

Ancillary-written prescription errors

RICHARD AUSTIN, BA, M.SC and RICHARD DAJDA, BA, MS.C

Research Fellows, Medical Sociology Research Centre, Swansea.

SUMMARY. Prescriptions written by 261 doctors and their ancillaries were examined for errors. Owing to the differential incidence of such errors in the two groups, socio-economic characteristics were investigated but there was little to explain the differing standards of prescription writing. However, further examination revealed a strong tendency for doctors who make errors to have ancillary staff who also make errors, and vice versa.

Introduction

THE number of prescriptions written by general practitioners is steadily increasing each year, the number of items prescribed per patient per year having increased by 48 per cent in the years 1962 to 1978 (DHSS, 1970, 1977). Also it appears that the workload of general practitioners is increasing steadily and this is supported by data collected by Intercontinental Medical Statistics, who contend that the average daily number of patient contacts has risen from 33.8 in 1972 to 40.2 in 1977 (*Pulse*, 1978). However, the General Household Survey gives the average consultation rate per person per year as fluctuating around 3.7 consultations per year (OPCS, 1973). However, the General Household Survey excludes visits to pick up a prescription from a receptionist whereas the Intercontinental Medical Statistics survey includes 'contacts' with the receptionist, stating that these made up 16 per cent of all contacts and that this percentage is on the increase.

A conclusion that can be drawn from these data is that general practitioners are coping with a growing workload by having an increasing number of prescriptions written by their ancillary staff. This is supported by Fry (1978).

The phenomenon of increasing levels of ancillary 'prescribing' in both relative and absolute terms has sometimes met with expressions of disquiet. Concern is generally expressed with the quality of ancillary-written prescriptions rather than the fact that ancillaries are writing them, since ancillaries make errors when com-

pleting prescriptions for later signature by a doctor. This observation is drawn from one main source, namely the pharmacists who are called upon to dispense prescriptions which are sometimes patently absurd in the directions which have been given. Some of these errors have been reported in the *Pharmaceutical Journal*; indeed at one time each successive issue seemed to contain letters describing prescriptions which were yet worse than those previously reported (*Pharmaceutical Journal*, 1977).

In addition to these observations made by dispensing pharmacists, two studies have pointed to the relatively higher incidence of mistakes on prescriptions written by ancillary staff compared with doctor-written forms. Jones (1978) in his study of prescription errors, found that four per cent of forms completed by doctors contained errors, while the corresponding figure for ancillaries was seven per cent. The other study (Austin and Parish, 1976) found a much higher incidence of inadequately written forms, 25 per cent and 49 per cent respectively. Such a vast discrepancy is explained by the fact that whilst Austin and Parish relied on strict *British National Formulary* criteria, Jones defined a prescription error to be one which required the pharmacist to contact the doctor. Notwithstanding these differing definitions, in both cases ancillaries wrote about twice as many inadequate forms as general practitioners.

However, the results reported in these studies conceal the full picture. No matter what definition of 'inadequacy' or 'error' is used, the sole reporting of summary statistics such as the arithmetic mean will disguise the fact that there are variations within both groups. In theory, some ancillaries could make errors on every occasion while others never do, and similarly with doctors.

Aim

We decided to examine more fully the variations in standards of prescriptions written by both general practitioners and their ancillaries.

Method

The Medical Sociology Research Centre, Swansea, has available a data base containing prescribing information for all those doctors in England and Wales who became

unrestricted principals in 1969. This is a continuing programme of research sponsored by the Department of Health and Social Security whereby the Department of Pharmacy, Heriot-Watt University, provides Swansea with prescribing data on each member of this cohort of doctors. The cohort research project has been fully documented in a supplement to the *Journal of the Royal College of General Practitioners* (Parish *et al.*, 1976). Briefly, the project was set up to relate the prescribing of general practitioners to their personal attitudes and their practice conditions. The project has been approved by the General Medical Services Committee of the British Medical Association. Prescribing data are maintained for each doctor for one month, chosen at random each year. From the basic FP10 prescription form it is possible to determine the authorship of a particular prescription. Since the pricing bureaux associate prescriptions with a particular doctor on the basis of his signature, it is possible to determine whether the prescription has been written by an ancillary or a doctor by comparing the handwriting of the directions with that of the signature. If these correspond, the prescription has been written by a doctor; if not, the prescription has been written by an ancillary.

