

## Evaluation of Drug Prescribing Patterns in Dermatology Outpatient Department of Two Teaching Hospitals in Bangladesh

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### Abstract

**Background:** Skin diseases are common and cause a huge burden globally. Bangladesh is known to have a high prevalence of skin diseases. Considering the economic burden of the skin diseases treatment and its high prevalence, it is important to study the drug prescribing patterns in skin diseases. **Objective:** To evaluate the prescribing pattern of drug according to World Health Organization (WHO) prescribing indicators among the patients attending Dermatology outpatient department in two teaching hospitals. **Materials and method:** A cross sectional descriptive study was conducted in outpatient department of Dermatology in Dhaka Medical College Hospital (DMCH) and Sir Salimullah Medical College & Mitford Hospital (SSMC & MH) from July 2015 to June 2016. A total number of 600 prescriptions (300 from each hospital) were enrolled in the study. The general information and data were collected in the questionnaire and subjected to evaluation using WHO prescribing indicators. **Results:** The average number of drugs per prescription was 2.41 in DMCH and 2.38 in SSMC & MH. Only 23.72% drugs in DMCH and 27.79% drugs in SSMC & MH were prescribed by generic name. The percentage of prescriptions with antibiotics was 46% in DMCH and 45.66% in SSMC & MH. The percentage of prescriptions with an injection encountered was 0.67% and 0.33% in DMCH and SSMC & MH respectively. This study also revealed that, the percentage of drugs prescribed from the Essential Drug List (EDL) of Bangladesh was 56% in DMCH and 57.68% in SSMC & MH. **Conclusion:** There is need to emphasize to keep the average number of drugs as low as possible and encourage prescribing by generic name and from Essential Drug List (EDL).

**Key words:** Skin diseases; Prescribing pattern; Rational prescribing.

*Delta Med Col J. Jan 2020;8(1):9 – 14*

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## Introduction

The skin disorders have serious detrimental effect on quality of life of the general population by increasing the suffering in terms of physical, social, psychological as well as it increases financial burden as most skin diseases are chronic and requires longer duration of treatment.<sup>1</sup> Prescribing drugs is an important skill, which needs to be continuously assessed and refined suitably and reflects physicians skill in diagnosis and attitude towards selecting the most appropriate cost effective treatment.<sup>2</sup> The rational use of drugs demands that the appropriate drug be prescribed, that it be available at the right time at a price people can afford, that it be dispensed correctly and then it be taken in the right dose at the right intervals and for the right length of time. The appropriate drug must be effective and of acceptable quality and safety.<sup>3</sup> A major step towards rational use of medicines was taken in 1977, when WHO established the 1st model list of essential medicines to assist countries in formulating their own national lists. Essential medicines are those that satisfy the health care needs of the majority of the population; they should therefore be available at all times in adequate amounts and in the appropriate dosage form. Since the first report on the selection of essential drugs was published in 1977, the concept of essential drugs has become widely applied. It has provided a rational basis not only for drug procurement at national level but also for establishing drug requirements at various levels within the health care systems.<sup>3</sup> To monitor, standardize and afford comparability of results, WHO in collaboration with the International Network for the Rational Use of Drug (INRUD) developed core indicators for assessing drug use.<sup>4</sup> This study utilized these WHO core drug use indicators to evaluate patterns of drug use at dermatology department of two teaching hospitals. The ultimate target is to use the safest and least number of drugs to obtain the best therapeutic effect in the shortest period at reasonable cost. Thus it can provide feedback and guidelines to the prescribers for establishing rational use of drugs.

## Materials and method

A cross sectional observational study was carried out in the Dermatology outpatient department of Dhaka Medical College Hospital (DMCH), Dhaka and Sir Salimullah Medical College & Mitford Hospital (SSMC & MH), Dhaka after approval from Institutional Ethical Committee. Total duration of the study was from July 2015 to June 2016. New patients attending the Dermatology outpatient department were included in the study but the patients who got admitted during OPD visit were not included. Data was obtained from 600 prescriptions which included the demographic profile (gender, age, socioeconomic condition), the diagnosis, the drugs prescribed with their dosage form, dose, frequency, routes of administration and duration of treatment. The general information and data was collected in the questionnaire. Then the prescriptions were analyzed to find out the prescribing pattern using WHO prescribing indicators.

WHO prescribed indicators -

- a) Average number of drugs per encounter.
- b) Percentage of drugs prescribed by generic name.
- c) Percentage of encounters with an antibiotic prescribed.
- d) Percentage of encounters with an injection prescribed.
- e) Percentage of drugs prescribed from essential drug list.

