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Where are the weakest links?

A descriptive study of discrepancies in prescribing between primary and secondary sectors of mental health service provision

AIMS AND METHOD

To investigate the transfer of information regarding prescribed medication between primary and secondary care sectors. Patients aged 18–65 years, ready for discharge from hospital, were invited to participate. Prescribed medication was recorded from their hospital and general practitioner records. The significance of discrepancies

identified between medication lists was assessed independently by four judges.

RESULTS

Discrepancies occurred for 39 out of 43 patients at each stage of medication information transfer. Discrepancies at the time of admission and following discharge occurred in 69% and 43%,

respectively, of drugs studied. It was judged that harm would occur to the patient, should the discrepancy be reproduced, in 24% and 18%, respectively, of cases.

CLINICAL IMPLICATIONS

Discrepancies in the transfer of information regarding prescribed medication may result in harm to patients.

The needs of people with recurrent, severe mental illness fluctuate over time and services must be well coordinated and able to anticipate, prevent and respond to crises (Appleby, 1999). Integrated mental health systems across primary and specialist services should promote early intervention and allow the provision of continuous care to meet patients' needs. Prescribed medication is an important component in the successful management of mental health problems. To achieve optimum care for these patients, accurate information should be transferred seamlessly between primary and secondary care sectors.

Previous studies of elderly and general medical patients have shown that changes occur between the supplies of drugs received on discharge from hospital and those received subsequently in the community (Cochrane *et al*, 1992; Duggan *et al*, 1996). These changes may be intentional, as part of a treatment plan, or unintentional, as a result of lack of adequate patient education or communication between primary and secondary care or, indeed, due to a transcribing error. By improving the transfer of information regarding drugs prescribed at discharge, all unintentional discrepancies, including those judged to have significant adverse effects on patient care, are significantly reduced (Duggan *et al*, 1998). Interventions have been designed to improve the transfer of information across sectors of mental health service provision. These include the psychiatric discharge summary (Essex *et al*, 1991), patient-held shared care records (Essex *et al*, 1990; Warner *et al*, 2000) and a computer database to which all mental health sites within both primary and secondary care had access (Crowther *et al*, 2001). However, to date, there has been no adequate study of the prevalence and significance of prescribing discrepancies between primary and secondary care settings for adult psychiatric patients.

We aimed to investigate the transfer of information regarding prescribed medication between primary and secondary care sectors of mental health care provision and to identify whether discrepancies occurred, where they occurred and their significance in patient care.

Methods

Following approval by the local research ethics committee, all patients aged 18–65 years, who were diagnosed with mental illness and had been discharged from East Kent Community NHS Trust hospitals over a period of 4 months, were invited to participate in the study. Exclusion criteria included patients who were unable to consent (e.g. patients with communication difficulties owing to dementia, confusion and stroke, and non-English speaking patients) or patients who self-discharged. Eligible patients were contacted shortly before discharge and invited to participate. Written consent was obtained from patients before any data were collected.

In-patient hospital records were examined for patient characteristics, the medication list on admission (source two data), the medication list used for dispensing discharge medication by the pharmacy department (source three data) and the medication list on the discharge summary (source four data). General practitioner (GP) surgeries were visited 4–6 weeks post-discharge, to obtain a list of medication before admission (source one data) and the list of medication supplied after discharge medication supplies had finished (source five data). Whether supplies of medication were prescribed following a GP consultation (described as intentional changes to supplies) or not (described as unintentional changes) was also recorded.

Drug data were recorded, coded and compared according to drug name, dose, frequency and drug group

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classification. Discrepancies were identified, including omissions and additions of new drugs, recorded and coded. A Statistical Package for the Social Sciences (SPSS for Windows, Version 10.0) database was constructed to assist analysis of quantitative data, with each prescribed drug representing the unit of analysis. The total numbers and types of discrepancies occurring at each stage were collated. Types of discrepancies were classified as intentional or unintentional, according to the opportunity available for the prescribing doctor to purposively alter drug therapy. The potential significance of each discrepancy was assessed independently by four judges: a professor of psychiatry, two consultant psychiatrists and a clinical pharmacist with expertise in psychiatric drug prescribing. Each judge was asked to classify the discrepancies into one of three groups: (a) no harm, (b) possible harm or (c) definite harm. An interrater reliability coefficient to examine the level of agreement between the four judges was calculated using Kendall's W test.

Results

A total of 106 patients were approached and 50 consented to take part (response rate: 47%). Thirty-seven patients declined to participate and 19 were discharged without the knowledge of the researcher.

Complete information was gathered for 43/50 patients: 17 males and 26 females, median age 46 years (range: 19–65), with a median length of hospital stay of 36 days (range: 2–940). For the remaining seven patients, records for two patients could not be located,

two patients were not discharged within the recruitment period and the GPs for three patients did not agree to participate in the study.

