

## Original Article

## Assessing Patient Care Indicators in a Tertiary Care Teaching Hospital in Bangladesh

MM Alam<sup>1</sup>, F Parveen<sup>2</sup>, MJU Iqbal<sup>3</sup>, N Noor<sup>4</sup>, SA Begum<sup>5</sup>**Abstract:**

*A cross-sectional descriptive study was carried out among individuals attending the Out Patient Department (OPD) of Medicine, Surgery and Gynaecology & Obstetrics from February 1, 2010 to April 30, 2010 in Sir Salimullah Medical College and Mitford Hospital, Dhaka, Bangladesh to see the patterns of drug dispensing using World Health Organization core patient care indicators. The result of the study showed that the overall average consultation time and dispensing time were too short (2.5 minutes and 30 seconds per patient respectively). Of the drugs prescribed, only 20.15% were actually dispensed, whereas no appropriate labeling (0%) was observed and 37.3% of patients knew how to administer drugs correctly after receiving the drugs from the dispenser. So the finding from current study shows a trend towards inappropriate dispensing practice. Hence, there is a need for effective intervention programme to encourage the physicians and dispensing pharmacists in promoting patient care as well as health care facilities.*

**Key words:** Drug dispensing, drug labeling, rational use of drug.

**Introduction:**

Good dispensing of drugs and medical supplies is an important component of rational drug therapy in order to maximize the benefit and minimize the risk to recipients.

Good dispensing practice refers to the delivery of the correct drug and medical supply to the right patient, in the required dosage and quantities, in the package that maintains acceptable potency and quality for the specified period and clear drug information.

- 
1. Dr. Muhammad Mahbubul Alam, Assistant Professor, Department of Pharmacology, East-West Medical College, Dhaka.
  2. Dr. Feroza Parveen, Professor & Head, Department of Pharmacology, Sir Salimullah Medical College, Mitford, Dhaka.
  3. Dr. Md. Jalal Uddin Iqbal, Assistant Professor, Department of Pharmacology, Sir Salimullah Medical College, Mitford, Dhaka.
  4. Dr. Nushrat Noor, Assistant Professor, Department of Physiology, Gonoshasthaya Samaj Vittik Medical College, Savar, Dhaka.
  5. Dr. Shamin Ara Begum, Assistant Professor, Department of Pharmacology, Community Based Medical College, Mymensingh.

**Corresponding Author:**

Dr. Muhammad Mahbubul Alam  
E-mail: mahbub.rohit@gmail.com

The role of such practice in realizing rational drug therapy is enormous and the contribution of pharmacy professionals in this regard is immense although rational drug therapy requires the concerted efforts of all health care professionals towards that goal.<sup>1</sup>

The conference of experts on the rational use of drugs, convened by the World Health Organization (WHO) in Nairobi (Kenya) in 1985 defined that "Rational use of drugs requires that patients receive medications appropriate to their clinical needs, in doses that meet their own individual requirements, for an adequate period of time and at the lowest cost to them and their community".

Rational use of drugs is a complex issue demanding mainly an integrated action of drug prescribers, dispensers and users and/or patients. It may even extend to the level of health administrators and policy makers, for instance, in matters related to the development of a list of essential drugs and improvement of the availability of drugs. Dispensing practice, the duty of dispensers, plays a central role in the provision of rational drug therapy.<sup>1</sup>

Irrational dispensing practices like any other developing country are not uncommon in Bangladesh. Keeping all these facts in consideration, the present study has been planned to define the pattern of drug dispensing in a tertiary care teaching hospital in Bangladesh.

**Methods:**

The study was conducted in Sir Salimullah Medical College and Mitford Hospital (SSMC & MH), a tertiary care hospital, Dhaka. The study was carried out over a 3 months period from February 1, 2010 to April 30, 2010. The patients and their prescriptions were used as source of data. A total of 300 patients were included in the study. New patients attending the Out Patient Departments of Medicine, Surgery and Gynaecology & Obstetrics which is located in the ground floor of Sir Salimullah Medical College & Mitford Hospital during the study period were considered for analysis. Follow up visits during the study period were included and were counted as separate visits. Patients visiting the emergency department or who got admitted during OPD visit were not included in the study.

