

Are Different Forms of Care Management Associated with Variations in Case-Mix, Service Use and Care Managers' Time Use in Mental Health Services?

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Abstract

This paper explores the associations of different arrangements for care management in mental health services with case-mix, service use and staff time use. The method describes: the development of categories of care management; the selection of local authorities; fieldwork in selected authorities; and data analysis. Differences in care management arrangements were associated with service use. The degree of targeting on the severely mentally ill was associated with differing contributions to the assessment process. The use of both social and health services staff as care managers was indicative of greater service integration and associated with a greater likelihood of operational efficiencies.

Keywords

Care management, mental health services, case-mix, service use, caseload, staff time use, case records

Introduction

The continuing importance of care management as the cornerstone of effective care services for people with severe mental illness (SMI) in the United Kingdom was reinforced by the *National Service Framework for Mental Health* (Department of Health, 1999a). Care management as a framework for the organisation and delivery of mental health services in local authority social services departments was first introduced as part of the UK community care reforms outlined in the White Paper *Caring for People* (Cm 849, 1989) and was described as “the process of tailoring services to individual needs” in the accompanying guidance (SSI/SWSG, 1991: para 7, p11). Davies and Challis (1986) defined care management as comprising five core tasks: case finding; assessment; care planning; monitoring and review; and case closure. Whilst this description was given in the context of services for older people, it

can be applied to other adult user groups (Intagliata, 1982). In the context of services for adults with mental health problems it has been described as, the glue that binds otherwise fragmented services into arrangements that respond to the unique and changing needs of clients (Freedman & Moran, 1984).

The debate about different approaches to care management in mental health care has been relevant in the UK since the *National Health Service (NHS) and Community Care Act* (1990), fully implemented in 1993, which established the practice of care management as the required format for the organisation and delivery of services for all adult service user groups in local authority social services departments. In particular, the lack of specificity within the guidance accompanying these changes permitted wide variations in the systems which were developed (Challis *et al.*, 2001). This was apparent both in respect of differences of

approach between the principal user groups and between local authorities. Furthermore, for adults with mental health problems, the development of both care management and the Care Programme Approach (CPA) resulted in two very similar parallel systems for coordinating the care of the severely mentally ill. The CPA, introduced in the UK in 1991 (Department of Health, 1990), has been described as a “specialist variant of care management for people with mental health problems” (Department of Health, 1995, p56) and has always been the responsibility of local health, as opposed to social, services. Successive policy guidance have been designed to bring these two approaches to providing co-ordinated care closer together (Department of Health, 1995; Department of Health, 1999b), culminating in the policy booklet, *Effective Care Co-ordination in Mental Health Services*, which stated that:

The CPA will be integrated with Care Management in all areas to form a single care co-ordination approach for adults of working age with mental health problems.

(Department of Health, 1999c, p5.

Within community-based services for adults with mental health problems, the past decade has witnessed a growing debate about the nature and utility of the components of care management for adults with mental health problems (see e.g. Burns, 1997; Marshall *et al.*, 2003; Marshall & Lockwood, 2003). In particular, the recurrent themes of *integration* of health and social services and *targeting* services towards the severely mentally ill feature large in both the research and policy literature.

Until recently, however, there has been little attempt to determine the full extent of variation in the forms of care management arrangements which have been developed in social services departments in the UK. Furthermore, it is not clear which aspects of existing care management arrangements may or may not be associated with the positive

outcomes which had been hoped for when the legislation was introduced. This study examines representative models of care management for mental health service users based upon a national survey of care management arrangements in England (Challis *et al.*, 2003). Reflecting a similar approach to that taken in respect of old age services, these ‘models’ were empirically rather than theoretically derived, reflecting combinations of features that were populated on the ground (Challis *et al.*, 2001). They were derived from key indicators from the survey representing different aspects of local authorities’ organisational arrangements, the core tasks of care management undertaken and the degree of differentiation within social services departments care management arrangements (Challis *et al.*, 2002).

