

Prescribing patterns and morbidity in a tropical practice

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SUMMARY. A retrospective study of morbidity and prescribing habits in a tropical practice is presented. The common symptoms of pain, cough, and fever accounted for 60 per cent of all cases seen while analgesics accounted for 30 per cent of all drugs prescribed.

Introduction

Mwadui is a self-contained diamond mining community in Tanzania situated 1200 metres above sea level, 144 kilometres south of Lake Victoria. The settlement itself is a security area and entry is limited to employees, their dependants and *bona fide* visitors. The total population is about 10,000 with a distribution of 26 per cent adult males, 21 per cent adult females and 52 per cent children. The majority of people are uncertain about their age and so no attempt has been made to compile an age-sex register.

The mine has most of the services associated with a medium sized town such as piped water, sewerage system, schools, shops, clubs, and a regular bus service.

There is a 100-bed hospital staffed by three medical officers, three medical assistants, and 26 trained nurses. The hospital contains an x-ray department, laboratory and a well-equipped operating theatre. Daily outpatient clinics are held by the medical assistants who have had a three-year training in a government-approved training centre. Difficult cases are referred to a medical officer who holds a daily consultation and follow-up clinic.

There is another daily clinic held by a medical officer for the senior executive staff and their dependants. Infant welfare, antenatal, and contraceptive clinics are also held with a medical officer assisting the nursing staff. At all the clinics a wide variety of clinical problems present and seriously ill patients are admitted directly to the wards.

The clinic

The clinic is open 24 hours a day but the medical assistant is on duty from 0730 hours until 1630 hours. At other times a dresser, who has had six months' training in basic nursing, sees the patients and he can either call in a medical assistant or can admit patients directly to the wards. The patients, having collected their notes from the records office, see the medical assistant, who examines them and decides on treatment.

Any injections or dressings are carried out in a dressing room adjacent to the consultation room. Any drugs prescribed are collected from the hospital pharmacy. After the consultation the medical assistant records details of the patient in a day register.

The pharmacy

This is open from 0730 hours until 1630 hours and is staffed by two dressers who have had several years' experience in dispensing and a pharmaceutical assistant who has had a three-year training in basic pharmacy. Drug issues for the wards are also made from the pharmacy and most of the liquid preparations used in the hospital are compounded there.

The study

A retrospective survey was made of all prescriptions issued during three separate periods in 1973 (9–18 February, 5–9 April and 1–8 November). The prescriptions were analysed by me and the drugs issued were recorded. Prescriptions for tablet and liquid preparations of the same substance were recorded as one preparation, but, the various aspirin preparations were all recorded separately.

The daily outpatient registers were also analysed for details of the numbers of patients seen during the study period as well as their first presenting symptom. In many cases only a diagnosis was given and in these cases this was recorded.

Results

Pattern of work

TABLE 1
PATTERN OF WORK

	<i>February</i>	<i>April</i>	<i>November</i>	<i>Total</i>
Number of patients seen	820	443	552	1,815
Total number of visits	1,050	630	661	2,341
Number of patients admitted to the wards from the outpatient department	38	26	37	101
Admission as percentage of patients seen	4.7	5.8	6.7	
Average number of consultations per day	105	122	82	101

With a daily average of 100 patients it was found that most attended during the eight hours when the medical assistant was on duty, the majority attending between 0730 and 1300 hours. During peak periods a dresser helped by seeing some of the patients. Although an average of four patients per day were admitted, many other patients presented directly to the wards and the daily admission rate was about 13 patients.

Symptoms

The presenting symptom, as recorded in the day register, was noted but many cases were given only a diagnosis and in 41 cases out of a total of 1,815 (2.2 per cent) there was no diagnosis or symptom recorded. A total of 70 symptoms or diagnoses was recorded during the study period of which 31 (44.2 per cent) were symptoms and the remainder were a diagnosis. Table 2 gives an analysis of the main presenting conditions.

Among the less frequently occurring cases, tonsillitis accounted for 27 cases, weakness 13 cases, swollen limbs eight cases, while conditions such as impotence, prolapsed rectum, hernia, orchitis, and tuberculosis were all recorded once.

Drugs prescribed

Sixteen preparations accounted for 65 per cent of the drugs used and mixtures compounded in the pharmacy accounted for 19 per cent of the total drug consumption. Only one proprietary preparation, 'Dequadin' lozenges, was included in the 16 most popular preparations. Of the remaining 114 drugs, 49 were prescribed on fewer than five occasions and 26 were prescribed only once during the 23 days studied.

TABLE 2
SYMPTOMS AND DIAGNOSES

<i>Symptom/diagnosis</i>	<i>Sub total</i>	<i>Total number of cases</i>
<i>Pain</i>		554
Abdominal pain	183	
Headache	154	
Other pain	119	
Sore throat	64	
Chest pain	34	
Cough		365
Fever		200
Diarrhoea		109
Boils and sores		80
Rashes		68
Coryza		43
No symptom or diagnosis		41
Accidents		38
Conjunctivitis		77
Number of cases accounted for by 14 most frequent symptom diagnosis		1525
Total number of cases seen		1815

Discussion

Recent articles by Wilson (1971), Patterson (1972), Berkeley and Richardson (1973) have described prescribing habits in British general practice. This study shows the pattern of prescribing in the context of a tropical practice. Mwadui is, however, an atypical situation because it is relatively well doctored for a developing country. In Tanzania there are about 500 doctors and 500 medical assistants for 13 million people giving a total ratio of 1 to 13,000. On the mine there are three doctors and three medical assistants giving a ratio of 1 to 1,660.

