

## **Hospital Physicians' Drugs Prescription Adherence to the Essential Drugs List Of Bangladesh**

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### **Abstract**

**Objective:** *This descriptive cross sectional study examined the existing pattern of hospital physicians' drugs prescription adherence to the Essential Drugs List of Bangladesh.*

**Background:** *The problem of hospital physicians' drug prescription non-adherence to the Essential Drug List of Bangladesh is a considerable issue.*

**Methods:** *This cross sectional study was conducted at outpatient departments of multiple health facilities of different levels: primary to tertiary A total of 920 patients were interviewed and their treatment profiles were examined.*

**Results:** *The most commonly prescribed drugs were paracetamol, chlorpheniramine, vitamin B complex, amoxicillin, antacid, metronidazole, ciprofloxacin and cotrimoxazole. A notable proportion of prescribed drugs (20.8%) was not in the Essential Drugs List of Bangladesh.*

**Conclusion:** *Non-adherence to the Essential Drug List reflects that the existing Essential Drugs List of Bangladesh is not comprehensive enough to serve the peoples' needs and demands at large.*

**Keywords:** Physicians, Adherence, Essential Drug List, Bangladesh

## 1. Introduction

The essential drugs concept is the key strategies to help improve access to essential drugs and contribute to improve health. The essential drugs concept is evidence based, it is simple, and it promotes equity and is rooted in firm public health principles. Essential drugs are the foundation for nearly every public health programme aimed at reducing morbidity and mortality in Bangladesh as well as in the developing world<sup>1-3</sup>. The essential drugs concept is now widely accepted as a highly pragmatic approach to providing the best of modern, evidence-based and cost effective health care<sup>2,3</sup>.

According to the World Health Organisation about one third of the world's population lacks regular access to medicines of a suitable quantity and quality. In poorer areas of Asia and Africa this figure may be as high as one-half. As a result, millions of children and adults die or suffer needlessly, although their diseases could have been prevented or treated with cost-effective and inexpensive essential medicines<sup>4</sup> and the high disease burden in developing countries such as in Bangladesh is slowing economic growth and worsening poverty levels<sup>5</sup>.

Irregular access to high-quality essential medicines is an important issue in many countries. The major cause is either because these are not available or are too expensive, or there are no adequate facilities or trained professionals to prescribe them; or this may be due to inefficient pharmaceuticals policy and management systems, poor selection, bad distribution and use, geographical barriers, lack of resource funding, especially in the public sector, or to a combination of these<sup>3,4</sup>.

Bangladesh formulated its National Drug Policy (NDP) and promulgated the Drugs Control Ordinance, in 1982, to ensure that common people can get the essential and necessary drugs easily and to ensure the quality and safety of these essential drugs. According to the Directorate of Drug Administration records, in the year 2002, all the essential drugs were produced locally and about 44.78% of the local drugs production was related to essential drugs. There are about 12028 brand named drugs on the market, which involve about 1872 generic and 85% of the raw materials used in the local production are imported<sup>4,6,7</sup>.

Health systems of all types, from basic health systems in the poorest countries to highly developed national health insurance schemes in the wealthiest have recognized therapeutic and economic benefits of essential drugs. Moreover, the concept is forward-looking. It promotes the need to regular update drug selections in light of new therapeutic options and changing therapeutic needs, the need to ensure drug quality, the need for continued development for better drugs, drugs for emerging diseases and drugs for coping with changing resistance patterns<sup>4,5,8-11</sup>.

Confidence in health care facilities depends on their having the resources to provide health care when needed. The availability of essential drugs encourages patients to attend health care facilities where they can also benefit from preventive services and public health messages<sup>5,9,10</sup>. In this spirit, the intended objectives related to exploration of the availability, and prescriptions of essential drugs are set forth for this study.

Although the results of this type of study may not be entirely representative of the actual situation regarding the availability, and prescription of essential drugs and related problems in the country in general, they will provide a focused profile of the pertinent issues in the country. This study may also lead to further studies to identify the magnitude of essential drug-use-related problems and to prepare the way for an intervention to be implemented that will improve availability and utilization of these agents, and the patient care.