Four broad questions are examined in this paper. First, are different types of care management arrangements associated with measurable differences in case-mix, in terms of the proportion of clients with SMI? Second, do variations in approaches to assessment have any impact on case-mix? Third, are different types of care management arrangement associated with variations in the mix of services received by clients? Lastly, to what extent is the division of care managers’ time use related to the system of care management in place?

Methods

The methodology consists of four parts: the development of categories of care management, the selection of authorities, data collection, and data analysis. Each of these is considered separately below.

The development of categories and recruitment of authorities

The development of categories of care management arrangements used data from a survey of all English local authority social services departments in existence in 1997 using two postal questionnaires (overall response rate 104/131 (79 per cent); Challis

et al., 1999, 2003). Four indicators were originally selected to identify different patterns of care management arrangements on an *a priori* basis utilising both substantive and practical criteria, derived from the literature and current policy concerning care management for adults with mental health problems, and the quality and distribution of the data. These were: the presence or absence of specialist mental health teams; whether or not an approach to care management involved two or more tiers of assessment; the degree of continuity of care throughout the care management process; and whether or not NHS staff act as care managers. Seven categories of care management were developed based on these four indicators, which accounted for over 90 per cent of local authorities responding to the survey.

In the process of recruiting authorities, it became apparent that one of the indicators, the presence or absence of specialist mental health teams, had become redundant as most authorities had, or were developing, specialist teams. Thus, only six categories remained for investigation. One authority was selected from each of the remaining categories and invited to participate in the research. A number of factors influenced the selection of authorities. First, and most importantly, every effort was made to recruit authorities whose care management procedures most clearly reflected their categorisation. It was also deemed important that the participants reflected the different arrangements of local government (counties, metropolitan boroughs, London boroughs and new unitary authorities). Those authorities discovered to have Joint Reviews scheduled around the time of fieldwork were not approached.

Four of the original six authorities selected to represent these categories agreed to participate in data collection. A further category representative was recruited at the second attempt. However, the final authority was only recruited after three failed attempts.

Reasons for non-participation related either to departmental reorganisation or involvement in other research activities. Nonetheless, from cross-checking the survey data, all authorities recruited were expected to be robust examples of their categorisation.

Ultimately, only two indicators of care management were selected for analysis: the presence or absence of NHS staff as care managers (likely to be associated with the degree of *integration* within mental health services) and the number of tiers of assessment (an indicator of differentiation in the care management response i.e. the degree of *targeting* of services towards the severely mentally ill). In addition to the presence/absence of specialist mental health teams becoming redundant as a defining variable for analysis, continuity in care management was rejected as the different authorities visited had very different interpretations of the concept. Also, successive Government policy (e.g. Department of Health, 1995, 1999a) ensured that most, if not all, local authorities were moving towards this approach.

Data collection

Data collection was in three parts in each authority and took place between April and December 2000. The first part involved collecting case file data and information from care managers about service users and the services they received. The second part was a diary study of care managers' time use. The final part involved interviews with senior managers responsible for the strategic management of the service and first-line managers responsible for the provision of services to users. This paper presents data from the first two parts. The final part is reported elsewhere (Hughes *et al.*, 2004).

Initially it was planned to extract data from fifty case files in each local authority in respect of adults (aged 18-65 years) with mental health problems who were in receipt of care management. Specific negotiation had to be undertaken with each authority

about the selection method to be used for case files. In most authorities this resulted in a random selection from all new and ongoing cases from the caseloads of one or more mental health teams that fulfilled the following criteria:

- have had an assessment and a care plan and be eligible for review;
- were in receipt of or had received a minimum of two weeks domiciliary or day care purchased or provided by the local authority;
- were the responsibility of a team providing long-term care.

However, in one authority where care management was defined as CPA with social worker involvement, cases were only selected from those on level two and three of the CPA (as defined at that time). In a further authority, the research team was informed that cases remained open to review only for service users in receipt of a costed service, typically a residential care placement, thus excluding most of those cases receiving community care at home or attending a resource centre. Between 35 and 53 cases were selected from each authority.

Data collection was based on a proforma developed by PSSRU and used in previous studies involving social services departments (Challis *et al.*, 2000). Information was extracted from case files regarding:

- service user characteristics, including severity of mental illness;
- the variety and level of services received;
- contributors to the care management process.

