

Shared care: a review of the literature

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This review examines broad issues of concern regarding the primary/secondary care interface. The main purpose was to identify areas of good practice which could be adapted for more general use. One of the most fundamental aspects identified was communication, which is discussed in some detail. Also covered are shared prescribing and disease management. The data suggest that the most effective system(s) of shared care has yet to be established. Further qualitative and economic evaluations are required, taking into account patient preferences. Although the literature does describe certain practice exemplars, it is clear that inter- and intra-professional communication continues to be a problem. Whilst information technology may provide some of the solutions, it is concluded that a culture change, which compels health professionals to make sharing of patient information a much higher priority, is required.

Keywords. Shared care, seamless care, hospital, general practice, family practice.

Methods

The purpose of this review is to critically evaluate data on shared care in order to identify practice exemplars which could be adapted for local use. The literature search was performed up to and including 31 March 1995 using the keywords 'shared care' or 'seamless care', 'hospital', and 'general practice' or 'family practice'.

It was mainly carried out on the *Medline*, *Excerpta Medica* and *Pharmline* databases but also included *DHSS-DATA*, *General Practitioner*, *Health Planning and Administration* and *Health Periodicals*. Several hundred reference titles were considered and, out of these, 230 articles were used in the writing of the review.

Communication

One of the busiest areas of data transfer, i.e. between hospital and general practice, is examined. Also discussed are discharge planning and pharmacy communication.

Discharge from hospital to general practice

Content. This usually takes the form of a letter or summary either sent directly to the general practitioner (GP)

or indirectly via the patient. Unfortunately, the quality of such communications has been questioned.¹

The literature contains a number of studies which have identified information thought necessary by GPs to be included in all discharge correspondence. These data items and the corresponding references are shown in Table 1. The most frequently cited items are: drug details, plan, diagnosis, admission summary, results of investigations and what the patient/relatives have been told.

TABLE 1 *Content of discharge letters from hospital to general practice. Data specified by GPs as being important*

Data for inclusion	Reference
Drugs/treatment given on discharge	2–10
Follow-up/management plan	2, 3, 5–11
Admission/final diagnosis	2, 3, 5–10, 12
Investigation/examination findings	3, 5, 6, 8–12
What patients/relatives have been told	3, 4, 6, 8, 9, 11, 12
Drugs/treatment given in hospital	2, 8, 10, 12
Summary history/progress	2, 6, 8, 11
Discharge problem list/appraisal	2, 11
Abnormal laboratory results	2
Answers to GP's questions	7

Other studies have analysed the content of discharge letters and measured the presence (or absence) of these important items. Table 2 combines the results and shows the overall percentage rates at which these items were missing from the letters analysed.

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TABLE 2 *Meta-analysis of information absent from hospital discharge letters sent to general practice*

Data (reference)	Total no. of letters	No. of letters without data (%)
Information given to patients/relatives (2, 8, 12–17)	1615	1287 (80)
Examinations and procedures (2, 8, 14–17)	2208	1109 (50)
History and progress (2, 8, 15)	940	427 (45)
Admission/discharge treatment (2, 8, 12–17)	3445	1484 (43)
Problem list (2)	53	22 (41)
Plan/follow-up (2, 8, 13–16)	2633	614 (23)
Diagnosis (12, 14–17)	790	103 (14)

Thus, although the plan and diagnosis were missing in less than a quarter of cases, the problem list, treatment, history and examinations were missing in over 40% of letters. Information given to the patient was lacking in nearly 80% of all notes. Clearly, current discharge correspondence should additionally contain at least the first five points in Table 2.

Format. It is generally agreed that the format of the discharge note should be structured^{9,18,19} with, perhaps, a pro forma^{3,10} which may be filled in by hand, typed or computer generated.^{9,10} The specific data items to be included have already been discussed above.

The layout should include a clearly defined problem list^{19–22} and possibly an easily identifiable management plan.¹⁹ In 1992, Clements described a combined discharge letter/prescription which was welcomed by GPs and found to be a useful audit too.¹³ Sandler produced an information card (which also included details of follow-up arrangements) which was given to patients and their GPs.^{23,24} This form doubled as an interim discharge summary and was thought useful by both GPs and patients alike.

In rheumatology patients, Beyer *et al.* described the use of 'shuttle case records'.²⁵ These comprised a pro forma (containing the main parameters relating to the

TABLE 3 *Proportion of hospital letters received by GP more than 7 days after discharge*

Year	Author (reference)	Letters arriving in excess of 7 days (%)
1970	Lockwood (27)	48
1986	Mageean (17)	40
1987	Harding (33)	72
1988	Penney (1)	28
1989	Fair (16)	13
1992	Colledge (34)	6

disease process) which was updated and regularly posted back and forth between GP and rheumatologist. In practice, this was found to work well and could be adapted for other chronic diseases.

A survey conducted in 1990 showed that most hospitals issue both short discharge notes and longer discharge summaries. The need for both documents was questioned and a single note might be adequate.²⁶ This aspect requires more research taking into account the impact on patient management of the two documents and the hospital's costs incurred in producing both of them.

Delay in receiving discharge communications. Ideally, the discharge note should arrive on the day of discharge^{6,9} although a delay of up to 7 days is acceptable according to the majority of GPs surveyed.^{7,9} In practice, the evidence suggests that the proportion of letters arriving with a delay greater than 7 days is highly variable ranging between 6 and 72% of all letters (Table 3). The time taken for more detailed discharge summaries to arrive tends to be longer.¹

One of the most disturbing factors to emerge is the proportion of letters which never arrive. This has been reported to lie between 4 and 25% of total discharge letters sent.^{1,13,27–30}

Of equal concern is the number of patients who contact their GP before the hospital letter is obtained. The rate at which this situation occurs has been reported to lie between 16 and 53% of all GP post-discharge consultations.^{16,17,27,31,32} In many of these cases, the patients contacted their doctor in need of a prescription or certificate to be written. The potential medico-legal consequences of the GP who acts 'blindly' in these situations cannot be over emphasized.¹⁷

Most important are the clinical effects which delays in communication may cause. The impact of delayed discharge notes on patient management has been observed by Harding³³ who found that out of 145 discharge letters 36% were subjectively judged to have arrived 'not soon enough'. This delay in receipt was thought to have affected management in 10% of all cases.

