MEDICAL PRACTICE

General Practice Observed

Medicines and elderly people: a general practice survey

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British Medical Journal, 1976, 1, 565-568

Summary

All 151 patients of 75 years and over in one practice were visited at home to survey their health and how they managed their medicines. Altogether 87% were on regular treatment, 34% taking three or four different drugs each day. Most were responsible for their own drugs and managed them well, but many left their drugs in exposed places and were uncertain about how to dispose of unwanted medicines. Overall they were prescribed about three times the number of drugs prescribed for the general population, and women took twice as many drugs regularly as men. Although many drugs were obtained directly from a pharmacist, his advice was rarely sought. Most were labelled, but more explicit instructions about indications for taking the drug would have been helpful, and information about hoarded drugs would have been enhanced by dispensing and expiry dates. Treatment was facilitated when patients brought their drugs to the consultation and careful records were made of repeat prescriptions. As so many patients take three or more different types of drugs each day a container in which a day's supply could be laid out would be useful.

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Introduction

The elderly might be expected to have difficulty in managing their medicines at home but little information is available except that they require more frequent treatment than other age groups. Dunnell and Cartwright,[1] in a study of the medicine-taking habits of a cross-section of the population, found that 71% of their 87 patients of 75 years and over had taken a prescribed drug in the preceding fortnight compared with 41% of their adult sample of 1412 patients.

Our study was based on home visits made in 1973-4 to all patients of 75 years and over in the practice to assess their health needs. We examined the taking of prescribed and purchased medicines, and drug hoarding, and our drug recording. Local applications were excluded as their identification proved difficult.

Patients and methods

One-hundred-and-fifty-one patients aged 75 years or more (112 women and 39 men) identified through the age and sex register of an Inner London practice of 5500 patients were visited by the practitioner, health visitor, or trainee practitioner. Their age distribution was fairly representative of an elderly population and all agreed willingly to be interviewed. Each patient was asked to show all drugs taken regularly from whatever source. The containers were examined, their source determined, and questions asked about the dosage (before the patient read the label to the interviewer), the legibility of labelling, and difficulties in taking the drugs. Each person was then asked to show other drugs that he possessed. He was helped in the search and the routine was repeated. Methods of drug disposal were also recorded.

A record was made of medicines entered in the patient's notes or hospital letters over the past year, whether repeat drug prescriptions were regularly recorded, and whether the patient was seen regularly. Drugs were recorded by name and classified according to the pharmacological index in the *Monthly Index of Medical Specialities* (*MIMS*).[2] All these details plus personal patient information were entered on to a questionnaire from which minor ambiguities had been removed during the pilot study and the data were then analysed by computer.

TABLE I—*Numbers of drugs taken regularly or occasionally*

No of drugs:	0	1	2	3	4	5	6	⩾7
No (%) of patients taking drugs regularly	18 (12)	36 (24)	31 (21)	30 (20)	21 (14)	5 (3)	6 (4)	4 3)
No (%) of patients taking drugs occasionally	72 (48)	33 (22)	16 (11)	10 (7)	8 (5)	4 (3)	2 (1)	6 (4)

Results

Responsibility—One-hundred-and-twenty-eight (85%) of the patients were responsible for their own drug-taking, and all the rest, apart from four who received injections from the district nurse, relied on another household member.

Drug-taking difficulties—Eleven per cent of the patients had difficulty in taking some drugs, mainly because of the size and shape of some pills, especially paracetamol and related compounds.

Drug storage—Only 71 (47%) patients used a covered container such as a drawer or box. They included four patients who used the larder and five who used a medicine chest. The exposed positions used by 50 (33%) included such places as the mantlepiece and the top of a dresser. The remaining 30 (20%) kept drugs in no special place.

Sources of drugs—Altogether 132 patients (87%) said that they were on regular treatment. They used 366 packets of 124 different formulations. Altogether 259 (71%) drugs were prescribed by general practitioners, 14 (4%) came from a pharmacist, and 93 (25%) were self-prescribed or recommended. A further 216 hoarded drugs of 87 different formulations were found. Eight (4%) hoarded drugs came from a pharmacist, 76 (35%) were self-prescribed, and 132 (61%) were prescribed by general practitioners.