## 2. Materials and Methods

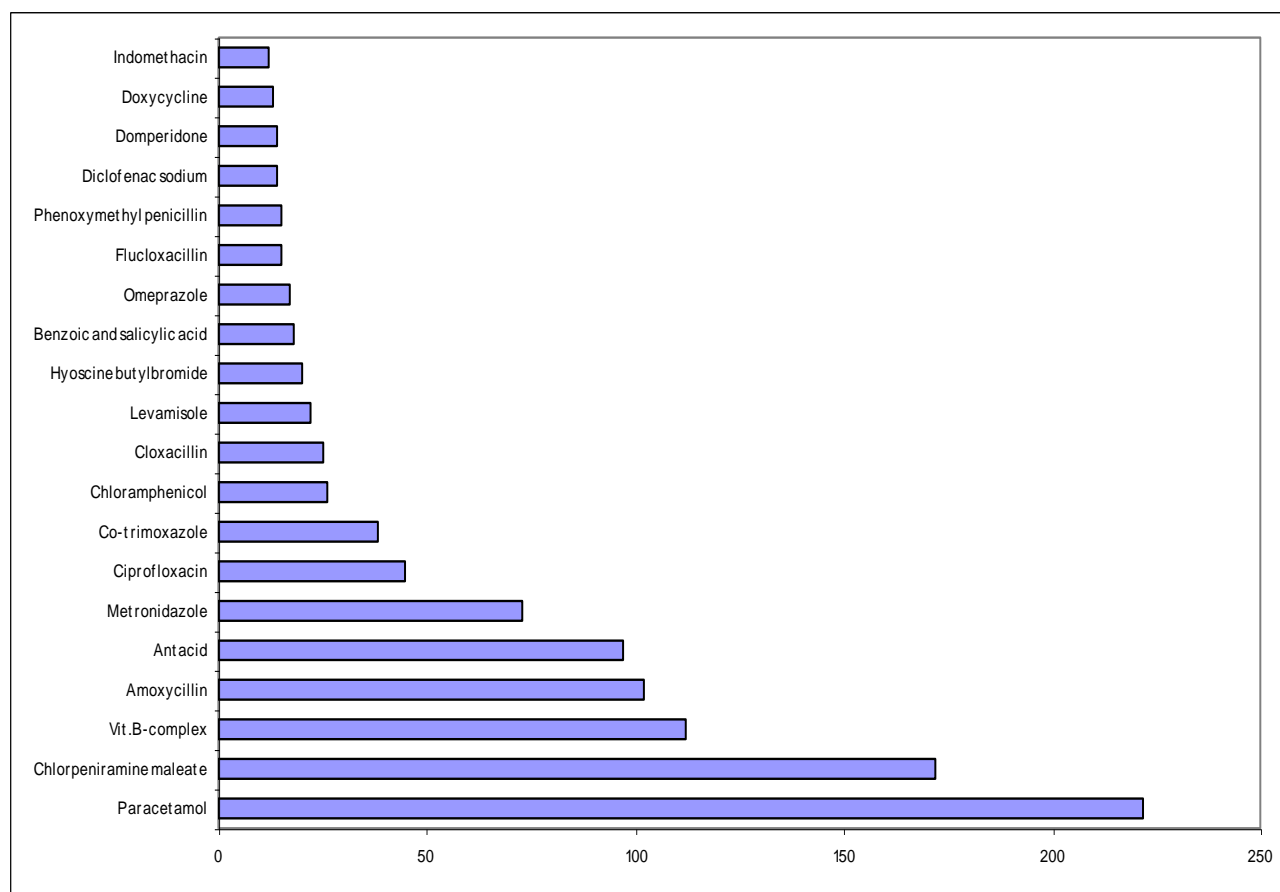
This was a cross sectional study based on outpatient departments of multiple health facilities of different levels: primary to tertiary. The data collection procedure was prospective in nature. A total of 920 patients were interviewed, their treatment profiles were examined during the period from January through April 2005 using thoroughly pre-tested study instrument, Detailed Prescribing Encounter Form, from the outpatient departments of nine randomly selected health facilities. There were three facilities from each level—medical college hospital, district hospital and thana (sub-district) health complex—in the three randomly selected divisions in Bangladesh. All of these were public hospitals. The patterns and pertinent characteristics of drugs prescribed in each and every day of data collection period were observed for each studied patient. The data collection forms were checked for completeness before data processing and entering into the computer based statistical programme—Statistical Package for Social Sciences (SPSS), Version 12.0 for Windows.

### 3. Results

The majority of the patients at outpatient departments of the selected hospitals were females (58.5%). The ratio of males to females was 1:1.4. The mean age was 27.6 ( $\pm$  17.4) years. The age ranged from 1 year to 85 years. The highest percentage of patients (17.7%) was in the 41 years and above age group.

A total of 417 different drugs (by trade name) were prescribed for the treatment of them. Of these, the twenty most commonly used drugs were in the following order: paracetamol, histacin (chlorpheniramine maleate), B/C (Vitamin B-complex), amoxicillin, antacid, metro (metronidazole), ciprocin (ciprofloxacin), cotrim (cotrimoxazole), chloramphenicol, cloxacillin, levamisole, butapan (hyoscine butylbromide), whitfield, omitid (omeprazole), fluclox (flucloxacillin), pen-v (phenoxymethyl penicillin), diclofen (diclofenac sodium), omidon (domperidone), doxin (doxycycline), indomet (indomethacin). Figure 1 shows the corresponding generic name of these drugs and reveals that paracetamol was the most commonly prescribed drugs (26.6%). The second most commonly prescribed drug was histacin (19.7%) followed by amoxicillin (14.2%) across the nine selected hospitals during the period from January through April 2005.

