

# Compliance With Antihypertensive Therapy in a Limited Eligibility Health Care System

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In order to derive maximum benefit from antihypertensive drugs, treatment must be taken regularly, usually for life, and besides taking drugs the patient must be assessed regularly. As in other chronic diseases, such as diabetes mellitus and epilepsy, compliance with the therapeutic regimen is essential for successful control. The purpose of the present study was to determine the influence of cost on patient compliance with antihypertensive drug therapy in a limited eligibility health care system.

## Method

One hundred patients attending the Blood Pressure Evaluation and Treatment Clinic were interviewed by one of us (M.O'H.). The interviews were conducted in a confidential manner, away from the clinic setting. The questionnaire was designed to be as objective as possible, with the majority of questions allowing a simple yes/no answer, and was in four sections:

1. *Drug Treatment and Cost*: The section on drugs covered aspects of cost of medications, source of funding for drugs, refunds from Health Boards for drug expenditure, and delays in obtaining such refunds. Patients were asked to state the medications they were taking, the dosages and times of administration, and reasons for failing to adhere to treatment were noted. Each patient's description of his regimen was compared with the regimen documented in his hospital record notes. Any discrepancy between them was defined as to non-compliance, due to failure to comprehend their regimen.

2. *Patient Education*: Questions in this section related to patients' knowledge of the complications of hypertension and the benefits of treatment. We considered patients to have a reasonable appreciation

of the complications if they were able to name at least one major complication (heart disease or failure, stroke, renal disease or failure). Patient awareness of the benefits of treatment in preventing the named complication, and their sources of information, helped further in assessing patient education.

3. *Follow-up*: This section covered cost and frequency of family practitioner consultations and patient preference for family practitioner or hospital clinic follow-up. Other financial aspects, such as transport costs and loss of earnings due to clinic attendance, were also documented.

4. *Social Aspects*: The patient's age, sex, marital status, number of children and dependants, occupation, social habits and health care eligibility were recorded. Eligibility for health services in Ireland were considered under the following groups:

(1) *General Medical Services Scheme (GMS)*: Patients within this scheme have full eligibility and are entitled to the full range of health services, including prescribed drugs, hospital in-patient and out-patient services, and family practitioner consultations, without cost. These patients are subjected to a means test which is based upon income and number of dependants and comprise 38% of the population (March 1979 figures for GMS).

(2) *Limited Eligibility Under Social Welfare Scheme*: Patients who did not qualify for GMS and whose incomes are below a certain level qualify for this scheme, by making a weekly contribution. These patients are eligible for hospital in-patient and out-patient services without cost, but have to pay for private practitioner consultations and for medications. They are also entitled to a

refund from the Health Board towards the cost of prescribed drugs under the Drugs Assistance Scheme\*:

- (a) Where the total cost is between £5 and £8 in a calendar month, half the amount in excess of £5 will be refunded;
  - (b) Where the total cost is in excess of £8 in a calendar month, £1.50 plus the full amount in excess of £8 will be refunded.
- (3) *Long-term Illness Benefit*: Persons suffering from a long-term illness, irrespective of income, can obtain drugs and medicines without charge, but are liable for family practitioner consultations. Hypertension is not listed among the diseases covered by this scheme.
- (4) *Employer-assisted Schemes*: Some companies and semi-State bodies have private health schemes providing partial or complete cover for medical expenses.
- (5) *Voluntary Health*: This scheme is voluntary and there is out-patient cover available to insure against the cost of drugs.

### Results

Forty-eight males and 52 females, with a mean age of 54 years and 56 years respectively, were interviewed. Sixty-one patients had a full income which was earned in 35 cases by the patient and in 26 by the patients' husbands. The remaining 39 patients had a reduced income derived from social welfare benefits such as unemployment benefit, disability benefit, old age and widows' allowances.

*Financial Consideration*: Financial difficulties were related mainly to the cost of drugs, family practitioner consultations and transport expenses, and in some cases loss of earnings incurred by attendance for follow-up was a factor.

**Table 1**  
Patient Eligibility for Health Care

Eligible for free drugs:		30
General Medical Services Scheme	28	
Long-term Illness Benefit	2	
Not eligible for free drugs:		70
Health Acts (Social Welfare)	64	
Health Insurance (VHI)†	3	
No insurance or entitlement	3	

†These patients were not covered for out-patient treatment or Home Scheme insurance.

\*Since the time of writing, under the Health Act (1979) all patients irrespective of income are now eligible for a refund for drug costs under the Drugs Assistance Scheme.