Schedule, arrangements, and labelling—Of the patients on regular treatment 19% had special arrangements to remind them when to take their pills. This usually consisted of laying out the dosage for a day in some way. Most (91%) drug containers were marked with a definite schedule and 75% of the patients' stated regimens agreed with this schedule. The labels on 17 containers proved impossible for the patient to read, nor could a responsible member of the household decipher 12 of these, although the interviewer could read all but one. Four of these preparations were in the maker's original pack, on which the print was too small (Boot's Iron Tonic, Senokot, Alophen, Milk of Magnesia tablets). Typed labels were always legible. Seven of the regularly taken drugs and 19 of those hoarded were unlabelled and three patients had mixtures of pills in one bottle. Only 16% of drugs taken regularly had a dispensing date and 1% an expiry date. Eight percent of hoarded drugs had a dispensing date.

Departures from prescribed regimens—Five patients exceeded the written dose, three patients taking two instead of one sleeping tablet and two patients doubling their laxative dose. More patients took drugs less often than instructed. Eighteen used analgesics only when in pain, five took laxatives only when costive, and four had diuretics at a reduced rate. Side effects made some patients reduce their dosage. One patient took digoxin at half the instructed rate while another had stopped it. No ill effects were observed from altered regimens.

Numbers of drugs taken regularly—The number of drugs taken regularly averaged two or three per patient (table I). Nevertheless, 12% took no medicines and 24% took only one a day. Six patients took six drugs regularly and one man took 10 a day, eight of them self-prescribed. Among the 132 patients on regular treatment we found on 26 occasions that patients had two packets of one drug; on five occasions three packets of one drug were found; and one patient had four packets of propanolol.

Numbers of drugs taken occasionally or hoarded—Forty-eight percent of patients possessed no stored drugs and a further 39% had from one to three (table I). The average was 2·3 per patient, however, which reflected the few who had many hoarded drugs. One patient had 16 different medicines in store and also took three self-prescribed drugs regularly, including two analgesics. Women took, and hoarded, about twice as many drugs as men.

Contact with general practitioner by those on regular regimens—Sixty-two (54%) of the 114 patients who were on regular treatment that was prescribed by the doctor stated that they saw the doctor occasionally though 25 (22%) would sometimes use an alternative method such as telephoning or sending a friend. Twenty-seven (24%) stated that they usually obtained a repeat prescription without seeing the doctor. One-hundred-and-thirty-two patients took drugs regularly but only 26 said that the general practitioner asked to see their drugs when they saw him, although half the patients were visited at home, where the medicines were available for inspection.

Disposal of unwanted drugs—Patients were uncertain of how to dispose of their unwanted drugs. Forty-five (30%) of those interviewed said that they made no positive effort to dispose of them. Forty-two (28%) used the lavatory, sink, or drain; 35 (23%) used a dustbin; 11 (7%) burnt them; and 18 (12%) returned them to their doctor or the chemist.

Prescribing drugs—In the year studied the doctors had recorded a range of 111 drugs (excluding local applications) in 855 prescriptions. Table II shows the categories of prescribed drugs in the patients' possession and whether they were taken regularly or were hoarded. The commonest categories were analgesics and psychotropic drugs, which were present in roughly equal numbers, followed by genito-urinary drugs and cardiac reactants (mainly diuretics and digoxin).

Self-prescribed drugs—Table III shows the categories of self-prescribed drugs in the patients' possession. It may be compared with table II, noting that categories of drugs not found have been omitted. A further subdivision was made into patent products (advertised to the public) and ethical products. The bulk of self-prescribed drugs were laxatives and gastric sedatives (42%), analgesics (39%), and varieties of vitamins and tonics (8%). Dunnell and Cartwright[1] found the same three general categories of drugs to be prevalent but with an emphasis on analgesics rather than laxatives.