**Figure 1 The most commonly prescribed Drugs for outdoor patients in the nine selected hospitals in Bangladesh from January through April 2005**



To measure the degree to which drug prescribing practices of hospital physicians conform to the National Drug Policy of the country, as indicated by prescribing from the national essential drugs list, the percentage of drugs prescribed from items on the Essential Drugs List of Bangladesh was calculated for the patients included in the study. Table 1 reveals the distribution of drugs prescribed by listing on the essential drugs list. It appears that 20.8 percent of drugs prescribed for the patients included in this study were not from the Essential Drugs List of the country.

Table 1: Distribution of drugs prescribed for outdoor patients in the nine selected hospitals in Bangladesh during the period from January through April 2005 by listing on the Essential Drugs List of Bangladesh

n\* = 2208

Listing status on EDL	Name of drug	Number	Percentage
Not listed on EDL	Ciprofloxacin	328	14.9
	Flucloxacillin	46	2.1
	Ceftazidime	36	1.6
	Ceftriaxone	31	1.4
	Cefotaxime	14	0.6
	Pivmecillinam	5	0.2
Listed on EDL	Others	1748	79.2
Total		2208	100

n\* = Number of courses of drugs; multiple drugs prescribed for the studied patients.

#### 4. Discussion

There was an uneven gender distribution with predominance of females (males to females ratio = 1:1.4) among patients given drugs at the selected hospitals. This predominance of female patients was not in agreement with results of other studies in developing countries<sup>12-14</sup>. One of the explanations of this finding may be due to curving of the male-preferred caring practices in Bangladesh<sup>15</sup>.

The most commonly used drugs were similar in each of the hospitals. As mentioned earlier, paracetamol, histacin (chlorpheniramine maleate), B/C (vitamin B-complex), amoxicillin, antacid, metro (metronidazole), ciprocin (ciprofloxacin), Cotrim (cotrimoxazole), chloramphenicol, cloxacillin were the most frequently prescribed drugs. In this study, the top most frequently prescribed antimicrobials were amoxicillin, metronidazole, ciprofloxacin and cotrimoxazole. This pattern of drugs prescribed, especially antimicrobials was not consistent with that of antimicrobial prescribed in a survey of two teaching hospitals in Bangladesh in 1984<sup>1</sup>. A population based prescription survey of antimicrobial use in a town in Bangladesh for the month of May 1994 found that amoxicillin and ampicillin were the common antimicrobials prescribed by the physicians<sup>18</sup>, and the finding was also in consistent with this present survey.

Other population based prescription surveys in different areas of the country had revealed that ampicillin, amoxicillin, cloxacillin, cephalixin and cotrimoxazole were the most commonly prescribed antimicrobial agents<sup>12, 16, 17, 19</sup>. The agreement and disagreement in choosing drugs particularly antimicrobial agents for prescribing at similar and/or different level of health care facilities may be explained by knowledge differences of physicians regarding which agent to prescribe for what condition. On the other hand, the availability of drugs at a particular health facility may influence the variability in selection of a drug at the same time between hospitals, or during different periods of time in the same hospital, by the physicians concerned.

However, a notable proportion of the prescribed drugs was not on the existing Essential Drugs List of Bangladesh that was also revealed by other hospital-based studies<sup>1,2,13</sup>. This prescription pattern may be a reflection of availability of these particular drugs in the hospital during the study periods of time and also provided evidence that this list is not comprehensive enough to meet the needs of patients.

The selection of drugs to prescribe for the patients may be influenced by the personal choice/preference of a particular physician in a hospital. There are neither hospital formularies of drugs nor any committee to control and/or guide the use of drugs in hospitals in Bangladesh. In addition, some of the other factors that may influence physicians in their prescribing preferences include: concentrated and expensive advertising by drug companies, exposure to certain drugs during initial medical training, perceived clinical efficacy, feedback from patients with respect to compliance and perceived effectiveness of certain treatments<sup>20</sup>. The personal choice, limited experience and other influences on hospital physicians may lead to choose drugs. Several other studies in hospitals, both in developed and developing countries have shown that tactless prescribing of drugs is widespread<sup>1, 21-23</sup>.

## 5. Conclusion

The findings of this study suggest that potential of inappropriate drug treatments of patients in the selected hospitals in Bangladesh remains high. Quite a high proportion of the prescribed drugs were not from the Essential Drugs List of Bangladesh.

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