All the findings were recorded, compiled, tabulated and analysed. The data was expressed as percentage, mean and total numbers. Results were analyzed using Microsoft excel 2007 spreadsheet. The SPSS version 17.0 (level of significance is 0.05) was used to carry out the statistical analysis.

## Results

Total 600 prescriptions of patients attending the Dermatology outpatient department of DMCH and SSMC & MH were included for analysis. Table I and II show the gender and age wise

distribution of patients in both hospital. In both hospital maximum patients (34.66% in DMCH and 32% in SSMC & MH) were in the age group of 20-30 years. In DMCH, 162(54%) patients were male, 138(46%) were female and in SSMC & MH 176(58.67%) patients were male and 124(41.33%) patients were female.

**Table I: Distribution of study subjects according to age (N=600)**

Groups (in years)	DMCH (n=300)	SSMC & MH (n=300)
0 – 10	35 (11.66%)	26 (8.66%)
10 – 20	82(27.33%)	91 (30.33%)
20 – 30	104 (34.66%)	96 (32%)
30 – 40	45 (15%)	51 (17%)
40 – 50	20 (6.66%)	22 (7.33%)
50 – 60	12 (4%)	9 (3%)
>60	2 (0.66%)	5 (1.66%)

**Table II: Gender distribution of the study subjects (N=600)**

Sex	DMCH (n=300)	SSMC & MH (n=300)
Male	162 (54%)	176 (58.66%)
Female	138 (46%)	124 (41.33%)

Table III shows the distribution of dermatological disorders found during the study period. The skin diseases encountered in Dermatology OPD in both hospitals were scabies, fungal infections, dermatitis, impetigo, urticaria, folliculitis, psoriasis, acne, viral infection and melasma. Among the drugs, antihistamines (28.69%, 30.73%) were the most common prescribed drug followed by antibiotics (27.72%, 29.32%), steroids and its combination (15.45%, 13.83%), antifungals (10.76%, 11.73%), ectoparasitocides (8%, 8.66%), keratolytes and emollients (4%, 3.35%) and antivirals (8%, 3%) in DMCH and SSMC & MH respectively (Table IV). In DMCH, out of 300 prescriptions commonly prescribed antibiotics were flucloxacillin (35.82%) followed by mupirocin (23.38%), amoxicillin (16.91%), azithromycin (11.94%), neomycin (5.97%) and clindamycin (5.97%). In SSMC & MH, commonly prescribed antibiotics were flucloxacillin (25.24%) followed by amoxicillin (22.33%), mupirocin (19.41%), azithromycin (18.44%), neomycin (10.19%) and clindamycin (4.36%). (Table V)

**Table III: Common skin diseases found during study (N=600)**

Name of diseases	DMCH (n=300)	SSMC & MH (n=300)
Scabies	58 (19.33%)	62 (20.66%)
Fungal Infection	55 (18.33%)	57 (19%)
Dermatitis	53 (17.66%)	54(18%)
Impetigo	36 (12%)	37(12.33%)
Urticaria	28(9.33%)	30 (10%)
Folliculitis	25 (8.33%)	24 (8%)
Psoriasis	15 (5%)	13 (4.33%)
Acne	12(4%)	9 (3%)
Herpes Zoster	8 (2.66%)	7 (2.33%)
Chicken Pox	5 (1.66%)	4 (1.33%)
Melasma	5 (1.66%)	3 (1%)

**Table IV: Groups of drugs prescribed during the study (N=600)**

Drug category	DMCH (n=725)	SSMC & MH (n=712)
Antihistamines	208 (28.69%)	220 (30.73%)
Antibiotics	201 (27.72%)	210 (29.32%)
Steroids and combination	112 (15.45%)	99 (13.83%)
Antifungals	78 (10.76%)	84 (11.73%)
Ectoparasitocides	58 (8%)	62 (8.66%)
Keratolytes and emollients	29 (4%)	24 (3.35%)
Antivirals	8 (1.10%)	3 (0.42%)
Others	31 (4.28%)	14 (1.95%)

**Table V: Commonly prescribed antibiotic (N=600)**

Antibiotics	DMCH (n= 201)	SSMC & MH (n= 206)
Amoxicillin	34 (16.91%)	46 (22.33%)
Azythromycin	24 (22.33%)	38 (18.44%)
Flucloxacillin	72 (35.82%)	52 (25.24%)
Neomycin	12 (5.97%)	21 (10.19%)
Mupirocin	47 (23.38%)	40 (19.41%)
Clindamycin	12 (5.97%)	9 (4.36%)

The average number of drugs per prescription was 2.41 and 2.38 in DMCH and SSMC & MH respectively (Table VI). Only 23.72% drugs in DMCH and 27.79% drugs in SSMC & MH were prescribed in generic name. (Table VII)