Reducing the delay. It has been suggested that a major difficulty is the lack of appreciation on the part of the hospital doctor of a timely discharge note.³⁵ The answer to this may lie in education at both under- and postgraduate level.^{16,36} Perhaps application of modern communication technology in medicine should be included in the undergraduate syllabus.

Controversy exists about whether letters should be delivered by hand, post or both. Studies have shown that 17–30% of hand-delivered letters failed to reach the GP within a reasonable time-span.^{1,37} On the contrary, Colledge *et al.* reported that 93% of hand-delivered summaries arrived within 4 days of discharge,³⁴ and

two other studies concluded that hand delivery was preferable.^{28,38} Others have concluded that a dual system of hand and postal delivery is preferred.^{13,30} However, a hybrid delivery system comprising hand, post and van seemed to perform worse than delivery by hand alone.¹⁶

In 1971, Rieger observed that the problem might be partly solved by the use of 'modern facilities' such as dictating machines.³⁹ One potential option today is the use of facsimile (fax) transmission of letters from the hospital to the GP's surgery. Logically, this approach must be faster than any of the methods described above. Preliminary data suggest that faxed letters are preferred by the majority of GPs,¹⁰ although one critic foresaw minimal advantages.⁴⁰ One potential problem is when a GP visits the patient's house before the relevant fax has been received into his surgery. However, by using the digital cellular mobile telephone network, it is now possible for the GP to receive the fax over his car-phone. The ultimate solution is for the GP to dial into the hospital's 'fax bureau' via his mobile phone and obtain the discharge note when and where he requires it. Although the technology to achieve this is available, data protection and confidentiality must be assured at all times.

Generally, the medical potential of fax machines has not properly been explored, although it is thought that their use could streamline patient transfer and information distribution.⁴¹ Similarly, the use of electronic mail (e-mail), i.e. letters sent from computer to computer, has been described in a positive manner within a medical context.⁴²⁻⁴⁴ Branger described a system in The Netherlands which transmitted the discharge letter from hospital to general practice within an hour.⁴⁵ The use of electronic data interchange within pharmacy, however, remains controversial.^{46,47}

In the USA, Lenhard *et al.* described 'AUTRES' which is a computerized structured discharge summary which is either transmitted to the next carer via fax or the hospital network.⁴⁸ This system is in wide use throughout the hospital.

Clearly, the use of electronic data transfer requires more research by all parties concerned. As fax machines become more commonplace and with the installation of computer networks within primary care, the proliferation of Information Technology (IT) within the context of medical communications is likely to be sustained. Stanley warned, however, that such use of IT should occur within an agreed framework with a need for the data to be organized and a desire to communicate meaningfully.¹⁸

In the hospital itself, another frequently quoted problem is the low pay and general lack of medical secretaries.^{1,38,39} This could be addressed partly by the use of computer-generated discharge letters, which Adams *et al.* concluded significantly reduced secretarial workload.⁹

GP referral letters

The literature on this topic is limited containing fewer data than above. The quality of referral letters was judged barely adequate or poor by four consultants in just over half of 144 letters sent to a teaching hospital in Amsterdam.⁵⁰ In the same study, however, there was much disagreement between the judges as to what constitutes a 'quality' letter. An examination of the quality of referral letters to psychiatrists found them to be inadequate and suggested that improvements may be effected through the vocational training scheme for GPs.⁵¹

As early as 1964, de Alarcon and Hodson⁵² surveyed 38 consultants working in London asking them what information they required in the GP's referral letter. The results showed that the majority of consultants required details of drugs/treatment, the specific reason for referral, allergies and the main presenting symptoms. To a lesser extent, the GP's own diagnosis and clinical findings together with the patient's attitude/knowledge were thought to be important. Five hundred referral letters were then analysed for content and it was found that the reason for referral and symptoms were usually included but much less likely the GP's diagnosis and clinical findings. The patient's expectations were present in only 4% of letters. Most alarmingly, in no cases were drug sensitivities stated.

Nearly 30 years later, Newton *et al.* confirmed the importance of medication details, the reason for referral, history of the problem, the GP's clinical findings and allergies.¹¹ In addition, both the patient's and GP's expectations were considered important items for inclusion. Analysis of 1143 community referrals to a South African children's hospital showed that history, examination and diagnosis were present, although investigations and treatment details were mostly absent.⁵³ This lack of medication details had previously been identified in referral letters to both orthopaedic surgeons¹⁵ and other specialists.⁵⁴

Hodge *et al.* suggested that the reason for referral be boldly stated at the top of every referral letter since the consultant's perception of the reason for referral rarely matched the GP's intention.⁵⁵ Subsequent management, however, was not affected by this misperception.

To the authors' knowledge, the preferred structure or format of the GP letter has not been studied in any detail. Although a standardized National Health Service (NHS) referral letter was abandoned in the early 1990s,¹¹ the conclusions from above are that a minimum data set should be included in all GP letters as specified in Figure 1, with special emphasis on those items usually missing. Perhaps the issue of a standard NHS letter should be re-examined.

Marinker⁵⁶ suggested that the patients' expectations and knowledge of their situation should be included in all referral letters in addition to the data in Figure 1.

Reason for referral (including GP's expectation from referral).
 Past medical history.
 Summary of present complaint and other symptoms.
 GP's *clinical findings* and investigations.
Diagnosis.
Drug details /other treatments.
Allergies.

N.B. Those items in *italics* require special emphasis since, although judged important by consultants, are missing in most referral letters.

FIGURE 1 *Data items to be included in all GP referral letters*

This latter requirement has already been mentioned in the context of discharge letters.