In addition to a simple categorical marker of SMI (presence or absence of schizophrenia), the study used the MARC-2 (Matching Resources to Care) tool. This is a single page form, which records the main characteristics associated with SMI. The approach, originating in the MARC-1 tool,

has been validated and its reliability established in a previous study of severity of mental illness in the caseloads of community mental health workers (Huxley *et al.*, 2000). The tool provides a multi-dimensional measure of severity of mental illness, incorporating not only the current levels of symptoms, risk, and functioning but also a longitudinal perspective of the persistent or recurring nature of the individual's problems. The summary score, indicative of severity, is based on 20 equally weighted items (all retained for the current study). The authors have suggested (Huxley *et al.*, 1999) that a score of six or more is indicative of the need to be on the highest level of the then three-tiered approach to the CPA (Department of Health, 1995) and this provided an alternative classification of SMI for the present study. Where this information could not be derived from case files, mental health team members were asked, by telephone interview, to supply it.

The methodology used for the second stage of data collection, the diary study, has been successfully used in previous studies of time use in a community mental health team for older people and a social services department (von Abendorff *et al.*, 1994; Weinberg *et al.*, 2003). Data collection involved the completion of a daily diary sheet by social services teams care management staff (n=38) over a one week period. The methodology, including details of the activities used for coding, is described in more detail elsewhere (Weinberg *et al.*, 2003).

Data analysis

Differences in case-mix, multidisciplinary assessment and service receipt between *individual authorities* were explored using either Pearson's chi-square test (for categorical data) or one-way analysis of variance (for continuous data) with a Bonferroni *post hoc* test where relevant. Although this can identify differences which ought to be attributable to the original categorisation of authorities, having only one exemplar from each makes causality difficult

to determine. Thus, in order to better identify the factors responsible for these differences, analysis by *authority type* - categorised using the presence or absence of NHS care managers and/or two or more tiers of assessment - were performed using Pearson's chi-square test (for categorical data) or Student's t-test (for continuous data). Table 1 indicates the categorisation of individual authorities by authority type.

Table 1: Categorisation of care management arrangements indicating selection of local authorities

Tiers of assessment	NHS care managers	No NHS care managers
2+ tiers	Auths. D & E	Auths. B & C
1 tier	Authority A	Authority F

To determine the simultaneous effects of *authority type* (as defined above), severity of mental illness and interdisciplinary assessment on the dependent variables, multiple logistic and linear regression techniques were employed using forward stepwise addition of significant variables. For logistic regressions, odds ratios (OR) are presented (OR>1 demonstrating a positive effect; OR<1, a negative effect); for linear regressions, beta coefficients are given (where a negative value represents an inverse relationship). Both parameters are presented with 95 per cent confidence intervals and, where appropriate, adjusted for all significant factors.

For the diary study, due to the small numbers of cases available for each authority (n=5-7), a non-parametric test of significance (Kruskal-Wallis one-way analysis of variance) was used to determine differences between authorities in the numbers of hours spent by care managers on the different activity types. To investigate differences between *authority types*, parametric tests of significance (t-tests) were again possible because of the grouping together of cases. All statistical analyses were performed using SPSS 10.1 for Windows.

Results

Characteristics of service users

The profile of service users in the whole sample, shown in Table 2, was comparable to that of another study of community mental health services conducted at a similar time but in different authorities (Schneider *et al.*, 2002). The exceptions to this are that the present sample was slightly more ethnically diverse, having 89 per cent of white users as opposed to 93 per cent in that study, and more living in supported accommodation, 24 per cent compared to 15 per cent. Looking more closely at the profiles of service users from the individual authorities, these differences can be explained by the particularly ethnically diverse sample in authority A (68 per cent white) and the very high proportion of service users in authority B living in supported accommodation (83 per cent).

Case-mix

Case-mix within care managers' caseloads was examined using both the proportion of service users with a diagnosis of schizophrenia and the distribution of clients' MARC-2 scores. Differences in *case-mix* between individual authorities are presented in Table 3 and differences between *authority types* in Table 4.

