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Journal of PUBLIC HEALTH MEDICINE

VOLUME 14 NUMBER 2 JUNE 1992

Published by Oxford University Press

computing. Financial support was provided by the South Cumbria Health Authority.

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Home from hospital: a survey of hospital discharge arrangements in Northamptonshire

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Summary

The timeliness and adequacy of inpatient discharge communication between hospitals and general practitioners (GPs) in Northamptonshire was examined by a postal questionnaire survey of GPs of patients recently discharged from hospital, with the aim of improving the co-ordination of discharge procedures, and hence improving continuity of care. The questionnaire measured when and how the GP was informed of the discharge, and examined the adequacy of medical, therapeutic and social details in the discharge documents sent out by the hospital. It was found that 67 per cent of discharges had been notified to the GP by the hospital within five days of discharge. With notable exceptions the discharge documents were considered timely. General practitioners were less satisfied with the adequacy of discharge communication in terms of 'social' topics such as transport needs, social services back-up, and whether a patient with a malignancy knew about his or her diagnosis. The GPs of patients under geriatricians were more satisfied with the quality of discharge documents. Comparison with an earlier study suggested that the speed of communication and involvement of GPs in discharge in Northamptonshire is not as satisfactory as that found in Oxford in 1986. It was concluded that within the county there appear to be models of good practice in terms of discharge communication with GPs. These standards should be adopted by other specialties to match or improve on existing good practice.

Introduction

Hospital treatment cannot be considered effective until the patient is discharged to a suitable environment and all relevant carers have been informed. This has been reinforced by a Department of Health circular.¹ Communication with general practitioners (GPs) is an essential part of the discharge process. It has been studied in many places, and means have been identified to improve the quality and timeliness of the hospital-GP communication.²⁻¹⁰ Published studies suggest that GPs want information as quickly as possible,^{2,3} that social and prognostic information is as important as technical information⁴⁻⁶ and that structured discharge letters may help ensure nothing is omitted.⁷⁻¹⁰

In 1986 the Northamptonshire Family Practitioner

Committee (FPC, now Family Health Services Authority) became aware of differences in discharge arrangements throughout the county. The Committee was also concerned because the Community Health Council (CHC) had received complaints about the short courses of discharge medication that patients were sent home with.

The FPC commissioned a questionnaire survey to audit the timeliness and adequacy of the discharge communication process and spotlight areas where improvements should be made. The project was funded by the Primary Health Care Development Fund.

Northamptonshire is a Midlands county with a mixed urban and rural population. There are two Health Districts within the county - Northampton and Kettering. Acute medical services are centred around a general hospital in each district. In both districts geriatric services are provided, in part, in hospitals separate from the general hospital site.

Methods

The study was designed by a project team comprising representatives from the Northamptonshire FPC, general practice, CHCs and both District Discharge Policy Working Parties. Statistical and technical help was provided from Leicester Polytechnic.

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Sampling procedure

Questionnaires were sent to the GPs of 2040 patients discharged from acute and geriatric hospitals in Northamptonshire in February and March 1989. The specialties selected were those where:

- (1) a quick and reliable discharge notification system to GPs was thought to be important, and
- (2) no statutory notification procedures exist (for example, maternity), and
- (3) there were sufficient discharges to ensure a reliable sample in the study period.

The specialties chosen were general medicine, general surgery, ENT, geriatrics, gynaecology, ophthalmology, trauma/orthopaedics and radiotherapy. Discharges were ascertained from the computerized Patient Administration System (Northampton Health Authority) or directly from the relevant wards (Kettering Health Authority) at weekly intervals. Although information was not sought directly from patients, all inpatients in the relevant specialties were given a standard letter describing the study and inviting them to notify ward staff if they did not want to be involved in it. Of the 5000+ inpatients during the study period only 74 declined consent and these were removed from the list of discharges before sampling.

The sample was extracted from the lists of hospital discharges. In the smaller specialties (ophthalmology, radiotherapy and geriatrics) every other consenting patient was included in the sample. In the other specialties every fourth patient was used initially. This was increased to one in three for the second half of the study, to reach the intended sample size.

Response rate

Of the 2040 questionnaires distributed, 1737 were returned. This is a response rate of 85.1 per cent.

Patient characteristics

The numbers of patients discharged from each specialty and Health District is shown in Table 1. The mean length of stay was 6.5 days, with a median of three days

and a mode of one day. Eighty-nine patients (5 per cent) stayed longer than three weeks. Emergency cases made up 49 per cent of admissions and electives 51 per cent. Thirty per cent of patients (520) were aged 65 or above. Eight per cent of patients (comprising 29 per cent of radiotherapy patients and 7 per cent of non-radiotherapy patients) had been readmitted to hospital before the GP completed the questionnaire.

