Hospital Topics

The regional drug information service: a factor in health care?

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Summary and conclusions

Most regional health authorities throughout the United Kingdom have established drug information units to provide health service staff with a wide range of information about drugs and drug use. The units, which are staffed by drug information pharmacists, provide their service mainly by answering inquiries, although some disseminate information more positively through lectures and bulletins.

An analysis of inquiries received by regional information units during 1976 showed that most were submitted by hospital doctors or pharmacists; comparatively few were received from general practitioners. Topics of inquiry included adverse effects of drugs, source of supply and identification, current treatment, dosage, route, precautions, and pharmaceutical problems such as stability or formulation of drug preparations. A more detailed analysis of the inquiries received by the North-western Regional Drug Information Service at Manchester over three years showed that the number of inquiries gradually increased and that more were received from general practitioners after a programme of lectures had been introduced to tell them about the service. The North-western service also received more requests from hospital pharmacists than other units, though many originated from clinicians.

The regional drug information units consulted widely with clinical and other specialists in answering questions, but about a quarter of all inquiries were pharmaceutical, relating to stability and incompatibility. A multi-disciplinary approach therefore seems necessary to provide a comprehensive and advisory drug information service.

Introduction

The ever-increasing complexity of therapeutics has not been matched by the provision of readily available and comprehensive drug information facilities for the medical and related professions. Partly because of this there has been an unnecessary incidence of adverse effects,¹ inappropriate or suboptimal drug

treatment,² and financial loss from drug wastage.³ In response to a need for independent sources of information, drug information units have been established throughout the United Kingdom. These units are staffed by pharmacists, many of whom have research or other higher academic qualifications or special training and experience in information handling. Pharmacists have traditionally regarded the provision of drug information as part of their role,⁴ but the specialist post of drug information pharmacist is a comparative innovation. It has been challenged by those who argue that clinical pharmacologists, who have been trained in clinical medicine, are better equipped to provide a comprehensive drug information service.⁵ Others, however, have suggested the need for a multidisciplinary contribution.⁶

The organisation and function of these units are described here along with an analysis of the types of inquiries received by eight regional drug information units in 1976. A detailed analysis of inquiries received by the North-western Regional Drug Information Service over three years is also described.

Organisation and objectives

Drug information services were first introduced at the London Hospital and Leeds General Infirmary in the early '70s. Other drug information units have since been established,⁷⁻⁸ the most recent being that at Southampton, which began its service in May 1976.

The current organisation of the drug information service rests on the concept of a regional or central information unit providing support for units based at area or district hospital level. In practice, most regional health authorities have established both regional and area information units, though some have only a regional unit and others have a network of area units. Some of the staff of area units have only a part-time commitment to information work. The regional units are usually the responsibility of a principal pharmacist assisted by a clerical officer and in some units another pharmacist. Most units operate only during the day, although some provide informally for out-of-hours inquiries. In the Northern region (Newcastle) the clinical and pharmaceutical aspects of drug information have been formally amalgamated within the regional drug information unit, the information pharmacist working within the department of clinical pharmacology. This unit and the unit in Leeds (which acts for the Yorkshire region) both provide a 24-hour service on general inquiries and a poisons information service.

Objectives—The overall objective of the drug information service is to provide advisory information to medical and allied staff in hospital and in the community to achieve maximum safety, efficacy, and economy in drug use. This objective is met primarily by providing a query-answering service, although many units also give lectures to members of the health professions and prepare and distribute drug bulletins and ward information sheets. Several investigative projects, including the evaluation of commercial abstraction and computer operated systems, a regional abstraction scheme, and a thesaurus for use in information systems, are being undertaken in an attempt to improve the quality and efficiency of the service.

Sources of information—The regional units use various sources of information, including commercial and library indexing or abstracting

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systems. Among those currently used are the *Iowa* and *de Haen* systems, *Inpharma*, *Index Medicus*, *Toxicity Bibliography*, *Index of New Products*, *International Pharmaceutical Abstracts*, *Clin-Alert*, *Unlisted Drugs*, and *Excerpta Medica Abstracts*. Various computer-based systems such as *Medline* and *Toxline* are also used. The information facilities of bodies such as the Pharmaceutical Society of Great Britain, the Department of Health and Social Security, and the pharmaceutical industry often contribute towards the resolution of inquiries. A prime factor in providing an effective service is the availability of up-to-date information on drugs. Attempts to achieve this are being made through a regional abstraction scheme, in which each unit abstracts the content of a selected range of journals and distributes the abstracts to other regional units. At present 94 journals are being covered by the scheme, which is currently on trial.