The annual health budget of the country per person is about £0.60 whilst on the mine the annual expenditure per person on health services in 1973 was £16.80. To some extent this figure is unrealistic because 42 per cent of the total bed occupancy was accounted for by non-mine residents who are treated free of charge. It has been the policy of the medical department to act as a surgical consultant centre for the region and hence many difficult surgical cases have been treated.

On the mine there are fairly well-developed preventive measures such as mosquito control which are regularly carried out. Nevertheless in 1973 there were 903 admissions for clinical malaria (a short-term fever which responded to chloroquine, treatment, but in which no malaria parasites were demonstrated in the blood slide).

TABLE 3
PREPARATIONS USED AND PRESCRIPTIONS WRITTEN

	<i>February</i>		<i>April</i>		<i>November</i>		<i>Total</i>		<i>Percentage of total prescriptions</i>
	<i>Prep.</i>	<i>Presc.</i>	<i>Prep.</i>	<i>Presc.</i>	<i>Prep.</i>	<i>Presc.</i>	<i>Prep.</i>	<i>Presc.</i>	
Hypnotics and psychotropics	7	51	3	13	5	30	9	94	2·3
Respiratory	4	205	5	157	5	164	6	526	12·7
Antibiotics	7	135	7	38	9	54	10	227	5·5
Gastrointestinal	17	189	16	110	19	224	24	523	12·7
Topical	*	123	10	96	17	88	20	307	7·4
Endocrine	1	4	2	2	1	1	2	7	0·2
Analgesic and antirheumatic	8	591	6	297	7	410	8	1298	31·5
Antihistamines	4	33	4	22	4	24	4	79	1·9
Cardiovascular	—	—	—	—	1	1	1	1	—
Hypotensive	1	4	—	—	3	9	3	13	0·4
Vitamins	7	132	8	75	13	117	11	324	7·9
Antimalarials	3	132	2	55	3	85	4	272	6·6
Eye	*	45	3	30	7	35	7	110	2·7
ENT	3	101	3	91	4	90	5	282	6·8
Miscellaneous	1	18	1	11	6	29	6	58	1·4
Total	63	1763	70	997	104	1361	120	4121	100·0

* All topical and eye preparations in February were grouped together.

The medical officers are mainly concerned with the day-to-day clinical running of the hospital, the outpatient referral clinic, and the administration of the hospital. The pattern of prescribing described is that of the medical assistants. In their training they are taught to recognise and treat commonly occurring conditions. It would appear from table 5 in which a comparison is made between the frequency rates of various symptoms in a London practice with the frequency prevailing on the mine, that common symptoms are common to both developed and developing countries.

The treatment prescribed appeared to be much more symptomatic than that found in Patterson's study from Edinburgh. At Mwadui, analgesics accounted for 31·5 per cent of all prescriptions, while in Edinburgh hypnotics and psychotropics were the most frequently prescribed group.

TABLE 4
MOST FREQUENTLY PRESCRIBED DRUGS

<i>Drug</i>	<i>Number of prescriptions</i>	
	<i>Sub total</i>	<i>Total</i>
<i>Analgesics</i>		1286
Aspirin compound tab.	419	
Aspirin 300 mg.	250	
Paracetamol	242	
Aspirin 75 mg.	186	
Aspirin soluble	106	
Codeine compound tab.	83	
<i>Cough mixtures</i>		388
Simple linctus	275	
Expectorant mixture	85	
Codeine linctus	28	
Chloroquine		248
'Dequadin' lozenges		186
Kaolin mixture		151
Carminative mixture		150
Multivitamin tablets		91
Ferrous sulphate tablets		89
Ephedrine nasal drops		88
Total		2677

TABLE 5
FREQUENCY OF SYMPTOMS

<i>Symptom</i>	<i>London*</i>		<i>Mwadii</i>	
	<i>Cases</i>	<i>Percentage</i>	<i>Cases</i>	<i>Percentage</i>
Pain	1313	24.6	554	30.5
Cough	527	10.0	365	20.1
Rashes	302	5.6	68	3.7
Changes in bowel function	182	3.5	109	6.0
Boils and sores	181	3.5	80	4.9
Fever	53	1.0	200	11.0
Percentage of total cases represented by six symptoms		48.2		76.2
Total number of symptoms analysed	5325		1815	

* London data from Morrell *et al.* (1971).

TABLE 6

FREQUENCY OF PRESCRIBING—COMPARED DRUG GROUPS AS A PERCENTAGE OF TOTAL DRUGS PRESCRIBED

	<i>Patterson</i>	<i>Mwadui</i>	<i>Medical Officers*</i>
Hypnotic and psychotropic	19.0	2.3	11.5
Antibiotic	14.8	5.5	19.2
Respiratory	10.5	12.7	3.8
Gastrointestinal	8.2	12.7	9.0
Topical	8.6	7.4	6.0
Endocrine	3.1	0.2	0.0
Analgesic	8.6	31.5	21.4
Antihistamines	1.2	1.9	10.3
Cardiovascular	7.6	0.0	0.0
Hypotensive	6.0	0.4	1.8
Vitamins	4.5	7.9	6.4
Antimalarials		6.6	6.1
Eye		2.7	0.0
ENT		6.8	4.2
Miscellaneous	7.9	1.4	1.3
	100.0	100.0	100.0

* Analysis of 235 prescriptions issued by medical officers at the outpatient clinic.

In this table figures are included from a small sample of prescriptions issued by medical officers at their outpatients. Only 235 prescriptions were analysed.

In any system of medical care some consideration should be given to the cost-effectiveness of the treatment prescribed to the condition presented. Parish (1971) suggested that a study of prescribing patterns linked to a morbidity survey was needed in Britain. This study has suggested that the pattern of prescribing on the mine fits reasonably well with the prevailing pattern of disease.

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