Patients visiting the OPD come to the In Patient Pharmacy (IPP) with a prescription for getting medicines which is situated on the 1st floor in the OPD for dispensing medicines to the hospitalized patients. After the medicines were dispensed, envelop labeling and quantity of medicines (free of cost) to be dispensed were checked and finally patients were interviewed for their knowledge regarding dose, frequency and duration of therapy on the dispensed medicines. Consultation time was recorded by observing doctor-patient interaction time, while dispensing time was recorded as time spent by a dispenser for instructing a patient on drug use.

To assess the scope for improvement in rational drug use in outpatient practice, the World Health Organization (WHO) in 1993 has formulated a set of "Core drug use indicators" namely prescribing indicators, patient care indicators and facility indicators. Among them, for this study only "Patient care indicators" were taken which measure what patients experience at health facilities.

Patient care indicators were calculated based on the following ratios:

(i) Average consultation time = sum of all consultation times/total number of consultations.

(ii) Average dispensing time = sum of all dispensing times/total number of samples.

(iii) Percentage of drugs actually dispensed = drugs dispensed/drugs prescribed x 100.

(iv) Percentage of drugs adequately labeled was determined by examining the drug packages/bottles the patient had actually received.

(v) Percentage of patient's knowledge of the correct dosage = patients with correct knowledge of the dosage of all drugs dispensed/total number of patients interviewed x 100.

#### Results:

A total of 300 prescriptions of 300 patients were analyzed during the study period. Of the drugs (1082) prescribed, 218 drugs (20.15%) were actually dispensed by the hospital pharmacy and rests of the 864 drugs (79.85%) were not dispensed. None of the 300 encounters were given the full quantity and in 48% (144/300) none of the prescribed drugs were dispensed. All dispensed drugs were found to be in the same strength as prescribed. No patient received a wrong drug or an incorrect dosage. The percentage of the total number of drugs dispensed is shown in Table I.

**Table I:** Percentage of the total number drugs dispensed

Drug dispensing facility	Total number of drugs (%) n=1082
Dispensed	218 (20.15)
Not dispensed	864 (79.85)

**Table II:** The overall findings for the WHO core patient care indicators

WHO core patient care indicators	Findings
Average consultation time (minutes)	2.5
Average dispensing time (seconds)	30
Percentage of drugs actually dispensed	20.15
Percentage of drugs adequately labeled	0
Patient's knowledge of correct dosage	37.3

The average consultation time was 2.5 minutes per patient. Eighty-five percent (85%) of the consultations lasted less than 5 minutes and none exceeded 10 minutes.

The average dispensing time of drugs in this study was 30 seconds. In the study, no appropriate labeling (0%) was observed. Only 37.3% of patients knew how to administer drugs correctly after receiving the drugs from the dispenser.

#### Discussion:

Inadequate supply of essential drugs, substandard quality, uncontrolled drug prices and inappropriate uses of drugs are major problems in Bangladesh.<sup>2</sup> More than half the medicines in Bangladesh are inappropriately prescribed, dispensed or sold.<sup>3</sup>

In the study, only 20.15% of prescribed drugs were dispensed which was very lower in comparison to the figure reported in a study in India (76.9%).<sup>4</sup> This means patients had to go without essential drugs or purchase the drugs elsewhere. There are doubts as to whether these patients could purchase the full dose because of financial difficulties. Shortages of essential drugs in many developing countries have been attributed to inadequate financing from governments and poor managerial skills.<sup>5</sup>

Optimum values for consultation time and dispensing time are more difficult to define; high values do not give much information but low values may indicate a problem. However, dispensing time as a process indicator is less important than output indicators such as adequate labeling and patient knowledge.<sup>6</sup>

In the study, the average consultation time was 2.5 minutes per patient. Eighty-five percent (85%) of the consultations lasted less than 5 minutes and none exceeded 10 minutes. Physical examination was not performed properly in most of the patients. So the time that patients spent with prescribers was too short in comparison to the study reported in Cambodia (4.43 minutes)<sup>7</sup> and in India (3.7 minutes).<sup>8</sup> A large patient load seen in the study facility and lack of adequate physical examination could be a factor which influenced consultation time.