Finally, it is common practice in the UK for referring doctors to speak to the admitting doctor over the telephone particularly for emergencies. However, a New Zealand study⁵⁷ concluded that the majority of GPs expressed a preference to both write a letter and speak to the admitting doctor.

Discharge planning

Discharge planning has been reported to consist of four main phases: patient assessment, development of a discharge plan, provision of services and follow-up/evaluation.⁵⁸ Clearly, effective communication is an integral part in each of these stages.

Within pharmacy, the discharge planning process ranges from a simple checklist⁵⁹ to more complex, formal systems of care. One example of the latter is described in a London hospital where pharmacy discharge planning occurs for elderly patients.⁶⁰ Following initial patient assessment to determine whether the patient is able to manage their medication at home, a care plan is drawn up which is then distributed to patient, GP and community pharmacist. Any problems may be followed up at home. Similarly, in the USA, pharmacists working in the home care setting are obliged to draw up 'pharmaceutical care' plans, the objectives of which are to systematically deliver pharmaceutical services in order to achieve certain outcomes.⁶¹

Logically, the process of discharge planning should operate within a multi-disciplinary environment.⁶² Elements of good practice should include: (i) adequate notice of discharge; (ii) involvement of patients and/or carers in decision making; (iii) suitable support networks; (iv) effective communication; and (v) education of patient and carer.⁶³ However, one study concluded that better documentation of patient mental and physical abilities together with details of home circumstances were required.⁵⁸ In order to alleviate some of these problems, the concept of a liaison officer, whose role would be to bridge the gap between primary and secondary care, has evolved.^{64,65} In Australia, nearly half of the surveyed hospitals employed such a person whose

roles include education, organization of shared care/discharge and optimizing communication.⁶⁶

Whichever planning process is used, the importance of including the patient (where appropriate) in all discussions has already been mentioned. The emphasis of one shared care unit in Canada was to encourage the patient to become responsible for their own care.⁶⁷ One way of securing this involvement is to give the patient a copy of all medical letters.⁶⁸ Any problems or queries after leaving hospital may be solved over the telephone by use of a dedicated 'helpline'.⁶⁹

Pharmacist communication

In its report on community pharmacy, the Royal Pharmaceutical Society of Great Britain (RPSGB) observed a lack of regular and effective dialogue between GPs and community pharmacists.⁷⁰ The RPSGB recommended a number of courses of action be taken involving: (i) discussions on how modern technology (e.g. fax and e-mail) may be used to transmit prescriptions; (ii) exploration of the concept of community pharmacist referral notes to GPs; and (iii) examination of the idea of pharmacist consultations.

However, two main barriers currently prevent pharmacists from being more actively involved in providing their services to the community: (i) the legal requirement for a pharmacist to be on the shop premises at all times, and (ii) the 'piecemeal' method of remuneration.⁷¹ One solution (currently under investigation) is a new 'breed' of pharmacist (the 'primary care' pharmacist) who is attached to a GP practice and whose roles include formulary development, identification of drug problems, and development of shared care guidelines.⁷² Alternatively, the Connecticut project in the USA aims to promote seamless pharmaceutical care by facilitating passage of patient information (i.e. laboratory details, medication and medical histories) between hospital and community pharmacists.⁷³ This project was scheduled to commence in 1995.

Discussion

Irrespective of the arguments relating to use of IT to transmit information across the interface, the use/value of the telephone should not be discounted.^{38,74,75} Indeed, an Australian study recommended that house officers should ring the GP on admission and immediately before discharge.⁷⁶ However, use of a dedicated telephone 'helpline' run by orthopaedic consultants for GPs proved to be unsuccessful.⁷⁷ In contrast, in another Australian study, use of a dedicated telephone line allowing GPs to contact hospital specialists before referral, received enthusiastic support from those concerned, although only 20% of GPs used the service.⁷⁸

In hospital, Williams *et al.*⁷⁹ concluded that before 'seamless care' could be achieved there was a need to have a 'seamless' medical record to which all health care professionals contributed. This record would be

patient focused and would contain a problem list and progress notes for each problem. By implication, seamless care may never be achieved across the interface until it is first achieved within the hospital.

Observers have also commented that there is a need to develop a standardized electronic primary care medical record with links to the NHS in general.⁸⁰ Information would then be available to whoever needed it. An intermediate solution was piloted in The Netherlands consisting of electronically interchanged medical records ensuring that both computers carried the most up-to-date information.⁸¹ Clearly, long-term research would need to demonstrate the cost-effectiveness of this particular approach or a single, common database.

Finally, two fundamental issues require in-depth study. Firstly, the day-to-day organization of the medical firm, which determines the houseman's priorities allowing him to write the discharge letter,¹ requires close consideration. However, any potential reorganization of the consultant's role as advocated by Moss and McNicol⁸² would have an important effect in this particular context. The second issue is the fate of letters received at the GP's surgery, i.e. who reads them⁸³ and, more importantly, what use is made of them.

Prescribing

This section discusses some of the problems (and solutions) relating to prescribing and dispensing of medicines which occur as patients move between primary and secondary care. The central issues of both cost and clinical responsibility are considered.

Accuracy of medication records

Patients can obtain medication via their own GP or hospital doctor. This implies that there are three separate sources of drug data, i.e. hospital, GP and patient. In addition, both hospital and community pharmacies may store some form of medication record. It is essential that wherever the drug record is stored, it should be up to date and as accurate as possible.