Advisers—A recent preliminary investigation has shown⁹ that all regional drug information units have formal or informal links with clinicians, including clinical pharmacologists, and that in preparing answers a wide variety of specialists are consulted. These include toxicologists, cardiologists, and microbiologists.

Analysis of inquiries

INQUIRIES RECEIVED BY EIGHT UNITS IN 1976

Eight regional drug information units provided details of inquiries received during 1976. Units that had not been operational for long enough to acquire meaningful data (for example, Newcastle and Southampton); units that operated solely on an area network basis (Oxford and North-west Thames); and units that recorded only a proportion of inquiries received (Glasgow) were excluded from the analysis.

Categories of inquiry—The major topics of inquiry are shown in table I. Pharmaceutical inquiries covering such topics as chemical or physical compatibility or stability and various other inquiries related to drug use accounted for about one-quarter of the total number of inquiries received.

Sources of inquiry—Comparatively few inquiries were received from general medical practitioners or retail pharmacists (table I). In some units—for example, London and Leeds, about half the inquiries were received directly from clinical staff, whereas almost two-thirds of those received at the Liverpool unit came from hospital pharmacists. Similarly, considerable differences occurred in the number of inquiries presented by nurses. Other inquiries came from biochemists, dentists, health visitors, medical technicians, university lecturers, pharmacologists, physiotherapists, dietitians, and medical and pharmacy students. The police and members of the public occasionally made inquiries; the latter were invariably referred to their general practitioners.

INQUIRIES RECEIVED BY NORTH-WESTERN SERVICE 1974-7

All the inquiries received by the North-western Drug Information Service from 1 July 1974 to 30 June 1977 were analysed (table II).

Categories of inquiry

Absorption, metabolism, and excretion—Most of these inquiries concerned the excretion of drug metabolites within the milk of nursing

TABLE II—Types and sources of inquiries received by North-western Regional Drug Information Service from 1 July 1974 to 30 June 1977. Results are numbers and percentages

	1974 (Jul-Dec)	1975	1976	1977 (Jan-Jun)
No of inquiries	280	808	1022	580
Type of inquiry:				
Absorption, metabolism, excretion	15 (5.4)	64 (7.9)	74 (7.2)	33 (5.7)
Adverse effects	40 (14.3)	140 (17.3)	158 (15.4)	112 (19.3)
Identification, source of supply	69 (24.6)	158 (19.6)	190 (18.6)	101 (17.4)
Treatment of disease	19 (6.8)	35 (4.3)	70 (6.8)	25 (4.3)
Dosage and route of administration	25 (8.9)	64 (7.9)	64 (6.3)	49 (8.4)
Incompatibility and stability	12 (4.3)	48 (5.9)	47 (4.6)	46 (7.9)
Drug interactions	19 (6.8)	50 (6.2)	68 (6.7)	35 (6.0)
Use during pregnancy	19 (6.8)	65 (8.0)	96 (9.4)	65 (11.2)
Precautions	4 (1.4)	12 (1.5)	16 (1.5)	8 (1.4)
Indications	12 (4.3)	41 (5.1)	59 (5.8)	56 (9.7)
Pharmaceutical and other	46 (16.4)	131 (16.2)	180 (17.6)	50 (8.6)
Source of inquiry:				
Hospital pharmacists	170 (60.7)	458 (56.7)	661 (64.7)	396 (68.3)
Nurses	2 (0.7)	27 (3.3)	31 (3.0)	13 (2.2)
Consultants	27 (9.6)	64 (7.9)	80 (7.8)	49 (8.5)
Other hospital medical staff	24 (8.6)	112 (13.9)	111 (10.9)	34 (5.9)
General medical practitioners	8 (2.9)	22 (2.7)	18 (1.8)	36 (6.2)
Retail chemists	21 (7.5)	62 (7.7)	54 (5.3)	31 (5.3)
Others	28 (10.0)	63 (7.8)	67 (6.6)	21 (3.6)

mothers. Less often advice was sought about the choice of drugs in patients with hepatic impairment or the importance of tissue concentrations of drugs in suicide victims.

Adverse effects—During the first six months of 1977 more inquiries were received about adverse effects than about anything else. In most cases the inquirer wanted to know whether the effect observed had previously been associated with the drug in question—for example, hyperkeratosis after disopyramide and uveitis after rifampicin. Many inquirers seemed reluctant to report novel effects to the Committee on Safety of Medicines.