The dispenser plays a crucial role in the therapeutic process. The quality of dispensing may be determined by the training and supervision the dispenser has received and the drug information available to the dispenser.

The WHO recommended dispensing time of drugs is at least 3 minutes.<sup>9</sup> In this study, the dispensing time of drugs was 30 seconds. In similar type of study, this figure is very much lower than Cambodia (3.92 minutes)<sup>7</sup> and India (3.1 minutes).<sup>8</sup> We believe this dispensing time in the study to be very low because a pharmacist can hardly explain about the dosage regimen, any side effect of drug therapy and precautions to be taken along with appropriate labeling of envelop in such a short period of time. An insufficient dispensing time due to heavy patients load and shortage of dispensing materials may also have adverse impacts on dispensing. One good way to maintain dispensing time and potential errors is to prepackaging and labeling commonly used drugs during heavy patient load. Another way to prevent staff

from making errors when working under pressure is to organize the work so that more than one individual is involved in the dispensing process for each prescription. The availability of dispensing materials also plays an important role in this regard.

Patients leaving the health facility were stopped and checked for the label. The appropriate labeling needs to be introduced in our country since there have not been any proper labeling seen in any single (0%) dispensed drug. In similar type of study, this figure is very much higher in Laos (67%),<sup>10</sup> Zimbabwe (58%),<sup>11</sup> India (18.5%)<sup>4</sup> and Nepal (1.4%).<sup>12</sup>

The following information must be given to the label of the drugs: Drug name (use generic name), strength (usually in mg), quantity, date, dose, patient's name, facility name. Of special note is the patient's name, which must be filled in, as more family members are often under treatment at the same time and also to avoid a mix up of medicines.<sup>11</sup> So importance of labeling must be taken as a matter of concern in Bangladesh since other developing countries like Laos, Zimbabwe, India and Nepal have already introduced such.

Dispensing is the end point of contact between pharmacist and patient or the patient's attendant. At this point it is the duty and responsibility of pharmacist to provide adequate information on proper use of drug. Several studies have acknowledged the improvement in patient knowledge about medications following counselling by pharmacists.<sup>13,14,15</sup>

It has been reported that rational drug use demands that appropriate drugs be prescribed, be taken at the right dose, at the right intervals and for the right length of time.<sup>16</sup>

From this study it is evident that the patient had not adequate knowledge as compared to the other study, without any restriction in age or gender of the patient or patient's attendants. In this study, only 37.3% of patients or patient's attendant knew how to administer drugs correctly after receiving the drugs from the dispenser. Similar study revealed 81% in Nepal,<sup>12</sup> 80.8% in India,<sup>4</sup> 70% in Brazil<sup>9</sup> and 55% in Cambodia.<sup>17</sup> The majority of patients especially illiterate had a poor knowledge on correct drug use. There is a danger of taking the incorrect dose by the patient. Poor patients' knowledge of the correct use of drugs in terms of dosage led to poor therapeutic outcome and may be dangerous as it may lead to toxic effects and / or poisoning to patients/children and even death.<sup>18</sup> The knowledge gained by the patients from the dispensing pharmacist is also essential in ensuring patient adherence.