The evidence suggests, however, that these data are significantly inaccurate. Discrepancies between what the patients state their medicines to be and what the GP's records state them to be have been shown to occur in 30–70% of cases.^{84–87} Similar inaccuracies between the hospital record and patient's drug details have been observed in 36–76% of situations.^{86,87}

The range of problems includes additional or missing therapy, dosage errors^{87,88} and different drug names.⁸⁸ In one study, four asthmatics were erroneously prescribed beta-blockers. Potential reasons for these differences have included: (i) the patient acting independently of the doctor, e.g. 'borrowing' a friend's

or relative's tablets;⁸⁹ (ii) patient confusion;⁸⁶ (iii) poor hospital/GP communication; and (iv) changes not explained.⁹⁰ Understandably, this whole area has evoked some cause for concern.⁸⁵

Suggestions to tackle these problems involve: (i) asking the patient to bring in their medication at every consultation;^{86,87} (ii) use of medication lists or 'shared care' cards;^{86,89,91} (iii) requesting a medication list to be compiled by the patient before consultation;⁸⁴ (iv) adopting a more active role on the part of the community pharmacist in identifying/clarifying changes in drug name, dose or container;⁹² and (v) better/closer communication between primary and secondary care boundaries and the patient.^{88,90} Price *et al.* suggested that a common computer database should be developed as the ultimate solution.⁸⁷

In the meantime, small-scale trials employing 'portable personal medical records' in the form of an electronic chip implanted on a plastic card (the 'smart card') have been performed.⁹³ One such trial demonstrated a variety of attitudes towards the new technology.⁹⁴ Although a study in Exmouth into the use of smart cards for medication records identified a number of problems, the professionals involved in the project strongly supported the concept. More research is required.

The Audit Commission recently reported that owing to 'overprescribing', £425 million are being wasted annually. From the above data, it does appear that patient confusion and potential harm may also be occurring due to inappropriate prescriptions. These problems require urgent action.

Hospital dispensing policies

A working group set up by the Department of Health⁹⁵ resulted in the publication of EL(91)127 in November 1991 which advised (amongst other things) on the quantities of drugs to be dispensed for patients leaving hospital.⁹⁶ The minimum quantities advised by the circular were 7 days for discharged inpatients and accident and emergency patients, and 14 days for outpatients. In both cases, the circular stipulated that the GP should receive appropriate and timely information to allow him/her to monitor treatment and write a follow-up prescription if required. One GP suggested that sufficient time was also required to permit him to plan future treatment in view of his own particular policies.⁹⁷

Another study warned that some patients may not have the hospital prescription dispensed but immediately contact the GP in order to avoid two separate prescription charges.⁹⁸ Few data exist regarding what the public perceive to be a 'reasonable' quantity of medicines to be supplied in relation to the prescription charge.

In 1992, a major survey of hospital chief pharmacists showed that 45% of pharmacies had a 14-day rule for outpatients with an otherwise large variation in dispensing policies in general.⁹⁹ However, the same study

revealed that only 48% of the hospital committees which review outpatient dispensing policy had a representative from general practice. This situation needs immediate redress. Whichever policy is adopted, current evidence suggests that policy compliance is poor since in Macclesfield, where a 10-day policy operated, the actual quantities dispensed ranged from 19 to 61 days (mean 33 days).¹⁰⁰

However, GPs hold the view that the greater the degree of outpatient policy restriction, the greater is their workload in accepting the follow-up.¹⁰¹ Of the doctors (both hospital and community) who refuse to prescribe in these circumstances, the medico-legal position still needs to be clarified.¹⁰²

Finally, Anderson surveyed the views of 100 patients, the majority of whom preferred to have the hospital prescription dispensed from their own community pharmacy rather than being given a note to take to their GP who would then issue a prescription. The reasons cited were convenience and reduced waiting times.¹⁰³ In Scotland, however, this system has been in use for some time.^{104,105} It was therefore proposed that a universal prescription form be developed which could either be used in a community or hospital pharmacy. Problems with primary and secondary budgets would have to be addressed before this system could be adopted. More research is required.

Shared prescribing and cost

Despite some evidence that hospital consultants either have no effect on GPs' prescribing¹⁰⁶ or if they do exert an effect, this tends to be very specific depending on therapeutic area, consultant speciality and reputation of the hospital medical team,¹⁰⁷ there is continuing concern over this alleged influence. Most of the interest centres around cost which may be transferred from secondary to primary care in two main ways.

Indirect cost transfer usually occurs when a GP prescribes a 'loss leader' which is a heavily discounted product in hospital. The marketeer's plan is to get a product established in hospital by virtue of its low cost and thus reap the profits as it becomes widely used in the community. It was estimated by one Family Health Service Authority (FHSA) that elimination of loss leaders would result in a projected saving of £100 000.¹⁰⁸

Direct cost transfer occurs when the GP is asked to prescribe on behalf of the hospital either for all drugs, e.g. outpatients in Scotland,¹⁰⁴ or specific expensive drugs.¹⁰⁹ Such 'cost shifting' has occurred in the past to contain the hospital's limited budget by transferring prescribing responsibility to the limitless GP budget. However, owing to pressure on general practice due to the 'indicative prescribing amounts',¹¹⁰ resistance to this ploy is being experienced.¹⁰⁹

Another potentially cost-inefficient situation occurs when patients' own drugs (PODs) are destroyed on

admission to hospital resulting in increased expense to community and hospital alike. Many hospital pharmacies have, therefore, investigated re-issuing PODs on discharge. Research has shown that estimated savings of £25 000 or £29 000, respectively, could be saved by the hospital and associated general practice catchment area.¹¹¹ Few patients (16%) actually brought their medicines into hospital. However, a recent study has shown that when staff costs are taken into account, re-issue of PODs resulted in an increased expenditure of £6700.