Drugs most frequently found—Table IV shows the drugs most commonly found in the records or in patients' homes. Both the records and drugs found in the patients' possession showed that digoxin and thiazides had been given to more patients than any other drugs and that the patients continued to take them. Most courses of tetracyclines had been completed but four patients had some in stock to treat an exacerbation of chronic bronchitis. Aspirin and Senokot were the most

TABLE II—*Numbers of prescribed drugs subdivided by MIMS[2] classification*

MIMS Classification	Regularly taken (n = 238)	Hoarded (n = 109)	Total found (n = 347)
Alimentary system drugs	16	11	27
Cardiac reactants	28	3	31
Other cardiovascular system drugs	9	1	10
Psychotropic drugs	49	23	72
Analgesic and anti-inflammatory agents	45	29	74
Other central nervous system drugs	11	5	16
Endocrine treatment	2	1	3
Genitourinary drugs	34	11	45
Drugs for infections	6	6	12
Nutritional and metabolic drugs	28	10	38
Respiratory system drugs	10	9	19

TABLE III—*Self-prescribed drugs subdivided by MIMS[2] classification and according to whether they were ethical or patent*

MIMS Classification	Regularly taken		Hoarded		Total		Pooled Total
	Patent	Ethical	Patent	Ethical	Patent	Ethical	
Alimentary system drugs	25	21	5	19	30	40	70
Psychotropic drugs	1	0	0	1	1	1	2
Analgesic and anti-inflammatory agents	16	23	14	12	30	35	65
Other central nervous system drugs	0	0	1	1	1	1	2
Genitourinary drugs	1	0	1	0	2	0	2
Nutritional and metabolic drugs	10	0	1	2	11	2	13
Respiratory system drugs	2	0	2	6	4	6	10

TABLE IV—*Most commonly found drugs and numbers of patients who possessed them*

In medical records		In the home							
Drugs	No	Prescribed and taken regularly	No	Prescribed and hoarded	No	Purchased and taken regularly	No	Purchased and hoarded	No
Thiazide	29	Thiazide	27	Paracetamol	8	Aspirin	13	Aspirin	7
Digoxin	28	Digoxin	25	Thiazide	7	Senokot		Aspro	4
Tetracycline	25	Paracetamol	15	Distalgesic	5	Anadin	7	Beecham's powders	
				Senokot		Milk of Magnesia tablets	4		
Paracetamol	22	Amylobarbitone	8					Codeine Co	3
		Diazepam						Andrews Liver Salts	
Benylin	21	Nitrazepam		Tetracycline	4	Juniper oil	3	Paracetamol	

popular regularly taken and self-prescribed drugs. The doctors did not prescribe aspirin at all.

Analgesics and laxatives—Analgesics were prescribed in the widest variety of pharmaceutical preparations. Laxatives formed only 5% of prescriptions recorded for men and 7% for women, but they formed 36% of the drugs possessed by men and 16% of those possessed by women. People used laxatives more than the prescription rate indicated and the men seemed to have a greater problem with their bowels—contrary to indications from the prescription rate.

Further comparison of drugs found with prescription records—The number of patients prescribed trinitrin (7), vitamin B_{12} (4), and thyroxine (2) matched those taking the drugs regularly and reflected known sufferers from angina, pernicious anaemia, and myxoedema respectively. Seven elderly patients were taking antidepressants at the time of the survey. Seventeen records mentioned hypnotics and 13 patients were taking them regularly, so it seemed that elderly patients tended to stay on hypnotics once started on them. Twenty-eight patients took tranquillisers regularly.

Discussion

Prescribing rates—Here the most likely errors arise from under-recording of drugs. A comparison of drugs stated to be taken regularly and prescribed by the doctor with records in the patients' notes during the year showed that doctors occasionally failed to record repeat prescriptions and prescriptions for common drugs. Nevertheless, we found an average prescribing rate of 5·3 recorded drugs per patient per year compared with 1·6 for each patient found in the study of a total practice population by Bain and Haines[3] after removing local applications, miscellaneous diagnostic agents, and contraceptives from their list. Prescribing rates for the elderly were greater in all classes of drugs, particularly in those for cardiac failure and pain.