Identification and source of supply—Many inquiries were received about the composition of medicines, foreign drugs, or herbal preparations or the supply of drugs, an example being a request for a source of supply of serum cholinesterase for treating patients with prolonged succinylcholine apnoea.

Treatment of disease—Some inquiries were concerned with the drug treatment of specific diseases—for example, those associated with parasitic infestation.

Dosage or route of administration—Advice was occasionally sought on dosage schedules in patients with metabolic disorders such as steatorrhoea or renal impairment, but questions about routes of administration were more common; examples included the intrapleural administration of cytostatic agents, inhalation therapy with gentamicin, and the intravenous use of streptomycin.

Incompatibility and stability—The unit received inquiries about the stability of intravenous fluids containing drug mixtures or extemporaneously prepared mixtures—for example, aminophylline in dextrose injection or a suspension prepared from clonazepam tablets.

Drug interactions—General practitioners seemed to be especially wary of drug interactions. Inquiries were received concerning, for example, interactions between salbutamol and pseudoephedrine (contained in proprietary cough mixtures) and between lithium and diuretics.

Pregnancy—Inquiries concerned the prospective drug treatment of a pregnant woman, the association between anomalies detected at birth and prenatal drug exposure, inadvertent exposure to drugs during

TABLE I—Types and sources of inquiries received during 1976 by eight regional drug information units. Results are numbers and percentages

	Belfast	Birmingham	Bristol	Cardiff	Ipswich	Leeds	Liverpool	London (North-east)
No of inquiries	750	1956	606	1966	410	846	478	1572
Type of inquiry:								
Adverse effects	94 (12.5)	201 (10.3)	171 (28.2)	412 (21.0)	111 (27.0)	193 (22.8)	136 (28.5)	231 (14.7)
Availability, synonym, identification	229 (30.5)	335 (17.1)	75 (12.4)	295 (15.0)	75 (18.3)	236 (27.9)	74 (15.5)	332 (21.1)
Drug treatment and indications	68 (9.1)	797 (40.8)	167 (27.5)	708 (36.0)	107 (26.1)	80 (9.5)	96 (20.1)	212 (13.5)
Dose, route, precautions	139 (18.5)	296 (15.1)	193 (31.8)	551 (28.0)	117 (28.5)	128 (15.1)	27 (5.7)	286 (18.2)
Pharmaceutical and other	220 (29.3)	327 (16.7)				209 (24.7)	145 (30.3)	511 (32.5)
Source of inquiry:								
Consultants	116 (15.5)	231 (11.8)	69 (11.4)	136 (6.9)	82 (20.0)	94 (11.1)	81 (17.0)	162 (10.3)
Junior hospital doctors	109 (14.5)	517 (26.4)	163 (26.9)	714 (36.3)	116 (28.3)	354 (41.8)	33 (6.9)	506 (32.2)
General practitioners	3 (0.4)	71 (3.6)	3 (0.5)	42 (2.1)	15 (3.7)	27 (3.2)		16 (1.0)
Hospital pharmacists	278 (37.1)	647 (33.1)	282 (46.5)	533 (27.1)	120 (29.3)	198 (23.4)	307 (64.2)	544 (34.6)
Hospital nurses	111 (14.8)	314 (16.1)	40 (6.6)	151 (7.7)	36 (8.8)	80 (9.5)	24 (5.0)	173 (11.0)
Retail pharmacists	55 (7.3)	78 (4.0)	3 (0.5)	116 (5.9)	10 (2.4)	19 (2.2)	21 (4.4)	61 (3.9)
Others	78 (10.4)	98 (5.0)	46 (7.6)	274 (13.9)	31 (7.6)	74 (8.7)	12 (2.5)	110 (7.0)

early gestation but before pregnancy had been diagnosed, and, less frequently, the effects of potentially toxic drug intake during suicide attempts. The hazards of hormone pregnancy tests and the association of congenital anomalies with chloroquine exposure in utero exemplified this type of inquiry.

Precautions—Few inquiries were received about precautions, except for those concerned with pregnancy. Advice was occasionally sought on problems associated with drug treatment of patients with a history of drug sensitivity or metabolic dysfunction such as glucose-6-phosphate dehydrogenase deficiency.