Offloading of cost is generally met with disapproval.¹⁰⁰ A nationwide survey discovered that many health authorities were making progress towards reducing this problem although there were still many difficulties.¹¹² The process itself is thought to be unacceptable for a number of reasons, including: (i) GPs cannot accept prescribing responsibility for unfamiliar drugs; (ii) hospital drugs are generally cheaper than in community; (iii) conflicts do arise between hospital and GP; and (iv) the quality of service may be reduced as the 'buck' is passed from one doctor to another.¹¹³

It does seem anomalous that on one hand a GP is not allowed to prescribe phenylbutazone but may be asked to prescribe a different expensive (equally toxic) compound in the name of 'shared care'. The need for explicit 'shared care protocols' is therefore significant¹¹⁴ and the main issues associated with them is that of budgets and clinical responsibility.¹¹⁵ However, an American study did indicate that the value that specialists and GPs place on certain information likely to be contained within a shared care protocol was not as high as expected.⁷⁵

The first problem of budgets may be solved by commissioners taking a view across both hospital and community sectors.¹¹⁶ The ultimate (and logical) solution is to have a unitary budget.¹¹⁰ Unfortunately, primary care has, historically, been funded independently from secondary care in order to prevent drifting of funds from the former to the latter. As such, both budgets are currently voted for separately in parliament and virement would be illegal. Legislation is therefore required before the 'utopia' of a single budget is achieved. Prescribing Cost and Analysis data (PACT) could be used to identify high-cost hospital items in the FHSA's budget as the first step towards unitary finance.¹¹⁴

In the meantime, Orme¹¹⁷ proposed a number of measures to reduce drug costs across the interface including: (i) extension of the drug patent; (ii) formularies; (iii) increased generic prescribing; and (iv) the outlawing of loss leaders.

The second problem associated with shared care protocols is the issue of clinical responsibility, which is, perhaps, easier to deal with since the person held accountable is the person who signs the prescription.^{96,118,119} Owing to strict product liability, it should also be emphasized that any doctor prescribing outside

a drug's product licence is personally responsible for any adverse event which may occur.¹²⁰ As already mentioned, EL(91)127 stated that the GP should be properly informed to enable suitable monitoring of treatment and dosage adjustment where necessary. Undoubtedly, shared care protocols have an important role.

The Welsh Office in 1994 issued guidance advising health authorities to identify drugs not currently covered by local agreements (i.e. 'shared care drugs') and to design policies as to how these drugs may be supplied in future.¹²¹ Such protocols have already been produced for erythropoietin,^{109,122,123} cyclosporin,^{109,122} CAPD fluids,^{109,113} growth hormone, fertility treatments,¹¹³ gold injections and lithium.¹²² Apart from the GP being unhappy about accepting clinical responsibility for an unfamiliar drug, other problems associated with these protocols could include the consultant being unhappy about the level of GP's knowledge, poor communication between consultant and GP, and drugs not available in the Drug Tariff.¹²² Other objections have been cited as interference in clinical freedom and problems in keeping the protocol up to date.

It has been suggested that a good shared care protocol should contain: (i) a summary of the clinical condition, including treatment indications and outcome; (ii) details of dose, administration, cost and when the GP should assume responsibility; (iii) side-effects and action to be taken; (iv) monitoring instructions; and (v) communication links including telephone, bleep and fax numbers.¹²² The need for quality drug information is a key concern but preliminary evidence does suggest that the hospital pharmacist has so far been an under-utilized resource on the part of the GP.¹²⁴ The need for effective communication between hospital and GP cannot be over-stressed.^{122,125}

Finally, the emotive issue of cost remains. In a recent conference, a former Minister for Health warned purchasers to be more vigorous in their approach to cost-effective prescribing and that any measures should be incorporated into contracts with providers.¹²⁶ The path to 'seamless prescribing' has far to go.

Sharing disease management

This section focuses on existing systems of shared health care in order to identify potential 'role models' which could be adapted for more widespread use. Diabetes and antenatal care are considered in some detail together with a number of other disease states.

Diabetes

Over the last 20 years, diabetic care has slowly moved from the more traditional hospital clinic to a process of joint care between hospital and general practice. This shift is thought to have occurred owing to overcrowded

and often understaffed hospital clinics unable to cope with the workload.^{127,128} Today, political and financial pressures are also forcing care away from secondary to primary care.¹²⁹

Two main types of 'joint care' are described in the literature. The first was described by Thorn who introduced the concept of GP 'mini-clinics' in 1973.¹³⁰ These involve regular (usually monthly) sessions devoted to diabetes run by one specific GP with a special interest in the subject. New patients are initially assessed by the hospital and then referred to the mini-clinic. Unless there are problems, the patient remains under supervision by the mini-clinic and does not attend hospital. However, certain mini-clinics have benefited from an annual visit by the hospital consultant.

A number of surveys have indicated that only 13–20% of general practices run such clinics^{131–133} although many more have expressed an interest in establishing them.^{132–134} One of the main barriers is the philosophical antipathy towards disease-orientated mini-clinics,¹³⁵ since many GPs prefer a system of total medical service provision and see the mini-clinic as the thin edge of a wedge in which the practice may fragment by providing other disease-orientated sessions for hypertension, chest disease, etc.

The second type of joint diabetic care was reported by Hill¹³⁶ who described a system of 'shared care' where all GPs were involved in managing their diabetic patients. Following an initial education programme, new patients were seen by the hospital and, if stable, referred back to general practice. The GP continues to manage them unless specific problems arise when referral to hospital is made. The key differences from the mini-clinic is that patients are looked after by their own GP (rather than the GP 'specialist') and the actual process of care is left up to the individual GP concerned.

The 'shared care' system has been met with enthusiasm from patients and doctors alike,^{137,138} the early signs also showing no appreciable difference in diabetic control.¹³⁹ Other studies comparing diabetic control in mini-clinics versus hospitals have shown the standard of care to be equivalent¹⁴⁰ or even better in the mini-clinic.¹⁴¹ Similarly, the shared care system was preferred to either GP or hospital alone owing to better attendance rates, although there were no differences in clinical parameters observed between any of the three treatment modalities.¹⁴² A dual system of shared care and mini-clinics was found to be as effective as hospital. More research into the best system of delivering integrated diabetic care is required.