Although there was some variation in mean MARC-2 scores between individual local authorities, these differences did not reach statistical significance ($p=0.079$, $F=1.99$). The proportion of clients with a MARC-2 score of six or above did, however, differ significantly between individual authorities ($p=0.025$, $\text{chi-square}=12.9$) with F having the fewest and B the most. This finding is mirrored by the case-mix in terms of clients with diagnosed schizophrenia ($p=0.006$, $\text{chi-square}=16.5$). In general, those authorities with higher mean MARC-2 scores and a higher proportion of clients with MARC-2 scores of six or above also had a higher proportion of clients with a diagnosis of schizophrenia.

Table 2: Sample characteristics

	Local authority						Total	Sig
	A	B	C	D	E	F		
Age								$p=0.039$
Mean	42.1	44.0	39.7	44.3	37.8	43.66	41.8	
SD	10.7	12.8	10.3	12.66	11.04	12.4	11.8	
Range	21-65	20-66	20-61	22-66	20-64	23-66	20-66	
Gender								NS
% Male	43	74	46	51	63	53	54	
Ethnic origin								$p<0.001$
% White	68	91	82	100	90	100	89	
Living situation								
% Supported accommodation	14	83	24	7	16	17	24	$p<0.001$
% Living with carer	12	9	26	32	33	31	24	$p=0.012$
<i>Number of cases</i>	44	35	50	44	49	53	275	

It can thus be stated with some certainty that the caseload in authority B exhibited high levels of SMI and that of authority F exhibited lower levels of SMI. In other authorities, however, the picture was not so clear. In authority A, for example, although there were a higher proportion of clients with MARC-2 scores of six or above, the proportion with a diagnosis of schizophrenia was low. In authority E, the opposite was the case.

Examining MARC-2 by *authority type*, neither the presence or absence of NHS care managers nor the number tiers of assessment had any significant effect (Table 4). However, authorities with two or more tiers of assessment had a significantly higher proportion of clients with schizophrenia ($p<0.001$, chi-square=12.3, 1 d.f.).

Assessment of need

There were up to two-fold differences between authorities in the proportion of service users who had assessments from either community psychiatric nurses (CPNs) or psychiatrists recorded in their case notes (Table 3). CPNs carried out uni-disciplinary

assessments (i.e. in place of social worker assessments) in only four of the six authorities and in only a minority of cases. Unsurprisingly, this was more common in authorities where NHS staff could act as care managers (Table 4; chi-square=8.49, 1 d.f., $p=0.006$). However, the involvement of CPNs in the assessment process overall was no more common in this type of authority. In authorities with two or more tiers of assessment, more users received assessments involving CPNs overall (chi-square=14.6, 1 d.f., $p<0.001$).

Table 5 shows the relative effects of *authority type* and multidisciplinary assessment on case-mix, first in terms of presence of schizophrenia then MARC-2. Cases receiving an assessment from a psychiatrist were significantly more likely to have a SMI, by either definition. In other words, greater use of multidisciplinary assessments involving psychiatrists had a significant effect on case-mix. Controlling for this effect using logistic regression, the previously described differences in case-mix between authorities with different levels of assessment persisted.

Table 3 Case-mix, assessment, recorded use of services and care managers' time use by authority