Indications—Questions were occasionally asked about atypical uses of drugs, such as the inhibiting effect of tranexamic acid on tumour metastases or the use of depot progesterone ingestion as a contraceptive.

Pharmaceutical and other inquiries—These covered a wide range of topics, from legal problems relating to drug use to problems in equipment sterilisation and questions about the allergenic properties of drug and cosmetic additives.

Source of inquiry

Most inquiries were received from hospital pharmacists (table II), but many concerned problems that had been raised by their clinical colleagues. The first half of 1977 showed a decline in the number of inquiries received from junior doctors, and an increase in the number from general practitioners.

Discussion

This analysis of inquiries received by eight regional drug information units during 1976 showed that hospital doctors used the services frequently and that many of the inquiries were directly concerned with therapeutic problems such as doses or adverse effects of drugs. The scant use of the service by general practitioners and retail pharmacists may reflect their lack of awareness of the service. The number of inquiries received from nurses varied widely from unit to unit; in some regions nurses may refer inquiries direct to the pharmacy rather than to the drug information unit. Pharmaceutical inquiries relating, for example, to problems of drug incompatibility, stability, or formulation were common and often had a direct bearing on optimum patient management.

Detailed analysis of the inquiries received by the North-western Regional Drug Information Service at Manchester showed a steady increase in the number of inquiries received over three years and a reasonably consistent distribution of type of query from one year to the next. Pharmaceutical and other types of non-patient related inquiry formed a smaller proportion of the total than in other units. Conversely, the proportion of inquiries received from hospital pharmacists was much higher than elsewhere, except for the Liverpool unit. The absence in the North-western Region of area information units, which might otherwise have intercepted inquiries from hospital pharmacists, may be one explanation for this difference. An increase in the number of inquiries received from general practitioners during the first half of 1977 may have resulted from lectures on drugs and the work of the information service that were given to local general practitioners.

The view of the Clinical Pharmacology Committee of the Royal College of Physicians of London¹⁰ that drug information and advice should be provided by specialised medical staff if it is to have any impact was endorsed by Davies,¹¹ with the reservation that a pharmaceutical component would improve the service. The findings of this investigation suggest that clinical expertise forms only a part of the advisory facilities that are necessary to provide a comprehensive drug information service and that many problems arise that require pharmaceutical or other scientific opinion. Inquiries relating to drug stability, formulation, or incompatibility exemplify such problems.

Query-answering facilities may be only part of an effective drug information service, and active information dissemination may also be desirable; indeed many units already do this,

although the effectiveness of their schemes is as yet undetermined. Many of the inquiries currently received are isolated and factual in nature, but they may reflect wider problems in drug use, which may best be tackled by provision of collated and evaluated data, possibly in bulletin form.

Increased co-ordination and sharing of resources between drug information units are important factors in providing an efficient and economical drug information service, and measures to increase co-ordination are currently being investigated. Achievement of the ultimate objective of influencing prescribing habits and drug use so as to improve patient care may be difficult to assess except in the long term. But monitoring of information use by inquirers may be a valuable short-term means of assessing the effectiveness of the service.

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ONE HUNDRED YEARS AGO Among the various means suggested for the removal of foreign bodies from the ear, I see no mention, either in the JOURNAL or in text-books on the subject, of a simple and harmless plan which I have used lately with success. Some months ago, a boy aged 12 was brought to me with a round smooth white pebble in the auditory canal. It could be plainly seen, and had been there for two days, during which time, I was told, repeated efforts had been made to remove it; but their only result was to cause pain, congestion, and swelling of the mucous membrane, which firmly grasped the foreign body, and prevented the possibility of passing any instrument beyond it. I syringed the ear for some time without any good result; and, as his friends were very anxious to have other means tried, I did not like to send him home unrelieved. Having at hand a bottle of the cement known as coaguline, which seems to be a solution of isinglass in acetic acid, I prepared a piece of soft pine-wood, about as thick as a No 8 catheter, by hollowing the end so as to cause it to fit accurately on the convexity of the pebble. Having now melted my cement by placing the bottle in hot water, and having dried the foreign body with cotton-wool, I covered the hollow end of the piece of wood with the cement, and applied it to the pebble. After waiting for ten or twelve minutes for the cement to set, I made gentle but steady traction, and had the satisfaction of withdrawing the stone firmly cemented on the end of the wood. This plan will obviously be more suitable for round smooth bodies which fill the canal than for small angular ones; but the former are the ones most difficult to remove by any other procedure. (*British Medical Journal*, 1878.)