Questionnaire

A self-administered questionnaire was mailed to the GP within two weeks of the patient's discharge and returned via the FPC mailing service. The patient's name, date of birth, address, GP, consultant, hospital specialty, date admitted, date discharged, hospital to which the patient was admitted and whether admission was elective or emergency were recorded on the form before dispatch to the GP. The GP was asked to answer closed questions regarding:

When and how they had first been notified of the discharge.

Whether the discharge was discussed with the GP.

Whether the GP had seen the patient since discharge.

How much medication was given. Whether this was adequate.

A multi-part question allowed the GPs to indicate whether the written communication from the hospital was adequate, inadequate or not relevant in terms of a variety of details (e.g. medical details, prognosis, need for GP to visit, follow-up, social services back-up). There was a separate question asking if the GP knew enough about the patient's knowledge of their diagnosis if the condition was malignant. Initial non-responders were not followed individually but all GPs were sent a letter of encouragement halfway through the study period.

The returned questionnaires were checked for completeness. Omissions and ambiguities were resolved by telephone before coding. Data were analysed using SPSS-PC. Cross-tabulations by specialty, age and Health District were prepared as appropriate. The χ^2 test was used to test for significance where appropriate.

TABLE 1 Study patients by Health District and specialty; numbers, with percentages in parentheses

Health District	General medicine	General surgery	ENT	Geriatrics	Gynaecology	Ophthalmology	Radiotherapy	Trauma/orthopaedics
Northampton	200 (19)	298 (28)	110 (10)	53 (5)	185 (18)	60 (6)	44 (4)	108 (10)
Kettering	172 (25)	175 (26)	74 (11)	80 (12)	78 (12)	5 (1)	—	97 (14)
Total	372 (21)	471 (27)	184 (11)	133 (8)	263 (15)	65 (4)	44 (3)	205 (12)

All data presented as percentages are followed by the 95 per cent confidence interval (C.I.) and numerator/denominator.

Results

Timing of GP response

The median time between discharge and completion of the questionnaire was 32 days. Only 7.4 per cent of questionnaires were completed less than 2 weeks after discharge. Nine per cent were completed 50 or more days after discharge.

GP contact with the patient before and after discharge

The GP had been involved in discussions about discharge in only 3.4 per cent of cases (2.5–4.3 per cent, 59/1737). This proportion was higher in patients under geriatricians (9.8 per cent; 4.7–14.9 per cent, 13/133, $\chi^2 = 15.8$, 1 df, $p < 0.001$).

The GP had already seen 61 per cent (59–63 per cent, 1059/1737) of the cases between discharge and completion of the questionnaire. Of these, 41 per cent (38–44 per cent, 438/1059) had been seen at home. Unfortunately, we were unable to discern whether the hospital note or letter was at hand when the patient was first seen. There was a marked variation between specialties, with over 70 per cent of general medical and radiotherapy patients having been seen, 60–70 per cent of geriatric and general surgical cases, 50–60 per cent of ENT, trauma/orthopaedics and gynaecology patients, and 34 per cent of ophthalmology patients. Overall, the proportion seen by the GP was not higher in the over-65s (60 per cent < 65 (730/1217); 63 per cent > 65 (329/520), $\chi^2 = 1.52$, 1 df, $0.25 < p < 0.1$). Of patients under geriatricians, 70 per cent (62–78 per cent, 93/133) had been seen again by the GP compared with 61 per cent (56–66 per cent, 236/387) of non-geriatric over-65s ($\chi^2 = 3.03$, 1 df, $0.05 < p < 0.1$).

Timing of the discharge communication

Overall, 72 per cent (70–74 per cent, 1221/1700) of discharges were known to the GP within 5 days of discharge. However, GPs had received communication from the hospital in only 67 per cent (64–70 per cent, 818/1221) of these cases, the remainder being informed by the patient or the patient's relatives. Analysis of when the GP was first informed of the discharge by individual specialty in each district showed significant variations between specialties ($\chi^2 = 123.0$, 39 df, $p < 0.001$). There was also a significant difference between Health Districts, with Northampton discharges being notified later than those from Kettering hospitals (Northampton: 10

per cent notified by two days after discharge; Kettering: 13 per cent; Northampton 10 per cent not yet informed versus Kettering 5 per cent, $\chi^2 = 38.33$, 5 df, $p < 0.001$). Local variation in individual specialties gave some cause for concern. Two specialties in Northampton had a particularly large proportion of patients whose GPs had never been informed of their discharge by the hospital. These were gynaecology (30 per cent; 23–37 per cent, 54/182) and trauma/orthopaedics (18 per cent; 10–25 per cent, 19/107). Unfortunately, there was a secretarial strike in Northampton during the last two weeks of data collection, which may have adversely affected the dispatch of discharge paperwork. In an attempt to assess the effect of the strike on timing of communication, the discharges were divided into those taking place more than a week before the dispute started and those during the week before the strike or during the strike itself.