Numbers on regular treatment—Most (87%) of our patients said that they were on regular treatment, compared with 92% of Dunnell and Cartwright's[1] elderly patients who stated that they had taken medicine in the past fortnight. In both groups 71% of the drugs had been prescribed. Both surveys show that women take twice as much treatment as men. Twenty-three percent of the elderly in Dunnell and Cartwright's[1] survey had taken a sedative, tranquilliser, or sleeping pill in the last two weeks. This is the same percentage as among our patients who took these drugs regularly. But it is not clear whether Dunnell and Cartwright included antidepressants, which a further 4% of our patients took.

Responsibility and labelling—Most (85%) of our patients on regular therapy were responsible for their own treatment and there was little confusion in self-administration. Seventy-five percent on regular treatment repeated instructions for taking the medicine correctly without reading the label and stated that they adhered to the regimen. This compares with the 80% of Dunnell and Cartwright's patients who stated that they took the treatment as advised. More could be done to ensure the legibility of instructions, as we found 17 illegible labels. Health Service prescriptions for patients over 65 years can be identified and should have typed or printed labels to help those with failing sight. In addition, apart from "as directed," which unfortunately appeared on some medicine labels, our instructions tended to be too terse and rigid. Labelling should have been more specific when a regular regimen was not essential and should have indicated the action of the drug. Some patients did not understand the purpose of their drugs and labels such as "one at night as required, for sleep," or "two tablets four times a day, if necessary, for pain" would have been more helpful.

It is now mandatory to record the drug name and only 4·5% of drug labels in the current survey did not do so. Dunnell and Cartwright[1] in 1969 could not identify 9% of drugs, even after recourse to the Guy's Hospital Poisons Unit.

Drug regimen organisation—One impetus to this study was our realisation that many old patients were taking several drugs. A third of our patients took three or four drugs a day but only the most ingenious had devised any method of laying out a supply of drugs. In Britain there should be available a container such as the Swedish Dosett (E H Farma, Stockholm) in which a week's supply of drugs may be laid out, with provision for doses up to four times a day. Using such a dispenser, any helper can lay out the drugs for the patient and readily check that they are being taken.

Dispensing date—No practitioner can be expert on the rates of decay of different drugs. It should be mandatory to include the dispensing date on the label, as is the practice of one local pharmacist, and there should be guidelines on expiry dates for all drugs.

Drug disposal and safety—Most patients were uncertain of how to dispose of unwanted drugs. The Department of Health and Social Security should consider producing appropriate publicity about such disposal. Furthermore, 33% of patients left their drugs in exposed places and the use of opaque child-proof packets would seem a sensible and inexpensive precaution.

Pharmacists—Only 4% of drug purchases without prescription were made on the recommendation of a pharmacist. Most drugs are made up by the manufacturers and the pharmacist merely supplies these to the patient. Further study of the pharmacist's work and how he is used by the public is indicated to ensure that his training is not wasted by under-use. This is a particular possibility in Britain, where patients have free access to the doctor and may undervalue or fail to realise the chemist's skills.

Repeat prescriptions—Another stimulus to this study was the problem of self-audit. Through the increase in partnerships and the growing number of trainee practitioners a patient may be seen by more than one doctor in a practice. This necessitates good record keeping. It was disappointing to find that we had not differentiated in our records between consultations and repeat prescriptions with the patient unseen. It is a practice rule, however, that digoxin is prescribed only at a consultation. Furthermore, patients should be required to bring their drugs to consultations, both in general practice and in hospital out-patient departments.