	Local authority						Sig
	A	B	C	D	E	F	
Severity of mental illness within care management services caseloads							
MARC-2							NS
Mean	6.23	6.3	6.3	5.4	5.1	5.15	
SD	2.8	2.0	3.2	3.4	2.3	3.0	
Range	2-13	2.12	1.13	0-16	1-11	0-15	
% MARC-2 ≥ 6	55	66*	54	39	37	36	$p < 0.05$
% Schizophrenia	39	66*	56	46	59	30*	$p < 0.01$
Involvement of staff in the assessment process							
CPN (uni-disciplinary assessment)	9	0	6	4	19*	0*	$p < 0.005$
CPN (uni- or multi-disciplinary assessment)	34	39	62*	36	70*	37	$p < 0.001$
Psychiatrist	68	80*	64	43*	74	62	$p < 0.05$
Proportions (%) of cases with recorded use of care and health services							
Daytime activity ¹	54	57	58	61	65	60	NS
Support worker ²	50	86*	66	70	67	28*	$p < 0.001$
CPN	48	49	71*	46	76*	49	$p = 0.005$
Social worker	34	31*	74*	52	29*	55	$p < 0.001$
Psychiatrist	23	54*	8*	18	24	32	$p < 0.001$
Total number of services used (mean)	2.1 [†]	2.8 [†]	2.8 [†]	2.5	2.6 [†]	2.2 [†]	$p < 0.003$
Mean number of hours of care managers' time spent per week on different types of activity (n)							
Direct contact with service user/carer	6.4	5.9	11.1	12.4	14.0	7.0	NS
Service contact	10.9	16.5	14.8	11.1	11.2	17.4	NS
Social services procedures	10.1 [‡]	15.1 [‡]	10.4 [‡]	5.8 [‡]	7.0 [‡]	15.2 [‡]	$p < 0.01$
Travel	2.0	4.7	4.0	6.3	2.2	3.2	NS
Approved social work	2.1	0.9	1.8	0.0	0.8	0.2	NS
<i>N in each authority</i>	44	35	50	44	49	53	

* Significantly different proportions by authority (chi-square; |adjusted residual| > 1.96)

† Significantly different mean values by authority (ANOVA; Bonferroni post hoc test: B, C, E > A and B, C > F)

‡ significant differences in amount of time spent on different activities by authority (Kruskal-Wallis test)

1 includes day provision, day hospital, employment schemes, college attendance

2 includes housing, community-based and accommodation-attached support workers

Receipt of services

Recorded use of support worker, CPN, social worker and psychiatrist all differed significantly between individual authorities (Table 3) with different patterns of service

use apparent. There were also significant differences between authorities in the mean number of services used ($F=3.65$, $p=0.003$).

Table 4 Case-mix, assessment, recorded use of services and care managers' time use by authority type

	NHS care managers	No NHS care managers	Number of tiers of assessment	
			1	2
Severity of mental illness within care management services caseloads				
MARC-2				
Mean	5.6	5.9	5.6	5.7
SD	2.9	2.9	2.9	2.9
Range	0-16	0-15	0-15	0-16
% MARC-2 ≥ 6	43	50	44	48
% Schizophrenia	48	49	34	56
Involvement of staff in the assessment process				
CPN (uni-disciplinary assessment)	<i>11</i>	2	4	8
CPN (uni- or multi-disciplinary assessment)	47	47	36	53
Psychiatrist	67	62	65	65
Proportions (%) of cases with recorded use of care and health services				
Daytime activity ¹	61	59	58	61
Support worker ²	63	56	38	71
CPN	57	56	48	61
Social worker	38	56	45	48
Psychiatrist	22	29	28	24
Total number of services used (mean)	2.4	2.6	2.2	2.7
Mean number of hours of care managers' time spent per week on different types of activity (<i>n</i> care managers)				
	(19)	(19)	(12)	(26)
Direct contact with service user/carer	10.6	8.1	6.6	10.6
Service contact	11.1	16.1	13.6	13.6
Social services procedures	7.7	13.4	12.2	9.8
Travel	3.6	4.0	2.5	4.4
Approved social work	1.0	1.1	1.3	0.9
<i>Total n</i>	137	138	97	178

Bold italics indicates significant differences ($p < 0.05$)

1 includes day provision, day hospital, employment schemes, college attendance

2 includes housing, community-based and accommodation-attached support workers

Table 4 outlines service use by *authority type*. In authorities with NHS care managers, the use of social worker services by clients was significantly less common ($p = 0.003$, chi-square = 8.8, 1 d.f.) than in authorities without this feature. In authorities with two or more tiers of

assessment, the use of support worker services by clients was significantly more common ($p < 0.001$, chi-square = 28.8, 1 d.f.) as was use of CPN services ($p = 0.041$, chi-square = 4.2, 1 d.f.). Hence clients of these authorities received a greater number of services overall ($p < 0.001$, $t = 3.9$).