**Table 2**  
Financing of Drugs for 70 Patients with Limited Eligibility

Refund requested from Health Boards	24
Eligible for refund but not requested*	8
<b>Spent less than £6.50 per month</b>	<b>14</b>
No entitlement or insurance	6
Drug trials (free supply of drugs)	9
Assistance from pharmacy at place of employment	9

\*Not aware of entitlement for refund.

(a) *Drugs and health care eligibility*: Seventy patients were not covered by GMS or Long-term Illness Benefit and would have normally had to pay for both their medications and family practitioner consultations (Table 1). However, 9 patients were given free drugs for the purposes of drug trial studies and 9 patients received partial or complete assistance from employment health schemes (Table 2). Therefore, 52 patients were obliged to make an initial outlay of the total cost of their drugs. Forty-six were eligible for refunds under the Drugs Assistance Scheme but only 32 patients whose monthly drug bill was greater than £6.50, qualified for a refund. The 14 patients whose monthly bill was below the figure failed to qualify for this.

The cost of drugs varied between £1 and £46 per month (mean £13.50) for the 52 patients who made an initial outlay (fig. 1). The mean cost for the 32 patients, who paid more than £6.50 per month and who qualified for refunds, was £19.80 per month and there was delay of between 4 and 12 weeks (mean 7 weeks) before refunds were made to these patients.

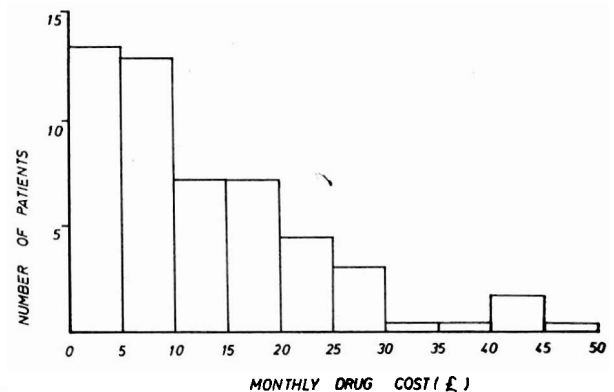


Fig. 1: Distribution of monthly drug expenditure for patients eligible for refunds under the Drugs Assistance Scheme.

(b) *Consultations with Family Practitioners*: All patients covered by the General Medical Services Scheme (GMS) consult with their family practitioners once monthly, either for professional consultation and/or to have their prescription

renewed. Of the 70 non-GMS patients attending the clinic, more than half (57%) did not attend their family practitioners for follow-up.

The cost of family practitioner visits varied from £1.50 to £10 with a mean of £2.60. Seventy-two per cent of non-GMS patients attended the hospital clinic more frequently than their family practitioner, whereas only 18% of GMS patients did likewise (Table 3). Patient preference, as opposed to current practice, showed 53% to be in favour of follow-up at the hospital clinic alone, with 27% preferring follow-up in general practice alone and 9% in favour of combined care. Eleven per cent offered no preference.

**Table 3**  
Patterns of Patient Attendance at Hypertension Clinic or Family Practitioners (F.P.)

Place of attendance	GMS n=28	Non-GMS n=72
F.P. more often than hospital clinic	13	9
Clinic more often than F.P.	5	52
Attend F.P. and hospital clinic equally	10	11

(c) *Transport*: Most patients experienced little or no difficulty in attending the clinic and availed of public or private transport, with the majority (73) spending less than £0.50 on travel per clinic visit. However, 20 patients spent up to £1.00 per visit and 7 patients spent from £1.46 to £4.50 per visit.

(d) *Loss of earnings and time lost from work*: Of the 35 patients who were working full-time, 24 were allowed time off from work to attend the clinic. Four patients had to avail of 'sick leave' days and 7 (20%) patients had pay deducted.

*Drug Therapy and Compliance*: Patients were prescribed between 1 and 15 tablets per day (mean 4.5) (fig. 2) and were taking from 1 to 6 different preparations (mean 2.6). All patients were able to identify the medications by name or colour of tablet or both. Seventy-four per cent of patients were prescribed tablets once or twice daily, whilst 26% were taking drugs more often than twice daily (fig. 3).

Forty-three patients failed to take tablets as prescribed. Of these non-compliers, 36 reduced the dose, 5 increased the dose and 2 took unprescribed drugs. Thirty-three patients admitted their failure to comply but ten were unaware of the problem which was established by referral to their hospital records. Of the 33 patients who admitted poor compliance, 17 attributed this to financial reasons and 8 to side-effects. A further 8 patients did not comply due to failure to understand the importance of continuous treatment (fig. 4). Of the 17 patients who

reduced their medications for financial reasons, 14 were fully aware of the benefits of treatment and the possible complications of non-compliance.