It was found that over the whole study period the hospital took more than five days to inform the GP of discharge (or never informed him or her) in 34 per cent (31–36 per cent, 570/1700) of cases. The corresponding figure for gynaecology in Kettering, where there was no strike, was 31 per cent (20–42 per cent, 23/74). In Northampton the proportion of GPs informed late was higher than the average, 50 per cent (41–60 per cent, 55/109) before the strike, but rose only to 56 per cent (45–68 per cent, 41/73) after the strike had begun. This suggests that the inefficiency in communication in gynaecology pre-dated the secretarial strike.

Twenty-seven per cent (19–35 per cent, 35/130) of geriatric discharges were not notified to the GP by the hospital until six days or more after discharge. This is not significantly different from the overall average (34 per cent; 31–36 per cent, 570/1700, $\chi^2 = 2.09$, 1 df, $p > 0.1$) but may be significant for this group of potentially at-risk patients. However, in only five of the 130 geriatric cases had the GP not been informed by the hospital at the time of completing the questionnaire.

It remains possible that the proportion of GPs who were not informed when they completed the questionnaire is higher than would be found if the survey had been done a long time after discharge. We investigated this by comparing results between questionnaires which the GP had completed less than or more than three weeks after discharge. The results showed no significant differences – there was only a 2 per cent decrease in the proportion 'not yet informed' between the promptly returned and the later returned questionnaires.

Method of discharge notification

In most cases (61 per cent; 59–63 per cent, 1061/1736), GPs had first been informed of the patient's discharge by the hospital letter. In 26 per cent (24–29 per cent, 460/

TABLE 2 Cases where adequate details were contained in the discharge communication

Topic	% (95% C.I.) of relevant cases with adequate details	No. of relevant cases with adequate details		% of total cases where this topic was relevant
		No. of cases where this topic was relevant	No. of cases where this topic was relevant	
Follow-up arrangements	77 (75-80)	1040	1345	88
Details of medication	91 (89-92)	1096	1209	77
Medical details, e.g. removal of sutures	74 (72-77)	683	918	60
Prognostic details, e.g. return to normal activities	32 (29-35)	283	896	59
Need for GP to visit	7 (6-7-7.4)	42	597	39
Need for other member of Primary Care Team to visit	17 (13-20)	74	442	29
Need for transport to follow-up appointment	5 (2-7)	16	334	22
Social services provision	15 (11-19)	43	285	19
Medical loans, aids, etc.	12 (8-17)	25	203	13
Patient's knowledge of malignancy	37 (30-43)	83	226	13

1736) of cases the patient or relative had informed the doctor, some of these bringing the hospital letter with them. In 2 per cent (1.7-3.2 per cent, 43/1736) of cases the hospital had phoned to inform the GP of the patient's discharge. In 10 per cent (8.5-11 per cent, 169/1700) of cases the GP had not been informed by the hospital.

Nature of the communication process

Table 2 shows the results of questions on the adequacy of information on the discharge documents. The results show that the main items thought to be important by GPs are the medical details and details of patient follow-up. These are usually adequately covered in discharge letters. However, none of the other items, although important in a significant minority of cases, were adequately covered in the discharge letters. In particular, only 37 per cent (30-43 per cent, 83/226) of GPs knew what the patient had been told about their malignant condition. This proportion was better for radiotherapy, where 64 per cent (49-79 per cent, 25/39) of GPs were adequately informed (χ^2 for radiotherapy versus not radiotherapy = 13.8, 1 df, $p < 0.001$).

The differences between the various specialties and health authorities were usually small and not statistically significant. However, GPs of patients under geriatricians were usually better informed than GPs of other patients over 65. This is shown in Table 3. Gynaecology in Northampton seemed to have a higher proportion of poor communication than other specialties. In 77 per cent (69-85 per cent, 77/100) of relevant cases GPs were

not adequately informed of prognostic details, and 52 per cent (44-60 per cent, 84/162) were not adequately informed of follow-up arrangements

Duration of prescribed medication

The questionnaire did not elicit the exact number of days of medication prescribed on discharge. However, the instrument used showed clearly that the out-patient prescribing policies varied between the two districts. For those who had drugs prescribed and where the GP knew how much had been given, 20 per cent of Northampton cases received less than six days medication compared with 74 per cent of Kettering cases ($n=585$, $\chi^2=153.4$, 1 df, $p < 0.0001$). There was no tendency for longer courses of treatment to be given to patients going home on Fridays or at weekends or on Bank Holidays than those leaving during the week (weekdays 37 per cent (174/465) < 6 days; Fridays, weekends and Bank Holidays 33 per cent (40/80) < 6 days, $\chi^2=0.52$, 1 df, $0.25 < p < 0.5$).