Table 5 Logistic regression of case-mix by authority type and NHS professionals involved in assessment process

<i>Case mix</i>	Variables used in the regression			
	<i>Authority type</i>		<i>Assessment</i>	
	<i>NHS care managers</i>	<i>2+ tiers of assessment</i>	<i>Psychiatrist</i>	<i>CPN</i>
Schizophrenia	NS	$p=0.001$ OR=2.50 [1.47, 4.24]	$p=0.002$ OR 2.25 [1.33, 3.80]	NS
MARC-2 ≥ 6	NS	NS	$p=0.023$ OR=1.81 [1.09, 3.01]	NS

OR – odds ratio [95% confidence interval]

Table 6: Stepwise multiple logistic and linear regression analyses of recorded service use by presence of severe mental illness, authority type and NHS professional involvement in the assessment process

<i>Recorded services</i>	Variables used in the regressions					
	<i>SMI</i>		<i>Authority type</i>		<i>Assessment</i>	
	<i>Schizophrenia</i>	<i>MARC-2 ≥ 6</i>	<i>NHS care managers</i>	<i>2+ tiers of assessment</i>	<i>Psychiatrist</i>	<i>CPN</i>
Daytime activity	NS	NS	NS	NS	NS	NS
Support worker	$p<0.001$ OR=3.26 [1.90, 5.61]	NS	NS	$p<0.001$ OR=3.33 [1.92, 5.75]	NS	NS
CPN	$p<0.001$ OR=6.75 [13.46, 13.2]	NS	NS	NS	NS	$p<0.001$ OR=17.0 [8.46, 34.2]
Social worker	NS	NS	$p=0.004$ OR=0.49 [0.30, 0.80]	NS	NS	NS
Psychiatrist	NS	NS	NS	NS	NS	NS
Number of services used	$p<0.001$ B=0.60 [0.37, 0.82]	NS	NS	NS	NS	$p=0.001$ B=0.38 [0.15, 0.61]

OR – odds ratio [95% confidence interval]: logistic regressions

B – beta coefficient [95% confidence interval]: linear regression

Using regression techniques, it was found that some differences in service use between authority types persisted when controlling for SMI and involvement of different professionals in the assessment process (Table 6). Both support worker services and CPN services (and thus the overall number of services used) were significantly targeted to clients with schizophrenia. Scoring highly on the MARC-2 assessment was not, however, a significant predictor of service use of any kind. Unsurprisingly, CPN involvement in the assessment process had a strong association with the use of CPN services. There were no significant associations between service use and psychiatrist assessment.

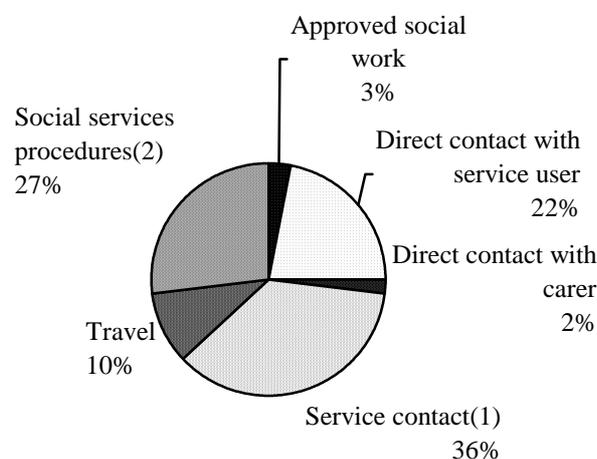
Authorities with two or more tiers of assessment still demonstrated greater use of support worker services when controlling for the significant positive effect of SMI (schizophrenia). Authorities with NHS care

managers still demonstrated less use of social worker services. However, the difference in use of CPN services between authority types was no longer significant when the effects of SMI and CPN assessment were controlled for. Overall, the number of different services received by clients of care management services did not differ by authority type when controlling for both presence of schizophrenia and CPN involvement in the assessment process.

