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*Health Care Delivery in the General Paediatric Outpatient Clinic of the Ahmadu Bello University Hospital, Zaria—A Medical Audit**†

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Summary

Abdurrahman MB, Ango SS and Obiaga GO. Health Care Delivery in the General Paediatric Outpatient Clinic of the Ahmadu Bello University Hospital, Zaria—A Medical Audit. *Nigerian Journal of Paediatrics* **1982; 9: 81.** Three hundred and sixty-one parents of children attending a children's general outpatient clinic were interviewed to assess their understanding and interpretation of prescriptions for their children. The results were analysed together with the prescriptions and the respective outpatient cards. Discrepancy in drug prescription and interpretation was found in 40% of all prescriptions. In a few cases, the discrepancy would have resulted in serious drug overdose. Polypharmacy was common; 40.7% of the children were given three drugs or more. In three-quarters of the patients, no diagnosis was recorded in the outpatient cards, and in about half of them, the treatment prescribed was not recorded. Previous clinic visits, distance from the hospital or the day of the week did not influence parents' understanding and interpretation of prescriptions.

Introduction

In developing countries, a disproportionally high percentage of the meagre money allocated to health care services is spent in buying drugs for curative services. Justification for such an expenditure on drugs to some extent, depends on the answers to the following questions:

1. Are the drugs prescribed appropriately?
2. Are the prescribed drugs given according to instructions?
3. Does the drug therapy lead to improved quality and efficiency of health care?

There is little information available on drug prescription and utilization.

We attempted to answer the first two questions by a study of children's general outpatient prescriptions in our hospital, the Ahmadu Bello University Hospital, Zaria, which functions as a

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general, referral, and teaching hospital, and has a busy children's general outpatient clinic with an average daily attendance of 370 children. The outpatient prescription form contains a list of 23 commonly used drugs, with a space provided for inserting the dose.

The objectives of the study were to assess parents' understanding and interpretation of the prescriptions given to their children, to relate the prescriptions to the diagnosis and to find out if any factors influenced their understanding and interpretation.

Materials and Methods

The study was carried out with the use of a questionnaire, combined with analysis of the entries in the outpatient cards of patients attending the children's general outpatient clinic and analysis of the prescriptions given to the patients. Contents of the questionnaire included level of parents education, familiarity with the hospital, number and different types of drugs given and parents' interpretation of the instructions given on how to administer the drugs to their children. Each prescription was compared with the instructions written on the drug labels and oral instructions given to the parents. This exercise was to detect any discrepancies between prescriptions and labels, and between labels and oral instructions. The study was carried out on three days a week for four weeks, without the knowledge of either the outpatient medical or pharmacy staff.

Results

A total of 361 parents of 373 children were interviewed, and 373 prescriptions and outpatient cards analysed. The number of the children exceeded the number of parents because some parents brought more than one child to the clinic. Over 90% of the children were brought to the hospital by their mothers alone; a few children were brought by both parents or other relatives.

Level of Education. As shown in Table I, 74.2% of the parents were illiterate, and only 3% had secondary school education and above. 88.9% of the parents had been to the clinic several times in the recent past.

TABLE I

Level of Education of Parents Attending the Children's Outpatient Clinic

Level of Education	*No of Parents*	*% of Total*
Illiterate	268	74.2
Adult Education	16	4.4
Primary	66	18.3
Secondary	11	3.1
Total	361	100.0

Number of Drugs Given. The number of drugs given to the children is analysed in Table II. Only one child left the clinic without a drug: the drug prescribed for him was not in stock in the pharmacy. One hundred and forty-seven (39.4%) of the children, had three or more drugs.

Instructions on How to Administer the Drugs. Five parents claimed that they were not given any instructions. Instruction was not necessary for one parent whose child received no drug. Out of the 355 parents who were given instructions, the instructions were given by the pharmacist in 339 cases, by both the pharmacist and the doctor in 15 cases, and in only one case was the instruction given by the doctor alone. In cases where instructions were given by the doctor, the parents were usually literate.

There was discrepancy between drug label and oral instruction in 140 (37.5%) cases, and between prescription and drug label in 8(2.1%) cases. The magnitude and frequency of discrepancy increased in proportion to the number of drugs given to a child and the number of children brought to the clinic by the parent. An example of discrepancy found was in a three-year old

TABLE II

Number of Drugs Given to Patients

No. of Drugs	*No. of Patients*	*% of Total*
0	1	0.3
1	53	14.2
2	172	46.1
3	122	32.7
4	24	6.4
5	0	0.0
6	1	0.3
Total	373	100.0

boy who was given a prescription for syrup chloroquine 150mg twice a day. The drug label read one teaspoonful twice a day, but the mother said she was told to give one teaspoon three times a day. In a third of the cases of discrepancy, the children would have been given increased dose of the drug, and in 27% of cases, the child would have received a decreased dose. The most serious overdose would have occurred in two infants. In one instance, a two-month old infant would have received 125mg of chloramphenicol four times a day instead of 62.5mg four times a day. In the second case, a mother would have given a neonate 'Ampliclox' neonatal drops 2.5 ml (250 mg ampicillin + 30 mg cloxacillin). Thirty-six parents had no literate person in the household who could read the label on prescribed drugs.

When parents were asked what they would do if they had forgotten how to give the drugs by the time they got home, the literate ones said they would read the labels. Among the illiterate parents, 20 insisted they would never forget the instructions given, while 23 said they would use their discretion in giving the drugs, and three said they would give one teaspoon or half a tablet twice a day "to be on the safe side"; the others would show the drugs to a literate person to read the instruction.