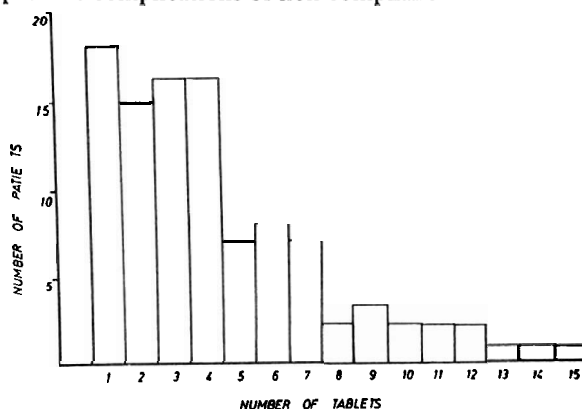


Fig. 2: Total number of tablets prescribed per day (Mean 4.5).

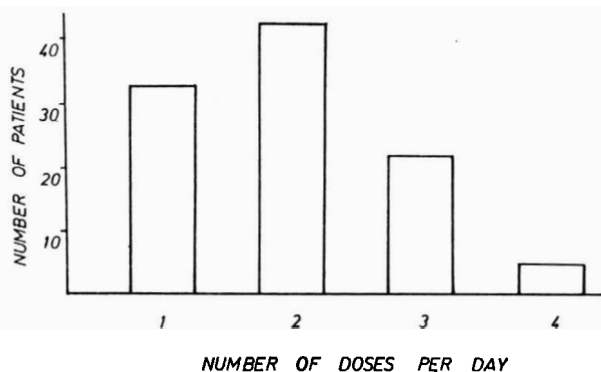


Fig. 3: Frequency distribution of the number of times drugs were administered per day.

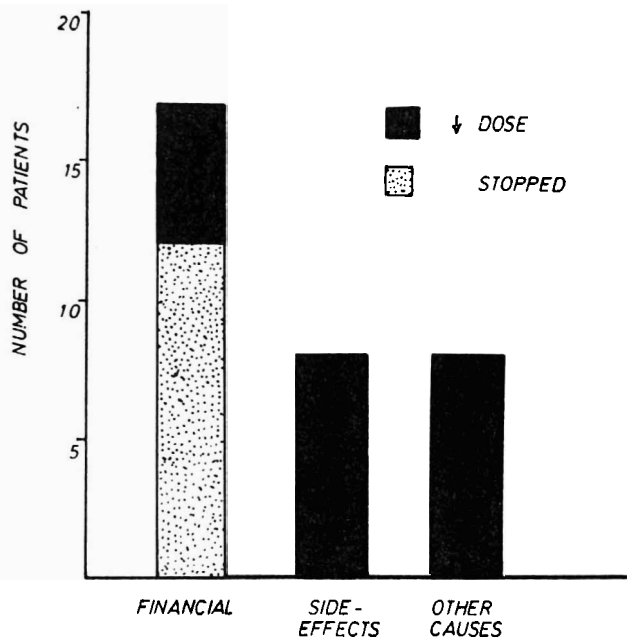


Fig. 4: Reasons for non-compliance with therapeutic regimen in 33 patients who admitted non-compliance.

Of the 52 patients who had to make an initial payment for drugs, 20 (38.4%) were non-compliant, 17 for financial reasons. Thirteen patients (27.1%) of the 48 patients who did not have to pay for their drugs were non-compliant.

*Patient Education and Compliance:* Seventy per cent of the patients were aware of the complications of hypertension but only 60% knew the long-term benefits of treatment. These patients appreciated that, by effective treatment, the incidence of at least one complication of blood pressure was reduced. Twenty-three of this informed group of patients were, however, non-compliant; 14 for financial reasons, 3 because of side-effects and 6 omitted treatment because they felt so well.

Patients learnt most about their hypertension from the doctors responsible for their care (59%), although the media (18%) and relatives and friends (16%) also contributed to patient education. Seven per cent were unable to answer any of the questions correctly and did not understand the nature of their illness.

*Patient Attitudes and Long-term Follow-up:* Patients appeared to be interested in learning about their illness. Seventy-six per cent wished to have their blood pressure readings documented, together with family practitioner and clinic readings on a personal record form, similar to the diabetic patient's home urinalysis record. Ten patients not in favour of a continuous blood pressure record card felt that the responsibility of care and control of the hypertension rested with the doctor and did not want to add any further anxiety to their problems. Seventy-three per cent of patients were interested in home recording of blood pressure.