Care managers' time use

The proportion of care managers' time spent on the six different activity types across the whole sample is depicted in Figure 1. The largest proportion of care managers' time was spent on service contact. The second most frequently reported category was social services procedures and organisational commitments. Just under one-quarter of care managers' time was spent in direct contact with service users and/or their carers.

Figure 1 The proportion of care managers' time spent in six aspects of work across all six authorities (n=38)



- 1 activities such as information gathering from health services staff, carrying out office based paperwork regarding service users and carers, negotiating with and arranging health and social services for the service user or their carer
- 2 including administration and reading of departmental documents, attending team meetings and dealing with general telephone enquiries

The *absence* of NHS care managers was associated with a *greater* amount of care managers' time spent on service contact ($p=0.003$, $t=-3.2$) and on social services procedures ($p=0.001$, $t=-3.6$). In contrast, care managers in authorities with two or more tiers of assessment spent significantly *more* time in direct contact with service users and/or their carers ($p=0.03$, $t=2.2$) and travelling ($p=0.02$, $t=2.4$).

The mean number of total hours recorded in authorities with NHS care managers was significantly lower (34.0 hours) than in those without NHS care managers (42.7 hours). There is no reason to believe that this was a factor of staff mix but it should be borne in mind when interpreting these results. We were also unable to relate care managers' time use to caseload size or to case-mix for reasons of confidentiality. However, it is noteworthy that two out of the three areas with low direct service user contact (A, F and B; Table 3) were also those with the lowest proportion of users with schizophrenia (A and F).

Discussion

This is the first time, to our knowledge, that existing organisational forms of care management have been systematically described and some outcomes measured. Our findings suggest that whereas having two or more tiers of assessment is associated with a more targeted system of care management, *vis-à-vis* case-mix, the ability to engage health professionals as care managers is indicative of an integrated system of work whereby roles may be substituted rather than effort duplicated.

Limitations

Researching mental health policy and its impact on health and social services is, by default, hampered by the constantly changing policy and organisational background. Thus, research findings, even methodologies, can quickly become outdated. For example, in this study, the number and definition of

levels of assessment within mental health services differs now to when these data were collected. Nonetheless, the simplified typology used clearly identified authorities demonstrating two of the most enduring themes in UK mental health policy: targeting services to the severely mentally ill and integrating health and social care systems (Department of Health, 1999a).

Within available resources, it was impossible to gather user information from a larger sample of local authorities within each *authority type* under investigation. Furthermore, as the study aimed to investigate what was actually happening in local authorities, this was not a situation where experimental methods could be used to measure differences between say matched or randomised samples of users. Thus, despite efforts to ensure that selected authorities were robust examples of their *authority type* in terms of care management arrangements, questions remain as to whether measured differences were a result of the characteristics of care management systems under investigation or merely an artefact of the particular authorities selected and their local circumstances.

A further obstacle encountered was ensuring that the sample of case files produced by each authority was truly random. The unavoidable differences in case selection employed by authorities reflected not only their different data management systems, some of which were more sophisticated than others, but also differences in definitions of care management used. Nevertheless, there were no indications of systematic bias in most areas. The exception to this was authority B where cases only remained open to review for those in receipt of a costed service. The resulting high proportion of cases living in supported accommodation (Table 2), with high mental health needs (Table 3) may have biased some results. It is also relevant to note that data for the MARC-2 was collected from the case files, supplemented if necessary by telephone

discussion with the relevant worker. This contrasts with other documented use of the tool where it has been completed directly by the relevant worker (Huxley *et al.*, 2000).

Targeted systems of care management

The importance of targeting mental health services to those in greatest need has been stressed in UK policy documents since the introduction of CPA and care management in the early 1990s. We have used case-mix in this paper as an indicator of targeting within care management services, although without information on population need and demand this assumption must be viewed with caution. Nevertheless, significant differences existed between individual local authorities in case-mix using both a categorical measure of SMI (diagnosis of schizophrenia) and a continuous, multi-dimensional measure (the MARC-2), which also includes diagnosis of psychotic illness.