**Table VI: Average number of drugs prescribed per prescription (N=600)**

Details	DMCH	SSMC & MH
Number of prescriptions	300	300
Number of drugs prescribed	725	716
Percentage	2.41	2.38

**Table VII: Percentage of drugs prescribed by generic name (N=600)**

Details	DMCH	SSMC & MH
Number of total drugs prescribed	725	716
Number of drugs prescribed in generic name	172	199
Percentage	23.72%	27.79%

Table VIII shows the routes of drug administration among the patients. In DMCH, 54.89% drugs were prescribed in oral route, 44.88% drugs in topical and only 0.27% drugs were prescribed in injectable route. In SSMCH & MH, 55.72% drugs in oral, 44.13% in topical and only 0.14% were prescribed in injectable route. Our study revealed that, the percentage of drugs prescribed from Essential Drug List (EDL) of Bangladesh was 56% in DMCH and 57.68% in SSMC & MH. (Table IX)

**Table VIII: Routes of administration of drugs among outpatients**

Routes of drug administration	DMCH (n=725)	SSMC & MH (n=712)
Oral	398 (54.89%)	395 (55.47%)
Topical	325 (44.88%)	316 (44.38%)
Injectable	2 (0.27%)	1 (0.14%)

**Table IX: Drugs prescribed from Essential Drug List (EDL) of Bangladesh**

Drugs	DMCH	SSMC & MH
Prescribed	725	712
Drugs included within EDL	406 (56%)	413 (57.68%)

Table X describes, prescribing patterns of drugs in DMCH and SSMC & MH according to WHO drug use indicators. Here, difference between two means was compared by unpaired t-test and difference between two proportions were compared by proportion test.

**Table X: Overall observation findings of WHO recommended prescribing indicators**

WHO recommended prescribing indicators	DMCH (n= 300)	SSMCH (n= 300)	p Value
Average number of drugs prescribed per prescriptions	2.41±0.67	2.38±0.59	0.281 <sup>ns</sup>
Percentage of the drugs prescribed by generic name	23.72%	27.79%	0.076 <sup>ns</sup>
Percentage of encounters with an antibiotic prescribed	46%	45.66%	0.936 <sup>ns</sup>
Percentage of encounters with an injection prescribed	0.67%	0.33%	0.561 <sup>ns</sup>
Percentage of drugs prescribed from Essential Drug List of Bangladesh	56%	57.68%	0.522 <sup>ns</sup>

## Discussion

Drug use evaluation studies are valid and organized quality enhancement process. A cross sectional study was carried out in order to audit a total 600 prescriptions from the Dermatology outpatient department of two teaching hospitals in Dhaka city. In our study, highest number of patient belongs to male category and the age distribution of the patient showed that 20-29 years constituted the highest number in both DMCH and SSMC & MH. Most of the dermatological conditions in the outpatient department of both hospitals were scabies followed by fungal infection, dermatitis, impetigo, urticaria, folliculitis, psoriasis, acne, viral infection and melasma. Prescription analysis showed that antihistamine were the most commonly prescribed group of drugs followed by antibiotics and steroids and its combination in both hospitals which is similar to the finding conducted by Narawane et al.<sup>5</sup> The antihistamine group of drug was very high as in our study majority of the patients had scabies and fungal infections with itching as a common symptom for which antihistamine were prescribed. Average number of drugs per encounter is an important index for educational intervention in prescribing practices.<sup>4</sup> In our study the average number of drugs per encounter was 2.41 in DMCH and 2.38 in SSMC & MH. Our findings were similar with the result of Wardha, India by Yuwante et al.<sup>6</sup> As per WHO, the average number of drugs per prescription should be 1.6 to 1.8.<sup>7</sup> But our study shows the tendency towards polypharmacy which may lead to drug interactions, adverse drug reaction, poor patient compliance and also increased cost of prescription. So we should keep the average number of drugs as low as possible. Our study reports that, only 23.72% drugs were prescribed by generic name in DMCH and 27.79% in SSMC & MH. Our finding is almost similar with that of the studies done in India.<sup>8</sup> The use of generic names is recommended by WHO and regarded as an important factor for promoting rational use of drug. The use of generic name contributes to cost reduction and provides more alternatives for drug purchases.<sup>9</sup> The percentage