Ultimately, the GP himself may decide to exercise complete autonomy over the management of his diabetic patients. Surveys in the 1980s showed that this approach resulted in poorer levels of care^{143–145} in comparison to the hospital and that practice audit and strict organizational infrastructures needed to be in place. One potential explanation of this substandard care is the more

pessimistic outlook on the disease state which some GPs have resulting in less rigorous approaches to treatment.¹⁴⁶

Whichever version of integrated care is adopted, certain common deficiencies are apparent which include the lack of (i) a patient register;^{135,147,148} (ii) protected time for clinics;¹⁴⁷ (iii) doctor experience/expertise;^{135,147} (iv) appointment/recall system;^{135,148} (v) person to run the system;¹⁴⁸ and (vi) adequate records.¹³⁵

The solutions involve educational sessions,¹³⁵ co-operation cards^{127,135} and more computerization.^{129,149} Further, as a result of the Diabetes Control and Complications Trial (DCCT), more intensified treatment regimens will become apparent and it has therefore been predicted that costs to the health care system will increase ten-fold.¹⁵⁰ The problem of finance was partially overcome in one practice by voluntary restrictions on prescribing.¹⁵¹

In conclusion, although few studies have compared the mini-clinic with the shared care model it does seem apparent that the process of care is as (if not more) important than the person who carries it out. More research into the long-term effectiveness of shared care systems in established and also less innovative practices together with detailed assessments of the primary care team's educational needs are required.¹⁵²

Finally, the World Health Organization (WHO) have designed a minimum data set of therapeutic outcomes for diabetics. Unfortunately, owing to poor information systems and the fact that diabetes has not been included in the government's 5-year strategic plan, it seems unlikely that these 'St Vincent Objectives' will be achieved.¹²⁹ The prospect for diabetic care in the immediate future, therefore, looks bleak.

Obstetric care

Perhaps the oldest model of shared care in existence is in the field of antenatal care, which, over the last 40 years, has moved from community to hospital and then to shared care between GP and hospital.¹⁵³ Shared care is the predominant arrangement in the UK,¹⁵⁴ so much so that it is now synonymous with 'traditional care'.

It does seem ironic that current developments are shifting the emphasis away from shared care back into the community. This system has been called 'integrated care' in which obstetric care is provided by GP, midwife and health visitor together with regular sessions from a visiting obstetrician in the patient's local surgery. Early assessments have shown the standard of integrated care to be as good as that provided by the traditional variety.¹⁵³ Integrated care is preferred by women,¹⁵⁵ and decreases the number of hospital visits which results in less duplication of effort and frees up specialist time.¹⁵⁶

Traditional or shared care describes the system where women are regularly seen by GPs and the hospital

with increasing frequency towards the end of the pregnancy. The number of hospital visits does vary but the majority of appointments occur at the GP's surgery.

Studies abroad have demonstrated the advantages of shared care over hospital alone. In Hong Kong, intra-uterine growth retardation detection rates were increased by 27%, other complications were detected earlier and an estimated saving of US\$600 000 was made by implementation of shared care.¹⁵⁷ In Australia, shared care resulted in fewer medical interventions¹⁵⁸ and was preferred by mothers,¹⁵⁹ although the GPs involved thought that communication could have been improved.¹⁶⁰ Another study in Canada which compared GP versus hospital treatment also concluded that GPs made fewer therapeutic interventions than the hospital with no differences in outcomes.¹⁶¹

Within the UK, however, the shared care system has been criticized due to lack of integration.¹⁶² Proposals to solve this included: (i) a redesigned co-operation card which would be the one and only record of care; (ii) initial assessment and tests ordered by GP; and (iii) written protocols for screening. It has been suggested that other problems of communication might be solved by on-line use of computers which could also be used to assist medical history taking and general patient management.¹⁶² A less technological solution to permit the sharing of views on patient management is bringing the obstetrician into the GP's surgery.¹⁶³ This, of course, signals the start of 'integrated care'.

Finally, a third option is to integrate the general practice with the hospital's obstetric unit.^{164,165} Although this scheme operated successfully in Oxford, the main advantages of patient convenience and reduced travelling time associated with shared or integrated care¹⁵⁵ would be lost if applied generally.

In conclusion, the evolution of antenatal care in the UK has turned full circle. Integrated care is similar in concept to the diabetic mini-clinic described above and the lessons of good communication and the need for management protocols can be applied equally. Whether optimization of shared care as discussed previously is more or less advantageous than integrated care remains unproven. More research is needed.

Mental health

Following the move of psychiatric care into community, the most common management model today is that of the 'shifted outpatient', in which the psychiatrist conducts an outpatient clinic in the GP's surgery mostly in the absence of the GP.¹⁶⁶ A small study in 1990 surveyed the views of GPs and found that the preferred option was to have joint psychiatrist/GP clinics.¹⁶⁷ This has previously been described as 'liaison psychiatry'.¹⁶⁶ However, a much larger survey showed that 90% of GPs were happy to look after their patients' physical but not mental problems.¹⁶⁸

In the meantime, research into communication between psychiatrist and GP in a shared care environment has demonstrated conflicting results. A standardized discharge summary was thought to be very useful by the junior doctors and was seen as the first step towards seamless care.¹⁶⁹ On the contrary, a guide for GPs designed to help with the writing of referral letters was ineffective.¹⁷⁰ Similarly, whilst a shared care medical record for the long-term mentally ill was very acceptable to patients and resulted in improved communication between health care staff, psychiatrists expressed serious misgivings about the project.¹⁷¹

Data on prescribing are limited. Two separate studies have shown that hospital lithium clinics exhibit better control of lithium levels than the GP alone.^{172,173}

In conclusion, although the transfer of mentally ill patients from hospital into the community has occurred over a relatively short period of time, data on management and organization of services are lacking. Definitive protocols encompassing where clinical responsibilities lie and out-of-hours arrangements are required.¹⁷⁴ A joint working group of the Royal Colleges of Psychiatrists and GPs concluded that effective shared care could be achieved if some or all of the following measures are in place: close contact between GP and psychiatrist, integrated training, audit, locally agreed management protocols and well defined responsibility for control and monitoring of prescribing.¹⁷⁵

Geriatric care

Potentially, one of the most vulnerable groups prone to problems associated with shared care is the elderly. Problems may occur due to multiple pathology, multiple drug therapy and many agencies being involved in the care of these patients. However, qualitative sociological research has shown that the process of care is only one aspect, and patient attitude and psychological outlook together with family relationships need to be considered.¹⁷⁶

Perhaps the single most important issue affecting the care process during admission/discharge is communication. Better documentation for prescribed drugs was thought necessary in one study.¹⁷⁷ Similarly, a fax machine was used to transmit prescription details to a rehabilitation unit following discharge from hospital in order to optimize communication.¹⁷⁸ More generally, better intra-professional communication together with an appreciation of each other's roles is also essential.¹⁷⁶

One proposal to solve the problem of communication within hospital is the PEN & PAD (Geriatric) computer system.¹⁷⁹ Problems outside the hospital may be minimized by the setting up of a properly resourced and managed agency to monitor patient transfer.¹⁸⁰ This concept has been mentioned previously.¹⁸¹

In conclusion, transfer of elderly patients across the primary and secondary care boundaries is an under-

researched area. Owing to the ever-increasing geriatric population, this is one area which merits priority treatment.