Although there was a significant relationship between a diagnosis of schizophrenia and a higher MARC-2 score in this sample, there was a great deal of overlap, with some cases with schizophrenia having low MARC-2 scores and vice versa. This may explain the irregularities in case-mix in some authorities when comparing case-mix using each measure of SMI. There may be good theoretical reasons for this finding. For example, a person with schizophrenia whose symptoms have been stabilised by medication may not exhibit many of the characteristics which make up the overall MARC-2 score. Alternatively, there may be local differences between psychiatrists in the criteria used to make a diagnosis of schizophrenia (Daradkeh, 1996). Moreover, questions remain over the validity/reliability of the scoring within MARC-2 for assessing the severity of SMI, since some of the items do not immediately link to SMI per se, but rather to its sequelae such as problems with accommodation and finance. Certainly, the search for an agreed, reliable and valid definition of that key feature of mental health policy, namely SMI, remains unfulfilled

(Phelan *et al.*, 2001; Slade *et al.*, 1997). However, in following local policy directives to target services to need, front-line staff may be more likely to operationalise a diagnostic definition of SMI, even when local multi-dimensional definitions have been agreed (Tilley & Chambers, 1999).

We have demonstrated that authorities categorised as having two or more tiers of assessment are associated with more severely ill caseloads and may therefore operate a more targeted system of care management. However, this was not the case in all authorities. In authority D, which was classified in this way, fewer than 50% of service users were diagnosed with schizophrenia and the mean MARC-2 score was one of the lowest. It may be that in this authority, although the classification was verified by senior management on the basis of written policy, front-line staff were in fact operating only one tier of assessment. Indeed, differences in the definition of tiers of assessment both between and within authorities were apparent from interviews with senior and first line managers (Hughes *et al.*, 2004).

Also, in authorities with two or more tiers of assessment, CPNs were more commonly involved in the assessment process. We can see a further relationship between psychiatrist assessment and case-mix which persists when controlling for *authority type*, suggesting that better access to psychiatrist assessments may contribute to the targeting process. It is not clear why this may be so although psychiatrist involvement may act as a restraint upon the tendency to take on cases of lower severity. For example, access to a more “doctor-led” style of service may lead to targeting through the use of diagnosis as a key indicator of need.

Integrated systems of care management

As well as targeting services, the *National Service Framework for Mental Health* (Department of Health, 1999a) re-emphasises the importance of multi-agency

collaboration and integration between health and social services in both the assessment process and care planning and review for the severely mentally ill. This has been an enduring theme of mental health policy in the UK since the 1970s. Our findings suggest that social services departments employing NHS staff as care managers alongside social care staff allows for greater integration of these processes in three ways.

Firstly, although more care management assessments are completed by CPNs alone in authorities with NHS staff acting as care managers, the overall involvement of CPNs in the assessment process was no greater than in other authorities. Thus, it can be inferred that in these authorities CPNs are fully substituting for social workers in the assessment process whereas in other authorities there is likely to be greater duplication of effort.

Secondly, the time spent by care managers on activities requiring service contact relating to the care planning and review process was significantly reduced. This is likely to be due to both the co-location of NHS and social services staff and improved links between health and social care agencies facilitating access to inter-agency information, negotiations with and the arrangement of inter-agency services and reviewing care packages in collaboration with other providers.

Thirdly, there was significantly less use of social worker services by clients in authorities with NHS care managers. At one level, this is unsurprising, since it is what would be expected where team staff can substitute roles one for another. Moreover, where health professionals are acting as care managers, they may be more inclined to construct care packages for users around health services, with which they are more familiar and may be able to arrange more easily (Huxley *et al.*, 2003). However, it is an encouraging indicator for the argument

that integrated models of care may produce increased operational efficiencies.

Conclusion

This study suggests that the categorisation of care management systems developed here can be validated by the evidence that different care management forms appear to produce different service outcomes. Moreover, these differences have face validity, since they are some of those which could be expected from the different configurations of care management arrangements. Since different sets of arrangements appear to lead to different service outcomes, there is clearly a need to examine more closely the relationship between structure, process and outcome (Donabedian, 1980) in relation to care management. This would involve consideration of whether different forms of care management arrangements lead to systematically different service outcomes to a sufficient extent to impact upon the well-being of service users and carers.

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