In this study a sub-sample of 261 doctors was selected comprising those doctors for whom both questionnaire and prescribing information was available during the period January 1974 to March 1975. In addition only those doctors who had prescriptions written by ancillaries on at least one occasion were included. Each month's data contain information on prescriptions written by both doctors and ancillaries. Since the broad aim of the study was to explain the errors present within the two groups, two sets of prescribing indices were constructed, one for general practitioners and one for the ancillary staff.

Table 1. Variables used in the investigation of inadequacies in prescription-writing.

1. Percentage of prescription items written for children
2. Percentage of prescription items written for elderly
3. Percentage of prescription items written for male adults
4. Percentage of prescription items written for female adults
5. Number of items written
6. Sex of general practitioner
7. Country of birth of general practitioner
8. Region of practice
9. Number of partners in practice
10. Whether health centre or not
11. Whether appointment system or not
12. Whether own dispensing system or not
13. Number of ancillary staff
14. List size of practice
15. Perceived satisfaction of general practitioner with his/her job

Results

Table 1 shows the variables used to investigate inadequacies in prescription-writing by both of the groups. These are seen to relate mainly to the personal characteristics of the general practitioner and his patients.

Table 2 shows the characteristics of prescriptions written by the general practitioners and their staff. It will be seen that the standard deviations for the number of items written per month are quite large, illustrating the considerable variation in workload experienced by general practitioners. The table also shows the recipients of the prescriptions. Both general practitioners and ancillaries write similar amounts for adults, but the ancillaries write only a small proportion for children and a much larger proportion for the elderly. Presumably this reflects the nature of ancillary 'prescribing' which is characterized by repeat prescribing, the elderly receiving a larger number of repeat prescriptions than do children.

Table 3 sets out the criteria used to define prescriptions where the directions were inadequate. These are self-explanatory apart from the second category which is when the doctor has omitted the specific directions for the patient and has simply written "as before".

It is not easy to explain away such errors. If, for example, all ancillary-written prescriptions are for items

Table 2. Characteristics of prescriptions written by general practitioners and their ancillary staff.

	General practitioner		Ancillary staff	
	Standard Mean deviation		Standard Mean deviation	
Number of items written in one month	900	464	281	269
Proportion of items written for children	0.21	0.08	0.07	0.10
Proportion of items written for men	0.20	0.06	0.21	0.15
Proportion of items written for women	0.34	0.09	0.32	0.20
Proportion of items written for elderly	0.24	0.11	0.41	0.23
Total inadequacy	25.1%	13.1	56.1%	29.5

Table 3. Definitions of inadequate prescription-writing.

1. No directions whatsoever.
2. Directions which are trivial, vague, or unhelpful.
3. Dose stated, but frequency omitted.

Source: *British National Formulary* (1974-1976). p. 10.

used in very long-term therapy, such as insulin, then the written instructions might be given to the patient at the beginning of treatment, with no need for repeated directions. However, not all drugs on prescriptions written by ancillaries are of this kind. Austin and Parish (1976) have shown that the whole spectrum of therapeutic groups of drugs is prescribed, covering both short-term and long-term therapy.

The final line in Table 2 gives the total inadequacy of the prescriptions written. Twenty-five per cent of prescriptions written by general practitioners contain inadequate directions while 56 per cent of the ancillary-written scripts were found to be inadequate. The standard deviations indicate that there is considerable variation in the percentage of inadequate prescriptions within both groups.