No prescribing discrepancies were observed for 4 of the 43 participating patients. For the remaining 39 patients (91%) discrepancies in prescribed medication occurred at one or more stages of the transfer of information between primary and secondary care.

Type one discrepancies were those identified from comparison of GP records of pre-admission medication (source one) and hospital admission forms (source two). Local practice is such that hospital admission forms are intended to be an accurate record of the medication being taken by patients in the community prior to admission. It is acknowledged that many patients may be admitted to hospital in crisis and, therefore, obtaining a full and accurate history of all medication prescribed and those taken, may be unrealistic at the time of admission. However, as this was accepted local practice, measurement of type one discrepancies was judged to be important. For the purposes of this study, type one discrepancies were, therefore, considered unintentional, that is occurring without professional knowledge. Type one discrepancies occurred in 69% ($n=188$) of drugs studied (Table 1).

For type one discrepancies that the judges agreed would potentially cause definite harm the mean number was 31 (24%), for those potentially causing possible harm it was 80 (61%) and for those potentially causing no harm it was 19 (15%) (Table 2). For example, a discrepancy judged to be of potential definite harm was the change in a dose of lithium because of its narrow therapeutic

Table 1. Details of type one, type two and type three discrepancies (number of drugs studied=188)

Type one discrepancies (between GP records prior to admission and hospital admission forms) ($n=130$)	<i>n</i> (%)
No drug recorded	74 (57)
Same drug name, no dose or frequency recorded	16 (12)
New drug added	12 (9)
Same drug name, but different dose and different frequency	10 (8)
Same drug name and frequency, but different dose	9 (7)
Same group of drugs, but different drug name	5 (4)
Same drug name and dose, but different frequency	4 (3)
Type two discrepancies (between pharmacy records of medication dispensed at the time of discharge and discharge summaries) ($n=23$)	
Same drug name and dose, but different frequency	10 (43)
Drug stopped	8 (35)
Same drug name and frequency, but different dose	3 (13)
No drug recorded	2 (9)
Type three discrepancies (between prescribed medication according to discharge summaries and GP records post-discharge) ($n=80$)	
New drug added	24 (30)
No drug recorded	22 (28)
Same drug name and dose, but different frequency	14 (17)
Same drug name and frequency, but different dose	6 (8)
Drug stopped	6 (8)
Same drug name, but different dose and different frequency	4 (5)
Same drug name, but no dose and no frequency	2 (2)
Same group of drugs, but different drug name	2 (2)

GP, general practitioner.



index. However, inaccuracy in antidepressant dose was considered potentially to cause possible harm. All judges agreed that omitting 'when required' paracetamol would be likely to cause no harm. A high rate of agreement was achieved between judges (Kendall's coefficient of concordance=0.900; $P < 0.0001$).

Type two discrepancies were those identified from comparison of medication issued from the pharmacy department on discharge (source three) and that recorded on the discharge summary (source four). Type two discrepancies occurred in 12% of the drugs studied ($n=188$) (Table 1). Discrepancies occurring at this stage were assumed to be intentional because the treating doctor would have written the discharge summary after reviewing the patient's condition at discharge. This does presuppose that professional intervention had occurred and the usual double checks had taken place. However, in 10 cases these discrepancies included omitting the dosing instructions of prescribed medication and in one other case, omitting a prescription for a contraceptive pill.

Type three discrepancies were those identified from comparison of medication recorded on the discharge summary (source four) and that issued by the GP after discharge supplies had finished (source five). Type three discrepancies occurred in 43% of the drugs studied ($n=188$) (Table 1). They were classified as intentional when changes to prescribed medication had followed a GP consultation and unintentional when changes had occurred without a GP consultation recorded in the notes and, therefore, without the opportunity for professional intervention.

Of the type three discrepancies ($n=80$), 50 were deemed intentional and 30 unintentional. For those that the judges agreed would cause potential definite harm, the mean number was 14 (18%), for those potentially causing possible harm it was 13 (16%) and for those potentially causing no harm it was 53 (66%) (Table 2). Examples of discrepancies were: omission of a record of clozapine prescribing (potential definite harm); change in frequency of antipsychotic medication (potential possible harm); and addition of a previously omitted

medication in hospital for a physical health condition, for example asthma medication (potential no harm). A high rate of agreement was achieved between judges (Kendall's coefficient of concordance=0.900; $P < 0.0001$).

Discussion

This study was a descriptive, cross-sectional survey to investigate the transfer of information regarding prescribed medication between primary and secondary care sectors of mental health care provision. Although the study took place in one community NHS trust, it is not known if the findings are indicative of prescribing for this group of patients in general. In addition, people excluded from this study were those with communication difficulties, as well as patients who did not speak English, who may be at a greater risk of discrepancies in prescriptions.