HIV

Surveys have indicated that a majority of GPs are interested in sharing care of their HIV-positive patients.^{182,183} Barriers which may prevent this arrangement from happening include: complex therapy¹⁸⁴ and the need to monitor for side-effects,¹⁸⁵ poor communication,¹⁸⁴ lack of confidentiality^{184,186} and, in certain cases, limited GP sympathy.¹⁸⁶

Another obstacle is that of funding which, currently, seems to be biased towards secondary rather than primary care.^{187,188} One important issue is money for drugs which should be funded centrally.¹⁸⁸

A number of successful shared care systems have been described. One scheme operates in London, in which HIV-positive patients are seen every 3 months by their GP and annually at the hospital. A co-operation card, held by the patient, is completed at every consultation.¹⁸⁹ In another centre, a fax machine used to transmit discharge summaries to GP surgeries was considered instrumental in encouraging many GPs to become involved in patient care. Access to a specialist was always available via a mobile telephone.¹⁸⁷ Two other successful schemes include a GP HIV 'fellow'¹⁸⁸ and a GP facilitator.¹⁹⁰

The potential use of modern communication technology to improve communications at the interface has been discussed previously. The above illustrates two examples where the fax and cellular telephones have been put to good use in the interest of patients.

Miscellaneous

A variety of other disease states have been studied. Shared care in the treatment of drug addiction has yielded conflicting results. A community drugs team, originally intended to effect liaison between primary and secondary care, resulted in poor collaboration with GPs.¹⁹¹ However, a similar scheme involving 530 GPs operated quite successfully in Scotland.¹⁹² The GP's potential role in chemotherapy has been identified for colony stimulating factor¹⁹³ and interferon¹⁹⁴ although (s)he should not prescribe if (s)he does not feel clinically competent to do so. In any case close collaboration with the hospital specialist and good communication are essential.^{194,195}

In asthma, owing to lack of specialists, problems with diagnosis, poor communication and lack of uniformity of advice, it has been predicted that up to three-quarters of hospital admissions could be prevented.¹⁹⁶ The Grampian Asthma Study of Integrated Care (GRASSIC) was found to be as effective (clinically) as conventional care.¹⁹⁶ This consisted of patients having annual appointments at the hospital interspersed with 3-monthly appointments with their GP. Before each appointment,

questionnaires are simultaneously distributed to patient and GP. All data are entered into the central computer (which forms the core of the GRASSIC system), any changes instituted by the specialist are also added and the most up-to-date version of the data returned to the GP. Other studies have found GRASSIC to be cheaper than conventional therapy¹⁹⁷ and more acceptable to GPs.¹⁹⁸

Shared care asthma research has also shown improvements in patient well-being.¹⁹⁹ The key elements of success appear to be local protocols, regular district meetings (to keep up to date), shared care log books and, perhaps, a hospital/primary care asthma liaison officer.²⁰⁰

The forerunner of the GRASSIC system was originally developed for the treatment of hypertension in Aberdeen in 1985.²⁰¹ Four years later, the Aberdeen programme was accorded national status and the benefits of it listed as: more efficient exchange of clinically important information, follow-up stratified according to risk and GPs being kept up to date.²⁰² A similar strategy now operates in Glasgow.²⁰³ In one comparative study, shared care resulted in equivalent control of blood pressure and was more cost effective than conventional treatment.²⁰⁴

The GP's role in prescribing methotrexate for psoriasis,²⁰⁵ isotretinoin for acne,²⁰⁶ erythropoietin,^{207,208} human growth hormone,²⁰⁹ lipid lowering agents,²¹⁰ luteinizing hormone-releasing hormone in prostatic cancer,²¹¹ management of benign prostatic hypertrophy,²¹² and renal transplant patients²¹³ has been described. Similarly, in the anticoagulant clinic, although GP clinics may achieve as good (if not better) control than conventional treatment,²¹⁴ this may be a role which could be carried out by suitably trained community pharmacists since early impressions indicate strong GP support and improved patient convenience.²¹⁵ GP shared care of patients on gold and penicillamine therapy resulted in no change in effectiveness or side-effects but allowed a 65% reduction in hospital clinic visits.²¹⁶

For the terminally ill, the shared care approach was thought to be very important in maximizing treatment²¹⁷ and should enable a dignified death at home.²¹⁸ One important aspect (which has been mentioned several times previously) is to emphasize what the patient or relative has been told about their condition in the hospital discharge note.²¹⁹ In gastroenterology, of 259 GPs surveyed the vast majority were in favour of shared care of coeliac and inflammatory bowel diseases with written treatment protocols being available.²²⁰

Finally, a successful model of joint care in paediatrics has been described in Yorkshire. Regional paediatric specialists do the initial assessment and day-to-day care is provided by local paediatricians in the local hospital. Success was attributed to the accessibility of the regional paediatrician and also joint clinics.²²¹ A similarly

effective collaborative service for epilepsy comprised written management guidelines/protocols, co-operation cards and a liaison person.²²²

Discussion

It is difficult to justify the movement of health care away from hospital into the community based on the relatively small amount of substantive data on the subject. However, clear advantages to patients have been demonstrated which include better patient familiarity with the surroundings, reduced patient travel and waiting times and thus less inconvenience. Further, integrated care should allow a more effective balance between prevention and treatment of disease.²²³ The crux of the matter is whether a community-based or shared care approach results in an improved standard of care. As more outcome-based research into health matters occurs, questions of this type will be answered.²²⁴

The most appropriate 'model' of shared care would not appear to have been established. Hickman²²⁵ asserts that there are currently six main types: (i) basic (where letters are passed regularly from specialist and GP); (ii) specialist clinics in the community; (iii) liaison clinics (regular specialist/GP clinics); (iv) shared care record cards (e.g. co-operation cards); (v) computer assisted (computer-generated appointments and patient summary lists); and (vi) electronic mail (access to a single, common database).