Discussion

This study was enthusiastically supported by the GPs who took part, and a high response rate was achieved despite no reminders being sent. The major constraints in our method were that GPs completed the questionnaire at different times after the patient's discharge. Some patients had been seen by the GPs but others had not. Therefore it was impossible to disentangle the precise sequence of events by which a GP learns about

TABLE 3 Comparison of adequacy of discharge communication between patients under geriatricians and other patients aged 65 or over

Topic	Geriatrician cases		Total no. of relevant geriatric patients	Non-geriatric over-65s		Total no. of relevant over-65 patients
	% (± 95 C.I.) of relevant geriatric patients with adequate details	No. of relevant geriatric patients with adequate details		% (± 95 C.I.) of relevant non-geriatric over-65s with adequate details	No. of relevant non-geriatric over-65s with adequate details	
Social services provision*	39 (27-51)	23	59	6 (1-11)	6	97
Need for GP to visit	12 (4.5-19)	9	76	8 (4-12)	15	186
Need for transport to follow-up appointment	17 (6.2-28)	8	47	0	0	125
Need for other members of the Primary Care Team to visit	38 (26-49)	26	69	10 (5.0-15)	14	141
Home assessment undertaken when GP thought it relevant	25 (14-37)	13	51	17 (10-25)	19	109

* χ^2 for comparison between geriatric and non-geriatric over-65s = 23.95, 1 df, $p < 0.001$.

$\dagger \chi^2$ for comparison between geriatric and non-geriatric over-65s = 21.38, 1 df, $p < 0.001$.

the discharge of his or her patients from hospital. However, we do not feel that this detracts from the data on how soon GPs hear about discharges from the hospital or their views on the adequacy of the information they receive.

The study project team (including the GP representative) felt that, with the exception of gynaecology and trauma/orthopaedic cases in Northampton, the speed of communication between hospital and GP was probably adequate. However, there would still seem to be scope for improvement as there was significant variation between what different specialties could achieve.

The study showed that GPs were less satisfied with the quality of discharge information. They wanted more non-medical details about their patients than are currently recorded on discharge documents. The geriatricians were better in this respect than other specialties, and perhaps their methods of working, which pay special attention to discharge liaison, should be adopted, especially by those treating older patients whose social back-up may be less secure.^{8,12,13}

Comparisons with the John Radcliffe Study¹¹

The similarity of our methods allowed a direct comparison with work done in Oxford in February and March 1986 at the John Radcliffe Hospital, Oxford. In that study, 847 general medical, geriatric and general surgical admissions were followed up until discharge or death. The study investigated, among other things, the timeliness of discharge communication and the involvement of GPs in the discharge process ($n=533$ completed

questionnaires). Some of the questions used in the John Radcliffe study are directly comparable with the present study.

Using only the data for general medicine, geriatrics and general surgery, we compared the percentage of GPs involved in discharge discussions in Northamptonshire and Oxford. In all three specialties GPs were less than half as likely to have been involved in Northamptonshire as in Oxford (general medicine: Northants 4 per cent (2-6 per cent), Oxford 12 per cent (8-16 per cent); geriatrics: Northants 10 per cent (5-15 per cent), Oxford 22 per cent (9-35 per cent); general surgery: Northants 3 per cent (1-4 per cent), Oxford 7 per cent (4-10 per cent)). The communication process was also slower in Northamptonshire than in Oxfordshire (Table 4). In Oxford, 13 per cent of GPs were informed of the discharge directly from the ward by telephone (no difference between specialties). In Northamptonshire, the corresponding percentages were 3 per cent for general medicine and general surgery and 8 per cent for geriatrics.