In this regard, the prepared, packaged and labeled drug should be handed over to the right patient or care provider with appropriate drug information. The information in the form of verbal and/or written instructions should include the following:

- \* How much and how often to take the drug
- \* When to take the drug (e.g. before or after meals)
- \* How long the treatment is to last (e.g. why the entire course of an antibiotic treatment must be taken)
- \* How to take the drug (e.g. with water, chewing or swallowing)

- \* How to store the drug (e.g. avoid heat, light and dampness)
- \* Not to share drugs with other persons
- \* To keep drugs out of reach of children
- \* One has to demonstrate to the patient on how to administer the dispensed medications in case of inhaled administration and suppository application
- \* Patients should also be informed not to stop treatment when side effects occur or in the absence of response without consulting the prescriber or dispenser
- \* Finally, check whether patients have understood the information provided.<sup>1</sup>

#### Conclusion:

These results suggest the need for educational intervention for prescribers (health care providers) on rational prescribing of drugs, proper dispensing and adequate labeling drugs in packets, while the dispensing time for drugs was too short. Furthermore, inadequate physical examination and short consultation time needs to be improved. There is a need to advise the Ministry of Health to develop health education programs on a regular basis for all health care providers in the country and general public/rural communities on how to use/administer drugs at home. All these can be achieved through well organized and planned health education training programs in Bangladesh.

#### References:

1. Good Dispensing Practice Manual. Drug Administration and Control Authority of Ethiopia, 2005.
2. Islam MS. Therapeutic drug use in Bangladesh: policy versus practice. Indian Journal of Medical Ethics 2008; 1: 24-25.
3. Chowdhury FR, Rahman MM, Huq MF, Begum S. Rationality of drug uses: its Bangladeshi perspectives. Mymensingh Med J 2006; 15(2): 215-219.
4. Karande S, Sankhe P, Kulkarni M. Patterns of prescription and drug dispensing. Indian J Pediatr 2005; 72: 117-122.
5. Ofori-Adjei D, Arhniful D. Effect of training on the clinical management of malaria by medical assistants in Ghana. Soc Sci Med 1996; 42: 1169-1176.
6. Hogerzeil HV, Bimo, Ross-Degnan D, Lang RO, Ofori-Adjei D, Santoso B et al. Field tests for rational drug use in twelve developing countries. Lancet 1993; 342: 1408-1410.
7. Chareonkul C, Khun VL, Boonshuyar C. Rational drug use in Cambodia: study of three pilot health centers in Kampong Thom Province. Southeast Asian J Trop Med Public Health 2002; 33: 418-424.
8. Hazra A, Tripathi SK, Alam MS. Prescribing and dispensing activities at the health facilities of a non-governmental organization. Natl Med J India 2000; 13: 177-182.
9. Pereira JC, Baltan VT, deMello DL. National Health Innovation System: relations between scientific fields and economic sectors. Rev Saude Publica 2004; 38: 1-7.

11. Lessing Ms C, Trap Ms B. Zimbabwe Essential Drugs Action Programme (ZEDAP) 1995. Ministry of Health and Child Welfare Directorate of Pharmacy.
12. 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: 726-731.
13. Hawkins DW, Fiedler FP, Douglas HL, Eschbach RC. Evaluation of a clinical Pharmacist in caring for hypertensive and diabetic patients. *Am J Hosp Pharm* 1979; 36: 1321-1325.
14. Sczupak CA, Conrad WA. Relationship between patient-oriented Pharmaceutical Services and Therapeutic outcomes of ambulatory patients with diabetes
15. Jaber LA, Halapy H, Fernet M, Tummalapalli S, Dewakran H. Evaluation of pharmaceutical care model on diabetes management. *Ann of Pharmacother* 1996; 30 : 238-242.
16. Ofori-Adjei D. Treatment of malaria in Ghana: present state. *Ghana Med J* 1989; 23: 1.
17. Sutharson L, Hariharan RS, Vamsadhara C. Drug utilization study in diabetology outpatient setting of a tertiary hospital. *Indian J Pharmacol* 2003; 35: 237-240.
18. Kiyangi KS, Lauwo JA. Drugs in the home. Danger and waste. *World Health Forum* 1993; 14: 381-384.