of prescriptions with antibiotic was 46% in DMCH and 45.66% in SSMC & MH. These values are more than that reported in Nepal and Kerala.<sup>9,10</sup> According to WHO, 15-25% of prescriptions with antibiotics is expected in most of the developing countries where infectious diseases are more prevalent.<sup>4</sup> During the study period most of the patients were presented with wide spread lesion, secondary infection as a complication of skin diseases and poor hygiene. So, it may be the cause of overuse of antibiotics in Dermatology outpatients in both hospitals. Outpatient department of both hospitals prescribed most of the drugs in oral routes followed by topical and injectable routes. The WHO recommended target for injection exposure is 10% or less.<sup>4</sup> In this study, the percentage of prescriptions with an injection encountered was 0.67% in DMCH and 0.33% in SSMC & MH. So, these observed proportion of injectable drugs prescribed in both medical college hospital is considered acceptable according to WHO recommendation. Minimum use of injection is preferred and reduces the risk of infection through parenteral route and cost incurred in therapy.<sup>9</sup> The percentage of drugs prescribed from the Essential Drug List (EDL) is also an indicator of rationality of drug prescribing. Our study revealed that the percentage of drugs prescribed from EDL of Bangladesh was 56% in DMCH and 57.68% in SSMC & MH. A study conducted by Biswas et al. showed that 95.78% drugs were prescribed from EDL.<sup>11</sup> Great benefits have been gained through the use of an essential drug list in the public sector.<sup>12</sup> But our value relatively low in both hospitals regarding prescribing from EDL. So, it should be regularly updated and made available to all the prescribers.

## Conclusion

The present study was undertaken to evaluate the prescribing patterns of drugs according to WHO prescribing indicator among the patients attending Dermatology outpatient department of two teaching hospitals. The prescriptions were

complete in respect to dose, duration and frequency but the average number of drugs per prescription was higher than recommended by WHO. Prescribing under generic name and from Essential Drug List (EDL) of Bangladesh was very low. It suggests that effort must be made to encourage prescribers for generic prescribing and from EDL which may have a multitude of benefits including cost effectiveness. The observed proportion of injectable drugs prescribed in both hospitals was considered acceptable according to WHO recommendation. It may be concluded from the study that among the WHO core prescribing indicators only an injection prescribed per prescription was within WHO recommendation.

## References

1. Pathak AK, Kumar S, Kumar M, Mohan L, Dikshit H. Study of Drug Utilization Pattern for Skin Diseases in Dermatology OPD of an Indian Tertiary Care Hospital. *Journal of Clinical and Diagnostic Research*. 2016;10(2):1-5.
2. Kanakambal S, Muruges N, Shanti M. Drug Prescribing Pattern in a Tertiary Care Teaching Hospital in Madurai (Tamilnadu). *Indian Journal of Pharmacology*. 2001;33:223.
3. World Health Organization (WHO). How to Develop and Implement a Rational Drug Policy. 2nd edition. Geneva: WHO; 2003.
4. World Health Organization (WHO). How to Investigate Drug Use in Health Facilities: Selected Drug Indicator. Geneva, World Health Organisation 1993. WHO/DAP/93.1.
5. Narwane SP, Patel TC, Shetty YC, Chikhalkar SB. Drug Utilization and Cost Analysis for Common Skin Diseases in Dermatology OPD of an Indian Tertiary Care Hospital. *British Journal of Pharmaceutical Research*. 2011;1(1):9-18.
6. Yuwante A, Chandane R, Giri K, Yunati M, Sirsam S. A Multicentre Pharmacoepidemiological Study of Dermatological Disorders in Wardha District. *International Journal of Basic & Clinical Pharmacology*. 2013;2(6):751-56.
7. Quick JD, Hogerzeil HV, Velasquez G, Rago L. Twenty-Five Years of Essential Medicines. *Bulletin of the World Health Organization*. 2002;80(11):913-14.

8. Sumana MH, Shetti SA. Prescription Analysis of Drugs Used in Outpatient Department of Dermatology at Tertiary Care Hospital. *Asian Journal of Biomedical and Pharmaceutical Sciences*. 2015;5(46):13-15.
9. Ghimire S, Nepal S, Bhandari S, Nepal P, Palaian S. A Prospective Surveillance of Drug Prescribing and Dispensing in a Teaching Hospital in Western Nepal. *J Pak Med Assoc*. 2009;59(10):726-31.
10. Saleem M, Dilip C, Nishad VK. Assessment of Drug Prescribing Patterns in Dermatology Outpatient Department in a Tertiary Hospital, Malabar, Kerala. *Indian Journal of Pharmacy Practice*. 2012; 5(3):62-68.
11. Biswas NR, Biswas RS, Pal PS, Jain SK, Malhotra SP, Gupta A, et al. Patterns of Prescription and Drug Use in Two Tertiary Hospitals in Delhi. *Indian J Physiol Pharmacol*. 2000; 44(1):109-12.
12. World Health Organization (WHO). *Promoting Rational Use of Medicines: Core Components* Geneva: WHO; 2002.