Significance of the findings

The findings of the study are not new, but have been useful in informing the local debate on discharge procedures. The three areas of particular local relevance are:

- (1) the faster communication in Kettering compared with Northampton. In Kettering a copy of the discharge letter is sent home with the patient as well as being mailed to the GP;

TABLE 4 Speed of first communication with the GP

Specialty	% ($\pm 95\%$ C.I.) informed before or on day of discharge		% ($\pm 95\%$ C.I.) informed 3 days or more after discharge	
	Oxford	Northamptonshire	Oxford	Northamptonshire
General medicine	32 (27-37)	15 (11-18)	35 (29-41)	45 (40-50)
Geriatrics	32 (18-46)	18 (11-24)	35 (19-49)	40 (32-48)
General surgery	18 (13-23)	11 (8-14)	43 (36-50)	52 (47-56)

- (2) the highlighting of specialties which demonstrate 'good practice' (or better than average practice) as regards discharge arrangements (e.g. geriatrics);
- (3) the highlighting of specialties where there may be a particular problem (e.g. gynaecology in Northampton).

Our experience in trying to use these data has been that local data comparing the performance of specialties had more impact as an audit tool than the comparisons that were made with the Oxford study. Fund-holding general practices, with their focus on quality of local care, could be persuaded to use a similar questionnaire to assess the service providers offer.

General practitioners are clearly concerned that they often do not know what patients have been told about malignant disease. This needs to be explored by negotiation between provider clinicians and GPs. Fund-holders can do this directly, and many DHA purchasing teams have set up local groups of GPs to discuss referral, quality and discharge issues with provider clinicians. These findings could form the basis for a local discussion even if local data were not available.

The study highlighted the unhelpful approach of hospitals that send a patient home with a supply of medicines for the same number of days whether they are being discharged on a Bank Holiday Friday or on a Monday. A policy of giving medication for a fixed number of working days would balance economy with the patients' need to replenish supplies.

The present study was unable to determine the reasons for the more timely and more useful communication to GPs from the geriatric departments. Dedicated community liaison staff support the work of geriatric consultants in Northamptonshire. A 'before and after' comparison would be needed to support the hypothesis suggested by previous studies^{12,13} and supported by this one that dedicated discharge staff can improve communication to GPs.

Acknowledgements

The authors would like to thank Jackie Walker for the clerical assistance, and all the other members of the project design team. We thank in particular the District Health Authority staff involved at ward level and those who assisted in compiling discharge listings. We also thank all the GPs across the county for completing so many questionnaires.

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Use of cancer surveillance data for comparative analyses

S. Wilson, P. Prior and C. B. J. Woodman

Introduction

Regional Cancer Registries (RCRs) are receiving an increasing number of requests for information. These have been prompted in part by the current enthusiasm for medical audit, the emphasis now placed on outcome measurement and the requirement for regional and district Directors of Public Health to produce annual reports describing the health of their populations. Many investigators wish to compare the outcome or survival of patients with cancer in different geographical areas which broadly correspond to units of service provision. The pay-off from this line of enquiry comes when differences are identified and further evaluation suggests possible remedial factors. However, before it can be concluded that differences in outcome reflect local variation in the effectiveness of service provision, it is necessary to consider the extent to which they may be confounded by variations in registration practice or the limitation of the available analytical techniques. This paper discusses the methodological problems arising from comparisons based on cancer surveillance data.

Incomplete ascertainment

Geographical comparisons of survival may be confounded by local differences in the completeness of ascertainment by the registry of all cases diagnosed with cancer. Where ascertainment is incomplete, patients who were hospitalized or treated are more likely to be registered than those who are untreated and seen only by general practitioners (GPs) or in the hospital outpatient department. This latter group of patients tend to have more advanced or incurable disease and their omission from a study will result in spuriously elevated survival rates. Incomplete ascertainment is more likely to occur when a cancer registry is excessively dependent on a single source of registration such as hospital inpatient records or pathological reports. For example, Fig. 1 illustrates, using data held in the West Midlands Regional Cancer Registry (WMRCR), the difference in

survival between histologically confirmed and clinically diagnosed cancer of the lung. The study population comprised all new registrations for lung cancer during 1980, of which 51 per cent were histologically confirmed. The outcome in those cases for which there was histological confirmation of disease was significantly better than the outcome in the total population ($\chi^2 = 8.21$, $p < 0.01$).

Cases identified only from a death certificate

It is common to exclude from incidence and survival analyses those cases where cancer is mentioned on the death certificate but confirmation of the disease cannot be obtained from other sources.¹ Such registrations are called 'death certificate only' (DCO) registrations. Percy *et al.*² indicated only about 65 per cent accuracy in the coding of cause of death for cancer patients. The DCO registrations are, therefore, excluded from analyses because it is impossible to confirm the primary site and the date of diagnosis.

The proportion of DCO registration varies from region to region and may reflect the vagaries of local death registration practices, the efficiency of the initial cancer registration procedures or the assiduousness with which the different registries seek confirmatory

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