We thank Mrs Anne Dawar (currently divisional nursing officer (community), formerly practice health visitor); Miss Ruth Gilbert (practice health visitor), and Dr Michael Jenkins (currently research registrar, St Mary's Hospital, formerly trainee in the practice) for the enthusiasm and care with which they visited the patients and completed the questionnaire. We thank Mrs Madeleine Hughes (computer programmer, Department of Statistics, Birkbeck College) for doing

most of the data retrieval; Dr R J F H Pinsent (research adviser, Birmingham Research Unit, Royal College of General Practitioners) and Professor David Miller (Department of Community Medicine, Middlesex Hospital Medical School), who gave considerable help and guidance; and Mr Bruce Orman (pharmacist) for his help. Finally, we should like to thank Drs Rhoda Law, Peter Brent, and Derek Coffman (partners in the practice) for their help.

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Hospital Topics

Resuscitation teaching room in a district general hospital: concept and practice

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British Medical Journal, 1976, **1**, 568-571

Summary

Practical training in cardiopulmonary resuscitation presents a problem because of the shortage of teacher time and the many potential trainees. A resuscitation teaching room in a district general hospital has been established, equipped with training mannikins and models, together with wall diagrams and cassette recordings. The arrangement enables many trainees to gain training in small groups with minimal demand on teachers. Experience with the room in use has suggested that the concept may have an application in many district general hospitals and possibly also in large industrial concerns.

Introduction

Undoubtedly attempts at resuscitation after cardiac arrest are worthwhile in most cases.[1-7] This is emphasised by the growth of intensive care units, coronary care units,[8] and mobile resuscitation units.[4 9-14] Knowledge of resuscitation techniques, including external cardiac compression and artificial ventilation, is now mandatory for both medical and paramedical staff and many believe that members of the public should also be taught these skills. Resuscitation training has been undertaken in the USA by many medical and lay groups under the guidance of the American Heart Association and the National Academy of Sciences.[15] Similar schemes exist in many countries of the European Economic Community and Scandinavia, where particular use has been made of training aids and mannikins which have been developed over the years. In an increasing number of European countries a test in first aid and resuscitation forms part of the driving licence examination. By comparison, Britain would appear to be somewhat behind in organised training schemes for both medical and lay groups, although there are several exceptions where excellent tuition is given.

Cardiopulmonary resuscitation is essentially a practical skill, and teaching by lectures to a large audience is only of limited value. The formal lecture can convey the rationale and theory behind resuscitation but cannot in any way transmit the essential practical skills. These may be acquired only by small group learning with a teacher present to give guidance and monitor progress. Teaching at an actual cardiac arrest is necessarily erratic and impracticable and, therefore, training aids are necessary. Because of the many potential trainees in the typical district hospital and the few skilled teachers available, tuition in practice for the majority consists only of attending a formal lecture with perhaps an occasional attempt to practise on a mannikin without a teacher present to guide their efforts.

Concept of the resuscitation teaching room

To overcome these difficulties we decided to allocate a room specially devoted to teaching cardiopulmonary resuscitation. The room is equipped with the following training aids: Recording Resusci Anne (Laerdal/Vickers Medical Ltd), Vitalograph Intubating model (Vitalograph Ltd), Laerdal Intubating model (Laerdal/Vickers Medical Ltd), Arrhythmia Resusci Anne (Laerdal/Vickers Medical Ltd), Oscilloscope (Rigel Ltd), external DC defibrillator (Cardiac Recorders Ltd), Entonox inhalation unit and cylinder (BOC) Ltd, cassettes and tape recorder, projector and screen, montage of drugs used in cardiac arrest, and blackboard and chalk. When available, models with built-in self-assessment features were selected. Each model is accompanied by a cassette tape recording explaining how to perform the particular skill. Wall diagrams and slides are also used to reinforce the training aids and the cassettes. Teachers are really essential only when potentially dangerous equipment, such as the defibrillator, is used.

The equipment in the room is designed to be used by a wide variety of staff, ranging from the most basic technique of mouth-to-mouth respiration to recognising cardiac arrhythmias and electrical defibrillation. Using a cassette for each lesson, the student may choose either the entire course or a particular aspect of training which he feels will be most appropriate for his individual need. The room is available for 24 hours a day and consequently the trainees may choose their own most convenient time for study.

Arrangements and equipment

The models and equipment used do not require excessive space. Apart from the life-size mannikin (Recording Resusci Anne), most of

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