### Discussion

Many factors have been implicated in poor patient compliance with therapeutic regimens (Blackwell, 1973; Francis et al., 1969; Matthews and Hingson, 1977; Gatley, 1968; Caldwell et al., 1970; Haynes, 1976; Donabedian and Rosenfeld, 1964; Finnerty, 1973). These include the patient's personality and outlook, the rapport between patient and physician, the complexity of the therapeutic regimen, the severity and nature of the illness and cost. Donabedian and Rosenfeld (1964) were unable to show any correlation between age, sex, education, socio-economic status of the patient and compliance; other studies conclude that these factors may have a greater effect on access of health services than upon compliance with therapy (Haynes, 1976).

Identification of patients likely to be non-compliant and the factors that make patients poor compliers is difficult but very important. However, patients 'at risk' have been described as those

requiring long-term maintenance with preventive treatment (Blackwell, 1973). Hypertension falls into this category where the benefits of therapy may not be readily apparent to the patient, and the long-term and indefinite nature of the illness leads to complacency and lapses in compliance (Francis et al., 1969). Hypertensive patients have, therefore, been the subject of several studies relating to compliance (Caldwell et al., 1970; Sackett et al., 1975; Haynes et al., 1976; Fletcher et al., 1975; McKenney et al., 1973; Finnerty et al., 1973) but, in these, relatively little attention has been given to the effect of cost on compliance. However, in one study (Caldwell et al., 1970), 33% of patients who had stopped taking antihypertensive drugs, did so for financial reasons. Our results highlight the nature and extent of these financial problems. Although side-effects (Caldwell et al., 1970; Weintraub et al., 1973) and poor patient education (Caldwell et al., 1970; Donabedian and Rosenfeld, 1964) are common causes of poor compliance, it is apparent from our results that 33% of patients who had to pay for their drugs and family practitioner consultations failed to comply for financial reasons and that twice as many patients in this survey freely admitted that cost, rather than side-effects, was responsible for their failure to comply to the antihypertensive treatment. It is worth noting that the majority of patients who failed to comply for financial reasons, were fully aware of the long-term benefits of treatment. The fact that a higher percentage of patients who had to pay for their drugs were non-compliant compared to patients who obtained their drugs without cost, further highlights the effect of cost on compliance. There was no correlation between non-compliance and socio-economic status of patients.

The initial high outlay for drugs, together with the delay in obtaining refunds under the Drugs Assistance Scheme, were the main factors contributing to the financial difficulties of non-compliers. As the mean cost of drugs for those eligible for refunds was £19.80 per month and as the mean waiting period for a refund was 7 weeks, there is a hidden outlay of £34.65 for drugs alone! As refunds are paid monthly from the initial payment onwards, patients never really recoup this initial outlay as their refund is spent on purchasing their next supply of tablets. It is noteworthy that the above figure is a mean and is much higher in many cases.

There was an interesting difference between the ratio of hospital to family practitioner visits by non-GMS patients and GMS patients. Although the reasons for this may be many, they include the necessity for GMS patients to attend their family practitioners on a monthly basis for prescription renewals. Many non-GMS patients stated that they attended the hospital clinic more frequently than

their family practitioner because there was no charge made at the hospital. If we consider that regular visits for follow-up are desirable, then patients are better off in a comprehensive national health scheme.

Although travel expenses were minimal in most cases, the higher travel expenses in a number of cases would have to be reckoned with the cost for drugs, visits to family practitioners and time off work, all of which contribute to a large and continuous financial commitment for the hypertensive patient. Absence from work for clinic visits alone posed problems for 7 of the 35 working patients. This group experienced a loss of income which in the case of 4 patients amounted to more than £10 per visit. It should also be stated that regular absences from work, albeit for clinic visits, may jeopardise prospects of promotion either temporarily or permanently and in this way may result in a loss of income.

We conclude that, in a health care system with limited eligibility, the financial burden of hypertensive treatment is considerable. As this is a regular commitment for the care of one disease in one member of the family alone, it is perhaps not surprising that 33% of patients failed to take treatment for financial reasons. Recent modifications of the Health Services in Ireland will not alter compliance significantly, because the initial costs of drugs will remain high and cannot be avoided. This scheme is far from ideal and only access to free drugs for long-term diseases, like hypertension, will relieve patients of financial hardships and ultimately improve their well-being.

#### Summary

Long-term illnesses such as hypertension test the ability of the patient to comply with therapeutic regimens and have been the subject of many studies.

In a survey of 100 hypertensive patients, in a health care system with limited eligibility, the cost of drugs and family practitioner consultations were major factors in non-compliance. Loss of earnings, time lost from work and transportation costs to attend a hypertensive clinic for regular follow-up are additional factors influencing compliance.

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