Parents' understanding and interpretation of prescriptions were not related to the number of previous clinic visits, distance from the hospital or the day of the week when the parents came to the clinic, but educated parents showed better understanding than illiterate parents.

To answer the first question, namely, "Are the drugs prescribed appropriately?", we analysed the notes on the outpatients cards in relation to the prescriptions given to the patients. In 72% of the cards, only symptoms were listed and no diagnosis was written. In 51.7% of the cases, the treatment given was not recorded on the card. It was not possible, therefore, to study diagnosis-drug match, adequately.

Other Observations. Out of the 57 cases of non-availability of drugs in the pharmacy, only 26 parents said they were specifically told so. There was wide variation in the interpretation of the timing of drug administration. For example, whereas some parents would give twice-a-day drug early in the morning and at bedtime, some would give the drug at breakfast and at 2.00 p.m.

There were a few cases of unlabelled drugs, some affecting parents with more than one child. Some prescriptions did not state the frequency of drug administration; this was especially common with topical preparations.

Discussion

In the present study, language barrier could not be used as a strong excuse because there were interpreters who had worked in the clinic for several years and were known to be competent. A most common criticism of doctors by patients is failure of doctors to give adequate information on disease and treatment, and this contributes to parents' lack of understanding of their children's illnesses.[1] With the large number of patients, there is insufficient time for each patient to have proper clinical assessment, and the doctor resorts to treating symptoms with several drugs instead of treating the disease. It is not surprising,

therefore, that polypharmacy is common in our hospital, resulting in an average drug bill of ₦44,000.00 (US $82,465.00) per month. This is a large sum of money in comparison with ₦4.00 (US $7.5) per head of population per year allocated to health services in Nigeria. The occurrence of symptomatic treatment and polypharmacy has also been reported from a Kenyan hospital,[2] where 44% of all of prescriptions had three or more drugs. In the present study, 40.7% of patients had three or more drugs.

Discrepancy in drug prescription and administration, a potentially dangerous problem, was found in 40% of all the prescriptions. The discrepancy might be due to several causes as listed below. We are unable to assess the frequency of diagnosis-drug mismatch because diagnoses were not written on the outpatient cards in three-quarters of the patients. It is of interest to note that in a relatively sophisticated society (America) Palumbo *et al*[3] found a mismatch between the diagnosis and the drug prescribed in 23% of 1,033 prescriptions. The percentage is likely to be higher in our clinic. One obvious disadvantage of not recording the diagnosis and treatment on the clinic card is that the card cannot be used as a source of useful medical information when the patient comes to the hospital again. This disadvantage is particularly serious in a predominantly illiterate clinic population who have little or no knowledge of their children's disease and treatment.

The conclusions or inferences from this study are as follows:

(*a*) Majority of parents who brought their children to the paediatric general outpatient clinic were illiterate mothers who had been to the hospital several times.

(*b*) Polypharmacy was common, with some children receiving up to five drugs.

(*c*) Majority of parents received their prescription instructions from the pharmacy staff.

(*d*) There was considerable discrepancy between the prescription written by the doctor, the drug instruction given to the parents and the parents' understanding and interpretation of the instructions.

(*e*) Diagnoses and treatment were not often recorded on the outpatients cards.

(*f*) Parents had different interpretation of the commonly used phrases "take the drug twice a day" and "take the drug thrice a day".

Possible reasons for these findings include

1. Natural language barrier between the doctor and the patients, necessitating the use of an interpreter.
2. Many patients attending the clinic.
3. Some doctors use technical terms which are incomprehensible to the parents and a communication barrier is thus created.
4. Parents may be inattentive because of anxiety about their children's illness, or they may be ignorant about medical matters so that what is told to them does not make an impression.
5. Parents may forget or deny receiving any instructions from the doctor.

To surmount the problems revealed by the present study, doctors should be encouraged to make the clinic card a more meaningful health record by entering on the card, both the diagnosis, and the treatment given. The fewer the number of drugs prescribed for a patient, the less the chances of discrepancy between prescription and administration of drugs, and the better the patient's compliance with doctors' orders. Another advantage of prescribing fewer drugs is the decrease in the chances of potential drug-drug reactions and potential drug-laboratory interference.

Drug-drug reactions occur when two or more drugs taken by a patient interact to produce adverse effects in the patient. Drug-laboratory interference occurs when a drug or drugs taken by a patient interfere with a laboratory test or the result becomes unreliable. The use of a prescription form with only few most commonly used drugs on it will discourage doctors from

prescribing many drugs. The prescription form newly introduced in our outpatient clinic has only 7 drugs on it compared with 23 on the old form. It has been shown that patients given written information do better than those given only verbal information when it comes to diagnosis, general advice and drug treatment.[4] Such practice was not applicable to majority of parents in the present study because of the high illiteracy rate. Instead, pictorial method of depicting drug instruction should be investigated.

We recommend this type of medical audit as a means of assessing the effectiveness and efficiency of a health care delivery system. The results obtained from such studies should form the basis of introducing improvement in the system.

References

1. Abdurrahman MB. Parents' understanding of their children's illnesses. *J Trop Ped Env Child Hlth* 1978; **24**: 233–5.
2. Maitai CK and Watkins WM. A survey of outpatient prescriptions dispensed in Kenyatta National Hospital. *East Afr Med J* 1980; **58**: 641–5.
3. Palumbo FB, Knapp DA, Brandon BM, Knapp DE, Solomon DK, Klein, LS and Shah RK. Detecting prescribing problems through drug usage review: a case study. *Am J Hosp Pharm* 1977; **34**: 152–4.
4. Ellis DA, Hopkin JM, Leitch AG and Grofton J. "Doctors Order": controlled trial of supplementary, written information for patients. *Brit Med J* 1979; **1**: 456.

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