Correlation coefficients were calculated between both general practitioner inadequacy and ancillary inadequacy and all of the variables in Table 1. None of these coefficients were significant. However, the correlation between doctor inadequacy and ancillary inadequacy was found to be fairly high at 0.41 and with such a sample size is highly significant.

Discussion

The strong correlation between these measures implies that the best way to predict whether an ancillary writes inadequate prescriptions is to look at the prescriptions written by the general practitioner who employs her. A general practitioner who writes inadequate prescriptions is hardly likely to eliminate inadequacies from the prescriptions written for him by ancillary staff. Alternatively, the doctor may believe that since the ancillary prescription is in all probability for a repeat course of treatment, the same strict criteria are not necessary.

At first sight this finding appears to be trivial but the correlation between general practitioner inadequacy and ancillary inadequacy in prescription-writing indicates an important aspect of general practitioner behaviour. It could be hypothesized that the errors in ancillary-written prescriptions are due to inadequate checking by the general practitioner when he comes to sign them, and that when he writes prescriptions for himself he takes much more care. However, the high correlation suggests that this is not the case and that the general practitioner applies the same standards both to the prescriptions written by him and those written for him.

From some other data available it appears that on the whole general practitioners are not particularly worried about the writing of prescriptions by ancillary staff or the mistakes which often occur when they do so. Williams and Dajda (1979) found that general practitioners are mainly concerned that their receptionists should be proficient in record keeping and filing. When asked about the contents of a course for training receptionists, only 54 per cent of general practitioners thought that instruction in writing prescriptions should

be included, whereas 88 per cent thought record keeping should be included.

Conclusions

An examination of the social characteristics of the general practitioners did not explain the high rate of mistakes made by the ancillaries they employed. However, it was found that the more mistakes the general practitioners made, the more likely were his staff to make mistakes.

References

- Austin, R. & Parish, P. A. (1976). Prescriptions written by ancillary staff. In *Prescribing in General Practice*. pp. 44-49. *Journal of the Royal College of General Practitioners*, 26, Suppl. No. 1.
- Department of Health and Social Security (1970). *Annual Report 1969*. London: HMSO.
- Department of Health and Social Security (1977). *Health and Personal Social Services Statistics for England, 1976*. London: HMSO.
- Fry, J. (1978). Work trends. *Update*, 17, 543-548.
- Jones, D. R. (1978). Errors in doctors' prescriptions. *Journal of the Royal College of General Practitioners*, 28, 543-545.
- Office of Population Censuses and Surveys (1973). *General Household Survey*. Introductory report. London: HMSO.
- Parish, P. A., Stimson, G. V., Mapes, R. & Cleary, J. (Eds) (1976). Prescribing in general practice. *Journal of the Royal College of General Practitioners*, 26, Suppl. No. 1.
- Pharmaceutical Journal* (1977). Correspondence in issues between January 1976 to March 1977.
- Pulse* (1978). 29 July. p. 7.
- Williams, W. O. & Dajda, R. (1979). General practitioners and their staff. *Journal of the Royal College of General Practitioners*, 29, 145-149.

Addendum

Mr Dajda is now working as Senior Research Executive with Taylor Nelson (Medical and Social Surveys) Ltd.

Selecting family practice residencies

Eighteen per cent of the graduates selected family practice. On the MCAT-VA, those selecting family practice attained the highest mean score (590). ANOVA revealed that the F ratio exceeded the critical value ($p < 0.05$). Comparison of group means using the Duncan's multiple range test revealed that the mean scores for graduates selecting family practice, non-primary care, and internal medicine were significantly higher than the mean scores for those selecting obstetrics/gynaecology. No significant differences were found for the seven other independent variables by residency selection.

Reference

- Rosenbach, J. K. & Snope, F. C. (1979). Academic characteristics of one medical school's graduates who selected family practice residencies. *Journal of Family Practice*, 9, 1111-1112.