Specialist and liaison clinics have been discussed by Orton who concluded that in order to be successful, such 'outreach' clinics required appropriate training and education of doctors involved, and also proper guidelines/protocols in place. The cost-effectiveness of these schemes is still to be determined.²²⁶ However, Bleddyn Davies suggested that a domiciliary visit would be preferred by patients²²⁷ and McGhee and Hedley further suggested that the level of specialist involvement should be matched according to individual patient needs.²²⁸ Careful research is required.

The indications on the quality of certain types of health care are slightly disturbing. In diabetes, the impression gained ranges from one of overcrowded hospital clinics to a core of GPs who are unable to provide optimum care through lack of time, training or adequate record facilities. A picture of similarly busy antenatal clinics also emerges. The move to a more 'integrated' antenatal service should, therefore, be appreciated by the public. However, in both of these cases, the simple calculation which relates the extra workload required to the number of GPs designated to carry it out does not appear to have been performed. As stated above, more research into the clinical effectiveness of shared care is essential.

Communication is an essential ingredient of the shared care process and this point cannot be overemphasized. Nevertheless, one of the most frequently used

communication routes, i.e. between hospital doctor and GP, is not without its problems. Whilst no evidence can be cited, this does not bode well for other disciplines which may be less involved in individual patient care. It bodes even less well for multidisciplinary communication.

On a more positive note, evidence of common factors which have contributed towards effective shared care do emerge. In no particular order, these are:

- patient cooperation or shared care cards;
- initial and continuing GP education;
- written treatment and management protocols;
- an efficient patient record and recall system;
- protected GP time to perform the necessary duties;
- effective communication;
- appointment of a liaison officer.

The extent of training for GPs (and others) together with the protected time arrangements and how these relate to current work and other continuing education commitments should not be underestimated. Hopefully, the extra resources required will not be prohibitive. Also, the written management protocols should be viewed as an educational tool plus a system to facilitate stratification of management strategy rather than a document which assists the 'dumping' of a difficult (or expensive) patient from one doctor to another. It is essential that these protocols are regularly and frequently reviewed by all parties involved.

Another essential prerequisite is the availability of an efficient patient record/recall system which implies the need for computers (plus software) which further implies the need for extra funding. When operational, such a system will have a tremendous impact on the standard of communication. This will be discussed in more detail later.

The appointment of liaison officers (usually nurses) is a more contentious issue. It has not been established whether this group is merely a symptom or palliative treatment of an otherwise diseased system, or whether, indeed, there is a definite need. Judging by their rate of growth, the implication is that liaison officers will soon emerge for every disease state in the textbook of medicine. It may be possible by adopting the first six measures listed above to reduce their necessity completely.

Regarding prescribing costs and specifically the problem of 'cost shifting', the concept of a unitary budget is very attractive although the legal obstacles preventing this need to be addressed. In the meantime, any cost consideration should include all affected parties, i.e. primary and secondary care representatives, government and the pharmaceutical industry. Any change in industry's profits in one sector will be compensated by increasing prices in others. The issue of cost needs to be viewed in almost global terms rather than the simplistic attitude of transferring monies from one health care budget to another.

Of paramount importance, in any situation, are the preferences of patients. Specifically, if the desire for a universal hospital/community prescription is strong, then the mechanism to provide this should be enacted. This would, of course, divert money away from some community pharmacies since they are paid according to the quantities of prescriptions dispensed. This system of payment is an anachronism and it prevents community pharmacists from being more actively involved within their communities. Payment should occur according to the depth, extent and quality of services provided, i.e. on a more professional basis.

Many of the problems with communication could be alleviated by more effective use of IT, i.e. computers, fax and other equipment. One major innovation would be a central computerized medical record. Technically, this is feasible and, with government support, is achievable and may correct some of the deficiencies associated with paper records.²²⁹ However, there are barriers which may impede progress.

Firstly, the hospital medical record comprises (mostly) of notes made by the doctor. In addition to these data, other professions allied to medicine record their own notes which may or may not be incorporated into the case notes. A culture change is therefore required to enable all data to appear within one record. Such data should be accessible to all and utilized effectively wherever appropriate.

A second barrier is the generally accepted notion that the case notes do not convey 100% of the story. Isolated pieces of data are subconsciously withheld with the result that an outside assessor may be unable to assimilate an accurate picture of an individual patient by reading the case notes alone.

The third potential barrier is the necessary culture change required to facilitate medical notes being recorded electronically rather than hand written. This requires a certain amount of self-discipline but with a well structured data entry form and following full consultation during the design stage this should be perfectly possible. Use of computers in the surgery do seem acceptable to patients.²³⁰

In the short term, every effort to optimize current communication systems should be made. As mentioned previously, two main issues need to be addressed in this context, i.e. (i) work-studies into the factors which determine how, why, by whom and when discharge letters are written in hospital; and (ii) research into GP correspondence received into the surgery and particularly how and when these data are utilized. In addition, formal communication networks need to be established to allow smooth flow of information from the hospital professions allied to medicine to their colleagues in community. It would be logical for the centre of activity to be based around the GP.

Finally, it seems unfortunate that millions of pounds have been invested in computers, particularly in

hospital, to capture mainly financial data. If these resources had been used to collect data with definite clinical outcomes instead, it is evident that the nation would be a healthier one. The lesson for future investment is clear.

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