription covered 12.29% of total, which may be due to a lack of confidence in the selection of antibiotic so, trying to cover broad spectrum of bacteria. Early specimen collection and send for detection of organism can help in appropriate antibiotic use and reduce the chance of resistance develop. Involvement of clinical pharmacist in prescription analysis of antibiotics can help the physicians on the current prescribing practices, reduce the cost of treatment and reduce development of resistance.

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