We have assumed that discrepancies were considered unintentional when they occurred without professional knowledge, which has proved a valid approach in previous studies (Duggan *et al*, 1996, 1998). Discrepancies describe any change observed between supplies of prescribed drugs, including a wide spectrum of observed events. These range from simple changes between supplies of prescribed drugs to more complex errors that might result in adverse reactions. Because the term is so wide ranging, the number of discrepancies is higher than the rate of errors observed in other research (Bates, *et al*, 1995; Lesar *et al*, 1997) but it is fitting in the context of a descriptive study.

Several practical initiatives could help to reduce discrepancies and transcription errors. For example, Nightingale *et al* (2000) assessed a rules-based computerised prescribing system and found it contributed to safety and patient care. All prescriptions were complete and legible and transcription errors were eliminated. The system was found to assist clinicians when they were writing a prescription by making available information on patients. The system supported clinical decision-making and was well received by doctors, nurses and pharmacists.

We have assumed that hospital admission forms are an accurate record of the medication being taken by patients in the community prior to admission, but we are aware that these are subject to discrepancies through inadequate information at the point of admission. Methods of accurate transfer of information at the point of admission for people with mental health problems may require further investigation.

All data examined in this study were taken from either GP or hospital medical records. The accuracy of these records was not investigated; rather, we assessed the accuracy of information transfer. Agreement was high between the judges, who made independent assessments concerning the discrepancies, providing evidence of interrater reliability.

This study described the flow of information regarding prescribed drug therapy for 43 adult patients with mental health problems through a full cycle between

Table 2. Comparisons of judges' opinions regarding type one and type three discrepancies

Type one discrepancies (between GP records prior to admission and hospital admission forms) ($n=130$)				
Significance rating	Judge 1 <i>n</i> (%)	Judge 2 <i>n</i> (%)	Judge 3 <i>n</i> (%)	Judge 4 <i>n</i> (%)
No harm	18 (14)	21 (16)	19 (15)	17 (13)
Possible harm	78 (60)	82 (63)	81 (62)	78 (60)
Definite harm	34 (26)	27 (21)	30 (23)	35 (27)
Type three discrepancies (between discharge summaries and GP records post-discharge) ($n=80$)				
Significance rating	Judge 1 <i>n</i> (%)	Judge 2 <i>n</i> (%)	Judge 3 <i>n</i> (%)	Judge 4 <i>n</i> (%)
No harm	51 (64)	54 (68)	55 (69)	51 (64)
Possible harm	12 (15)	18 (22)	9 (11)	12 (15)
Definite harm	17 (21)	8 (10)	16 (20)	17 (21)

GP, General practitioner.



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primary and secondary care and back to primary care. Discrepancies occurred for 39 patients and at each stage of information transfer between primary and secondary care. On examining the type one and type three discrepancies, judges assessed that 24% and 18%, respectively, would have potentially caused definite harm, and 61% and 16%, respectively, possible harm.

Duggan *et al* (1998) found that the simple delivery of information to community pharmacists regarding drugs prescribed at discharge enabled comparison with the GP prescription and any discrepancies could be followed up and resolved. This information transfer enabled a cost-effective reduction in all unintentional discrepancies, including those judged to have significant adverse effects on patient care. Patient-held shared care records for individuals with mental illness have been investigated and were not found to be helpful (Warner, *et al*, 2000). Other methods of transferring information, such as electronic transfer, could be tested in this patient population in further studies.

People with mental illness have complex needs that do not recognise organisational boundaries. When discussing discharge planning and after-care in the community, medication management must be prioritised. These patients are vulnerable and medication is an important component of their well-being. It is, therefore, essential that an accurate transfer of information between care settings minimises these potentially harmful discrepancies.

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Declaration of interest

None.

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Specialist registrars' views on the proposed reform of the Mental Health Act (1983)

Potential impact on recruitment and retention of consultant psychiatrists

AIMS AND METHOD

A postal questionnaire was sent to specialist registrars (SpRs) in the Wessex Region to evaluate senior trainees' reactions to information about the proposed changes in mental health legislation and to ascertain if the information had adversely affected their view of their future careers as consultants.

RESULTS

A high level of concern about the proposed changes and their potential impact on consultants was revealed. A majority of SpRs took a more negative view of their future career, especially those preparing a single Certificate of Completion of Specialist Training in general adult psychiatry,

who were more likely to have adverse perceptions and to have thought of opting out.

SERVICE IMPLICATIONS

The legislative proposals have the potential for considerable impact on recruitment and retention of psychiatrists.